

Metropolitan Water Reclamation District of Greater Chicago



Green and Gray Infrastructure

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STORMWATER MANAGEMENT

- District conveyed authority in November 2004 to plan, manage, implement, and finance activities relating to stormwater management in Cook County
- Engineering Department's primary activities:
 - Implement Cook County Stormwater Management Plan
 - Capital Improvement Program to address existing stormwater problems
 - Comprehensive stormwater regulations to ensure future development and redevelopment does not exacerbate flooding

STORMWATER MANAGEMENT



Other District Activities

- Small Stream Maintenance Program
- Rain Barrel Program



Stormwater Management Projects

- Detailed Watershed Plans (DWPs)
 - Identify regional streambank stabilization and flooding problems and potential solutions
 - DWPs completed for following watersheds
 - Calumet-Sag Channel
 - Little Calumet River
 - Upper Salt Creek
 - Poplar Creek
 - North Branch Chicago River
 - Lower Des Plaines River

- Total damages for identified regional problems estimated to be just under \$1 Billion

STREAMBANK STABILIZATION PROJECTS

- Natural channel design is our goal where practical
- Structural measures when necessary
 - Concrete walls
 - Sheet piles
 - Gabion baskets



FLOOD CONTROL PROJECTS



- Structures and roadways impacted by overbank flooding of regional waterway



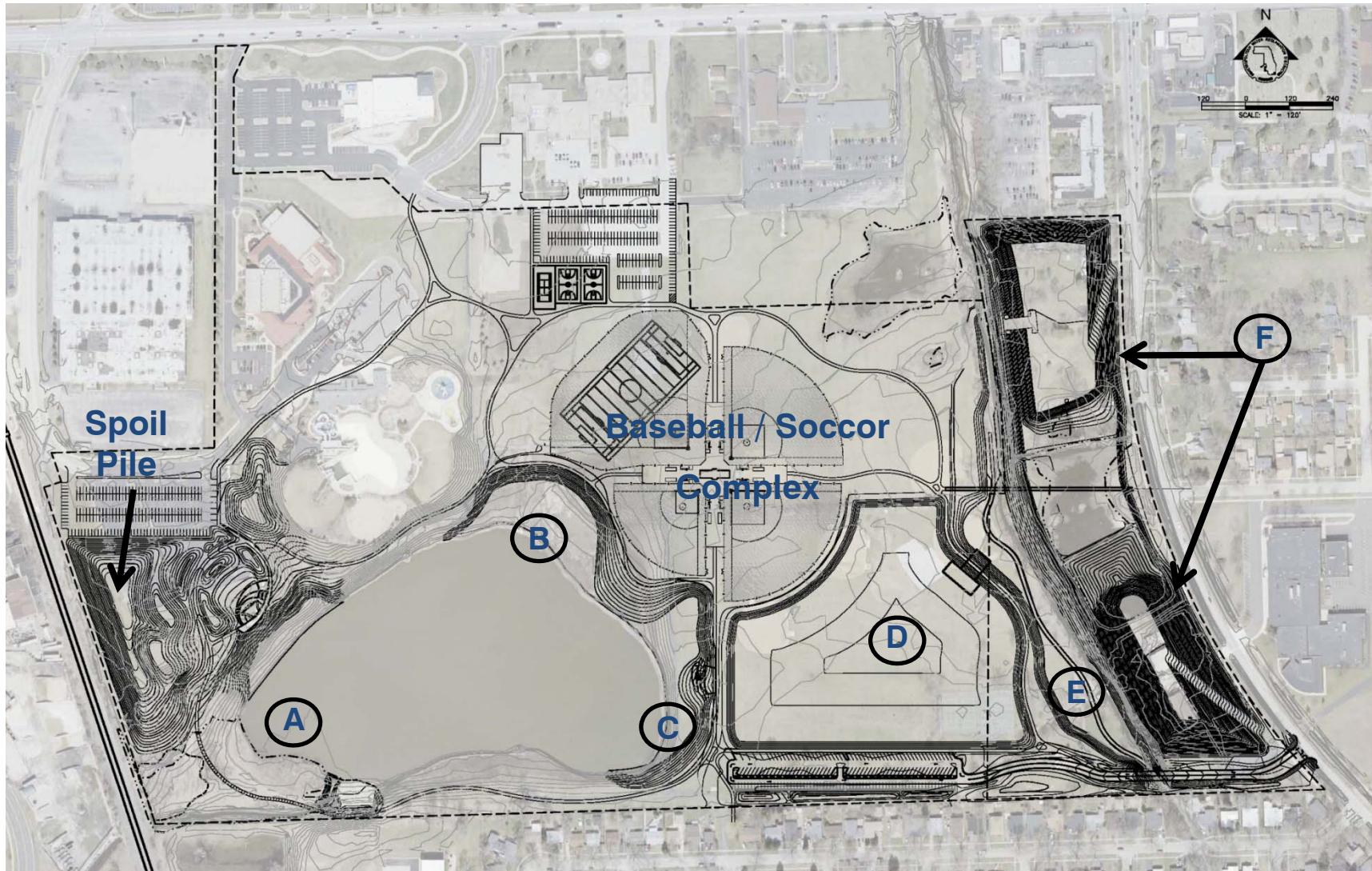
HERITAGE PARK FLOOD CONTROL FACILITY

- Will provide compensatory storage for USACE Levee 37 project.
- Approximately 115 Acre-Ft in flood storage
- GI complements traditional detention facility:
 - Preserves existing wetland areas
 - Incorporates bioswales with native planting
 - Provides prairie and riparian buffer zone along Buffalo Creek

Heritage Park Flood Control Facility Wheeling Park District Master Plan



Heritage Park Flood Control Facility Proposed Plan



WATERSHED MANAGEMENT ORDINANCE (WMO)

- Proposes performance based regulations for development and redevelopment projects
 - Water quality requirements for sites ultimately discharging to waterways
 - Provide treatment of the first inch of impervious area runoff
 - Detention credits for employing either water quality or volume control
- Economic Impact Study
 - Applies to green and gray

WATERSHED MANAGEMENT ORDINANCE (WMO)

- Draft WMO calls for green and gray
- Green to address smaller, more frequent rainfall events
 - Volume Control / Water Quality
 - Capture of 1st inch on impervious areas
 - Pervious pavement
 - Rain Gardens
 - Bioswales

■ Maintenance Considerations

NEW STORMWATER RULES

- EPA is in the process of developing new stormwater regulations
- Considering the following:
 - Performance standards for new and redeveloped sites
 - Options to reduce discharges from existing development
- Final determination anticipated by November 2012

Green and Gray

- Many urban areas combining Green & Gray
 - Utilize gray to reduce CSOs and store and convey large volumes
 - GI component of Long Term Control Plans to help reduce CSOs
 - Using GI to complement traditional CSO and flood control measures
- Milwaukee:
 - 3 Phase Deep Tunnel Project has over 28 miles of tunnel ranging from 17 -32 ft in diameter which provide approximately 521 MG of combined and floodwater storage.
 - “Greenseams” Program – purchase of undeveloped property in shoreline, stream, or wetland area to preserve open space in areas expected to have major growth.
 - Rain Garden Program – Outreach and demonstration of rain garden construction and function; plants made available at reduced pricing.
 - Rain Barrels – promote use and disconnection of downspouts.

Green and Gray

- Other major metropolitan areas using combination of green and gray
 - St. Louis
 - Cleveland
 - Seattle
 - Washington, D.C.

DISTRICT'S TUNNEL AND RESERVOIR PLAN

- TARP adopted in 1976.
- Phase 1:
 - 4 tunnel systems totaling 109.4 miles and providing 2.3 BG storage capacity.
 - Completed in 2006.
- Phase 2:
 - 3 reservoirs: Majewski, Thornton and McCook
 - Majewski Reservoir completed in 1998; provides 350 MG CSO storage
- When remaining 2 reservoirs are completed, entire TARP system will provide storage capacity of 17.5 BG.

THORNTON COMPOSITE RESERVOIR



THORNTON COMPOSITE RESERVOIR

- Dual purpose reservoir providing 3.1 BG floodwater storage and 4.8 BG CSO Storage as part of the Tunnel and Reservoir Plan
- Construction Cost \$421 M
- \$40 M average annual flood reduction benefits
- Reservoir serves a population of 556,000 in 15 communities and protects 182,000 structures
- Scheduled to be online by 2015

MWRD GREEN INFRASTRUCTURE PROGRAM

- Approved by the Board of Commissioners on September 1, 2011
- Facilitate planning, design and construction of GI throughout Cook County in collaboration with various stakeholders
- Development Phase
 - Evaluate existing programs
 - Develop program framework and guidelines
 - Public education component
 - Demonstration projects

??????QUESTIONS??????

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