Community Engagement Framework

For the Stormwater Management Program Operated by the

City of Gary
Gary, Indiana

June 25, 2014

Executive Summary

Localized flooding and poor stormwater quality in the City of Gary, Indiana represent significant challenges for stormwater management. Green infrastructure—the use of infiltration, vegetation, and other natural processes to manage stormwater—can help to address these challenges. Engaging and involving stakeholders and community organizations in a structured program to promote and implement green infrastructure offers an approach for leveraging resources effectively and efficiently.

This document proposes a community engagement plan built around educational activities and on-the-ground green infrastructure projects. The approach includes defining green infrastructure goals and objectives, identifying individuals and groups who can help or hinder the program, determining stakeholder roles, and proceeding with stakeholder engagement. Engagement strategies range from direct approaches, such as working with existing partners and piggybacking, to indirect approaches, such as engagement through the media, focus groups, and other venues.

Demonstration projects that may benefit from community involvement include those supported by public agencies or corporate entities (e.g., demonstration projects on public property, new construction and redevelopment, retrofits), those undertaken by private individuals (rain gardens, downspout disconnection, and landscaping), and the use of green infrastructure to replace gray infrastructure (conversion of concrete channels to vegetated swales, pond retrofits, green street conversions).

The City of Gary has a number of public agency, private sector, and educational institutions among the city's current group of partners. Many of these have been involved in some aspect of the stormwater program in recent years, mostly focused on awareness events and basic educational programs. Now, however, a more focused approach is required. Building a community engagement program around sustainable education activities and gradual implementation of small scale and larger green infrastructure projects helps to provide real value to program partners, and extends the ability of limited stormwater program staff to promote internal goals and objectives.

The key to leveraging this approach to create positive results is to develop a workable set of small projects and expand activities as more people become involved. For example, a partnership among local churches, neighborhood groups, community development organizations, and educational institutions could support a program for installing small residential rain gardens, create natural areas as part of a *vacant to vibrant* land betterment effort, and disconnect downspouts from the gray drainage system. Similarly, engaging and involving college students in the development and implementation of a stormwater education unit for middle/high school could result in a self-staffed, self-sustaining initiative that supports science teachers with directly applied learning objectives. Keeping the basic messages simple and direct, as provided in the following examples, will help people focus on key stormwater program objectives:

- Soaking rainwater into the ground helps reduce flooding and polluted runoff.
- Rain gardens can help to beautify our city and our neighborhoods.
- Let's keep trash and dirt off our streets and sidewalks!
- Only rain in the storm drain!

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SECTION 1: Background on Stormwater Issues in Gary, Indiana

Like many large and medium-sized cities, the City of Gary faces challenges from too much water after moderate to heavy rainfall. Past development practices, which resulted in paving, soil compaction, and loss of the natural infiltrative capacity of the landscape, provide few opportunities for water to soak into the ground. The City of Gary is also challenged with water quality problems from the presence of pollutants, hard *gray* infrastructure, and combined sewers that also affect Lake Michigan, where the city's runoff collects.

1.1 Localized Flooding

In an urban environment, with lots of parking lots, streets, sidewalks, and rooftops, rainfall and melting snow cannot soak into the ground. In addition, the relatively flat landscape in northwest Indiana drains slowly. The end result is localized flooding—water on streets and sometimes in basements. Road flooding is a traffic and safety hazard. Basement flooding can cause major inconveniences for homeowners, costly property damage, and health threats from sanitary sewer backups.

1.2 Water Quality Issues

Too much water contributes to combined sewer overflows (CSOs) in many parts of the City of Gary. Combined sewers carry both sanitary sewer water and stormwater to the wastewater treatment plant. During heavy rains, the treatment plant is overwhelmed and the combined sewage and rainwater is discharged untreated. CSOs contain bacteria and other pollutants. They flow into local streams and eventually into Lake Michigan, harming fish and threatening public health. If there is too much bacteria in the water, the lake is unsafe for swimming, wading, canoeing, and kayaking. Other pollutants, such as oil, grease, dissolved metals, antifreeze, fertilizer, and trash can harm fish. Higher velocity flows from paved areas can cause erosion in urban streams, degrading habitat, damaging property, and destroying infrastructure.

1.3 Challenges for Stormwater Management

Stormwater management programs face many challenges. Programs and projects seeking to replace aging *gray* infrastructure with water-friendly *green* features, like rain gardens, pervious pavement, green roofs, and rain barrels, are often stymied by the following barriers:

- ✓ Poor understanding of how flooding is linked to development designs.
- ✓ Little public knowledge of green infrastructure principles, practices, and benefits.
- ✓ Ingrained public acceptance of impervious *gray* infrastructure.
- ✓ Public preference for mowed, manicured landscapes versus native vegetation.
- ✓ Lack of support for stormwater fees or general fund allocations.
- ✓ Concern regarding insect breeding in temporarily flooded infiltration facilities.
- ✓ Loss of parking spaces after development of bump-out infiltration areas.
- ✓ Aesthetic concerns over pervious pavement, rain gardens, and other green practices.
- ✓ Lack of appreciation for *natural* vegetated drainage channels and streams.
- ✓ Anxiety regarding snakes and other animals residing in vegetated areas.

Addressing these challenges requires, among other things, public outreach and involvement. Building awareness, educating residents, motivating action, and engaging local communities as part of a carefully considered, targeted strategy, must begin with the end in mind: *Where are we now, where do we want to be, and how do we get there?*

SECTION 2: Overview of Green Infrastructure Components and Potential

As noted in Section 1, green infrastructure includes a variety of methods for infiltrating, detaining, retaining, transporting, and treating stormwater. Green infrastructure provides an alternative approach for managing stormwater, but it's really more than that. Green infrastructure uses vegetation and soil to manage rainwater where it falls. By weaving natural processes into the built environment, green infrastructure provides stormwater management, flood control, air quality improvements, aesthetic enhancements, and quality of life benefits for local communities. Green infrastructure includes the following techniques or activities:

- Rain gardens
- Planter boxes
- Green alleys
- Green streets

- Bioswales
- Downspout disconnection
- Rainwater harvesting (e.g., rain barrels, cisterns)
- Green roofs

- Green parking
- Permeable pavement
- Urban tree canopies
- Land conservation

2.1   What Can Green Infrastructure Do?

When rain falls in undeveloped areas, the water is absorbed and filtered by soil and plants. However, when rain falls on conventionally developed urban areas, it runs off quickly, causing flooding, water pollution, erosion, and property damage.

Green infrastructure uses vegetation, soils, and natural processes to manage water and create healthier urban environments. At the scale of a city or county, green infrastructure includes a patchwork of practices and natural areas that provide habitat, flood protection, cleaner air, and cleaner water. At the scale of a neighborhood or residence, green infrastructure refers to stormwater management systems that mimic nature by soaking up and storing water.

Green infrastructure is an approach that communities can use to maintain healthy waters, provide multiple environmental benefits, and support sustainable communities. It's easiest to implement green infrastructure before development occurs, through residential and commercial area designs that consider site attributes, maximize infiltration, provide for natural vegetation, and use low-tech stormwater management processes. Green infrastructure also can be applied to existing developments, by retrofitting ditches, channels, stormwater ponds, parking lots, city streets, commercial properties, and even individual homes, schools, and other sites.

2.2   Can Green Infrastructure Work in Gary?

Gary faces economic, education, and environmental challenges but has a strong suite of human and other assets that can be leveraged to implement green infrastructure projects. The benefits of green infrastructure—less flooding, improved water quality, more vegetation, and enhanced aesthetics in neighborhoods and commercial areas—create spinoff conditions that can help improve the overall quality of life and the environment.

The visual attractiveness of well designed rain gardens, for example, and the social synergies of people caring about their community can create a powerful force for improving local conditions. Many of the components of green infrastructure listed above are fairly low-tech, like disconnecting downspouts and installing planter boxes and rain gardens. Others will require funding and technical assistance. Getting the ball rolling with a group of interested partners engaged in a series of small projects can help attract additional funding and expertise needed to tackle larger projects, like retrofitting a city street, stormwater basin, or a parking lot.

SECTION 3: Fundamentals of Community Engagement

Engaging community members in a green infrastructure program requires some careful thought and advanced planning. For example, a leader might ask the following questions:

- What is it that you want to achieve?
- Which broad goals of the stormwater program will be aided by the green infrastructure portion of the effort?
- Is it reducing flooding, improving water quality, or both?

Answering those questions might spark a few more about which green infrastructure practices should be chosen, where to locate them, how to implement them, who to ask for support, and what environmental results can be achieved with each. Figure 1 provides an overview of how to focus your community engagement efforts. The subsections that follow provide additional details on this approach. Appendix 1 provides additional resources for community engagement.
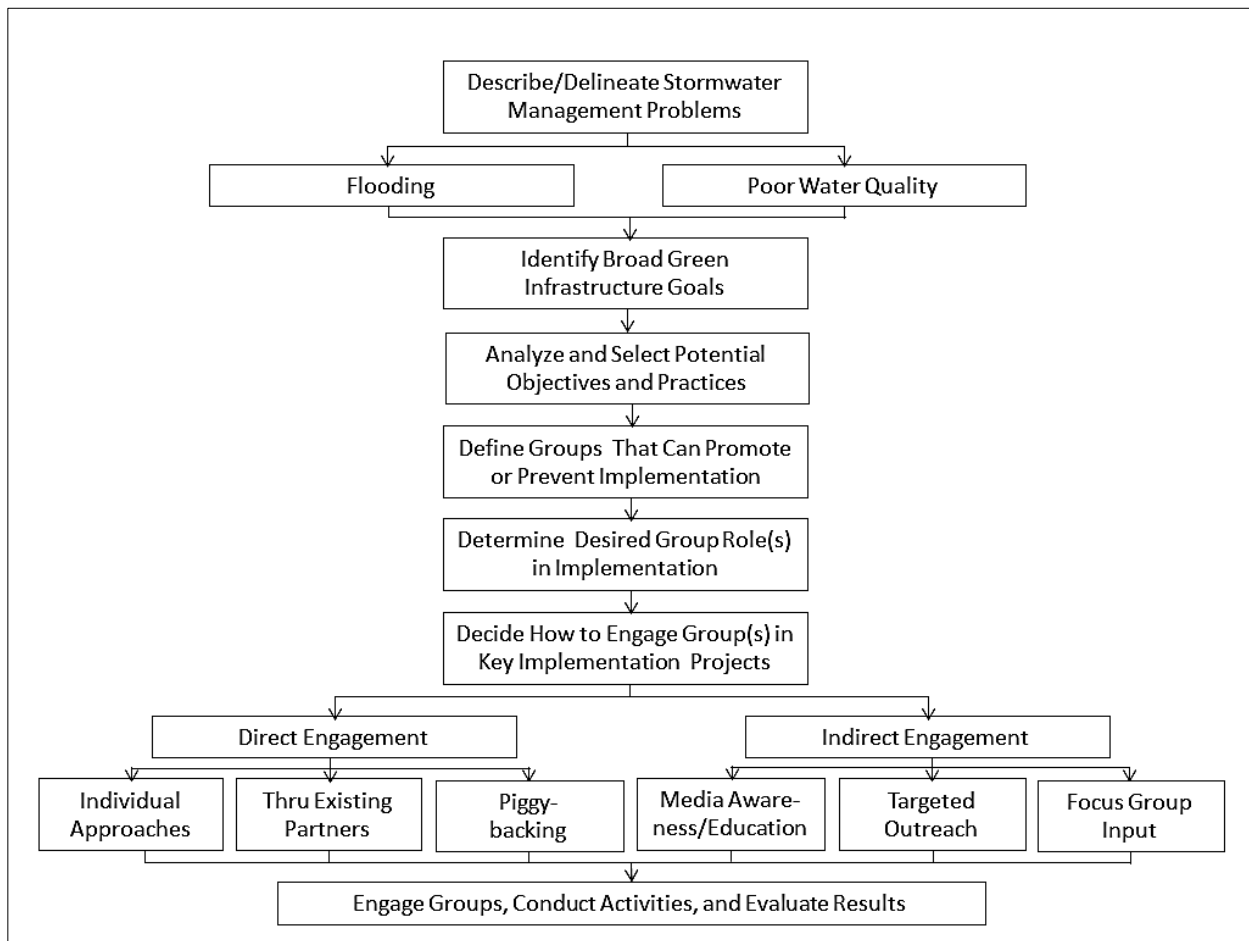

Figure 1. Community engagement process for urban stormwater programs.

3.1 Defining Green Infrastructure Goals and Objectives

The first step is for urban stormwater programs to characterize their basic infrastructure (storm sewersheds, collection systems, detention/retention facilities, discharge locations), assess the quantity and quality of stormwater and the receiving waters, and analyze opportunities for green infrastructure implementation. Then, the community can begin to scope out what might be possible, both as short-term and long-term goals.

Most of the time, implementing green infrastructure components (see list at the beginning of Section 2) are done opportunistically—that is, project opportunities are identified, conceived, developed, and implemented when situations like the following unfold:

- A parking lot is being rebuilt, offering a chance for installing pervious pavement.
- Street curbs and gutters are being replaced and infiltration areas might be included.
- Homeowners interested in beautification and erosion and want to install rain gardens.
- School science programs are looking for an applied environmental project.
- Businesses with large mowed areas want to save money with *no-mow* landscaping.
- Recreational and environmental groups partner for trails and vegetation along streams.
- Localized flooding enables a chance to encourage disconnection of gutter downspouts.
- Old stormwater pipes are being replaced instead with an infiltrative, vegetated swale.
- Aging, eroded stormwater basins need refurbishing, perhaps with newer designs.
- Funding for special demonstration projects is available and matched with opportunities.
- Community surveillance is needed to report illicit dumping and discharges.

For many cities, consideration of green infrastructure options is integrated into the regular stormwater system asset management program. Under this approach, when existing conventional gray stormwater infrastructure components are scheduled for major repair or replacement, or when new components are needed, one of the first steps in screening options is considering green approaches. Stormwater programs that build in green option reviews usually are ready when opportunities emerge. For example, the 2009 *American Recovery and Reinvestment Act* had a number of preferences for green projects. Jurisdictions that had already identified potential green infrastructure options were prepared to submit *shovel-ready* projects when the bill was passed.

While major stormwater infrastructure projects offer excellent opportunities for *greening the gray*, smaller projects are more common and can help to build awareness, interest, and support. These include construction of small residential and street rain gardens, visible downspout disconnection efforts, and school projects. Promoting these publicly, keeping an eye out for interested parties, and supporting low-cost opportunities is a valuable way to build an ethic for green infrastructure throughout the community.

3.2 Identifying Partner Groups and Individuals

Once the overarching goals, objectives, and possible project opportunities are identified, stormwater program managers need to look for partners. The type of partners required usually are defined by green infrastructure component(s) desired. The examples of opportunistic implementation of green approaches in the previous subsection provide a start for a list to generate some possible partners.

Table 1 lists potential stakeholders for each of the situations presented, understanding that many other stakeholder/partner types might be available, depending on the project and the local situation. Note that the approach discussed here is based on a model where stakeholders and

partners are engaged to work on specific projects, rather than to support broad program goals. The approach is project-based, rather than program-based.

Table 1. Stormwater / green infrastructure opportunities and potential implementation partners.

Opportunistic situation	Potential implementation partners
A parking lot is being rebuilt, offering a chance for installing pervious pavement	• Public or private parking lot owner • Concrete or asphalt companies • Universities
Street curbs and gutters are being reworked – infiltration areas might be included	• Streets department • Construction contractors • Neighborhood associations • Nearby residents
Homeowners interested in beautification want to install rain gardens	• Local residents • Civic clubs • Church members • Media
School science programs are looking for an easy applied environmental project	• Science teachers and students • PTA • School admin. and facilities manager • Local business sponsors • University science students/clubs
Businesses with large mowed areas want to save money with "no-mow" landscaping	• Business property managers • Landscaping companies • Birdwatching, nature, enviro groups
Recreational and environmental groups partner for trails and vegetation along streams	• Hiking and biking groups • Neighborhood associations • Local residents • Jogging clubs or groups • Nature and environmental groups
Localized flooding allows a chance to encourage disconnection of gutter downspouts	• University engineering students/clubs • Neighborhood associations • Retired construction workers • Landscaping companies • Scout or other civic groups
Old stormwater pipes are being replaced – by maybe an infiltrative, vegetated swale?	• Construction contractors • Local residents • Neighborhood associations
Aging, eroded stormwater basins need refurbishing, perhaps with newer designs	• Nearby residents • Neighborhood associations • Nature and environmental groups • University engineering/science groups • Local landscape architects • Local real estate developers
Funding for special demonstration projects is available, and opportunities exist	• Local churches • Neighborhood associations • Local residents • Local businesses
Community surveillance is needed to report illicit dumping and discharges	• Neighborhood associations • Local residents • General public

3.3 Determining Desired Group Roles

After selecting specific green infrastructure projects and identifying potential support groups and stakeholders, project sponsors can determine what roles they might play. In most cases, stakeholder roles will be defined by the type of project and its relationship to the stakeholder or support group, as provided in the examples in Table 2 below.

Table 2. Examples of stakeholder support roles in green infrastructure activities.

Green Infrastructure Project Type	Stakeholder / Support Group Role
Residential rain garden installations	Site host, promoter, installer, maintenance group
Green street infiltration project	Information disseminator, supporter
School stormwater project	Information disseminator, supplies/services solicitor
Home rain barrel installations	Site host, promoter, info disseminator, material source
Vote on special infrastructure fee	Supporter, information disseminator

Identifying and refining the potential role(s) of stakeholders, support groups, and other interested parties can be quite complex. In some cases, public works administrators and stormwater program managers are reluctant to work with outside parties, due to the time involved, lack of control over work products and deadlines, personalities at the table, and potential for sparking conflict or opposition. However, decades of experience with water resource issues has shown that engaging people who can promote or prevent a project is vitally important. Project opponents, if they exist, will emerge eventually, often with annoyance if they were not engaged earlier in the process.

Engaging potential project supporters early in the process can generate interest, momentum, and even unanticipated resources, such as neighbors willing to provide maintenance for an infiltration area near their homes, relieving city forces of that task. The key to success is careful planning, consideration of others' perspectives, and a willingness to listen.

3.4 Engaging and Involving Stakeholders

Approaching stakeholders and community members to request support can take many forms. Figure 1 lists six major types of approaches, grouped under "direct" and "indirect" engagement. Each are discussed briefly below. The key to selecting the proper stakeholder engagement approach is to consider carefully the type of project, who is likely to support it, who is likely to be affected significantly, and who is likely to be in opposition.

3.5 Direct Engagement

Individual approaches

If a project will affect a few easily identified individuals or a small group, the best approach to engagement is to approach those identified directly. Tell them about the project, assess their feedback, and ask them for their support. Support can take the form of quiet backing or active promotion. For projects that are viewed as fairly innocuous, small group meetings can suffice. If the project is controversial, or if project sponsors are unsure about how it will be perceived, it is best to approach people individually, to provide information, and gather feedback.

Existing partners

In some cases, there are existing partner groups that can be engaged to support or promote a green infrastructure project. These can be watershed organizations, civic groups, parks departments, and other entities that have already demonstrated some level of support for stormwater management. Existing partners are often the easiest groups to approach for support, keeping in mind that sometimes existing partners can be overworked if they are involved in the activities of multiple agencies.

Piggybacking

Piggybacking refers to projects than can be latched on to activities being conducted by an outside group. For example, green infrastructure projects can be incorporated into urban trail development, recreation area plans, and other activities undertaken by outside groups (i.e., groups not among the stormwater program's present partners).

3.6   Indirect Engagement

Media awareness and education

Indirect engagement is often employed where green infrastructure project sponsors don't necessarily need direct "on-the-ground" support, but some level of approval or endorsement is desired. Partnering with the news media to conduct broad awareness-building activities and provide basic stormwater education information is relatively easy, inexpensive, and effective. Many stormwater programs provide quarterly feature articles, editorial columns, or other timely information to media outlets to keep program goals and outreach messages in front of the public and elected officials. News coverage and other widely distributed messages are effective when soliciting information on possible illicit discharges or dumping. Many stormwater programs advertise hotline phone numbers or websites to report these activities.

Targeted outreach

Targeted outreach involves providing project-related information to specific audiences to achieve predetermined objectives. Targeted outreach can be used to provide information to residents with property near a new green infrastructure construction site or to business owners using a city parking lot scheduled for reconstruction with pervious pavement. Reviewing who might support, oppose, or be significantly affected by a project will help determine the best engagement approach.

Focus group input

Focus groups that are composed of individuals who formally or informally represent the supporters, opponents, or affected community of a stormwater project can provide valuable information to project sponsors. Focus groups of generally 8 to 10 people are assembled on an informal basis to meet for a few hours to address a set of specific questions, such as: Have you heard of rain gardens? How should the city approach homeowners with yards next to stormwater construction projects? Would you be willing to help care for the plants and provide maintenance for a rain garden on city property near your home? Would you be interested in using a rain barrel at your house?

3.7   Continuing Engagement

Neighborhood Ambassadors

The residents in the City of Gary have seen much change, and have observed a number of initiatives moving forward with varying degrees of success over the years. One idea for successfully engaging residents and communicating about stormwater issues is to create a

neighborhood ambassador program. This would entail recruitment of a core group of people who work for the City of Gary or for a collaborating NGO who would interact with neighborhood groups and residents on a continuing basis. The residents would get used to seeing these individuals and would develop trust in the information provided. The ambassadors would gain information on the needs and preferences of key community areas, both by hearing input from residents and by direct observation, and could provide input into city and regional decision-making. The ambassadors could also organize events, such as neighborhood clean-ups or cook-outs, and act as a liaison between residents and city programs and offices.

Event Planning

Planning and hosting events could be a way to connect with citizens. For example, the City of Gary, working with collaborating partners, could host a *health and environmental fair* one weekend in the summer. The event could include other popular components, such as a small farmers' market, and information booths or displays about healthy eating and nutrition. Another health topic could include information on lead-based paint. This health focus could be paired with information booths and activities related to clean and safe water and stormwater. Connections to Lake Michigan could also be highlighted.

SECTION 4: Potential Green Infrastructure Goals, Objectives, and Practices for the City of Gary

The City of Gary faces a number of challenges in implementing a green infrastructure program. Economic, agency staffing, and other issues common to many urban stormwater programs are also present. Despite these challenges, however, a wide range of opportunities exist. This section explores possible focus areas for the city's stormwater program and outlines an approach for leveraging human capital and other community resources for support.

4.1   Goals and Objectives

Because significant resources to support an aggressive green infrastructure program in Gary are not available, the city will likely opt for a more modest program, composed primarily of the following projects:

1) Demonstration projects funded by public or private entities.
2) Demonstration projects funded and installed by private individuals, on their own property.
3) Use of green infrastructure for major repairs and replacements of existing gray stormwater infrastructure, as it deteriorates.

The overall goal of pursuing green infrastructure installations opportunistically, as outlined above, can help to focus city resources on stormwater quality improvement in a manner that meshes well with existing operations and maximizes community engagement. Each of the three objectives listed above are discussed further below.

4.2   Potential Green Infrastructure Practices for Gary

This section provides a brief overview of three categories of green infrastructure projects that may be undertaken by the City of Gary. Examples of possible projects are listed in each of the three categories below, and summarized in Figure 2.

Demonstration projects funded by public or large private entities

The development of green infrastructure, low impact development, and other stormwater-friendly projects in the Great Lakes region provides a valuable reference framework and implementation lessons for the City of Gary. While these types of projects have been slow in coming to northwest Indiana, projects like the rain garden effort in the Miller area can serve as local examples of what's possible. The Miller project, funded by the United States Environmental Protection Agency (US EPA) through the Northwest Indiana Regional Development Authority, created a partnership among the City of Gary, the Student Conservation Association, and other interested parties that promotes implementation of green stormwater management practices in the Marquette Park Lagoon watershed. The lagoon is impacted by sedimentation and nutrient runoff from stormwater outflows originating in the Miller neighborhood in the City of Gary. The project supports jobs for unemployed residents in the area, while reducing nutrient and sediment loading to the Marquette Park Lagoons.

Similar *vacant to vibrant* land betterment efforts are possible, with some creative thinking and strategic resources, both human and financial. The following types of demonstration projects funded by public and private entities are possible for the City of Gary within the next 2–5 years:

- The US EPA-funded Aetna and Lake Street demonstration projects.
- An outreach/engagement project to promote green infrastructure in the City of Gary.
- Large private sector landscaping / redevelopment / construction projects.
- Outdoor classrooms and demonstration projects at educational institutions.
- Public building and large parking structure and lot retrofits.

There is an immediate opportunity to engage elements of the community in the demonstration project planned for Aetna Street and Lake Street. The final three types of projects listed above involve incorporation of green infrastructure components into projects undertaken by public/private entities involved in unrelated, unconnected landscaping, construction, redevelopment, and other projects. Weaving green infrastructure into the stormwater, drainage, and other aspects of these projects will involve targeted outreach, education, and incentives, as discussed in the next section.

Demonstration projects funded and installed by private individuals

In addition to large, institutional type projects, stormwater programs have found significant value in promoting and incentivizing smaller, lot-level green infrastructure practices. These practices can be as small as an individual home rain garden and as large as a cistern for irrigating commercial landscaping and include the following projects:

- Homeowner rain gardens, downspout disconnections and rain barrels.
- Small parking lot retrofits and landscaping work.
- Commercial building rain gardens / green roofs / no mow landscapes / disconnections.

These types of green infrastructure implementation programs also involve outreach, promotion, education, and where possible, incentives, such as small grants, property tax credits, or public recognition programs.

Use of green infrastructure when replacing gray infrastructure

The final category of green infrastructure implementation includes the use of green infrastructure components when replacing or repairing existing stormwater pipes, ponds, and other drainage features. Examples of this approach include the following:

- Conversion of hardened drainage channels to vegetated swales.
- Retrofit and enhancement of existing ponds by adding forebays, modified outlets, etc.
- Addition of trash, oil, grit, and other pollutant removal devices to inlets and channels.
- Installation of small bumpout infiltration sites during street/curb/sidewalk work.
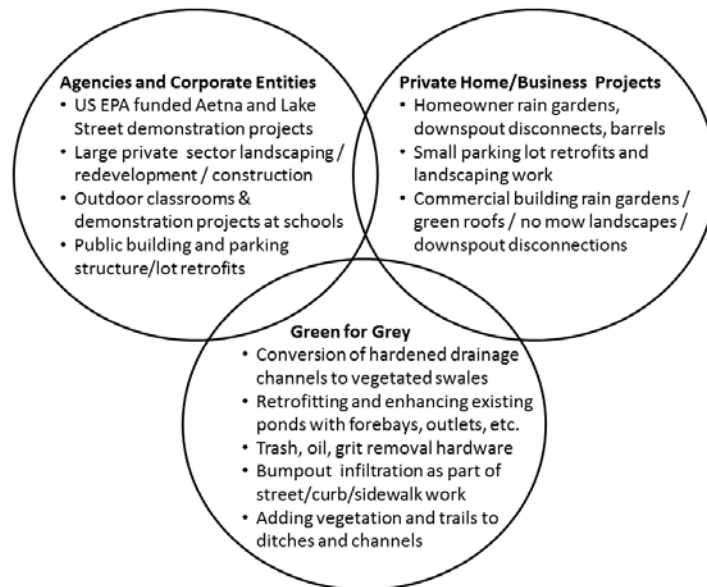- Enhancing existing earthen ditches and channels with native vegetation and trails.

Figure 2. Major categories of opportunistic green infrastructure project types.

SECTION 5: Partners and Engagement Opportunities for Gary's Stormwater Program

The opportunistic green infrastructure project types listed in Section 4 represent low-cost options for greening the stormwater system in the City of Gary. While funding for these components would not necessarily be borne by the city, or at least not viewed as extra or additional costs, some resources are required for promotion and to incentivize parties that need to be involved.

City stormwater program staff have many existing contacts and have identified a range of current and potential partners. These partners have been involved on an ad hoc, as-needed basis in the past, and opportunities exist to strengthen ties to these institutional and individual partners. The subsection below provides summarized information on current and potential partners and the type of resources that might be leveraged through collaborative relationships.

5.1   *Public Sector Partners*

Public agencies involved in stormwater issues include internal city agencies and offices, regional entities, and state sponsored programs. Internally, the City of Gary's stormwater program enjoys acceptance and support from a broad range of agencies and offices. For example, departments dealing with planning, housing, community development, streets, and parks are interested in new approaches for managing stormwater but likely want to know specifically what sort of support would be needed.

Leaders of these agencies, and others within the city administrative structure, meet bi-weekly, so there is a venue for discussing focused involvement in prospective green infrastructure projects, including projects on city agency office and other properties. In addition, there are planning teams supporting redevelopment initiatives in the city's north side, which could be engaged for designated project occurring in that area. City of Gary agencies could also be tapped to support educational activities, such as rain barrel and rain garden workshops; however, landowner *customers* for those types of services would need to be recruited first, via community outreach and project promotion.

Partnering with nearby municipalities and Lake and Porter counties also has value, mainly in presenting a unified stormwater message through the news media and making educational and other information available to schools, civic groups, elected officials, and other stakeholders. The Northwest Indiana Regional Planning Council has provided key support along these lines in the past, through its *Partnership for Clean Water* program.

That effort, which provides specialized training to industrial and other stormwater permittees, represents the kind of focused engagement needed for other aspects of the stormwater program, such as promotion of green infrastructure and better management of potentially polluting properties. Another focused outreach and engagement example is the Lake County Soil and Water Conservation District, which conducts workshops and reviews permits under the construction stormwater program.

General, scattershot awareness building, outreach, and engagement activities are useful, but after people are exposed to stormwater quality issues and have a general sense of the problems the effectiveness of those approaches wane. Programs, like the Indiana DNR *Coastal Awareness Month*, help keep awareness of water quality on the public's radar, but they can be resource intensive and have few measureable results. Partnering with local, regional, and state organizations to support general awareness projects is recommended; conducting those types of projects *individually*, without significant partner support, is not.

5.2   Educational Institutions

Local and regional educational institutions represent a group of extremely valuable engagement partners. Elementary and middle school students are generally good audiences for basic presentations on water quality, but high school and college students can provide real support for green infrastructure implementation. Using student volunteers to help mix and add amended soils to infiltration structures, plant vegetation, install mulch, and provide *adopt a rain garden* maintenance can be a powerful tool for building interest and program support. Moreover, engaging and involving college level engineering, construction management, and marketing students in green infrastructure projects helps augment city forces, provides good role modeling for city youth, and helps build student resumes.

Working with students can be labor intensive, however, and the high turnover rate, caused by normal movement of students through academic programs or grade levels, can be challenging. Results have been found to be usually worth the effort involved. The best approach is to work with the educational institution and its instructors to establish a focused program built around specific projects, rather than general awareness and educational activities. Establishing and maintaining a relationship with the school and the teachers helps maintain consistency, despite the revolving door nature of student participation.

The City of Gary currently has engagement programs with Indiana University Northwest in Gary, Brown Mackie College in Merrillville, Ivy Tech Community College, Purdue University Calumet, the University of Chicago, and other local and regional schools. Some of these institutions offer internships and externships available for assignment to the city stormwater program. Development of working relationships with faculty sponsors, a student work plan and job description, and close supervision is required.

With the number of institutions available for partnerships and the vast potential for student involvement, some sort of master plan is needed to interact with the educational institutions, characterize the resources, match them with stormwater project opportunities, and implement an overall work program. This plan would coalesce around the construction of low-cost and low-tech residential rain gardens, a downspout disconnection initiative, pavement replacement projects, and an inventory of the existing stormwater system to identify opportunities for retrofits.

Ideally, such a program could be conceived, developed, and managed initially by city staff, but eventually it could be turned over to the students and their teachers for most week-to-week activities. Given the opportunity to engage engineering, environmental, construction management, landscape architecture, sociology, marketing, and journalism students, it might be possible to create a *shadow stormwater program* that could generate ideas about green infrastructure outreach and education and other stormwater topics.

College students could also develop and implement a stormwater education program for public and charter schools in the area, and for school clubs, such as 4H, STEM, and scouts. The curriculum could be focused on surface waters, particularly Lake Michigan, as well as water quality, stormwater management, green infrastructure, and best management practices. Middle and high school students enjoy attention from college age instructors, and the interaction provides an excellent venue for role modeling and building higher achievement goals among both groups.

5.3   Private Sector Partners

The range of potential private sector partners for the stormwater program varies widely, and can include the following stakeholders:

- Private homeowners and renters.
- Small business owners with property.
- Commercial property managers and owners.
- Developers and excavation contractors.

- Environmental services contractors.
- Landscape architects and contractors.
- Churches.
- Nonprofit organizations.
- Institutions (e.g., health, education).
- News media.

Although there are many possible private sector partners, with marked differences for what they bring to the table, nearly all stakeholders can be categorized according to their involvement with stormwater management efforts as possible green infrastructure demonstration sites or resource providers (e.g., labor, equipment, expertise) for developing green infrastructure projects/sites. Table 3 indicates whether the private sector groups listed above might be able to sponsor a site for green infrastructure demonstration projects and the types of resources potentially available. Note that there might be possibilities not shown on the table, for example, a developer or contractor having an office or business property that could serve as an excellent green infrastructure site.

Table 3. Private sector partners and possible types of resources available.

Private Sector Partners	GI Installation Site?	Resource Provider?		
		Labor	Equipment	Expertise
Private homeowners and renters	✓	✓		
Small business owners with property	✓			
Commercial property mgrs/owners	✓	✓	✓	
Developers and excavation contractors		✓	✓	✓
Environmental services contractors			✓	✓
Landscape architects and contractors		✓		✓
Churches and ministerial associations	✓	✓		
Nonprofit organizations (various)		✓		✓
Institutions; e.g., health, education, utilities, etc.	✓			✓
Environmental or watershed organizations				✓
News and other media (print, web, broadcast)				✓

5.4   Tips for Working with Partners

The city's stormwater program has been working with public agency and private sector partners for several years. Relationships exist with internal city offices, churches and ministerial alliances, educational institutions, community groups, civic clubs, housing and development organizations, and other entities. Many of these stakeholders have been involved in some aspect of the stormwater program in recent years, mostly focused on awareness events and basic educational programs.

Because many people in the region have been exposed to basic stormwater awareness messages, it might be time to consider a more focused approach to community engagement. The previous sections of this document discussed an approach concentrating on two primary activities: involving citizens in actual green infrastructure installation activities (e.g., residential rain gardens), and exposing people to further outreach and education on the links between stormwater, flooding, and water quality issues.

Section 4 listed opportunities for implementing green infrastructure at the local level. The key to leveraging this information and creating positive results is to develop a workable set of small projects initially and expand activities as more people become involved. For example, a partnership among local churches, neighborhood groups, community development organizations, and educational institutions could support a program for installing small residential rain gardens, or disconnecting downspouts from the *gray infrastructure* drainage system.

Similarly, engaging and involving college students in the development and implementation of a stormwater education unit for middle/high school could result in a self-staffed, self-sustaining initiative that supports science teachers with directly applied learning objectives. Such a program could include basic information on water quality (chemical, physical, biological), simple monitoring programs, stormwater issues, green infrastructure, wastewater treatment, low impact development, and other water related topics.

Infrastructure-related and educationally focused activities are usually supported by ongoing outreach that keeps key messages before the public. Appendix 2 provides selected examples of stormwater messages that have already been developed and used successfully by other municipalities around the country. Keeping messages simple and direct helps make them memorable and relevant, as provided in the following examples:

- Soaking rainwater into the ground helps reduce flooding and polluted runoff.
- Rain gardens can help to beautify our city and our neighborhoods.
- Let's keep trash and dirt off our streets and sidewalks!
- Only rain in the storm drain!

Another important aspect of stormwater engagement is the value of piggybacking. Rather than trying to sponsor individual stormwater events, print separate stormwater newsletters, and conduct discrete stormwater educational programs, find ways to piggyback stormwater messages and information onto events, publications, and programs sponsored by other groups. Incorporating and integrating stormwater and green infrastructure information throughout the fabric of community organizations and their activities is perhaps the most sustainable approach for building awareness, educating people, and promoting action.

Table 4 summarizes the issues and approaches discussed in this section by linking to project examples discussed in Section 4.

Table 4. Potential partners, roles, and engagement approaches for opportunistic green infrastructure projects.

Project Type Examples	Potential Partners	Partner Role(s)	How to Engage
Public agency and corporate entity projects			
US EPA-funded Aetna and Lake Street projects	Nearby residents Adult students	Support, maybe O&M Installation assistance	Flyer, direct contact Teachers (HS, college)
Private landscaping/redevelopment/construction projects	Business property mgrs. Adult students Local master gardeners University extension svc	Use GI in their project Installation assistance	Flyer, direct contact Teachers (HS, college)
Outdoor classrooms & demo projects at schools	High schools (HS), colleges Individual teachers	Design/build GI sites Design/build GI sites	Thru school boards Direct contact
Public building and large parking structure/lot retrofits	Public building managers Parking lot owners	Incorporate GI design Incorporate GI design	Flyer, direct contact Flyer, direct contact
Small private residence or business projects			
Home rain gardens, downspout disconnections, rain barrels	Homeowners Adult students Local master gardeners University extension svc	Support, install Installation assistance	Media, churches, nonprofit associations Teachers (HS, college)
Small parking lot retrofits and landscaping work	Business property mgrs. Adult students	Use GI in their project Installation assistance	Flyer, direct contact Teachers (HS, college)
Commercial rain gardens, green roofs, no mow lawns, disconnects	Business property mgrs. Adult students	Use GI in their project Installation assistance	Flyer, direct contact Teachers (HS, college)
Public works green for gray infrastructure projects			
Conversion of hardened drainage channels to vegetated swales	DPW and other agencies Engineering professors Engineering students Product vendors Nearby residents	Support & assistance Design assistance Design & install help Donate demo products Support, maybe O&M	Direct contact Direct contact Teachers (HS, college) Direct contact Flyer, direct contact
Retrofitting and enhancing existing ponds with forebays, outlets			
Trash, oil, grit, and other pollutant devices on inlets and channels			
Installing small infiltration sites during street/curb/sidewalk work			
Vegetation and trails along existing earthen ditches and channels			

APPENDIX 1: Resources for Community Engagement

Brochures and Guides

US EPA. *After the Storm* brochure. General awareness of stormwater pollution, with basic management practices. http://www.epa.gov/npdes/pubs/after_the_storm.pdf.

Atlanta Clean Water Campaign. *Be a Solution to Water Pollution* brochure. General awareness of residential and commercial stormwater issues, with tips for reducing impacts. http://cfpub.epa.gov/npstbx/files/cwc_wsb.pdf.

Northwestern Indiana Regional Planning Commission. *A Citizen's Guide to Protecting Water Quality* slide (ppt) presentation. Detailed presentation on stormwater MS4s, stormwater pollution, and management practices. http://nirpc.org/media/27411/4_simple_steps_ms4_slide_show_manual.ppt.

US EPA. *Public Participation / Involvement Minimum Control Measure Fact Sheet.* Summary of required elements of an MS4 program's public participation and public involvement requirements, with examples from selected community programs and links to other resources. http://www.epa.gov/npdes/pubs/fact2-4.pdf.

US EPA. *Engaging and Involving Stakeholders in Your Watershed.* Detailed guidebook for building awareness and involving stakeholders in water resource planning activities. Includes lots of examples, case studies, and resources. http://cfpub.epa.gov/npstbx/files/stakeholderguide.pdf.

Utah Department of Agriculture and Food. *Getting Your Feet Wet With Social Marketing.* Detailed and comprehensive guidebook on how to conceive, develop, and implement campaigns to change behavior, based on persuasive principles. http://www.scdhec.gov/environment/water/docs/or_feetwetsm.pdf.

US EPA. *Getting in Step: A Guide to Conducting Watershed Outreach Campaigns.* Comprehensive guidebook on refining objectives, defining a message, identifying the target audience and message format, and evaluation. http://www.epa.gov/owow/watershed/outreach/documents/getnstep.pdf.

BMP Fact Sheets

The fact sheets in this section describe BMPs and how to use them to help municipal stormwater programs and construction site operators comply with the stormwater Phase II requirements.

Stormwater-Related Activities
    Adopt-A-Stream Programs
    Reforestation Programs
    Storm Drain Marking
    Stream Cleanup and Monitoring
    Volunteer Monitoring
    Wetland Plantings

Soliciting Public Opinion
    Attitude Surveys
    Stakeholder Meetings
    Watershed Organizations

EPA Internet Resources

Getting in Step: Engaging and Involving Stakeholders in Your Watershed [PDF - 1.34MB - 80 pp]
provides the tools needed to effectively identify, engage, and involve stakeholders throughout
a watershed to restore and maintain healthy environmental conditions.

Stormwater case studies on public involvement include case studies of how a Phase I or Phase II
community has implemented the public involvement requirements.

US EPA's Volunteer Monitoring Program provides information on developing and implementing a
volunteer monitoring program.

Community-Based Watershed Management describes the highly successful approaches to
watershed management implemented by the 28 National Estuary Programs (NEPs).

Other Internet Resources:

Volunteer Water Quality Monitoring: Guide for Growing CSREES Volunteer Monitoring Programs is
a modular guide providing information on building and supporting a volunteer monitoring
program.

Indiana Storm drain Marking Program offers resources to help communities mark storm drains
with a "no dumping" or similar message.

Charlotte-Mecklenburg Storm Drain Marking Program offers information on ready-made storm
drain marking kits for community groups.

Upper Chattahoochee Riverkeeper's Get the Dirt Out works with citizens, developers, and local
governments to investigate and study Georgia's measures to reduce stormwater pollution from
construction sites.

APPENDIX 2: Resources for Community Outreach

TV Public Service Ads

Details	Product Name (click to view)	Type
[Find Out More]	Chuck - The Catfish in the Classroom (MPG) (3587 KB)	30 second PSA
[Find Out More]	Chuck on Water Pollution - General Focus (MPG) (3527 KB)	30 second PSA
[Find Out More]	Clean Water Campaign: Story Part 1 - Animated Tips to Prevent Stormwater Pollution (MPG) (3085 KB)	30 second PSA
[Find Out More]	Clean Water Campaign: Story Part 2 - Animated Tips to Prevent Stormwater Pollution (MPG) (3085 KB)	30 second PSA
[Find Out More]	Clean Water Campaign: Water Is In Trouble (MPG) (3967 KB)	30 second PSA
[Find Out More]	Dirty Words: First Flush (MPG) (2549 KB)	30 second PSA
[Find Out More]	Dirty Words: Storm Drain (MPG) (2549 KB)	30 second PSA
[Find Out More]	Don't Let Trash Ruin Your Scene - Hunger Games	60 second PSA
[Find Out More]	Don't Let Trash Ruin Your Scene - Hunger Games (Spanish Version) (MOV) (35.83 MB)	60 second PSA
[Find Out More]	Family Cartoon - Lake Protection (MPG) (2227 KB)	30 second PSA
[Find Out More]	Heroes (MPG) (3101 KB)	30 second PSA
[Find Out More]	Storm Drain Marking PSA - 15 Second (MPG) (1715 KB)	15 second PSA
[Find Out More]	Storm Drain PSA - 15 Second (MPG) (1715 KB)	15 second PSA
[Find Out More]	Storm Drain PSA - 30 Second (MPG) (3253 KB)	30 second PSA
[Find Out More]	Stormwater Bar (WMV) (7.84 MB)	30 second PSA
[Find Out More]	Think Blue: Don't Trash Our Future (MPG) (3337 KB)	30 second PSA
[Find Out More]	Think Blue: Don't Trash Our Future (Spanish) (MPG) (3277 KB)	30 second PSA

Radio Public Service Ads

Details	Product Name (click to view)	Type
[Find Out More]	General Stormwater PSA (Spanish) (MP3) (985 KB)	60 second PSA
[Find Out More]	Rainstorm (MP3) (1896 KB)	60 second PSA
[Find Out More]	The Voice of Children (MP3) (1464 KB)	60 second PSA
[Find Out More]	Water Spots: Biggest Pet Peeves (MP3) (1716 KB)	60 second PSA
[Find Out More]	Water Spots: How Do We Solve a Problem Like Pollution? (MP3) (1724 KB)	60 second PSA
[Find Out More]	Water Spots: Runoff (MP3) (1716 KB)	60 second PSA
[Find Out More]	Water Spots: Storm Drain System (MP3) (1681 KB)	60 second PSA
[Find Out More]	Water Spots: Stormwater (MP3) (1716 KB)	60 second PSA
[Find Out More]	Watershed Watch: Litter Radio Ad (MP3) (243 KB)	60 second PSA