GRAHAM SUSTAINABILITY INSTITUTE
CENTER FOR EMPOWERING COMMUNITIES
UNIVERSITY OF MICHIGAN

EGLE
MICHIGAN DEPARTMENT OF ENVIRONMENT, GREAT LAKES, AND ENERGY

Grand Haven, Michigan

Green Infrastructure Policy Report

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July 2025

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Executive Summary

Goal of this Report

This report aims to identify successful policy and recommend additional measures in the City of Grand Haven to ease barriers to green infrastructure implementation. As traditional gray stormwater infrastructure systems struggle to manage increasingly strong stormwater flows, green infrastructure can help bridge this gap while integrating natural systems into the local built environment.

Benefits of Green Infrastructure

This kind of infrastructure blends human design principles with elements of nature to emulate natural processes in an integrated network - helping manage stormwater flows, reduce or eliminate pollutants in runoff, cool down urban spaces, improve air quality, and expand habitat for local species while promoting access to recreational and natural spaces. Low impact development (LID) and nature-based solutions (NbS) utilize green infrastructure practices to pursue development that minimizes impacts upon local ecosystems while improving livability and quality of life.

Strengths and Weaknesses of Existing Policy

The City of Grand Haven, overall, has a noteworthy variety of policies that work to ease barriers and standardize green infrastructure and low impact development practices, but some policies are lacking or overly restrictive. With a regional public education program for environmental protection, public participation plan, stormwater management regulation and design standards, landscaping requirements, and city officials committed to sustainability, there is a significant foundation for further policy development. A city-wide or regional approach to green infrastructure planning, along with greater engagement and education for this kind of development could help the city ease barriers further.

Challenges to Adoption

Green infrastructure adoption faces a variety of barriers, including its novelty, financial limitations, maintenance requirements, restrictive city codes, and a lack of a cohesive broader vision for local implementation. Therefore, there should be an effort to expand policy that reduces these barriers, connecting the significant benefits of green infrastructure with long-term planning efforts and community goals.

Key Recommendations

To promote green infrastructure practices while aligning with City goals, there are numerous initiatives that the City could pursue. Conducting a climate vulnerability assessment tailored to local conditions would help pinpoint areas most

at risk and guide implementation in an informed and equitable way. Undertaking development of a green infrastructure comprehensive plan - one that's aligned with the City's Master Plan and other municipal examples - could integrate vulnerability data, relevant stakeholders, and capital planning to facilitate high-impact investments. Pursuing regional collaboration opportunities could share resources to help strengthen inter-city strategic development. To further support local implementation, the City could assess its internal capacity for maintenance, revise overly restrictive ordinances such as parking requirements, and emphasize the importance of using green infrastructure and low impact development when planning for site stormwater management. Engaging the community, determining areas of highest need, and linking green infrastructure development with broader community benefits such as improved air quality, flood protection, and recreational opportunities is paramount to justify its use.

Methodology

This report utilized qualitative research to analyze the strengths and weaknesses of City policies, determine local conditions, evaluate opportunities, identify obstacles, and compile data on native species local to the Grand Haven region. This research also includes identification of relevant policy examples from other municipalities that could be utilized in Grand Haven, in addition to draft policy language modeled after them. Sources for this report were selected based on applicability to local green infrastructure development and their reputability. These findings were synthesized to provide a broad analysis of factors that impact development and identify recommendations that could work to ease implementation, build community buy-in, and improve local environmental quality. This work was constrained by a lack of direct community engagement by the author as well as unknowns related to the availability of federal funding. Future research and related efforts could work to identify additional local policy recommendations, evaluate options for reducing costs, and determine opportunities for further cooperation with local and regional organizations.

Acknowledgements

This material is based upon work supported by the Department of Energy and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) under Award Number EE0008653. The views expressed herein do not necessarily reflect those of the United States Government or any agency thereof. Find this document and more about the CLC Fellowship that supported this project at graham.umich.edu/clcf. The author would like to extend his sincere gratitude to the Catalyst Leadership Circle Fellowship cohort and Sarah Lee for their assistance. Brian Urquhart, Grand Haven City Planner, and Tim Dekker, CEO of Limnotech, provided invaluable input and support that guided this work. This report utilizes resources from a variety of sources, including federal, state, regional, and local organizations.

Introduction

As the City of Grand Haven looks to implement and expand green infrastructure locally, this report will identify methods to do so in alignment with community priorities. While this is a local analysis, the identification of barriers, an inventory of current successful policy, and an outline of recommendations for the future can serve as a framework for other municipalities to help inform green infrastructure policy. This document connects green infrastructure best management practices (BMPs) to governmental priorities and identified community interests to integrate these systems into existing goals surrounding recreation and climate resiliency. Figure 1 below outlines some of these BMPs and how they benefit the local environment.

Figure 1 - Green Infrastructure Types and Benefits

Strengths, Barriers, and Strategic Opportunities for Development

The following section identifies key internal - namely local strengths and limits to development - and external factors, including opportunities for implementation and challenges that influence green infrastructure development. Comprehensively evaluating the role of local conditions is crucial to guide feasible and effective policy recommendations. Figure 2 below provides a brief overview of these aspects, which are explained in greater detail on the following pages. Ordinance fact sheets contained in Appendix C outline stormwater management and landscaping requirements in a graphical and shareable format.

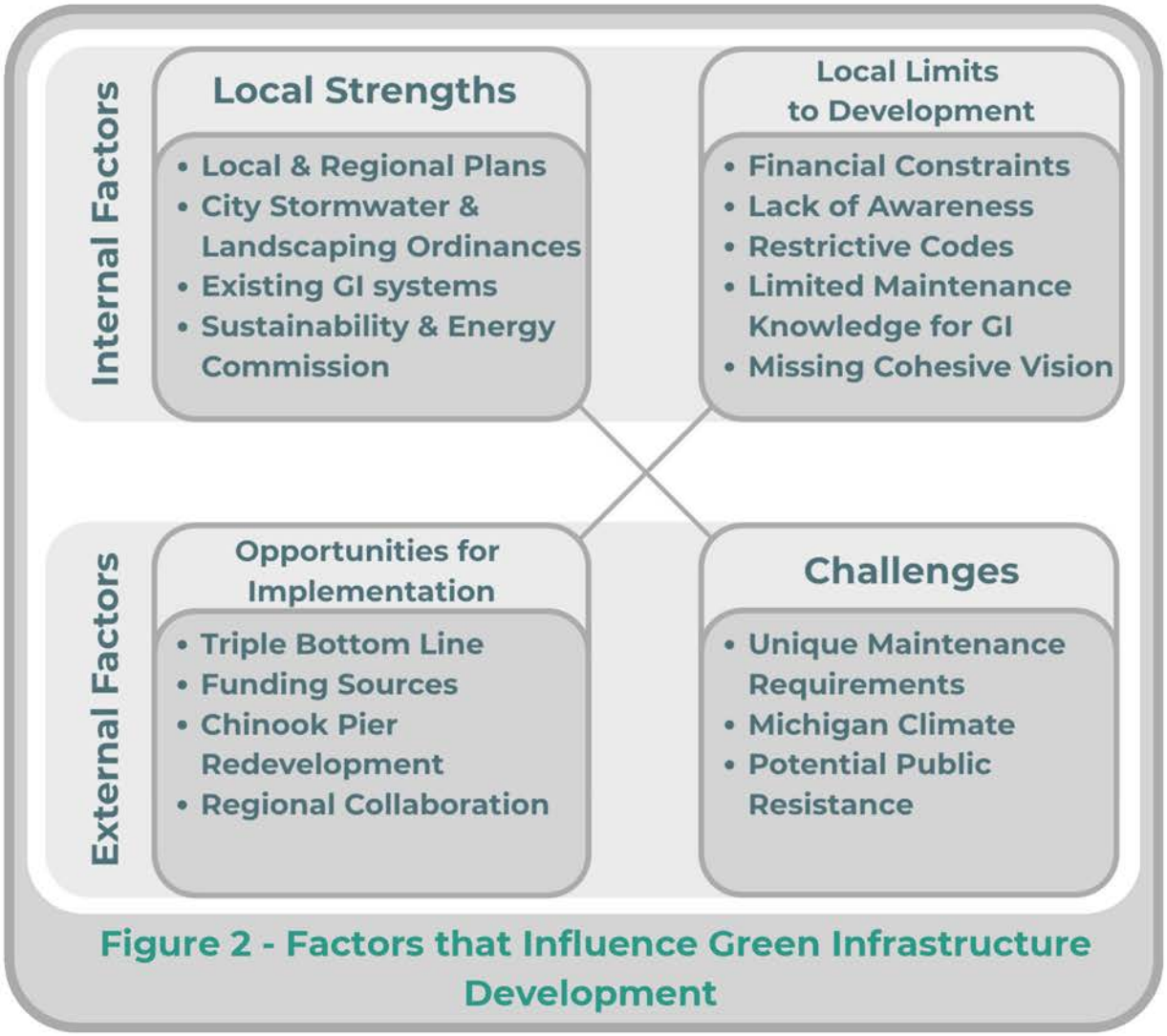

Figure 2 - Factors that Influence Green Infrastructure Development

Local Strengths

Stormwater Management Ordinance

Adopted in 2021, the Grand Haven Stormwater Ordinance established standards for stormwater management, design, erosion control, maintenance, and permits that are applicable to most new developments or redevelopments. These mechanisms work to reduce levels of pollutants that enter the watershed, preserve water supplies, reduce flood damage, and reduce stormwater runoff. The Stormwater Standards Manual expands upon this document, with an outline of applicability, plan submission procedures, the design process, and design criteria for site stormwater management. Considered together, these guidelines provide a solid foundation for development of green infrastructure and runoff management mechanisms.

LGROW Public Education Plan (PEP)

The Public Education Plan (PEP) for the MS4 Communities in the Lower Grand River Watershed includes goals, objectives, and strategies to help prevent pollution from entering the Lower Grand River Watershed. It works to educate residents and stakeholders about their local environment to improve environmental quality, including LID and green infrastructure. Administered by the Lower Grand River Organization of Watersheds (LGROW), this plan utilizes a regional focus to share their resources and work to comprehensively reduce watershed pollution. It also includes information about their target audiences, main messages to convey, delivery methods, and evaluation metrics1. Education is a crucial component of green infrastructure and environmental stewardship, building community support and awareness of environmental issues.

Public Participation Plan

This plan, conducted by the City of Grand Haven and updated in 2021, includes principles, outreach methods, mechanisms for information transparency, and review standards for public involvement in a city-specific context. It emphasizes the importance of diverse voices, effective information gathering, the imperative for educational strategies, and the need to continuously seek new engagement methods. Moreover, it includes various relevant stakeholders for engagement. By including this information, the City demonstrates its commitment to representative public engagement while providing an informative blueprint for future efforts.

[1] Lower Grand River Organization of Watersheds, *Public Education Plan for the MS4 Communities in the Lower Grand River Watershed* (Grand Rapids, MI: LGROW, July 2020), https://drive.google.com/drive/folders/1kDY8_MieL0nzfUag8o9WdUKUpVDraYVW.

Landscaping Ordinance

The City of Grand Haven landscaping ordinance provides requirements for a variety of different zoning types. Screening, plant cover, buffer, and maintenance requirements are included, along with the addition of a landscaping plan for new developments. These criteria help promote improved tree cover, vegetation variety, and plantings of native, desirable species in a standardized way. However, it does not include recommendations for native species that could be used to fulfill these requirements.

Regional Parks and Recreation Plan

In 2020, Grand Region communities adopted a regional parks and recreation plan entitled Explore the Grand Region: A Community Parks and Recreation Plan in Northwest Ottawa County. This document includes an inventory of parks and recreation facilities in the City of Grand Haven, Grand Haven Charter Township, Spring Lake Township, and the Village of Spring Lake to evaluate current assets. In addition, it identifies objectives and action plans for each of these cities, centering around the provision of accessible, expansive, and multi-generational recreation opportunities. Furthermore, the plan includes objectives to create localized green infrastructure plans based on an inventory of natural features. This document provides a foundation to evaluate park sites for green infrastructure opportunities - including a description of each site's conditions, characteristics, amenities, and ADA accessibility.2 The City currently has significant public land that could be retrofitted with this type of infrastructure. Overall, a regional approach that helps promote a planned network of green infrastructure is integral to maximizing its effectiveness and maximizing existing resources.

Sustainability and Energy Commission

Focused on sustainable development, the Grand Haven Sustainability and Energy Commission is an important governmental asset. This commission helps assist local stakeholders with environmentally sensitive efforts such as waste reduction, habitat conservation, natural resource management, and clean energy. Overall, it helps the City work towards its environmental goals, which include green infrastructure development. Considering the substantial work a green infrastructure plan would require, the commission could be an essential actor to work towards extensive green stormwater management.

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[2] City of Ferrysburg et al., *Explore the Grand Region: A Community Parks and Recreation Plan in Northwest Ottawa County, 2020–2024* (Adopted January 27, 2020), https://drive.google.com/drive/folders/1Qi1m-Ef0xXuMjsW3qeyrM3vptJmPY7aB.

Existing Green Infrastructure and Low Impact Development (LID) Practices

In recent years, the City of Grand Haven Downtown Development Authority (DDA) has worked to implement low impact development. Namely, they have implemented LID in the rear parking lot of several businesses within the Central Business District, which included vegetated islands and green roofs above garbage receptacles along with related signage (Figure 3). Existing green infrastructure installations, coupled with educational signage, indicates local interest and commitment to low impact practices. Increasing local awareness and providing a rationale for this kind of development helps build a foundation to increase local adoption.

Central Business District Green Roof Installation

Low Impact Development Explanatory Signage

Figure 3 - Local Low Impact Development & Educational Signage

The Low Impact Development Manual for Michigan, produced by the Southeast Michigan Council of Governments (SEMCOG), is an essential informational asset to help inform green infrastructure implementation and low impact development. This manual, utilized in this document, contains fact sheets for several types of structural and non-structural best management practices, Michigan-specific considerations, example evaluation processes, case studies, and more. This document is an important material for communities looking to expand development of green infrastructure.

Local Limits to Development

Financial Constraints

Cities, developers, and stakeholders are often hesitant to implement green infrastructure considering the substantial initial investment that it requires. While it provides significant long-term financial benefits through concrete measures such as increased property values3 and avoided gray infrastructure investments, more intangible gains through reduced greenhouse gas emissions and improved environmental quality, for instance, are harder to demonstrate. A 2020 study by the Michigan Sea Grant does, however, quantify these less tangible benefits in Ann Arbor.4 Despite these positives, often strained municipal budgets and the slow pace of local planning can lead to difficulty prioritizing green infrastructure projects in the face of other commitments.

Lack of Awareness

Due to historical reliance on traditional gray infrastructure systems, such as sewers, to manage stormwater and the novelty of green infrastructure, there is a significant lack of awareness related to its benefits and requirements. This uncertainty is a negative factor to adoption, as stakeholders may be unsure about their return on investment, maintenance requirements, as well as the overall merits of this type of infrastructure.

Restrictive City Codes

Some city ordinances also hamper green infrastructure adoption, limiting the usable space for these systems and requiring impervious surfaces. For instance, parking requirements inherently require impervious pavement surfaces that limit potential for stormwater to infiltrate into the ground. Impervious pavements also increase the velocity of runoff and limit opportunities for pollutants to be removed before entering the watershed. While alternative surface types that help infiltrate stormwater exist, they face similar issues to what is described above - limiting their use and contributing to increasing quantities of runoff. Similarly, minimum setback requirements limit available space on a property that can be used.

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[3] Michigan State University Land Policy Institute, *Comprehensive Study on Economic Valuation, Economic Impact Assessment, and State Conservation Funding of Green Infrastructure Assets in Michigan* (Lansing, MI: Land Policy Institute, Michigan State University, 2007), https://mml.org/pdf/information/msulandpolicyreport.pdf

[4] Michigan Sea Grant, *Green Infrastructure in Michigan: An Integrated Assessment of Its Use, Barriers & Opportunities* (Ann Arbor, MI: Michigan Sea Grant, 2020), https: //www.michiganseagrant.org/wp-content/uploads/2020/06/Green-Infrastructure-Final-IA-Report.pdf

Limited Staff Expertise with Green Infrastructure

Due to the relatively low adoption of green infrastructure, maintenance personnel in many cities are unaware of distinctive maintenance requirements.5 This is similar within the City of Grand Haven, and would need to be addressed were there to be greater utilization of this type of infrastructure. Without staff who have a background in this type of maintenance, ensuring maximum functionality and longevity of green infrastructure systems is more difficult.

Missing Cohesive Vision

While the city has identified the creation of a green infrastructure plan as a priority,6 this plan has not yet been created. A plan that works to promote green infrastructure should include an inventory of sensitive ecosystems, existing infrastructure, and flood prone areas, along with recommendations surrounding public engagement, identification of financial support mechanisms, and incentives for development. This document works to address some of these gaps, but a plan that identifies most suitable areas and works to improve local knowledge would help to further community buy-in and implementation efforts in the long-term.

[5] National Recreation and Park Association, Resource Guide for Planning, Designing, and Implementing Green Infrastructure in Parks, (n.d.), https://www.nrpa.org/siteassets/gupc-resource-guide.pdf

[6] City of Grand Haven, *2023 Master Plan* (Grand Haven, MI: City of Grand Haven Planning Department, 2023), https://grandhaven.s3.amazonaws.com/pdf_documents/departments/planning_building/2023_master_plan.pdf

Opportunities for Implementation

Triple Bottom Line Framework

The Triple Bottom Line (TBL) framework can be used to highlight the variety of advantages that green infrastructure provides - this can be especially useful in demonstrating the importance of nature-based solutions to government officials, stakeholders, and residents. Figure 4 identifies these benefits, which include not just long-term financial benefits, but better overall health and safety, improved climate resilience, increased community attractiveness, and greater local engagement. It is essential to link the benefits of green infrastructure systems to what residents and stakeholders want for the future - reducing flooding, protecting public safety, improving local environmental quality, and providing a greater variety of accessible amenities. This kind of infrastructure presents a significant opportunity to engage with community members and stakeholders about the role of sustainability and the environmental issues that affect, or will affect, where they reside.

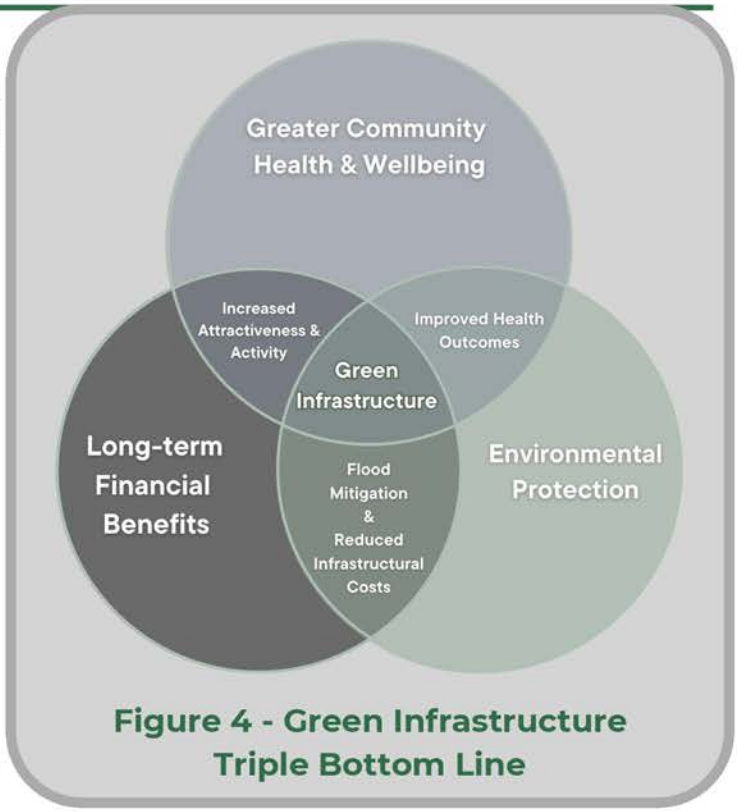

Figure 4 - Green Infrastructure Triple Bottom Line

Funding Sources

To address concerns related to budgeting for and investing in green infrastructure, there are a variety of financial assistance mechanisms available from the State of Michigan, the federal government, and local sources (Appendix A). For communities outside of Grand Haven, similar local opportunities may exist from local foundations looking to promote economic development and sustainability. In addition, many energy companies from across the state, such as Consumers Energy and DTE, offer rebates for renewable energy and energy efficiency projects that could be used in conjunction with green infrastructure.

Chinook Pier Redevelopment Project

As a separate part of his work for the CLCF Program, the author has identified several green infrastructure solutions that can be implemented on site at the Chinook Pier, along with a framework for site analysis. This presents an opportunity to utilize installations on this site as a pilot project - demonstrating their effectiveness to manage stormwater on a frequently flooding site while aligning with goals included in the 2018 Beyond the Pier Master Plan. Along with signage, green infrastructure on frequently used park sites could work to broaden local knowledge and interest in this type of development. Site-specific recommendations, as well as the process used to evaluate opportunities based on site conditions, are explored further in the Chinook Pier Green Infrastructure Opportunities Analysis document.

Figure 5 - Chinook Pier Boardwalk

Regional Collaboration

The Lower Grand River Organization of Watersheds (LGROW) has previously conducted regionally-based planning efforts to protect the Lower Grand River Watershed. Collaborating with this organization, in addition to other local municipalities and Ottawa County, could work to promote sustainable planning in a comprehensive, regionally-based way. The region's abundance of natural areas and sensitive ecosystems should be preserved, and regional strategies can work to holistically address environmental issues while sharing local resources and strengthening ties.

Challenges

Maintenance Requirements

Unclear roles, gaps in knowledge, and the novelty of these systems present a significant barrier for public and private implementation. With this infrastructure utilizing vegetation and natural processes, it requires more varied maintenance practices than traditional gray infrastructure. Evaluating local maintenance capacity and expertise, as well as engaging and raising awareness within the community can help address this, but current gaps may discourage implementation.

Michigan Climate

Michigan's winters can have a significant impact on green infrastructure installations, with potential harm to vegetation and efficiency. Cold temperatures, especially at sustained levels, can reduce oxygen for plants, freeze pipes, and lead to extensive ice cover. These temperatures lead to a relatively short growing season, in addition to reducing water infiltration into the soil and harming plantings. Michigan's high average snowfall, coupled with the Lake Effect, can lead to significant runoff events that contain high levels of harmful pollutants during melting periods. In addition, the use of salt to remove ice from roadways and parking lots can have adverse effects on salt intolerant plants. These issues must be considered to avoid negative impacts - using proper de-icing materials, avoiding salt-sensitive areas, properly storing salt, and choosing salt-tolerant plantings can help reduce the effects of salt use. Ensuring that an installation remains dry, through limiting water inflow, for instance, helps avoid freezing that limits infiltration potential.7 Long-term, informed planning can help ensure the establishment of newly-planted vegetation while mitigating the negative effects of winter weather.

Potential Public Resistance

Without adequate engagement, there is potential for opposition from members of the public or government officials. Local political pressures are often unpredictable, with changes in public sentiment affecting City priorities. Therefore, it is essential to demonstrate the social, economic, and environmental benefits of this type of infrastructure. Providing flexible engagement methods, ensuring representative feedback, taking concerns seriously, and demonstrating effectiveness through real-world examples can work to make development more responsive to local concerns. Bridging environmental protection with priorities identified from the Master Plan - coupled with education and outreach - can help build community buy-in and support.

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[7] Southwest Michigan Planning Commission, *Low Impact Development Manual for Michigan* (Southwest Michigan Planning Commission, 2008), [126-127]

Recommendations

Based on this analysis, the following recommendations aim to ease development of green infrastructure by utilizing long-term planning, identifying the most vulnerable areas, planning for maintenance needs, and revising overly restrictive City codes. The matrix at the conclusion of this section summarizes these items, along with related action steps, timelines, and cost estimates. Time requirements range from short term (<1 year) to medium term (1-2 years) and long term (2-5 years). Cost estimates include low cost ($<20,000), medium cost ($20,001 - $30,000), and high cost (>$30,001) commitments. These estimates are preliminary and may be subject to change depending on inflation, construction costs, and other factors. They are intended to guide planning efforts and identify low cost, short-term recommendations as a foundation for future work.

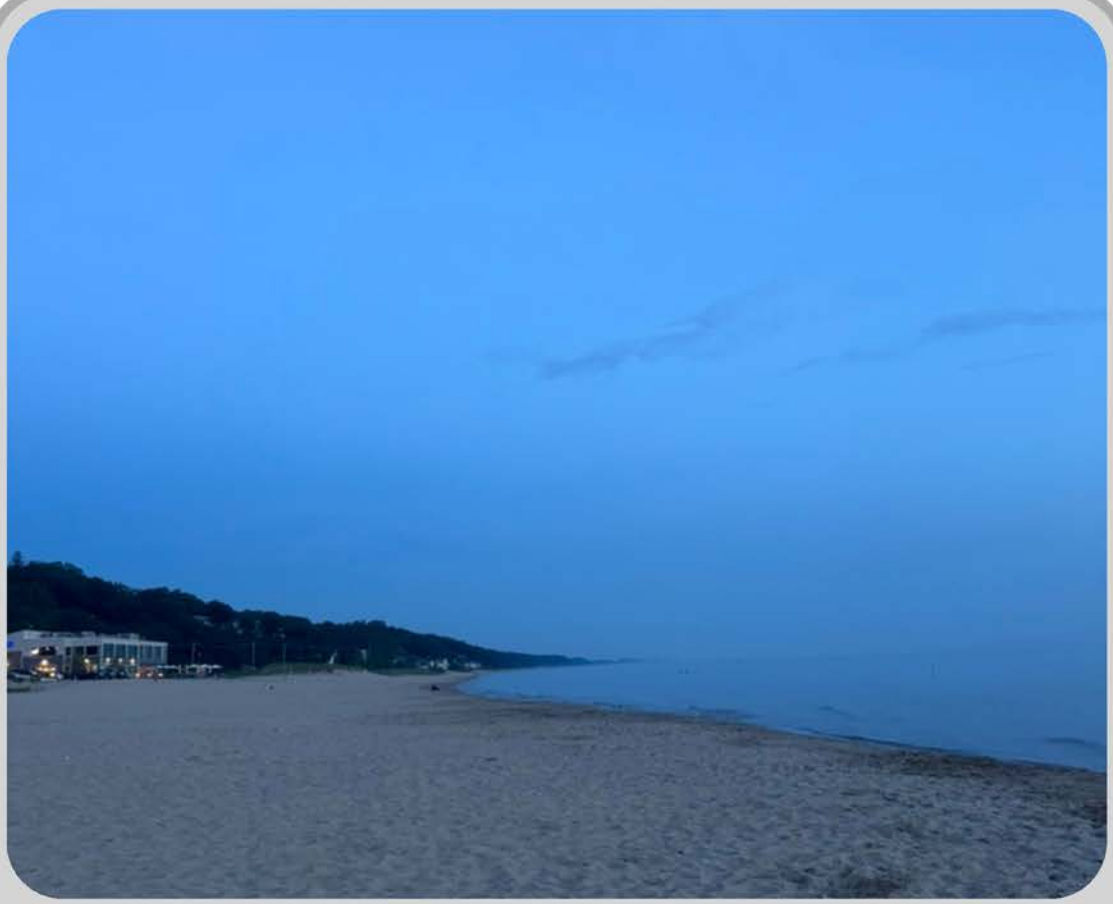

Figure 6 - Grand Haven Shoreline at Dusk

1 *Assess Local Climate Vulnerabilities*

The City could pursue a climate vulnerability assessment to determine local areas most sensitive to the impacts of climate change. The identification of risk involves an analysis of exposure to hazards, the sensitivities of local populations, and an area's capacity to adapt to these issues. This assessment would need to include overall goals, comprehensive public engagement, and local data to create a blueprint for improving local climate resilience, especially within the most vulnerable parts of the City. Data, such as air pollutant levels, flood risk, median incomes should be considered to evaluate climate risk and inform areas of priority.

Online data is available from MiEJScreen and the U.S. Climate Vulnerability Index to help guide this analysis, but a local assessment would work to evaluate areas with local context and determine feasible courses of action. Vulnerability can vary highly throughout a community - an assessment of these risks could work to identify areas where green infrastructure is needed the most, along with at-risk populations that the city should work to engage with and support.

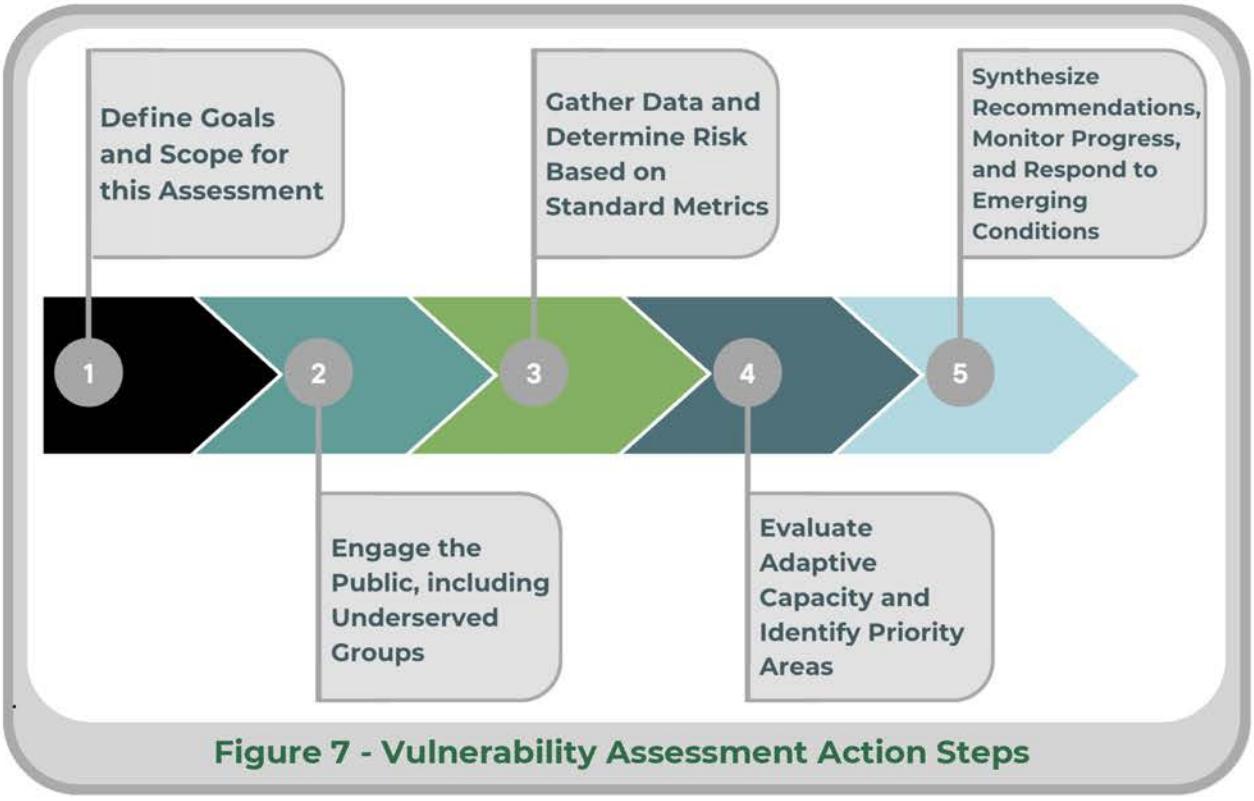

Figure 7 - Vulnerability Assessment Action Steps

2 *Evaluate Capacity and Requirements for Maintenance*

In anticipation of the maintenance required by green infrastructure as opposed to traditional practices, the City could evaluate its capacity to maintain these improvements. This assessment would involve the determination of skills within the city's workforce, relevant departments such as Parks and Recreation and Public Works, as well as the requirements of different green infrastructure systems. This could also include the identification of performance metrics, such as days without excess runoff in an area or pollutant levels, to evaluate how well a stormwater management system is functioning. Recording data on performance indicators could help the City identify underperforming infrastructure and fix any issues. A final determination would be made based on the conclusions of this assessment, which could necessitate additional staffing, outside contracting, or partnerships with environmental groups to cost-effectively ensure maximum functionality of these developments. These findings, in addition to local climate vulnerabilities, could subsequently be implemented into a comprehensive green infrastructure plan that would guide the City's efforts.

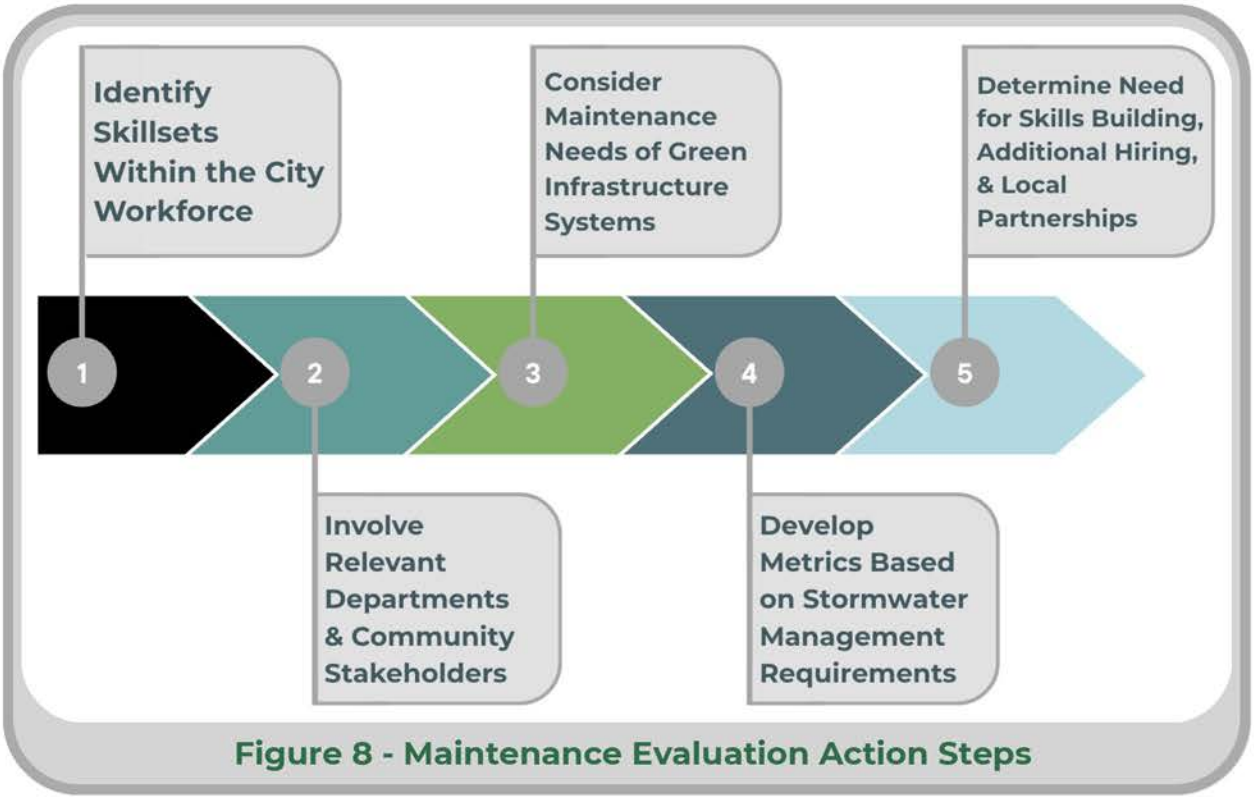

Figure 8 - Maintenance Evaluation Action Steps

3 *Build a Green Infrastructure Plan*

This plan could help guide green infrastructure investments to be incorporated into capital improvement plans (CIPs), which can utilize long-term planning to improve financial feasibility and anticipate expenses. Coupled with the aforementioned climate vulnerability assessment - which could be incorporated into this plan - it could work to find areas of the city that would experience the highest benefits from green infrastructure and community engagement. Together with the City's Master Plan, this document could connect the benefits of green infrastructure and low impact development with the needs of residents and the City's larger goals. Demonstrating the impacts of green infrastructure on not just the local environment, but on the provision of recreational opportunities, improvements on public space, and the capacity to reduce flood damage can help highlight its importance. Engaging the community about green infrastructure and sustainability, both during and after the creation of this plan, could help broaden local awareness and acceptance.

The City of Milwaukee, Wisconsin did just this - implementing a plan that identified relevant goals and metrics, provided strategically-based objectives, outlined various priority areas, included financial support sources, and highlighted relevant stakeholders for partnerships.[8] While Milwaukee is a larger city than Grand Haven, a city-wide plan for green infrastructure development could encourage the development of a strategic network of green infrastructure systems that reduce the utilization of existing gray infrastructure and improve community resilience.

A regional vision for green infrastructure development, similar to the work that the Lower Grand River Organization of Watersheds (LGROW) has conducted, could work to increase adoption and share knowledge resources with local municipalities. The City of Grand Haven, in conjunction with LGROW and other municipalities, could create a regional green infrastructure management plan that identifies potential linkages and intercity cooperation opportunities. The previously mentioned 2020 Explore the Grand Region: A Community Parks and Recreation Plan in Northwest Ottawa County demonstrates the feasibility and success of regional comprehensive planning. These previous efforts provide a foundation for future plans that involve the wider region which could help improve regional climate resilience, environmental quality, connectivity, and recreational offerings simultaneously.

[8] City of Milwaukee Environmental Collaboration Office, *Green Infrastructure Plan* (Milwaukee, WI: City of Milwaukee, June 2019), https://city.milwaukee.gov/ImageLibrary/WCC/Images/GreenLots/FINALGIPLAN--reduced_2.pdf.

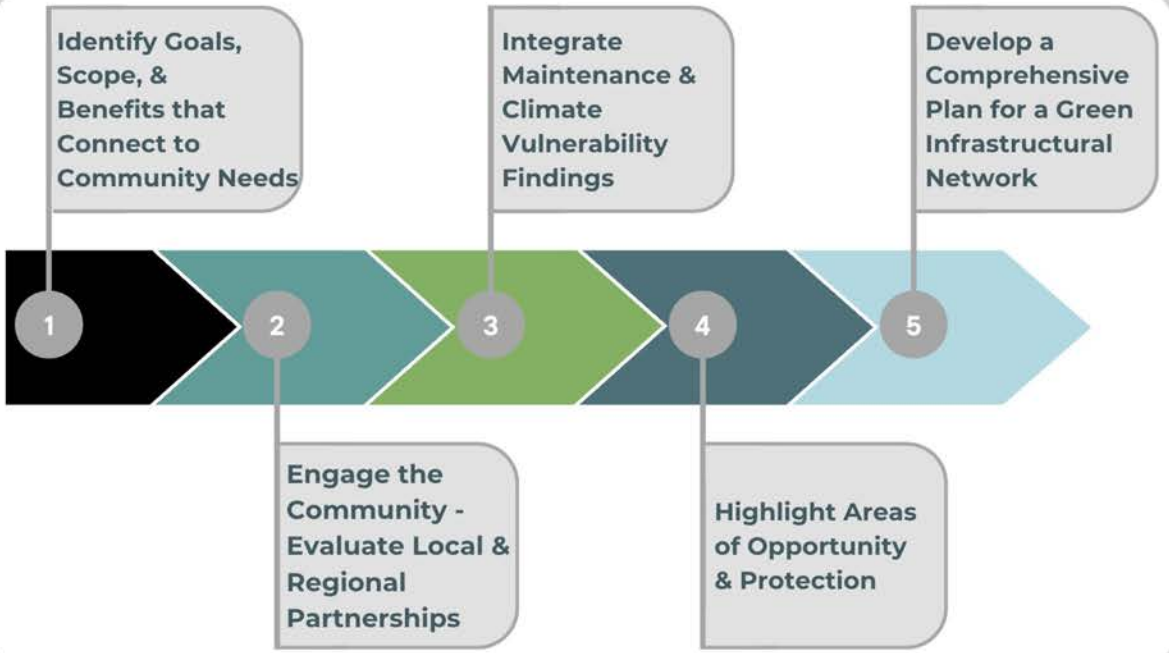

Figure 9 - Green Infrastructure Plan Action Steps

4 *Revise City Parking Requirements*

Currently, parking requirements within the City base calculations on the number of units, the gross square footage (GSF) of a building, or both. Reducing overly burdensome zoning requirements could work to reduce overall development costs and increase available green space for other uses. However, allowances for local transportation, ride sharing, adjacent lots, non-motorized transport, and shared parking arrangements help reduce the burden of these requirements.

In 2017, consultancy firm Wade Trim underwent a parking demand analysis for Grand Haven, concluding that zoning requirements consistently overestimated necessary parking. Their work, which accounted for mixed use development, vacancy rates, and non-motorized trips, showed a significant overall parking surplus.[9] In order to more closely align requirements to real-world use, the City could amend these requirements to be based off of net square footage (NSF). Using a NSF-based calculation method takes into account the total square footage of a structure, but excludes shared spaces, bathrooms, and maintenance areas. By doing so, these regulations would be slightly less restrictive - offering a more modest solution compared to removing parking minimums entirely.

[9] Wade Trim, *2017 Downtown Parking Study* (Grand Rapids, MI: Wade Trim, 2017).

Parking standards can be a very politically sensitive issue - meeting residents where they are to determine public sentiment while offering a compromise can be a feasible solution. Analyzing the feasibility of this revision, and understanding the potential need to consider alternatives, could work to protect public trust in local government. In order for this amendment to take effect, the final version would need to be voted on by City Council.

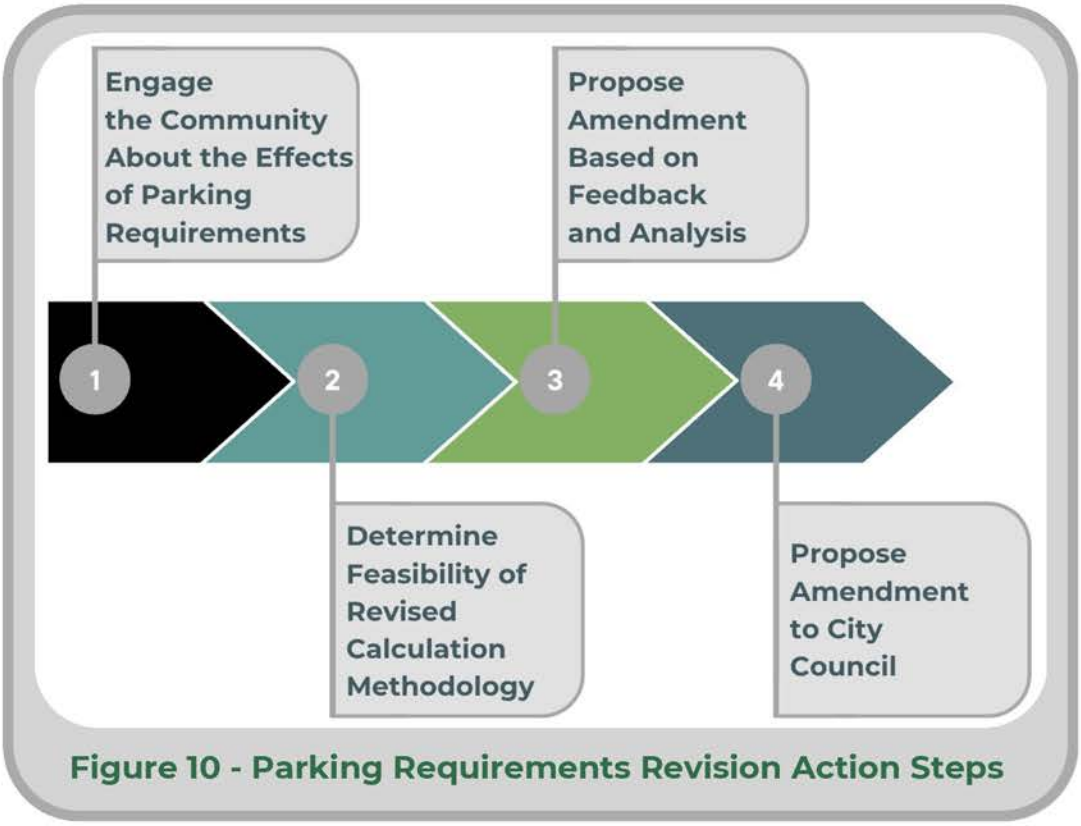

Figure 10 - Parking Requirements Revision Action Steps

5 *Amend Stormwater Management Requirements*

Amending the City stormwater ordinance to require the exploration of green stormwater management and low impact development practices could work to raise awareness and promote development of green infrastructure city-wide. To ensure that these requirements do not overly restrict development, this revision would allow for exceptions due to burdens based on site characteristics and financial issues. Balancing environmental protection with the ease of development ensures that the city can continue to pursue economic development while reducing the impacts of stormwater runoff and flooding.

In addition, requiring projects that fit within the original exceptions of the article to submit a runoff reduction plan - similar to the City of Binghamton, New York - could help promote environmentally sensitive development for a wider range of projects without an undue burden on the property owner. This plan would involve

identification of proposed practices, maintenance responsibilities, and runoff reduction figures that show an effort to manage runoff and promote local resilience.[10] incorporating community engagement and feedback would help ensure that changing these requirements would not be overly burdensome, ensuring that proposed changes balance the benefits of runoff management with the need to attract local development. Including this in the final proposal to City Council could work to make these amendments more feasible. Potential revision language (highlighted in green) for both of these revisions is included in Appendix D.

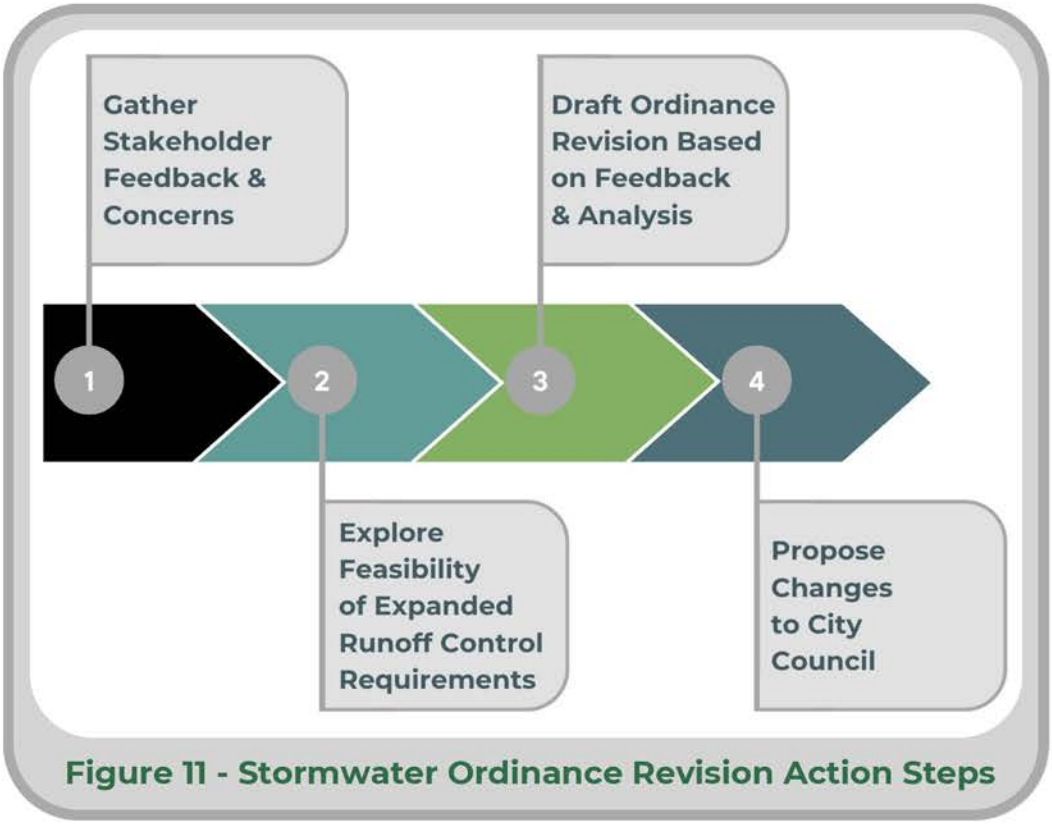

Figure 11 - Stormwater Ordinance Revision Action Steps

6 *Streamline and Incentivize the Use of Vegetation*

Revising the City's landscaping ordinance to not just include restrictions on plant types, but a list of native plant species that are most suitable to local conditions could work to streamline green infrastructure development and landscaping. The City already has a list of approved tree types[11], but a similar list of native plant species

[10] City of Binghamton, "Stormwater Management Program Plan," *City of Binghamton Department of Engineering*, https://www.binghamton-ny.gov/government/departments/engineering/stormwater-management-program-plan.

[11] City of Grand Haven, Department of Public Works, *Recommended Tree List* (Grand Haven, MI),https://grandhaven.s3.amazonaws.com/pdf_documents/departments/public_works/recommended_tree_list.pdf.

like bushes and shrubs could provide developers and residents with a way to quickly determine potential plantings. A resource containing local native plant species fact sheets is located in Appendix B.

These requirements could also be amended to incentivize projects that preserve or expand a site's tree canopy. As a Tree City of the World, Grand Haven has shown significant interest in the preservation and protection of its local trees - incentivizing greater tree cover on new projects could help continue this commitment. Modeled after the City of Erie, Colorado's ordinance[12], this amendment would specify conditions for a reduction in required on-site parking spaces - limiting impervious surface - if a landscaping plan outlines a greater amount of planned trees than is required. This would be subject to the approval of the planning commission, ensuring that this reduction in available parking isn't detrimental, while improving the availability of green space and natural forest cover. Similar to the aforementioned policy revision recommendations, involving local stakeholders and revising if necessary could make these changes more responsive and viable. Appendix D includes policy language that could be used for these changes.

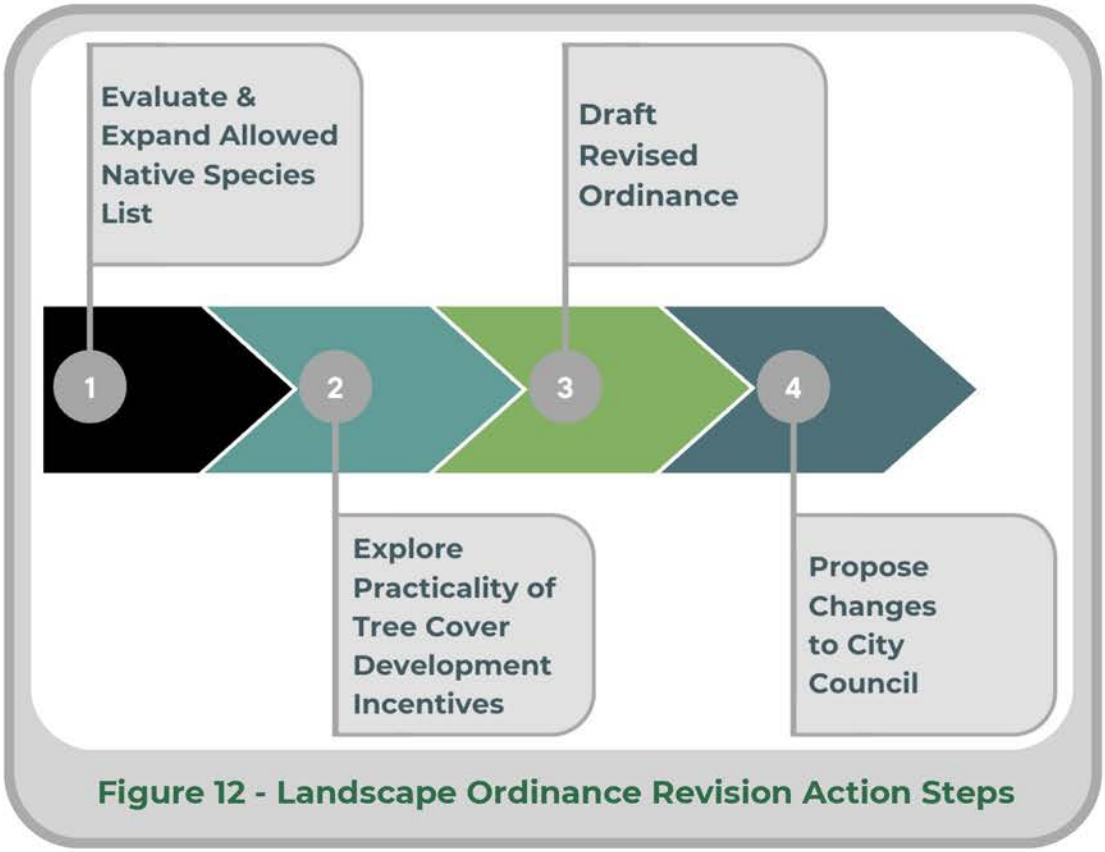

Figure 12 - Landscape Ordinance Revision Action Steps

[12] Erie, Colorado. *Code of Ordinances*. Title 10, Chapter 6, "Development and Design Standards," sec. 106-2. https://library.municode.com/co/erie/ordinances/code_of_ordinances?nodeId=1133380.

Recommendations Matrix

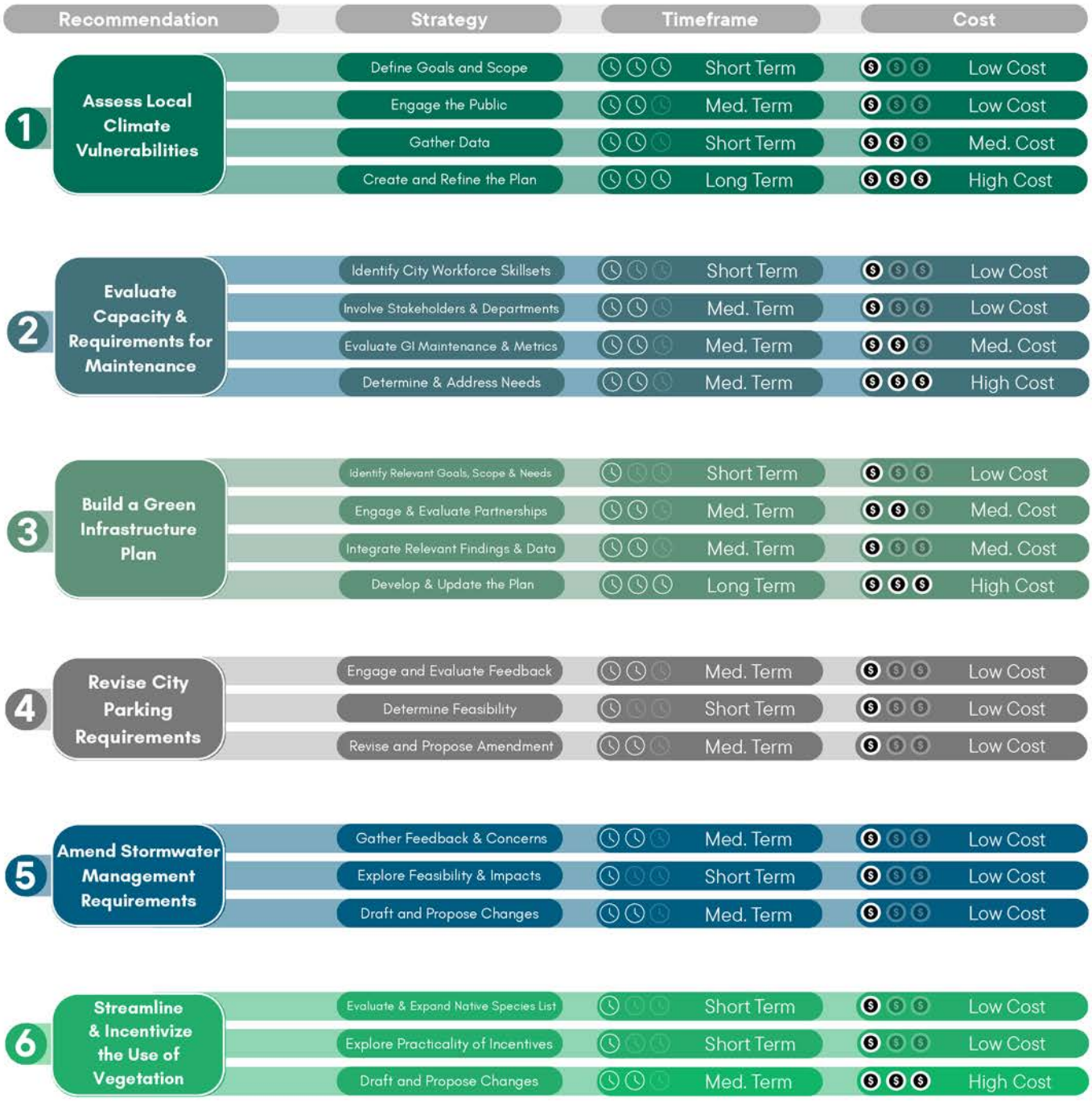

Figure 13 - Recommendations Matrix

Conclusions & Transferability

Through the analysis of existing policy on green infrastructure development in Grand Haven, this report is intended to serve as a framework for policy evaluation in other Michigan municipalities. To promote development, it is essential to evaluate local strengths and resources while planning to support long-term implementation where it would be most effective.

Recommendations included in this report center around the evaluation and expansion of current policy strengths. Easing parking requirements, providing greater information for sustainable practices such as native species use, incentivizing the use of green infrastructure, and requiring evaluation of green infrastructure opportunities are recommended to expand green infrastructure locally. Engaging the public, easing burdens, and connecting development to community goals is crucial to improve community buy-in and knowledge surrounding green infrastructure. This would work to not just build resilience to flooding and climate events, but to improve local environmental quality through infrastructure that provides a variety of community benefits.

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Appendix A | Financial Support Opportunities

State of Michigan Funding Opportunities [13] [14]

Name	Funding Information	Applicant Eligibility	Eligible Expenditures
Brownfield Redevelopment Grants	Up to $1 million per project, or more for projects with significant benefits	Local units of government (Brownfield Redevelopment Authorities, economic development corporations, or other public bodies pursuant to state law)	Any project that promotes economic development and reuse of blighted and contaminated properties
Brownfield Redevelopment Loans	Up to $1 million per project, or more for projects with significant benefits 1.5% interest rate, with a 15-year payback period and 5-year interest-free and payment-free period	Local units of government (Brownfield Redevelopment Authorities, economic development corporations, or other public bodies pursuant to state law)	Any project that promotes economic development and reuse of blighted and contaminated properties
Clean Water State Revolving Fund (CWSRF)	Low-interest loans	Counties, cities, villages, townships, authorities, or other public entities pursuant to state law	Projects that improve water quality and protect public health

[13] Michigan Department of Environment, Great Lakes, and Energy, "EGLE Funding Opportunities," *Michigan.gov*, https://www.michigan.gov/egle/regulatory-assistance/funding
[14] Michigan Department of Environment, Great Lakes, and Energy, "Funding Opportunities," *Michigan.gov*, https://www.michigan.gov/egle/about/organization/materials-management/energy/rfps-loans.

Community Pollution Prevention (P2) Grants	Matching grants	County governments, local health departments, municipalities, regional planning agencies, and non-profit organizations	Pollution prevention initiatives and projects
Michigan Invasive Species Grant Program (MIGSP)	$25,000 to $400,000 available annually	Local, state, federal, or tribal units of government; non-profits; universities	Projects that address prevention, detention, eradication, and control of invasive species
Nonpoint Source Pollution Control Grants	$2 million available in total, with a minimum grant of $25,000 per project; 25% match required	County or local units of government, state agencies, and non-profits with an EGLE-approved watershed management plan	Improvements and/or informational strategies, land use planning, and other related activities
Community Energy Management Program	$5,000 to $100,000 per applicant	Local and tribal governments; other public service entities	Clean energy, energy management, green workforce development, sustainable financing, and energy efficiency projects
Renewables Ready Communities Award	$2,500 to $5,000 per megawatt of energy	Municipalities	Grid-connected renewable energy project
Clean Fuel and Charging Infrastructure Program	$300,000 per project maximum	Any organization	Level 2 electric vehicle charging station projects

Water Infrastructure Grants	Varies	Counties, cities, villages, townships, authorities, and other public entities	Water quality projects that address environmental and public health concerns
Michigan Natural Resources Trust Fund (NRTF)	$15,000 to $400,000 for development projects; no maximum on land acquisition	State/local governments and schools districts or recreation authorities that legally provide recreation (must have a DNR-approved 5-year recreation plan to be eligible)	Projects surrounding natural resource access and conservation, proximity to population clusters, applicant's committed matching funds, applicant's financial need, and priority projects of the trust fund board, such as trails, regional significance, public access to lakes and rivers, wildlife habitat and hunting access

Local Funding Opportunities [15] [16]

Name	Funding Information	Applicant Eligibility	Eligible Expenditures
Grand Haven Area Community Foundation Environmental Funds	Project dependent	Units of government, 501(c)(3) non-profits, religious institutions, or educational entities that serve Northwest Ottawa County or greater West Michigan	Projects that support arts and culture, diversity and inclusion, economic development, education, environment, or health
Grand Haven Board of Light and Power Rebates	Project dependent	Residential and business customers of the Grand Haven Board of Light and Power	Energy efficiency and renewable energy projects

[15] Grand Haven Area Community Foundation, "Community Impact – Priority Areas," Grand Haven Area Community Foundation, https://ghacf.org/grants/types-of-grants/community-impact/priority-areas/.

[16] Grand Haven Board of Light & Power, "Sustainability," Grand Haven Board of Light & Power, https://ghblp.org/sustainability/.

*Federal Funding Opportunities** [17] [18] [19]

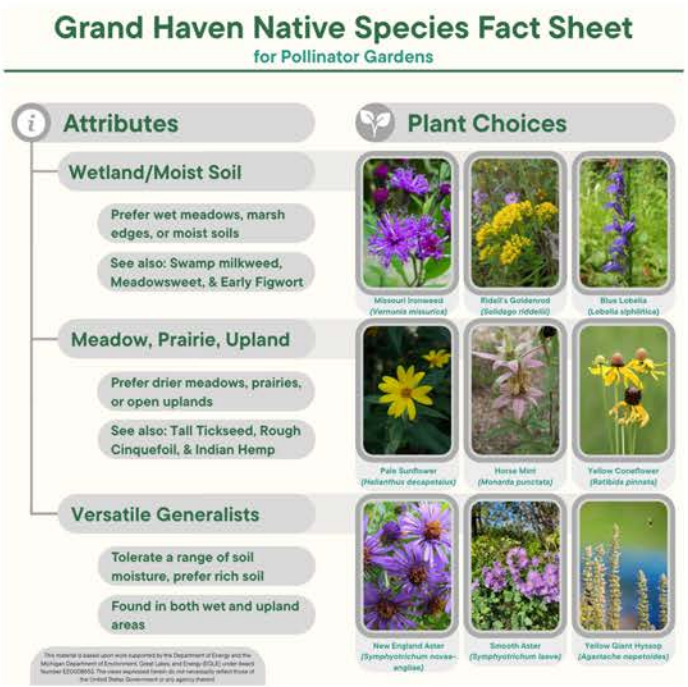
Name	Funding Information	Applicant Eligibility	Eligible Expenditures
Multipurpose, Assessment, RLF, and Cleanup (MARC) 104k Grant (Brownfield Redevelopment Grants) - US EPA	Up to $500,000 per project	Local units of government (Brownfield Redevelopment Authorities, economic development corporations, or other public bodies pursuant to state law), tribes, and non-profits	Activities that focus on reuse of brownfields (inventories, assessments, planning, and remediation)
Climate Pollution Reduction Grants (CPRG) - US EPA	Nearly $5 billion in total	States, local governments, territories, and tribal nations	Development and implementation of greenhouse gas reduction plans, including technical support
Source Reduction Assistance Grant - US EPA	$40,000 to $240,000 awards with a 5% match requirement	States, local governments, territories, and tribal nations	Projects centered around source pollution reduction practices, training, and tools
Air Grants - US EPA	Competitive and non-competitive grant opportunities; rebate options also available	States, local governments, territories, and tribal nations	Projects and programs relating to transportation, air quality, climate change, and related topics

[17] Michigan Department of Environment, Great Lakes, and Energy, "EGLE Funding Opportunities."
[18] United States Environmental Protection Agency, "Grant Programs for Pollution Prevention," *EPA.gov*, last updated September 12, 2024, https://www.epa.gov/p2/grant-programs-pollution-prevention.
[19] Kyle Funk and Brigid Deegan, "Federal Funding Opportunities That Support Resilient Infrastructure, Smart Surfaces," National League of Cities, October 31, 2024, https://www.nlc.org/article/2024/10/31/federal-funding-opportunities- that-support-resilient-infrastructure-smart-surfaces/

Sewer Overflow and Stormwater Reuse Municipal Grants (OSG) - US EPA	Amounts determined based on population, precipitation, and watershed needs needs data	Grants are awarded to states, which then distribute funds to eligible entities (i.e. municipalities) for applicable projects	Stormwater management projects
Water Infrastructure Finance and Innovation Act (WIFIA) Grants - US EPA	Cost must be at least $5 million for small (population <25,000) communities. WIFIA can fund a maximum of 49% of the project cost, with federal assistance not exceeding 80%	Local, state, and tribal government entities; partnerships and joint ventures; corporations and trusts; CWSRF programs	Development and construction of CWSRF projects, property acquisition, energy efficiency projects at water facilities, green infrastructure
Continuing Authorities Program Section 205 – Small Flood Risk Management Projects – US Army Corps of Engineers	Maximum of $10 million per project, including a feasibility study, project design, and construction. The feasibility study is funded 50/50 between the Federal government and local agency after $100,000. Design and construction costs are shared 65% (federal) and 35% (local agency).	Non-federal sponsors (state, local, tribal, and non-profit entities)	Structural or non-structural flood damage reduction projects

***Some opportunities may no longer be available at the time of viewing.**

Appendix B | Native Species Fact Sheets*



*Disclaimer: These materials are for educational purposes only and are not a substitute for professional advice.

Grand Haven Landscape Ordinance
Fact Sheet

Plant Sizing & Placement

Must meet or exceed American Association of Nurserymen standards

- **Deciduous trees:** Minimum 2.5 ft caliper at 4 feet above grade; no more than 25 ft apart
- **Flowering trees:** Minimum 2 inch caliper at 4 feet above grade
- **Evergreen trees:** 6 feet minimum height at time of planting; at least 10 feet of spacing from center
- **Evergreen shrubs:** 30 inch minimum spread; 24 inch maximum height (unless otherwise required)
- **All plantings:** must be 15 feet away from fire hydrants

Allowed Tree Species

- Native Deciduous Trees
- Small Landscape Trees
- Native Coniferous Trees

Scan for More:

Buffer Area Requirements

Apply when a non-residential, mixed-use, or multifamily dwelling abuts a one or two family dwelling, or a non-residential use abuts a multifamily use

Outside of the B District:

- Must be **5 feet wide** along shared property line
- **1 deciduous, 2 flowering, and 3 evergreen** trees every **40** linear feet
- Must be dedicated **solely to landscaping**
- A **4-foot brick or stone wall** or a berm may also be required

Within the B District:

- **Continuous obscuring wall (4 to 6 ft tall)** or approved **year-round evergreen landscaping** (minimum of 6 ft tall)

Prohibited Species

- Invasive Species
- Weak Wood & Breakage Prone Trees
- Excessive Litter Trees
- Species with Odor, Pest, and/or Disease Issues

Reference Sec. 40-805.02 of the ordinance for more details

Landscaping Plan

Required whenever landscaping is needed, along with the following:

Basic Site Information

- **Scaled drawing** of the site and development
- **Parcel** lines, area, and setbacks
- **Preparer** information

Site Features and Improvements

- **Proposed buildings** and parking areas
- **Existing and proposed** driveways, curb cuts, and public rights of way
- **Proposed** locations and specifications of plantings

Submission

- **Performance guarantee** may be required
- Landscaping **must be maintained** for orderly appearance
- Features must be installed **before** certificate of occupancy is issued

Additional requirements may apply at the discretion of the zoning administrator

View Section 40 - Article VIII for More

Parking Areas

Trees within Off-Street Parking Areas

For any lot with 6 or more spaces, the following elements are required in order to provide shade and greater aesthetic quality:

- At least **one tree per 15 spaces** (fractions included)
- Spaces must be **less than 100 feet** from a tree
- Planters must be at least **36 ft²**
- **75%** of trees must be **deciduous**

Screening Requirements

Screening areas must be at least 5 feet wide around the perimeter of an off-street lot to buffer the lot, manuevering lanes, and property lines (except for shared lots)

- Landscaping along rights-of-way and trees do not count towards this requirement
- At least **1 deciduous tree and 3 shrubs at least 3 feet tall** within the screening area, along with **living vegetation** on the ground area
- **Brick or screening wall** (3 to 4.5 feet tall) can be used instead within **C, CC, B, OS, S, E, OT, NMU, and TI districts**

Earth Berms

- **Must be 3 feet in height with a maximum slope ratio of 3 feet horizontal to 1 foot vertical (3:1)**
- **Must have flat crests at least 2 feet wide**
- **Must be covered in living vegetation, such as grasses, vines, shrubs, or flowering plants**
  - Maintained ground cover, such as shredded bark, bark chips, or landscape stone can also be used

Questions?

Contact the City of Grand Haven Planning Department

(616) 935-3276

View the Ordinance:

SCAN ME

This material is based upon work supported by the Department of Energy and the Michigan Department of Environment, Great Lakes, and Energy (EGLE) under Award Number EE0008653. The views expressed herein do not necessarily reflect those of the United States Government or any agency thereof. Find this document and more about the CLC Fellowship that supported this project at graham.umich.edu/clcf.

Grand Haven Stormwater Ordinance
Fact Sheet

Applicability

Any new development or redevelopment that disturbs, or cumulatively disturbs, **1 or more acres**

Except for:

- **Single-family or two-family** homes
- Individual mobile homes within a mobile home park
- **Certain farm operations** (not including dwellings & greenhouses)
- Projects with **preexisting final approval** before January 9th, 2022

Discharge and Pollution Control

Illicit discharges and/or connections to storm sewers or water bodies **are prohibited**

- Pollution prevention measures such as monitoring devices may be required

Only clean stormwater and listed exemptions allowed

- e.g. landscape irrigation, stream flows, and potable water

Hotspots (such as brownfields) must follow strict **discharge and containment standards**

The City must be immediately notified of accidental discharges

Permit Requirements

Stormwater permit is required **before** any land disturbance

To obtain one, the property owner must:

Pay **review fees** and submit a **performance guarantee**

Provide **recorded easements** and **maintenance agreements** for BMPs

Submit a drainage plan containing the following:

All information required in the manual, including an **implementation plan**

Schedule of **estimated dates of completion**

Identification of **inspection proceedures**

Maintenance and Construction

Must obtain a **Soil Erosion Permit** under PA 451, Part 91

Best Management Practices (BMPs) must be continually maintained by property owner

- For more on BMPs, reference the **Stormwater Standards Manual** or the **Low Impact Development Manual for Michigan (SEMCOG)**

Construction Site Requirements

- **Weekly and post-rain event inspections** by certified technicians
- **Timely removal** of **tracked or eroded** materials
- **Phased installations to prevent runoff** during construction

View Section 37 - Article VII for More

Design and Performance Standards

Follow the Stormwater Standards Manual

Required Standards

Capture rainfall from a **1-inch** storm event

Reduce total suspended solids (TSS) by at least **80%** compared to previous levels

Match or reduce 2-year storm peak flows

Manage up to a **100-year** flooding event, with **protection from from flood damage** up to the flood protection elevation (FPE)

Plan for safe **100-year flood overflow** paths

Special Requirements

Hotspots require pretreatment

Projects near coldwater streams must **reduce thermal impacts** of stormwater

Enforcement

Violations of this ordinance are **civil infractions** (fines or remediation may be imposed)

Stop work orders may be issued for continued **non-compliance**

The city retains the right to perform **emergency repairs at the cost of the property owner**

Unpaid costs may become a **property lien**

Questions?

Contact the City of Grand Haven Planning Department

(616) 935-3276

View the Manual:

SCAN ME

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Article VII, Stormwater Drainage, of Chapter 37, Utilities, of Part II of the City of Grand Haven Code of Ordinances is amended to read as follows:

ARTICLE VII. STORMWATER DRAINAGE

Division 1. General

Sec. 37-150. Statutory authority and title.

This article shall be known and may be cited as the City of Grand Haven Stormwater Management Ordinance. It is adopted in accordance with applicable state and federal laws.

Sec. 37-151. Findings.

The City of Grand Haven finds that:

(1) Water bodies, roadways, structures, and other property within, and downstream of the city are at times subjected to flooding;
(2) Flooding is a danger to the lives and property of the public and is also a danger to the natural resources of the city and the region;
(3) Land developed alters the hydrologic response of watersheds, resulting in increased stormwater runoff rates and volumes, increased flooding, increased stream channel erosion, and increased sediment transport and deposition;
(4) Stormwater runoff produced by land development contributes to increased quantities of water-borne pollutants;
(5) Increases of stormwater runoff, soil erosion, and non-point sources have occurred as a result of land development, and cause deterioration of the water resources of the city and downstream municipalities;
(6) Stormwater runoff, soil erosion, and non-point source pollution, due to land development within the city, have resulted in a deterioration of the water resources of the city and downstream municipalities;
(7) Increased stormwater runoff rates and volumes, and the sediments and pollutants associated with stormwater runoff from future development projects within the city will, absent reasonable regulation and control, adversely affect the city's water bodies and water resources, and those of downstream municipalities;
(8) Stormwater runoff, soil erosion, and non-point source pollution can be controlled and minimized by the regulation of stormwater runoff from development;

(9) Post-construction stormwater runoff program requirements for new development and redevelopment within the city are set forth in the 2013 Michigan Department of Environment, Great Lakes, and Energy (formerly Michigan Department of Environmental Quality) Permit Application for Discharge of Storm Water to Surface Waters of the State from a Municipal Separate Storm Sewer System (MS4) under the National Pollution Discharge Elimination System (NPDES) program (Rev 10/2014);
(10) Adopting the standards, criteria, and procedures contained in this article and implementing the same will address many of the deleterious effects of stormwater runoff;
(11) Adopting these standards is necessary for the preservation of the public health, safety, and welfare;
(12) Adopting these standards is necessary to comply with the NPDES MS4 permit;
(13) Illicit discharges contain pollutants that will significantly degrade the city's water bodies and water resources;
(14) Illicit discharges enter the city's MS4 through either direct connections (e.g. anitary sewer laterals mistakenly or deliberately connected to the storm sewers) or indirect connections (e.g. infiltration, or spills conveyed by surface flow into the storm sewer system); ~~and~~ (15) Establishing and implanting measures for controlling illicit discharges and connections will address many of their deleterious effects.; and (16) Green infrastructure and low impact development practices can protect the city's environmental resources, manage runoff, and improve community livability.

Sec. 37-152. Purpose.

It is the purpose of this article to establish minimum stormwater management requirements and controls to accomplish, among others, the following objectives:

(1) To reduce artificially induced flood damage;
(2) To minimize increased stormwater runoff rates and volumes from identified new land development;
(3) To minimize the deterioration of existing watercourses, culverts and bridges, and other structures;
(4) To encourage water recharge into the ground where geologically favorable conditions exist;
(5) To prevent an increase in non-point source pollution;

(6) To maintain the integrity of stream channels for their biological functions, as well as for drainage and other purposes; (7) To minimize the impact of development upon stream bank and streambed stability; (8) To reduce erosion from development or construction projects; (9) To preserve and protect water supply facilities and water resources by means of controlling increased flood discharges, stream erosion, and runoff pollution; (10) To reduce stormwater runoff rates and volumes, soil erosion, and non-point source pollution, wherever practicable, from lands that were developed without stormwater management controls meeting the purposes and ~~stands~~ standards of this article;
(11) To reduce the adverse impact of changing land use on water bodies and, to that end, this article establishes minimum standards to protect water bodies from degradation resulting from changing land use where there are insufficient stormwater management controls;
(12) To regulate the contribution of pollutants to the MS4 from stormwater discharges;
(13) To prohibit illicit discharges and connections to the MS4; ~~and~~
(14) To establish legal authority to carry out all inspection, surveillance, and monitoring procedures necessary to ensure compliance with this article~~.~~; ~~and~~
(15) To facilitate green infrastructure implementation in accordance with the above objectives to manage stormwater runoff, increase community climate resilience, and augment native habitat to benefit the public; and
(16) To emphasize green infrastructure's benefits to local property values, aesthetic quality, and water quality.

Sec. 37-153. Applicability, Exemptions, and General Provisions.

(1) This article shall apply to all new development and all redevelopment projects, including private, commercial, and public projects that disturb one acre or more, and projects less than one acre that are part of a larger common plan of development or sale that would disturb one acre or more.
(2) Projects that do not meet the above specifications but meet the criteria below shall be required to submit an urban runoff reduction plan in lieu of a site (drainage) plan as specified in **Sec. 37-159**, unless they qualify for an exemption under Sec. 37-153(3):

(a) New parking areas or extensions to existing parking areas, public or private, of any size and with any number of parking spaces.
(b) Projects involving less than one acre of land in total.

(c) Residential and mixed use projects with three or more dwelling units or commercial and industrial projects that create or alter at least 1,000 square feet of impervious surface area including loading areas and off-street parking areas.
(d) Single-family or two-family residential projects that create or alter at least 2,500 square feet of impervious surface area including off-street parking areas
(e) Any project that creates or alters new impervious surface area located within a Federal Emergency Management Agency (FEMA) Special Flood Hazard Area and/or Sensitive Area Overlay District and/or Waterfront District.

~~(2)~~ (3) This article shall not apply to the following:
(a) The installation or removal of individual mobile homes within a mobile home park (this exemption shall not be construed to apply to the construction, expansion, or modification of a mobile home park);
(b) Construction of, or an addition, extension, or modification to, an individual single-family or a two-family detached dwelling;
(c) Farm operations and buildings, except dwellings, directly related to farm operations (this exemption shall not apply to greenhouses and other similar structures); and
(d) Plats with preliminary plat approval and other developments with final land use approval prior to the effective date of this article, where such approvals remain in effect.

Sec. 37-154. Definitions.

...

(62) Green infrastructure: Natural and semi-natural infrastructural systems that utilize natural processes to treat, infiltrate, and retain stormwater runoff.
(63) Low Impact Development (LID): Land use and stormwater management practices that work to minimize environmental impacts through the facilitation of natural processes.

Division 2. Stormwater Permits

Sec. 37-155. Permit Required.

(1) No person shall engage in any development activity without first receiving a stormwater permit from the city pursuant to Section 37-156.
(2) The granting of a stormwater permit only authorizes the discharge of stormwater from the development for which the permit is required, subject to the terms of the permit. It shall not be deemed to approve other

development, other land use activities, or replace other required permits.

Sec. 37-156. Stormwater permit review procedures.

The city shall grant a stormwater permit, which may impose terms and conditions in accordance with Section 37-163, only upon compliance with each of the following requirements.

(1) The developer has submitted a site (drainage) plan complying with Section 37-157.

(2) The developer has paid or deposited the stormwater permit review fee pursuant to Section 37-158.

(3) The developer has paid or posted an applicable performance guarantee pursuant to Section 37-160.

(4) The developer agrees to provide all easements necessary to implement the approved drainage plan and to otherwise comply with this article including, but not limited to, Section 37-188. All easements shall be acceptable to the city in form and substance and shall be recorded with the County Register of Deeds. At the discretion of the city the final easement may be required to be recorded prior to permit issuance.

(5) The developer provides the required maintenance agreement for routine, emergency, and long-term maintenance of all structural and vegetative BMPs installed and implemented to meet the performance standards, and to comply with the approved drainage plan and this ordinance including, but not limited to, Section 37-189. The maintenance agreement shall be acceptable to the city in form and substance, may not be amended without the approval of the city, shall be binding on all future property owners, and shall be recorded with the County Register of Deeds.

Sec. 37-157. Drainage plan.

The developer shall provide adequate stormwater management facilities for the development site. Adequate facilities reduce the exposure of people to drainage-related adverse impacts and to health and safety hazards. They reduce the exposure of real and personal property to damage through stormwater inundation. The stormwater management system and stormwater best management practices (BMPs) shall be designed in accordance with the latest version of the city's stormwater standards manual.

Upon preliminary submission, this plan shall include green infrastructure or low impact development best management practices, such as those included in the Stormwater Standards Manual, designed to reduce stormwater runoff with submission requirements pursuant to this article.

An exemption may be granted if it can be demonstrated that incorporation of green stormwater management elements necessary to retain runoff from a 24-hour, 1 inch storm event are physically or economically impossible depending on site factors including, but not limited to:

(1) Size
(2) Topography
(3) Soil composition and type

The City Planning Commission can grant a waiver with a majority vote.

The developer shall provide a drainage plan to the city for review and approval by the city. The drainage plan shall identify and contain all the information required in the stormwater standards manual, including an implementation plan relative to the development site.

The implementation plan for construction and inspection of all stormwater management facilities necessary to the overall drainage plan shall include a schedule of the estimated dates of completing construction of the stormwater management facilities shown on the plan and an identification of the proposed inspection procedures to ensure that the stormwater management facilities are constructed in accordance with the approved drainage plan.

Sec. 37-159. Urban Runoff Reduction Plan

Projects that are not required to submit a drainage plan, and do not qualify for an exemption pursuant to **Sec. 37-153(3)** must submit an urban runoff reduction plan. Urban runoff reduction plans shall include green infrastructure or low impact development best management practices designed to reduce stormwater runoff. The following shall be required for approval:

(a) A description of each proposed stormwater best management practice (BMP)
(b) A comparison of estimated post-development stormwater runoff with predevelopment levels
(c) Size and material specifications of each proposed measure, including size, species, and location of landscaping elements
(d) A description of roles and responsibilities for maintenance of proposed improvements
(e) Any other information that the Planning Department deems necessary for compliance with this article

An exemption may be granted if it can be demonstrated that incorporation of green stormwater management elements necessary to retain runoff from a 24-hour, 1 inch storm event are physically or economically impossible depending on site factors including, but not limited to:

(1) Size
(2) Topography
(3) Soil composition and type

The City Planning Commission can grant a waiver with a majority vote.

Article VIII, Landscaping, of Chapter 37, Utilities, of Part II of the City of Grand Haven Code of Ordinances is amended to read as follows:

ARTICLE VIII. - LANDSCAPING

Sec. 40-800. - Purpose and scope.

The purpose of this article is to establish minimum standards for certain landscaped areas in the city; and to require certain landscaped areas to protect the general health, safety, and welfare of citizens of the community. It is further the intent of this article to minimize noise and site impact between adjacent districts. This article recognizes that the proper management and use of trees, plants and other types of vegetation will improve the appearance, value, character and quality of life in the city and promote resourceful site planning and creative design. (Ord. No. 2021-02, § 1(Exh. A), 1-4-21)

Sec. 40-801. - General requirements.

A. All required yards shall be landscaped with living vegetative materials.
B. An underground irrigation system is required for nonresidential uses and multiple-family dwellings. An acceptable alternative water supply may be approved where the zoning administrator or planning commission finds that such supply would ensure the adequate coverage of landscaped areas.
C. Where this article requires landscaping for any given amount of feet along a property or other line, and an applicant's property is a fraction of the given measurement, then the property's measurement shall be rounded up to comply with the minimum standards herein.
D. Where a parkway exists, street trees shall be planted within the parkway along major streets and along local and private streets in all development requiring site plan approval. Trees shall be deciduous trees capable of achieving a mature canopy diameter of at least twenty-five (25) feet and shall comply with the requirements of subsection 40-805.01.B. and the City of Grand Haven list of approved street trees species and caliper.
E. Utility structures such as electrical transformers, air conditioners, and similar features shall be screened from view by landscaping.
F. The planning commission may lessen the requirements of this article if site conditions make the strict application of these regulations unreasonable, or may impose additional requirements on landscaping, if such modification would further the intent of this ordinance, provide for sufficient buffering between dissimilar uses and between expanses of parking and rights-of-way, if any

existing landscaping meets the intent of the ordinance or if native, drought tolerant plant materials are used.

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Sec. 40-806. - Incentive for Additional Tree Cover

A. Applicants required to submit a landscaping plan may qualify for a 5 to 20 percent reduction in the required on-site parking spaces if the plan preserves or plants additional tree cover beyond the minimum standards in this Section so that existing trees can be undisturbed. Trees shall be compliant with the standards of this Article and the City of Grand Haven list of approved street trees species. This reduction is granted only after evaluating unique site conditions and potential impacts on parking demand, with approval at the discretion of the planning commission.

B. Landscaping plans with new plantings that interfere with existing viewsheds shall not be eligible for this reduction, and may not be approved by the planning commission.