

COMMUNITY SOLUTIONS FOR STORMWATER MANAGEMENT

A Guide for Voluntary Long-Term Planning





The purpose of this guide is to assist EPA, states and local governments in developing new or improving existing long-term stormwater plans that inform stormwater management implemented by communities on the ground. The document describes how to develop a comprehensive long-term community stormwater plan that integrates stormwater management with communities' broader plans for economic development, infrastructure investment and environmental compliance. Through this approach, communities can prioritize actions related to stormwater management as part of capital improvement plans, integrated plans, master plans or other planning efforts. Early and effective stormwater planning and management by communities as they develop will provide significant long-term cost savings while supporting resilience, economic growth and quality of life.

EPA considers this guide a draft that will be supplemented with an integrated online tool to assist communities in implementing the planning process, piloted through community-based technical assistance efforts, and updated over time with feedback from users.



Photography courtesy of Alisha Goldstein

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I. INTRODUCTION

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Stormwater management is a major and growing challenge nationwide, with stormwater pollution, flooding and other impacts imposing serious impacts on water quality, public health and local economies. EPA recognizes the technical and financial challenges that communities face in appropriately addressing stormwater pollution. At the same time, managing stormwater over the long term can create opportunities for communities to rediscover rainwater as a resource, invest in resilient infrastructure, revitalize urban waterways and introduce green space that makes communities more livable. The agency is introducing this voluntary guide to lay out a path forward that any community¹ can use to facilitate cost-effective, sustainable and holistic solutions that protect human health and manage stormwater as a resource. This guide offers a comprehensive approach for communities looking to achieve multiple community goals simultaneously. The agency understands that effectively managing stormwater will require long-term investments. This guide provides EPA's support for comprehensive stormwater planning for investments spanning many years. Communities using this long-term approach have the potential to identify new and broader financial resources and to get out in front of future regulatory commitments through forward-looking planning and investments. Planning and investing in this way can help to proactively address the costly and difficult water pollution problem and public health concern that urban stormwater continues to pose.

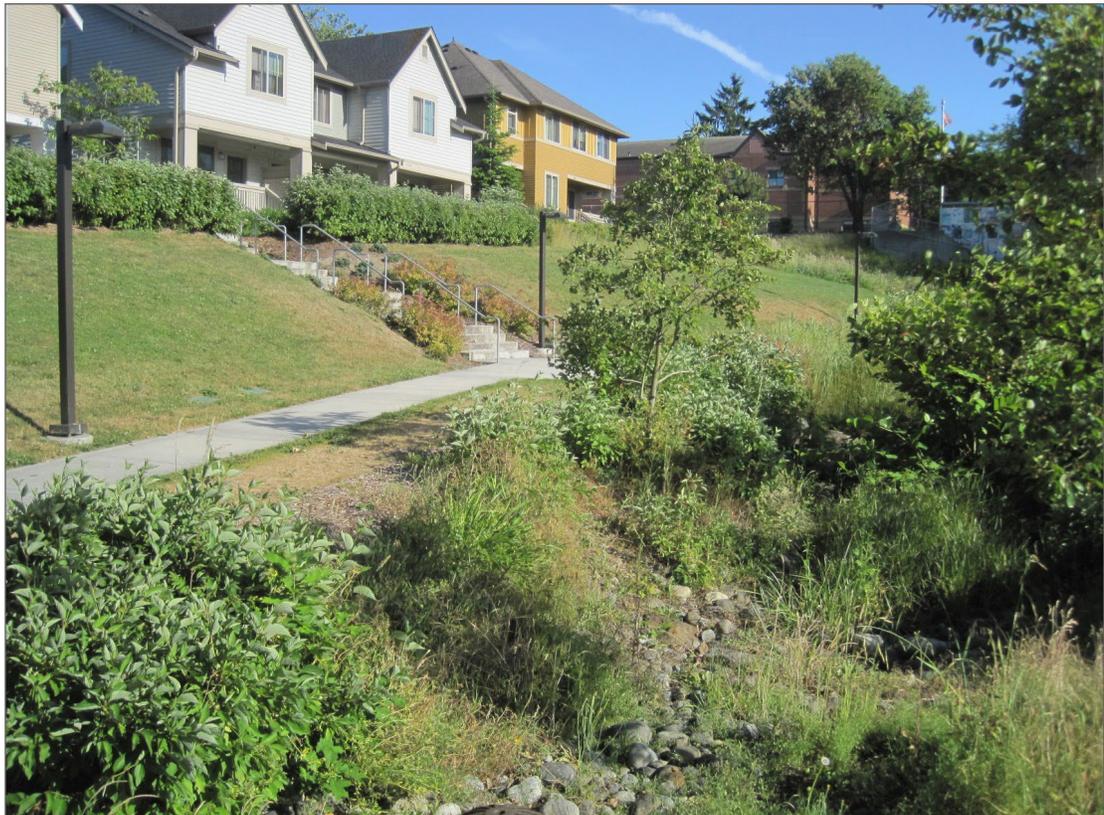
In the face of climate change, it is increasingly important that communities reevaluate how best to make use of their water resources and treat rain and stormwater as the resource they are. Communities can no longer afford to allow stormwater laden with trash, metals and pollutants to contaminate local waters. A new generation of management practices has emerged to effectively manage stormwater while simultaneously building vibrant, attractive communities. Green infrastructure (e.g., green roofs, permeable pavement, bioswales, rainwater harvesting, green streets, stormwater parks, conservation areas) can effectively address stormwater pollution and mitigate flooding, while at the same time providing open space for recreation, habitat, improved air quality, climate resiliency and aesthetic benefits. When used in conjunction with gray infrastructure, these approaches, can create an effective stormwater infrastructure network. These innovative practices also help to revitalize community economies, particularly for communities in need, by supporting sustainable local jobs, improving community assets and reducing blight.

As communities grow and develop their local economies, they're looking for sustainable and effective approaches to reduce existing and emerging sources of stormwater pollution while balancing other community priorities. Sound investments in systems to manage stormwater can complement community development initiatives and promote economic vitality.

¹ A community can include entities like cities, towns, townships, boroughs, transportation departments, universities and counties.

Many communities are rediscovering that stormwater is a valuable freshwater resource to combat drought conditions, while others are using green infrastructure to reduce localized flooding events. Cities and towns across the nation are evaluating and adopting integrated approaches to managing stormwater in order to reduce water and wastewater treatment costs, provide adequate water supplies and protect local waterbodies.

Across the country, forward-thinking communities are proving that revitalized water resources and smart green infrastructure solutions can be central drivers of economic development, community vitality and resiliency. Every community is different, but all share the ultimate goal of having clean water that is safe for people to use and enjoy. Developing a long-term plan for stormwater management can help communities find new opportunities for improvements and address these challenges. While identifying planning and management approaches that are economically and environmentally effective is a significant hurdle for many communities, well thought-out plans can help to guide smart policies and investments. These plans also can help open the door to potential new sources of funding by strategically identifying long-term community goals and better aligning activities with a comprehensive water resource management focus.



II. CONCEPTS GUIDING SMART INFRASTRUCTURE INVESTMENTS

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EPA recognizes that each community has a set of unique circumstances that influence the planning process and the community's ability to finance and implement appropriate solutions for long-term stormwater management. Differences in regulatory status, governance, financial status, community size, geography and technical and programmatic expertise require a process that can be tailored to the needs of individual communities.

Any community may develop a long-term stormwater plan. Because of the multiple benefits of long-term stormwater plans, especially the resiliency-focused benefits of reduced flooding and augmentation of local water supplies, communities with unregulated MS4s may want to consider developing these plans to make proactive infrastructure decisions.

The approaches in this guide are built on a foundation of input from sustained engagement with key partners including states, communities, business/industry groups, academia and nongovernmental organizations. This foundation, comprised of the following concepts, undergirds the overall process:

1 By adopting a long-term approach to planning, communities can provide for plan implementation that allows for the integration of selected projects within other community development plans such as capital improvement plans and master plans.

2 Managing stormwater close to where precipitation falls, such as with retention or a similar hydrologically focused approach, has been shown to be an effective stormwater control method.

3 Innovative technologies, including green infrastructure, are important tools that can generate many benefits ranging from improved air and water quality to cost savings to more community amenities. They also may be fundamental aspects of communities' plans for integrated solutions.

4 The voluntary approach to long-term planning described in this guide can be a useful part of the larger effort to comply with any Clean Water Act (CWA) requirements (e.g., over multiple permit cycles). For example, a regulated municipal separate storm sewer system (MS4) that has developed an initial plan may work with EPA and/or the state to consider how the plan can help satisfy the requirements of their permits.^{2,3}

² EPA recognizes that states, as our partners in the implementation of the CWA stormwater management programs, have the lead for the day-to-day activities in approved NPDES states.

³ EPA understands that communities need sufficient time to implement flexible, community-integrated approaches within effective and comprehensive long-term stormwater plans.

III. COMPONENTS OF A LONG-TERM STORMWATER PLAN

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This section sets forth the key steps in the development of a long-term plan, including elements to include in the plan and related questions to explore for laying the groundwork of the planning process.

For those communities that are regulated under the NPDES program, stormwater discharge requirements for regulated MS4s are included in permits that are effective for a maximum of five years. Regulated communities should consider how long-term stormwater planning can assist them in meeting specific permit requirements.

Long-term stormwater plans may address source water protection efforts and reduce nonpoint source pollutants through proposed trading approaches or other mechanisms. These plans may also address stormwater contributions causing localized flooding and sewer overflows.

When developing the plan, a community should determine and define the scope of the integration effort, ensure the active participation of entities that are needed to implement the plan, and identify the role each entity will have in implementing the plan.



Long-term stormwater planning does not remove obligations to comply with the CWA, nor does it change existing regulatory or permitting standards or requirements. Rather this approach recognizes the flexibilities in the CWA for the appropriate sequencing and scheduling of work to meet the requirements of the Act and implementing regulations.



STEP 1 - ASSESS WHERE YOU ARE NOW

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ELEMENT 1

Identify the goals of the long-term stormwater planning effort, incorporating existing community objectives, such as the following:

- Stormwater runoff volume reduction, increasing infiltration, groundwater recharge and rainwater harvesting.
- Water quality.
- Capital improvements (including transportation, complete streets and public schools).
- Flooding reduction.
- Resiliency.
- Economic development to attract resources to the community.
- Social amenities for health or wellbeing of the community (including parks, urban gardens, green space, public art space, bike lanes and other transportation).
- Open space preservation.
- Natural channel, watershed, shoreline and/or natural floodplain functions protection.



STEP 1 - ASSESS WHERE YOU ARE NOW

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ELEMENT 2

Describe any applicable water quality and human health issues to be addressed in the plan, including the following:

- Identification and characterization of the chemical, physical and biological quality of the waterbodies, including unimpaired waters, impaired waters, water quality threats and, where available, applicable wasteload allocations (WLAs) of an approved total maximum daily load (TMDL) or an equivalent analysis.
- An assessment of existing and long-term stormwater management challenges in meeting CWA requirements and projected future CWA requirements (e.g., water quality-based requirements based on a new TMDL).
- Identification and characterization of human health risks.
- Identification of sensitive areas and environmental justice concerns.
- Linkages to goals in local planning documents.

GROUNDWORK QUESTIONS

Are there applicable state requirements and planning efforts and can they incorporate state input on priority setting and other key implementation issues?

For regulated MS4s, what are water quality standards and other provisions of the CWA including existing flexibilities in the CWA and its implementing regulations, policies and guidance to consider?

How is the plan consistent with, and designed to meet the objectives of, any applicable total maximum daily loads (TMDLs)?



STEP 1 - ASSESS WHERE YOU ARE NOW

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ELEMENT 3

Describe existing stormwater systems and their performance, including the following:

- Identification of communities and utilities that are participating in the planning effort and a characterization of their systems.
- Characterization of flows into and from the systems.
- Consideration of how current system performance may be impacted by changes in local climate (e.g., changes in precipitation and temperature).
- Assessment of new development, redevelopment and areas without adequate stormwater management that could use improvement.



STEP 2 - ANALYZE OPPORTUNITIES

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ELEMENT 4

Institute and document how open communication with relevant stakeholders will be maintained in order to facilitate full consideration of all viewpoints in the planning and implementation of the plan. This process can be part of other on-going public involvement efforts that consider the following:

- Identify target audience groups and potential partners like watershed, industry, development and community groups (particularly those related to identified goals).
- Create opportunities for meaningful input during the identification, evaluation and selection of alternatives and other appropriate aspects of plan development.
- Make new information available to the public and any proposed modifications to the plan.
- Evaluate the implementation of the approach for communities with green infrastructure requirements in their permits or an enforcement order.

GROUNDWORK QUESTIONS

What are the community impacts and will there be disproportionate burdens resulting from current approaches as well as proposed options?



STEP 2 - ANALYZE OPPORTUNITIES

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ELEMENT 5

Identify, evaluate and select stormwater management alternatives based on identified goals and objectives that address the following:

- Sustainable infrastructure planning approaches, such as asset management, to assist in tracking the necessary information for prioritizing investments in and renewal of major stormwater systems.
- A systematic process to consider green infrastructure and other innovative measures where they provide more sustainable solutions.
- Criteria to be used for comparing alternative projects, including those related to sustainability, and a process used for comparing alternatives and selecting priorities.
- Potential and planned non-structural and structural investments.
- Rate and document all options including: cost estimates, potential disproportionate burdens on portions of the community, projected pollutant reductions, benefits of receiving waters and other environmental and public health benefits associated with each option.
- A description of the relative priorities and optimization of the projects selected including a description of how the proposed priorities address adverse impacts on public health and water quality.

GROUNDWORK QUESTIONS

Where can effective watershed approaches and sustainable technologies, particularly green infrastructure be incorporated for stormwater control, resiliency and hazard mitigation?

Are there approaches to control stormwater in the long term from new development and redevelopment in the early planning phases and after construction ends to minimize stormwater runoff and potential sources of stormwater pollution?

Can existing stormwater discharges from already developed areas be reduced through retrofits and/or redevelopment on public and/or private land?

What projects are part of planned public works investments? Can they catalyze retrofits, promote comprehensive community-focused outcomes that address human health and water quality, and capitalize on cost efficiencies?



STEP 3 - MOVE TOWARD IMPLEMENTATION

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ELEMENT 6

Document a process for proposing investments and implementation schedules. Include consideration of the following:

- Stakeholder groups – other communities, local groups, states, federal agencies, planning organizations and universities – in order to coordinate resources and actions.
- Life-cycle costs, including capital and operation and maintenance investments that help implement the plan.
- Proposed implementation schedules and, if applicable, alignment of implementation schedules with other existing efforts.
- A financial strategy for each entity participating in the plan to ensure investments are sufficiently funded, operated, maintained and replaced over time.

GROUNDWORK QUESTIONS

How do we provide appropriate opportunity for meaningful stakeholder input when proposing investments and implementation schedules?

Is there a financial strategy in place, including appropriate fee structures, to support capital investments and long-term operations and maintenance?



STEP 3 - MOVE TOWARD IMPLEMENTATION

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ELEMENT 7

Document a process for evaluating the performance/success of the plan's projects. Evaluate projects as they are being implemented, which may involve evaluation of monitoring data, information developed by pilot studies and other studies and other relevant information, including the following:

- Propose performance metrics: Track metrics using modeling and monitoring results and costs to measure the success of human health and water quality objectives and the effectiveness of controls.
- Evaluate the performance of site-specific and large-scale green infrastructure and other innovative measures to inform adaptive design and management. Include identification of barriers to full implementation.
- Track cost savings gained due to long-term planning efforts.

IV. THE PLAN IS FINISHED - WHAT'S NEXT?

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BUILD IT

Identify, evaluate and select new projects or modifications to ongoing or planned projects and implementation schedules:

- In situations where a community is seeking modification to a plan, or to the permit that is requiring implementation of the plan, the community should collect the appropriate information to support the modification and should be consistent with Elements 1 – 7 discussed above.
- This long-term stormwater planning approach can also inform the recently embraced integrated planning approach to municipal wastewater and stormwater management. Integrated planning encourages communities to take a comprehensive planning approach to clean water management by making strategic, long-term investments in their wastewater and stormwater systems.
- These planning approaches will assist communities on their critical paths to achieving the human health and water quality objectives of the CWA by identifying efficiencies in implementing requirements that arise from distinct wastewater and stormwater programs, including how best to make capital investments.

INCORPORATE IT INTO AN NPDES PERMIT

All or part of a long-term stormwater plan can inform an NPDES permit as appropriate. Permit writers can use the proposed implementation schedules included in the plan to develop clear, specific and measurable permit requirements that are consistent with applicable regulations. Identifying milestones of a long-term stormwater plan in NPDES permits can support the community's goals while simultaneously providing regulatory predictability.

Limitations and considerations for incorporating long-term stormwater plans into permits include:

- Specific activities to be implemented during the permit term.
- Measurable goals and metrics for tracking progress with the plan.
- Reopener provisions in permits consistent with section 122.62(a) may better facilitate adaptive management approaches.
- Securing funding.
- Green infrastructure approaches at site-specific and larger scales and related innovative practices that provide more sustainable solutions by managing stormwater as a resource should be considered and incorporated, where appropriate, where they provide more sustainable solutions for municipal wet weather control.
- Appropriate water quality trading may be reflected in NPDES permits.
- Annual reporting requirements.

COMMUNICATE IT

Communities may want to coordinate with their state and federal partners when getting ready to implement their long-term approaches. For example, some of these other partners may be able to help a community determine if it's eligible for certain funding to complete projects or parts of projects.

EPA recognizes the importance of and encourages early coordination between NPDES states and EPA on key implementation issues that may arise in individual plans. This will ensure that plans will not need to be revised in order for them to be implemented.

REFINE IT

Establish a process for periodically reviewing the plan to consider the results of performance metrics. Continue to identify opportunities to integrate with new community goals, public works projects and integrated planning efforts.

V. CONCLUSION

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EPA considers this guide a draft and encourages feedback. EPA will also provide an online toolkit to assist communities in implementing the planning process, piloted through community-based technical assistance efforts, and updated over time with feedback from users. For additional information go to: www.epa.gov/npdes/stormwater-planning

Long-term stormwater plans can support community efforts to prioritize and implement effective stormwater management practices. Integrating these plans with broader community goals such as economic development, infrastructure investment and environmental compliance leverages the planning effort to support resilience, economic growth and quality of life.

With this guide, any community can lay out a path forward to cost-effective, sustainable and comprehensive solutions that protect human health and manage stormwater as a resource.

