

Addressing Flooding in the Calumet Region - Calumet City and Crestwood

Farnsworth Group Overview

Agenda



Boneyard Creek, Champaign



Introductions / Our Firm



Stormwater Expertise



Project Highlights



Challenges to Storm Sewer Systems



Funding Projects

Introductions



Akwasi Nketia, PE
Engineering Manager



Emily Jenkins, PE, CFM, PhD
Project Engineer

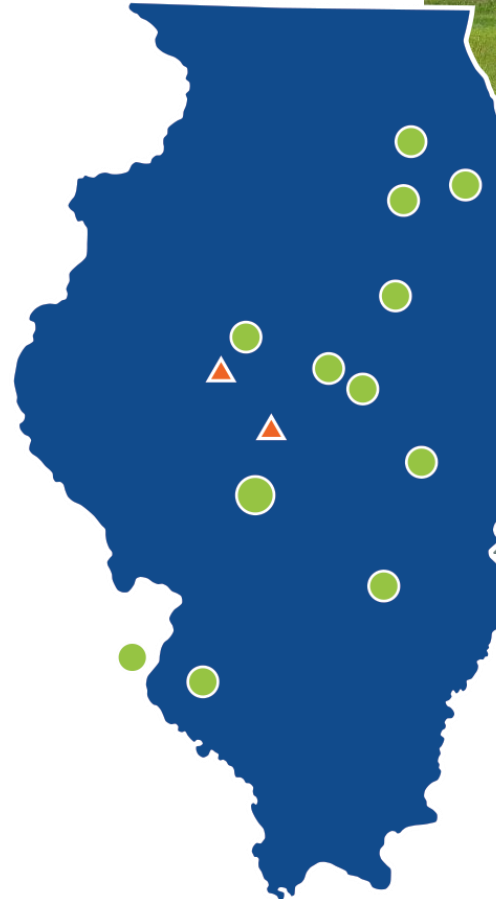


Cal-Sag Detention Basin, Crestwood

Firm Overview

At the heart of what we do is our people, passion, and performance

- Offices in Tinley Park, Joliet, and Lisle
- Strong local presence
- Serves over 60+ municipalities and public service districts
- Full-service A/E firm



Kickapoo Creek, Bloomington

Full-Service A/E Firm

- Municipal Engineering
- Stormwater Management
- Transportation Engineering
- Land Development
- Wastewater Engineering
- Water System Engineering
- Controls and Automation
- Land Surveying
- Oil & Gas Pipeline Engineering
- Architecture
- Mechanical
- Electrical
- Plumbing
- Structural
- Landscape Architecture
- Interior Design
- Commissioning
- LEED® Consulting

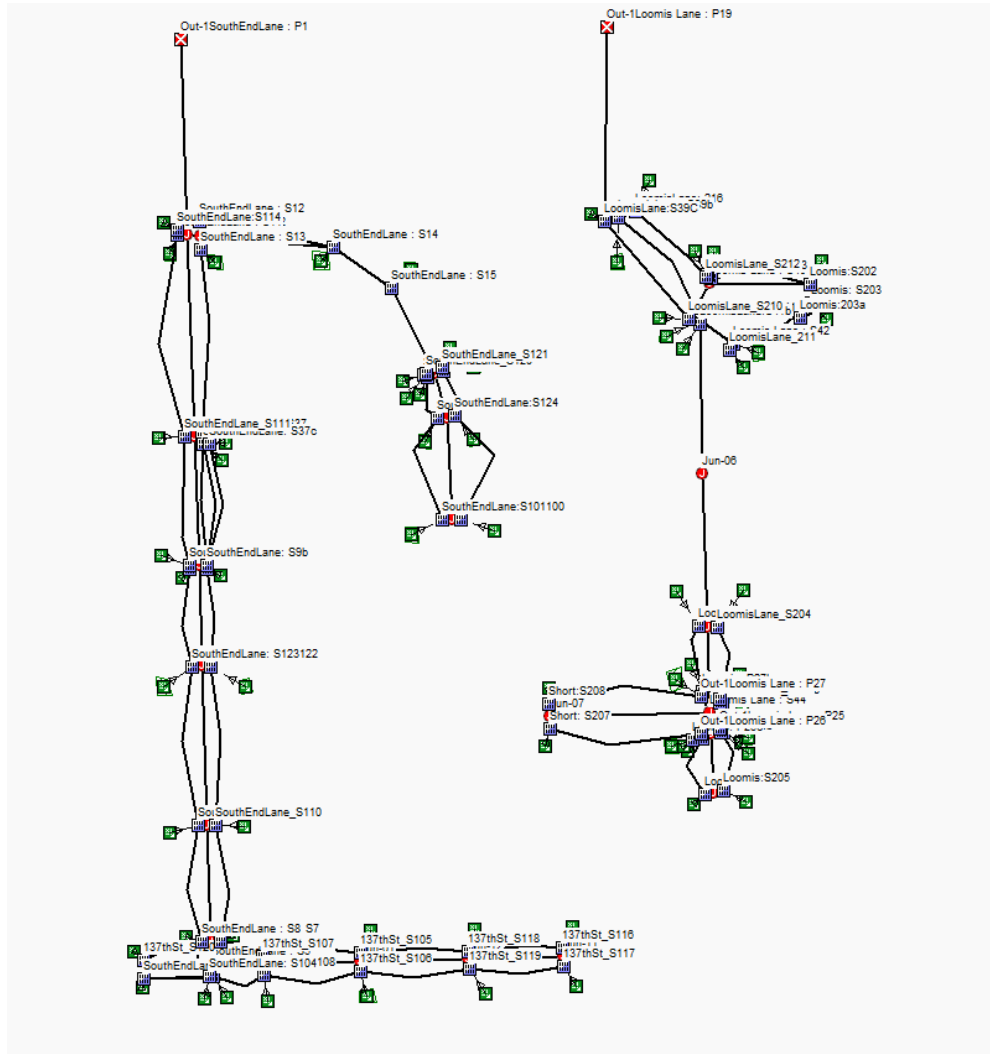




Stormwater Expertise

Stormwater

Planning, Design, and Construction



- Practical solutions for urban flooding
- Water resources technical group
- Utilization of multiple techniques to solve stormwater problems: conveyance, storage, and infiltration
- Drainage master plan and modeling

Stormwater

Green Infrastructure

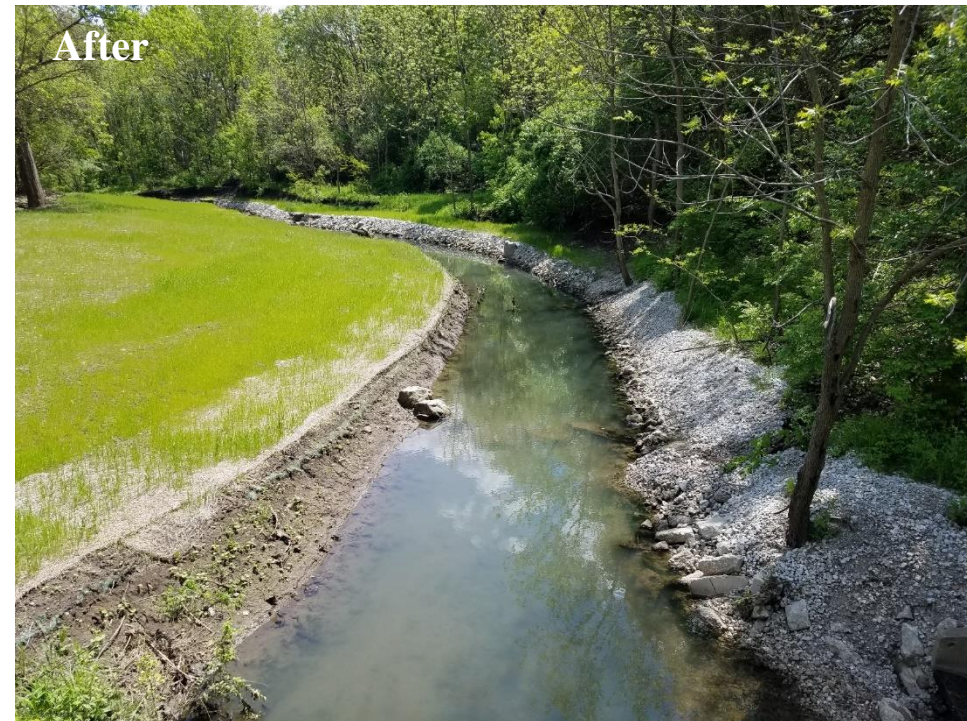
- Rain gardens
- Bioswales
- Permeable pavers and pavement
- Native detention areas
- Innovative asphalt-aggregate-concrete pavement materials
- Drywells



Stormwater

Stream Restoration

- Protect infrastructure near streams by stabilizing the stream in a natural, sustainable way
- Reduce flooding by restoring stream cross sectional area
- Stabilize streambanks to improve water quality





Project Highlights

Village of Crestwood

Gardens Storm Sewer Improvements

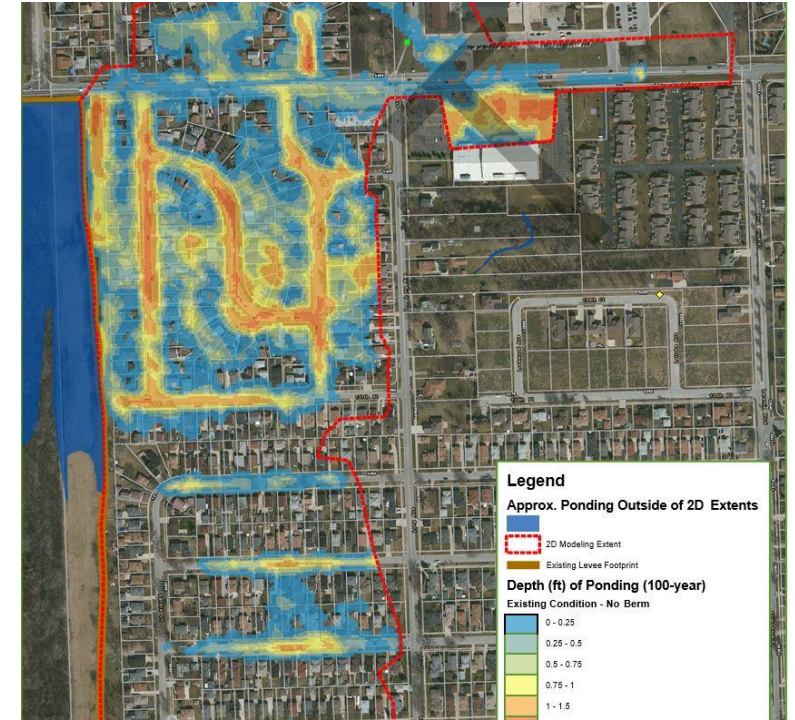


- Neighborhood with undersized storm sewers, frequent flooding
- Upsized storm pipes to collect and detain stormwater
 - Proposed pipe sizes – 12” to 30”
- Replaced inlet grates with efficient vane inlet grates

Village of Crestwood

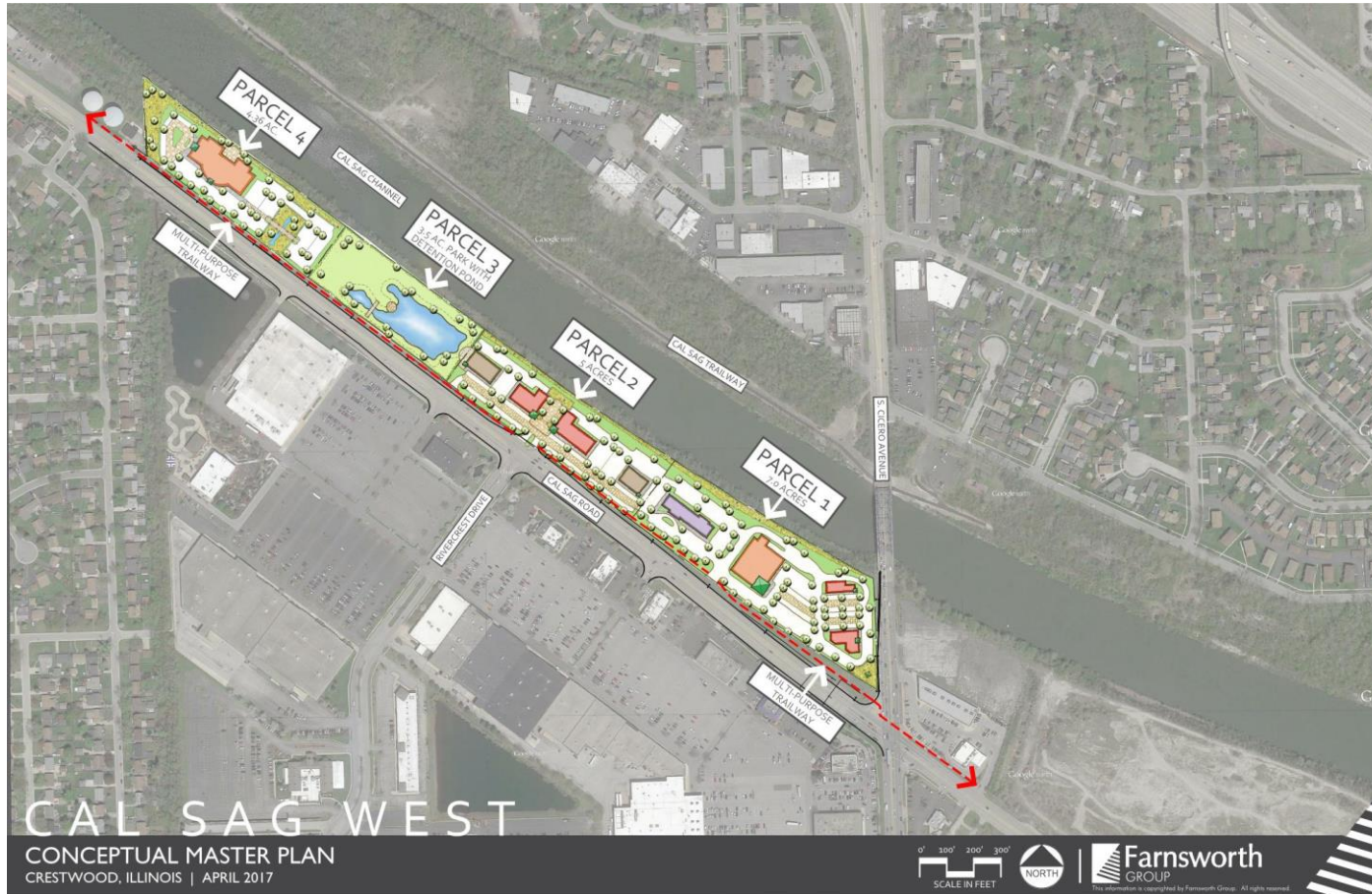
135th Street Flood Control Project

- MWRD funded project
- Severe flooding within project area
- Various models for different rain events
- Selected alternative: improved conveyance / detention storage
- Farnsworth Group services:
 - Easement acquisition
 - Utility relocation design
 - FPDCC License agreement
 - Engineering review



Village of Crestwood

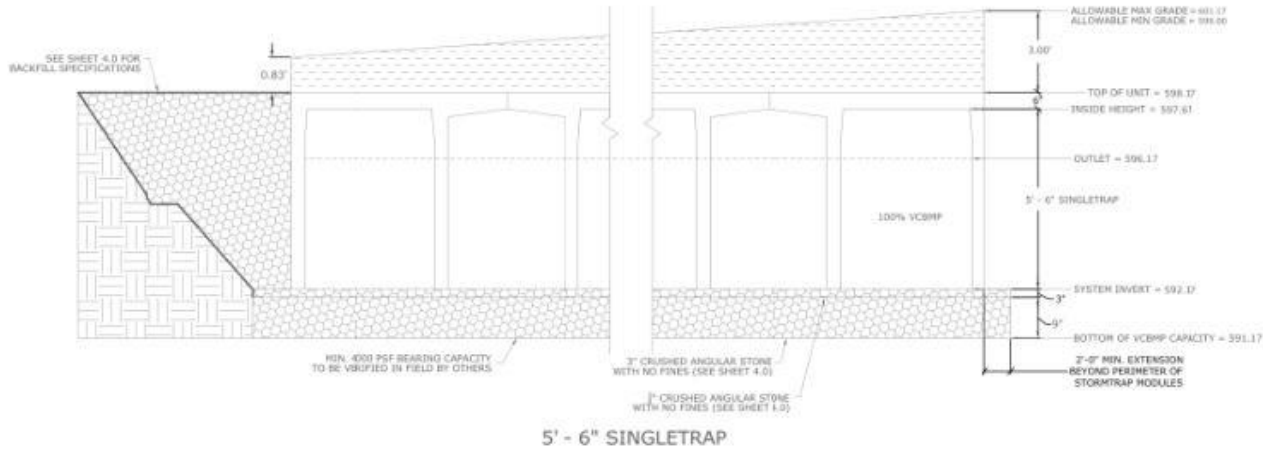
River Crossing Subdivision



- 19+ acre parcel owned by MWRD
- Commercial hub to include restaurants, hotel, grocery store, and park
- Parcel 1 includes ALDI and Chick-Fil-A
- Utility design

Village of Crestwood

Aldi and Chick-Fil-A Developments

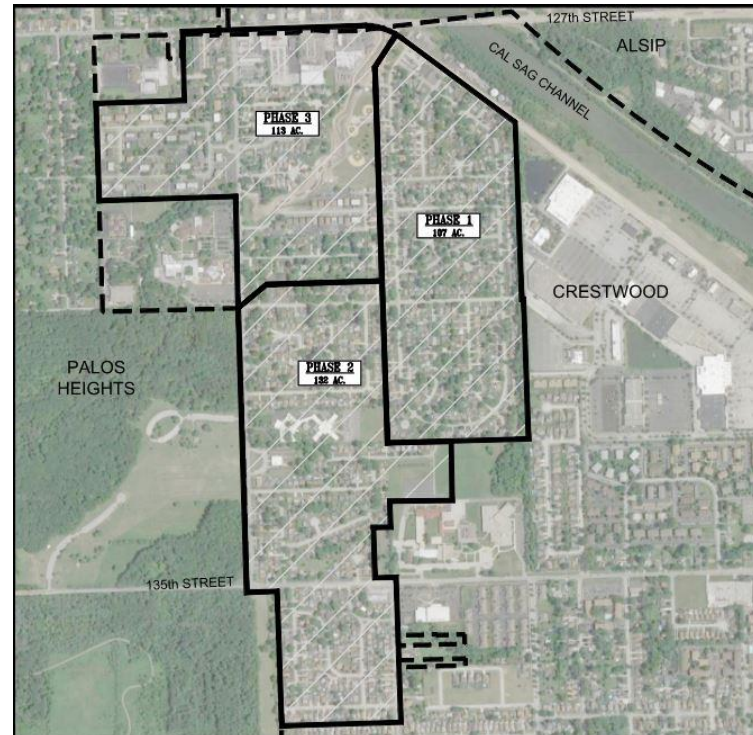


- Volume control met with:
 - Permeable pavers and underground vault for ALDI development
 - Drywell and underground vault for Chick-Fil-A development



Village of Crestwood

Flooding Hotspots

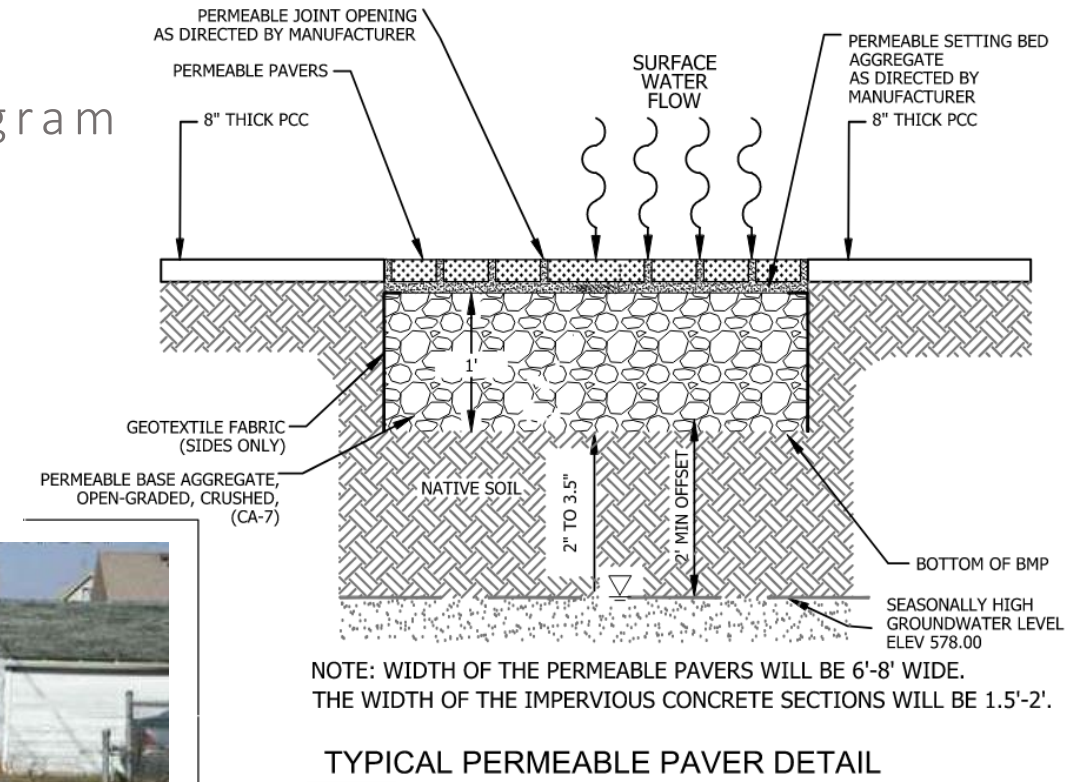


- Separate storm sewer system
- Gardens Subdivision
- Playfield Subdivision (oldest subdivision)
- I/I Issues
- Rehabilitation of the storm sewer system in all three phases

City of Calumet City

MWRD Green Infrastructure Partnership Program

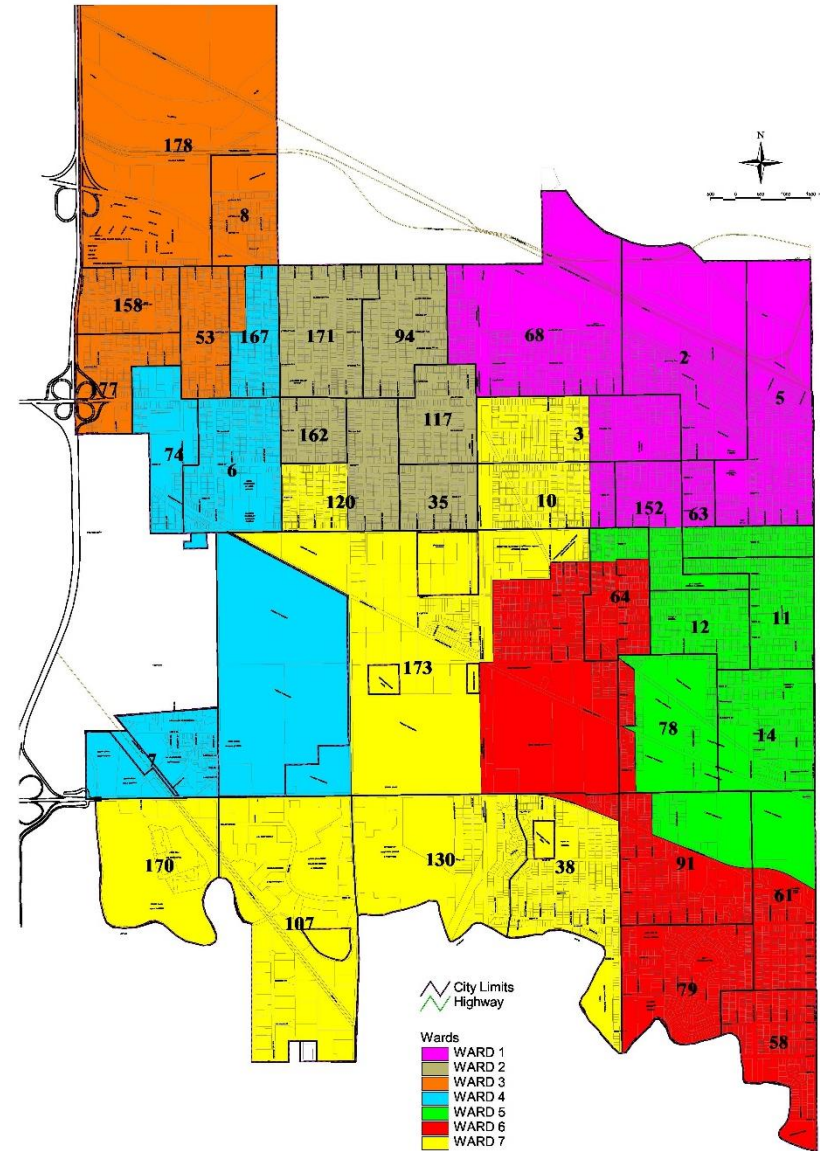
- Green alleys project
- Pave two alleys with permeable asphalt
- Pave two alleys with permeable pavers
- Store and infiltrate stormwater
- Soils conducive to infiltration / green infrastructure
- Application submitted 09/06/2021



City of Calumet City

Flooding Hotspots

- 7 Wards
- Combined / separate systems
- Flooding occurs in all Wards
- Age of pipes
- Maintenance issues
- Future priorities:
 - CMAP/MWRD Master Plan Study
 - USACOE Levee Study Project
 - Storm Sensor Grant
 - Cleaning and televising of sewer system





Challenges to Storm Sewer Systems

Storm Sewer Challenges

Past



- What standard was used?
- Did an agency review the plans before construction?
- Did the contractor follow the plans?
- Construction techniques / methods by Contractor
- Lack of inlets in residential neighborhoods
- Published rainfall data 1960 < current rainfall data

Storm Sewer Challenges

Present

- Under-staffed municipalities
- Aging systems: cracked, broken pipes
- More impervious areas
- Larger, more intense rainfalls
- Lack of funding
 - Expensive to do initial studies, scoping, planning, and engineering
 - Expensive to apply for grants
 - Expense of construction
- More strict stormwater requirements / permitting hurdles



Gray Infrastructure Maintenance

- Routine scoping, cleaning, and televising of storm sewer system
- Budgeting for yearly maintenance projects, as well as capital improvement projects
- Adopt-a-drain program
- Lining pipes to reduce infiltration and inflow
- Stormwater utility fee
- Education (resident newsletter)



Green Infrastructure Maintenance



- Operations and Maintenance Plan
- Inspect regularly
- Permeable pavement
 - Vacuum pavement 1-3 times / year
 - Reduce salt application (no salt on permeable concrete)
 - Rubber tip on snowplow
- Biological systems (rain gardens, bioswales, wetlands)
 - Regular weeding
 - Possible control burns 1x / 3 years



Funding Projects

Funding Opportunities

- MWRD Green Infrastructure Partnership Program
- Nature Conservancy StormStore
- Chi-Cal River Funds
- IEPA Green Infrastructure Grant Opportunity (GIGO)
- FEMA Building Resilient Infrastructure and Communities (BRIC)



Questions & Answers