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RAPIDS

Environmental  
Services  
Department

# City of Grand Rapids – Stormwater Management

Managing Stormwater in Today's  
“Current Climate”



# Paddling through “Current Climate”



- Vandalism from Bridge Repair Project on 7/31/25 – Illicit Discharge Reported

- “Do you feel up a creek without a paddle?” –
- Here to help paddle through the current climate
  - Regulatory Climate
  - Political Climate
  - Funding Climate
- Share Lessons Learned, Tips and Tricks, and Network

# Get to Know Grand Rapids



○ Monroe Center – Downtown Grand Rapids

○

- 2<sup>ND</sup> LARGEST CITY IN MICHIGAN, WITH A US CENSUS ESTIMATE OF 198,796 PEOPLE
- LOCATED ON THE GRAND RIVER, LARGEST RIVER IN MICHIGAN
- GRAND RIVER DISCHARGES TO LAKE MICHIGAN APPROXIMATELY 30 MILES TO THE WEST
- LAKE MICHIGAN IS THE SOURCE OF DRINKING WATER FOR THE CITY



# Get to Know Grand Rapids



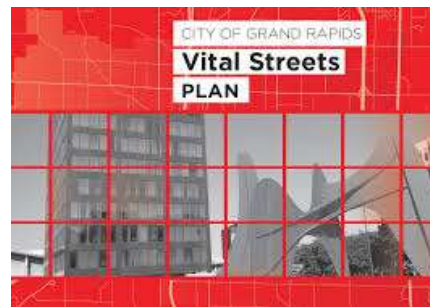
## Sewer Improvement Project



In 2015 we completed a Sewer Improvement project. This eliminated all Combined Sewer Overflow (CSO) points in the sewer system. Our original, state-mandated deadline was 2019.

- SEPARATED SANITARY / STORM SEWER SYSTEM
- GREEN GRAND RAPIDS PROGRAM
- VITAL STREETS PROGRAM
- MS4 Permit – Phase I Community

## GREEN GRAND RAPIDS





# MS4 Permit Regulations



- New MS4 Permit Regulations September 2022
- Water Quality Treatment Standards
- Channel Protection Performance Standard
- Industrial Facility Program

○ “Business Man’s Special” – Fishing at Lunch Across from Devos Place

○

# Post Construction Management



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○ Nature Based Play – Clemente Park

○

*New development and redevelopment projects that increase on-site impervious area by 1,000 square feet or more (relative to pre-project conditions) will be subject to these requirements.*

## 1) Water Quality

- Treat runoff generated from **1 inch** of rain over project site
- Reduce TSS loadings by 80% or discharge at 80 mg/L

## 2) Channel Protection

**Retain** increase between predevelopment and post development runoff volume for 2-year/ 24-hour storm (2.56 inches)

# Ways to Address Requirements



- Regional Stormwater Detention Facility – Mary Waters Park

○

- Credit Trading : Optional  
“Market-based” alternative  
approach to meet new MS4  
requirements
- Trading option provides  
flexibility to project developers  
and property owners
- Alternative Approach –  
Extended Detention



# Stormwater Credit Trading: The Basics



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Market-based compliance option that provides flexibility for meeting Channel Protection requirements.

- **Buyers:** Developers/property owners can meet all or some stormwater requirements by buying volume-based “credits”
- **Sellers:**
  - Property owners who go beyond regulatory requirements to manage additional impervious area, or
  - Property owners not subject to regulatory requirements who voluntarily implement BMPs
- **Credits** can be banked for future use by same developer



○ North Park Montessori Rain Garden and BioSwale

○

# Industrial Stormwater -The Basics



## Overview of ISW Program



- Facilities can be regulated both by the City and State
- Facilities are required to comply with State industrial stormwater permit requirements, if permitted by the State
- City Permits issued to industrial facilities that have the potential to impact stormwater quality
- Facilities classified into 1 of 3 priority levels which will determine requirements and frequency of inspections
- Facilities inspected every 1 to 5 years with permit renewal based on priority level

## Presentation Outline



- Regulatory background and requirements
- City Industrial Stormwater Program Content
  - Who needs a permit
  - Example regulated activities
  - Permit requirements
  - No exposure situations
  - Priority levels: low/med/high
  - Inspection frequency and process
- What to Expect Next
- Key Contacts & Resources
- Questions



<https://www.grandrapidsmi.gov/Government/Departments/Environmental-Services/ISW>

## Alternative Compliance Options for Channel Protection Volume

```

graph TD
    S1([Step 1:  
Calculate Required  
Channel Protection  
Volume]) --> S2([Step 2: Evaluate  
Effectiveness of Volume  
Reducing BMPs  
(That will drain within 72  
hours to provide  
necessary flooding  
protection)])
    S2 --> Q1[Can the BMPs keep the total  
developed volume to  
pre-development levels?]
    Q1 -- Yes --> End([Proceed with design submittal to Local Agency])
    Q1 -- No --> Q2[Has the developer explored  
all BMPs and maximized  
their use?]
    Q2 -- No --> S2
    Q2 -- Yes --> Q3[Have detailed soil borings  
and SRI infiltration tests  
been performed in the field  
to confirm soils infiltration  
capacity?]
    Q3 -- No --> S2
    Q3 -- Yes --> Q4[Do soils infiltrate  
at a rate of less than  
0.24 inches/hour?]
    Q4 -- No --> S2
    Q4 -- Yes --> Q5[Will these conditions be  
addressed with Mitigation  
or Payment-in-Lieu?]
    Q5 -- No --> S2
    Q5 -- Yes --> Alt[Alternative Approach:  
Extended detention of the 2-year, 24-hour storm  
for a period of 24 hours resulting in a drawdown  
time no greater than 72 hours. The resulting  
peak discharge shall be no greater than the  
existing 1-year peak discharge.  
Extended Detention must be accompanied by a  
detailed landscaping plan that considers  
transpiration and shading of surface detention.  
Detailed Maintenance plans shall be required for  
both surface and subsurface detention.]
    Alt --> End
  
```

**Lower Grand River Organization of Watersheds MS4 Stormwater Ordinance Committee**

**Alternative Approach Flow-Chart**

**Step 1:** Calculate Required Channel Protection Volume

**Step 2:** Evaluate Effectiveness of Volume Reducing BMPs (That will drain within 72 hours to provide necessary flooding protection)

**Utilize: LGRGW Design Spreadsheet (to be designed)**

- Rain Garden
- Bio-Swales
- Infiltration trenches
- Pervious Pavement
- Green Roof
- Landscaping
- Transpiration-Tree Selection
- Storage and reuse

**Can the BMPs keep the total developed volume to pre-development levels?**

**Yes** → Proceed with design submittal to Local Agency

**No** → Has the developer explored all BMPs and maximized their use?

**Has the developer explored all BMPs and maximized their use?**

**No** → Step 2

**Yes** → Have detailed soil borings and SRI infiltration tests been performed in the field to confirm soils infiltration capacity?

**Have detailed soil borings and SRI infiltration tests been performed in the field to confirm soils infiltration capacity?**

**No** → Step 2

**Yes** → Perform detailed soil borings

**Do soils infiltrate at a rate of less than 0.24 inches/hour?**

**No** → Step 2

**Yes** → Will these conditions be addressed with Mitigation or Payment-in-Lieu?

**Will these conditions be addressed with Mitigation or Payment-in-Lieu?**

**No** → Step 2

**Yes** → **Alternative Approach:**

Extended detention of the 2-year, 24-hour storm for a period of 24 hours resulting in a drawdown time no greater than 72 hours. The resulting peak discharge shall be no greater than the existing 1-year peak discharge.

Extended Detention must be accompanied by a detailed landscaping plan that considers transpiration and shading of surface detention. Detailed Maintenance plans shall be required for both surface and subsurface detention.

→ Proceed with design submittal to Local Agency

**GVMC**  
 Edited 1/3/2018

- Limited size of the lot outside of the building footprint
- Soil instability
- Poorly draining soils
- Adverse conditions for plantings.
- On-site water quality impacts vs. benefits realized at the offsite location.
- Bedrock that impedes infiltration
- High groundwater, or the potential of mounded groundwater to impair other uses
- Stormwater hot spots (includes Part 201 and Part 213 sites, and areas of soil or groundwater contamination)



# Getting Projects in The Ground – Project Of Focus – Seymour Square

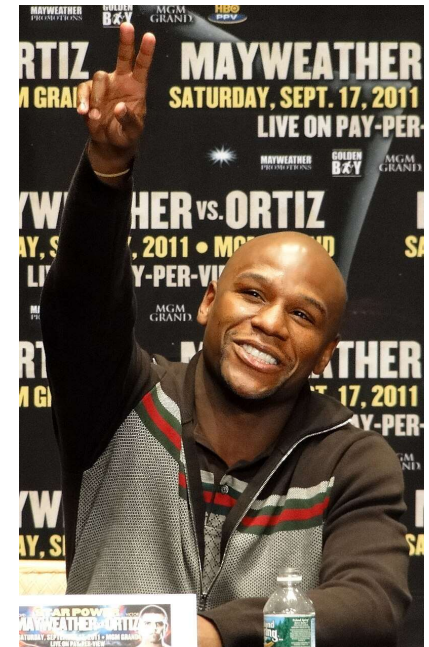


## Grand Rapids Six Core Values –

- Accountability
- Collaboration
- Customer Service
- Equity
- Innovation
- Sustainability



- Seymour Square Post Office – Dad worked here through the 90s



- Grand Rapids' Own
- Boxing Champion Floyd Mayweather Jr.



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## Community Context

### Grand Rapids:

- **Political Boundaries**

3 Wards, 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>

Ward Equity

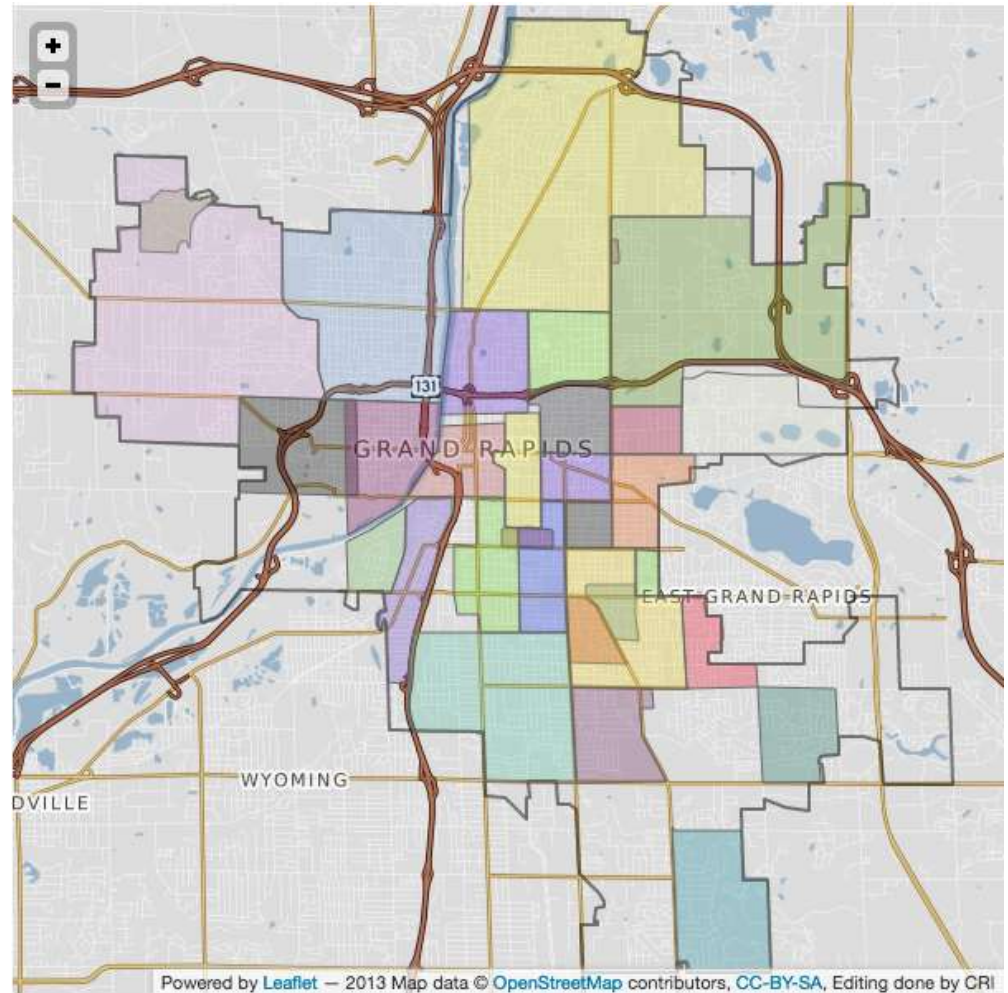
- **Neighborhoods**

- **Business Districts**

- Seymour Square CIA

- **Identified Neighborhoods**

- Alger Heights



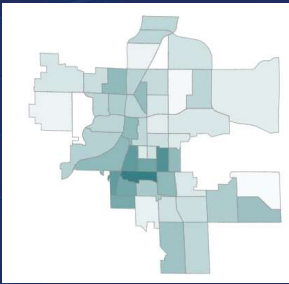
<https://santiagoproperties.us/gr-neighborhoods>



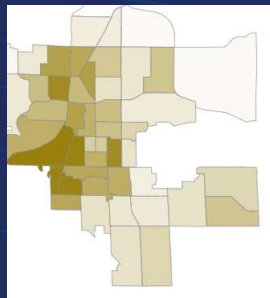


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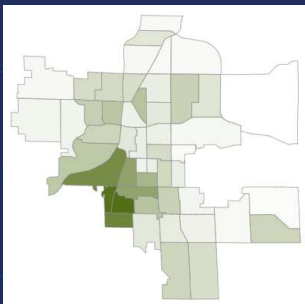
## Vulnerable Communities



UNEMPLOYMENT



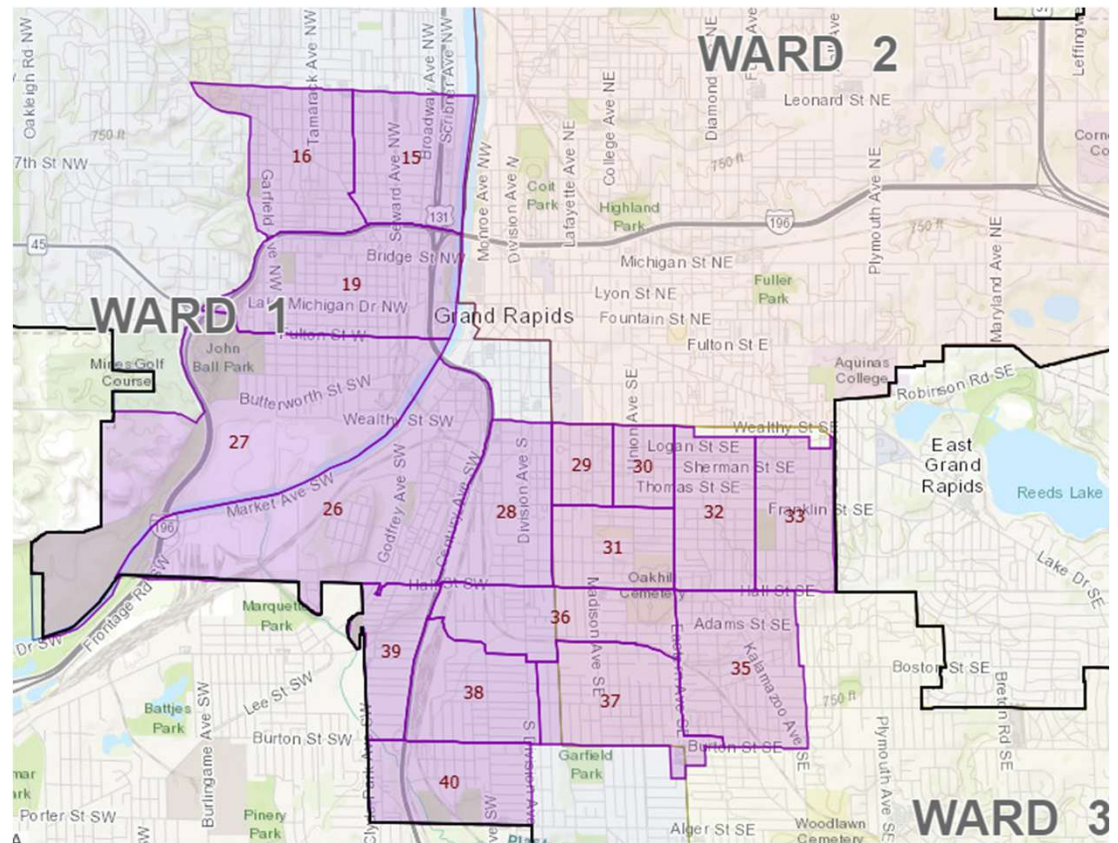
POVERTY



EDUCATION

## Neighborhoods of Focus

- High correlation to previously “Red Lined” areas
- Higher rates of poverty and unhoused populations
- Higher rate of unemployment or underemployment
- Lower rates of educational opportunities and attainment







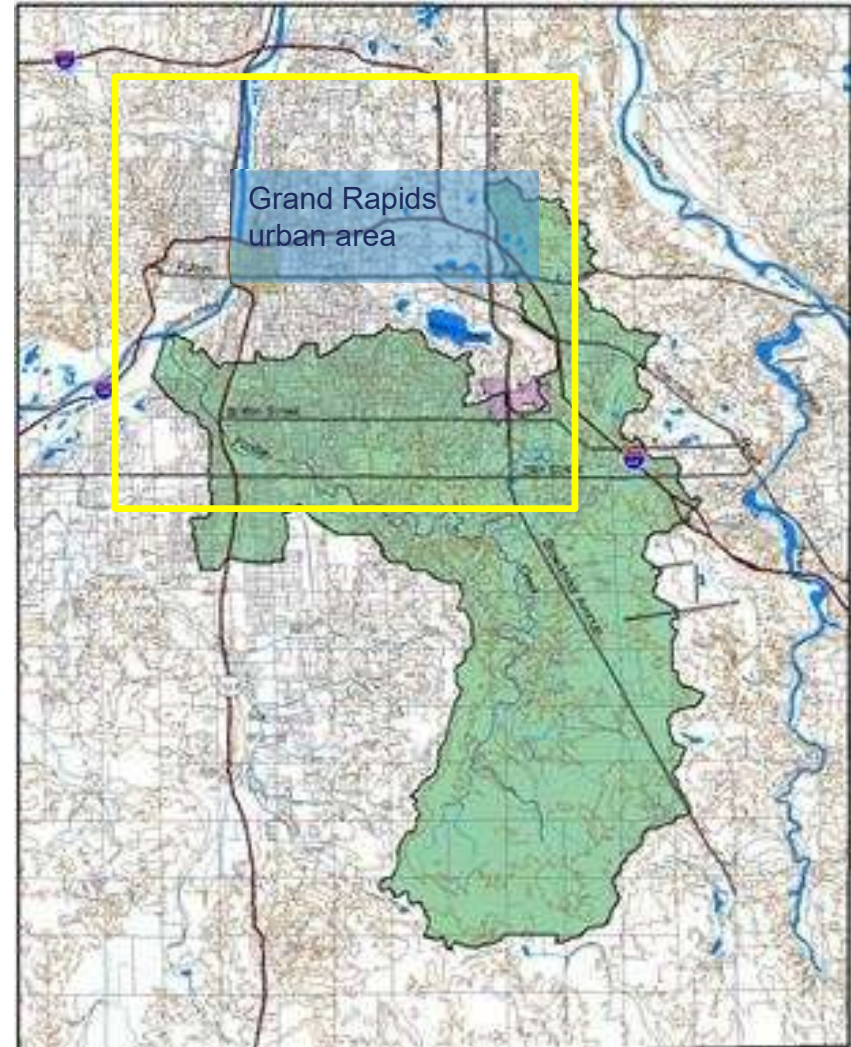
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## Community Context

### Plaster Creek Watershed

- Rural/Agricultural Upstream
- Urban Downstream
- Degraded creek
- Volume & quality problems
- TMDLs – E.Coli and TSS



[https://www.mlive.com/news/grand-rapids/2012/09/volunteers\\_to\\_gather\\_saturday.html](https://www.mlive.com/news/grand-rapids/2012/09/volunteers_to_gather_saturday.html)



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# Seymour Square Case Study

- Small commercial area
- Residential area
- E-W Principal Arterial & N-S Minor Arterial
- Feedback from Community regarding need for open space and gathering space



View of the Marketplace from the SE

July 2022

fishbeck



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# Seymour Square Case Study

## PARTNERSHIPS!

- Grand Rapids Area Black Businesses
- Michigan Department of Environment, Great Lakes, and Energy
- West Michigan Environmental Action Council
- City of Grand Rapids



MICHIGAN DEPARTMENT OF  
ENVIRONMENT, GREAT LAKES, AND ENERGY



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# Seymour Square - In Progress



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# Garfield Park – WMEAC Rainy Day Projects



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- ◆ Parking lot flooding
- ◆ Public health & safety concerns
- ◆ Impeding access, including ADA parking
- ◆ Aesthetics & resource management





# Rain Garden Design

- Native plantings & good infiltration
- Large, impervious contributing area
- $25,000 \text{ sq ft} \times 0.10 = 2,500 \text{ sq ft}$
- Depth requirements 3"-6"





# Rain Garden Design



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# Daylighting – Reeds Barlow Drain aka “The Highlands”



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## Stream Daylighting Opportunities Assessment

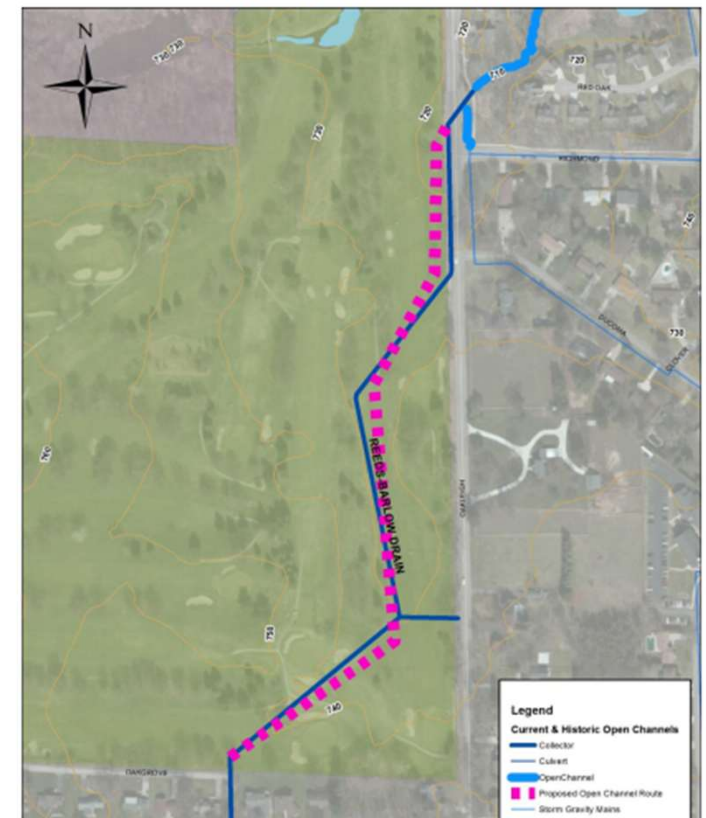


October 2015

### Reeds-Barlow Drain at Highland Golf Course

- Tributary Area = 200 acres
- Enclosure Diameter = 3.5 – 4 feet
- Peak Flow Rates
  - 2-year = 70 cfs
  - 10-year = 170 cfs
  - 25-year = 230 cfs
  - 50-year = 290 cfs
  - 100-year = 350 cfs
- Length of Daylighting = 2,000 feet
- Estimated Top Width and Depth of Daylighted Section = 60 by 6 feet
- Cost to Daylight = \$1,360,000
- Extends downstream open channel
- Constraints
  - Located on private property and would likely impact current operations of the golf course
  - 400 feet of sanitary sewer would likely have to be relocated

Figure 6: Reeds-Barlow Drain Opportunity Map





# The Highlands



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# The Highlands



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# The Highlands



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# Daylighting – Silver Creek



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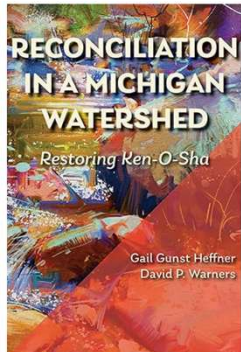
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## 3.9.2 Silver Creek

Silver Creek discharges to Plaster Creek west of the intersection of Crofton Street and Clyde Park Avenue. Within the City, its entire 22,000-foot watercourse is enclosed, except for a 300-foot segment around Calvin and Ramona Streets. At its downstream end, the enclosure is a 132-inch by 102-inch elliptical pipe. Most of the enclosure was constructed between 1920 and 1933. The very upstream reaches of the enclosure were constructed in 1980. No part of Silver Creek within the City of Grand Rapids is located within a FEMA-defined flood zone.

From Plaster Creek to Jefferson Avenue, roughly 7,800 feet, Silver Creek is enclosed under local streets, US-131, a railroad yard, and several privately owned building and paved lots. The 13,000 feet of Silver Creek upstream of Madison Street is also located under streets and under or near privately-owned buildings. Neither of these two reaches have opportunities to daylight the creek.

The 1,200 feet between Jefferson and Madison Streets, through South Field, was considered as an opportunity to daylight Silver Creek. This area currently appears to be used as a detention or flood control basin for the enclosure with two outfall structures connecting the enclosure and the storage. The concept was ultimately discarded because a new outfall and inlet would be difficult to construct without impacting existing buildings and moving utilities, including sanitary sewer, storm sewer, and water main in Madison and Crofton Streets. Furthermore, the existing sewer would not be able to be abandoned because of storm sewer inputs and potentially discharges from the building on top of the sewer.



## Reconciliation in a Michigan Watershed: Restoring

Ken-O-Sha Paperback – May 1, 2024

by Gail Gunst Heffner (Author), David P. Warners (Author)

4.9 ★★★★★ 18 ratings

[See all formats and editions](#)

Like many American urban waterways, Ken-O-Sha has been in decline for nearly two hundred years. Once life-supporting, the waterway now known as Plaster Creek is life-threatening. In this provocative book, scholars and environmentalists Gail Gunst Heffner and David P. Warners explore the watershed's ecological, social, spiritual, and economic history to determine what caused the damage, and describe more recent efforts to repair it. Heffner and Warners provide insight into the concept of reconciliation ecology, as enacted through their group, Plaster Creek Stewards, who together with community partners refuse to accept the status quo of a contaminated creek unfit for children's play, severely reduced biological diversity, and environmental injustices. Their work reveals that reconciliation ecology needs to focus not only on repairing damaged human-nature relationships, but also on the relationships between people groups, including Indigenous North Americans and the descendants of European colonizers.

## Hidden Waters: The Secret Life of Silver Creek

Plaster Creek Stewards Fall Event, 2013





# 2025 Projects and Priorities

## Silver Creek Daylighting and Plaster Creek Trail



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- Plan work Starting January 2025
- Community wide master planning for Silver Creek and Plaster Creek Trail Corridors
- Parks Department spearheading master planning
- Daylighting, Green Infrastructure and Trail Improvements
- Project supported by U.S. American Rescue Plan Act (ARPA) funds.
- Providing \$1M in funds for programing from years FY27-FY30



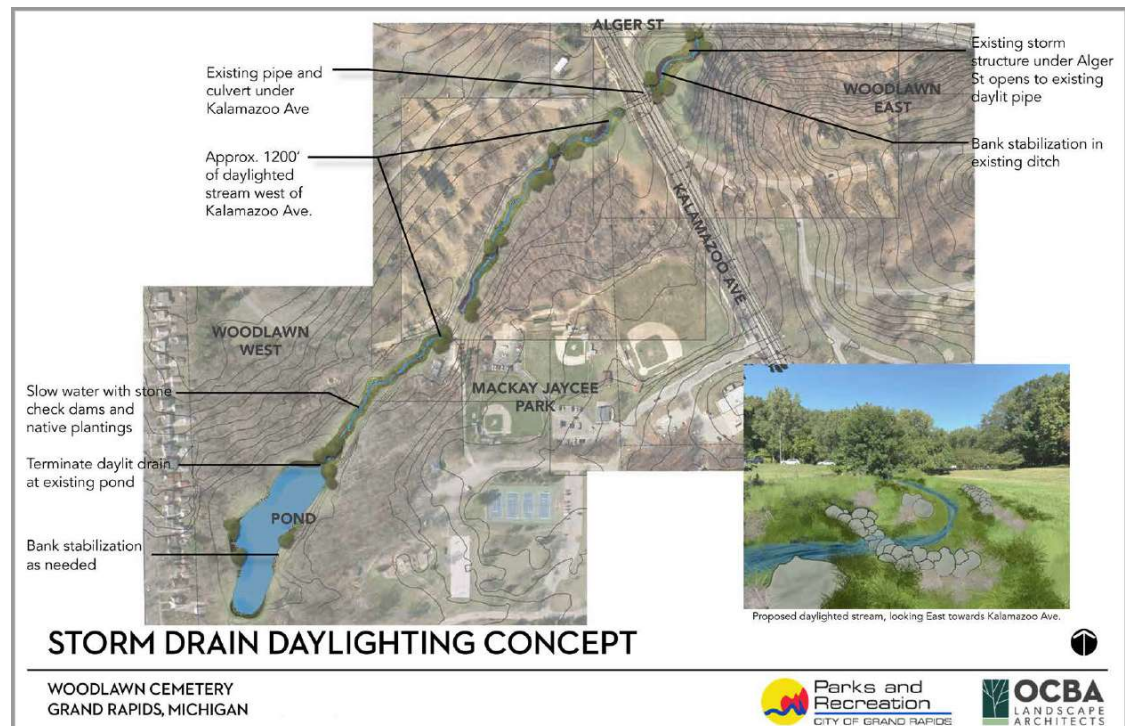
# Project of Focus: Third Ward Flood Mitigation – Woodlawn Cemetery



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- Complete a study to review engineering options to address flooding and to protect infrastructure assets
- Focus will be on daylighting a 42" storm sewer and transforming it to a 1200' meandering stream that allows for flood storage, velocity reduction, and water quality improvements





# Project of Focus: Third Ward Flood Mitigation – Woodlawn Cemetery

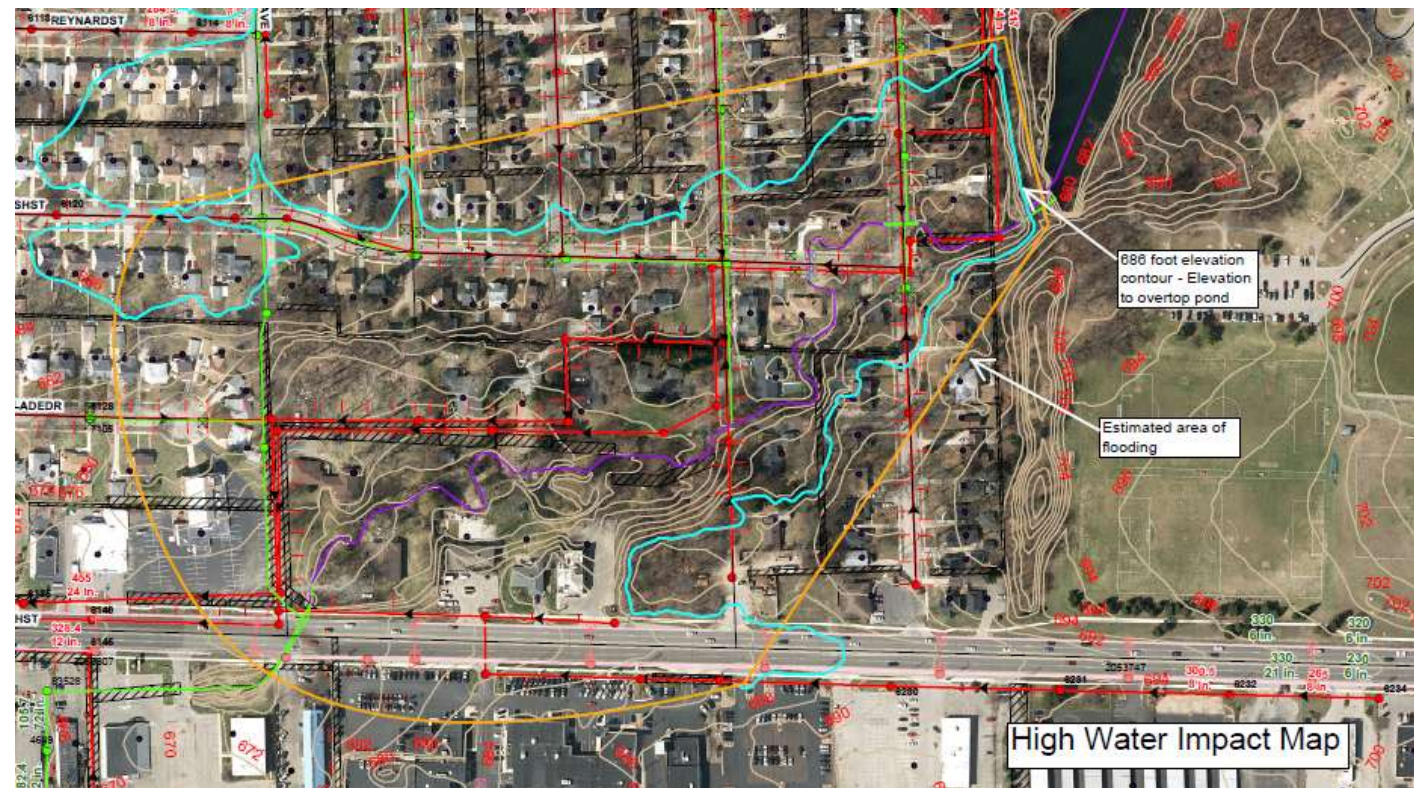


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## Woodlawn Cemetery

- Generally located west of cemetery, between Alger and 28<sup>th</sup> St
- During highwater events 18 homes and 5 business experience surface flow (flooding) north of 28<sup>th</sup> Street





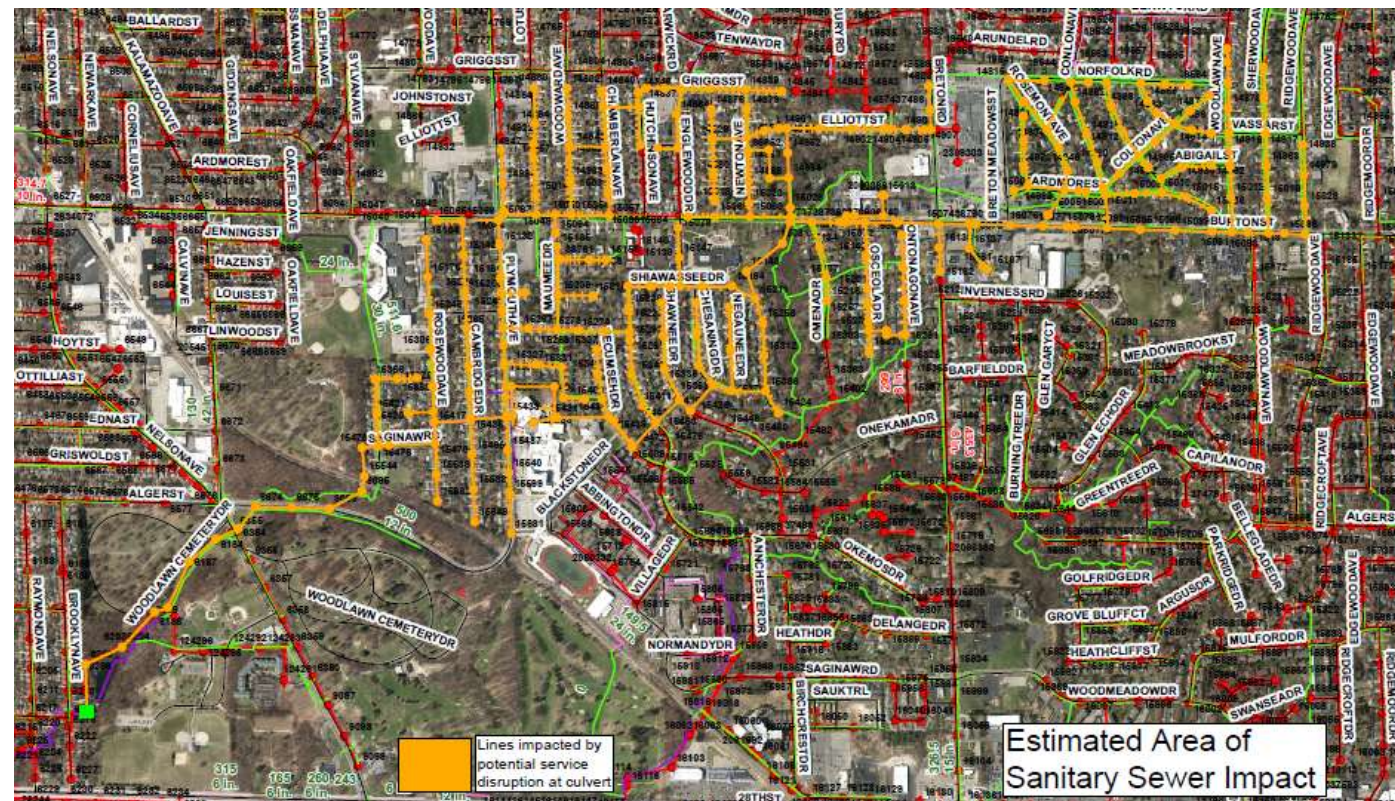
# Project of Focus: Third Ward Flood Mitigation – Woodlawn Cemetery



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- During highwater events, there is a threat to an existing 24" sanitary sewer line due to erosive flows
- Line provides services to over 1,000 connections



# Project of Focus: Third Ward Flood Mitigation – Woodlawn Cemetery



## As FEMA aids Texas flood victims, Noem urges eliminating US agency 'as it exists today'

By Nathan Layne and Courtney Rozen

July 10, 2025 12:49 PM EDT - Updated July 10, 2025



## FEMA Cancels Resilience Grants, Leaving Counties at Risk

Kevin Kinnally - April 29, 2025 -

County News / Emergency Management / NACo and Federal Issues

The Federal Emergency Management Agency (FEMA) has [abruptly canceled](#) the federal [Building Resilient Infrastructure and Communities \(BRIC\) program](#), halting hundreds of millions of dollars in disaster mitigation funding for state and local governments. The decision derails major projects across the country — including several in Maryland — and leaves counties with fewer tools to manage rising climate risks.

[Complaint](#) [About](#) [Outreach](#) [Initiatives](#) [Protection](#) [Environment](#) [Seniors](#) [Resources](#) [Contact Direct](#)

## Attorney General Nessel Sues Trump Administration for Unlawfully Cutting Billions in Disaster Mitigation Funding

July 16, 2025

**LANSING** — Michigan Attorney General Dana Nessel today joined a coalition of 20 states in [suing the Trump Administration \(PDF\)](#) over its decision to illegally shut down the Federal Emergency Management Agency's (FEMA) bipartisan Building Resilient Infrastructure and Communities (BRIC) program, designed to protect communities from natural disasters before they strike.

**Media Contact:**

**Danny Wimmer**

Press Secretary

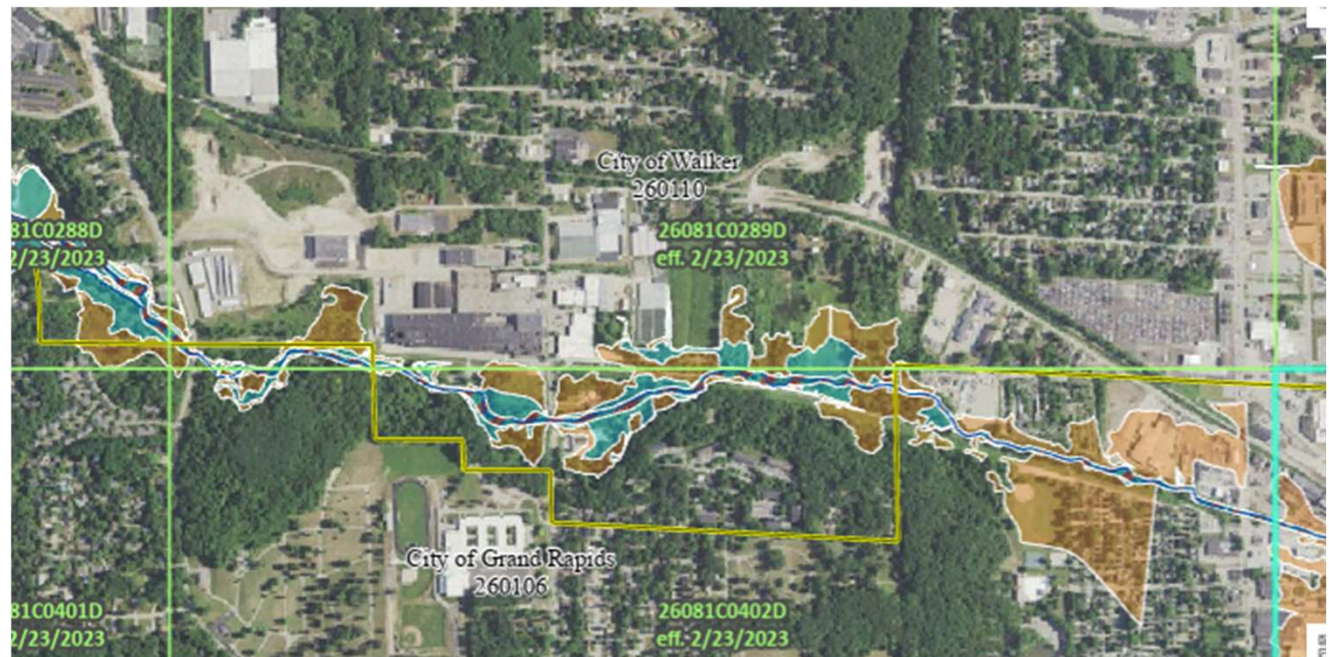
[agpress@michigan.gov](mailto:agpress@michigan.gov)



# Recent Grant Submittals – “Stormwater Coupons”

## FEMA – City of Grand Rapids Indian Mill Creek Flood Mitigation

- Applied for a \$150k Grant through FEMA Hazard Mitigation Program (HMGP)
- Applied for grant in December of 2024, awaiting notification from FEMA regarding decision.
- Seeks to update Flood Study in area and incorporate sustainability, resilience and modern floodway improvement concepts for IMC.





# Recent Grant Submittals – “Stormwater Coupons”

## EGLE 319 Grants

City still actively pursuing these grant opportunities.

Still emphasizing City values of equity, environmental justice, and urban environmental quality in NOFs.





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- “Do you still feel up a creek without a paddle?” –
- Grab some Paddles – Tools and Resources
- Grab some Friends – Network Network Network
- Go With the Flow – Adjust to Changing Conditions

# Thank You.





## About MGC



A free sustainability recognition, networking, and technical assistance program for local governments



Transition to the 21st-century global green economy



# MGC Challenge Benefits & Resources

## Technical assistance & peer learning

- Accelerator Cohort
- Catalyst Leadership Circle & Fellowship

## MISCON registration

## EGLE's Catalyst Communities

## Template sustainability plan

- [www.migreencommunities.com/plan](http://www.migreencommunities.com/plan)



# Accelerator Cohort – Green Infrastructure

## Session Topics:

- Green Infrastructure 101, Identifying Opportunities for Green Infrastructure on Public Property
- How to do a Zoning Audit
- The Incremental Zoning Approach
- Grand Rapids Stormwater Management

## Takeaways:

- Personalized “light” zoning audit with recommendations on next steps
- One-on-one consulting with zoning & engineering experts
- Peer network to connect & share ideas with



MICHIGAN **GREEN** COMMUNITIES

MICHIGAN MUNICIPAL LEAGUE  
**CONVENTION2025**



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Special Projects Coordinator  
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