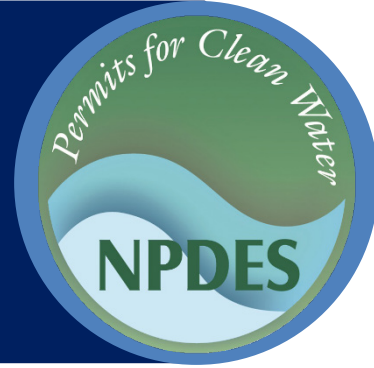




Stormwater Best Management Practice

Developing Volunteer Programs



Minimum Measure: Public Involvement/Participation

Description

A significant challenge for public works managers and staff is finding ways to engage residents as partners in protecting the community's water resources. When communities are “stormwater smart,” residents and local government officials work together to make their communities safer, healthier, and more enjoyable places to live.

Organizing volunteer programs is one way for municipalities to promote stewardship of local waters among their residents. Almost anyone can get involved in volunteer activities: schoolchildren, youth groups, neighborhood associations, local environmental groups, and individuals. Volunteer programs can support a range of activities that involve people of all ages and skills. This fact sheet presents information on how municipalities can use volunteer programs to engage their residents.

Benefits of Volunteer Programs

Community Education and Engagement

- Create a sense of accomplishment and investment for volunteers participating in hands-on activities.
- Increase public awareness of stormwater issues through media coverage of the programs or events.
- Raise awareness about the connection between storm drains and receiving waters.

Environmental Benefits (Habitat, Water Quality and Human Health/Recreation)

- Improve water quality and clean up polluted waterbodies.
- Help deter dumping, littering and other practices that contribute to stormwater pollution.
- Improve habitat for wildlife, thus saving and restoring natural resources.
- Enhance the appearance of the watershed.



Volunteer stream monitoring engages residents and provides helpful data that municipalities can use to monitor the health of local waterbodies.

Contributions to Existing Water Quality Data and Understanding

- Provide data for waters that might otherwise lack assessment.
- Increase the amount of water quality information available to decisionmakers at all levels of government.

Considerations for Implementing Volunteer Programs

Getting Started

The first step to setting up a community volunteer stormwater program is to take an inventory of your watershed. The EPA [How's My Waterway](#) tool and the U.S. Geological Survey [National Water Information System](#) can help with locating watersheds, finding detailed maps, obtaining data on conditions, identifying streams for each activity, mapping cleanup efforts and monitoring locations, and tracking results. Some municipalities have existing maps of waterbodies and/or stormwater systems that they use for maintenance, illicit discharge detection and elimination, or other public works.

Teaming Up

Municipalities can develop volunteer programs or partner with existing volunteer groups to achieve stormwater-related goals. State and local agencies often support volunteer groups by providing coordination, training, oversight and supplies. In some cases, environmental groups or universities may provide training or other technical support to volunteer groups or municipal programs.

Funding

Municipal funds or other government grants may fund volunteer programs, or the programs may obtain independent financial support such as private donations or corporate sponsors. Costs for volunteer efforts should account for coordination, transportation, waste disposal, data management, supplies/equipment and oversight personnel. Common supplies include marking kits, monitoring equipment, trash bags, gloves and vests, and traffic cones.

Spreading the Word

To advertise volunteer events and programs, organizers may print and distribute pamphlets, place newspaper or radio/television ads, have staff attend community events, and manage an online and social media presence. The municipality may provide approval, access or permits necessary for volunteer activities, such as activities in parks or on public roadways. The municipality may also track and coordinate efforts by multiple volunteer organizations.

Making It Fun

A positive volunteer experience is vital to the success of any program or event. Volunteer safety is paramount, especially for school or youth groups. The event organizer may provide volunteer recognition in the form of snacks, participation certificates, T-shirts or other promotional items.

EPA's [quality assurance handbook and guidance documents for citizen science projects](#) provide advice on designing activities and activity templates for gathering data to support public understanding, scientific studies and research, and legal and policy action.

Types of Volunteer Programs

This section provides an overview of five types of volunteer programs that communities with municipal separate storm sewer system (MS4) permits can use to engage their residents: stream cleanup, adopt-a-stream, stream monitoring, storm drain marking, and vegetation planting. Although most of these programs focus on streams, communities could adjust these volunteer activities and apply them to other waterbodies such as rivers, lakes and coastal areas.

Stream Cleanups

Many people are unaware that storm drains often discharge untreated stormwater directly into local waterbodies. Participating in a stream cleanup can give volunteers a firsthand understanding of how much trash and debris from storm drains can end up in their local streams.

During stream cleanup events, participants volunteer to walk (or paddle) the length of the stream, collecting trash and recording information about the quantity and types of litter they remove. Municipalities should ensure knowledgeable staff or other experts are on hand to answer questions about the waterbody and surrounding ecosystems and discuss stormwater pollution issues with volunteers. Municipalities can compile the information volunteers record, such as the amount of each type of trash found, and then present it to the public. Volunteer groups can also take note of observed problems such as clogged outfalls, large debris, areas of excessive streambank erosion, and signs of illegal dumping. This information can help municipalities better target their maintenance efforts.

Stream cleanups can yield a variety of benefits:

- Media coverage before and after these activities can help educate members of the community about the importance of stream water quality, pollutant sources and types, and volunteer opportunities.
- Cleanup efforts can help residents become more involved in the community and foster a sense of responsibility for its water resources. One-time events can serve as lead-ins to volunteer monitoring or adoption projects, increasing community participation in a variety of other stormwater-related activities.

- Stream cleanups can improve habitat and water quality. Trash and debris collection also prevents pollutants from moving downstream and potentially into the ocean.

Recurring cleanup efforts—for example, seasonal or annual events—offer regular opportunities for engagement and help keep trash and debris out of the stream as much as possible.

Examples of Stream Cleanup Projects

- [Raritan Headwaters](#) maintains a robust map of cleanup locations.
- [Montgomery County](#) in Maryland offers stream cleanup opportunities for groups and individuals.

Additional Stream Cleanup Resources

- The [Interstate Commission on the Potomac River Basin](#) and [Budget Dumpster](#) both describe costs, planning, volunteer coordination, advertising and other considerations for holding a stream cleanup event.
- Freshwater provides [an instruction kit](#) for planning and implementing a stream cleanup.

Adopt-a-Stream

In these programs, volunteers “adopt” a stream, creek or river to restore and protect. They learn about and implement monitoring methods and cleanup techniques applicable to their chosen waterbody. They might carry out a range of activities, such as periodic visual surveys and litter pickups, regular water quality testing, or one-time habitat improvement projects. Through these activities, the adopting group or organization becomes the primary caretaker of that stretch of stream in the watershed.

Typical adopt-a-stream groups include youth groups, scouts, school clubs, church groups, local businesses, civic organizations and neighborhood associations. Schools may form their own adoption groups or partner with other local groups to engage students in real-life interdisciplinary activities. In some areas, individuals or

families may choose to adopt segments of a local waterway as well.

Adopt-a-stream volunteers may:

- Conduct stream cleanups to collect trash.
- Support streambank enhancement projects, such as tree planting, to help control erosion and stabilize streambanks.
- Perform storm drain stenciling to prevent improper disposal of materials in storm drains.
- Promote education about the watershed through stream walks, workshops and other activities.
- Monitor stream insects and gauge water quality.
- Conduct streambank surveys.

Municipalities can provide varying degrees of oversight and support to adopt-a-stream groups. In some cases, staff offer direct support such as choosing an appropriate waterway, providing special information about the waterway, planning and coordinating, accompanying students on field trips, and managing data. In other instances, the municipality may provide data resources, funding, equipment or training/certification of volunteers.

Examples of Adopt-a-Stream Projects

- The [City of Lincoln](#), Nebraska, has several adopted streams and even lists streams in need of adoption.
- The [City of Griffin](#), Georgia, has become a successful teaching tool for several local schools.
- [Georgia Adopt-A-Stream](#) monitors over 650 sites and has over 1,000 volunteers.
- The [City of Charlotte, North Carolina](#), [website](#) includes a system for managing data from adopted streams.

Additional Adopt-a-Stream Resources

- Guidelines for setting goals, creating a workplan and finding funding are available from the [Nova Scotia Salmon Association](#).

Volunteer Stream Monitoring

These programs use volunteers to monitor a stream's physical, chemical and/or biological characteristics. The parameters they might monitor depend on the region, waterbody, program goals, volunteer population, available equipment and other considerations. Volunteer monitoring activities may involve:

- Visual assessments of stream health (e.g., water opacity, bank erosion, floating sheen, scum).
- Field measurements of stream properties (e.g., temperature, volume, flow, depth, pH).
- Collection of water samples for analysis with a field kit or in a laboratory (e.g., dissolved oxygen, bacteria, heavy metals, chemicals, excess nutrients, sediment).
- Biological surveys (e.g., fish, crustaceans, macroinvertebrates, aquatic vegetation, invasive species).

To generate data to analyze for trends or changes, volunteers should monitor repeatedly (annually or several times a year) at the same sampling location(s). Municipalities can blend stream monitoring with other volunteer activities—for example, by adding monitoring as a task during a one-time stream cleanup or adopt-a-stream activity.

Volunteer monitoring programs encourage community members to learn about their water resources. Volunteers may present monitoring results at fairs and town meetings. Results might also appear in reports, newsletters or brochures that municipalities distribute to the community. Volunteer data help educate and promote stewardship in the community and can also aid in screening for potential problems. Early detection of changes in stream condition by volunteer monitoring programs can alert watershed managers to issues. The most successful volunteer monitoring programs start with a pilot project to refine the program and scale up through volunteer leadership.

The data obtained from a volunteer monitoring program can support work at local, state, or federal agencies; environmental organizations; or universities. Municipalities can cooperate with volunteer monitoring groups in developing and coordinating technical components. If volunteers are collecting monitoring results for scientific or other technical purposes, the

agency or organization may need to provide more support to ensure data will be of sufficient quality to use in watershed analyses, such as training volunteers, establishing sample collection procedures, and reviewing data analyses.

Examples of Stream Monitoring Projects

- [MountainTrue](#) in North Carolina has teams monitoring macroinvertebrates and chemical, sediment, bacteria and point source pollution.
- The [Rethink Runoff Stream Team](#) monitors seven waterways in Chittenden County, Vermont.

Additional Stream Monitoring Resources

- EPA provides a [manual for developing a volunteer monitoring program](#).
- The [Alliance for Aquatic Resource Monitoring](#) provides tools and resources for local monitoring programs.
- Volunteers can use EPA's [Sanitary Survey App for Marine and Fresh Waters](#) to document monitoring data.

Storm Drain Marking

Storm drain marking projects involve labeling storm drain inlets with messages informing readers that the storm drain connects to local waterbodies and encouraging residents to avoid dumping pollutants into the drain. Volunteers affix pre-made signs or stencil messages onto storm drains and record the drain locations they have labeled for the city to track. Some storm drain markers specify which waterbody the inlet drains to or names the particular river, lake or bay. Some municipalities develop custom designs with the names of the waterbodies; markers may include graphics and use multiple languages.

While a municipality may set a long-term goal of marking all storm drains, storm drain marking efforts typically prioritize drains in areas of high pedestrian traffic or that lead to waterbodies where illegal dumping is a known source of pollution. Using volunteers allows for marking more storm drains in a broader area, lowers costs, and offers opportunities to engage and educate the public

about the links among storm drain systems, water quality and the watershed.

Storm drain marking volunteers can also:

- Distribute door hangers that notify residents that storm drain marking is taking place, explain the purpose of the project, and offer tips on how residents can reduce urban stormwater discharge.
- Pick up trash near the marked storm drains and use pollutant-tracking forms to note areas that need maintenance. This tracking system enables city crews to target cleanup efforts and improve future marking projects.
- Continue to mark storm drains in their communities outside storm drain marking events that the municipality organizes. Some municipalities loan supplies to approved volunteers.
- Monitor and maintain the storm drain markings. Stenciled messages and permanent signs need periodic repainting or replacement due to weather, traffic and vandalism.
- Get involved with volunteer monitoring or adoption projects, increasing community participation in a variety of other stormwater-related activities.



This storm drain stenciling design is easy to apply and provides a clear message to passersby that the drain leads to a stream.

When the municipality coordinates storm drain marking projects, staff will need to train volunteers, choose drain locations, and provide supplies and safety equipment. In some municipalities, these events may be joint efforts among multiple departments, such as public works,

transportation and the environment. Some municipalities combine marking with community art projects such as street murals.

Examples of Storm Drain Projects

- [Colorado Springs](#) and [Blue Water Baltimore](#) allow for storm drain murals.
- [Berkley, California](#), and [Minneapolis, Minnesota](#), have adopt-a-drain programs.
- The City of Charlotte website offers a [storm drain marking tutorial and map](#).

Additional Storm Drain Marking Resources

- The Cuyahoga Soil and Water Conservation District has created the [Storm Drain Stenciling Project Handbook](#).
- Ohio University provides a [storm drain stenciling guide](#).

Vegetation Planting

Vegetation plays an essential role in managing and reducing stormwater. Trees, shrubs and other plants take up stormwater through their roots and tree canopies help reduce erosion and provide a surface area for stormwater to evaporate. Vegetated buffers between land and water such as wetlands and forested shorelines improve water quality by filtering and accumulating pollutants before they enter nearby rivers, lakes and streams.

Municipalities can organize volunteer vegetation planting activities such as the following:

- Wetland restoration projects.
- Neighborhood and highway beautification projects. Planting of shade trees in parking and pedestrian areas.
- Park improvement activities.
- Tree distribution programs and giveaways.

During planting events, volunteers typically plant trees and other vegetation or (depending on the time of year and site conditions) engage in maintenance activities

such as taking inventory of, watering, and pruning previously planted vegetation. Areas with sparsely vegetated streambanks, wetlands or areas on the periphery of a forest are often ideal for these types of restoration efforts. Before organizing the event, the municipality should consult a local horticulturist or landscape architect for technical assistance. For advice on the types of native plant species to use and appropriate planting times, park employees, rangers, local scientists, local cooperative extension services, and nursery and garden store experts are a good resource. Information on timing and planting techniques is also available from federal agencies, such as the [Natural Resources Conservation Service](#), and various state and local agencies. If the project will involve wetland planting, it is important to check with the local environmental department to determine whether the work will require a permit.

Municipalities can also encourage community members to plant vegetation by creating a tree distribution program that gives residents free, native trees to plant on their private property. These programs typically limit the number of trees each household can receive and require the recipient to commit to watering, mulching and caring for the trees after planting.

In addition to restoring native ecosystems and providing stormwater benefits, vegetation planting programs help educate the public about the value of native plants,

wetlands and forested ecosystems. These programs are an opportunity to build community spirit and increase public concern for the environment.

Examples of Vegetation Planting Projects

- [Arlington, Virginia](#), and [Des Moines, Iowa](#), offer several tree planting programs to encourage residents and community groups to plant trees on public and private land.
- [Watsonville Wetlands Watch](#) in Watsonville, California, hosts wetlands restoration events for youth and community volunteers.

Additional Vegetation Planting Resources

- EPA's [Stormwater Trees Technical Memorandum](#) provides guidance on how to choose, plant and care for trees in urban environments.
- The Pennsylvania Horticultural Society's [Organizing a Community Tree Planting](#) step-by-step guide provides suggested timelines, how-tos, and community handouts and forms.
- The National Wildlife Federation provides a [Tree Planting and Tree Care Guide](#).

Additional Information

Additional information on related practices and the Phase II MS4 program can be found at EPA's [National Menu of Best Management Practices \(BMPs\) for Stormwater](#) website

Disclaimer

This fact sheet is intended to be used for informational purposes only. These examples and references are not intended to be comprehensive and do not preclude the use of other technically sound practices. State or local requirements may apply.