

An Analysis of Stormwater Education and Outreach Efforts Locally and Throughout the Nation



Erin Tenley Schultz

Green Stormwater Infrastructure Intern

Vermont Department of Environmental Conservation

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Table of Contents

Table of Contents	1
A. Introduction	2
B. Successes.....	2
1. Internet and Media	2
2. Email Communication	3
3. Letters and Canvassing	4
4. Residential Support.....	5
5. Community Partners	7
6. GSI Competitions	8
C. Issues and Challenges	9
1. Lack of outreach.....	9
2. Incomplete Deadlines	10
3. Decrease in Funding.....	10
4. Lack of Residential Understanding	11
5. Criticism	11
6. Technology Error	12
7. Location.....	12
D. Proposal	13
1. Twitter.....	13
2. Increase in Online Outreach	15
3. Local GSI Competition.....	17
4. Community Partners.....	18
E. Conclusion.....	19
Appendix A: SWOT Analysis of all Organizations and Programs.....	20
Appendix B: Contacts and Organizations.....	21
Appendix C: Resources.....	22
Appendix D: Image Resources	23

A. Introduction

After analyzing, evaluating, and contacting multiple stormwater-focused organizations around the country, the successes and failures of various programs and projects were recorded. Each organization has their own initiatives, programs, and educational tools to encourage local residents to learn about stormwater. The organizations ranged in size from the Environmental Protection Agency (EPA) to small organizations with limited staff.

In order to obtain the information from each organization, a set of questions specific to their efforts was asked of them, either by phone, e-mail, or in person interview. The questions were focused on topics like outreach, media use, advertising, funding, and how they reached their target audience. Most organizations seemed to focus on internet advertising and other types of technology to get the public's attention, while some used letters and face-to-face interactions. The information and knowledge gained from each program is essential when determining the types of efforts to utilize in Vermont.

B. Successes

The greatest successes found throughout each program were the following:

- Internet and media use
- E-mail communication
- Use of letters and canvassing
- Residential support
- Connections with community partners and organizations in the local area
- GSI competitions

The details regarding the successes of the various techniques and programs can be found below.

1. Internet and Media

The programs that were most successful utilized a variety of media and outreach techniques to educate their target audience about the project. Most organizations found some way to reach out to the public,

whether it was through social media like Facebook and Twitter, or through a mass e-mail to get the word out. Media is a very significant aspect of many stormwater programs throughout the country, and most of their success would not be possible without the use of the internet.

Every stormwater organization that was researched has their own website that details what their group focuses on, the type of programs they've completed, their successes, and general stormwater information to help educate the public. Some organizations also invest in social media sites to promote their efforts, like Facebook and Twitter. Social media is a growing aspect of marketing and can be extremely significant in regards to informing the public. It is very easy to follow someone on social media which can provide the organization with a lot more followers and recognition in the community. The Internet provides these organizations with an easy and cost-effective way to measure the amount of people viewing their website and other media tools. Many organization's also have online webinars and videos that educate individuals who are interested in stormwater and watershed protection. Some of these videos are extremely well edited and maintained, which can be due to organizations reaching out to outside media and marketing firms to create the work. This is a great way to monitor success because a video that is uploaded to YouTube can track how many views it has, the amount of times it has been shared through others, and user comments. The more views something has, the more others will watch it, which basically means that once something is online it essentially advertises itself for free.

2. Email Communication

While some organizations rely on basic marketing techniques, others focus on gaining support from community members and the public to promote their programs. The Chesapeake Stormwater Network relies heavily on their 5,000+ members of their Chesapeake watershed online community to help promote their efforts. When they have an initiative or project they would like to work on they do very little outreach and instead will send out a mass e-mail to their members. This helps get the word out

without having to create a budget for marketing and outreach. This type of marketing is only successful when there is a large audience to contact; the Chesapeake Bay Watershed encompasses a very large area, therefore a lot of people are interested in participating in their efforts. Their e-mail based community is very significant and essential for the Chesapeake Stormwater Network to be successful in their programs and initiatives.

3. Letters and Canvassing

Some organizations have found success when sending letters or flyers through the mail to residents and businesses to explain a current program. In some instances an organization will work with the local municipalities to attach an informative brochure in the resident's trash or water bill. In Los Angeles, the organization S. Groner Associates found success in sending residents a letter describing their plans for a project. As follow-up, they had a canvasser go to the homeowner's doors to reconnect with them and ask if they had read the letter. The results showed that most people at least looked at the initial letter so they were not shocked or confused about why the organization was at their door. They also found that residents are very receptive to people speaking with them face-to-face because if they have any questions they can be answered on the spot. Letters and canvassing may be an older marketing technique, but the success rate of this method is relatively high. The ability to have organizations connect directly with their residents can increase support for their programs and overall ability to manage stormwater in the local area. An example of one of Los Angeles's Stormwater flyers that was sent to residents can be seen below.



Image 1: A flyer that was sent out by The Los Angeles Stormwater Department.

4. Residential Support

Another determination of a program’s success is based on the amount of community and local efforts in one’s neighborhood. Many social marketing initiatives are successful because a resident observes their neighbors participating in a program in their yards or homes and it promotes them to get involved. For instance, some programs implement a pledge for homeowners to sign and then provide them with signage for their yard or lawn, which will show the rest of the neighborhood that they are involved in something beneficial. This type of promotion usually creates a domino effect within the neighborhood, and other neighbors will want to participate as well. The initial residents who participate are the most

important aspect of the programs because they start the domino effect. These are commonly referred to as “early adopters”.

The Vermont organization, Lake Champlain International, participates in a certification program called Blue®, which certifies that a property meets a minimum set of standards related to water quality and sustainability. To show surrounding neighbors and the public that the property is certified Blue®, a lawn sign is placed in the ground. An image of a typical lawn sign that the Blue® Certification Program provides to property owners can be seen below.



Image 2: Lawn sign that a property received after being Blue® certified.

A Rainwater Harvesting Program based in the city of Los Angeles, CA was extremely successful and had 300% higher participation than they expected because one local resident single-handedly encouraged

their community to participate. The program director said that many people in the residential area trusted the community member and therefore they all agreed to take part. Community input and connections are essential when it comes to fostering initiatives, and for some programs all it takes is one person to get the word out and public participation up. In general, most programs saw the greatest success during their first year, while the second year had much less participation. This could be due to the initial excitement and support of a program in an area, and then by the second year there is less funding and opportunities to promote the initiative again to the public. Therefore, if a program has a goal to continue for multiple years, then there should be an established plan to determine how they will handle the decrease in participants.

5. Community Partners

Many organizations are successful because they rely on other organizations and partners to help them complete work in their community. For instance, the Cincinnati Stormwater Management Division has multiple programs that utilize partners in the community to house stormwater demonstrations. They have partnered with churches and schools to implement rain gardens and other GSI practices on the partners' property to help educate the community. For other organizations these partnerships also provide connections for outreach and education, because they have a network of trusting citizens, their work is taken seriously with usually high participation.

Connecting with the right organizations is also very significant. A program in Vermont called, "Let it Rain" which is a joint venture between Lake Champlain Sea Grant and the Winooski natural Resources Conservation District, partnered with various Boy Scout groups that were very involved in outdoor work in a Vermont community. This connection was very helpful because they encouraged their parents and other community members to get involved in other stormwater initiatives. The Boy Scouts set up a booth at their local farmer's market to educate residents about the work that needs to be done. They

found great success after utilizing the group because they were young children, which can have a great impact on a community.

6. GSI Competitions

Organizations have also had success with competitions that recognize great design and/or members of the community who implement stormwater BMPs. Specifically, the Chesapeake Stormwater Network has their annual Best Urban BMP's in the Bay Awards or BUBBAs. This competition recognizes the best LID stormwater project in the Chesapeake Bay Watershed. Anyone is welcome to enter the competition and there are only a few strict requirements that must be met. This type of design competition can also be seen in San Antonio, TX, Chattanooga, TN, Tulsa, AZ, and other locations. Many of these competitions are advertised online, and a logo from San Antonio, Texas's LID design competition can be seen below. These competitions not only encourage residents and community members to participate in stormwater behaviors but it promotes the organization itself.



Image 3: San Antonio, TX's LID design competition logo.

C. Issues and Challenges

The most significant challenges that the organizations experienced are:

- Lack of outreach
- Incomplete timelines
- Lack of funding for the second year of a program
- Lack of information provided to the community
- Public criticism
- Electronic and technological errors
- Location issues

The details of the various challenges organizations faced can be seen below.

1. Lack of outreach

Many programs suffer from lapses in planning and implementation of outreach. Multiple organizations found that they did not contact or promote the initiatives early enough so there was not enough time to educate the public on the issues or what the goals of the projects were. This left the public out of the loop and made them feel like they weren't being informed about something that was happening in their community. In order to combat this, social marketing techniques or the use of media could be utilized to emphasize the work that is being completed. For instance, some organizations have a Facebook that they update regularly; this gives the residents the information while still maintaining a low cost. A Facebook allows residents to follow the organization and other members of the community to see this connection and hopefully follow the organization as well. This will ultimately increase the organization's popularity and outreach in the public eye.

An image of the Vermont stormwater organization Let it Rain's Facebook with a stormwater update, can be seen below.



Image 4: The Let it Rain Facebook page.

2. Incomplete Deadlines

The California organization, S. Groner Associates, found that their timeline for a certain project was not accurate and it resulted in a lack validity in the eyes of the public. They recommend designating a timeline that is able to be achieved before the deadline. A well-reached timeline can show residents in the community the necessity of the intended project.

3. Decreases in Funding

Decreases in program funding can be devastating for an organization's efforts, especially when it occurs after a highly successful first year. This results in a grand pilot project with no resources to continue the extensiveness of the program. This type of challenge can be seen within the 'Connecting the Drops' project that was done through the Let it Rain program in Chittenden County, VT. The first year they received a large amount of funding which allotted for a very successful media and marketing campaign.

The next year they received almost a third of that budget for the project and were no longer able to create a large advertising or marketing scheme. Though the second year project installation is still a success and is located in Essex Junction, VT, the initial marketing and advertising was significantly decreased after the first year.

4. Lack of Residential Understanding

Sometimes if a project is being implemented in a community and it is not explained properly, residents are not entirely sure of the dynamics of the program and are confused about their role within it. This leaves the residents sometimes angry because they don't feel like they are actually a part of the initiative that is occurring on their streets. If they are not informed early enough with a breadth of information and reasoning, then some residents will never really understand what the point of the project is. Some organizations found that canvassing and speaking with residents face-to-face was the best way to combat this issue.

5. Criticism

Another concern that can cause problems within programs is criticism from other groups.

Unfortunately, some programs have issues with other organizations and as a result they publicly criticize the work that has been completed. This can leave a great organization with a bad reputation because of denigration from other people. This can cause legitimacy issues and other problems when it comes to interacting and connecting with the public. Furthermore, once another professional organization criticizes another in a similar field it can cause tension between members of the organization itself.

Another type of criticism can be from the residents themselves. The sustainable stormwater programs implemented by the City of Portland received a lot of criticism from residents due to high taxes. The residents did not think their money was being well spent on stormwater initiatives and green streets.

This resulted in a budget change for the city and now Portland has less funding and unfortunately had to end a major program of theirs, called the Eco Roof Incentive Program.

6. Technology Error

Another major issue relates to media and visitor tracking. Websites are able to determine how many hits or views a site receives but no one can know what the viewers do with the educational materials provided. Therefore, regardless of the amount of people that view a stormwater website, unless they do something with that information it is essentially purposeless. Fortunately, some organizations have turned their entire marketing to online focused media efforts and they have various ways of monitoring whether they are on the right track. They have the ability to measure the amount of clicks they receive from viewers who reach their website and can determine whether it is the same person returning to the page or someone else. This is based on IP addresses and with this information they can determine where geographically the person is located. This information gives a wider variety of knowledge for the stormwater organizations to understand who is looking at their website. Although, another issue with website and media use can come from the user's end, due to website confusion. This has been seen in the Chesapeake Stormwater Network's Best Urban BMP in the Bay Competition; where competitors had to turn in an application online and a user error gave them some issues when it came to actually applying. This lack of clarity can turn someone away from participating or supporting the program as a whole.

7. Location

In some instances, the location of the program itself can be the biggest challenge. A major issue for one program was the abundance of vandalism occurring on their projects. Although they were in a high traffic area which was great for education and reaching residents, the projects had to be cemented in the ground with a lot of upkeep to ensure they were not being damaged. Even though the location was

great and brought the organization a lot of attention, they stated they would not like another installation in that area because of the threat of destruction. In order to reach as many people as possible the projects should be in high-traffic areas, but the negative aspects of the location must be understood as well. An image of a rain barrel installation that is located in Essex Junction, Vermont can be seen below.



Image 5: Rain barrel installation located in a vandalism-free park.

D. Proposal

The overall proposed recommendations for Vermont's stormwater efforts are as follows:

1. Utilize Twitter
2. Increase media and online work
3. Coordinate a local BMP competition
4. Build community partnerships

1. Utilize Twitter

Twitter is a growing social media site that can allow businesses and organizations to build their audience, network, and connect with those in the same field. Some organizations that have a Twitter require a full or part time staff member that manages the feed and focuses on posting relevant information for the community. This type of marketing is a necessity in a growing world of smart phones

and technology. Twitter is a very easy way to get a quick statement out to a lot of people. There is a 140-word limit requirement so nothing can get lost in translation since the sentences must be easy to read and short. The way to advertise Twitter is very simple; on any website there can be a clickable picture-link that says "Twitter" with the logo. This allows a viewer to easily click the Twitter image, which can also be embedded in the bottom of all employee emails.

The funding needed to start a Twitter is free, and the overall use of the site is free as well. Therefore the only funding that is needed is to pay the employee for the hours needed to manage the Twitter.

Managing Twitter is very easy and does not take a lot of effort; there are even websites that help companies manage their social media for free. Continually, once the actual Twitter is up and running the only concern is gaining followers and recognition. This requires someone posting regularly and using information that pertains to stormwater initiatives. The EPA's Twitter page is updated multiple times a day with a variety of information regarding the environment, and they have also created their own 'tag' to get their posts trending. A 'tag' is a word with a number sign before the word which other people can click or type and all the posts with that tag end up on a collaborative page where users can look through. The EPA has multiple Twitter pages, and even has one focused on water specifically. A tag can be the most effective way to get new followers and educate people about their work because it creates a topic to float around the internet with a medium to connect people who are interested.

While some Twitter pages are as established as the EPA's, other organizations still have a successful Twitter even though they are not posting as regularly. The Honolulu Stormwater Management group is run by the Environmental Services division and their twitter actually provides updates regarding stormwater construction projects around their area. They give updates on street names and locations that are experiencing construction and provide volunteer information on projects. Their Twitter is

advertised on their website and is a major part of their social marketing strategy. Incorporating a Twitter for any stormwater organization can significantly help the public's awareness of the program.

2. Increase Online Outreach

Based on the information gathered from multiple stormwater-focused organizations there should be an increase in media outreach and education within Vermont's stormwater efforts. This should include strategies detailing how organizations can better reach their target audiences and get the word out about events and learning opportunities regarding stormwater. 13 of the 15 organizations that were interviewed and studied have at least Facebook as a way to connect through media. Therefore, there needs to be something similar initiated in Vermont. Continually, many of the organizations have a Twitter or web blog, in addition to their main webpage; this shows the necessity of social media to gain support from the public. If residents join the group it could encourage other people in the community who were not initially interested to become part of the movement as well.

Vermont is a large state with a lot of people who live in rural regions that are hard to reach. Canvassing throughout the entire state would be a challenge that takes a lot of time and funding, as well as sending homeowners' letters or brochures. Therefore, the internet appears to be the best option to reach the public. Less than 20% of Vermont residents do not have internet, though this does not include if they have a smart phone or access to internet in general. Therefore reaching at least 80% of residents through email and other forms of media could be extremely useful (Internet World Stats, 2007). An easy way to have residents visit a Facebook or Twitter page is to have the links embedded on all websites and e-mail communications. This can be seen within Portland, OR's stormwater program's email signature below; every person that receives an e-mail sent by a staff member in the stormwater department will have the option to click a link directed to their Facebook page and Blog.

Emily Hauth | Sustainable Stormwater Management
City of Portland, Environmental Services
1120 SW 5th Ave. suite 1000, Portland, OR 97204
t 503-823-7378 · emily.hauth@portlandoregon.gov

NEW! [Green Street Steward](#) Facebook Page
Follow our work on the [City Green Blog](#)

Image 6: Image of a Portland Stormwater employee's signature and attached Facebook and blog information.

A majority of organizations have switched from print advertisements to online marketing. This change can evoke a different crowd of individuals to be encouraged to participate in stormwater programs. Many organizations, like Portland's Sustainable Stormwater Program, turn to outside consultants regarding media, advertisements, and video work. Though it can be expensive, the quality of advertisements and educational information can be worthwhile to ensure as many people are aware of stormwater as possible. Portland's Stormwater program also utilizes the social medium: Instagram. They have a program where local residents help manage 'green streets' and images of volunteers working is uploaded to their Instagram. This can provide a personal connection for some people if they go online and see neighbors or friends taking part in stormwater initiatives.

Finally, the use of e-mail can be very useful as well because it is an easy way to get information out to a large group of people. Also, e-mail can be the most cost effective because it can reach the widest range of people for little to no cost. Once again, the only cost is the salary for the employee managing the e-mails and other media sites. Utilizing any of these technologies (Instagram, YouTube, E-mail, or other types of media) can result in more people viewing stormwater organizations and educating themselves about green stormwater.

3. Coordinate a Local GSI Competition

There is an increasing popularity in GSI and BMP competitions around the country and it involves a variety of people. A well-known and successful competition in the Chesapeake Bay Watershed is called the BUBBA's or the Best Urban BMP in the Bay Awards. This competition recognizes professionals in the Chesapeake Bay Watershed who have exhibited excellent stormwater management and installation. This is very popular in their area and a competition for the state of Vermont could be very educational for some residents who were previously not aware of stormwater. Some competitions recognize non-professionals, and allow homeowners and residents to compete, by showcasing the installations on their properties.

According to Tom Schueller, head of the Chesapeake Stormwater Network, the initial funding for the BUBBA's was very low cost and they used very little public outreach to get the word out. They utilized e-mail and online communication to inform residents and professionals of the competition. Volunteers were used to help get the program moving and in action. The most expensive aspect of the competition was the fee to create the website that allows competitors to enter their submission electronically, although the electronic submissions gave the Chesapeake Stormwater Network some issues because competitors experienced user error and sometimes did not know how to submit their entry properly. Besides the slight electronic issues, Tom said the rest of the competition ran smoothly and they had 76 admissions the first year.

The EPA launched a similar program called the "Campus Rainworks Challenge", which encourages college students across the country to install a stormwater system on their campus for a monetary prize. The program is very successful and is now in their third year of competition and many students enter each year. With the large number of colleges in the city of Burlington alone, there are a lot of opportunities for students to get involved. The EPA found that the biggest challenge was the lack of

public outreach. Therefore the use of media, as stated earlier in the proposal, could help a competition gain recognition in an area.

Overall, a GSI or BMP focused competition can benefit the Vermont community in many ways. First, it recognizes professionals or individuals who are already ahead of the curve regarding stormwater initiatives. Second, a competition can provide education for residents who are not aware of stormwater or GSI practices, by promoting it in the media. Third, it shows the significance of local stormwater organizations, VTDEC, and others. Finally, a competition is low cost, focused on the community, emphasizes good environmental practices, and can significantly raise the environmental awareness of residents as a whole.

4. Community Partners

Almost every stormwater organization that was interviewed for this report utilized community partners to help establish their efforts. Some mentioned that they rely on local organizations or leaders in the area to inform residents, because they are trusted in the community. According to the Los Angeles Stormwater Department, they used what they call “champions” in the community to inform the public about projects. These “champions” are considered residents who are already involved in a stormwater program and understand the components enough to where they can explain it to another resident. Multiple organizations have stated that neighbors and real community members who are on board with a project, brings trust to other community members because they are an average resident, not an employee of the organization.

Other organizations have turned to churches and other places of worship to encourage residents to get involved, because they are already trusting of the established organization. Some stormwater initiatives have turned to non-religious organizations to help their public outreach. As mentioned earlier in the document, Boy Scouts have been used to assist in outreach efforts in Vermont. This type of real world,

local communication can really bring attention to a project or organization in a community because of the neighborly-trust.

Therefore, stormwater organizations should try to establish residential and community connections to not only broaden their support base but to have an easy way to get information out. Organizations that have a large support group use these individuals as a way to get people involved and informed about various projects. A combination between e-mail and word of mouth is what gets many projects going, which emphasizes how significant having community ties can be.

A successful and sustainable community needs dedicated and informed citizens to help complete necessary stormwater efforts. Creating projects and programs is only one half of the issue; there needs to be residents who are willing to help get the programs running. Gaining community support and local ties is essential and can truly benefit not only the quality of an organization but the depth of supporters. The closer resident's feel with the work that is being done in their community, the more effort and financial support they are likely to give. These connections are vital to a successful stormwater organization.

E. Conclusion

The increasing use of media and online social connections in today's world is the major emphasis of this report. Although, real-world social connections cannot be overlooked, and community ties must be established in order to create more successful stormwater organizations. Competitions that recognize stormwater efforts can be very successful because it recognizes members of the stormwater community and fosters education. With the help of social media and other types of online efforts, stormwater could gain popularity and as a result have the support needed to truly help the waterways of Vermont.

Appendix A: SWOT Analysis of all Organizations and Programs

<u>Strengths</u>	<u>Weaknesses</u>
<ol style="list-style-type: none"> 1. Use of Social media: Facebook, Twitter, Web Blogs, websites, and emails 2. Large community network of support 3. In person communication with information given prior to meeting 4. Community and residents help with these programs and their support makes it successful 5. A lot of great information and programs are available to the public 	<ol style="list-style-type: none"> 1. Once information is online it is hard to know what people do with it 2. Time restraints and lack of participation can eliminate a program 3. Lack of funding and available man hours is not always worth the time if people are not participating or using the information 4. A under-developed timeline and overall plan can lose people's interests 5. Websites can cause some user error and sometimes residents do not understand how to use things
<u>Opportunities</u>	<u>Threats</u>
<ol style="list-style-type: none"> 1. Web and media use is low cost and effective 2. Green Stormwater Infrastructure is a growing field with more recognition 3. Young children can be easily interested if the right programs can be initiated 4. There is more national recognition in the field which helps the individual initiatives 	<ol style="list-style-type: none"> 1. Residents are sometimes confused if they need to pay money or how they can participate in GI programs 2. Lack of participation or care from residents 3. Time commitment needed from community members for certain initiatives might not be enough 4. Public criticism and criticism from other organizations can be a major issue

Appendix B: Contacts and Organizations

1. Chittenden County RSEP: Dan Albrecht
2. Lake Champlain Sea Grant: Becky Tharp
3. EPA: Tamara Mittman
4. Chesapeake Stormwater Network: Tom Schueller
5. S. Groner Associates/Los Angeles Stormwater Division: Namju Cho
6. Portland's Sustainable Stormwater Division: Emily Hauth
7. Friends of the Winooski: Ann Smith
8. Honolulu Stormwater: Tonya Ketzka
9. Think Blue Maine: Jami Fitch
10. Project Groundwork: MaryLynn Lodor
11. Lake Champlain International: James Ehlers

Appendix C: Resources

1. http://www.internetworldstats.com/am/USA_Internet_Usage_2007.pdf
2. <http://www.socialmediaexaminer.com/twitter-marketing-how-to-use-twitter-for-business/>
3. <http://nevuengan.com/green-infrastructure/urban-center-plaza-stormwater-retrofit>
4. <http://texaslid.org/page.php?page=sanantoniocompetition>
5. http://www.stormh2o.com/SW/Articles/Public_Education_and_Outreach_14573.aspx
6. <http://www.oregonmetro.gov/tools-living/yard-and-garden>
7. <http://stormdemo.sga-inc.net/test-page/>
8. <https://www.facebook.com/letitrainvt?ref=hl>
9. <http://www.mychamplain.net/BLUE>

Appendix D: Image Resources

1. Cover: <http://nevuengan.com/green-infrastructure/urban-center-plaza-stormwater-retrofit>
2. Image 1: <http://www.sga-inc.net/blog/category/work?sort=LASstormwater>
3. Image 2: <http://www.mychamplain.net/BLUE>
4. Image 3: <http://texaslid.org/page.php?page=sanantoniocompetition>
5. Image 4: <https://www.facebook.com/letitrainvt?ref=hl>
6. Image 5: <http://letitrainvt.org/connecting-the-drops/>
7. Image 6: <http://www.portlandoregon.gov/bes/52501>