Tyler Creek Watershed Plan Update

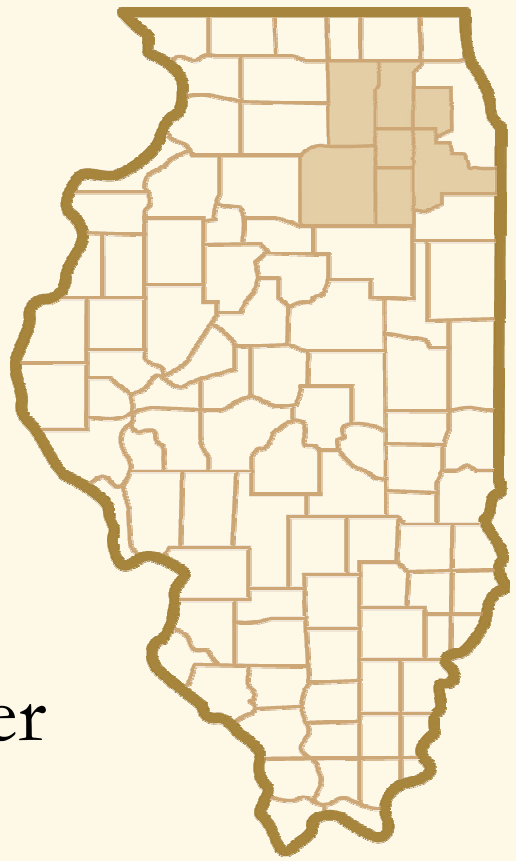
An informational presentation

Rob Linke, P.E. Watershed Resources Consultants, Inc.

Stephanie Sheetz, A.I.C.P. The Conservation Foundation

The Conservation Foundation

- Not-for-profit land and watershed protection organization
- Supported by over 4,000 members
- Active in northeastern Illinois since 1972
- Coordinating outreach on Tyler Creek Watershed Plan Update



Watershed Resource Consultants, Inc.

Environmental Consulting
Engineering Firm

Responsibilities:

- Technical analysis
- Plan documents & maps

WRC
Watershed Resource Consultants, Inc.

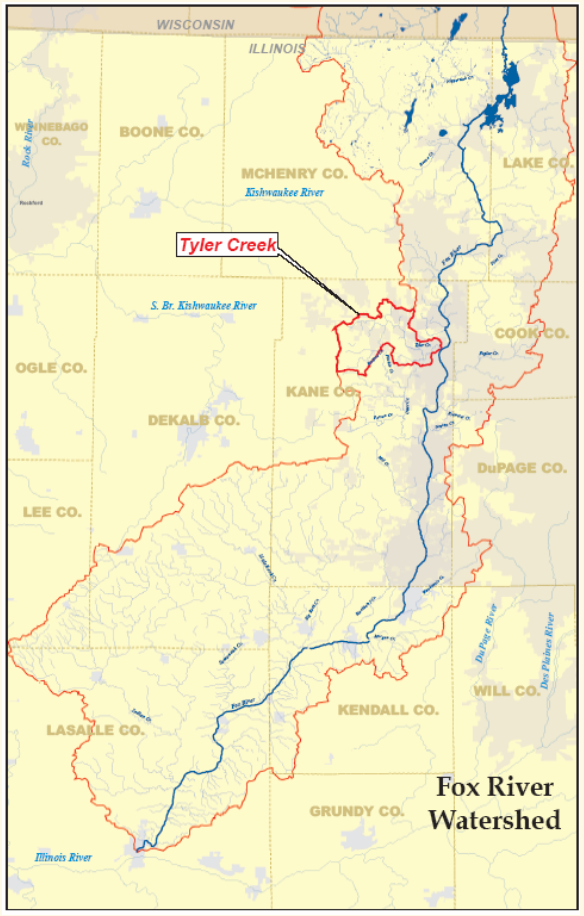
Background

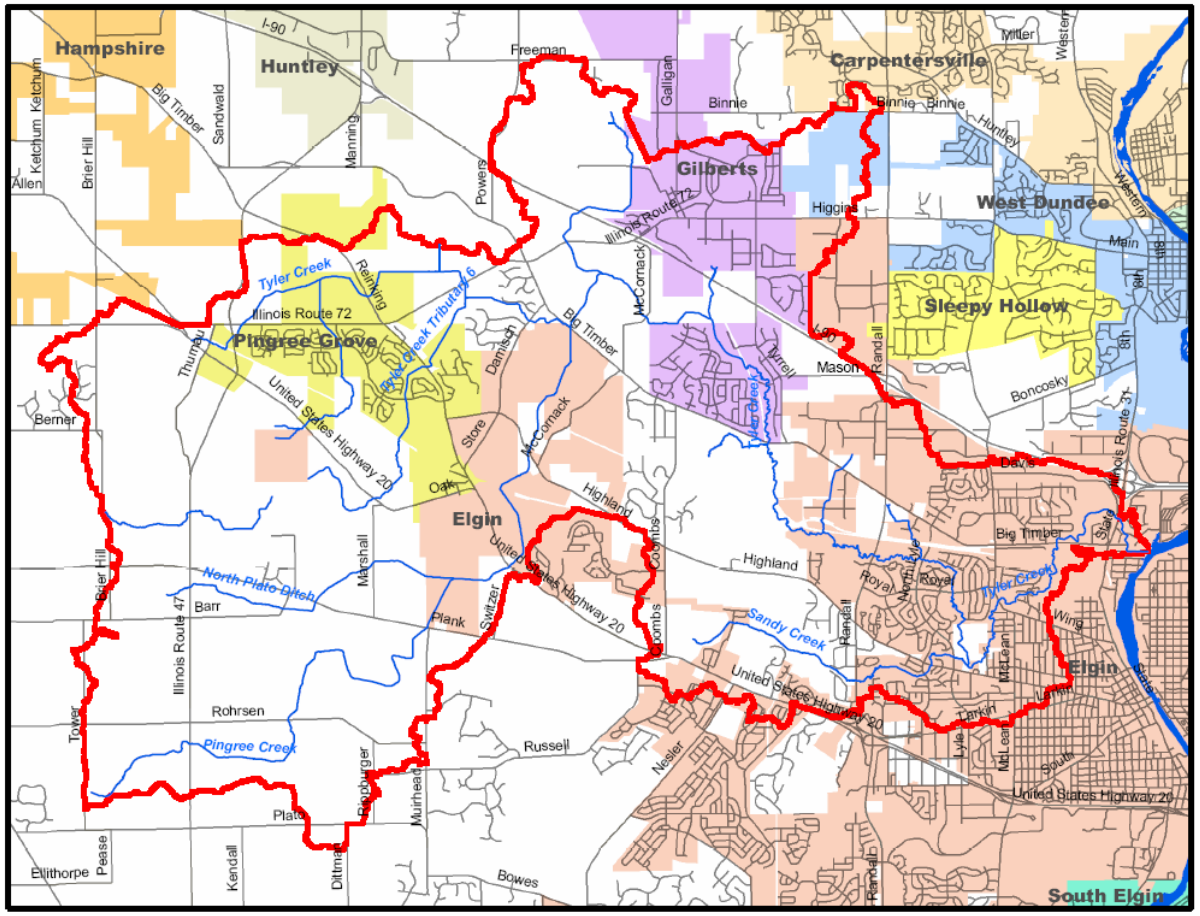
- Original plan created in 1996
  - A good plan, but lacked many specifics and didn't account for extensive development now planned for the watershed
- Area organizations seeking ways to protect watershed
  - Fox River Ecosystem Partnership
  - Fox Valley Land Foundation
- Watershed update process began in 2005
  - Funding provided by IEPA through Section 319 Clean Water Act funds
  - Administered/Coordinated by Chicago Metropolitan Agency for Planning (CMAP)

Watershed Protection Goals

- Maintain the Quality of Tyler Creek
- Prevent Further Negative Impacts of Land Use Change on the Watershed's Natural Resources
- Reduce Flooding and Flood Damages in Existing Developed Areas of the Watershed
- Create an effective and lasting watershed stakeholder organization

Background Info





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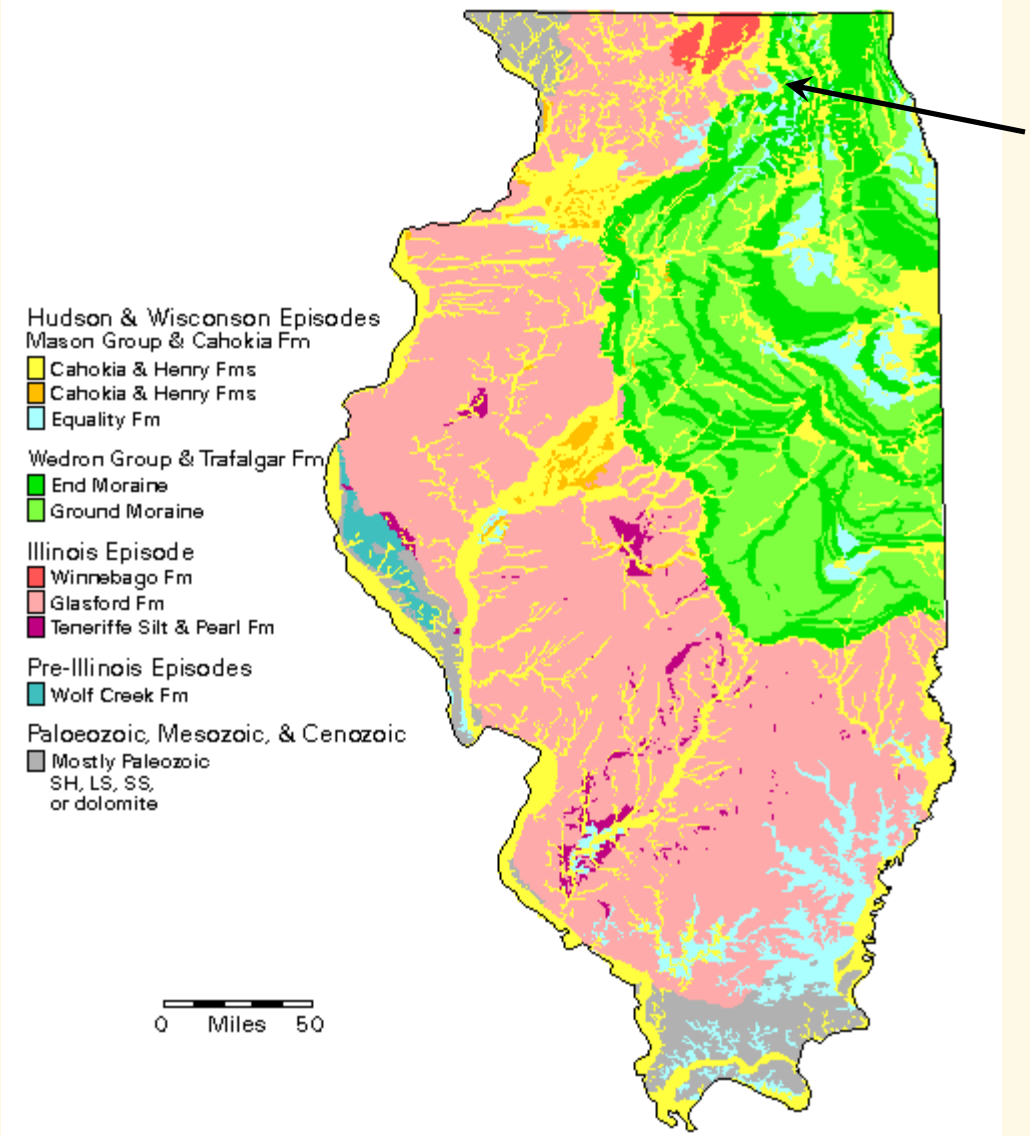
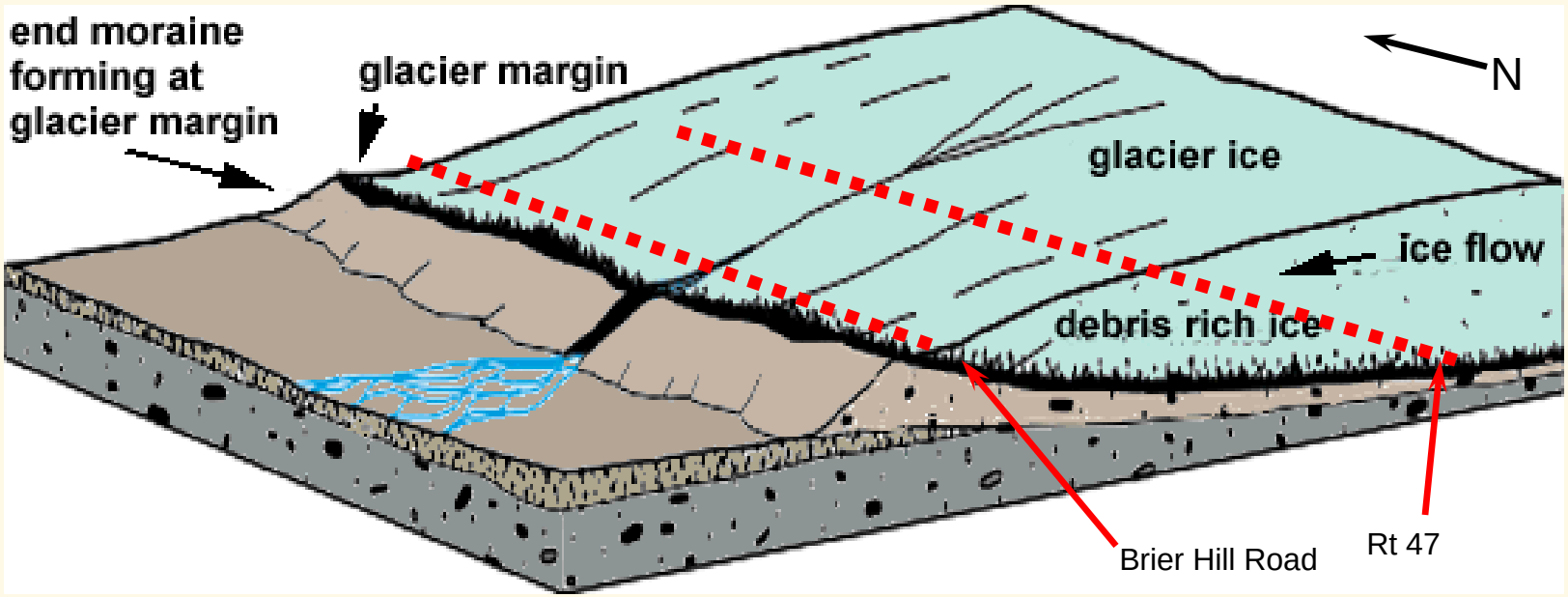


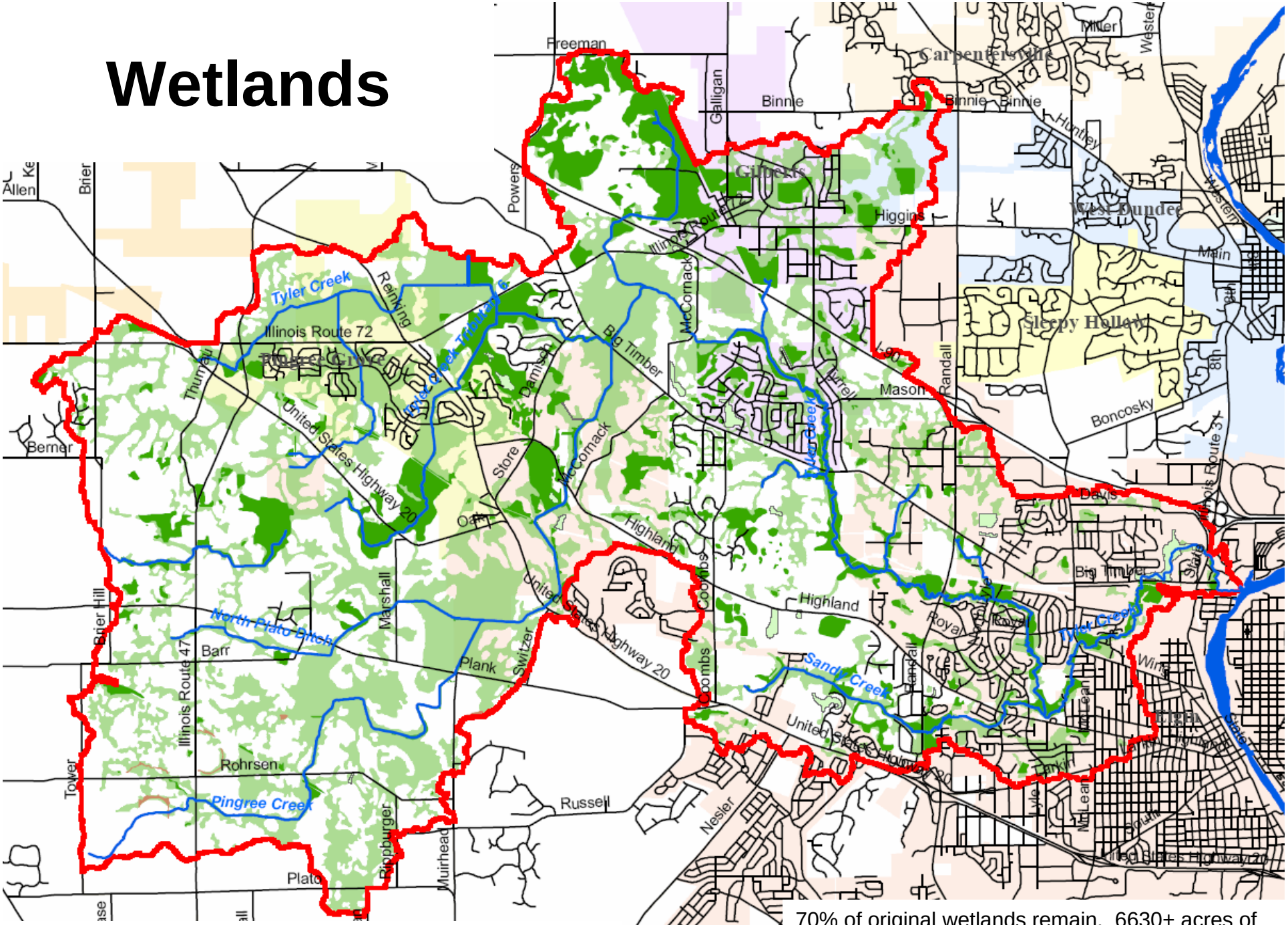
Tyler Creek basin created during the Wisconsinan Glacial Period about 12,500 yrs ago

Background Info



This exhibit provides a visual as to how the glaciers pushed westward across the Tyler Creek Watershed.

Wetlands



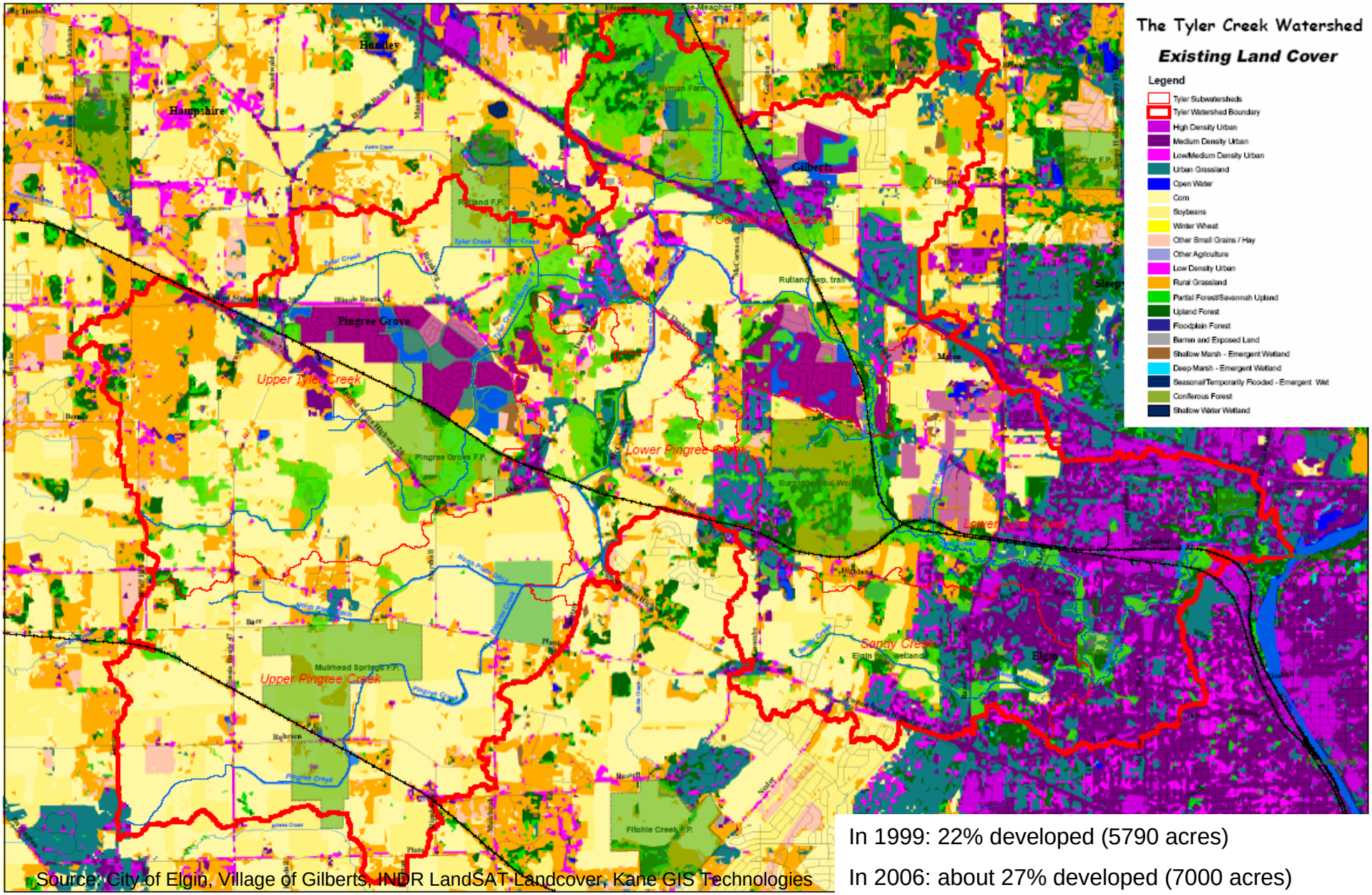
Light green = hydric soils (former wetlands drained for agriculture). Dark green – remaining wetlands

70% of original wetlands remain. 6630+ acres of wetlands were drained for agriculture

Watershed Issues – Rapid Development

Urban/suburban development is the biggest challenge to protecting Tyler Creek. Farmland is being converted to development at a rate of about 1 square mile each year (watershed is only 40.5 square miles total and 10.9 are already developed)

Existing Landcover

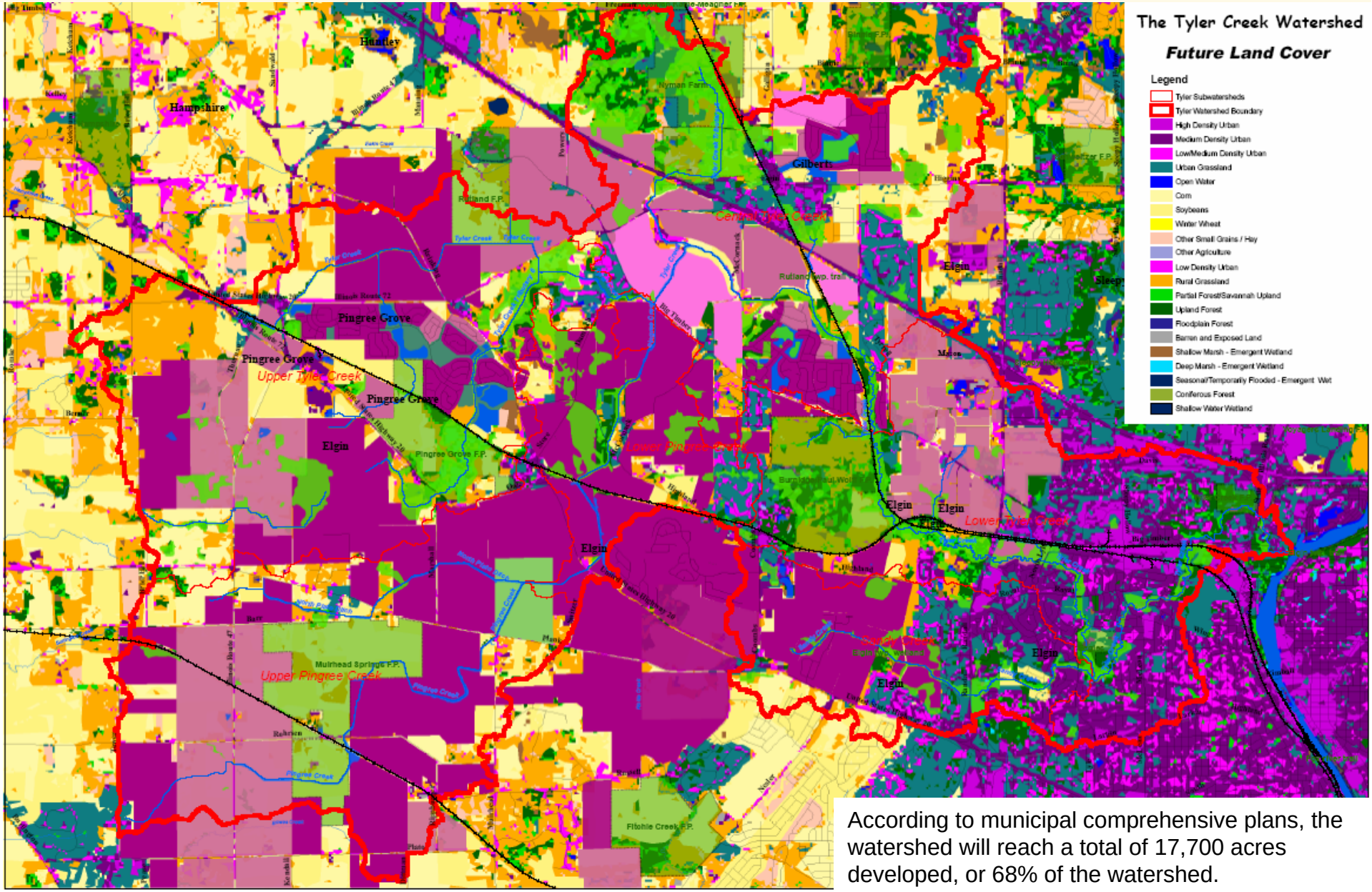


Source: City of Elgin, Village of Gilberts, INDR LandSAT Landcover, Kane GIS Technologies

In 1999: 22% developed (5790 acres)

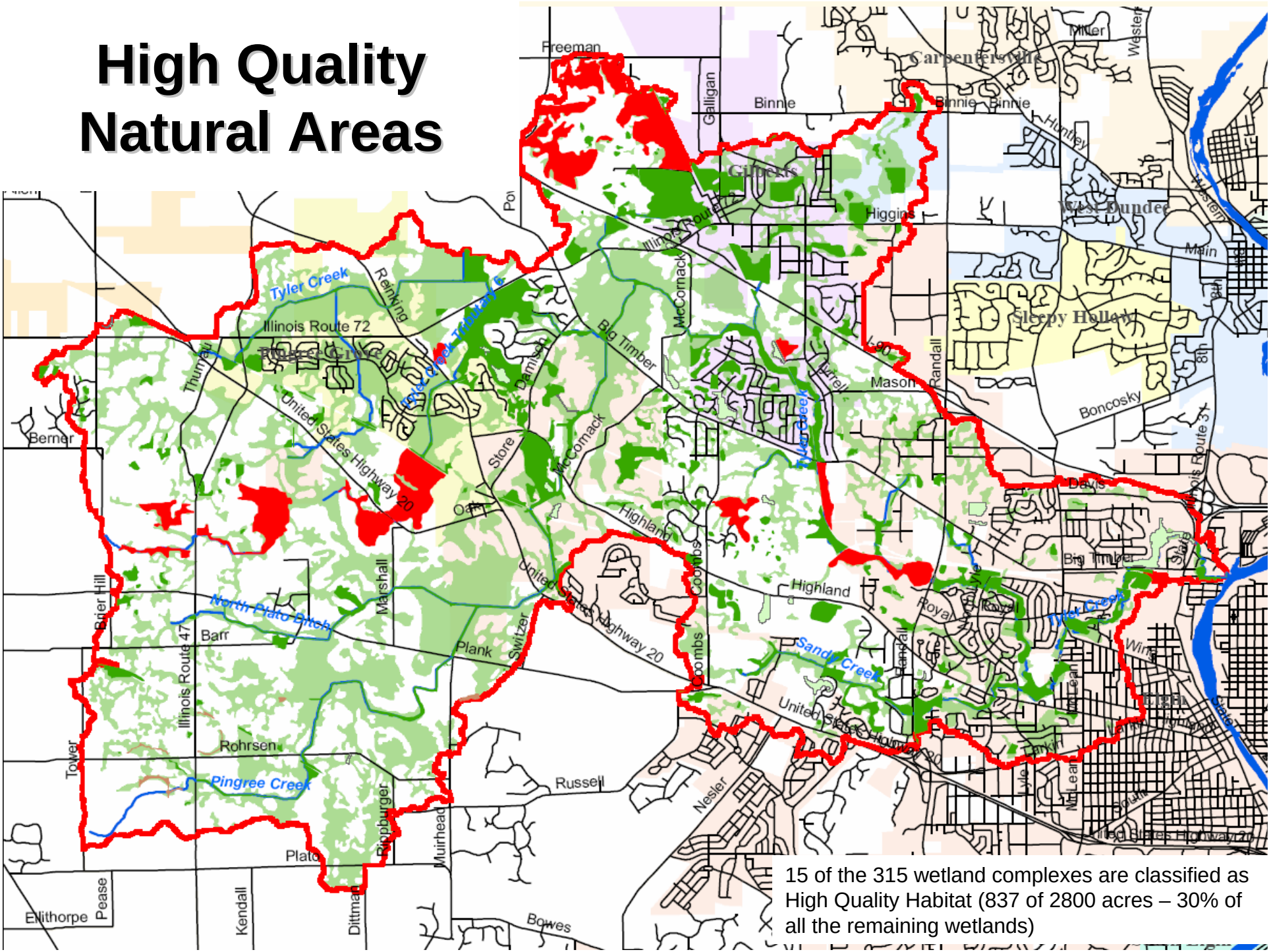
In 2006: about 27% developed (7000 acres)

Future Landcover



According to municipal comprehensive plans, the watershed will reach a total of 17,700 acres developed, or 68% of the watershed.

High Quality Natural Areas



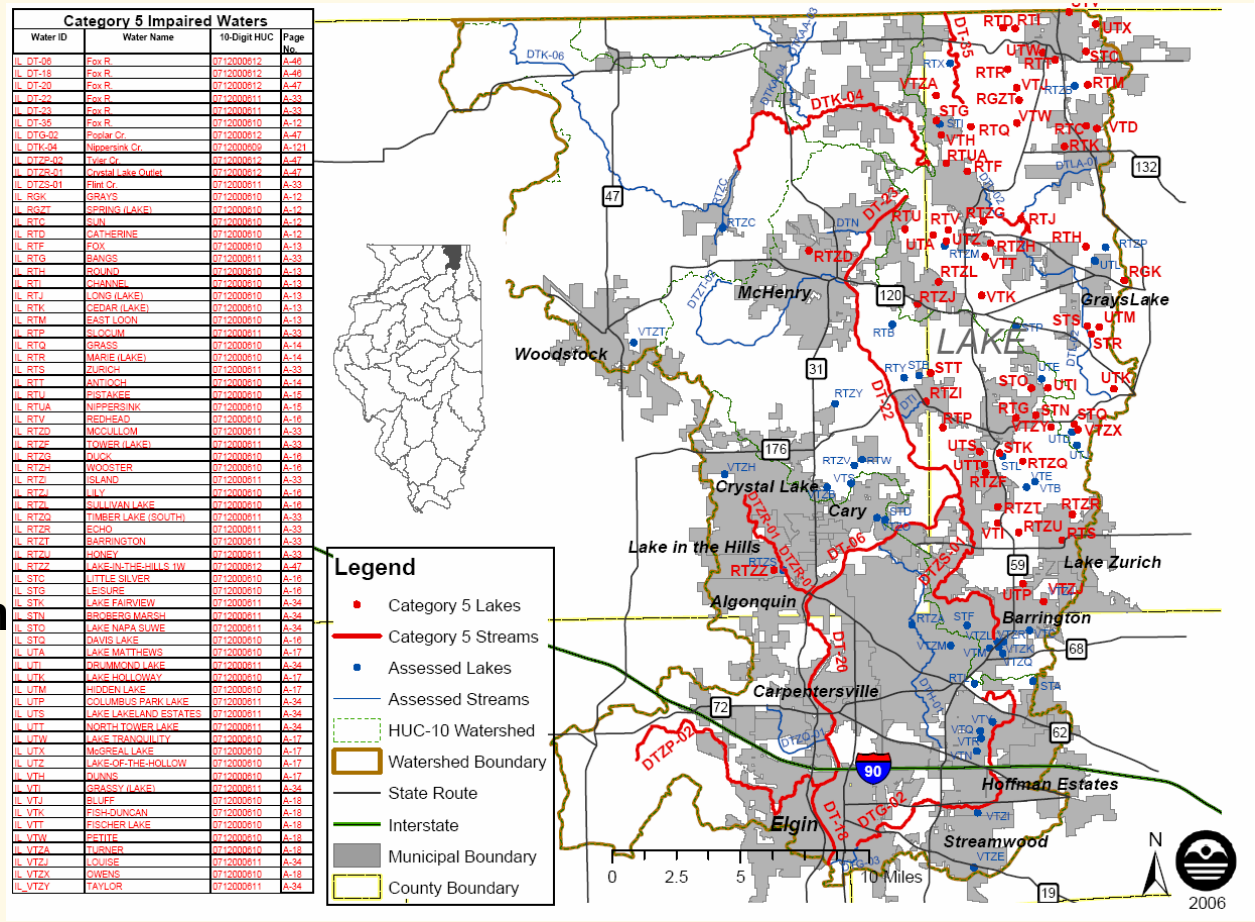
15 of the 315 wetland complexes are classified as High Quality Habitat (837 of 2800 acres – 30% of all the remaining wetlands)

Current Water Quality

- **Fox River is listed on the IEPA's 303(d) List as an Impaired Waterway**
  - **Urban runoff/storm sewers**
  - **Streambank destabilization**
- **Tyler Creek listed on 303(d) List in 2006 as an Impaired Waterway**
  - **Fecal coliform originating from urban storm sewers and/or runoff from parklands, grasslands, or forests**

Category 5 Impaired Waters

Water ID	Water Name	10-Digit HUC	Page No.
IL_DT-06	Fox R.	0712000612	A-46
IL_DT-18	Fox R.	0712000612	A-46
IL_DT-20	Fox R.	0712000612	A-47
IL_DT-22	Fox R.	0712000611	A-33
IL_DT-23	Fox R.	0712000611	A-33
IL_DT-35	Fox R.	0712000610	A-12
IL_DTG-02	Poplar Cr.	0712000612	A-47
IL_DTK-04	Nippersink Cr.	0712000609	A-121
IL_DTZP-02	Tyler Cr.	0712000612	A-47
IL_DTZR-01	Crystal Lake Outlet	0712000612	A-47
IL_DTZS-01	Flint Cr.	0712000611	A-33
IL_RGK	GRAYS	0712000610	A-12
IL_RGZT	SPRING (LAKE)	0712000610	A-12
IL_RTC	SUN	0712000610	A-12
IL_RTD	CATHERINE	0712000610	A-12
IL_RTF	FOX	0712000610	A-13
IL_RTG	BANGS	0712000611	A-33
IL_RTH	ROUND	0712000610	A-13
IL_RTI	CHANNEL	0712000610	A-13
IL_RTJ	LONG (LAKE)	0712000610	A-13
IL_RTK	CEDAR (LAKE)	0712000610	A-13
IL_RTM	EAST LOON	0712000610	A-13
IL_RTP	SLOCUM	0712000611	A-33
IL_RTQ	GRASS	0712000610	A-14
IL_RTR	MARIE (LAKE)	0712000610	A-14
IL_RTS	ZURICH	0712000611	A-33
IL_RTT	ANTIOCH	0712000610	A-14
IL_RTU	PISTAKEE	0712000610	A-15
IL_RTUA	NIPPERSINK	0712000610	A-15
IL_RTV	REDHEAD	0712000610	A-16
IL_RTZD	MCCULLOM	0712000611	A-33
IL_RTZE	TOWER (LAKE)	0712000611	A-33
IL_RTZG	DUCK	0712000610	A-16
IL_RTZH	WOOSTER	0712000610	A-16
IL_RTZI	ISLAND	0712000611	A-33
IL_RTZJ	ILY	0712000610	A-16
IL_RTZL	SULLIVAN LAKE	0712000610	A-16
IL_RTZQ	TIMBER LAKE (SOUTH)	0712000611	A-33
IL_RTZR	ECHO	0712000611	A-33
IL_RTZT	BARRINGTON	0712000611	A-33
IL_RTZU	HONEY	0712000611	A-33
IL_RTZZ	LAKE-IN-THE-HILLS 1W	0712000612	A-47
IL_STC	LITTLE SILVER	0712000610	A-16
IL_STG	LEISURE	0712000610	A-16
IL_STK	LAKE FAIRVIEW	0712000611	A-34
IL_STN	BROBERG MARSH	0712000611	A-34
IL_STO	LAKE NAPA SUWE	0712000611	A-34
IL_STQ	DAVIS LAKE	0712000610	A-16
IL_UTA	LAKE MATTHEWS	0712000610	A-17
IL_UTI	DRUMMOND LAKE	0712000611	A-34
IL_UTK	LAKE HOLLOWAY	0712000610	A-17
IL_UTM	HIDDEN LAKE	0712000610	A-17
IL_UTP	COLUMBUS PARK LAKE	0712000611	A-34
IL_UTS	LAKE LAKELAND ESTATES	0712000611	A-34
IL_UTT	NORTH TOWER LAKE	0712000611	A-34
IL_UTW	LAKE TRANQUILITY	0712000610	A-17
IL_UTX	McGREAL LAKE	0712000610	A-17
IL_UTZ	LAKE-OF-THE-HOLLOW	0712000610	A-17
IL_VTH	DUNNS	0712000610	A-17
IL_VTI	GRASSY (LAKE)	0712000611	A-34
IL_VTJ	BLUFF	0712000610	A-18
IL_VTK	FISH-DUNCAN	0712000610	A-18
IL_VTT	FISCHER LAKE	0712000610	A-18
IL_VTW	PETITE	0712000610	A-18
IL_VTZA	TURNER	0712000610	A-18
IL_VTZJ	LOUISE	0712000611	A-34
IL_VTZX	OWENS	0712000610	A-18
IL_VTZY	TAYLOR	0712000611	A-34



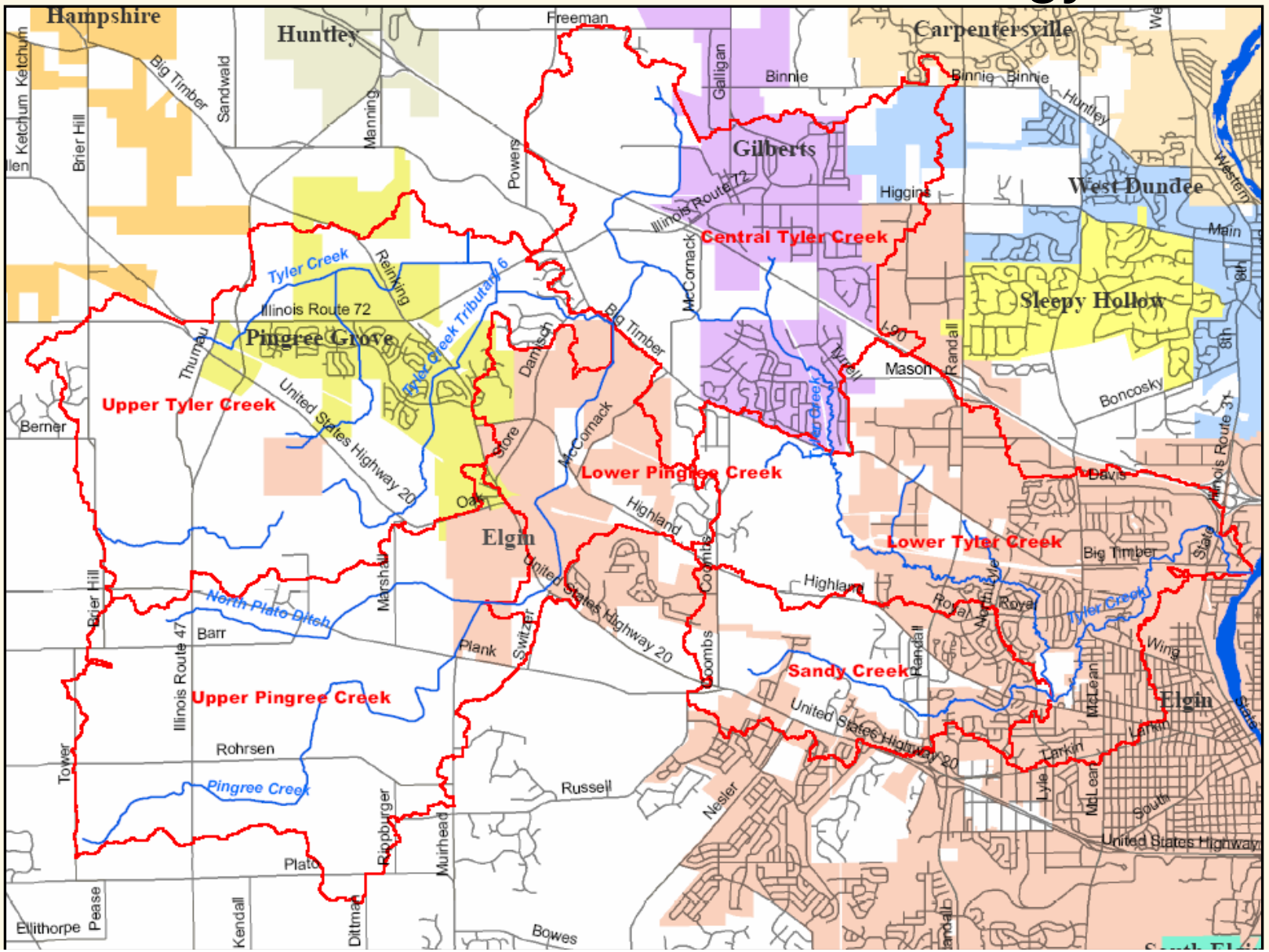
Watershed Plan Elements

- Identifies pollution causes and sources
- Estimates pollutant loads and potential reductions
- Identifies non-point source BMP measures
- Identifies BMP costs, funding sources, & responsible parties
- Includes a public information/education component that is designed to change social behavior.
- Specifies a implementation schedule for recommendations
- Defines milestones to track plan success
- A set of criteria that can be used to determine whether pollutant loading reductions are being achieved over time.
- Includes a monitoring component to evaluate the effectiveness of plan implementation over time.

An Information-Based Plan

- Municipal & County Comprehensive Plans
- Kane County GIS Data
- Kane County ADID Wetlands
- U.S. Census Data
- NIPC 2030 Population Data
- Fox River Watershed Monitoring Network Data
- Sierra Club WQ Data
- IL Dept. of Natural Resources Landcover Data
- IL State Water Survey Data (+ Fox River Study Group)
- & Much More!

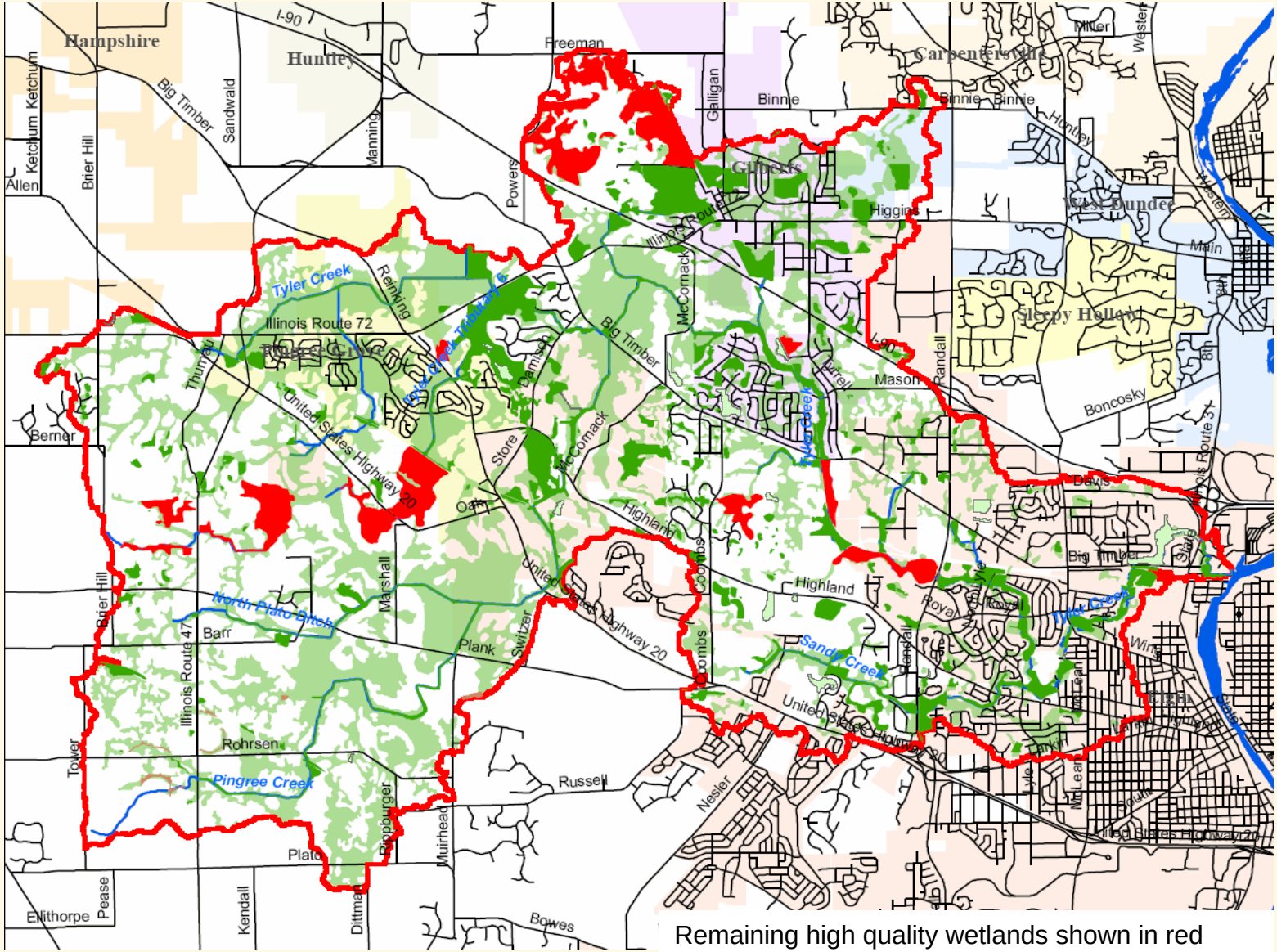
Watershed Assessment Strategy



Key Watershed Protection Strategies

- Organize a Tyler Creek Watershed Coalition
- Protect remaining high-quality natural areas
- Implement water quality BMP projects in Lower Tyler Creek
- Build on water quality analysis for Tyler Watershed by FRSG/ISWS

Protect remaining high-quality natural areas

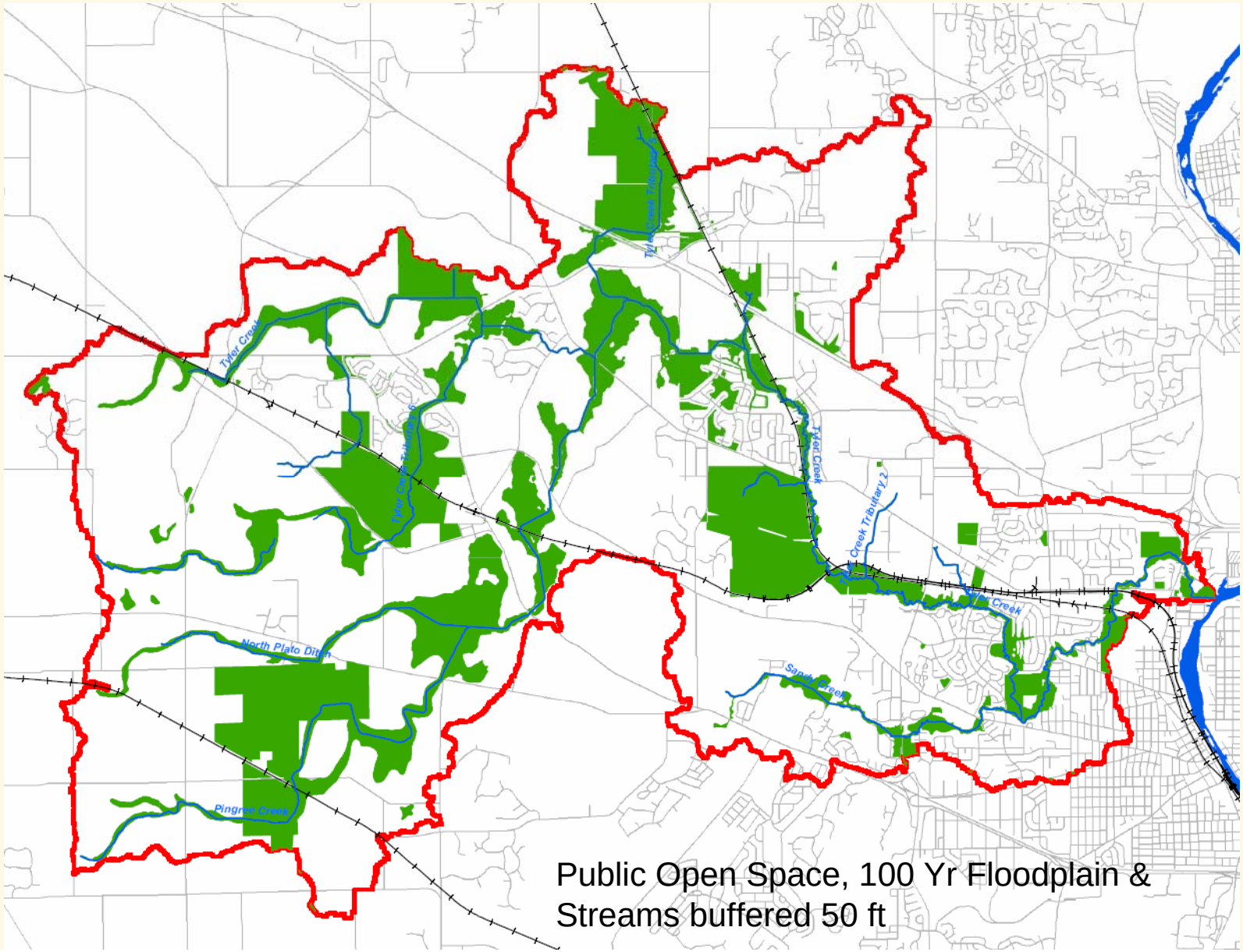


Remaining high quality wetlands shown in red

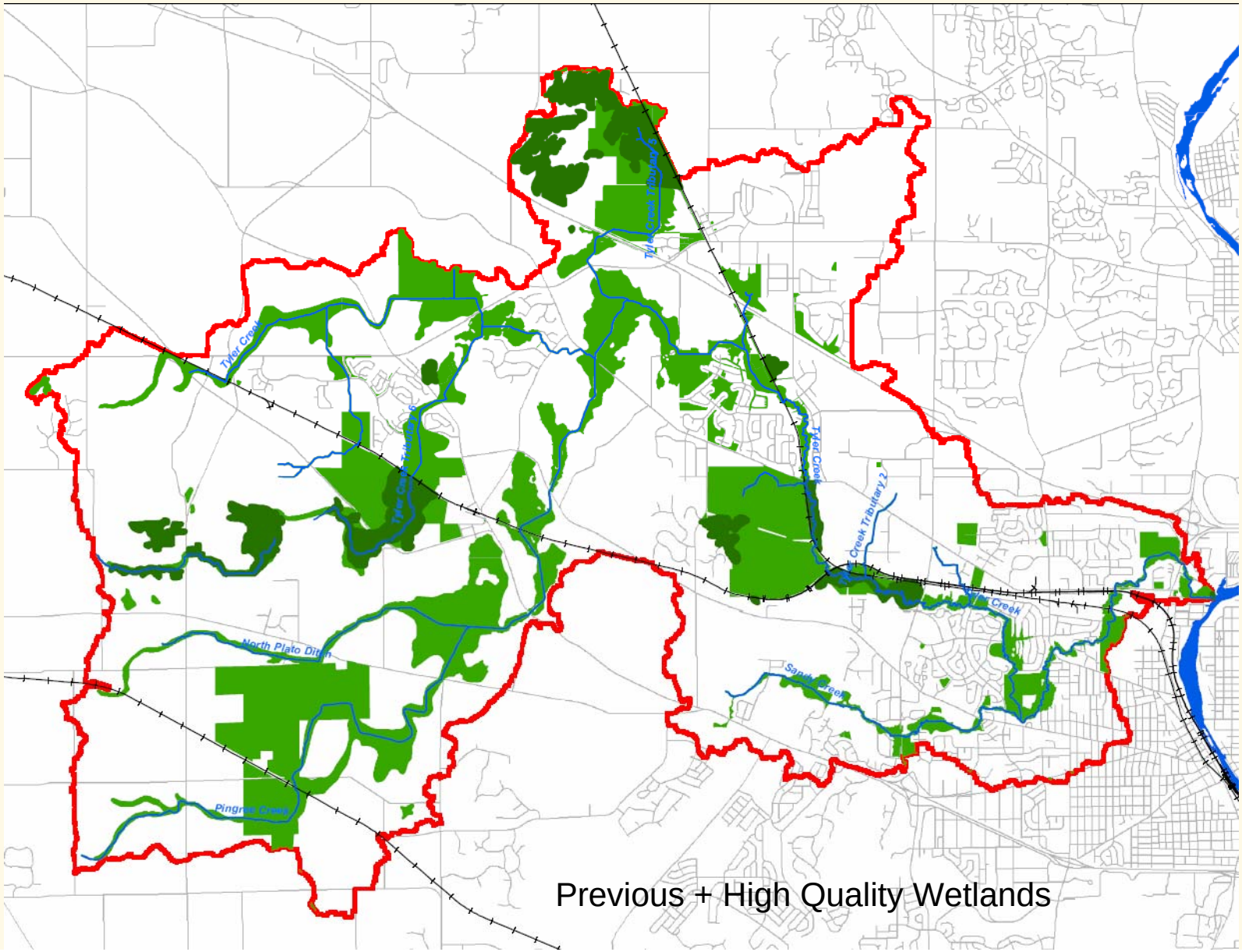
Methods to Protect HQ Natural Areas

- Develop and promote a Green Infrastructure Plan
- Low Impact Development

Green Infrastructure Plan



Green Infrastructure Plan



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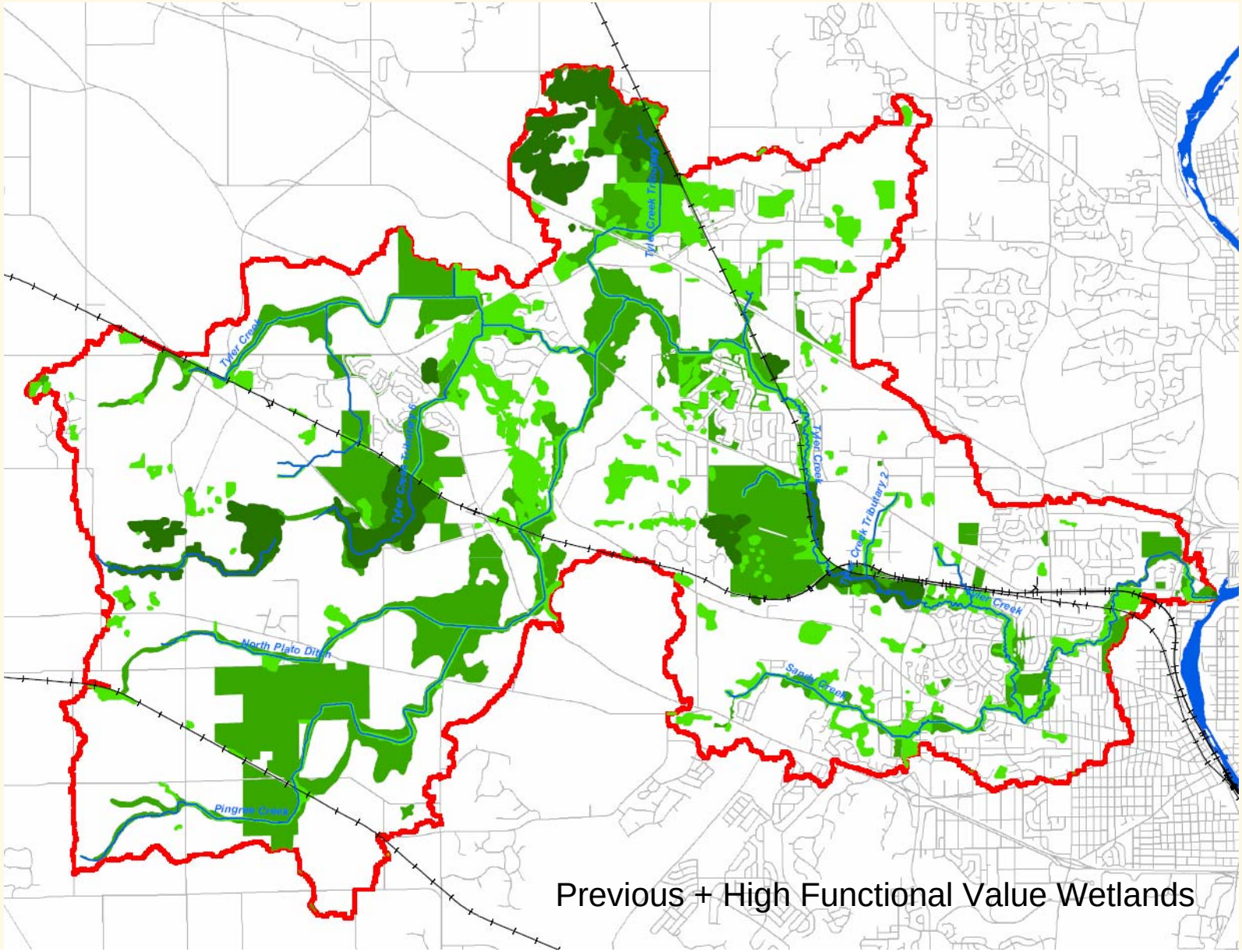

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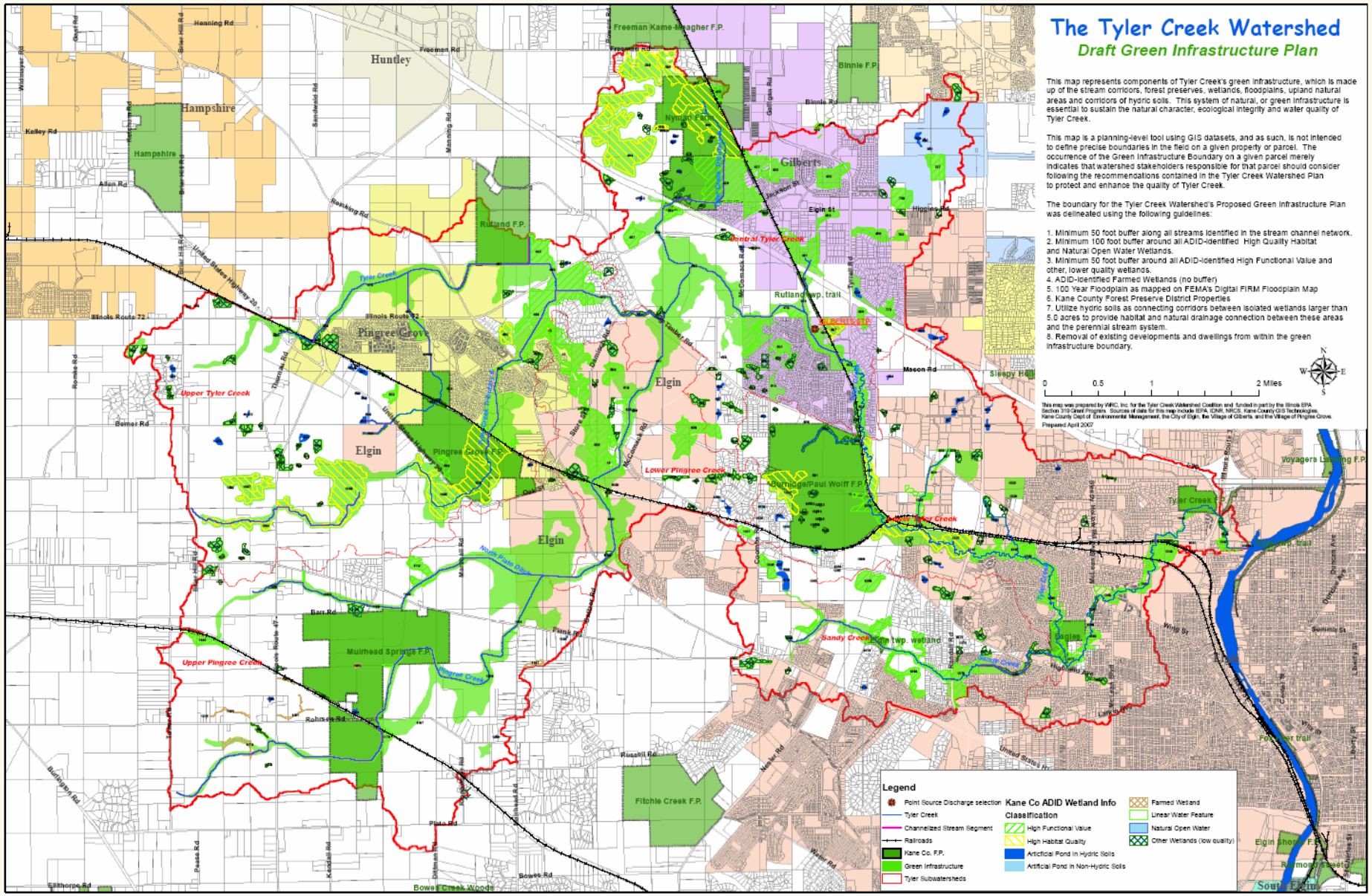


Green Infrastructure Plan

- Utilize existing protected parcels (Kane County F.P.; municipally owned properties) and floodplain
- Combine with ADID Wetlands & stream channels
- Link isolated natural areas larger than 5 acres using hydric soil corridors

For Areas Already Developed:

- Highlights restoration/buffer opportunities for landowners to protect Tyler Creek

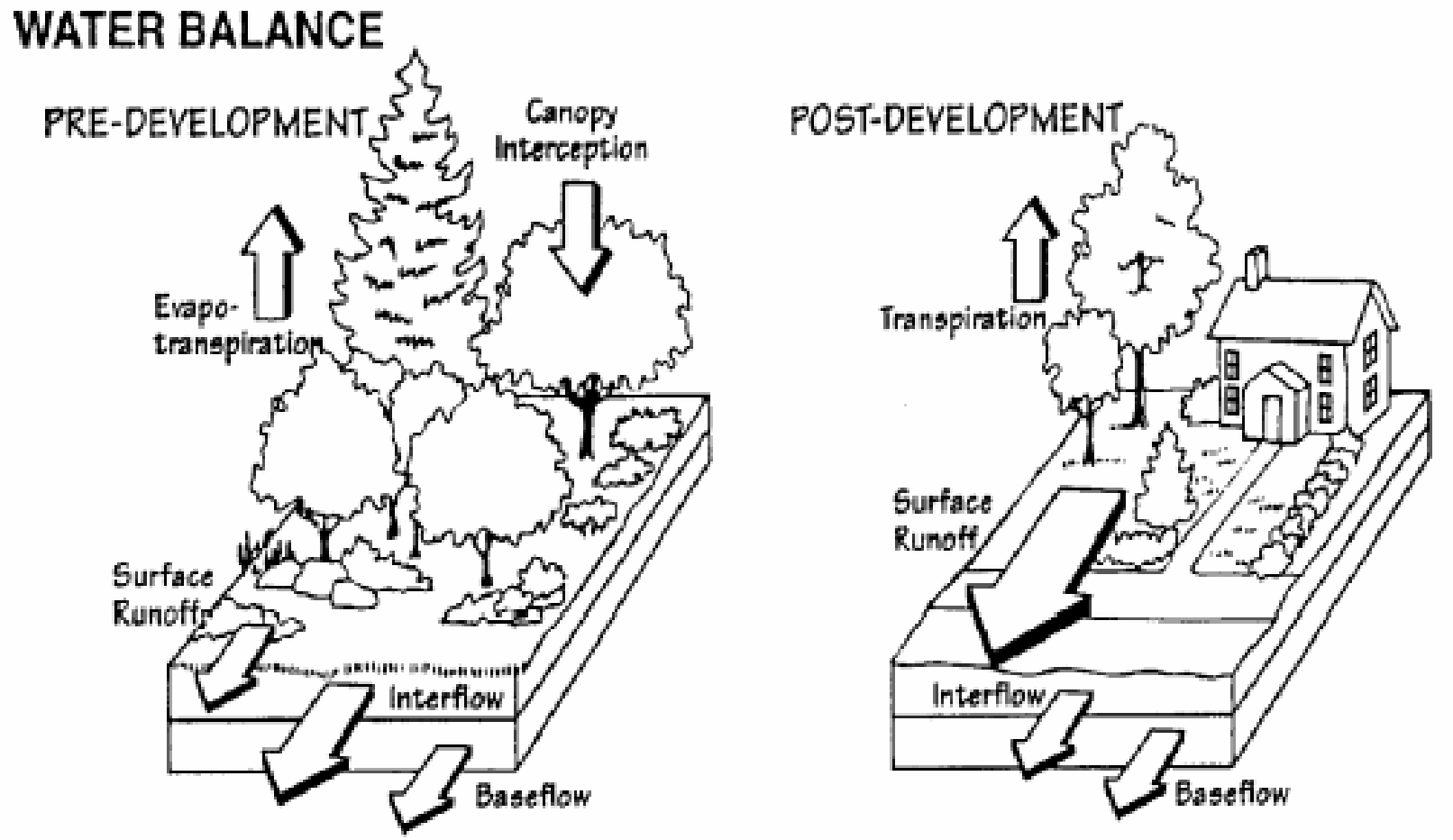
For Areas Planned for Development:

- Indicates critical land features to be retained and preserved as resources wildlife, recreational, and water quality benefits

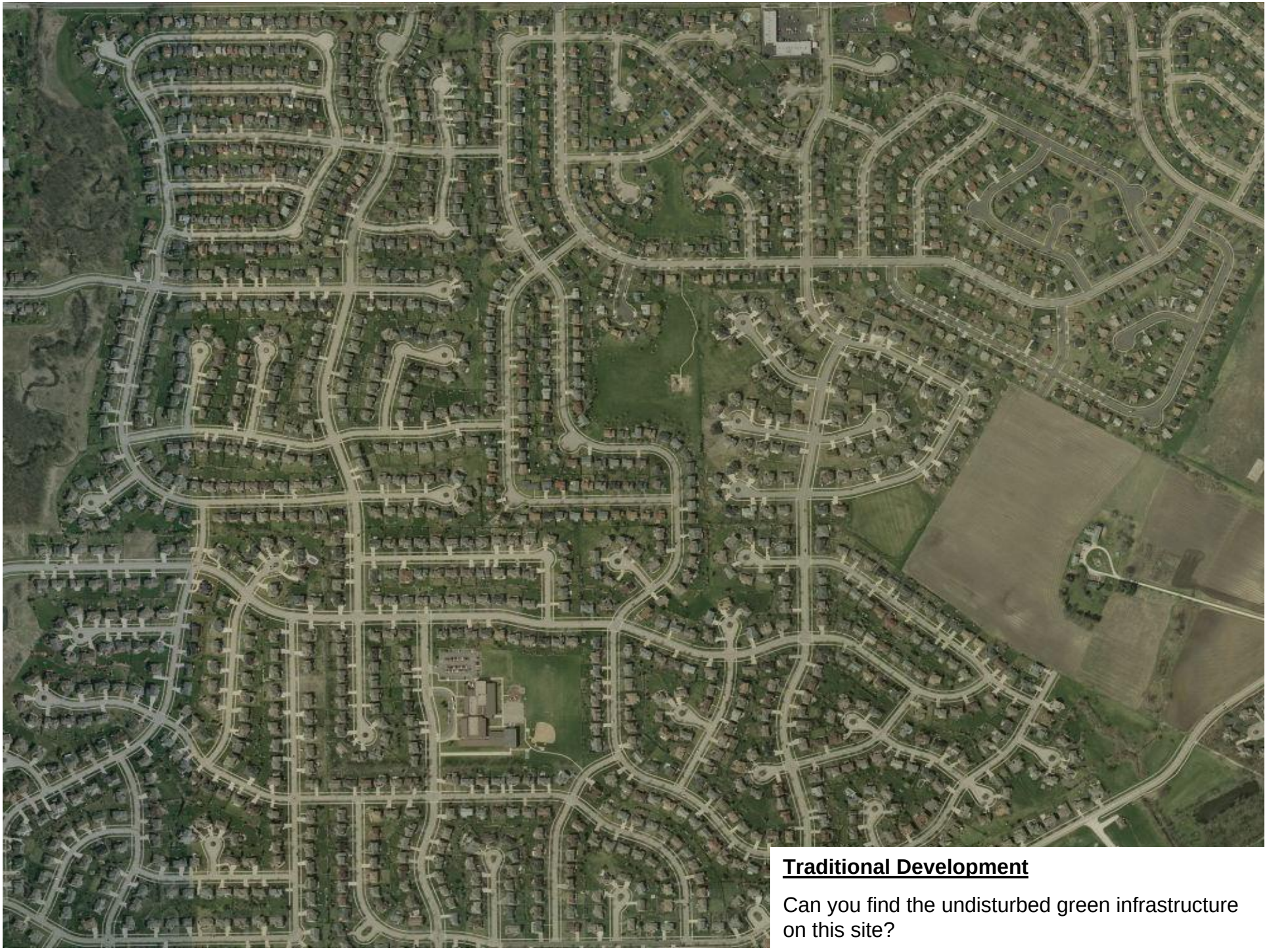
Why is Low Impact Development Needed?

- Current development practices adequately protect public safety against floods, but to date they have not mitigated the impacts of impervious (& semi-impervious) surfaces and the urban pollutants that wash off them

Why is Low Impact Development Needed?



The way in which water is stored and conveyed off-site is fundamentally changed



Traditional Development

Can you find the undisturbed green infrastructure on this site?

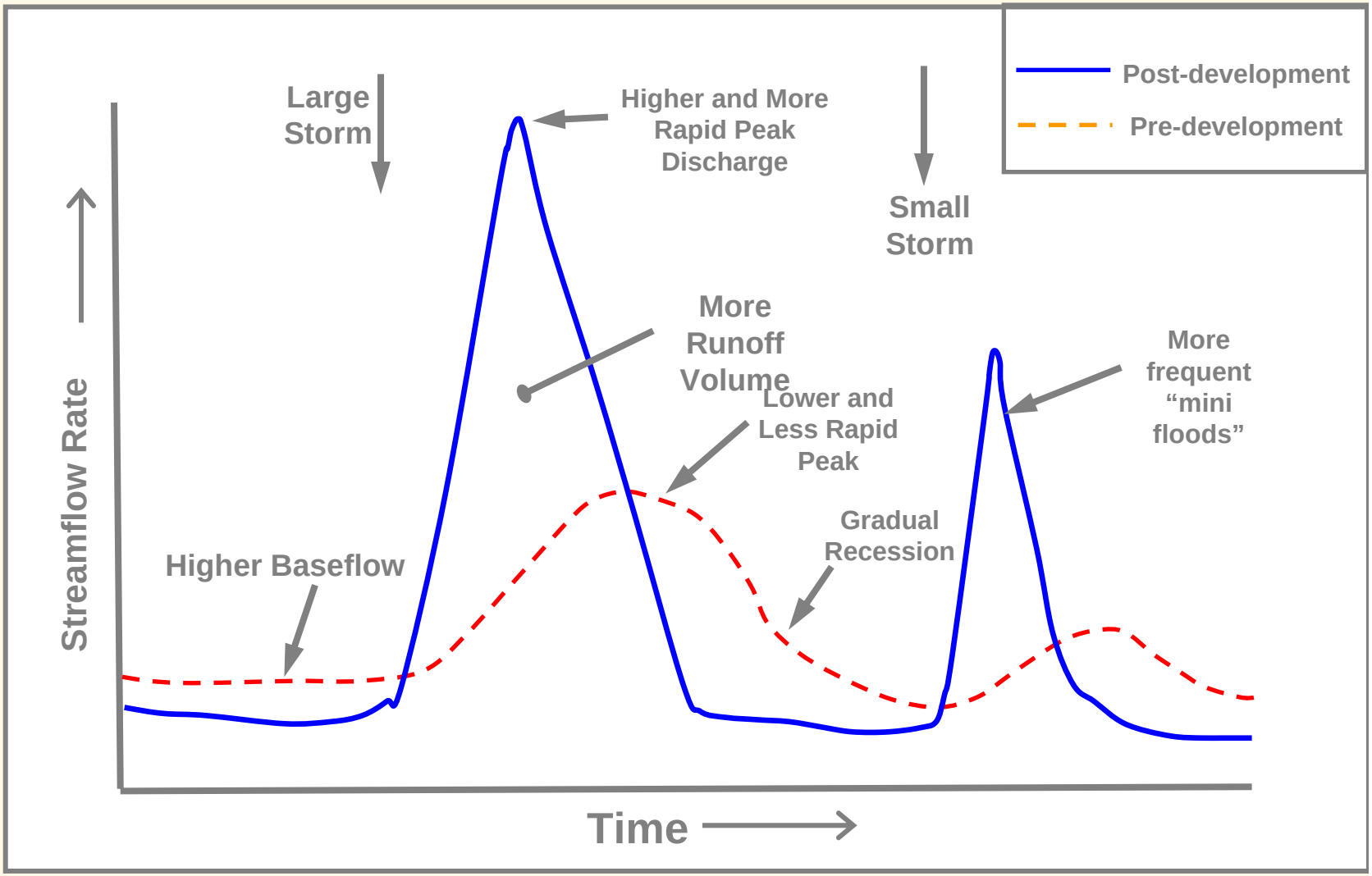
EXAMPLES OF TRADITIONAL APPROACHES TO STORMWATER MANAGEMENT

Storm sewer conveyance

Open channel conveyance

Traditional detention facility with concrete low flow channel

Why is Low Impact Development Needed?



Effects of development on stream flow rates – effects more noticeable the further one goes downstream in a developed watershed.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Traditional development practices and stormwater management techniques are the responsible for much of the stream channel degradation in northeastern Illinois.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Low Impact Development Concepts

Concepts for Highly Urbanized Areas – Commercial / Office / Industrial

Typical parking lot island raised above pavement.

Bioswale, or recessed parking lot island designed to collect stormwater and filter it prior to release to on-site detention basin.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Low Impact Development Concepts

Minimize Impervious Surfaces

Conventional

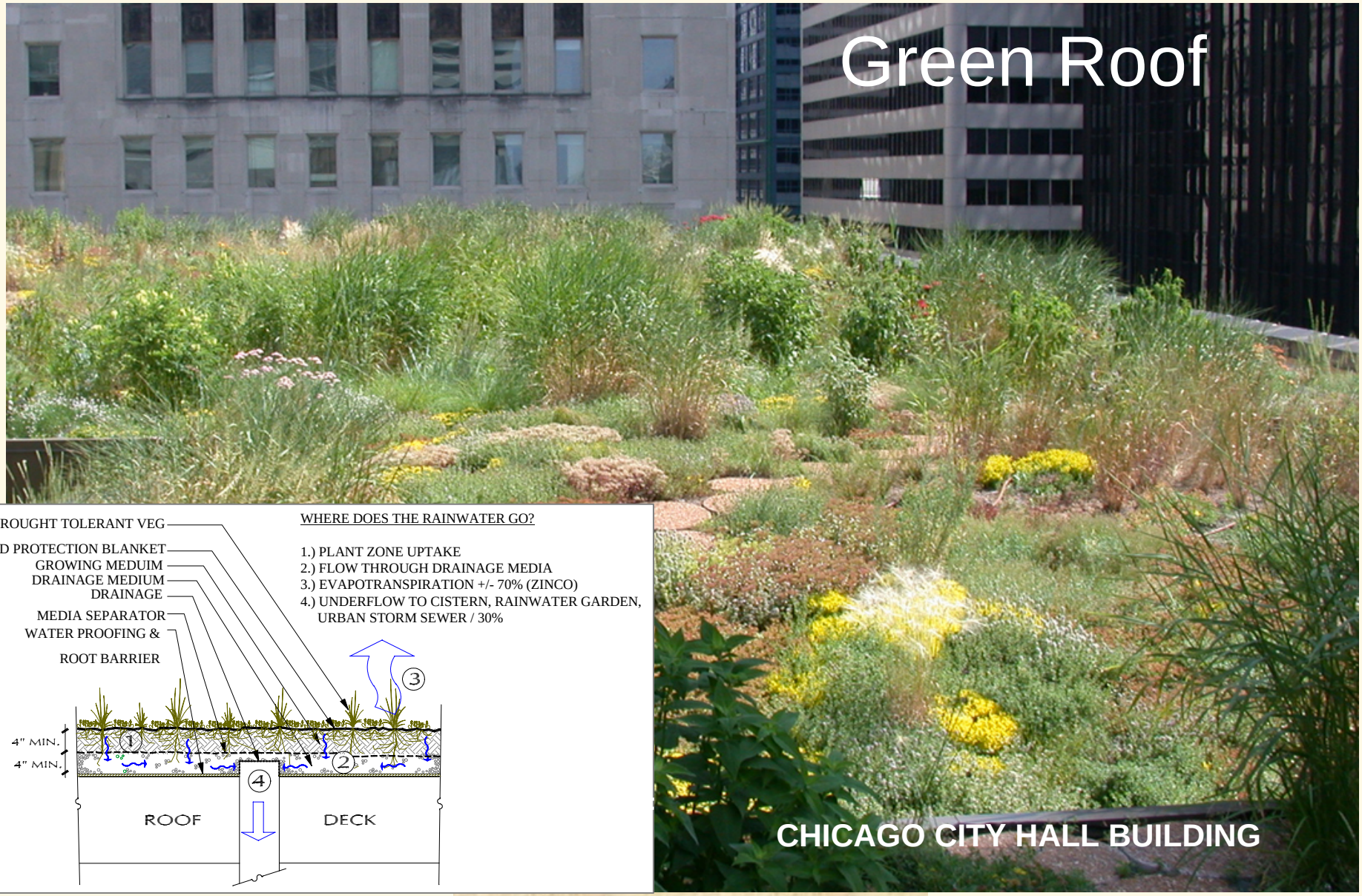
Standard parking stall and pavement

Conservation

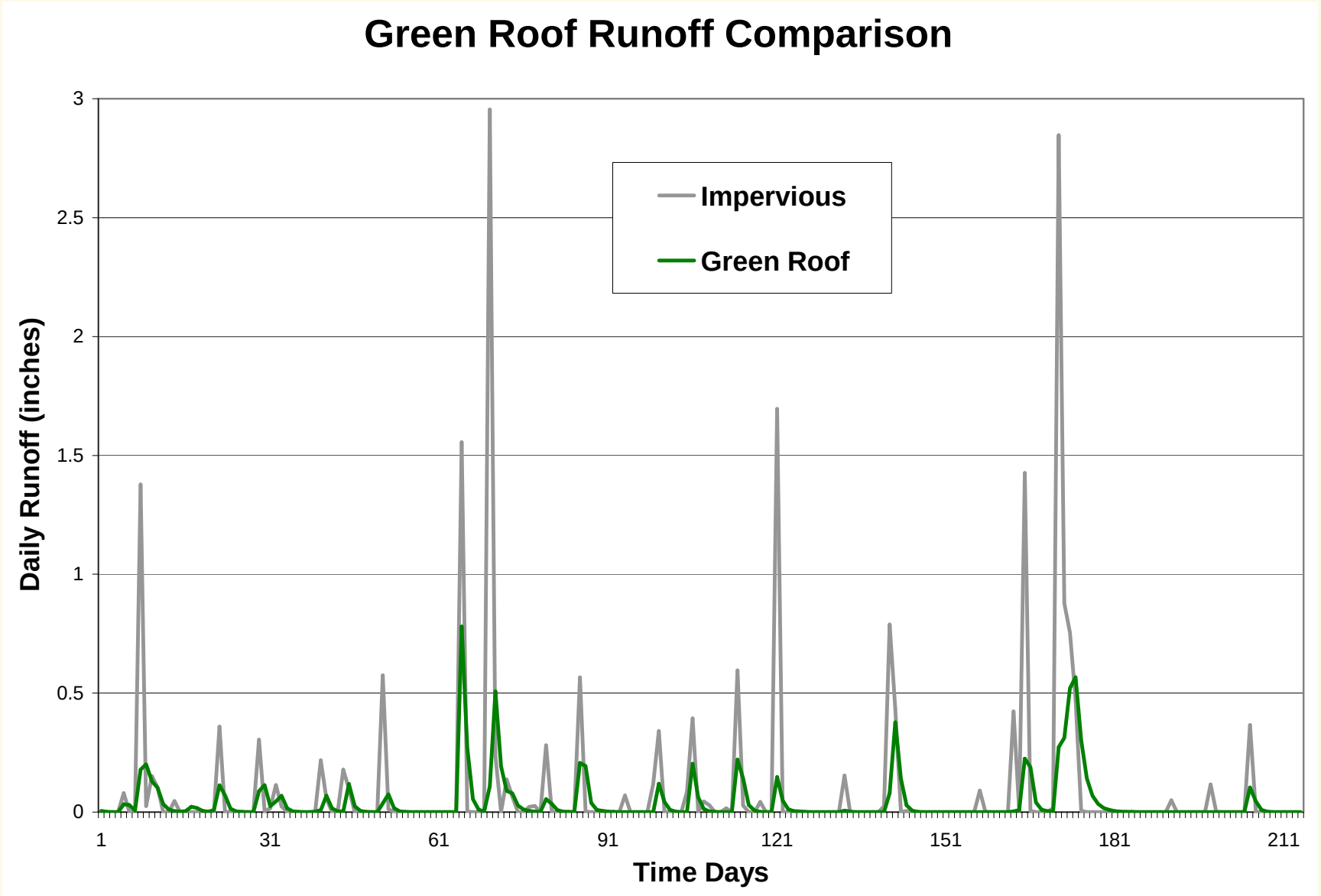
Porous pavement parking stalls adjacent to standard asphalt driving lane.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Low Impact Development Concepts



Source: Blackberry Creek Alternative Futures Project (Kane County 2003)



For a 3" rainfall, a 100,000SF roof (Walmart, Target, etc.) would generate 187,000 gallons of stormwater runoff. Using a green roof design, this could be reduced to less than 32,000 gallons, 1/6th the runoff produced using a standard roof.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Low Impact Development Concepts

Detention Basins

Conventional

Typical detention pond ringed with turf grass. Note Canada Geese and significant shoreline erosion.

Conservation

Naturalized detention with native vegetation around basin perimeter..

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Low Impact Development Concepts

Drainage Swales

Conventional

Turf grass drainage swale designed for conveyance.

Conservation

Drainage swale planted with native vegetation and designed to slow down runoff and retain as much as possible.

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

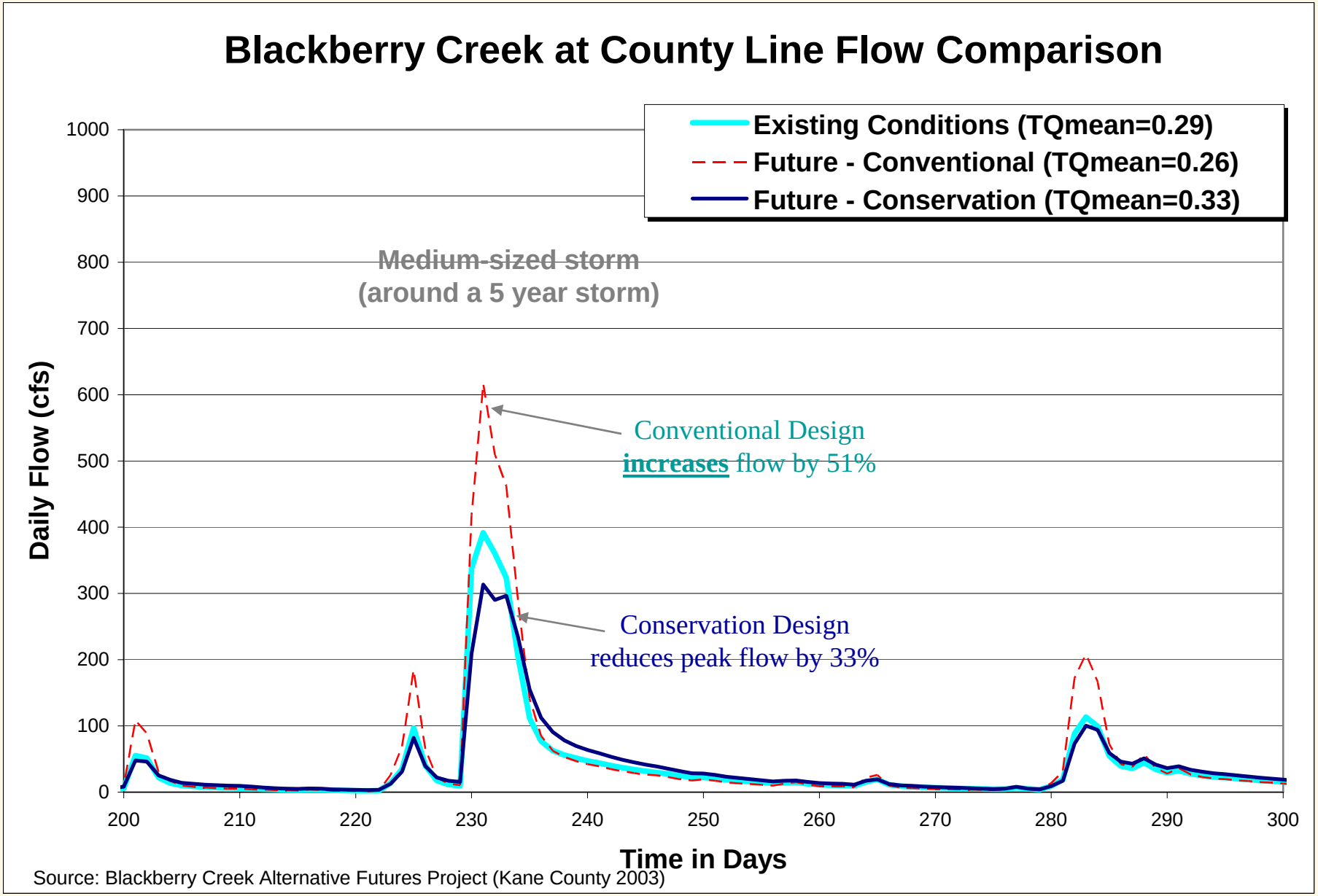
Low Impact Development Concepts

Rain Gardens

Source: University of Wisconsin - Extension

Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

What are the results of L.I.D. ?



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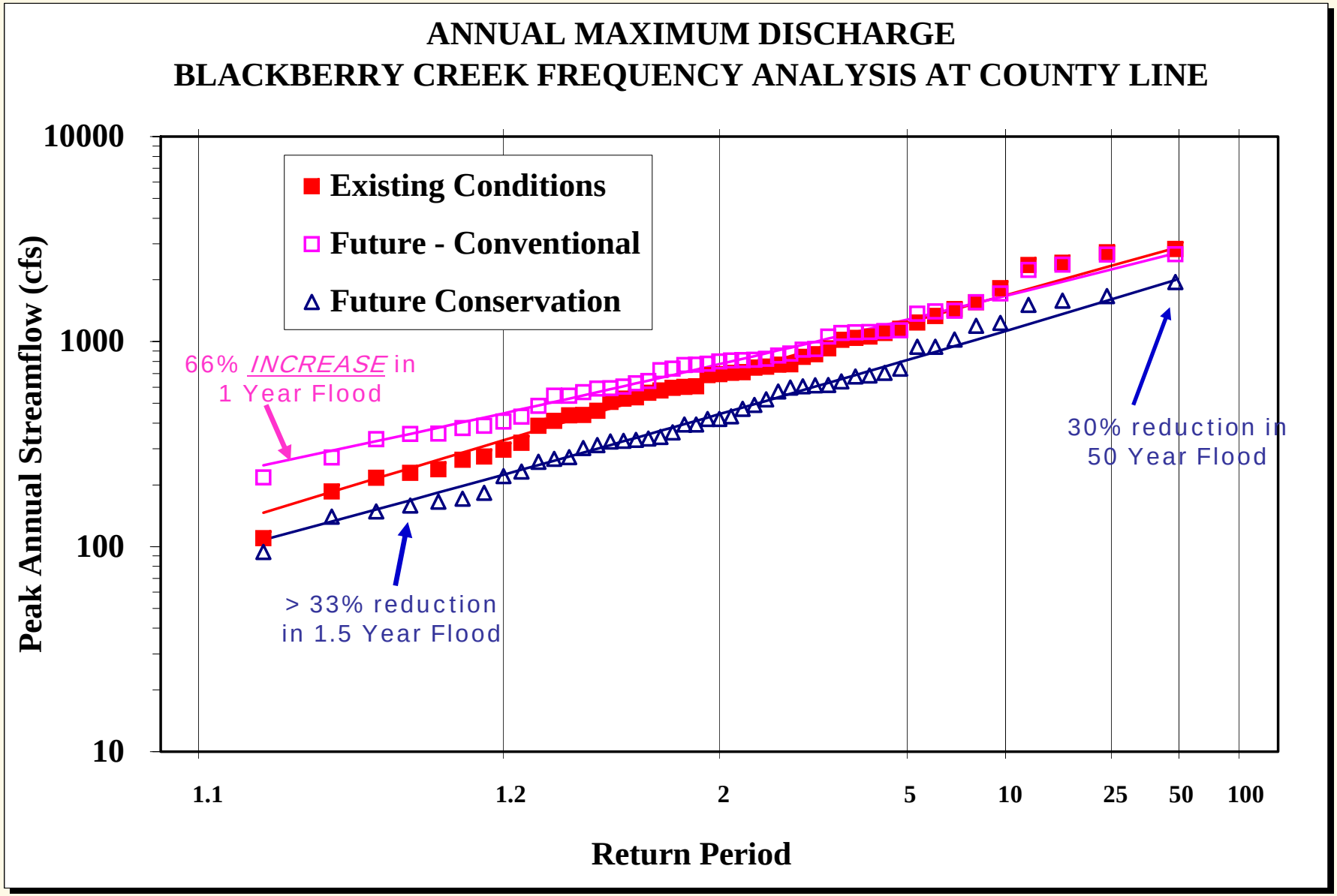
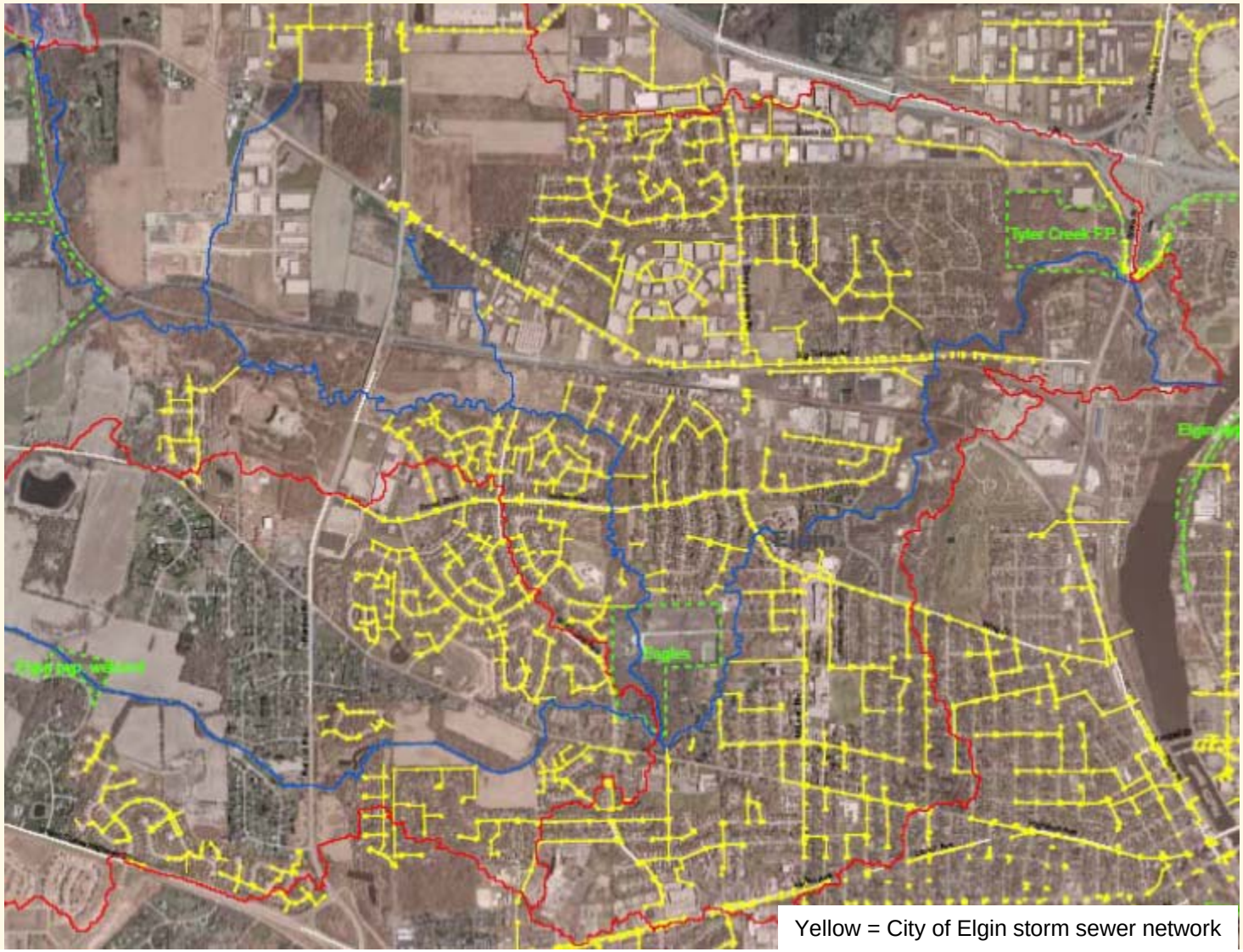


Source: Blackberry Creek Alternative Futures Project (Kane County 2003)

Implement water quality BMP projects in Lower Tyler Creek

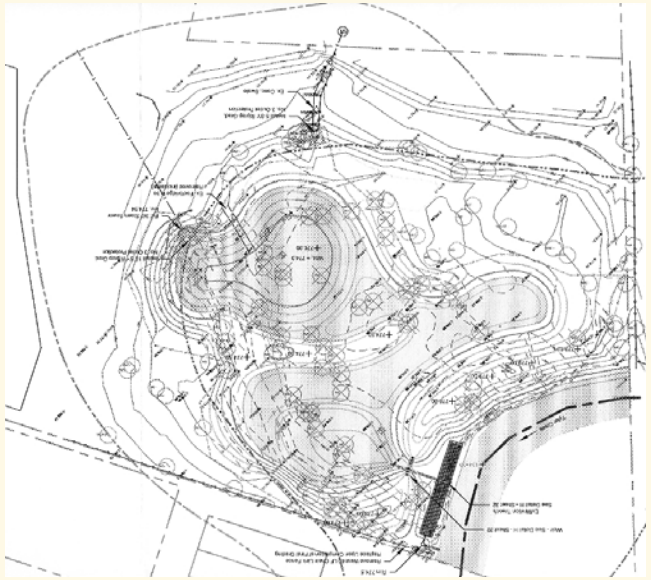


Yellow = City of Elgin storm sewer network

Implement water quality BMP projects in Lower Tyler Creek

- Lower Tyler Creek Management Plan
  - Initiative by City of Elgin
  - 22 projects to restore stream corridor and install water quality BMPs at some storm sewer outfalls

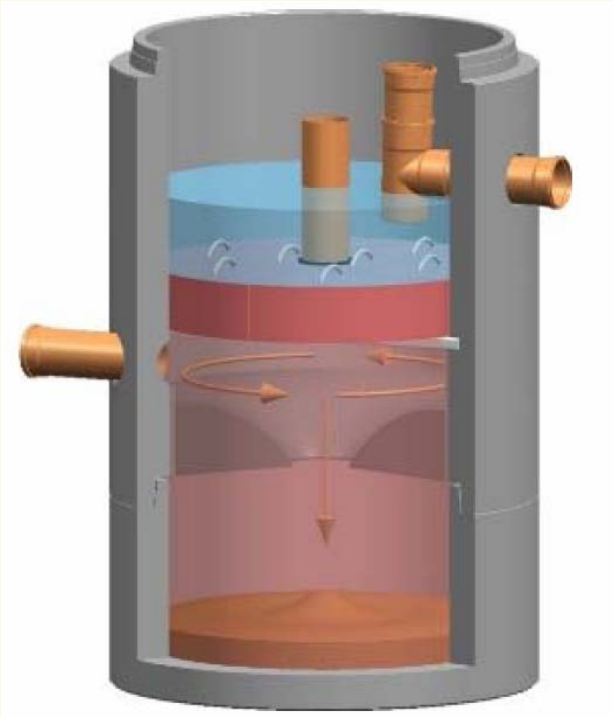
Implement water quality BMP projects in Lower Tyler Creek



Water Quality Basin north of Wing Park Pool

Source: City of Elgin Lower Tyler Creek Management Plan, 2000

Implement water quality BMP projects in Lower Tyler Creek

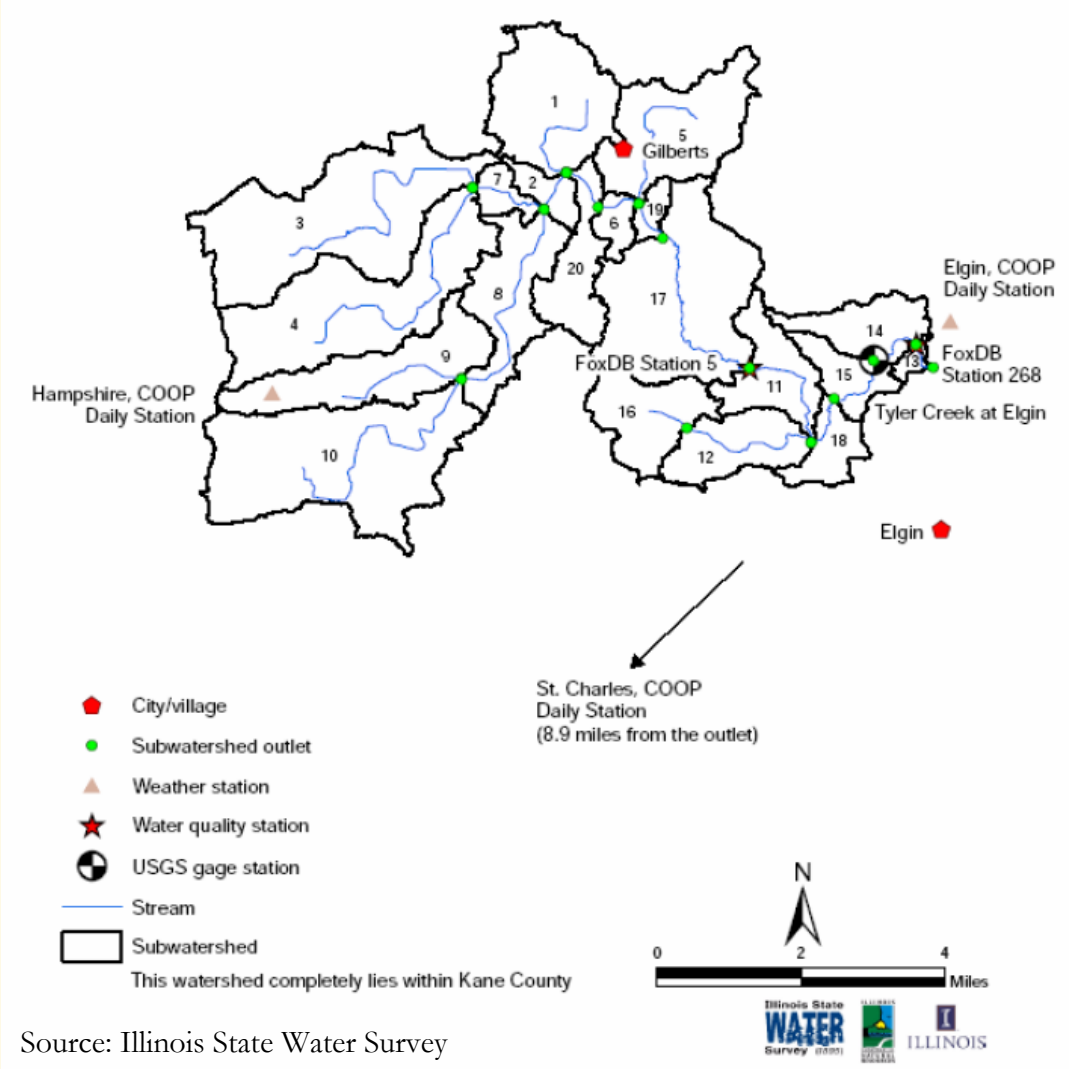


Structural WQ device installed in-line with existing storm sewer system

Suggested BMP systems that could be implemented in existing developed areas

Rain gardens

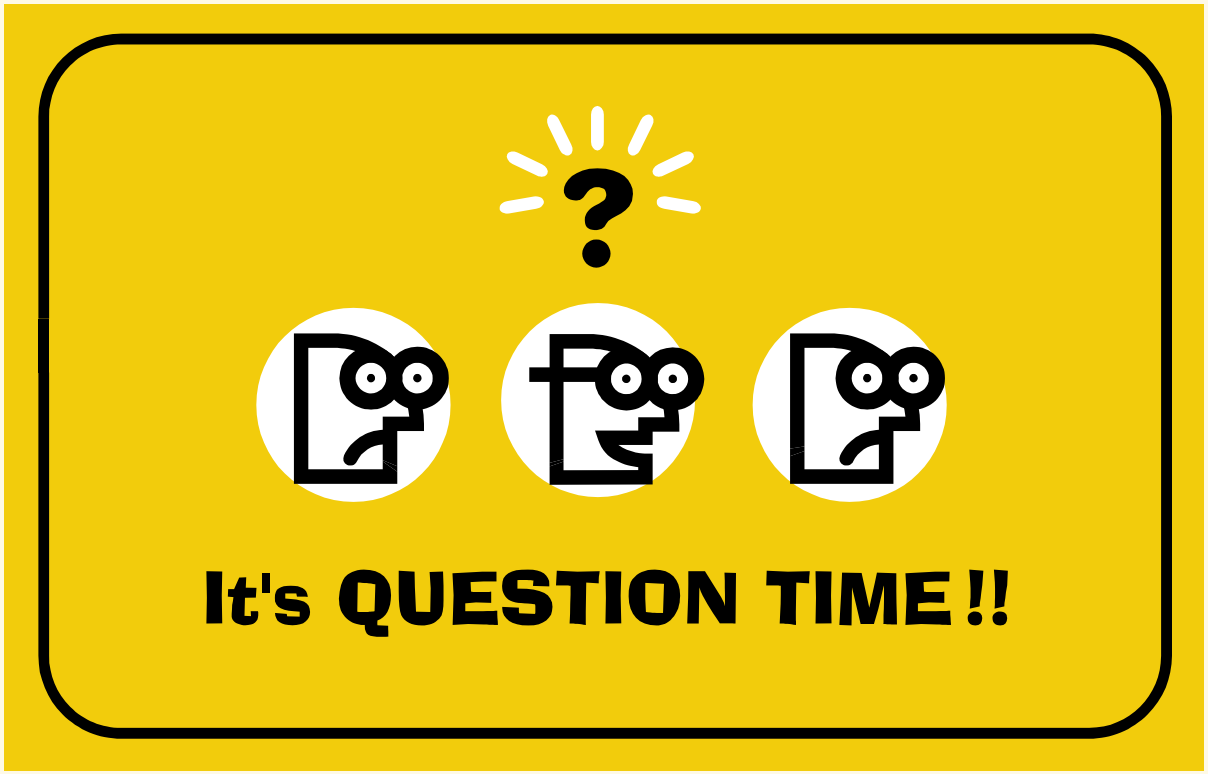
Utilize existing FRSG Water Quality Initiative to accurately assess and project impacts of the implementation strategy



Source: Illinois State Water Survey

Tyler Creek Watershed Coalition

- Purpose
  - a group of stakeholders working together to preserve, protect, and enhance the water quality and natural resources of Tyler Creek
  - cooperative partnership of residents, municipal & county representatives, and others working
  - organization working to implement this plan
- Next steps
  - Suggestions on draft update (by end of month?)
  - Meet with interested stakeholders to investigate interest in establishing such a coalition & their focus
  - Coalition endorses the update & begins work to implement (developing partnerships with local governments to determine where coalition can assist)
- Local stakeholders needed - are you interested?
  - If yes – sign up / contact us at www.tylercreek.org


It's QUESTION TIME!!

www.tylercreek.org

Tyler Creek Watershed Coalition

KANE COUNTY, ILLINOIS

- HOME
- OVERVIEW
- WATERSHED PLAN
- PLAN REPORTS & MAPS
- CALENDAR OF EVENTS
- CONTACT US
- PARTNERS

Home

MISSION

The Tyler Creek Watershed Coalition is comprised of watershed stakeholders who are committed to work together to preserve and protect the water quality and natural resources of Tyler Creek, a tributary to the Fox River in Northeastern Illinois. Our mission is to bring together a diverse coalition of stakeholders to protect the unique and irreplaceable natural resources of the Tyler Creek Watershed through cooperative partnerships, smart land use decisions and sensible growth.

General Public Informational Meeting
on Wednesday, June 6 from 7-9:00 p.m.
at Judson College, 1151 N. State St., Elgin
Lindner Center - Eagle Lounge
Press Release in pdf

Updated 6-1-07