Green Infrastructure and Stormwater

Village of Niles
Oak Park Bioswale and Permeable Pavement
Introduction

- Historic Stormwater context
- Stormwater Program
- Village wide projects
- Focus On Green Infrastructure
- Oak Park Case Study
Historic Context

Niles experienced extensive flooding in:

- 1987 and years prior
- 1996
- 1998
- 2002
- 2008*
- 2010
- 2011
- 2013

*Disaster declarations by President
*Straw that broke the camel's back?
Following 2008 storms there appeared to be a paradigm shift....
Historic Context

Paradigm Shift

- Stormwater Commission
- Stormwater Commission Internal Report 2009
- Hired Professional Stormwater Experts (Hey & Associates)
- Stormwater Relief Program 2012
- Major Stormwater Projects Construction 2014 (expedited by Mayor)

Implemented many other incremental steps and programs as well. Multi faceted program approach including traditional and green infrastructure projects.
Oak Park projects falls under capital improvement category
Projects Completed and in Progress

- Maryhill Cemetery Stormwater Basin
- Our Lady of Ransom Stormwater Basin
- Neva Bio-swale
- Cleveland Sewer
- Community Rain Garden
- Oak Park Bioswale
- You are here

Private G.I.
Village Stormwater Project
Oak Park Bioswale
Projects Completed and in Progress

Traditional Projects

Green Infrastructure

Achievements

- Community education
- Conversation starter
- Volunteerism
- High visibility (Touhy Ave)
- Chloride treatment
- Stormwater relief
- Public-Private Partnerships
Oak Park Existing Conditions

- Combined Sewer Area
- Naturally Tributary to North Branch of the Chicago River
- “Upland “ Zone
- Heavily used Public Park
Flood Projections

Project Location
Traditional Solutions

Project Location (headwater)
Village of Niles
Green Infrastructure Combined Sewer Overflow Control Program
Bioswale Typical Cross Section  [Lee Street west of Oak Park Avenue]

- Flat / Gently Sloping Bottom
- Salt / Moisture Tolerant Vegetation
- Engineered Trenches (Minimum 12")
- Aquifer Storage (24" CA 16 Gravel)
Permeable Pavement

RePlenish Features:
- Permeable Paved Strength - Exceeds traditional concrete strength
- Withstands 10,000+ foot pounds
- Industry-leading infiltration - up to 1400 inches per hour
- Contaminant Removal - Up to 98% of dissolved metals and more than 65% of phosphorus
- Interlocking T-infrastructure Sections
- Flood Mitigation - A great way to manage and reduce flood conditions
- Easy Maintenance
- ADA Compliance
- Credit for Green Building Standards
Unique Project Features

- 53,811 Gallons of Storage as certified by MWRD
- Equivalent to almost 1000 Rain Barrels
- Park District Cooperation and Coordination
- Multiple Funding Sources Royal Bank of Canada and MWRD
- Spancrete debut in Illinois – Road Trip to Summerfest
- CSO Volume reduction
- Reduced Waterway Impacts
Project Take Aways

• Persistence Pays
• Local agency coordination
• Incremental solution – Tool for the tool box
• Used in combination with traditional solutions
• Retrofit possibilities
• Cost premium offset by infrastructure replacement cost
• Maintenance Considerations - 3 years
• Stormwater does infiltrate! Even in clay!
• Combined Sewer Area appropriate
• Add to grant applications when possible
Thank you

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Questions?