



OVERCOMING COMPETING LAND USES

SERVING URBAN DEVELOPMENT, RECREATION AND HABITAT

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CHALLENGES WITH OPEN SPACE USES IN URBAN DEVELOPED AREAS

Value of Land for Development

Pressure to remaining Open Space and undeveloped properties

Case Study of Project in DuPage County
What Can Work



BACKGROUND



BACKGROUND



- Maple Meadow
 - 60-Acre
- Oak Meadows
 - 228-Acre Site
- Salt Creek
 - 1.25 - Miles

BACKGROUND

Course History

Elmhurst Golf Club was built in the 1920's.

The course was once home to major events. Most notably the 1941 Chicago Open – Won by Ben Hogan.

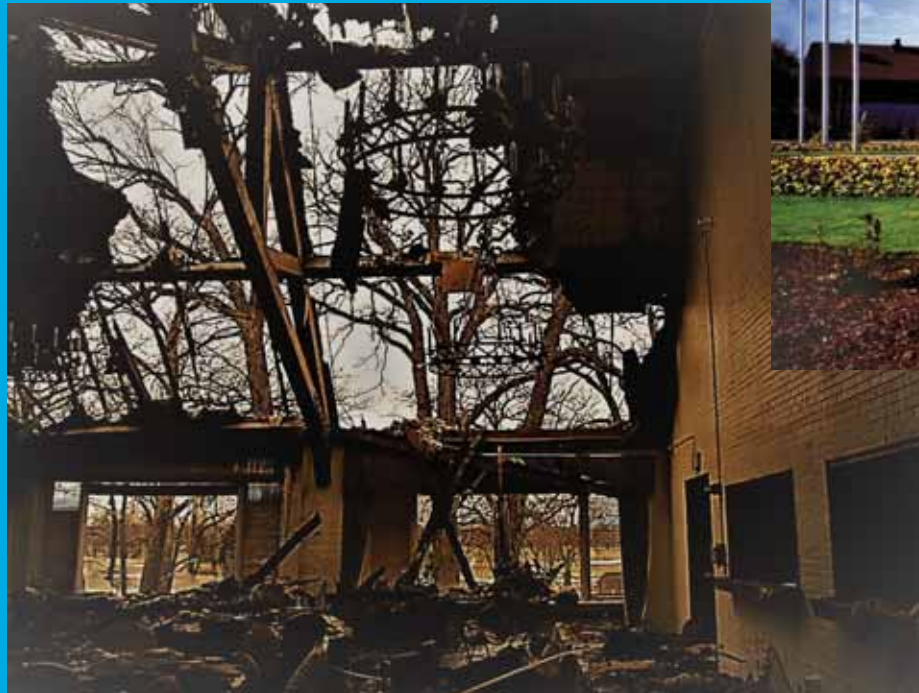
The District purchased the property in 1985 and renamed it Oak Meadows Golf Course.



BACKGROUND

Clubhouse

Home to many
memorable occasions
Destroyed in 2009 Completely
Destroyed Clubhouse
\$4.0M in Insurance
Prompted need to
improve Oak Meadows

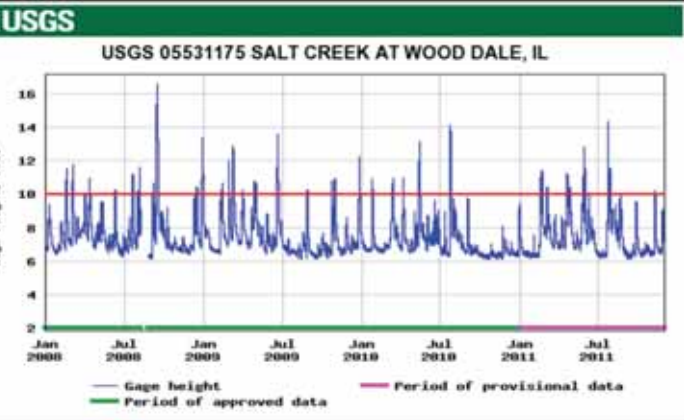


BACKGROUND

ing Flooding Issues

34 Acres of Site are Inundated by the Regulatory Floodplain

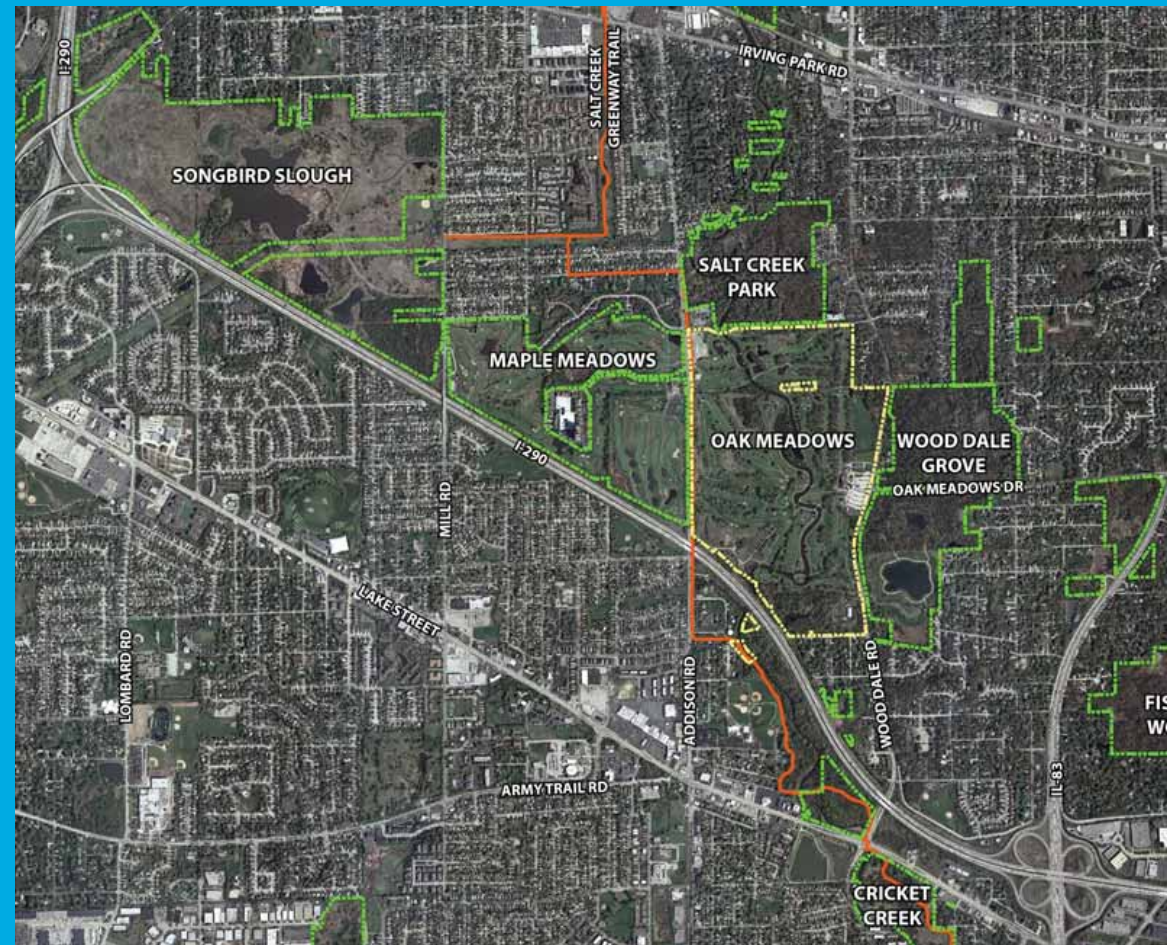
Several Fairways, Greens, Tees, Trails, and Bridges Flooded During 10-year Storm Events



BACKGROUND

Opportunities for Offsetting Urban Development

- Increase Stormwater Storage
- Reduce Flows Downstream
- Reduce Upstream Flood Elevations
- Improve Water Quality



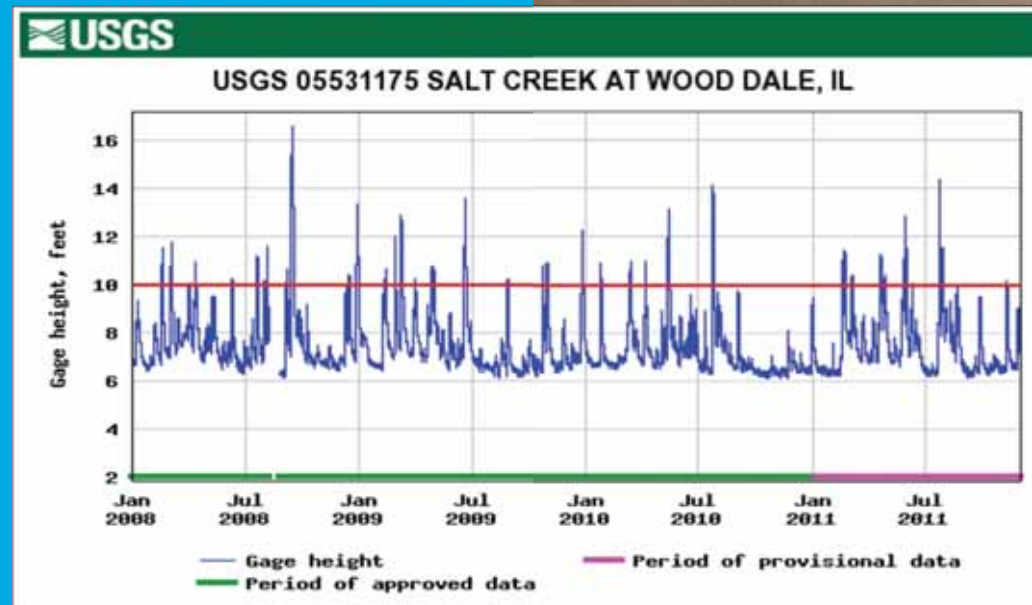
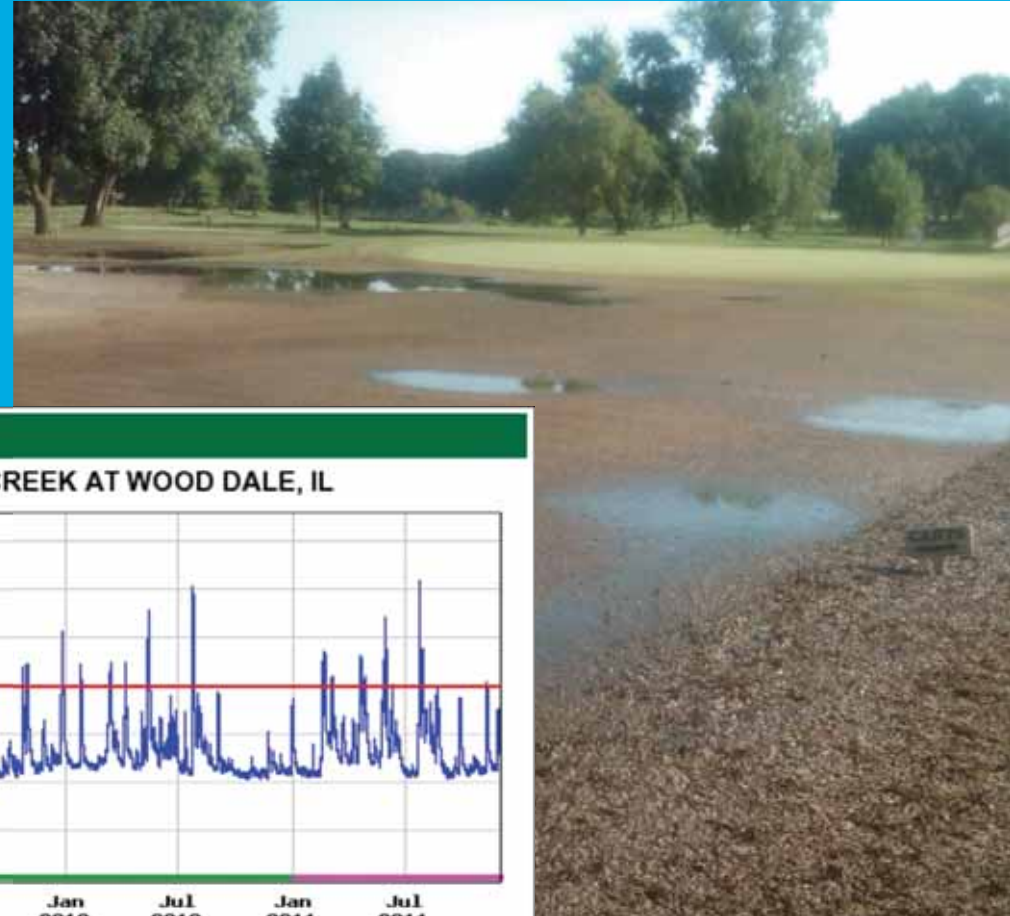
BACKGROUND

Issues with Golf Course Management

Revenues and customer base eroded due to major flood interruptions from 2007 through 2015

Recurring expenses to repair flood damages.

Aging golf infrastructure from a 1920's designed course layout.



BACKGROUND

with Salt Creek

Shoreline Erosion &
Non-native/Invasive
Vegetation
Installing Gray
Infrastructure with
Habitat or Water
Quality Treatment
Functions



BACKGROUND

Issues with Salt Creek

• No low-head dams

• Very low Dissolved Oxygen (DO) levels

• Very poor Index of Biological Integrity (IBI)

• Stormwater management structures were obstacles for migrating aquatic life and hazards to anglers.



MBI/2011-12-8

Salt Creek Bioassessment 2010

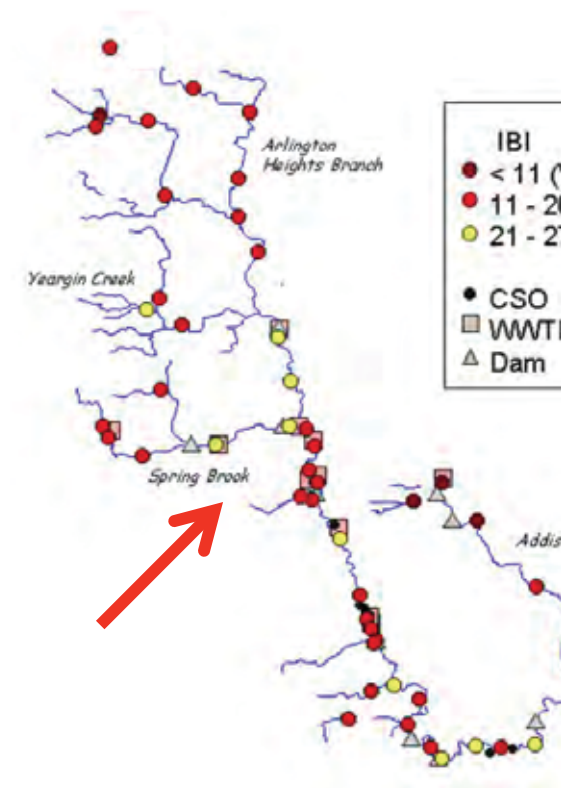
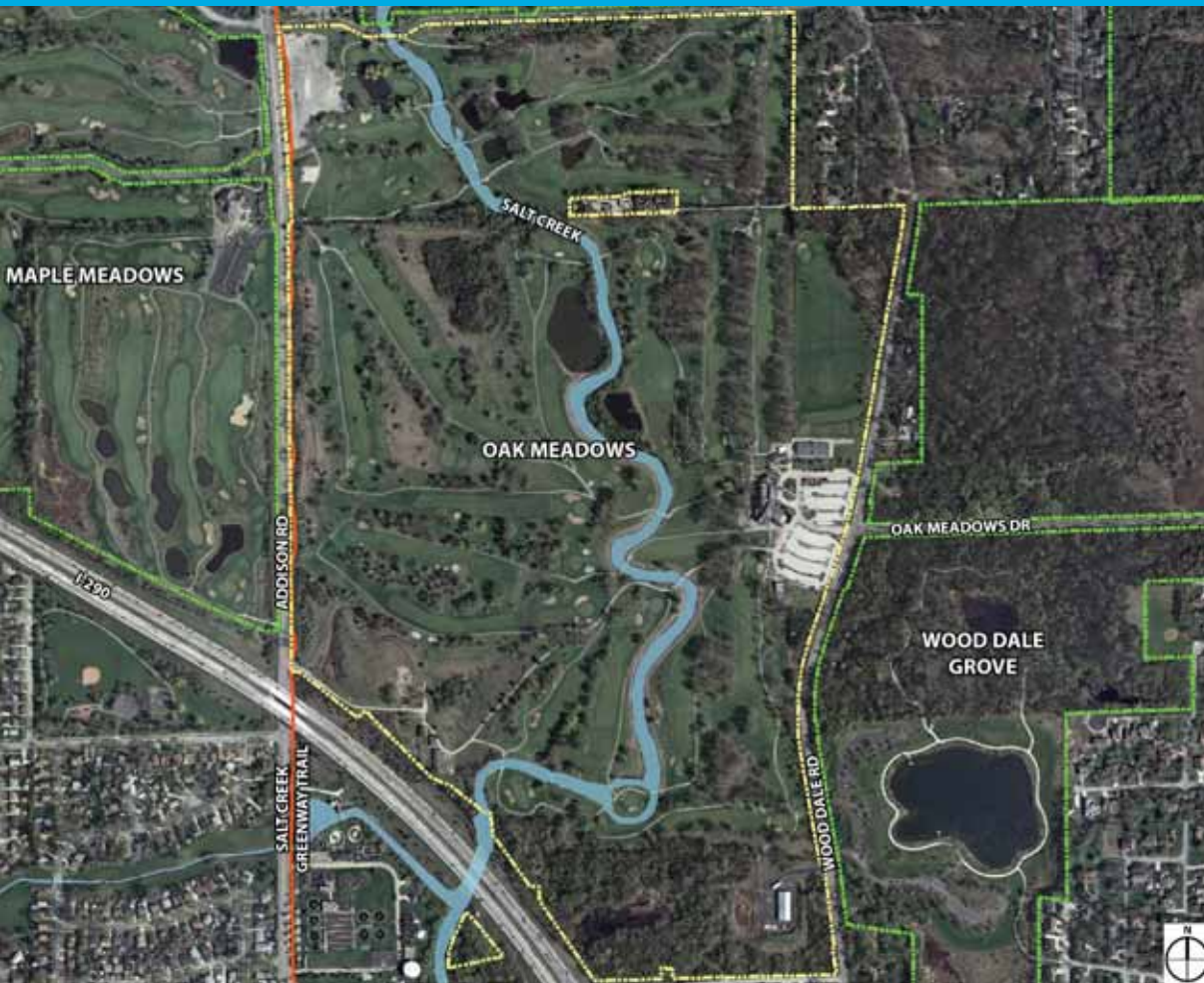


Figure 54. IBI scores plotted by narrative range for fish communities in the Salt Creek watershed, 2010.

PLANNING EFFORT



2012

The Team of Stakeholders

- A Meeting of the Minds
- Represented Differing Interests
 - Forest Preserve District of DuPage County
 - Municipalities
 - DuPage County
 - DuPage River Salt Creek Workgroup (DRSCW)
 - Permitting Agencies

PLANNING EFFORT

Water Planning Goals

- Improve playing surfaces
- Increase Flood Storage
- Increase Wetland Areas
- Remove Dams
- Re-meander Salt Creek
- Reduce Upstream Flood elevations



PLANNING EFFORT

Goals of Master Planning

100-year Ties and Green – 100-yr, Fairways
and Cart Paths – 10-yr;

Additional Storage Capacity – 35 acre/feet of
additional storage;

Wetland Creation – 33 acres of wetland
creation

Stream enhancements - 13,830 LF of
stabilization

Removal of 2 low head dams

Restoration of Riparian and Upland Prairie
habitats – 106-acres

Project Cost: **\$16M Course**
\$4.6M Clubhouse



November 2012

PLANNING EFFORT

Facilitating Partnerships through Grants and Funding Opportunities

DuPage County Fee-in-Lieu
Wetland Mitigation (\$1.7M)
DuPage Water Quality (\$100k)
319h Grant (\$1.4M)
Illinois Green Infrastructure Grant
(IGIG) (\$500k)
DuPage River Salt Creek Work
Group (DRSCW) (\$800k)
MAP-21 Bike Trail Funds (\$50k)
Total: \$ 5.05M



DESIGN/IMPLEMENTATION ELEMENTS

Seamless Integration of:

Golf

Stormwater Management

Wetlands

Upland/Native Habitat

Creek Realignment/Restoration

Trails



DESIGN/IMPLEMENTATION ELEMENTS

Golf Course General
Construction Techniques

USGA Greens

Billy Bunker Technique

White "Tour Sand"

Bentgrass Tees, Greens, Fwys



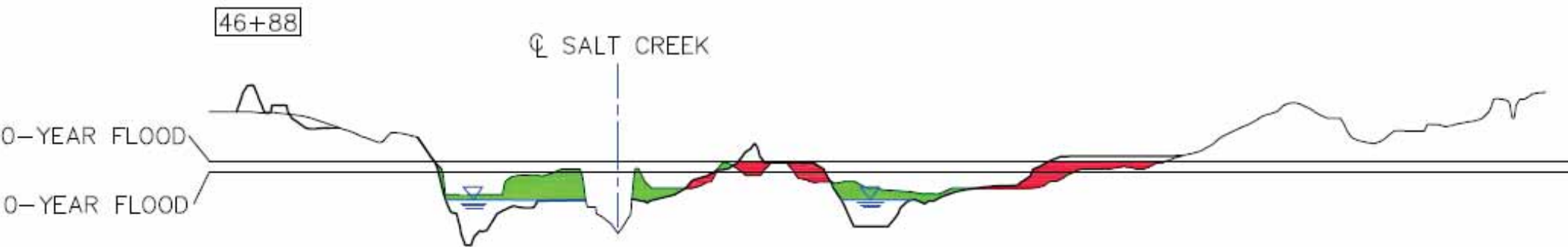
DESIGN/IMPLEMENTATION ELEMENTS

Water Improvements

Floodplain Storage

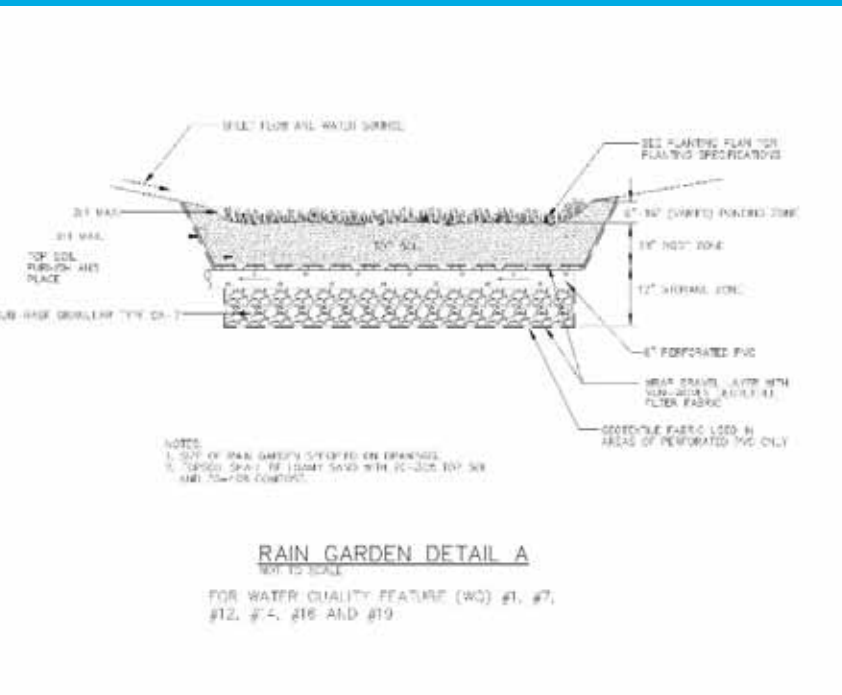
81 Cross-Sections Analyzed

42 Ac/ft of Additional Floodplain Storage Volume

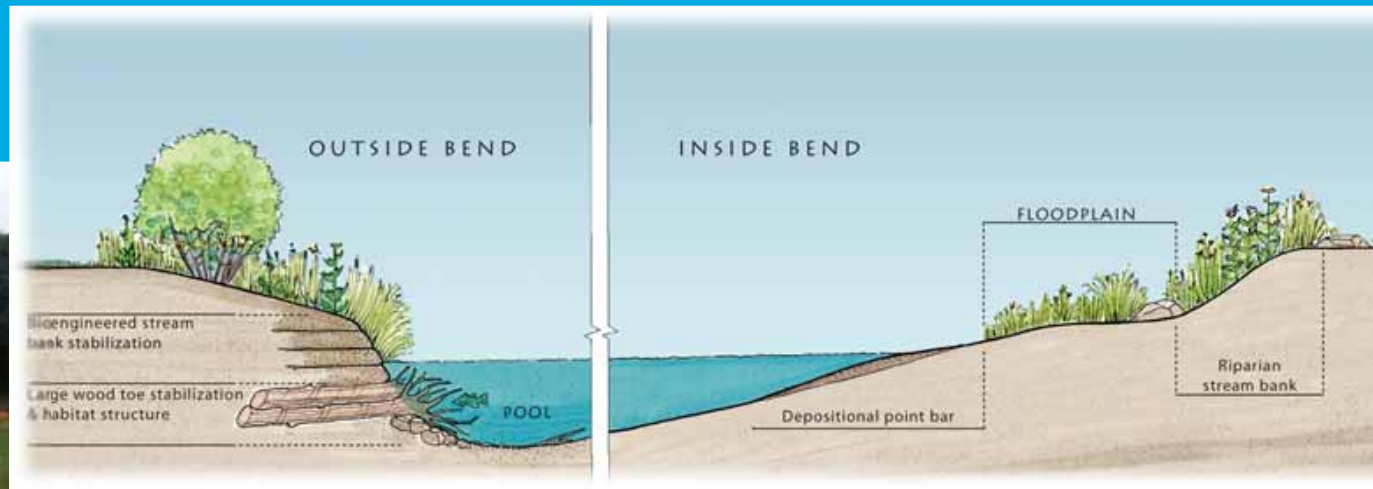


DESIGN/IMPLEMENTATION ELEMENTS

Runoff Pre-Treatments – prior to entering Wetlands or Salt Creek



DESIGN/IMPLEMENTATION ELEMENTS

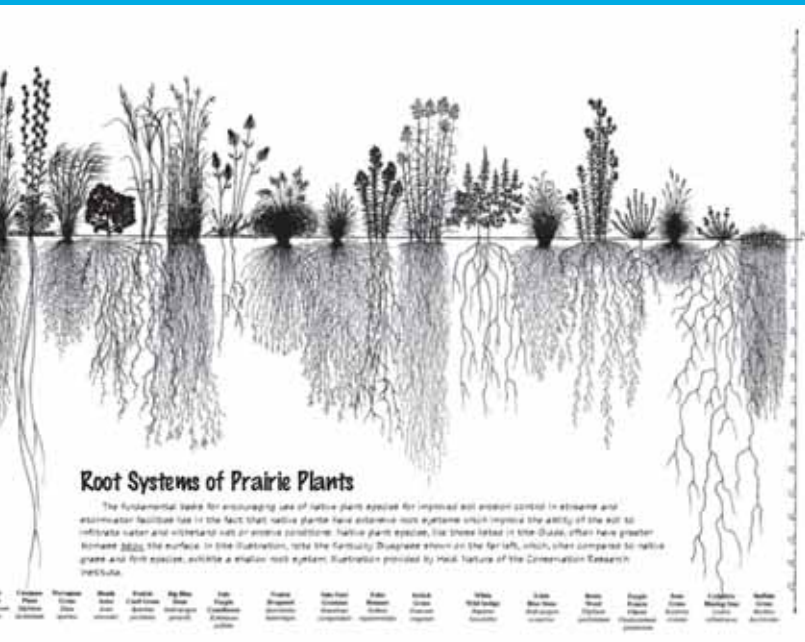


River Restoration

- Harvest existing trees
- Create environment for fish and macroinvertebrates
- Re-establish original stream cross section
- Provide transition zones

DESIGN/IMPLEMENTATION ELEMENTS

Wetland Creation



PERMITTING

Village of Addison Building Department
City of Wood Dale Building Department
U.S. Army Corps of Engineers

Madison-DuPage Soil & Water Conservation District

Illinois DNR Office of Water Resources

Illinois DNR EcoCAT

Illinois EPA Bureau of Water

DuPage County Building Department

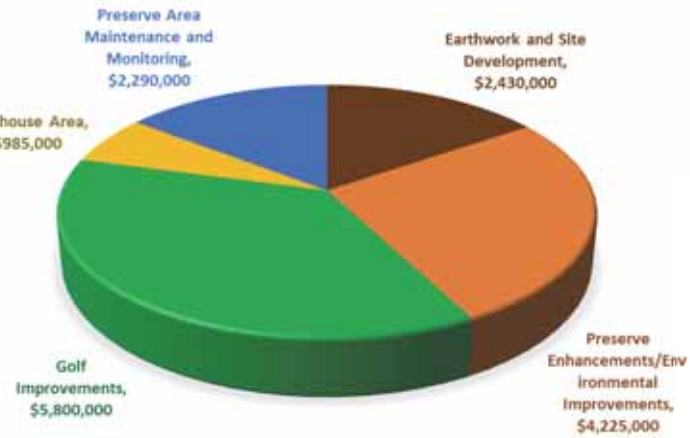
DuPage County Stormwater Management

DuPage County Division of Transportation

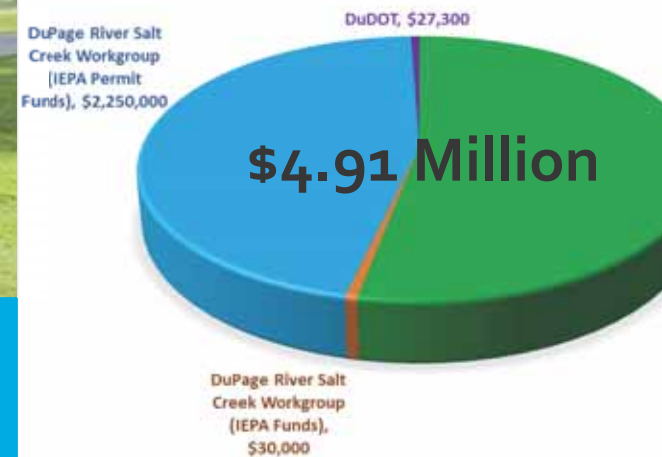


BUDGET

BREAKDOWN BY MAJOR COMPONENT



OUTSIDE FUNDING SOURCES



Bid January 2015

\$15.5M to Martam Construction

CONSTRUCTION HIGHLIGHTS



- Earthwork Balance
- 700,000 Cubic Yards of Total Earthwork
- Salt Creek & Diversion Channel Created Major Construction Obstacles

CONSTRUCTION HIGHLIGHTS

Retention Ditch

0.75 Miles in Length

Designed to Convey the
1-Year Storm Event

Channel Lined with
Polyethylene Fabric &
Riprap/Concrete

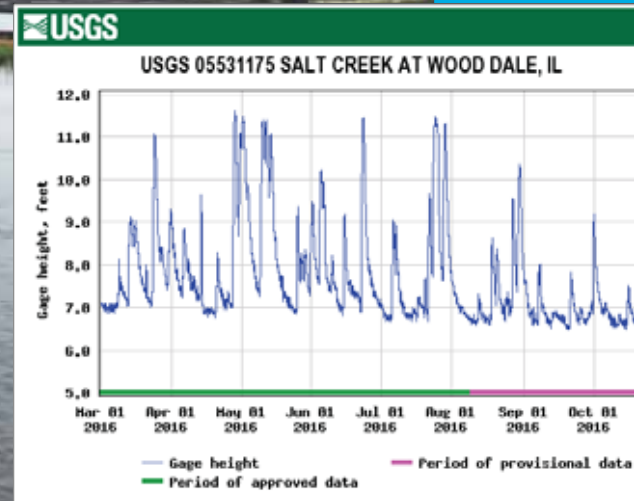
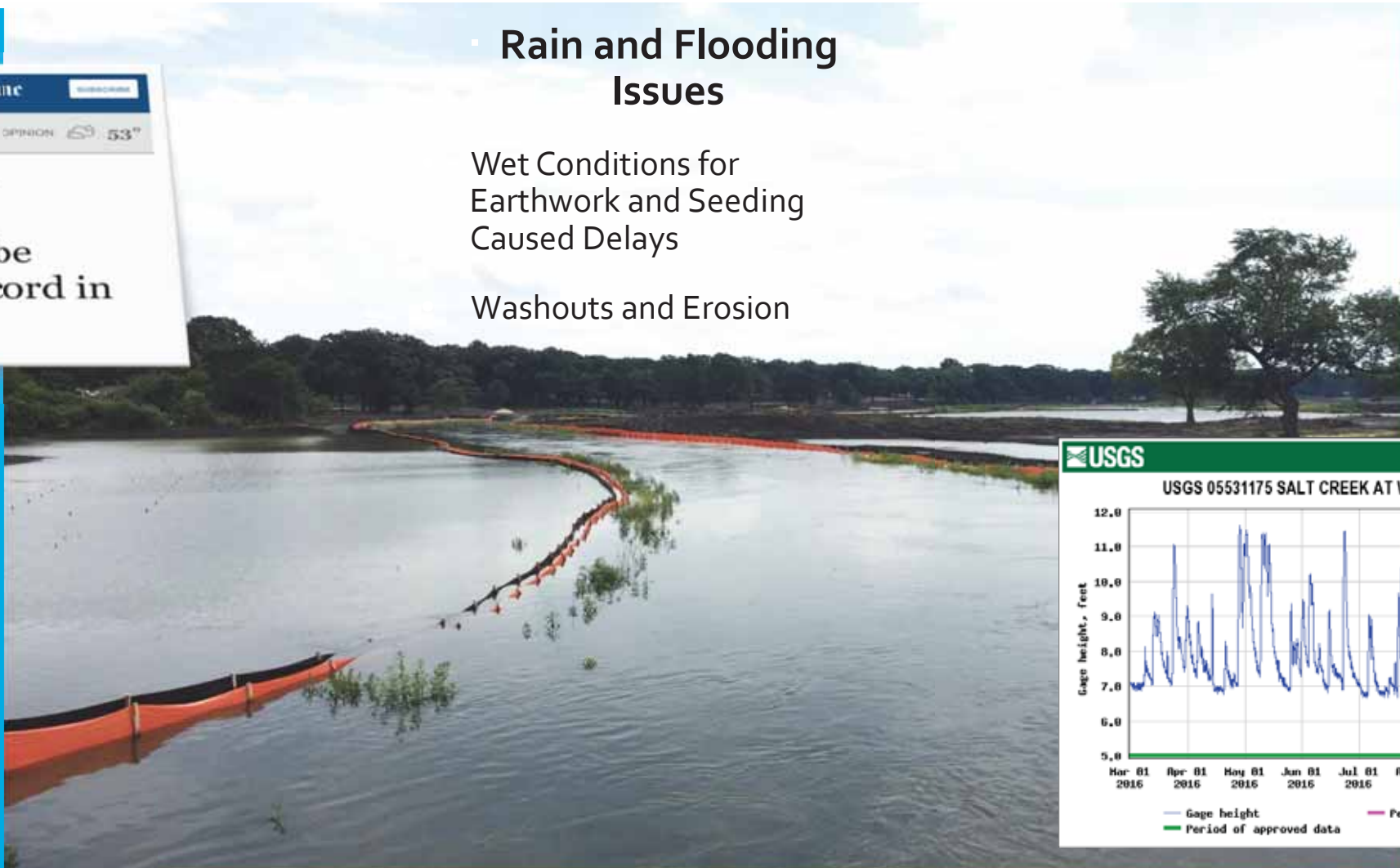


CONSTRUCTION HIGHLIGHTS

• Rain and Flooding Issues

Wet Conditions for Earthwork and Seeding Caused Delays

Washouts and Erosion



CONSTRUCTION HIGHLIGHTS

River Restoration

- 1.23 Miles of River Restoration
- 2 Dam Removals
- 1,200 feet of Metal Sheet Pile Removed
- 1.2 Miles of Concrete Ajax Removed



CONSTRUCTION HIGHLIGHTS

River Restoration

- 1.4 Miles of Soil Lifts Installed
- 0.7 Miles of Root Wads Installed, Re-using Harvested Trees from Throughout the Site
- 9,600 Tons of River Cobble Installed



CONSTRUCTION HIGHLIGHTS



New Irrigation Pond

- Locate Pump House out of Flood Plain
- Integrated into landscape
- 3 Million Gallon Capacity Irrigation Pond
- Challenges with Sand Seam



CONSTRUCTION HIGHLIGHTS



- 308,000 Native Plugs
- 135 Acres of Native Se

CONSTRUCTION HIGHLIGHTS

- 42 Acre-Feet of Additional Floodplain Storage Created



CONSTRUCTION HIGHLIGHTS

Native Trees

5 Native Shrubs

ars and 5-Years of
land & Upland
pectively) Maintenance
onitoring for Native
as



CONSTRUCTION HIGHLIGHTS

- View from Salt Creek Greenway Bike Spur Trail



TAKE-AWAYS

Seeking Win-Win
Transferrable Process
Collaborative &
Interdisciplinary
Key- Vision and Courage

