

Green Schoolyards as a Stormwater and Community Resilience Strategy (Part 2): Lessons from Milwaukee

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Nice to meet you!



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Milwaukee at a Glance



1.47M

Greater Milwaukee
metro population



100M+

Gallons of stormwater captured
every rainfall by existing green
infrastructure in MMSD service
area

MMSD's 2035 Vision

By 2035, MMSD plans to capture
**740 million gallons of stormwater
storage** by implementing green
infrastructure

**1" of rain in MMSD
service area**

=

7.1B gallons of water!

What is Green Infrastructure?

Green infrastructure uses natural elements like plants and soil to capture, clean, and slow stormwater.

Green Infrastructure Types



Native Landscaping



Underground Storage



Stormwater Trees



Permeable Pavement



Constructed Wetland



Rain Garden / Bioretention Basin



Green Roofs



Cisterns/Rain Barrels



MILWAUKEE METROPOLITAN SEWERAGE DISTRICT

Envisions a healthier, cleaner, resilient region.



WHAT DOES MMSD DO?



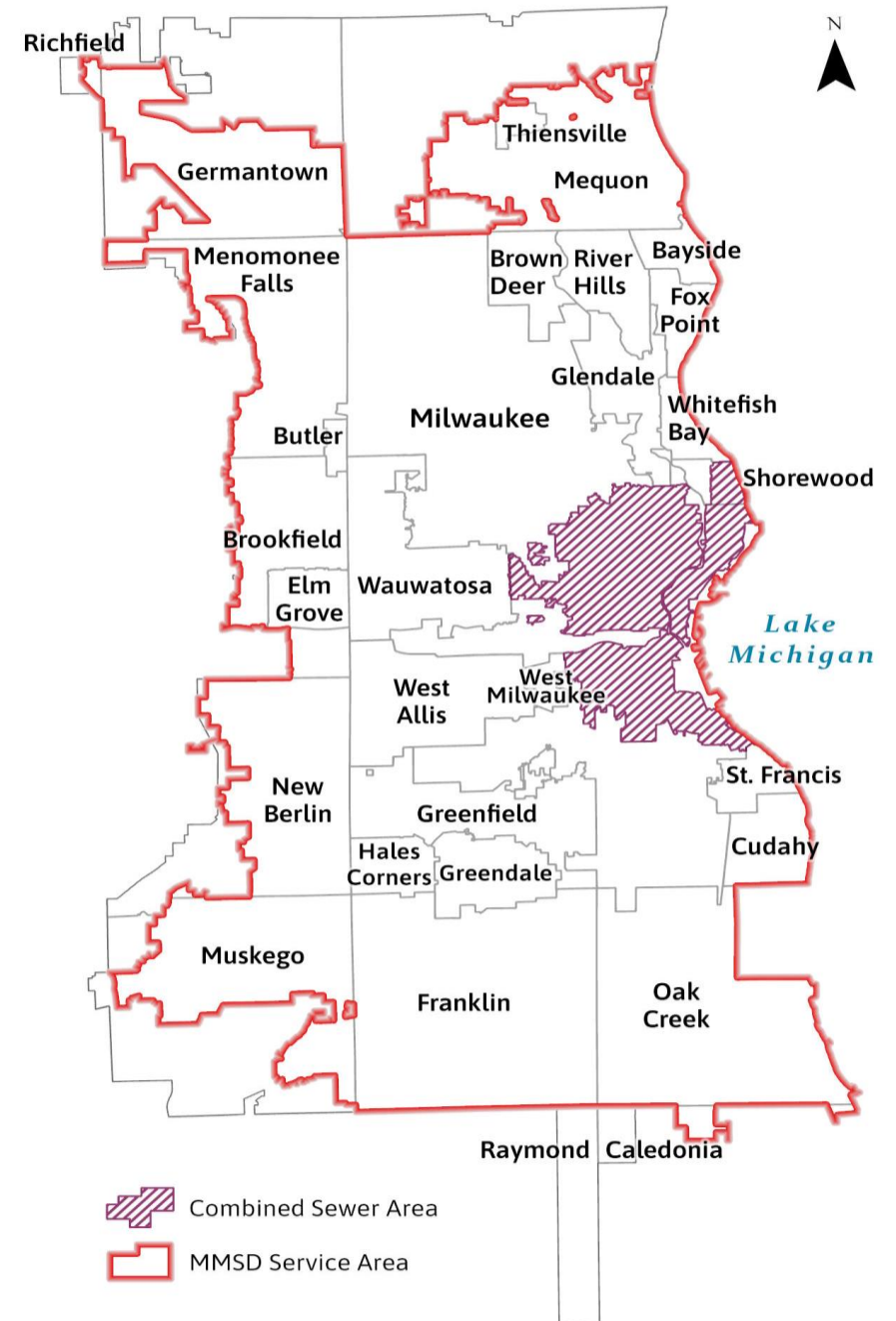
Water Reclamation



Flood Management

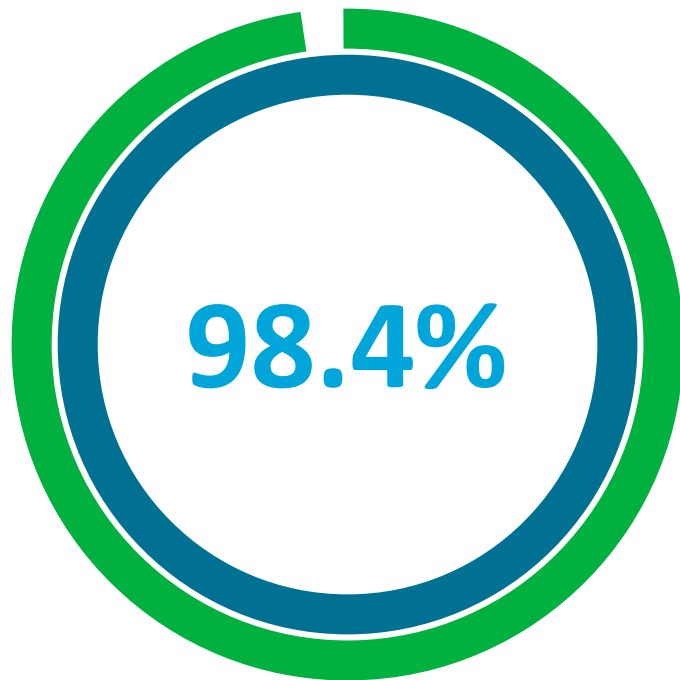
WHO DOES MMSD SERVE?

- Over 1 Million Customers
- 29 Municipalities
- 423 Square Mile Planning Area

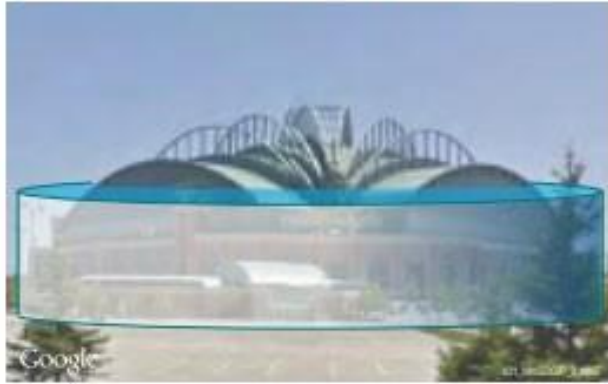


CAPTURED & CLEANED

Since 1994



The rainfall capture goal of 740 million gallons would fill two thirds of Miller Park!



2035 VISION

A Sustainable Bottom Line

- Integrated Watershed Management
 - Balancing Green & Grey Infrastructure
 - Use GI to capture the first 0.5" of rainfall
 - Zero overflows
- Climate Change Mitigation & Adaptation
 - Energy Efficiency
 - Net 100% Renewable Energy Sources

RECORD BREAKING RAINFALL





Why do Green Stormwater Infrastructure?



MMSD Supports Green Infrastructure

- Why
 - Reduce risk of overflows & flooding
 - Protect Lake Michigan
 - Support our communities & habitat
- Ways
 - Funding Resources
 - Workshops
 - Plant Sale
 - Neighborhood Outreach





How do we do Green Stormwater Infrastructure?



GSI Programs



[About Us](#) | [What We Do](#) | [What You Can Do](#) | [Careers](#) | [Procurement](#) | [Government & Business](#)

Climate Resiliency Incentive Programs

The Milwaukee Metropolitan Sewerage District's (MMSD) **Fresh Coast Resource Center** assists the community by providing inspiration, funding opportunities, education, and tools to create successful **green infrastructure** strategies such as installing rain barrels, rain gardens, porous pavement, bioswales, green roofs, and natural landscaping. Several incentive programs are available to public and private landowners to empower them to take an active role in protecting our water resources.

Community-Based Green Infrastructure

Provides green infrastructure design, construction, and vegetation establishment services for property owners through the **Fresh Coast Protection Partnership** and **Fresh Coast Green Communities** programs. These programs also offer mentorship for emerging businesses and construction bidding opportunities. (Public & Private Programs)

Greenseams

Makes voluntary purchases of undeveloped, privately owned properties in areas expected to have major growth in the next 20 years and are open space along streams, shorelines, and wetlands. MMSD coordinates these purchases with municipalities. (Private Program)

Green Infrastructure Partnership Program

Incentive funding on a per-gallon captured reimbursement basis for green infrastructure strategies. Applications are competitively scored based on the applicant's ability and commitment to implement, maintain, and promote the project. The Green Infrastructure Partnership Program is announced every January and closes early March.

Green School Program

Redevelop schoolyards with **green infrastructure** in partnership with Milwaukee Public Schools and the nonprofit **Reflo**. (Public Program)

Green Solutions

Provides financial incentives to MMSD member municipalities to help achieve water quality compliance while progressing toward **MMSD's 2035 Vision** related to integrated watershed management. (Public Program)

Reforestation & Wetland Restoration

Provides design support and implementation of tree planting and wetland restoration. This program supports large-scale natural flood management strategies that mimic the natural water cycle. (Public & Private Programs)



Mechanisms

Funding Agreements and Conservation Easements



Green Infrastructure Funding Agreement G98024P19
Green Infrastructure Partnership Program (GIPP)
Humboldt Park School
3230 South Adams Avenue, Milwaukee, WI 53207

1. The Parties

This Agreement is effective as of the date of last signature below and involves the:

- A. Milwaukee Metropolitan Sewerage District (MMSD) located at 260 West Seeboth Street, Milwaukee, Wisconsin 53204; and
- B. Milwaukee Board of School Directors on behalf of the Milwaukee Public Schools (MPS) located at 5225 West Vliet Street, Milwaukee, Wisconsin 53208; and
- C. City of Milwaukee (Milwaukee), Department of Public Works located at 841 North Broadway, Milwaukee, Wisconsin 53202.

2. Basis for this Agreement

- A. MMSD is responsible for collecting and treating wastewater from local sewerage systems.
- B. During wet weather events, stormwater enters local sewerage systems increasing the volume of wastewater that MMSD must convey and treat and directly enters surface waters, increasing pollution levels in those waterways and increasing the risk of flooding.
- C. Green Infrastructure (GI) includes bioswales, cisterns, constructed wetlands, green roofs, native landscaping, porous pavement, rain barrels, rain gardens, soil amendments, and trees.
- D. GI reduces the volume of stormwater in the sewerage system and the amount of pollutants discharged to surface waters.
- E. MMSD wants to promote the installation of GI and does so through its GIPP providing funding to various entities to install critical GI.
- F. Milwaukee owns land at 3230 South Adams Ave, Milwaukee, WI 53207(Land). MPS maintains and operates the Land and desires to install GI on the Land.

DOCUMENT NO.

LIMITED TERM CONSERVATION EASEMENT AGREEMENT FOR GREEN INFRASTRUCTURE

This LIMITED TERM CONSERVATION EASEMENT FOR GREEN INFRASTRUCTURE ("Easement Agreement") is granted as of the ~~16th~~ day of ~~Jan.~~, 20~~25~~ by the City of Milwaukee ("Landowner") and Milwaukee Public Schools ("MPS") to the Milwaukee Metropolitan Sewerage District ("Easement Holder").

RECITALS

A. Property. The Landowner is the sole owner of certain property located in Milwaukee County, Wisconsin, which is described in Exhibit A and depicted on a map shown in Exhibit B (the "Property") having an address at 5760 N. 67th Street, Milwaukee, WI 53218 (Kluge Elementary School).

This Limited Term Conservation Easement Agreement applies only to certain areas of the Property that have conservation value. These areas contain infrastructure designed to capture and hold stormwater in place to reduce the quantity and improve the quality of runoff ("Green Infrastructure"). Exhibit C shows the area within the Property that is subject to this Limited Term Conservation Easement.

B. Conservation Values. In its present state, the Easement Area has Conservation Value because it has the following features:

- Rain Barrel with a detention capacity of 500 gallons
- Rain Garden with a detention capacity of 7,900 gallons
- Underground cisterns with a detention capacity of 14,500 gallons
- 26,000 square feet of bioswales with a detention capacity of 271,800 gallons
- 81,950 square feet of depaving resulting in a detention capacity of 16,390 gallons
- 46 stormwater trees with a detention capacity of 1,150 gallons
- Total project detention capacity of 312,240 gallons

DOC # 11479625
RECORDED
01/21/2025 10:36 AM
ISRAEL RAMON
REGISTER OF DEEDS
Milwaukee County, WI
AMOUNT: 30.00
TRANSFER FEE:
FEE EXEMPT #:
***This document has been
electronically recorded and
returned to the submitter.***

Recording Area

Name and Return Address:
Milwaukee Metropolitan
Sewerage District
Attention: Michael Hirsch
260 West Seeboth Street
Milwaukee, Wisconsin 53204

Parcel Identification Number:
1740732000

Fresh Coast Green Schoolyards: City of Milwaukee Project

- Why
 - Meets stormwater & resiliency goals
 - Encourages environmental education
 - Increases the community's understanding and use of GI.
- MMSD, MPS & Reflo partners for 10 years
- Reflo develops GI conceptual plans with school community
- 50 schools to date



Green Schools Funding Program

- MPS budget with reliable funding
- MMSD, MPS & City of Milwaukee MOU
- 15 schools' construction



Funding

- 2018-2025
 - Funded 100% conceptual planning
 - RFP consulting services
 - Funded 50-60% of GI construction
 - Schools apply for funds from various sources
- Starting 2026
 - NEW funding program for green schools
 - MOU with City & MPS
 - 100% of GI construction



Old Funding Model

**\$16.58 MD
2016-2024**

Planning Contracts

- \$787,500
- 2016-2024
- 3 contracts
- 40 schools

Green Solutions

- \$4.5 MD
- 2019-2025

GI Partnership Program

- \$8.3 MD 2018-2025
- 43 schools

NFWF Funding Partnership

- \$455k
- 2020-2024
- Supplement

Fresh Coast Green Communities

- \$2.54 MD
- 2 schools site share

Non – GI costs

- MPS pull multiple grants together

New Funding Model -2025

\$11.87 MD
'25-'30

\$15.13 MD
'30-'35*

Green Schoolyards Planning = \$1.25 MD

- \$625k
- 25 schools
- 5 planning years
- '25-'29
- Repeat in 2030

Green Schools Funding Program (Construction)

- \$11.25 MD
- 15 schools
- Construction '27-'29
- Repeat in 2030

Non – GI costs

- MPS pull multiple grants together

MMSD's GI Dashboard – 24% of goal (MPS 4%)

Green Infrastructure

Watershed Filter
None

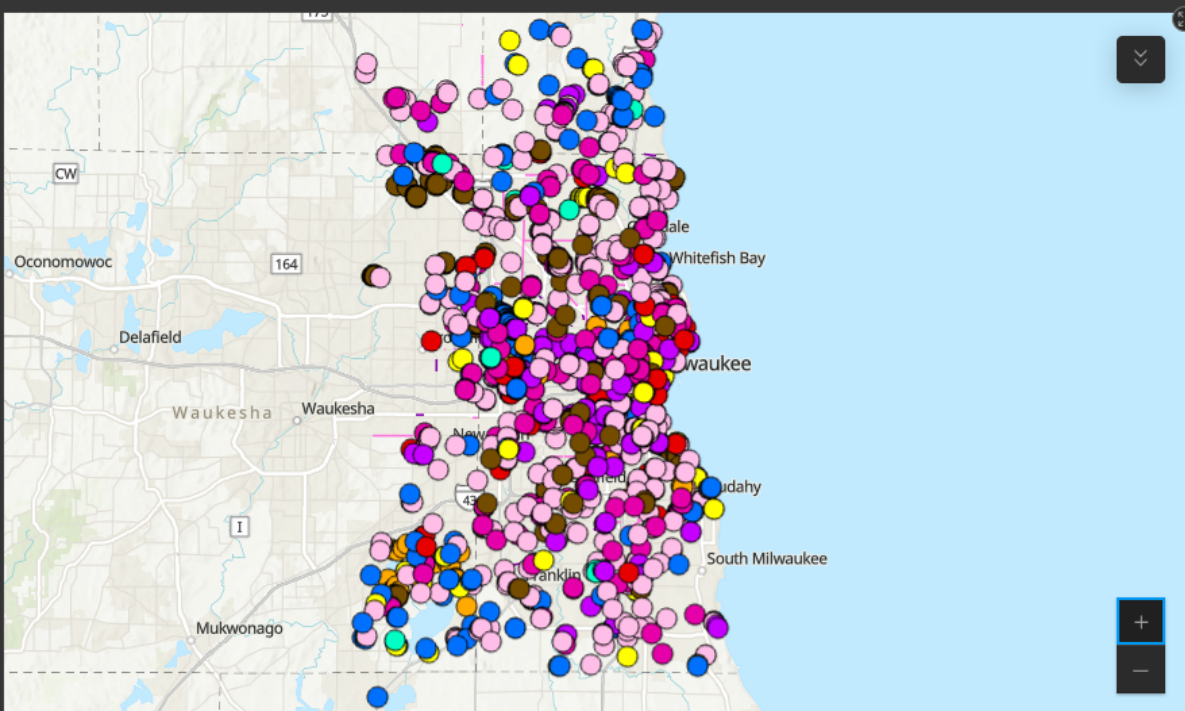
Municipality Filter
None

Year Installed Filter
None

Year Funded Filter
None

GI Program Filter
No category selected

Ownership Type
None



Esri, CGIAR, USGS | Milwaukee County Land Info, Esri, TomTom, Garmin, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS, USF... Powered by Esri

Green Infrastructure Capacity



Filter does not Apply

GI Capacity

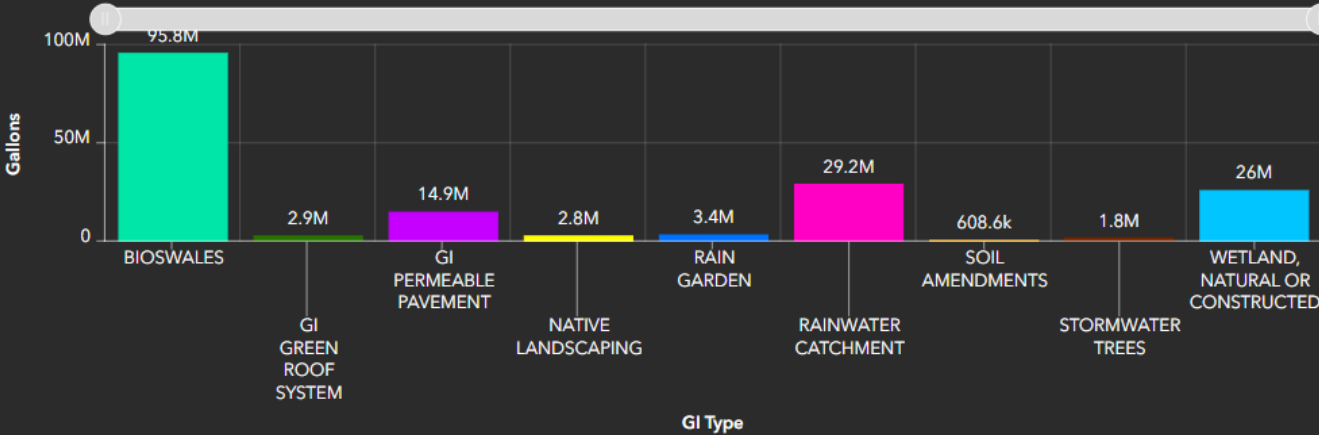
Green Infrastructure Capacity

177.3M



Filter Applies

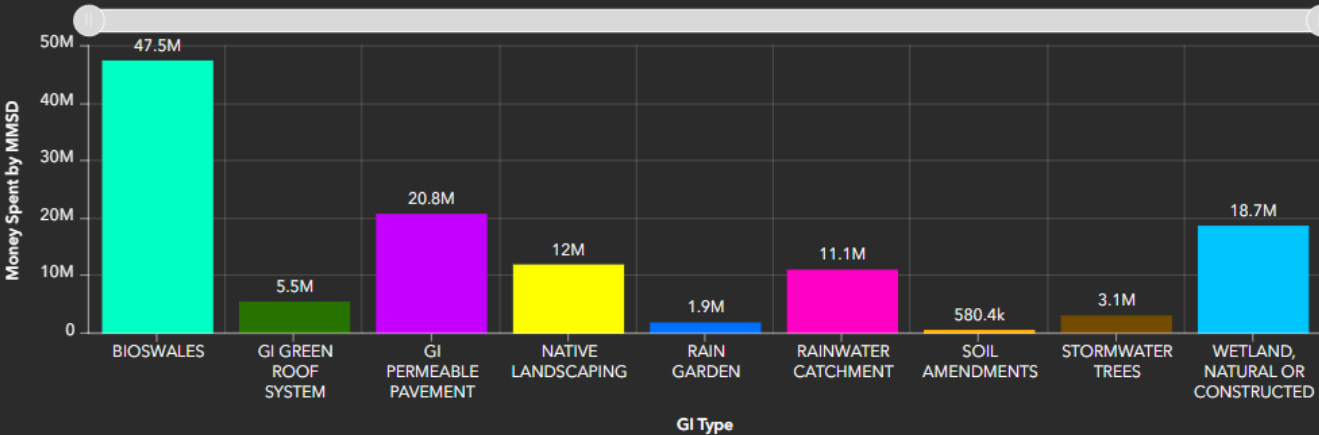
Gallons By Type



Gallons By Type

CSSA and SSA

Money Spent by MMSD



Money Spent by MMSD

Total Money Spent



Lisa Sasso, Senior Project Planner

Lsasso@mmsd.com





Fresh Coast Guardians

All of us can help protect Lake Michigan





MILWAUKEE
PUBLIC SCHOOLS

Greener Schools

Through Shared Vision and Partnership

Presenter

Heather Dietzel, P.E.
Sustainability Project Specialist

Department of
Facilities & Maintenance Services

dietzehm@milwaukeepublicschools.org

Milwaukee Public School District

Largest school district in WI

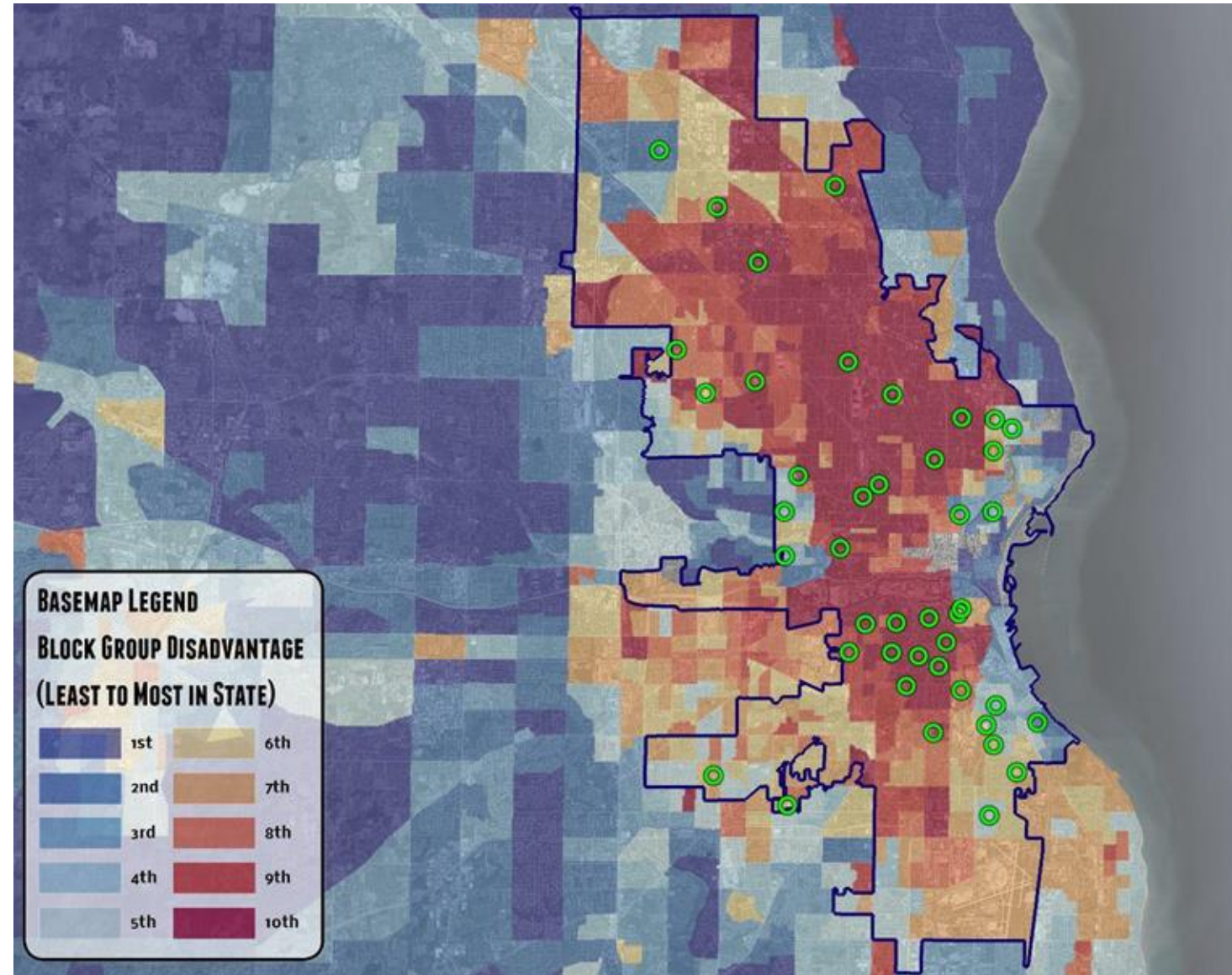
66,000+ students

82% economically disadvantaged

20% special needs

150 schools + 55 additional facilities

500+ acres of impervious surfaces



Establishing Sustainability in MPS

School Board Resolutions

- 2020 “Our House is on Fire”
- 2022 Climate Change and Climate Justice Targets
- 2023 Green Revolving Fund

MPS Sustainability Team

- Heather Dietzel – Green Schoolyards
- Kim Talarico – Climate Education
- Chelsea Malacara – Energy, Waste Reduction, Air Quality

Sustainability Action Plan

A Roadmap to Healthy and Sustainable Schools

2026–2031



MILWAUKEE
PUBLIC SCHOOLS





Kluge Elementary – BEFORE



Kluge Elementary K4-5th Grade – AFTER



Forest Home Avenue – BEFORE



Forest Home Avenue K3-5th Grade – AFTER



Morse Middle School – BEFORE



Morse Middle School 6th-8th Grade - AFTER



Morse / Milwaukee Sign Language School K4-8th Grade - AFTER

Impacts Over the Past 7 Years



\$35 million raised for 37 schools



1,040,000 sf. of asphalt removed



4.3 million gallons of stormwater managed per rain event



4,074 trees planted



327,000 sf. of native habitat restored



~40,000 students and community members directly impacted (most on a daily basis)



I am not going to litter because water carries trash down hills into the river or lake.



K4 STARMS STUDENT



I am going to remind my family that our choices affect more than just ourselves. Everything is connected.



7TH GRADE BURDICK STUDENT

Partners



Engineering
Project Managers
Educators
Craftspersons
Drone Photography
Digital Media
Master Naturalists
Youth Mentors



Key Partner - MMSD



Stormwater Green Infrastructure



Removing Asphalt



Natural Grass Play Spaces



Native prairies



Bioswales & Trees Next to Outdoor Classrooms

Recreation & Play



Loose Parts Play



Climbing Structures



Painted Play & Traffic Gardens



Sports Fields

Environmental Education



Green Infrastructure exploration



Model Teaching in Outdoor Classrooms



Tree measurement & STEAM curricular connections



Investigating leaf and tree characteristics

Community & Culture



Performance Spaces



Family Celebrations



Themed Murals & Art Displays



Celebrating School Green Teams

Career Connections



Green Schoolyard Construction Site Visits



Waves of Change - Environmental Health and Water Quality



Summer Internships - Green Schoolyard Maintenance



Blue/Green Trades - Alternative Energy Exploration

Detailed Design



Plant Mature Trees & Protect



Use Seasonal Advantages



Placement of Trees with Seeds and Nuts



Lines of Sight with Recess Management in Mind

Detailed Design



Mix of High Energy Spaces & Protected Plantings



Neat Borders Around Natural Areas



Group Plantings to Guide Identification of Species



Activate Hardscape with Educational Tools

Maintenance & Stewardship



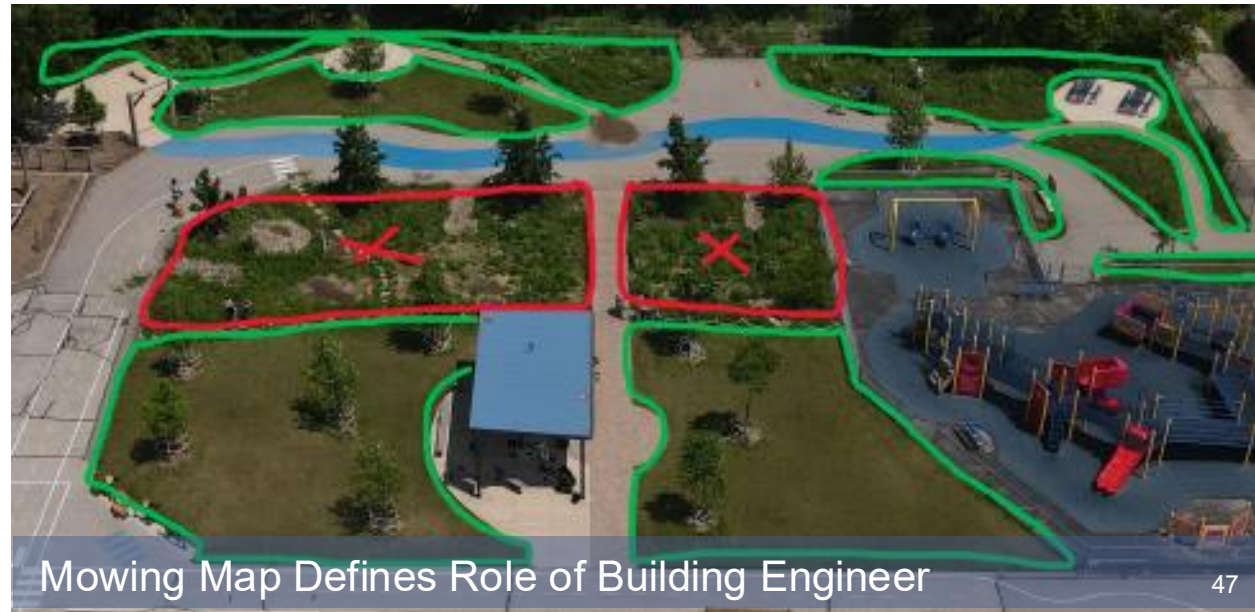
Contracts that Ensure Robust Plant Establishment



Warranty Inspections & Replacements



Activate Partnerships for Volunteer Days



Mowing Map Defines Role of Building Engineer

Welcome to Your Green Schoolyard





MILWAUKEE
PUBLIC SCHOOLS

MPS Sustainability:

milwaukeepublicschools.org/about/strategic-plan/healthy-sustainable-schools

Reflo Green Schoolyards:

Refloh2o.com

Heather Dietzel:

dietzehm@milwaukeepublicschools.org

Upcoming Webinar

Green Schoolyards in Chicagoland

July 28, 2026



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for registration info!