

Floodplain and Stream Enhancement in an Urban Context





Streams and Floodplains

- Provide conveyance and storage of flows
- Often these areas are some of the last remnants of “**nature**” in urban environments



What is Nature?

- Places untouched by humans
- Unspoiled beauty
- Fish and wildlife habitat
- Native plants
- Rare or endangered species
- Remnant or restoration of what was



Urban Reality

- Almost nowhere is untouched by humans (directly or indirectly)
- Changes in watershed hydrology, invasive species, loss of biodiversity, climate change...

Natural Design

- Appears free of human influence but is designed and constructed
- Focus on current conditions
- Provides ecological structure and function
- Not necessarily trying to recreate a specific historic time
- Perceived value
- Judgement and compromise



Biophilic Design

- Origins in architecture
- Similar to natural design
- Also focuses on aspects of the natural world that contribute to human health and happiness
- Increase people's connection with nature
- People are part of nature





Case Study

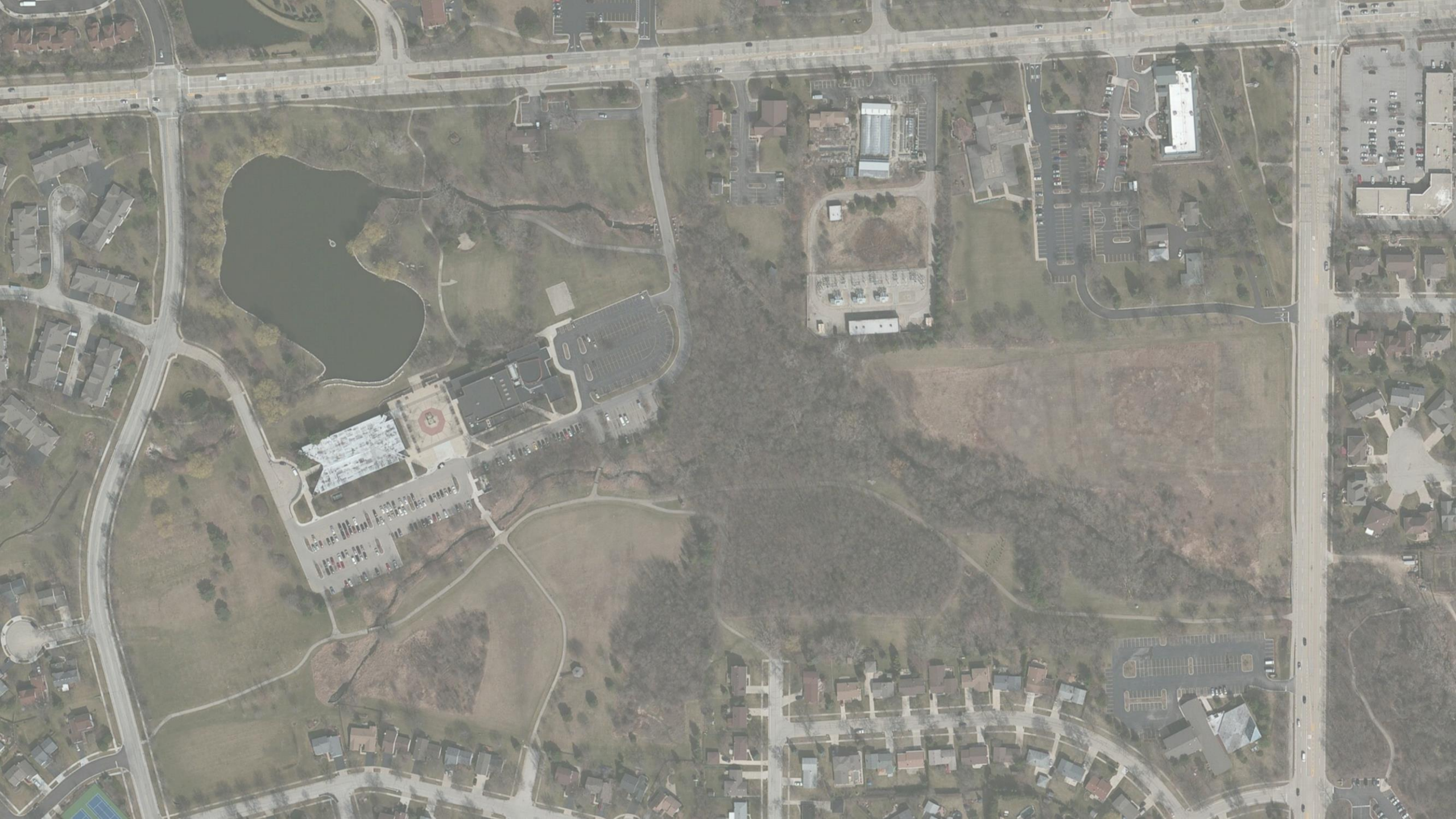
- Natural/biophilic design of floodplain woodland enhancement and stream stabilization
- Schaumburg, Cook County, Illinois
- Municipal Center Grounds



Site Context

- Robert O. Atcher Municipal Center
- Prairie Center for the Performing Arts
- Chicago Athenaeum International Sculpture Park
- Several tributaries to Salt Creek
- Wooded floodplain
- Upland fields and woods
- Trails
- Septemberfest







Existing Conditions

Floodplain Woodland

- Dead ash trees (EAB)
- Living trees included buckthorn, black locust, cottonwood, silver maple, boxelder, and hackberry
- Little ground plain vegetation
- Dirt/woodchip trails



Opportunities & Constraints

Floodplain Woodland Enhancement

- Remove only buckthorn, ash, dead, and hazardous trees
- Preserve black locust, silver maple, cottonwood, and boxelder
- Burning not permitted
- Plant 150 native trees and shrubs
- Native seeding
- Trails to be enhanced



Implementation

Floodplain Woodland Enhancement

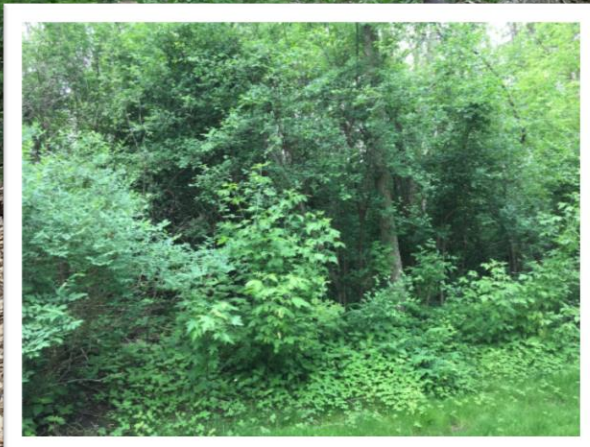
- January-April 2018 (FY '17)







\$500.00 REWARD
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APPREHENSION AND CONVICTION
OF INDIVIDUAL(S) RESPONSIBLE
FOR VANDALISM OF
VILLAGE PROPERTY
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Existing Conditions

Creek

- ~ 1,000 LF adjacent to parking lot
- Channel bed drops 9' in elevation
- Actively eroding bed and banks
- Established prairie buffer in some areas
- Three pedestrian bridges
- Temporary erosion control measures



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Opportunities & Constraints

Creek Stabilization

- Develop stable cross-sectional and longitudinal channel geometry that appeared natural
- Minimize impacts onto existing prairie buffer
- Remove buckthorn, ash, dead, and hazardous trees
- Native seeding and planting
- Protect pedestrian bridges
- Repair damages FES





Implementation

Creek Stabilization

- July-December 2019 (FY '18)
- 3-week shutdown for Septemberfest













In summary

- Understand site context
- Evaluate site specific conditions
- Incorporate ecological structure and function
- Consider cultural values
- People are a part of nature

Different Paradigms of Nature

Ecological Restoration

Seeks to provide ecologic structure and function

Designed and constructed

Often based on preserving or recreating historical conditions

Natural Design

Seeks to provide ecologic structure and function

Designed and constructed

Focus on current conditions and site context

Biophilic Design

Seeks to provide ecologic structure and function

Designed and constructed

Focus on current conditions and site context

Intentional positive impact on human health and welfare

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