

1. Type of Project (check one):	<input type="checkbox"/> Coastal Wetland Protection and Habitat Restoration <input checked="" type="checkbox"/> Nonpoint Source Pollution Control <input type="checkbox"/> Coastal Resources and Community Planning <input type="checkbox"/> Great Lakes Education <input type="checkbox"/> Public Access and Historic Preservation
2. Project Title: City of Milwaukee Green Streets: From Pilot Projects to Policy	
3. Organization applying: City of Milwaukee Office of Environmental Sustainability	5. Primary County where project is located: Milwaukee
4. Contact Person and Address: Erick Shambarger _____ 200 E Wells St, Room 603 _____ Milwaukee, WI 53202 _____ Phone: 414-286-8556 Fax: 414-286-5475 Email: <u>eshamb@milwaukee.gov</u>	6. Other Counties where project is located: None
	7. Congressional District #: 4
	8. State Senate District #: 3-7
	9. State Assembly District #: 8-10,16-19
10. Total Project Cost: \$250,000	
11. WCMP Share: \$100,000	13. WCMP Percent: 40%
12. Applicant Share: \$150,000	14. Applicant Percent: 60%
15. Brief Summary of the Project (300 word maximum, use this page only). Include (1) Project Description and (2) Project Outcomes:	
<p>Extreme precipitation events in the last decade have led to widespread property damage throughout the City and sewer overflows. Since 2004, the City has recognized the value of “green” best management practices (BMPs) such as bioswales, bioretention facilities, and permeable pavement to manage the quantity of stormwater, control non-point source pollution, and help protect our coastal resources. The City has implemented numerous green BMPs as pilot projects. These include BMPs in the Menomonee Valley, N 27th St, S. 6th Street, and several other locations. Green infrastructure for city streets is recommended the <i>Citywide Plan</i>, the Mayor’s 2005 <i>Green Team Report</i>, and in 2011, the <i>Flooding Study Task Force</i>.</p> <p>The City requires assistance to develop a green infrastructure <u>policy</u> and <u>administrative manual</u> that builds off of the lessons from the various pilot projects. With grant funds, the City staff would work with an external consultant to:</p> <ol style="list-style-type: none"> 1. Assess the effectiveness of the green infrastructure pilot projects and gather community input 2. Develop a Policy and Administrative Manual, including a “decision matrix” to help City engineers, planners, and designers systematically determine when and what type of green infrastructure improvements are cost effective and appropriate for various street types. The administrative manual will also include a cost-effective maintenance plan for the green infrastructure. 3. Host a training session for City engineering staff on the new policy and administrative manual <p>The City match will fund a new green infrastructure project developed in accordance with the consultant recommendations. City will then systematically evaluate and incorporate green BMPs into future street reconstruction projects going forward. A Coastal Management program grant would therefore lead to systemic change toward improving our coastal resources.</p> <p>NOTE: The City has not yet selected a location for the construction project on public land, but will furnish supporting Construction Documentation upon site selection.</p>	

1. Problem: Concisely state the problem or issue that this proposal addresses. Include important background information.

The City understands the value of green infrastructure to reduce non-point source pollution and reduce flood risks. Since 2004, the City has implemented numerous green infrastructure pilot projects. However, these projects have been implemented on an *ad hoc* basis, while the City has proceeded with the bulk of its annual road reconstruction projects using traditional design methods. This approach has given the City valuable experience in doing green infrastructure, but has limited its application. One of the challenges has been the recognition that a “one-size-fits-all” green infrastructure policy is probably not appropriate, due to different street types, hydrology, and flooding risk in different parts of the City. Additionally, the on-going maintenance cost of stormwater BMPs is a concern in a time of scarce budgets. By developing a systematic approach to incorporating green infrastructure into the City’s design and decision processes that respects key situational variables, the City will be able to greatly expand its application and overall environmental impact. Once a green infrastructure policy has been established and engineers and construction contractors design and implement these BMPs on a regular basis, the per-unit cost of the BMPs should decline. Additionally, the City is a dense urban environment with much impervious surface area. The shortage of available lots and green space make it difficult to build large swaths of green infrastructure. And City streets themselves, by their nature, are large areas of impervious surface that generate millions of gallons of stormwater runoff. Developing a policy for green streets will help the City manage more stormwater on site while making the best use of scarce developable land.

2. Project Description: Address all of the issues listed below as they relate to your project.

- a. Describe the project for which funding is requested.
- b. Describe how this project is part of an integrated effort or approach.

- a. The City requires assistance to develop a green infrastructure policy and administrative manual that builds off of the lessons from the various pilot projects. With grant funds, the City would hire an external consultant to:
 1. Assess the effectiveness of the green infrastructure pilot projects to date and gather community input
 2. Review existing street reconstruction design policies
 3. Recommend revisions to the existing design protocol to systematically incorporate stormwater BMPs where appropriate
 4. Develop a policy and administrative manual, including a “decision matrix” to help Public Works engineers systematically determine when and what type of BMPs are cost effective and appropriate for various street types. The manual will recognize that a “one-size fits all” approach will likely not be appropriate. Rather, it will form the basis for evaluating different street types and needs of different parts of the City (eg. combined sewer area vs. separated sewer area; residential street vs. arterial street) and denote where different stormwater BMPs are both practical and effective. The manual should also include a BMP maintenance plan.
 5. Host a training session for City engineering staff on the new policy and administrative manual

Once this has been completed, the City will use the findings to incorporate stormwater BMPs as part of the design for a new street reconstruction project in 2012 or 2013.

- b. The City of Milwaukee and MMSD won the 2011 Leadership in Stormwater Management Award from Great Lakes & St. Lawrence Cities Initiative, in part for our efforts to use green infrastructure to reduce non-point source pollution. The City’s green infrastructure pilot projects have been as a result of the Administration’s commitment to improving our coastal resources and trying innovative and cost-effective green stormwater BMPs. Implementing these BMPs has been a partnership involving multiple City departments, including multiple divisions of the Department of Public Works, the Office of Environmental Sustainability, and the Department of City Development. The *Citywide Policy Plan* (Comprehensive Plan) “encourage[s] integration of Complete Streets principles and sustainability into street design and reconstruction projects” by “include[ing] stormwater facilities and sustainable boulevards with street design where feasible.”

This grant project is intended to expand on this principle from the *Citywide Plan*. The resulting consultant report will form the basis of a detailed green infrastructure *policy* and *administrative manual*. This will help the City more firmly integrate green infrastructure design principals as outlined in the *Citywide Policy Plan*, *Green Team Report*, and *Flooding Study Task Force* report into our street reconstruction Capital Improvements Plan and create a logical implementation pathway. As a result of this policy, green infrastructure BMPs will be firmly incorporated into the standards for street reconstruction.

This proposal is complementary with the Sixteenth Street Community Health Center’s grant proposal entitled *Green Street Development for a Healthy Community*. The City of Milwaukee Office of Environmental Sustainability supports the SSCHC on neighborhood-specific efforts to more effectively manage stormwater. Their stormwater planning for the Kinnickinnic River area can help inform the city-wide planning effort under the *City of Milwaukee Green Streets: From Pilot Projects to Policy* project, particularly for residential streets. Nevertheless, the City of Milwaukee is currently ready to begin development of a Citywide policy and Administrative Manual relative to green streets.

3. Impact on Coastal Resources: Address all of the issues listed below as they relate to your project.

- a. Describe the extent to which the problem, need or priority will be addressed by the project.
- b. Describe how this project addresses a high priority need as identified in local, state, regional, or national plans (such as remedial action plans, basin plans, Lakewide Management Plans, State Hazard Mitigation Plan, and county Land and Water Conservation Plans), the priorities of the Council of Great Lakes Governors, or the Great Lakes Regional Collaboration Strategy (www.gllrc.us/).
- c. Describe the extent to which the project permanently addresses the problem or need.
- d. Describe the extent to which the project leverages other technical or financial resources.
- e. Describe the measurable results (give estimated benefits for all that apply). Use the suggested indicators listed below, or others that are appropriate to your project.

Type of Project	Suggested Indicators
Wetland Protection and Habitat Restoration	<ul style="list-style-type: none"> • Acres of habitat restored or protected • Endangered species protected • Type of habitat or ecosystem protected or restored
Nonpoint Source Pollution Control	<ul style="list-style-type: none"> • Reduction in pounds of P delivery • Reduction in tons of soil erosion/sedimentation • Miles of vegetative buffer
Great Lakes Education	<ul style="list-style-type: none"> • Number of people trained • Projected audience
Coastal Resources and Community Planning	<ul style="list-style-type: none"> • Number of municipalities included in a plan • Population affected by the plan • Land area covered by the plan • Type of coastal resource protected • Ordinances developed
Public Access and Historic Preservation	<ul style="list-style-type: none"> • Linear feet of coastline made accessible or acquired • Population affected • Acres Acquired

a. The City of Milwaukee faces huge challenges relative to managing stormwater in a dense urban environment. The catastrophic storms of 2008 and 2010, combined with the City's interest in improving our coastal resources as an asset to the region, demonstrate that while the city's efforts to date to manage stormwater have been important, the City needs to do more to improve its stormwater management. This project is not a one-off stormwater BMP project. Rather, it will spur permanent change in how the City designs its streets to improve stormwater management and control non-point source pollution.

b. The City of Milwaukee *Citywide Policy Plan*, *Green Team Report*, and *Flooding Study Task Force* are all local plans that outlined the importance of green infrastructure and stormwater BMPs to control stormwater. The *Flooding Study Task Force* was a commissioned by the Milwaukee Common Council to recommend solutions to protect the City from the type of catastrophic flooding of 2008 and 2010. Its report, issued June 10th, 2011, recommended: "The City should evaluate its experiences with existing green infrastructure improvements and develop policies to incorporate future green infrastructure into development, re-development and street construction efforts. The green infrastructure policies should give priority to areas with flooding problems." The project will help make that recommendation a reality and directly lead to better designed streets that will in turn protect property and coastal resources.

The *Great Lakes Regional Collaboration Strategy* includes chapters called "Nonpoint Source" and "Sustainable Development." The "Nonpoint Source" chapter calls for vegetative buffers to protect coastal resources, and many stormwater BMPs on streets could be characterized as buffers because they infiltrate stormwater before routing it to rivers. Appendix 3 to this chapter, under the heading "Concepts to Act Upon" states, "Leverage available resources by developing and promoting Decision Support tools to assess levels of need or appropriate responses, and prioritize them by cost and impact." The policy and administrative manual developed with this grant would include just such a decision support tool to help street engineers assess and implement the appropriate stormwater BMP for different situations.

c. This project permanently addresses the problem. Under the status quo, the City has implemented green infrastructure/stormwater BMPs on an *ad hoc* basis driven through management initiative outside the normal street reconstruction channels. With this grant funded project, the City can permanently change its street design standards and decision making processes to systematically incorporate the correct stormwater BMPs. In this manner, as streets are reconstructed as part of the annual *Capital Improvements Plan*, stormwater BMPs will become more widespread throughout the City, and the City will make annual incremental improvements to our coastal resources.

d. The City of Milwaukee annually budgets approximately \$14 million toward street and ally resurfacing and reconstruction projects. Stormwater BMPs had been funded on an *ad hoc* basis as an additional amount out of the City's Sewer Maintenance Fund. With the

completion of this project, the City will be in a better position to leverage the portion of its streets capital budget to incorporate stormwater BMPs. (Note that much of the \$14 million is used for street resurfacing projects; these simple resurfacing projects may not lend themselves to green infrastructure. However, street and boulevard reconstruction projects present a cost-effective opportunity to incorporate stormwater BMPs.) To demonstrate this leverage, the City will commit \$150,000+ to incorporate stormwater BMPs on an upcoming street reconstruction project in accordance with the new administrative manual.

e. The City annually reconstructs 2.5-3.5 miles of streets, presenting a large opportunity to introduce new green infrastructure on an annual basis. The City uses the Department of Natural Resources "SLAMM" model to estimate non-point source pollution reduction. The following screenshot from the SLAMM modeled the effectiveness of the Stormwater BMP project on West Grange Avenue in Milwaukee. If a cost effective green streets policy is implemented, these kinds of results can more easily be replicated throughout the City.

Drainage System and Outfall Output Summary						
	Runoff Volume (cu. ft.)	Percent Runoff Reduction	Runoff Coefficient (Rv)	Particulate Solids Conc. (mg/L)	Particulate Solids Yield (lbs)	Percent Particulate Solids Reduction
Source Area Total without Controls	108094	<= Percent Reduction Basis Value	0.42	471.4		
Outfall Total without Controls					3181	<= Basis Value
<hr/>						
Current File Output: Total Before Drainage System	108092	0.00 %	0.42	471.4	3181	
Current File Output: Total After Drainage System	108092	0.00 %	0.42	471.4	3181	
Current File Output: Total After Outfall Controls	7474	93.09 %	0.03	62.82	29.30	99.08 %
Current File Output: Annualized Total After Outfall Controls	7578				29.71	
Total Area Modeled (ac)	2.14	Years in Model Run:	0.99			

4. Methodology and Timetable

- Provide a list and description of project tasks, including a timeline and major milestones.
- Provide a list of work products or deliverables.
- Describe how the project will encourage public participation and how the final product will be distributed (as appropriate).
- For Public Access projects, please describe how the project incorporates planning for changing lake levels.

- See Attachment A- Project Tasks and Timeline
- Green Infrastructure Policy and Administrative Manual*
 - Review planned street projects in 2013 and 2014 Capital Improvements Plan (CIP) to identify green infrastructure opportunities in accordance with new policy
 - Host training workshop for City staff on new Administrative Manual
 - Implement at least one stormwater BMP in accordance with new plan during grant period
- The consultant will host at least one public outreach session to get public feedback on stormwater BMPs. In addition, the consultant report will include management feedback and feedback from the public's elected representatives on the Milwaukee Common Council. The final product will be implemented in the Department of Public Works. Staff, including design engineers and planners, will be trained on the new *Green Infrastructure Policy and Administrative Manual* and the consultant will work with the staff to apply the findings to the 2013 and 2014 planned street reconstruction projects. The findings will be distributed to other communities via the Milwaukee Metropolitan Sewerage District's Technical Advisory Team and to other cities via the City's participation in *the Great Lakes & St. Lawrence Cities Initiative* peer-to-peer learning network. The work will also be distributed to the public on MMSD's *H₂Ocapture.com* webpage and on the Office of Environmental Sustainability webpage.
- Not applicable

5. Project Budget

- a. Provide a breakdown of the proposed project budget using the following **required table**. WCMP Grant projects with a total budget of \$60,000 or less require a 50% match. Projects with a total budget larger than \$60,000 require a 60% match. The budget must show proposed costs in the categories listed in the first table.

Activity	WCMP Request	Match	Total
Personnel (OES & DPW staff)	\$10,900	\$0	\$10,900
Fringe Benefits (OES & DPW staff)	6,636	0	6,636
Travel	0	0	0
Equipment	0	0	0
Supplies	126	0	126
Contractual (External Consultant)	80,000	0	80,000
Construction (Stormwater BMP)	0	150,000	150,000
Other		0	0
Indirect Charges	2,338	0	2,338
Totals	\$100,000	\$150,000	\$250,000

- b. Applicants for **Public Access and Historic Preservation** projects **must** provide further details using additional categories/sub-categories in the second table or in another format, if necessary.

Activity	WCMP Request	Match	Total
	\$	\$	\$
Totals			

6. Budget Description

- a. Describe, in detail, the commitment of nonfederal matching funds.
 b. Describe the composition and source of the matching funds.

- a. The City of Milwaukee will commit \$150,000 of City funds to fund construction of at least one stormwater BMP project in accordance with recommendations of the consultant work
- b. The City of Milwaukee allocated \$500,000 in its 2011 Adopted City Budget in the Sewer Maintenance Fund in a capital account entitled "BMPs for the Reduction of TSS in Stormwater." This capital account is supported by capital borrowing, which is repaid through local revenues collected via the Stormwater Management Fee. Funding in this account has not yet been allocated to specific projects.

7. Bonus objectives. Address all of the issues listed below as they relate to your project.

- a. Build partnership alliances with other organizations or agencies
 b. Develop exceptional marketing, outreach or education strategies
 c. Encourage coast-wide projects or solutions

a. This project concept was the result of existing partnerships relating to best-in-class stormwater management practices and Climate Adaptation Planning. The City of Milwaukee Office of Environmental Sustainability (OES) is itself an outgrowth of the community Milwaukee Green Team, formed by Mayor Tom Barrett in 2004. One of OES's three goals as chartered by the Green Team is stormwater management. In August, 2011, OES partnered with the National Oceanic and Atmospheric Administration (NOAA) Coastal Services Center, the Milwaukee Metropolitan Sewerage District (MMSD), ICLEI-Local Governments for Sustainability, Wisconsin Department of Natural Resources, Southeastern Wisconsin Regional Planning Commission, University of Wisconsin-Milwaukee, and Clean Wisconsin to host a *Climate Adaptation for Coastal Communities* workshop in August, 2012. As a result of that effort, the City has identified the need to move beyond stormwater BMP pilot projects and implement a green infrastructure policy that will help the implement climate adaptation practices as broadly outlined in the *Citywide Policy Plan, Flooding Study Task Force*, and working groups established in the *Climate*

Adaption for Coastal Communities workshop. This project will build on those existing partnerships to put the communities' ideas into action. As part of the Project deliverables, the consultant will hold a public information session to get input into stormwater BMP designs.

Additionally, this project will help build agency partnerships within City government. In particular, this project will cement a partnership between OES, the Department of Public Works, and the Department of City Development.

b & c. The Office of Environmental Sustainability is "well-networked" with national sustainability learning groups and with local organizations. OES will share the results of this project with the MMSD's Technical Advisory Team, or TAT, consisting of engineers and planners from MMSD's 28 tributary communities. Thus, the results of this project could be leveraged throughout the Milwaukee metropolitan area. Similarly, Milwaukee is an active member of the *Great Lakes & St. Lawrence Cities Initiative* and can help educate other member cities throughout the Great Lakes on the consultant report findings. OES will thus work to leverage this project throughout the Great Lakes region. The work will also be distributed to the public on MMSD's *H₂Ocapture.com* webpage and on the Office of Environmental Sustainability webpage. Additionally, the Office of Environmental Sustainability will work with ICLEI-Local Governments for Sustainability and the Urban Sustainability Director's Network to highlight the work completed under this grant, so that it may be replicated in other coastal areas throughout the country.