



**Land+
Water
WORKS**

**IMPACT REPORT
2017 - 2021**



COALITION PARTNERS



Cover photo credits: Top row left, Detroit Future City. Top row right, The Greening of Detroit. Second row left, Detroit Future City. Bottom row left, Detroit Future City. Bottom row right, Christina Ridella.

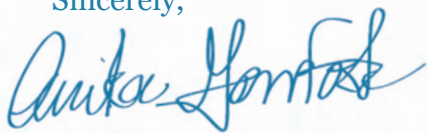
DEAR STAKEHOLDERS,

Detroit Future City has been proud to serve as the backbone agency for the Land + Water WORKS Coalition (L+WW Coalition). Since the launch of the Detroit Future City Implementation Office in 2013, we have worked with community stakeholders and municipal leaders on reimagining how vacant land can be used to help mitigate the combined sewage overflow (CSO) crisis in Detroit, while creating resilient communities. Working alongside fellow L+WW Coalition partners — Alliance for the Great Lakes, Eastside Community Network, EcoWorks, the Greening of Detroit, Friends of the Rouge, Janlynn Miller, Keep Growing Detroit, MOSES, Sierra Club Michigan Chapter, and Southwest Detroit Environmental Vision — we have worked to transform the public’s understanding of the city’s water infrastructure and restore their connection to our land and water.

The L+WW Coalition has worked in partnership with Detroiters to move the needle in researching and developing equity-driven methods to respond to the challenges facing our city of climate change, water quality, land use, CSOs and an aging water infrastructure system. However, this is just the start. There is much more work to be done to accomplish a green culture shift together. Whether it is teaching residents how to plant rain gardens and disconnect their downspouts, working with faith-based institutions to install green stormwater infrastructure and complete the Detroit and Water Sewerage Department’s Green Credit process, or researching the impact that increasing the tree canopy can have in reducing CSOs and increasing pollinators, everyone has a role to play.

As you read about the journey of the L+WW Coalition and its incredible work driving change one person and one project at a time, I encourage you to consider how you can make a difference in Detroit to create a more sustainable and equitable city for generations to come.

Sincerely,

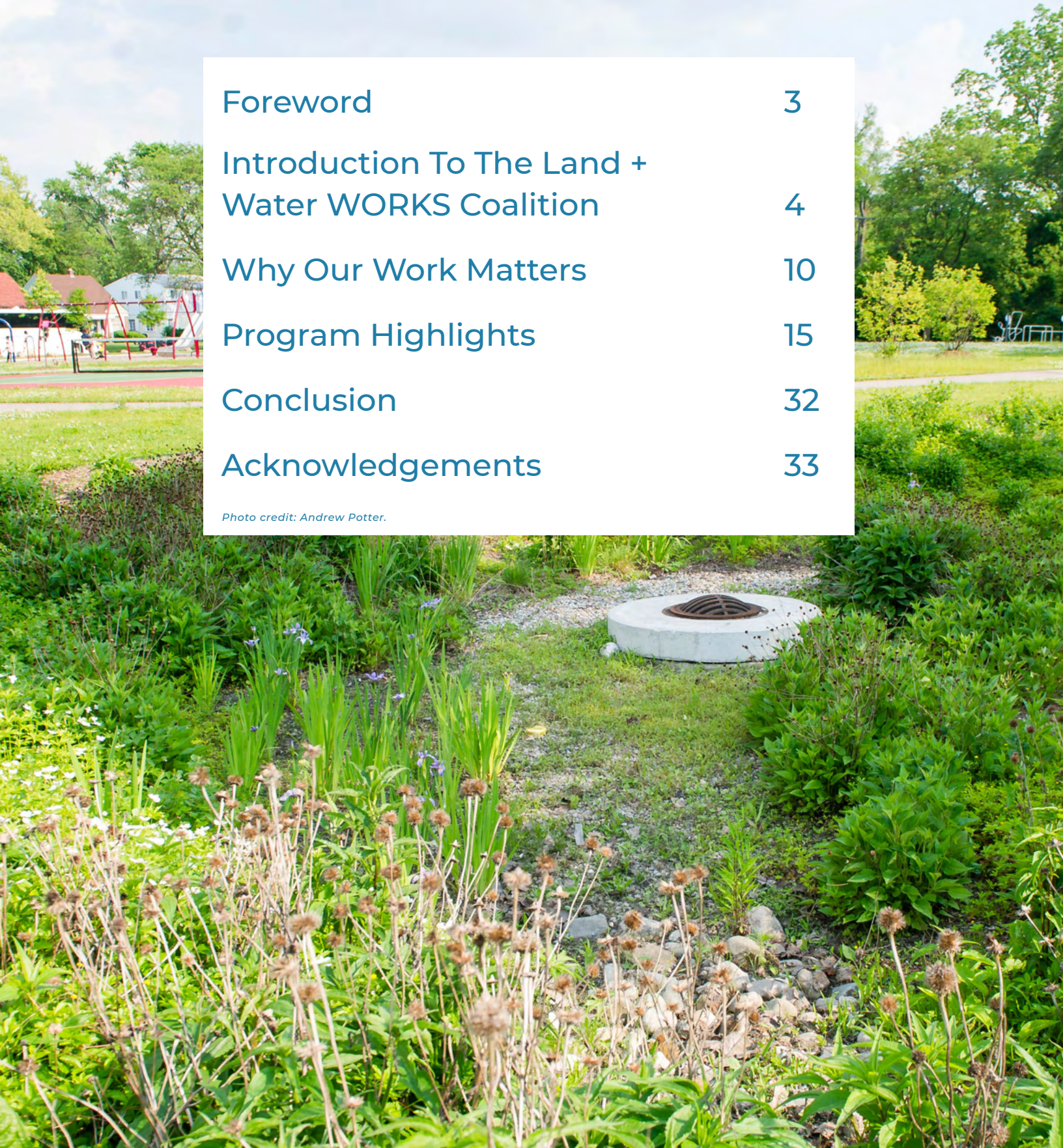


Anika Goss
Chief Executive Officer
Detroit Future City

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Photo credit: Andrew Potter.



FOREWORD



LAND AND WATER WORKS COALITION IMPACT REPORT

In just over three years, the Land + Water WORKS Coalition has worked across sectors with public, private, nonprofit, and civic entities alongside Detroit residents and property owners to address the silent crisis in our city, combined sewerage overflows (CSO). The L+WW Coalition invested its efforts in demonstration projects, a learning community, education and outreach, research projects, and advocacy projects to empower residents with information on the Detroit Water and Sewerage Department's drainage charge. Green stormwater infrastructure (GSI) can be used to reduce CSOs while productively reusing open space in the city.

This report documents the tenacious work of the L+WW Coalition members that led to the engagement of more than 41,000 Detroiters and property owners to understand the intersection of gray and green infrastructure, the complex landscape of GSI in Detroit from concept to installation, and the importance of resident advocacy in protecting our land and water. This work was achieved through the collective efforts of partners who developed innovative outreach events that engaged over 3,100 Detroiters. The ambassador program trained 77 community members and nonprofits serving Detroiters and Detroit property owners to become neighborhood level experts in GSI, engaging more than 34,000 people in just under three years. Innovative research brought together thought leaders from across sectors to explore methods to help remove the barriers to scaling up the implementation of GSI in Detroit, addressing site conditions, workforce development, navigating regulatory processes, access to resources, and more. In reading about the impact of the L+WW Coalition, you will find that great strides have been made in building awareness and advancing change in approaches to addressing CSOs and scaling up implementation. However, there is still more work to be done.

Photo credit: Detroit Future City.

INTRODUCTION TO THE LAND + WATER WORKS COALITION

LAND + WATER WORKS COALITION MISSION

The Land + Water WORKS Coalition is a collective of environmental stewards dedicated to a more equitable, more climate-resilient future for Detroit. We work to increase understanding of our water system and build widespread awareness of the social, environmental, and economic benefits of GSI. We achieve this by fostering stewardship through educational programming and implementing GSI with neighborhood partners.

VISION

The Land + Water WORKS Coalition envisions a resilient Detroit where GSI helps mitigate the impacts of climate change and improves the quality of life for all residents.

Photo credit: Keep Growing Detroit.

PROGRAM HIGHLIGHTS



41,583

TOTAL PEOPLE ENGAGED
FROM NOV 2018 - DEC 2020



Number of People Engaged by Ambassadors per Year

YEAR	BY RESIDENTIAL AMBASSADORS	BY NONPROFIT AMBASSADORS
2018	4,132	6,832
2019	3,775	10,924
2020	2,737	6,002

77
AMBASSADORS REACHED
34,402
PEOPLE

LAND AND WATER WORKS COALITION IMPACT REPORT



Ambassadors by Council District

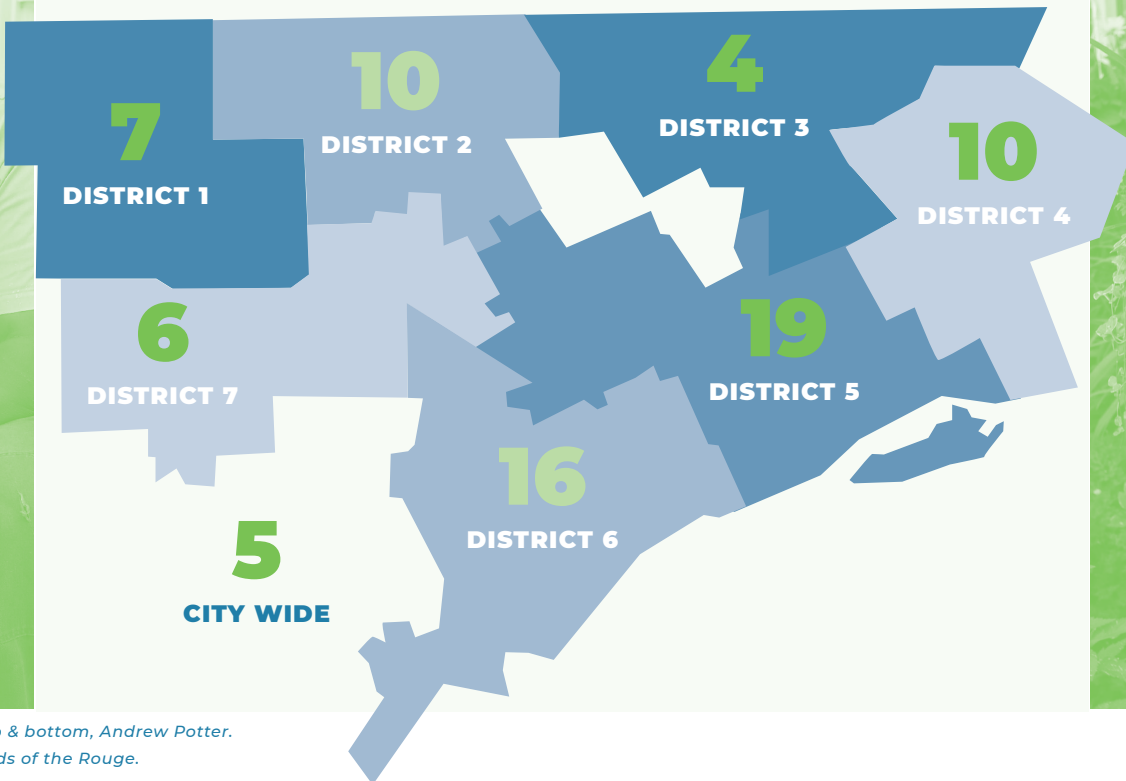
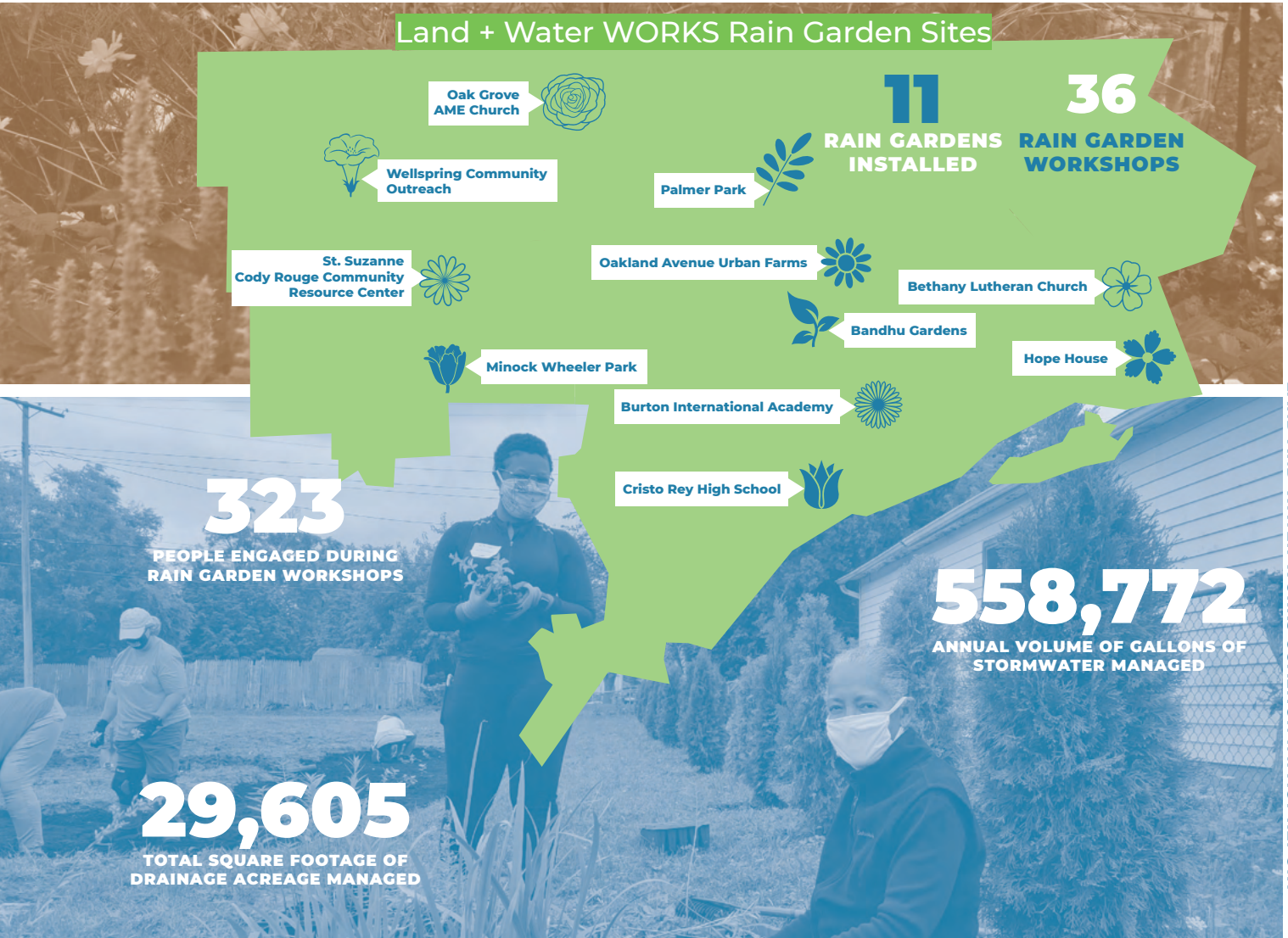


Photo credits: Top & bottom, Andrew Potter. Middle, The Friends of the Rouge.

PROGRAM HIGHLIGHTS



LAND AND WATER WORKS COALITION IMPACT REPORT

Number Of People that Attended Connected to Our Roots Events



Photo credits: Top photo, Andrew Potter. Middle, The Sierra Club Michigan Chapter. Bottom, Detroit Future City.



The History of the Land + Water WORKS Coalition

The L+WW Coalition was created in 2017 as an extension of the Fred A. and Barbara M. Erb Family Foundation’s Blue Green Infrastructure workgroup, which is dedicated to solving the problems facing our region’s aging wastewater infrastructure and reducing the impact it has on the Detroit community. The L+WW Coalition whose efforts are Detroit centered, initially convened with the purpose of engaging and educating Detroit property owners and residents in conversations around water, land, and infrastructure.

The L+WW Coalition began this work against the backdrop of a state that was grappling with the unfathomable lead poisoning of Flint and its devastating generational impacts on primarily low-income, Black and Brown communities. As residents started to make connections between the Flint tragedy and massive water shutoffs being conducted at the time by the Detroit Water & Sewerage Department (DWSD), peaking at 33,000 in 2014¹, the L+WW Coalition challenged itself to help reframe Detroiters’ and Detroit property owners’ relationship to water and our infrastructure.

Photo credit: Andrew Potter.

The founding L+WW Coalition partners convened to develop and launch the ambitious first phase of work, which was based on the pillars of: research, education and outreach, and planning and advocacy. The founding partners were: Community Development Advocates of Detroit, Eastside Community Network, EcoWorks, Friends of the Rouge, The Greening of Detroit, Keep Growing Detroit, Michigan Community Resources, Metropolitan Organizing Enabling Strength, and the Sierra Club Michigan Detroit, with Detroit Future City (DFC) serving as the backbone agency of the collaborative.

Together, the original 10 partners began the longstanding work of ensuring Detroiters understanding of the complexities of combined sewage overflows (CSOs); the incredible opportunities in Detroit to creatively use its land to implement equitable solutions that address the issues of CSOs; and the triple-bottom-line impacts these solutions to CSOs provide from social to environmental. The L+WW Coalition also worked to educate Detroiters on the facts of the controversial DWSD drainage charge. As a neutral community stakeholder, the coalition believes that it is critical that Detroit property owners understand the facts of the charge and what actions they can take to lower it. Though the charge was not new, DWSD's restructuring of the charge was a part of an overall strategy to drive more investment in green stormwater infrastructure (GSI) to become compliant to their National Pollutant Discharge Elimination System permit (NPDES) and reduce CSOs to zero.

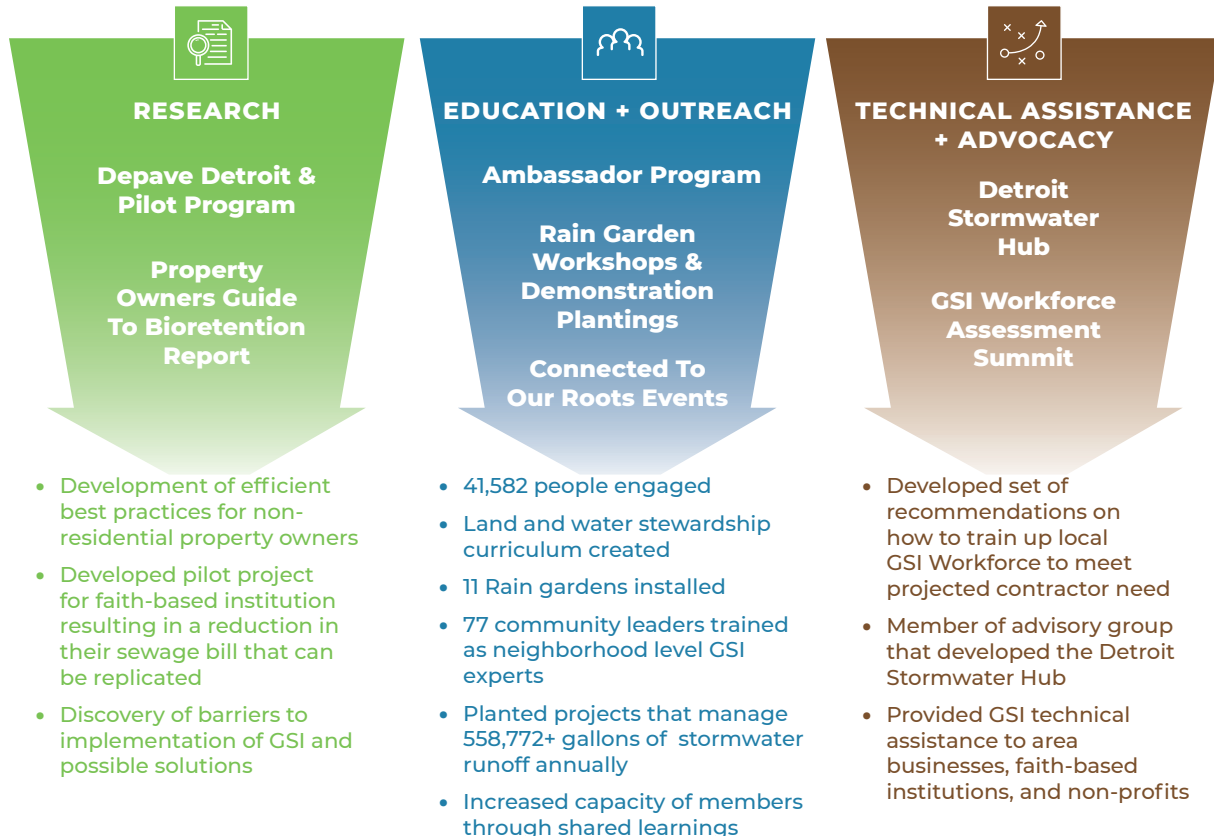


Photo credit: Christina Ridella.

Over the next two years, with the addition of new partners Southwest Detroit Environmental Vision (SDEV), Alliance for the Great Lakes (AGL) and resident ambassador Janlynn Miller, the L+WW Coalition engaged 41,583 Detroiters, working to strengthen their connection to nature while creating land and water stewards. Additionally, with SDEV and Miller’s participation, the critical perspective of ambassadors was added to the table to help frame the educational outreach efforts. In 2021, the L+WW Coalition welcomed its newest member, Michigan Interfaith Power and Light (MIPL).

The L+WW Coalition partners developed a multilayered approach to drive community education and help scale up GSI installation, including the development of a clear and engaging curriculum for youth and adults, an ambassador program, rain garden workshops, and a demonstration planting series. In its efforts to create an atmosphere in which GSI can be scaled to the levels needed to increase the efficiency of gray infrastructure systems, the L+WW Coalition published the Detroit Property Owners Guide to Bioretention and implemented two creative GSI pilot programs focusing on testing the impact of Depaving and Above Ground Stormwater Planters.

LAND + WATER WORKS PILLARS



WHY OUR WORK MATTERS

In order to understand the work that the Land + Water Works Coalition has undertaken, it is important to first understand what green stormwater infrastructure and combined sewer overflows are, and what the Detroit Water and Sewerage Department's policies are related to those concepts. Educating Detroiters about these concepts and how they affect our every day lives and the health of our community is at the core of our work together.

Photo credit: Andrew Potter.

Understanding the Combined Sewage Overflow Crisis and How We Can Address It

WHAT IS “COMBINED SEWAGE OVERFLOW” AND WHY DOES IT MATTER?

In the city of Detroit, 51% of the land is comprised of hard or impervious surfaces. When it rains and snows, water flows across these surfaces and picks up pollutants — including motor oil, chemical fertilizers, animal waste, and heavy metals — to form stormwater runoff. This water, now infused with harmful elements, makes its way from our roofs, sidewalks and roadways into our combined sewage system that processes both sanitary water from our sinks and toilets with the stormwater runoff. When this happens during weather producing a half-inch of rain or more, it can cause partially or untreated sewage from one of 53 outfalls to overflow into the Detroit and Rouge rivers. According to the State of Michigan’s Department of Environment, Great Lakes and Energy (EGLE), in the period of one year, from October 2019 through September 2020, 2.5 billion gallons of untreated sewage overflowed into the Rouge and Detroit Rivers, along with 25 billion gallons of partially treated sewage².



As Michigan is bounded by the Great Lakes, which contain 20% of the world’s fresh water — and with both the Detroit and Rouge Rivers feeding into Lake Erie — protecting this natural resource is critical to the health and well-being of Detroiters and others throughout the region who rely upon these waterways for survival.

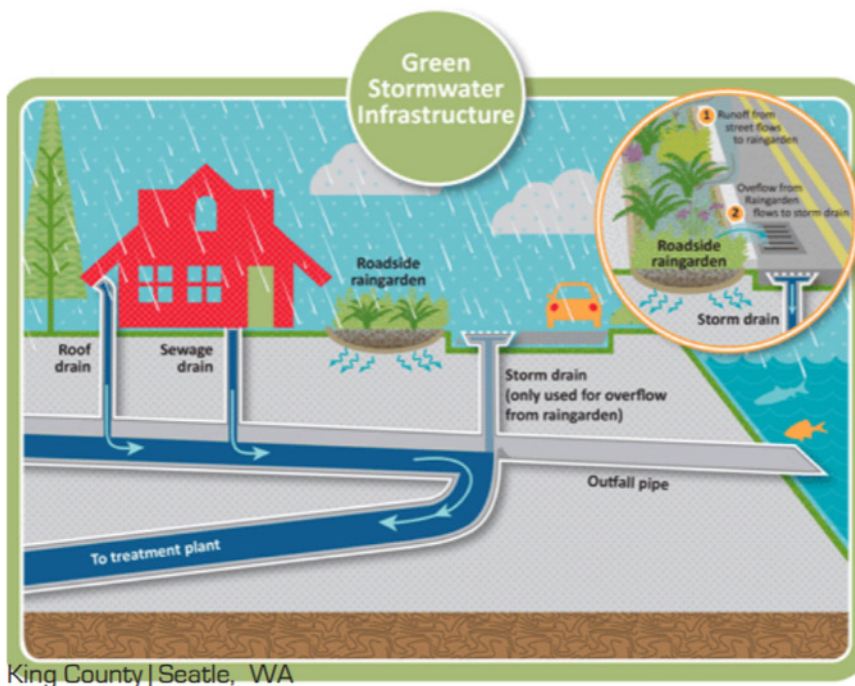
In 2019, Michigan was one of five states to experience record precipitation. According to the National Oceanic and Atmospheric Administration (NOAA), the annual precipitation total for all of Michigan that year was 41.83 inches, which makes it the wettest year on record — more than 10 inches above average. According to the State of Michigan’s Department of Environment, Great Lakes and Energy (EGLE), based on NOAA data, the long-term average³ annual precipitation for Michigan from 1895-2019 is 31.69 inches. As climate change continues to impact states around the country, especially coastal cities, the need to control CSOs to protect our freshwater sources is more urgent than ever⁴.

Photo credit: Sarah Hayosh.

WHAT IS GREEN STORMWATER INFRASTRUCTURE?

Green stormwater infrastructure (GSI) is a cost-effective, resilient approach to managing wet weather impacts that provides many community benefits. While gray stormwater infrastructure — conventional piped drainage and water treatment systems — is designed to move urban stormwater away from the built environment, GSI reduces and treats stormwater at its source while delivering environmental, social, and economic benefits.

GREEN INFRASTRUCTURE HOW IT WORKS:



Source: Detroit Collaborative Design Center

WHAT HAPPENS:

1. Water runs off of impervious “hard” surfaces (roofs, parking lots, streets) to soft surfaces (plants, grass, trees)
2. Pervious “soft” surfaces (plants, grass, trees) soak up the water
3. With large amounts of rainwater, roots of plants, grass, and trees help water return to the ground by increasing porosity.
4. Green infrastructure keeps rain water out of the sewer system and from over filling.
5. Thus, the treatment facility doesn't cause overflows or backups into homes.

GSI uses vegetation, soils, and other elements to restore the natural processes required to manage water and create healthier urban environments. At the city or county scale, GSI can provide a patchwork of natural areas that provide habitat, flood protection, cleaner air, and cleaner water. At the neighborhood or site scale, stormwater management systems that mimic naturally occurring processes soak up and store water.

Though there are a variety GSI types, the most common ones installed in Detroit are outlined on the following pages:

BIORETENTION PRACTICES

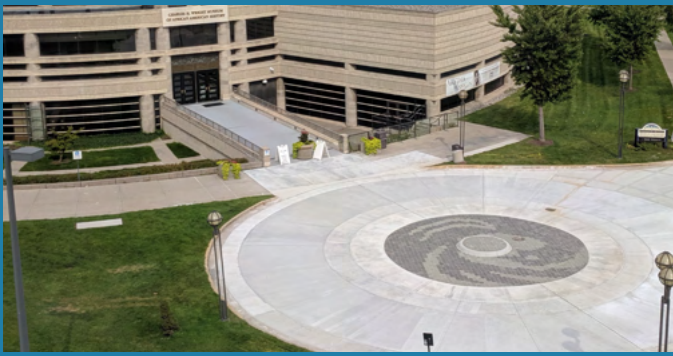
Bioswale



Rain Garden



Permeable Pavers



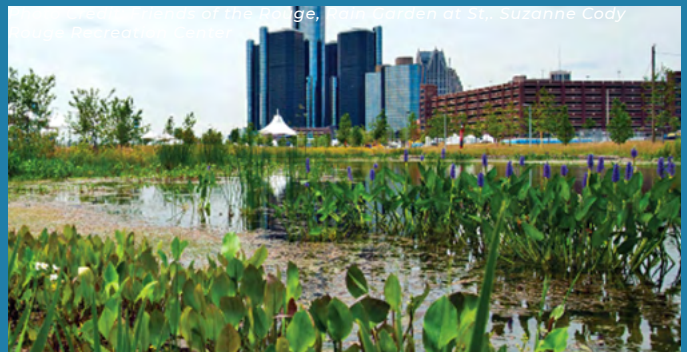
Permeable Asphalt



Green Roof



Wetland



WATER HARVESTING

Cisterns



Rain Barrels



Detroit Water and Sewerage Department and Green Stormwater Infrastructure Policy Drivers

In 2013, the Detroit Water and Sewerage Department (DWSD) negotiated with the Michigan Department of Environment, Great Lakes and Energy, formerly known as Michigan Department of Environmental Quality, to add green stormwater infrastructure (GSI) to its National Pollution Discharge Elimination Systems (NPDES) permit. Since then a new NPDES permit was issued in 2019 which still requires the use of GSI to manage wet weather to reduce combined sewer overflows (CSO). The joint NPDES permit between Great Lakes Water Authority and DWSD requires an investment of \$50 million on GSI by the year 2029, primarily in the Upper Rouge Tributary area where there are 17 uncontrolled CSO outfalls. This regulatory requirement will aid in reducing CSO events and potential harmful impacts to the local watersheds.

POST-CONSTRUCTION STORMWATER ORDINANCE

As a part of DWSD's permit compliance and citywide stormwater management initiatives, DWSD developed a Post-Construction Stormwater Management Ordinance (PCSWMO) which was enacted in November 2018 and amended in December 2020. The City's new PCSWMO requires new or redevelopment that creates or replaces $\frac{1}{2}$ an acre or more of impervious surface to implement stormwater management practices. The PCSWMO along with its accompanying Stormwater Design Manual specify the performance standards and control measures that must be taken to manage stormwater for sites that trigger the ordinance. If a development is unable to manage stormwater on site, developers can apply for alternative compliance which could include a onetime fee in lieu payment to DWSD, offsite compliance and/or approval of the use of extended detention.

THE DETROIT WATER AND SEWERAGE DEPARTMENT DRAINAGE CHARGE

In 2016, DWSD restructured and launched a drainage charge program that charged all customers on the same basis. Under the previous program, the drainage charge was billed using an acreage based system or by the meter size. Under the current program all property owners are charged based on the amount of impervious acreage on their parcel. This methodology generated several new customers who had previously never been charged for drainage. These sites were primarily parking lots that are major contributors to stormwater runoff. The current drainage charge rate is \$626/impervious acre. The drainage charge rate is subject to change each fiscal year pending DWSD's Board of Water Commissioners approval.

For more information, please visit the DWSD website at detroitmi.gov/DWSD.

PROGRAM HIGHLIGHTS

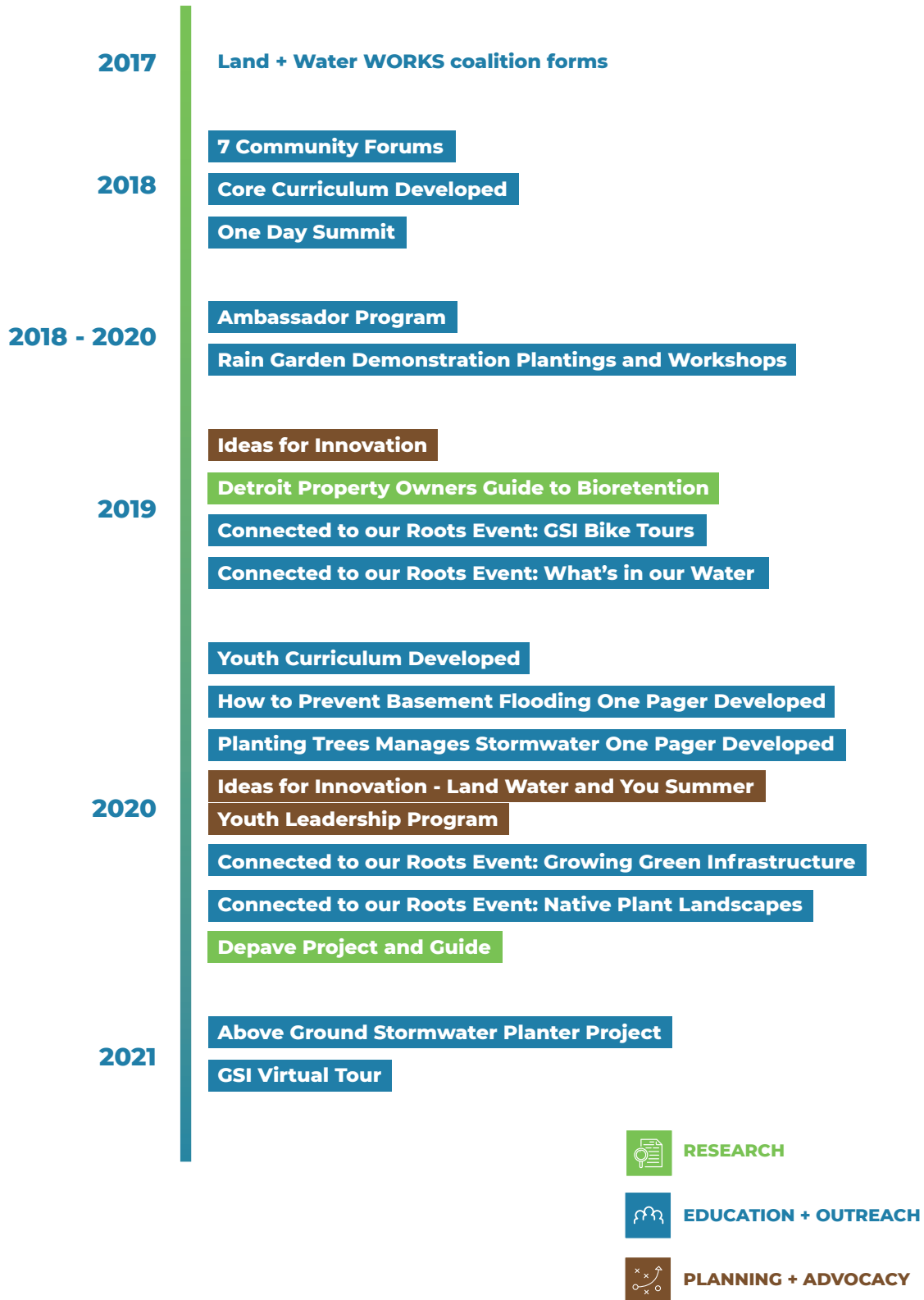
CREATING A FOUNDATION OF UNDERSTANDING: THE NEED TO INVEST IN GREEN STORMWATER INFRASTRUCTURE FOR A RESILIENT DETROIT

Creating a green culture shift in Detroit started with reaching and engaging Detroiters where they were. For Land + Water WORKS Coalition, this meant hosting focus groups, sending out surveys, and having one-on-one conversations to gain insight into how the public understood its connection to Detroit's water system. For many Detroiters, their role in the water system is layered with perceptions of the role of government, the private sector, and philanthropic organizations that must work together to achieve a healthier, more equitable city.

With this insight front and center, the L+WW Coalition developed the curriculum and events that would serve as the foundation for our outreach and education efforts between 2018 and 2020.

Photo credit: The Greening of Detroit.

Timeline of Coalition Highlights



Helping Detroiters Understand the Drainage Charge and Get Connected to Resources



COMMUNITY FORUMS

From the fall of 2017 through the spring of 2018, the L+WW Coalition engaged Detroiters in important conversations about Detroit's water system, the DWSD drainage charge and the opportunity to leverage the unique opportunity to transform more than 24 square miles of vacant land to support communities while reducing pollution in our waterways. We held seven forums across the city, working with a strong cross-section of partners that included City of Detroit departments such as the DWSD and the Office of Sustainability; the Detroit Land Bank Authority; sector practitioners; contractors; and nonprofits. Equal parts resource fair and interactive educational session, the L+WW Coalition engaged nearly 600 participants through the forums. During these sessions, attendees were given information on how to read the revised water bill format; how to use the DWSD Parcel Viewer to verify the accuracy of their impervious acreage; the various types of GSI that can be installed; how to apply for the Capital Partnership Program; and more via presentations, demonstrations, and individual consulting sessions. The forums included Gleaners Community Food Bank, Gesu Catholic School, St. Suzanne Cody Rouge Community Resource Center, and St. Gabriel Catholic Church. The coordination of these forums was led by The Greening of Detroit and Michigan Community Resources, with the support of the coalition.

Photo credit: Detroit Future City.

Creating Education Tools that Resonate with Detroiters

“Lasting social change unfolds from inside out: from the inner to the outer being, from inner to outer realities.”

ARIANNA HUFFINGTON

Throughout the years L+WW Coalition partners have created curriculum that has resulted in a robust suite of educational tools used to engage audiences from our youngest citizens to our largest property owners and everyone in between. In 2018, the L+WW Coalition launched the first iteration of its curriculum, an eight-page educational centerpiece that introduced Detroiters to the world of land and water stewardship in Detroit. Developed from originally sourced information by partners Detroit Future City, Eastside Community Network, Friends of the Rouge, The Greening of Detroit, and the Sierra Club Michigan Chapter, this core curriculum was designed to demystify complex topics for community members and stakeholders outside of the industry, using accessible language and easy-to-understand visuals and graphics. Topics covered in the initial curriculum included land and water sustainability, green stormwater infrastructure, stormwater runoff and combined sewage overflows, rain barrel construction, and community resources. This curriculum was deployed by Land + Water WORKS Ambassadors and Coalition partners who used it as the bedrock for community education events including rain barrel workshops, GSI Scavenger Hunts and more.



Photo credit: Detroit Future City.

PROGRAM HIGHLIGHTS

In 2020, L+WW Coalition partners, The Greening of Detroit (Greening) and the Sierra Club Michigan Chapter took the lead in developing an innovative land and water stewardship youth curriculum for educators teaching kindergarten through 12th grade. This curriculum provides comprehensive, grade-level appropriate lessons on Detroit's water system, CSOs, and how solutions like GSI can positively impact their communities. The curriculum includes a facilitators guide, two presentations, and a compiled series of interactive educational activities designed to reinforce students' understanding of their new role as land and water protectors. This curriculum has been used by ambassadors working with young people and will be included in a forthcoming career development program by Detroit based coalition, Building the Engine of Community Development Detroit.



Additionally, the Sierra Club Michigan Chapter worked with the Wayne State University Healthy Urban Waters program to publish a one-page educational sheet, How to Prevent Basement Flooding. This curriculum piece was developed by the Sierra Club Michigan Chapter in partnership with Wayne State University's Healthy Urban Waters and Urban Studies Center, based on their research project The Detroit Flooding Study. Greening released Planting Trees Manages Stormwater, a one-pager designed to educate community members on the power of trees to process stormwater runoff and increase the tree canopy in Detroit. In late 2020, Greening began developing curriculum focusing on educating the public on the functionality of our gray infrastructure systems and how GSI can help them operate more effectively and efficiently. This new curriculum will focus on the impact that commercial/non-tax-exempt and faith-based customers have on the system and how they can be a part of the solution. This latest addition to the curriculum will be launched in the spring of 2021. The curriculum will serve as a centerpiece to the L+WW Coalition's new focus on engaging and educating residents and nonresidential property owners on the city's gray infrastructure system and how GSI can play a role in helping it operate more efficiently.

Photo credit: Christina Ridella.

Building a Broader Understanding of GSI Best Practices and Impact

SUMMIT

In the spring of 2018, the L+WW Coalition brought together the leading voices addressing the challenges of gray infrastructure management, CSOs, and the opportunity that GSI presents to communities around the world. Understanding that as a city experiencing climate change with an aging gray infrastructure, the combined sewage issues facing Detroiters are not

unique. Indeed, there are lessons to be learned around the globe for stakeholders at every level. The Land + Water WORKS Summit featured local speakers, such as DWSD Deputy Director Palencia Mobley; former City of Detroit Planning and Development Department Deputy Director Janet Attarian; and former Alliance for the Great Lakes Community Sustainability Planner Khalil Ligon. Bringing a broader perspective to this discussion were Deputy Water Commissioner Marc Cammarata of the internationally acclaimed Philadelphia Water Department, and Van Valkenburgh Associates Principal Laura Solano. Practitioners, municipal leaders, and philanthropy and nonprofits gathered for a lunch-and-learn session that addressed how the Philadelphia Water Department had successfully and radically changed the way it invested in gray infrastructure to include GSI. Cammarata discussed how these investments under the City's Green Cities, Clean Waters program helped the city not only meet its

CSO reduction numbers per its contract agreement, but also made clear improvements to the quality of life for residents and property owners via triple-bottom-line impacts. The evening session was open to the public and focused on framing the issue of CSOs' impact on cities and the opportunity that GSI offers to create an equity-focused solution. The session engaged an audience of more than 160 attendees in thought-provoking conversation and was facilitated by Detroit Future City.

Photo credit: Detroit Future City.

Scaling up Green Stormwater Infrastructure and Building Rain Garden Communities of Practice

“Tell me and I forget. Teach me and I remember. Involve me and I learn.”

BENJAMIN FRANKLIN



RAIN GARDEN WORKSHOPS AND DEMONSTRATION PLANTINGS

Developed using elements of the highly successful, residential-focused Rain Gardens to the Rescue model, project leads Friends of the Rouge and the Sierra Club Michigan Chapter altered their program to engage tax-exempt and faith-based institutions in becoming community leaders of GSI implementation. Over the course of three years, the program ran three cohorts from late spring to early fall. The application-based program has resulted in 11 participating site hosts from across Detroit’s seven City Council districts, engaging 328 residents.

RAIN GARDEN SITES

2018

**Bethany Lutheran Church
Burton International Academy
Oakland Avenue Farms
St. Suzanne Cody Rouge Community Resource Center
The People of Palmer Park
Wellspring Church**

2019

**Oak Grove AME Church
Cristo Ray Catholic School**

2020

**Bandhu Gardens
In Memory of Garden
Hope House Meditation Gardens**

Through a layered approach, cohort members and project leads worked to recruit and train area stakeholders on the fundamental knowledge of rain gardens and how to design and maintain them. This training was done through a hybrid model of classroom learnings and hands-on rain garden installation. The workshops were created to meet the needs of each cohort member, and the programs have successfully created communities of practice throughout Detroit. In 2019, program participant sites received educational signage and training to facilitate community workshops funded by a \$20,000 grant from The Nature Conservancy.

Photo credit: Andrew Potter.

Sparking Innovation and Shifting the Conversation

IDEAS FOR INNOVATION

Since its inception, the L+WW Coalition has sought to increase the impact of and investment in community education about implementing GSI. One way the coalition has done this is through setting the table on working toward solutions through the L+WW Coalition Ideas for Innovation events.



In 2019, Detroit Future City led Ideas for Innovation, a half day interactive event at the Future of Detroit’s Green Stormwater Infrastructure Workforce Summit. The event brought together 40 stakeholders to discuss key findings of the Detroit Future City report “Detroit’s Green Stormwater Infrastructure Workforce Assessment.” During the session, the group heard presentations from DWSD and participated in small group discussions that focused on developing the local workforce needed to address the specific skills gap that exists in the GSI workforce. As a result of this summit, steps have been taken to begin streamlining processes and procedures to improve the implementation of projects at DWSD, and changes are being implemented in local workforce development programs with a focus on developing neighborhood talent.

In 2020, L+WW Coalition partners Southwest Detroit Environmental Vision and The Greening of Detroit — with support from EcoWorks, Eastside Community Network and Detroit Future City — led a group focused on developing a new pipeline of GSI advocates and environmental leaders. Together, this group reimaged the Ideas for Innovation program and created the Land, Water and You Summer Youth Leadership Program. This COVID-safe, online program engaged 51 participants from the Grow Detroit’s Young Talent program in a five-week initiative in which students learned about land and water stewardship and GSI through the lens of environmental justice. They were taught by practitioners including Monica Lewis Patrick, Delores Perales, and Erma Leaphart. Students also participated in a photo essay contest that highlighted various GSI installations across the city, and the winners were awarded gift cards, a consultation with an area photographer, and their work was showcased in an online gallery for the month of August on The Greening of Detroit website.

Photo credit: Susan Rusinowski.

Developing Leaders Who Are Driving Community Change

AMBASSADOR PROGRAM



One of the core pillars of the L+WW Coalition is education and outreach. The goal of the ambassador program is simple, yet powerful: to teach residents and nonprofits serving Detroiters about land and water stewardship and the critical role that green stormwater infrastructure (GSI) practices can have on improving the quality of life for residents and stakeholders now and for years to come. What makes the program special is the leadership training and tools these

participants are equipped with to share their newly acquired knowledge with their communities. This was made possible through the support of L+WW Coalition partners the Sierra Club Michigan Chapter, Friends of the Rouge, Keep Growing Detroit, and Alliance for the Great Lakes, among others. Over the course of nine months, ambassadors received 52 hours of technical and soft-skills training that included disconnecting downspouts and installing rain gardens to building water catchment systems.

“Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it’s the only thing that ever has.”

MARGARET MEAD

Over three years, the L+WW Coalition has provided training to three ambassador cohorts, creating a collective of 76 changemakers. The success of this program is evidenced by the continued investment in many of the ambassadors with more than 54% of them participating in the program for at least two years. Ambassadors engaged 34,402 residents, faith-based institutions, small businesses and nonprofits in conversations and activities designed to inform and drive participants to take action steps to become land and water stewards. Throughout the three years of the program, engaged citizens built rain barrels, learned how to disconnect their downspouts, verify their DWSD drainage charge accuracy, install rain gardens, and participated in community builds through ambassador led events.

Photo credit: Andrew Potter.

PROGRAM HIGHLIGHTS



Photo credit: Andrew Potter.



Showcasing Green Stormwater Infrastructure in the City

GSI VIRTUAL TOUR & PANEL DISCUSSION

Detroit Future City worked with community partners and the L+WW Coalition program participants Chandler Park Conservancy, Oak Grove AME Church, and St. Suzanne Cody Rouge Community Resource Center to develop a short mini documentary highlighting their GSI journeys from education to implementation. The GSI Virtual Tour premiered alongside a panel discussion featuring Alex Allen III, president and CEO of Chandler Park Conservancy; Steve Wasko, project director at St. Suzanne Cody Rouge Community Resource Center; and Robert Brooks, trustee of Oak Grove AME Church. This event offered significant insights into the challenges and lessons learned that led to successfully implemented practices that have not only reduced their drainage fees, but also made an impact on their communities.



Photo credit: LeNoir Films/Calandra Jones.

CONNECTED TO OUR ROOTS EVENTS

In 2019 and 2020 L+WW Coalition partners The Greening of Detroit, Keep Growing Detroit, and the Sierra Club Michigan Chapter led efforts to share the message of land and water stewardship with stakeholders through innovative outdoor programming. This creative approach opened the door to engaging Detroiters who otherwise may not have been reached.

The following pages highlight the events in this series.



Photo credit: Christina Ridella.

PROGRAM HIGHLIGHTS



23 PARTICIPANTS

2 EVENTS

EVENT: GSI Bike Tours

PARTNER LEAD: The Sierra Club Michigan Chapter

COMMUNITY PARTNER: Wayne State University, The Charles H. Wright Museum, Wayne County Community College District

IMPACT: The Sierra Club Michigan Chapter hosted two L+WW Coalition Bike Tours that engaged 23 participants. During these rides, participants toured a variety of sites that showcased what GSI interventions look like and can benefit not only the implementors, but the broader community. Sites included Oak Grove AME, the Lexus Velodrome, WSU's Parking Lot 12, the City of Detroit's Livernois Corridor GSI installation near West Outer Drive and more.

LAND AND WATER WORKS COALITION IMPACT REPORT

EVENT: What's in Our Water

PARTNER LEAD: The Greening of Detroit

COMMUNITY PARTNER: Wayne State University's Center for Urban Responses to Environmental Stressors

IMPACT: Held at Eliza Howell Park in District 1, with the support of L+WW Coalition partners the Sierra Club Michigan Chapter and Friends of the Rouge, the 2019 event featured a talk by Dr. Tracie Baker on the evolving crisis of polyfluoroalkyl substances (PFAs) and micro-plastics in our waterways. A resource fair followed by an arts installation that displayed the percentages of chemicals present in the Rouge River with lighted paper lanterns representing those particles. Thirty people attended this event.



30 PARTICIPANTS

1 EVENT

Photo credit: Top, Erma Leaphart. Bottom, Christina Ridella.

YOU'RE INVITED! GROWING GREEN INFRASTRUCTURE: A WALK THROUGH MEYERS TREE NURSERY

25 PARTICIPANTS

1 EVENT

THURSDAY, SEPTEMBER 24TH
6PM-8PM

EVENT: Growing Green Infrastructure

PARTNER LEAD: The Greening of Detroit

IMPACT: In 2020, the Growing Green Infrastructure event was held at the Meyers Nursery. This event consisted of small group site tours that walked participants through the basic elements of GSI and focused on how native trees can play a crucial role in managing stormwater runoff, how a retention pond works, and how innovative water catchment systems can aid in creating more sustainable tree farming practices with projects such as Greening's Pot in Pot Tree Farm. Twenty-five participants attended this event, which was supported by several ambassadors, including EcoWorks Detroit.

LAND AND WATER WORKS COALITION IMPACT REPORT

EVENT: L+WW Native Plants Landscapes

PARTNER LEAD: Keep Growing Detroit

COMMUNITY PARTNERS: The National Wildlife Federation and Detroit Future City

IMPACT: Using the power of storytelling, this workshop featured two Detroit community changemakers and GSI leaders — Erma Leaphart, associate organizer with the Sierra Club, and Elois Moore, community activist, former ambassador, and Rain Gardens to the Rescue alumna. Moore and Leaphart worked with Keep Growing Detroit farmer, Akello Karamoko and local Landscape Architect Ujjiji Davis to create two rain garden designs inspired by family memories that led to their love of gardening and water health advocacy. After an introduction to native plants and GSI, Leaphart and Moore shared their rain garden designs with stories about how they became engaged in this work. To wrap up the session, Karamoko and Davis shared basic planting and maintenance tips.

115 PARTICIPANTS

40 OF THEM RECEIVED
A FLAT OF 15 NATIVE PLANTS

THE VIDEO HAS BEEN VIEWED:
135 TIMES ON YOUTUBE
1,680 TIMES ON INSTAGRAM
BY 1,200 PEOPLE ON FACEBOOK

Attend for a chance to
receive 15 native plants to
help get your project started!



SATURDAY, AUGUST 29TH AT 1:00PM
**LANDSCAPING WITH
NATIVE PLANTS**



FREE WEBINAR BROUGHT TO YOU BY:

Photo credit: Top, The Greening of Detroit. Bottom, Keep Growing Detroit.

Land + Water WORKS Research & Demonstration Projects

L+WW Coalition partners Detroit Future City (DFC), the Sierra Club Michigan Chapter and Friends of the Rouge have worked since 2018 to provide resources and answer critical questions around the barriers for faith-based institutions, nonprofits, and businesses to implementing GSI.



A DETROIT PROPERTY OWNER'S GUIDE TO BIORETENTION (2019)

In 2019, DFC published The Property Owners Guide to Bioretention, an easily accessible “how to” guide for implementing bioretention GSI practices.

The report was developed with insight from a technical advisory committee comprised of landscape architects, GSI contractors, nonprofits, and City of Detroit partners from DWSD, BSEED, and the Detroit Economic Development Corporation. The publication was launched with a series of workshops kicked-off in partnership with the Grandmont Rosedale Development

Corporation, featuring several interactive activities, a short panel discussion with Oak Grove AME’s Robert Brooks and Southwest Detroit Business Association’s Greg Mangan and a tutorial on how to use the guide. As Detroit property owners continue to seek resources to understand the process of installing GSI for DWSD Green Credits, the publication continues to be utilized by community partners and potential GSI implementers.

Photo credit: Detroit Future City.

LAND + WATER WORKS DEPAVE PROJECT AND GUIDE (2020)

In 2019, DFC began exploring the feasibility of depaving as a cost-effective way for Detroit property owners to reduce their drainage charges and the amount of impervious acreage in the city. In partnership with Depave Portland, DFC joined a network of nonprofits across the country encouraging their communities to remove asphalt and concrete to increase greenspace and manage stormwater. DFC worked with the Detroit Training Center and the St. Suzanne Cody Rouge Community Resource Center to remove 7,500 square feet of pavement in the fall of 2020, with landscaping and site restoration of the area the following spring. In partnership with the Detroit Training Center, students from their Heavy Equipment Operator Training program were able to get invaluable hands-on training during the project and gain a first-hand understanding of the importance of greenspace and stormwater infrastructure.



DFC kicked off the release of the guide at the Green Power Event in August 2020 at St. Suzanne's, showing community members the project on site and connecting them with resources in the guide. The guide was published on DFC's website in October 2020 to connect Detroiters with this information and local resources on how to depave impervious surfaces to reduce DWSD drainage charge and increase the greenspace on their properties. St. Suzanne's will save almost \$1,300 a year on its DWSD drainage charges with the removal of 7,500 square feet of impervious acreage, in addition to the reductions from other GSI practices on site.

Photo credit: Susan Rusinowski.

LAND + WATER WORKS ABOVE GROUND STORMWATER PLANTER PROJECT (UNDERWAY)

In 2018, the Sierra Club Michigan Chapter and Friends of the Rouge (FOTR) identified the need to create cost-effective stormwater management infrastructure solutions that could be implemented by nonresidential property owners in order to become better stewards of our collective land and water assets. The solutions help reduce stormwater runoff, provide community beautification, and serve as replicable models for other property owners facing site and fiscal constraints to the installation of traditional GSI.

After researching water catchment systems used by non-residential customers around the country, the Sierra Club and FOTR developed the Above Ground Stormwater Planter Demonstration project. The project combines the usage of traditional water totes, plant material, disconnected downspouts, and a trench drain, and takes advantage of DWSD Green Credits.

The project is anticipated to be constructed in spring of 2021 at the Coin Laundry located in Midtown, on Second Avenue at Prentis Street. The site was selected due to its location in the heart of Midtown and Wayne State University's campus area, and the owner's desire to reduce their drainage fees. When complete, the project will have a storage capacity of 5,833 gallons of stormwater per rain event and will prevent the stormwater from entering the combined sewage system.

CONCLUSION



“Change will not come if we wait for some other person or some other time. We are the ones we’ve been waiting for. We are the change that we seek.”

**PRESIDENT
BARACK
OBAMA**

Since 2017, the L+WW Coalition has worked tirelessly to bring our vision of a resilient Detroit where green stormwater infrastructure helps mitigate the impacts of climate change and improves quality of life for all residents. As we look forward to continuing to work toward a green culture shift in Detroit, we know that this work cannot be done alone. It will take radical reimagination, progressive collaboration, and an unyielding commitment to change to accomplish this shift.

Together, Detroiters, property owners, advocates, and practitioners, alongside the public and private sector, will reimagine what a thriving, equitable community that benefits from GSI can look like and how it can function. The key to unlock this future lies in continuing to provide community education on our gray infrastructure system, the safety of our freshwater sources, how CSOs occur, and what we all can do to stop them through the innovative use of land-based solutions. Together, we can pave the way for a more climate-resilient Detroit by making GSI implementation and maintenance more feasible for both nonresidential property owners and community-based organizations.

At this critical time, we can be the change our city and environment need us to be. To learn how you can join us and be a part of the green culture shift in Detroit, go to www.landwaterworks.com or contact us at 313-259-4407 or via email at hello@landwaterworks.com

Photo credit: The Sierra Club Michigan Chapter.

ACKNOWLEDGEMENTS

The Land + Water WORKS Coalition's incredible impact in Detroit would not have been possible without the support of our community partners who also believe in the power of transformational land use. The power to create a climate-resilient, healthy, environmentally equitable city that creatively uses its open space to eliminate combined sewage overflows.

LAND + WATER WORKS PROGRAM STAFF

Detroit Future City, Land Use & Sustainability Team

LAND + WATER WORKS COALITION PARTNERS

Alliance for the Great Lakes, *2019 - present*

Community Development Advocates of Detroit, *2017 - 2019*

Eastside Community Network, *2017 - present*

EcoWorks Detroit, *2017 - present*

Friends of the Rouge, *2017-present*

Janlynn Miller, *2019-2020*

Keep Growing Detroit, *2017 - present*

Michigan Community Resources, *2017 - 2019*

Michigan Interfaith Power and Light, *2021 - present*

MOSES, *2017 - 2020*

Sierra Club Michigan Chapter, *2017 - present*

Southwest Detroit Environmental Vision, *2019 - present*

The Greening of Detroit, *2017 - present*

COMMUNITY PARTNERS

Chandler Park Conservancy

City of Detroit General Services Department

City of Detroit Office of Sustainability

City of Detroit Green Taskforce Water Sub-Committee

Cody Rouge Community Alliance

Detroit Water & Sewerage Department

Detroit Economic Growth Corporation

Lawrence Tech University
College of Architecture

Oak Grove AME Church

ProSeeds Consulting

St. Suzanne Cody Rouge Community Resource Center

The Nature Conservancy

University of Michigan, School of Environment and Sustainability

Wayne State University,
College of Civil Engineering

Healthy Urban Waters

Center for Urban Responses to Environmental Stressors

Transformative Research in Urban Sustainability Training Program

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Sany Bilani
Sarah Coffey
Sonja Hill
Stephan White
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Yumeika Perry
Yvonne Willis

NONPROFIT ORGANIZATIONS

Eastside Community Network
EcoWorks Detroit
Friends of the Rouge
Genesis Hope CDC
The Greening of Detroit
Know Alligence Nation
Mary Turner Center for
Advocacy
MECCA CDC
Michigan Community
Resources
Michigan Science Center
Northend Neighborhood
Patrol
Norwest Art Gallery
The Sierra Club Michigan
Chapter
Southwest Detroit Business
Association
Southwest Detroit
Environmental Vision
Sustainable Community
Farms
Urban Neighborhood
Initiatives

ENDNOTES

¹ Violet Ikononova, “More than 17,000 Detroit homes face water shutoffs, official says ‘the problem is poverty,’” *Metro Times*, March 26, 2018, [metrotimes.com/news-hits/archives/2018/03/26/more-than-17000-detroit-homes-face-water-shutoffs-official-says-the-problem-is-poverty](https://www.metrotimes.com/news-hits/archives/2018/03/26/more-than-17000-detroit-homes-face-water-shutoffs-official-says-the-problem-is-poverty).

² Michigan Department of Environment, Great Lakes, and Energy

³ NOAA National Centers for Environmental information, “Climate at a Glance: Statewide Time Series,” published March 2021, https://www.ncdc.noaa.gov/cag/statewide/time-series/20/pcp/12/12/1895-2019?base_prd=true&begbaseyear=1901&endbaseyear=2000.

⁴ Michigan Department of Environment, Great Lakes, and Energy, *Combined Sewer Overflow (CSO), Sanitary Sewer Overflow (SSO), and Retention Treatment Basin (RTB) Discharge 2019 Annual Report*, page 6, https://www.michigan.gov/documents/egle/wrd-cso-ss0-rtb-2019-annual-report_695004_7.pdf.



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