



# Green Alleys:

Detroit's Opportunity for Innovation

**DETROIT  
FUTURE  
CITY**



## Green Alleys: Detroit's Opportunity for Innovation

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## About Detroit Future City

Detroit Future City (DFC) is a nonprofit organization that plays a crucial role in Detroit as an independent think tank, policy advocate and innovation engine focused on the future of the city and the implementation of strategies that advance the recommendations laid out in the DFC Strategic Framework.

Through the shared vision of the Strategic Framework, DFC is committed to advancing the quality of life for all Detroiters. DFC works to accomplish this in partnership with residents and public and private stakeholders, and through data-driven strategies that promote the advancement of economic equity, land use and sustainability, and community and economic development. DFC is committed to advancing and scaling open space land transformation, including green stormwater infrastructure (GSI) implementation across the city. DFC has led numerous research initiatives and GSI projects to better strengthen the Detroit open space ecosystem, as well as increase public, private, and nonprofit investment in these innovative land uses.

## About Ecoworks

EcoWorks is a Detroit-based nonprofit with over 30 years of providing services at the intersection of community development and sustainability. Though our roots are firmly planted in energy conservation, we have grown to emphasize all aspects of sustainable development as it relates to building affordable, energy-efficient residential housing and commercial buildings.

EcoWorks programming includes the Eco-D initiative, which looks to foster neighborhood-level sustainability. By embracing three imperatives—climate protection, equity, and resilience—Eco-D is looking to implement a community-driven plan that will fuel innovative urban regeneration in Eco-Districts across Detroit. West Village was one of the first Eco-D neighborhoods, from which the West Village Green Alley project was born. This report builds upon that project to report on lessons learned, as well as explore other green alley initiatives around the country, to provide an opportunity for future innovation and learning.

# Introduction

There has been growing interest in using green stormwater infrastructure (GSI) in Detroit, both as an intentional stormwater management tool, and as a compliment to social and community improvement efforts. GSI provides a wide range of benefits. By using natural processes to filter and manage stormwater runoff, GSI can help increase capacity in the combined sewer system, thus potentially reducing untreated combined sewer overflows into the Detroit and Rouge rivers, keeping local rivers and the Great Lakes clean. GSI often includes using native plants and vegetation, which can help create wildlife habitat, improve air quality, make neighborhoods more beautiful and increase the well-being of residents. GSI projects in Detroit have been implemented by residents, property owners, community groups, nonprofit organizations, and the City of Detroit, and often some combination of these partners.

## Green Stormwater Infrastructure (GSI)

GSI practices mimic nature's ability to capture rainfall, reducing runoff volume, filtering pollutants, slowing water entering the combined sewer system, and often returning runoff to the soil.

One GSI tool of interest is green alleys. Green alleys incorporate GSI into the alley, reducing and/or slowing stormwater runoff volumes. The City of Detroit has recently started reinvesting municipal resources in cleaning up and restoring alleys, after years of deferred maintenance. Detroit has the potential to become a leader in GSI, and beautiful, activated alleys could play a role. This report explores green alleys to educate Detroiters on this opportunity to manage stormwater and revitalize alleys across the city.

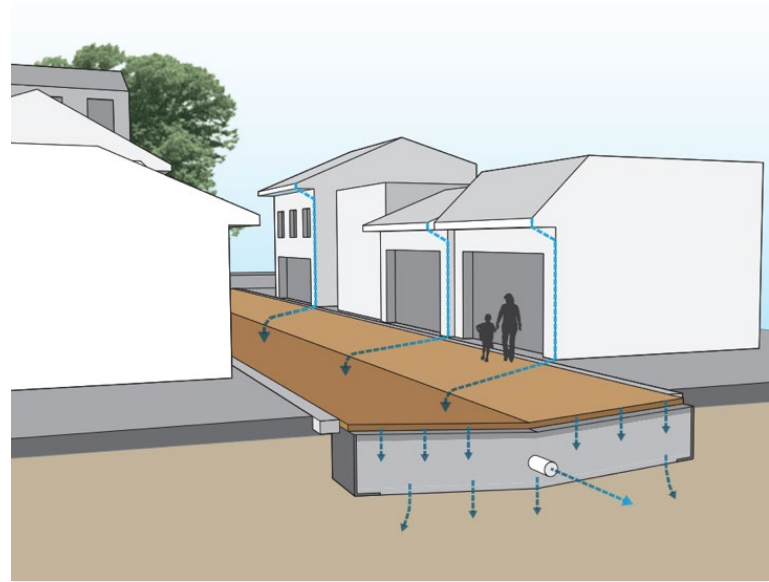


*Midtown Green Alley*

*Photo credit: Marvin Shaouni*

## Green Alleys: Detroit's Opportunity for Innovation

In 2016, Detroit's West Village Neighborhood Association and West Village residents began working with EcoWorks to undertake a GSI project to construct a green alley in Detroit. However, infrastructure and policy challenges led to the determination that this green alley project was not feasible at the time, and that policy changes would be required to implement a green alley project in the future. This report describes the challenges faced by this project, should another organization choose to undertake a similar project. Additionally, case studies of green alley projects and programs in other communities around the country are highlighted, offering guidance towards addressing policy and infrastructure barriers that came up through the West Village Green Alley project. The experiences of the project in the West Village neighborhood and findings from the peer communities inform a set of recommendations, which, if implemented, could help address existing barriers to make green alleys in Detroit possible.



*Green alleys capture stormwater runoff from adjacent buildings and store the stormwater underground. Depending on the green alley design, water can be soaked back into the soil, slowly released to the sewer, or a combination of both. These techniques relieve the burden on the sewer, or the grey infrastructure system, either holding water back from the system and returning it slowly or keeping it out altogether*  
*Photo credit: DC Water Clean Rivers Project*

Innovation and continuous learning are fundamental to the goal of GSI becoming a standardized practice in Detroit. This report, co-written by Detroit Future City and EcoWorks, is intended to document the process and lessons learned from a GSI project in the West Village neighborhood, as well as disseminate key findings to support collective work towards a more environmentally sustainable Detroit.

# Green Stormwater Infrastructure

Across the United States, communities are using GSI to manage stormwater runoff quantity and quality, increase resilience to climate change, reduce urban “heat island” effects, and stabilize and beautify neighborhoods. GSI includes practices such as rain gardens, bioswales, green roofs, and permeable pavement, which capture water flowing over roads, parking lots, and other hard, impervious surfaces, and allows it to soak into the soil and/or move more slowly into the combined sewer system. GSI practices mimic nature’s ability to capture rainfall, thus reducing runoff volume and rates, either returning the stormwater to the soil, or reducing flooding by entering the city’s combined sewer system slowly.

As cities continue to face more extreme weather events, such as heavy rains and more frequent high temperatures, the shortfalls of our current infrastructure are becoming increasingly apparent. GSI interventions are already proving to be critical to strengthen cities’ resilience in the face of these hazards. Furthermore, GSI can support cities’ adaptive capacity to weather the negative impact of these challenges to create safer communities, as well as contribute to more vibrant and beautiful spaces that can be enjoyed by all community members.

In the past few decades, as cities have begun taking steps to repair their aging infrastructure, some municipal and private actors have also revitalized their alleyways in innovative ways to achieve environmental, public health, and safety goals through green alleys. Green alleys typically also include a community beautification function, but a crucial element is stormwater management in the alley. Green alleys incorporate a variety of characteristics, often including permeable pavement (permeable asphalt, concrete, or pavers,) and plants that are designed to allow stormwater to filter through the pavement and drain into the ground or slowly release into the sewer system, instead of pooling on hard surfaces or quickly draining into the sewer system.<sup>1</sup>

This type of alley design can provide an inviting, eco-friendly, and pedestrian-friendly public space for residents. The conversion of traditional alleyways to green alleys allows for cities to meet stormwater management goals while also creating safe, social, and pedestrian-friendly spaces. Alleyways also are an opportunity to activate an often-neglected space in cities, facilitating neighborhood beautification efforts and walkability in commercial districts.

### Potential Benefits of Green Alleys

Green alleys can be used to mitigate environmental issues, such as stormwater management and flooding, air pollution, urban heat island effects, wildlife conservation and recreational needs.<sup>2</sup>

Green alleys also have the potential to convert alleys into safe public spaces that can foster community cohesion and pride. If located in a commercial district, green alleys can support economic development by providing additional entrances to businesses, and potentially increase adjacent property values.<sup>3</sup>





*Green alley project in Wauwatosa, Wisconsin.*

*Photo credit: City of Wauwatosa*

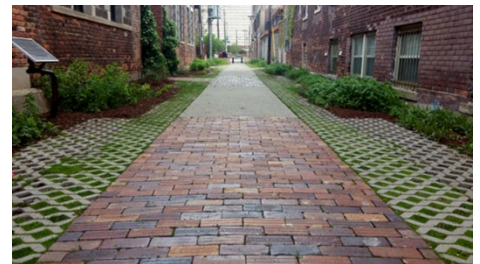
## Green Alleys in Detroit

The Detroit Water and Sewerage Department (DWSD) has implemented a number of GSI projects since 2016, but to date, these have not included any green alley projects. There are a few existing green alleys in Detroit that were completed before 2016, when new DWSD policies conflicted with green alley projects. One existing green alley is the Midtown Green Alley implemented by the Green Garage, a co-working space in the Midtown/Cass Corridor neighborhood. The project received support from the Kresge Foundation, the Americana Foundation, the Colin Hubbell Foundation, and DTE Energy. In line with Green Garage's environmental mission, the Midtown Green Alley was constructed in 2009 with the intent of serving as a model for other alleys in the city.<sup>4</sup> Intended benefits of the green alley were to increase permeability, improve pedestrian connection, and enhance aesthetics.

During construction, the existing water main in the alley was repaired and rehabilitated prior to implementation of any green infrastructure elements, including permeable pavers and native plantings. At the time of construction over a decade ago, Detroit stormwater policies allowed for the green alley to be built, however, the current stormwater policies would not allow for a similar project.



Midtown Green Alley before  
Photo credit: Green Garage



Midtown Green Alley after  
Photo credit: Green Garage

Though the City of Detroit has not defined a specific green alley strategy, there have been notable efforts to advance sustainability and address poor conditions in alleys. In 2019, the Detroit Sustainability Action Agenda was released as the result of a yearlong process of community engagement, municipal collaboration, and research. As Detroit's first sustainability plan, it outlines a strategic roadmap to create a more sustainable city in which all Detroiters thrive and prosper in an equitable, green city; have access to affordable, quality homes; live in clean, connected neighborhoods; and work together to steward resources. Among its goals is calling for the city to "enhance infrastructure and operations to improve resilience to climate impacts." Action items include calling for creating neighborhood scale, distributed green infrastructure projects, and incorporating GSI into street redesign and greenway projects. These goals and action items could be addressed by implementing green alley projects across the city, providing mutual benefits for both the city's residents and DWSD.

### **Aligning with the Detroit Sustainability Action Agenda's goals**

Among the Detroit Sustainability Action Agenda's goals is "enhance infrastructure and operations to improve resilience to climate impacts."

The Detroit Sustainability Action Agenda notes, "as Detroit begins to experience more extreme precipitation events, our wastewater infrastructure can become overwhelmed. However, by focusing on expanding the amount of, and targeting the location of, green stormwater infrastructure throughout the city, we can help reduce the impacts of these events. Likewise, informed and prepared communities will be more resilient to climate impacts."<sup>5</sup> Green alleys could be a significant, widespread technique used to address these goals.

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The City has been making major strides in the last year with alley cleanups. Led by Mayor Mike Duggan, the City launched a new alley cleanup program in August 2020, cleaning 505 alleys of brush and debris, and aiming to cleanup another 2,000 alley blocks in 2021.<sup>6</sup> The city has been hiring residents to perform the work as part of city cleanup crews. After years of disinvestment and deferred maintenance in alleys, the City is making progress.

In Detroit, both roads and alleys are engineered to convey water, making both an ideal intervention point for GSI. Over 51% of Detroit is covered in impervious surfaces, including roads, driveways, sidewalks, compacted gravel, etc.<sup>7</sup> Detroit has over 4 square miles of alleyways throughout the city, over 2 square miles of which are vacated, or private property.<sup>8</sup> Alleys are designed to capture a significant amount of runoff from adjacent buildings and surfaces. As Detroit puts more efforts into cleaning up alleys, they could begin capturing data on alley condition/existing infrastructure for use in decision-making for future green alley projects or other repair/renovation efforts. Alleys in Detroit are a huge opportunity to beautify and stabilize neighborhoods, capture stormwater to reduce combined sewer overflows, and increase the safety of residents and pedestrians.



## West Village Green Alley Project

The West Village Green Alley project provides insights into the existing policies that conflict with implementing green alleys in Detroit and show residents' desires for alley innovation. From 2016 to 2019, the West Village Green Alley project in Detroit was led by a team of residents and community supporters. This work was organized under the umbrella of the existing Eco-D initiative, a program of nonprofit EcoWorks to support holistic, neighborhood-scale sustainability. With the kickoff of the Eco-D initiative and development interest in the Kercheval commercial corridor in the neighborhood, interest around a green alley project quickly grew. This type of project was seen for its potential to benefit neighboring residents and businesses and to serve as an example of sustainability-minded innovation. Preliminary research and project development occurred in 2016, including beginning conversations about the project with DWSD, shortly after the rollout of its drainage charge program, which increased rates for customers with large amounts of impervious land.<sup>9</sup>

The project quickly gained interest and grant funding, as well as attracted support from community development funder Invest Detroit. DWSD gave general guidance to the project team around GSI implementation, and the concept moved forward to begin designing the green alley between Van Dyke Avenue and Parker Street, adjacent to Kercheval Avenue. Given the timing with the implementation of drainage charges, several of the adjacent local businesses on Kercheval Avenue were interested in the potential for drainage credits to alleviate their costs through a shared stormwater practice model. Notably, this

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project came about simultaneously as new GSI policies were being developed, thus leading to questions about how to regulate a new type of GSI.

As the project team began to design the green alley, DWSD's stormwater management group was still in its initial phases of establishing the drainage charge and associated GSI policies. Both the project team and the City were navigating green alley project concepts for the first time under the new GSI program and policies. This led to multiple green alley design iterations as DWSD's policies evolved.



*Midtown Green Alley*

*Photo credit: Marvin Shaouni*

Throughout the process, DWSD raised concerns about perceived infrastructure risks and financial liability associated with constructing GSI in a public right-of-way (i.e., easement for transportation such as a road or alley) that contains infrastructure and utilities. Maintenance and ownership concerns were also discussed as the alley in question was publicly owned, as the project was being implemented and funded by non-municipal organizations.

In 2018, DWSD provided written notice that "stormwater management practices are not allowed within a right of way that has a DWSD structure," such as a sewer line or water main. This policy is still in place but not widely known by the public as it is not formally documented. After three years of project design, excitement from the community, and frequent meetings and communications with DWSD, the project was denied because it conflicted with this policy. During the process, the DWSD team was open to receiving additional information and lessons from other cities with policies on green alleys that had addressed similar challenges. It is the project team's hope that, in time, and with more understanding of the opportunity that green alleys provide and investment from the City in alleys, these policies could change and new green alleys in Detroit could be realized.

## Green Alley Case Studies

Though Detroit may still be exploring the application of green alleys as a stormwater management strategy, many cities in the U.S. have developed robust policies and programs. Case studies were explored in three peer communities to understand lessons that can be applied to address challenges in Detroit. These communities include Wauwatosa, Wisconsin; Minneapolis, Minnesota; and Washington, D.C. Key takeaways are summarized below that may be beneficial for municipal officials and decision makers. These cases provide a starting point to consider actionable policies that would enable more green alleys in Detroit, and provide the environmental, economic, and social benefits of GSI at scale.

### Wauwatosa, Wisconsin

As of January 2021, the City of Wauwatosa has installed 22 green alley projects with more scheduled for construction. The city is adjacent to Milwaukee and located within the Milwaukee Metropolitan Sewerage District (MMSD). Wauwatosa has been recognized for its innovative green alley program, taking action to manage water where it falls.

### Capital Improvement Planning & Policy

Wauwatosa incorporated green alleys into its capital improvement planning process. The City's Capital Improvement Plan (CIP) is updated on a five-year basis, during which, alleys are evaluated and prioritized for reconstruction, as well as to assess whether they are a good fit for GSI.

. Through the capital planning process, all alleys in the city are inventoried and rated according to standard condition assessments. Paired with additional evaluation criteria—such as the level of the water table and frequency of heavy

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traffic—alleyways are then evaluated for their suitability to be reconstructed as a green alley.



In addition to project planning, local ordinances and stormwater utilities have played a significant role in constructing green alleys in Wauwatosa. Similar to Detroit, Wauwatosa residents pay a stormwater charge based on the amount of impervious area, such as roofs and paved driveways, on their property, for the purpose of maintaining the storm sewer system. Also similar to Detroit, Wauwatosa has a construction stormwater ordinance that has allowed for redevelopment and new development to drive many of the new GSI projects. The City also did a significant overhaul to its zoning code, which helped remove policy barriers to green infrastructure projects. Innovations in municipal infrastructure often face both legal and design challenges, so it is important to consider opportunities to influence policy that are part of existing municipal activities, such as a zoning update or master planning process.



## Addressing Design, Construction & Maintenance Challenges

To prepare for these alley innovations, the City worked with its regional sewer authority, the Milwaukee Metropolitan Sewerage District (MMSD), and utility companies to work through design and engineering challenges to green alley construction. Alleys in Wauwatosa typically don't have infrastructure in them, however, when they do, it hasn't stopped green alley reconstruction. When present, electrical and telephone utilities are rerouted to the edges of the alley at the utility's cost. For alleys with close foundations or water infrastructure below (e.g. sanitary sewer, water main,) a rubber membrane is placed at the bottom of the excavated green alley to ensure no stormwater will infiltrate into the existing infrastructure. This way, stormwater is still captured in the alley and slowly released back into the sewer system to remove burden from the system, all while not disturbing any existing infrastructure—a win-win for the existing infrastructure and the innovative GSI practice. This is a practice that DWSD could consider adopting to address infrastructure concerns.

Post-construction, the City of Wauwatosa recognizes the importance of the alleys and commits to maintaining them by sweeping five times per year and running a vacuum truck once per year. After several green alleys were constructed, the Wauwatosa water department now prefers green alley reconstruction to traditional methods because, if there is a water main break or some other issue in the alley after construction, it is easier to replace the permeable pavers than to break through traditional alley concrete.



*The green alleys in Wauwatosa feature permeable brick pavers. Installed with gravel in between the pavers, water can flow between the pavers, through the gravel, and infiltrate back into the soil. Photo credit: City of Wauwatosa*

## Innovative Funding & Financing

Financial incentives have supported the green alley program with the capital to make projects actionable and immediate. Since the City of Wauwatosa is within the MMSD treatment area, it is able to take advantage of reimbursement grants from MMSD aimed at supporting green infrastructure projects. This funding has helped to enhance alley reconstructions by making construction of green alleys more affordable than traditional ones. Financial incentives in Wauwatosa have helped to push forward the conversation around green alleys, as well as to facilitate partnerships with the MMSD, to accomplish mutual goals between the City and MMSD.

In the case of residential alleys, the municipality funds the cost of alley reconstruction via a fee incurred by alley-adjacent homeowners, regardless of whether the alley is green or traditional. These property owners pay a flat rate added to their tax bill over 5 years for reconstruction. Since green alleys are partially funded through MMSD's grant program, they prove more affordable to the homeowner than traditional alley reconstruction. This can serve as a financial incentive for residents to support the making their alleys green, not to mention the environmental and social benefits provided by managing stormwater.

In addition to the benefits to residents, the green alleys are beneficial to the municipality and sewer district as well. These green alleys are playing a significant role in helping MMSD to reach its new permit requirements for stormwater management by managing stormwater through GSI over the next five years. The robust green alley program has created strong partnerships between the City and community groups, and achieved mutual benefits for all.

## Wauwatosa, Wisconsin Lessons Learned

Municipal determination to create a green alley program began with planning, addressing policy barriers, and collaboration. The Department of Public Works and the Sewerage District worked together to address design, construction, maintenance, and funding challenges. Through this collaboration and commitment, the City has created trust between themselves and residents.

## Minneapolis, Minnesota

The City of Minneapolis does not have a formal green alley program, however, it is beginning to design several green alley concepts and has hopes for constructing them in the future. Minneapolis has one private green alley, implemented by nonprofit Metro Blooms and residents, in hopes of becoming a demonstration project that could be replicated citywide. In recent years, Minneapolitans—residents, council members, and planners alike—were asking for GSI to be added to the roads. The lack of experience and technical expertise at the municipal level has limited the adoption of green alleys as a formalized stormwater management approach, as green alleys posed funding and maintenance questions, and infrastructure barriers, and required significant changes to institutional processes that can be difficult to influence. Therefore, the City has focused on incorporating GSI practices as a part of road infrastructure projects.

### **Nonprofits & Residents Leading the Way**

Despite hesitation from city leaders, resident interest is strong, as indicated by the projects that have been completed in private alleys, including those where residents have chosen to partially fund the cost of the project themselves. One such project is the Standish-Ericsson Green Alley in Minneapolis, located in a private alley in the Standish-Ericsson neighborhood. The project was championed by residents and led by Metro Blooms, a nonprofit and GSI leader in the area. The residents who owned the alley were looking to upgrade their deteriorating alley and, after meeting Metro Blooms, the idea for the green alley began.

Funding for the green alley was raised from Hennepin County, the watershed district, and neighbors who lived along the alley. Permeable pavers

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with a border of concrete were installed in the alley, and monitoring showed that over 90% of the annual runoff was captured by the green alley. Because a large portion of the adjacent homes' runoff drained into the alley, the alley's stormwater capture is a huge success. Metro Blooms hopes that by installing monitoring equipment and measuring the amount of stormwater managed in the alley, the City will take notice and see the stormwater management opportunity that green alleys present. Residents maintain the alley themselves (using Shop-Vacs to remove sediment from the pavers) and hope that, with municipal support, they could start to see similar projects implemented in public alleys across Minneapolis.



*Residents stand in the Standish-Ericsson Green Alley.*

*Photo credit: Metro Blooms*



## Progress through Innovation

After success with the Standish-Ericsson Green Alley, Metro Blooms and residents continued to push forward. According to Metro Blooms, approximately 60% of the average Minneapolis city block drains towards the alley instead of the street, so the alleys have been long recognized as a significant opportunity for stormwater management. Due to current lack of support from the City to install green alleys in the public right of way, Metro Blooms created an innovative workaround—the Blooming Alley program. The Blooming Alley program allows a block of residents to install GSI on their private property to capture water before it enters the alley. Residents have installed rain gardens in their backyards and



*This project is one house of many contributing to a Blooming Alley in Minneapolis. The project allows drainage from this house and driveway to be captured by permeable pavers and soaks back into the soil before the stormwater enters the alley.*

*Photo credit: Metro Blooms*

permeable pavers at the end of their driveways to reduce runoff flowing to the alley. Similar to the Standish-Ericsson Green Alley project, these Blooming Alley projects are supported by multiple funding sources, including the county and watershed organizations.

Though the City of Minneapolis has not adopted a green alley approach yet, the City has been open to resident feedback and is in support of green infrastructure. The City has a green infrastructure coordinator on staff and is making progress on GSI in the rights of way, allowing rain gardens to be installed in boulevards. Due to high resident interest in green alleys, the success of these

alley projects in Minneapolis, and of green alley projects across the country, the City continues to explore partnerships and consider green alley implementation. As is the case in Detroit, GSI in alleys presents a number of novel engineering and legal considerations not typical of GSI in other parts of the urban landscape. This can create challenges in obtaining project



*Residential rain gardens in backyards capture stormwater runoff before it enters the Blooming Alley.  
Photo credit: Metro Blooms*

approvals for these designs, but as evidenced in the Minneapolis case, an incremental approach can be useful to demonstrate the benefits of green alleys in a measured way. This kind of strategy to better understand the performance of green alleys through a private alley project model could be adopted in Detroit to demonstrate the benefits of green alleys to the City.

## Minneapolis, Minnesota Lessons Learned

Minneapolis nonprofit and residents decided to make their own progress on green alleys by implementing a pilot project in a private alley. In addition to this pilot project, they created "Blooming Alleys," using innovative GSI measures to capture stormwater just before it enters the alleys. These innovative projects show how much residents care about managing stormwater and identify alleys as an ideal interception point.

## Washington, D.C.

In Washington, D.C., the water utility (DC Water) has had a long-standing green alley program called the Clean Rivers Project. DC Water installed permeable pavement to create green alleys, however, it was limited to areas of the District where the storm and sanitary sewers had been separated. In 2015, Mayor Muriel Bowser launched AlleyPalooza, a District-wide initiative to repair or renovate alleys across all eight wards. A partnership was formed between DC Water and the District Department of Transportation (DDOT,) to turn some of the alleys into green alleys. This partnership with the DDOT allowed green alleys to be installed in an area of the District where stormwater management could have the most impact on reducing combined sewer overflows, keeping the rivers clean.

## Utility Partnerships

This kind of collaboration is unique across the country and exemplifies the multitude of benefits that strong partnerships and municipal support and leadership can have when implementing GSI. These benefits include financial savings through cost-sharing and optimization of resources; reduced disruptions and impact to neighborhoods when alley reconstructions take place; and reduced time spent on contracts and other bureaucratic processes through greater coordination between agencies.

A motivation for the partnership, one worth noting as a potential strategy for Detroit, is that it allowed rate payers' dollars to go further because DDOT covered the cost for restoration. Typically, DC Water would not



*One of many green alleys across Washington, D.C., increasing stormwater management for the city, as well as pedestrian safety and walkability.  
Photo credit: DC Water Clean Rivers Project*



install GSI in the combined sewer overflow (CSO) portion of the District, and concentrated its GSI efforts (and dollars) elsewhere in the District. Because there was an opportunity to “green” the alleys in the CSO area, DC Water provided the funding to install GSI in those alleys, and DDOT covered the restoration costs. Key to this partnership was DC Water recognizing the alleys as a significant stormwater management opportunity, especially in the CSO area, where they could maximize CSO reduction benefits. This allowed both parties to capitalize on opportunity when it arose, working across departments to achieve mutual benefits for DC Water, DDOT, and residents.

### Streamlining the Process

Coordination and standardization are important strategies for DC Water's Clean Rivers Project. DC Water and DDOT worked with the Department of Energy and Environment (DOEE) to standardize designs and the alley permitting process. This allowed both parties to quickly install the green alley when the opportunity arose without typical permitting delays. Each of the partnering utility departments or companies provided clear guidelines for protecting their assets in the alley. There was no “typical” alley—some had electrical, gas, or sewer lines, or unidentified conduits, and some had no existing infrastructure in them. However, because of the guidelines and communication channels in place, there was a standard process and design during construction to deal with any issues that arose.



*A permeable pavement sign in a green alley in Washington, D.C.  
Photo credit: DC Water Clean Rivers Project*



## Maintenance

A common thread among cities with green alley programs is that the municipality has taken on long-term maintenance of projects. This simplifies coordination because alleys often have overlapping jurisdictions and authorities. Maintenance of GSI projects is sometimes understated when compared to traditional gray infrastructure approaches, so it is important to do long-term planning. In addition, responsibility for maintenance can also be unclear between overlapping jurisdictions and authority over the alleyway. In Washington, D.C., the District has developed agreements with entities like business improvement districts and businesses to assume responsibility for maintenance of some green alley projects. Ensuring that long-term maintenance is clearly defined has been key to the success of these green alley projects.

### Washington, D.C. Lessons Learned

Washington, D.C.'s green alley program has taken collaboration to the next level, working across departments and utilities to address challenges, as well as creating standardized designs and processes to streamline green alley projects throughout the District. With the municipality adopting maintenance for green alleys, Washington, D.C., has seen long-term success of this green alley program.

## Recommendations

Lessons learned from the peer communities informed the following recommendations for the City of Detroit and Detroit Water and Sewerage Department to advance green alleys in Detroit.

- **Explore green alley programs and policies in other cities**

Other communities have found ways to implement green alleys, both with and without existing infrastructure in them, to achieve mutual benefits for residents and the City. DWSD has already shown that it is open to exploring outside expertise on this topic, asking the West Village team to highlight other communities' progress on green alleys. Bringing in municipal staff from peer communities to learn from their experiences with green alleys could help address the current technical and policy barriers preventing these projects in Detroit.

- **Implement policy changes**

Current DWSD policy prohibits the construction of green stormwater features above its existing utility assets. For green alley projects to be constructed in the future, this policy barrier would need to be addressed, as many alleys in Detroit contain infrastructure and utility assets.

- **Plan for green alleys and other alley improvements**

The City should incorporate condition assessments of alleys into its capital planning procedures. A better understanding of alley conditions across the city will facilitate prioritization of locations for alley pilot projects and where the most impact can be made. GSI practices should be considered whenever an alley or alley-based utility infrastructure is repaired or replaced.

- **Implement and support pilot projects**

Green alleys are a new intervention concept in Detroit with many potential benefits. Pilot projects would help examine the potential benefits and feasibility of green alley projects to

evaluate long-term effectiveness as a GSI strategy. Given the community interest behind the West Village Green Alley project, a more recent City-supported pilot project would show promise as an opportunity for strong community partnerships to implement green and sustainable solutions.

- **Form partnerships between City of Detroit, DWSD, and residents**

In order for Detroit to become the greenest city in America, there should be more intentionality around community partnerships. Green alley projects will allow for DWSD to partner with entire neighborhoods, and to rally behind a project that impacts entire city blocks or corridors. Green alley projects will invite many people to join the green culture shift of Detroit.

- **Collaborate with municipal departments and utilities**

Departments at the city (e.g. Detroit Water and Sewerage Department; General Services Department; Planning & Development Department; Office of Sustainability; and Buildings, Safety Engineering and Environmental Department, etc.) should work together alongside utilities (e.g. lighting, electrical, etc.) to identify design, construction, and maintenance challenges. Collaboration is needed to find solutions to address these issues, create communication channels, and standardize project processes to achieve benefits for all.

## Conclusion

Land-use and development in Detroit is dynamic. New questions are constantly emerging as the City grapples with long-standing challenges, such as an aging infrastructure and updating to modern, comprehensive land-use strategies and policies. At the same time, there is a momentum for broader-scale green stormwater infrastructure as part of a more environmentally sustainable and equitable Detroit. As alleys are given higher priority in capital planning and maintenance work, it is possible to be more innovative with the current efforts to positively impact future opportunities. Residents are supportive of these approaches, especially when they make the numerous benefits of green stormwater infrastructure tangible.

Green alleys are just one strategy of the many stormwater management practices that exist, but as demonstrated by the examples of other communities in this report, should be added to Detroit's toolkit, where innovation continues to be important.

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