



*SANDY POINT
ENVIRONMENTAL CONSULTING, LLC*

Stormwater Financing Report to the City of Painesville

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Executive Summary

In the fall of 2013, Sandy Point Environmental Consulting, LLC was hired by the City of Painesville, Ohio to provide City leaders with technical assistance to assess the capacity and effectiveness of the city's stormwater management program. Though the city had established dedicated funding years ago to support their stormwater program, existing revenues and fiscal resources were considered insufficient to address the multiple issues currently facing the community. Therefore, the goal of this financing feasibility study and project was to provide city leaders with a comprehensive strategy to increase program revenues, reduce implementation costs, and improve the effectiveness and efficiency of the city's stormwater management program.

Process and analysis. This six month project incorporated a multi-phased process designed to evaluate and assess the current capacity of Painesville's stormwater management program and to make recommendations for strengthening that capacity, focusing specifically on the city's financing structures. Our work focused on four key tasks:

1. Conduct a comprehensive "level of service" evaluation. The recommendations provided as part of this project were founded on a detailed assessment of the existing level of service being provided to the Painesville community, as well as an assessment of the future level of service needs necessary to address the three key responsibilities of a local stormwater financing program: capital investments; ongoing operations and maintenance; and, program oversight and regulatory compliance.
2. Evaluate and estimate expected program expenses and anticipated revenues. The primary goal of our work was to provide a structure for establishing a sustainable, viable financing system for the Painesville community. This in turn required a detailed assessment of anticipated costs and revenues associated with the City's stormwater program. To that end, Sandy Point conducted a detailed assessment of stormwater program costs and expenses, and examined the capacity of current funding to meet the needs of state and federal permit obligations as well as necessary capital investments.
3. Engage the Painesville community using a tested outreach approach and leadership process. Effective stormwater management and financing requires equally effective citizen engagement and participation. Sandy Point facilitated a community-led process designed to engage citizens and businesses to provide input to the stormwater management and financing processes that will help to compare needs based on city data with the needs as seen by the community.
4. Provide a set of detailed recommendations for improving the way stormwater is managed. Finally, using the information and resources gathered in the first three tasks, we drafted a set of recommendations that we feel will provide the City of Painesville with the financing capacity it will need to address what can only be described as very difficult and entrenched stormwater management barriers and challenges.

In addition to these four tasks, consultants from Sandy Point convened multiple meetings with community leaders from Painesville, surrounding communities, and public agencies at the state and local levels. In addition, we worked in partnership with Painesville leaders to convene four

public meetings—one in each of the City’s political wards—as a way of directly engaging citizens on stormwater management issues.

This report provides the results of our assessment and provides associated recommendations to the City for maximizing efficiency and effectiveness in its stormwater program. The report is structured in the following four parts:

- Part 1 provides an introduction to stormwater issues in general as well as the challenges facing the City of Painesville, including both local flooding and water quality management challenges.
- Part 2 includes a detailed assessment of Painesville’s stormwater management efforts to date, focusing specifically on leadership, management, and financing capacity.
- Part 3 provides our recommendations for expanding the City’s stormwater financing capacity, both in the near and long term.
- Finally, the end of the report includes relevant appendices to support our findings and recommendations.

Key issues, observations, and summary recommendations. To begin with, we start by addressing some key issues and summary recommendations that we feel effectively sets the stage for the analysis contained in the remainder of the report.

Turning stormwater management into a community asset. We begin with an issue and idea that we anticipate will set the tone not just for the analysis and associated recommendations contained in this report but also for the city’s stormwater management efforts in the future. It is clear that the Painesville community has some very serious issues to address and very difficult political decisions to make in order to effectively address stormwater management concerns and needs in the community. Though we do not belittle the importance and difficulty of the challenges ahead, it is our firm belief that the City of Painesville is uniquely positioned to transform its stormwater management program from one that is at times considered a financial barrier and potential drain on community resources, into one that is considered a critical element in the city’s efforts to improve the quality of life for the entire community. An opportunity exists for the community to effectively address entrenched stormwater and wet weather management problems in a way that improves the city’s infrastructure, aesthetics, economic development, and livability for future generations. In short, stormwater management can become a community asset rather than liability.

Fostering innovative and motivated leadership within the community. Our primary objective with this project was to provide the City of Painesville with an achievable strategy for strengthening its stormwater management system. Though financing capacity is obviously essential to that strategy, financing capacity must be built on effective and innovative leadership. Our evaluation of the city’s stormwater issues and concerns has made it clear that until very recently, the city’s stormwater management program lacked much of the visionary leadership necessary to move the community forward effectively. This has changed dramatically in the past year. Recent leadership changes will enable the stormwater program

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to move forward with a clear sense of direction and purpose. This will be essential as the city contemplates critical financing issues in the future.

Section 1: Introduction

1.1: Background. Effectively managing stormwater is one of the greatest fiscal challenges facing urban communities across the United States; Painesville, Ohio is no exception. Like all community infrastructure challenges, stormwater management systems require on-going management, continual maintenance, and perhaps most importantly, an adequate level of funding to pay for long-term capital investments as well as operations and maintenance. Currently, many of the more progressive and effective community-based stormwater programs are financed through dedicated fee systems in support of essential activities such as operations, maintenance, administration, and capital investments. Yet even for those communities like Painesville that have dedicated fees in place, it is necessary to reassess, evaluate, and adjust fees in order to allocate the appropriate resources to program priorities. This often necessitates a program review or periodic analysis of whether dedicated resources are adequate to provide a level of service that is sufficient to address all current and future needs of the community's stormwater program. It is with that in mind that this project was implemented.

Stormwater management has not traditionally been a priority issue for many communities. Stormwater management is often overlooked as an essential service provided by local governments, especially when being faced with other pressing concerns such as health, education, safety or transportation. It can be argued that by not placing equal value on managing stormwater effectively, we adversely affect other community priorities. This is especially true when infrastructure begins to fail, water quality is impaired, or properties become flooded when systems aren't properly upgraded, managed or maintained. Flooding from stormwater resulting in significant damage to property can be a compelling reason to raise awareness and support for improving stormwater programs in cities across the country.

1.2: Flood Management. Flood management and control has traditionally been the primary stormwater management concern in Painesville. Flooding issues are systematic, varied, and pervasive. For example, documented problems include:

- Overload of conveyance systems such as swales and creeks;
- Drainage problems due to topography and soil conditions;
- Flooding as a result of high water tables; and,
- Basement flooding due to interaction between the sanitary and storm sewer systems.

Major flooding events have impacted the quality of life for many residents and business owners in each segment of the city. As a result, the financial impact to the city and its citizens has been significant. It is safe to say that successfully mitigating flooding problems citywide has the potential to be very costly. These costs have the potential to be even greater if the city does not invest soon in proper planning and adequate capital improvement projects. In addition to the financial costs to the city and its residents, the adverse effects of flooding have also had a deteriorating effect on the community's perception of the city's capacity and willingness to successfully address the issue. Based on the responses to the four public meetings convened by Sandy Point, as well as the associated citizen surveys, it is clear that flooding is a serious concern for the residents of the community.

Summary of the public meetings. In the fall of 2013, Sandy Point convened a series of four public meetings held in each of the City of Painesville's political wards as a way of substantively engaging the residents and businesses on stormwater issues.¹ Based on the feedback received during the public meetings, as well as the stormwater surveys conducted as part of this study, it is clear that flooding has significantly impacted citizens and businesses of Painesville. In some cases, residents have spent thousands of dollars in an attempt to control or repair the flood damage done to their property with little confidence that they've done enough to remedy the situation before the next storm event.

It was also a widely held opinion of residents and businesses that participated in the outreach events and surveys² that the July 2006 storm was a catalytic event for the community. Many citizens felt that prior to that event, flooding impacts were considerably less frequent and severe. The 2006 storm produced 11.35 inches of rain in 48 hours; that amount of rain exceeded the rainfall estimate for a 1,000-year storm event. As a result, either through shifts in hydrology or impacts on stormwater infrastructure, localized flooding has become much more frequent and severe. Since 2006, every ward within the city has reported some level of flooding and in some cases, severe flooding in yards and inside properties has occurred. Individual citizen action is often taken in an attempt to mitigate flooding on certain streets, on properties, and in homes and businesses.³ Information collected from the public meetings as part of this study show that residents and businesses would often clear drains of debris and snow during a storm event to allow for faster drainage and to control flooding on their property. Residents have also stated that they have built up stone and dirt around catch basins and put in various stormwater controls in and around their homes to keep water from flooding their properties.

Certain areas within the city are known to be worse than others based on their location, hydrology, and elevation.⁴ Properties located close to Tiber Creek, for example, have experienced persistent flooding, most likely due to their proximity to the stream.⁵ Although Wards 1 and 2 have significant flooding concerns, Wards 3 and 4 are seen as having the majority of the drainage problems because of their proximity to Tiber Creek. As part of the ARCADIS 2013 Tiber Creek study, the targeted questionnaire done as part of that study revealed that most significant flooding issues are along Cedarbook Drive (near Chestnut Street) and along Newell Street and the adjacent Hayer Drive, Elberta Road, Green Court and Michael Court. The responses confirmed that low lying residences experienced significant flooding in these areas because of insufficient capacity to handle the stormwater, lack of maintenance around Tiber Creek, and inadequate drainage in certain areas.

Based on the current trends of recent storm events in the area, it can be assumed that continual flooding will likely continue or worsen if no plan of action is established to mitigate

¹ A full debriefing and summary of the four meetings is provided in Appendix 1.

² See the public outreach section for more information.

³ Based on public survey responses and public meetings held as part of this study. See the public outreach section for more information.

⁴ Based on citizen input and the ARCADIS Tiber Creek Watershed Study, February 2013.

⁵ Ibid.

the problem. Infrastructure will continue to age and deteriorate causing worse flooding situations around the city. As we discuss below, water quality is a growing quality of life concern for both the city and the region. It is flooding, however, that will continue to be what drives the City of Painesville to take appropriate and immediate action to control and better manage stormwater.

1.3: Water quality and regulatory compliance. Again, the City of Painesville has been dealing with stormwater issues, specifically in the form of local and systemic flooding, for many years. However, stormwater management for local governments has evolved over time from being strictly an urban flood control function, to an environmental protection and regulatory function. The evolution of increasingly restrictive federal and state stormwater regulations has forced changes in how stormwater systems are planned, designed, constructed, operated, and financed.⁶ Two federally mandated regulatory programs—the NPDES permitting program and the Total Maximum Daily Load pollution limits in the Federal Clean Water Act—are the foundation for local stormwater regulations across the country. These regulations have, and will continue to have a profound impact on Painesville’s stormwater management program.

Painesville’s MS4 Permit. Urban stormwater emissions are controlled under the Clean Water Act through the National Pollutant Discharge Elimination System (NPDES) Stormwater Program, which regulates stormwater discharge from municipal sources.⁷ Municipalities of a certain size receive a Municipal Separate Storm Sewer System (MS4) permit to discharge stormwater and prevent other harmful pollutants from entering their system. The MS4 permit addresses and attempts to curtail non-point or defuse sources of pollution within urban areas responsible for protecting water quality.

MS4 regulations were developed and implemented in two phases. Implementation of the first phase began in the early 1990s and required that operators of MS4s serving populations of greater than 100,000 people (per the 1990 census) apply for and obtain a permit to discharge stormwater from their communities. The second phase of MS4 regulations became effective in 2003, and required that operators of small MS4s in "urbanized areas" (as defined by the latest census) obtain a permit to discharge stormwater from their outfalls.⁸ As a result, Ohio EPA regulates Painesville as a small Phase II community with a general MS4 permit.

The current NPDES Small MS4 general permit that covers Painesville was issued on January 30, 2009 and expired on January 29, 2014; Ohio EPA is now in the process of issuing a new permit to the City of Painesville; although the anticipated changes to that permit are still in draft form, it is expected that Painesville will need to enhance its current program to meet new permit obligations.

⁶ "Guidance for Municipal Stormwater Funding." Prepared by National Association of Flood and Stormwater Management Agencies Under a Grant Provided by the Environmental Protection Agency. January 2006. Page ES-1.

⁷ Stormwater Basic Information, US EPA, Retrieved from: <http://cfpub.epa.gov/npdes/stormwater/swbasicinfo.cfm>.

⁸ Virginia Department of Environmental Quality. <http://www.deq.virginia.gov/Programs/Water/StormwaterManagement/VSMPPermits/MS4Permits.aspx>.

Though new MS4 permits will certainly become more restrictive in the future, it is clear that Ohio EPA believes that communities like Painesville should have the flexibility to determine the best management practices (BMPs) and measurable goals that are most appropriate for their system. In spite of the desire for flexibility, however, there are six minimum control measures (MCM) that every permitted community must implement and address.⁹ For each MCM there are specific activities and practices that a community can implement to comply with its permit.

- MCM1: Public Education and Outreach. Distributing educational materials and performing outreach to inform citizens about the impacts polluted storm water runoff discharges can have on water quality.
- MCM2: Public Participation/Involvement. Providing opportunities for citizens to participate in program development and implementation, including effectively publicizing public hearings and/or encouraging citizen representatives on a storm water management panel.
- MCM3 Illicit Discharge Detection and Elimination. Developing and implementing a plan to detect and eliminate illicit discharges to the storm sewer system (includes developing a system map and informing the community about hazards associated with illegal discharges and improper disposal of waste).
- MCM4: Construction Site Runoff Control. Developing, implementing and enforcing an erosion and sediment control program for construction activities that disturb 1 or more acres of land (controls could include silt fences and temporary storm water detention ponds).
- MCM5: Post-Construction Runoff Control. Developing, implementing and enforcing a program to address discharges of post-construction storm water runoff from new development and redevelopment areas. Applicable controls could include preventive actions such as protecting sensitive areas (e.g., wetlands) or the use of structural BMPs such as grassed swales or porous pavement.
- MCM6: Pollution Prevention/Good Housekeeping. Developing and implementing a program with the goal of preventing or reducing pollutant runoff from municipal operations. The program must include municipal staff training on pollution prevention measures and techniques (e.g., regular street sweeping, reduction in the use of pesticides or street salt, or frequent catch-basin cleaning).

Again, the MCMs provide the foundation for maintaining permit compliance. Actual implementation of the City's MS4 permit should mirror the unique needs of the community. This will require incorporating multiple environmental and infrastructure priorities into decision-making processes. One of these priorities in the future will be water quality restoration and protection and the implementation of TMDL requirements.

TMDL and the Grand River¹⁰. The Total Maximum Daily Load (TMDL) program, established under Section 303(d) of the Clean Water Act, focuses on identifying and restoring polluted

⁹ <http://www.epa.ohio.gov/dsw/storm/ms4.aspx>

¹⁰ Grand River (Lower) Watershed TMDL Report. Ohio Environmental Protection Agency. April 2012.

ivers, streams, lakes and other surface water bodies. TMDLs are prepared for waters identified as impaired on the 303(d) list.¹¹ A TMDL is a written, quantitative assessment of water quality problems in a water body and contributing sources of pollution. It specifies the amount a pollutant needs to be reduced to meet water quality standards (WQS), allocates pollutant load reductions, and provides the basis for taking actions needed to restore a water body.¹² To that end, OH EPA recently established a TMDL, which is a clean up plan, for the lower Grand River. The lower Grand River watershed is located in northeastern Ohio in Lake, Geauga and Ashtabula counties; the river flows into Lake Erie at Painesville.

Ohio is one of the few states to measure the health of its streams by examining the number and types of fish and aquatic insects in the water. An abundance of fish and insects that tolerate pollution is an indicator of an unhealthy stream. A large number of insects and fish that are sensitive to pollution indicate a healthy stream. In 2003 and 2004, Ohio EPA scientists collected comprehensive biological, chemical, and physical data in the watershed. The watershed's conditions were compared with state water quality goals to determine which streams are impaired, and how much needs to be done to restore good stream habitat and water quality.

The condition of the lower Grand River watershed. Overall, 77% of sites met aquatic life use goals and 29% of sites met recreation use goals. Of those sites not attaining aquatic life use goals, four attained no goals and nine partially attained goals. The main stem of the Grand River fully reached aquatic life goals but did not reach all recreation use goals. Predominant causes of impairment were pollutants associated with urban runoff and storm water and natural sources such as low flow.

The actions needed to improve water quality. There are a variety of reasons why streams in the lower Grand River watershed fail to meet water quality goals, so several types of actions are needed to improve and protect the watershed. The recommendations in the TMDL focus on reducing pollutant loads and/or increasing the capacity of the streams to better handle the remaining pollutant loads. Actions to improve water quality include:

- Utilizing storm water BMPs to increase infiltration and reduce pollutants.
- Preserving and restoring riparian areas to keep hydrology intact.
- Reducing bacteria through agricultural and stormwater BMPs that reduce runoff.

At this point the Grand River TMDL is a plan, not a regulatory requirement. What is clear, however, is that OH EPA will be monitoring the permit activities of communities like Painesville that have an impact on the Grand River ecosystem and will strongly encourage and perhaps incentivize local governments to account for TMDL goals in their stormwater activities and programs. As is the case in other regions across the country, Ohio will soon become more aggressive in regulating activities impacting water quality across the state. And that regulatory approach will have impact on Painesville's stormwater program over time.

¹¹ <http://www.epa.ohio.gov/dsw/tmdl/index.aspx>

¹² <http://www.epa.ohio.gov/dsw/tmdl/index.aspx>

Section 2: Program Assessment and Capacity Analysis

Section 1 provided an overview of the issues impacting Painesville's stormwater management program. In this section we provide an assessment of how well the community is addressing those issues. We focus both on what is working well within the stormwater program as well as areas that need attention.

As part of our assessment process, we conducted an in-depth analysis of all aspects of Painesville's stormwater management activities. This technical analysis included reviewing all available documentation relating to stormwater management as well as meeting with every department or individual who has any role in managing stormwater for the city. Meetings were also conducted outside of the city with Lake County Stormwater officials, the Soil and Water Conservation District, Chagrin River Watershed Partners and Ohio EPA. The information collected from these meetings were used to understand who had what responsibility, what that responsibility was, and to find opportunities to make improvements to the current stormwater program being run by the city so that community needs could be better met and water quality and quantity goals could be achieved.

Key issues and observations:

- Until recently, the City has not developed or delivered the appropriate level of service to address its stormwater issues. To date, managing stormwater effectively has clearly not been considered a priority for the City of Painesville prior to this study. It could also be argued that the very little was done to effectively manage stormwater beyond new construction requirements or when an emergency repair was needed. However, the new city manager for Painesville has made stormwater management a community priority, which is a significant and positive event for the city.
- The City needs to have a clear vision and plan for its stormwater capital investments. A strategic, comprehensive capital investment plan is a critical unmet need in the community. For example, completely upgrading, replacing, and repairing the Painesville's entire stormwater system would cost in the tens of billions of dollars and would obviously be well beyond the financial capacity of the city. In addition, no amount of capital investment will enable the city to deal with historic weather events like the 2006 flood. Therefore, a clear vision and set of goals for the capital program should be developed and then communicated effectively to the ratepayers and citizens of the community.
- There has been little to no stormwater outreach or education activities provided for citizens and businesses. Though stormwater has often had a dramatic and costly impact on the citizens of Painesville, there is little indication that any outreach and education has been done by the city to date, other than one or two small meetings over the last several years. As a result, there is very little confidence in the city's ability to successfully address this problem.
- Confusion over specific duties and responsibilities where stormwater management is concerned. Prior to this study being conducted, it was clear that city officials and the various departments in charge of managing Painesville's stormwater activities, were not collectively communicating effectively. In fact, we found that different departments

thought that other departments were either responsible for managing certain aspects of stormwater or was not aware that it was part of their responsibilities. This resulted in very few stormwater functions being well organized or well managed. Since there was significant confusion over what was required and by whom, there was no designated leader for managing stormwater activities for the city. The results of this lack of organization is exemplified by the difficulty of locating certain data and information more easily to inform this study.

- Lack of understanding of the NPDES MS4 permit requirements. When this study began, most of the MS4 permit requirements were not known or understood. Since various city departments were handling different areas of stormwater with little to no communication about stormwater between departments, there was found to be a lack of understanding of exactly what was required of Painesville under the MS4 permit. There were assumptions that Lake County was managing some aspects of the program but it was unclear exactly what services were being provided. The result was that very little was managed to the extent it should have been. The exception to this was the permit requirements pertaining to new and post construction. Those areas were under the responsibility of the city engineer who worked well with the county to properly manage these requirements.
- Confusion over Lake County's responsibility vs. Painesville's responsibility. Building on the point above there is significant confusion in regards to Painesville's permit obligations as they relate to the services provided by the county. The general impression held by the City of Painesville was that the majority of stormwater responsibility fell to Lake County, which is not the case. It could also be argued that since it was assumed that Lake County was managing much of the responsibility of stormwater for the city, most of the regular ongoing tracking, reporting, and other activities was not performed well. There was also very little communication between the county and Painesville or with Ohio EPA and Painesville outside of new and post construction activities.
- Underutilization of the resources available to Painesville. Lake County has significant resources available to municipalities like Painesville. These resources include the Lake County Stormwater Management Department, the Soil and Water Conservation District's outreach and education program and Ohio EPA. By not fully understanding what additional resources were available from these offices, Painesville has not maximized the many benefits available under these other programs to the extent they could have in the past.
- Maintenance of stormwater system is performed infrequently throughout the city. It was found that ongoing and routine scheduled maintenance was typically done when there was a problem or a complaint. Regular maintenance was not done as an ongoing activity to control stormwater flooding leading to many of the complaints from citizens and businesses. Typical maintenance includes mowing, root removal, cleaning debris and sand, cleaning stormwater drains and retention basins, and other routine activities necessary to maintain a well performing system. The exception to this is that the city work crew does clean out potential problem drains and areas right before significant storm events occur. These problem areas are only the ones to be serviced instead of routine cleaning across the entire city.

- Conditions of the stormwater infrastructure are unknown for most of the city. Although there is a map of current infrastructure showing the location of pipes and best management practices, the condition and age of most of the infrastructure within the city is not known. Therefore, the city is unaware of what exactly is causing the stormwater sewer backup complaints. According to the Water Pollution Control for the city, it could be bypass events, aging infrastructure, or not properly maintained infrastructure. Since the city does not own lateral camera equipment, they are unable to map and assess the condition of the stormwater system and properly plan for necessary replacements and repairs.
- Tracking and reporting of stormwater activities is below minimum expectations. With no ongoing oversight of stormwater and no sufficient reporting, documenting, and record keeping that could be found, including annual reports, it was very difficult to argue that stormwater was being managed in the most efficient and effective way possible by the City of Painesville.
- Little to no stormwater training is conducted for stormwater staff. One of the requirements of the NPDES MS4 permit is a requirement of training for stormwater personnel to maintain knowledge and understanding of the latest stormwater rules, requirements, and best practices available. Beyond it being a requirement under the permit, it is considered a good management practice for any well-run stormwater program. Painesville has no system set up to conduct in-house training or is rarely involved in any training activities outside of the city offered by Ohio EPA or organizations that offer trainings and workshops on stormwater management.

2.1: Summary Review of Painesville's Existing Stormwater Program. Painesville's stormwater management program is in many ways rather typical for a community of its size and structure. The program, first and foremost, has focused on localized and systemic flooding issues. This makes sense given the profound impact that flooding has had on the community, especially in the recent past. Again, flooding issues have become more prevalent over time and have required more resources—in the form of staff time and capital investments—to address. And, like the myriad of other small urban communities across the country, Painesville has traditionally been very reactive in its approach to stormwater management, i.e. focusing on acute issues often at the expense of long-term management and program implementation. A primary goal of this project is to provide the city with a strategy for taking a more proactive and efficient approach to stormwater management. That strategy will focus on the three primary components of a local stormwater management program: operations and maintenance; permit compliance; and, capital investments.

Operations and maintenance. Effectively operating and maintaining infrastructure is essentially the backbone of every local stormwater management program. From a personnel perspective, most of a community's stormwater staffing resources are designated to operations and maintenance (O&M) activities. And, while the initial cost of these activities is much lower than the majority of capital infrastructure investments, over time O&M can become a significant part of a project's lifecycle costs. This is especially true when O&M functions and activities are not proactive and focused on extending the life and functionality of critical infrastructure.

As with the vast majority of urban communities across the country, Painesville’s stormwater management operations and maintenance functions are managed and administered through the Department of Public Works (DPW). Approximately 15 DPW employees—including the DPW director—have at least a portion of their time devoted to stormwater management activities. In Section 2.2 below we provide a detailed cost assessment associated with that activity.

Stormwater capital investments. While operations and maintenance is the backbone of most stormwater management programs, it is the investments in critical infrastructure that enables communities to substantively improve the performance of their systems in the long-term. As should be expected, Painesville’s capital investments to date have focused on addressing localized flooding problems in the community. The city has invested in detention systems, improved storm sewer capacity, and essential equipment such as sewer cameras and a lease on a Vactor sewer maintenance truck. In Section 2.2 we provide a summary of existing debt and capital investments. However, as Table 1 indicates, it is worth noting that the level of capital investments in stormwater infrastructure has decreased rather significantly over the past five years. Revenues were shifted to cover other operating expenses, which is of course appropriate during difficult economic times. However, the decrease in capital outlays has resulted in little if any stormwater infrastructure investments over the past few years, while the impacts of stormwater emissions has persisted.

Table 1: Total Stormwater Capital Outlays (excluding debt service)

2014	2013	2012	2011	2010	2009	2008	2007	Total
\$100,000*	\$100,000*	\$71,453	\$297,305	\$447,172	\$330,000	\$157,803	\$415,456	\$1,919,189

Permit compliance and management. As was mentioned above, Painesville’s primary focus, both in terms of its stormwater operations and maintenance as well as its capital investments, has been on flood control and mitigation. However, the city’s stormwater program will be required to assume greater responsibility in the future for permit and regulatory compliance. Though assuming those responsibilities will have, and have had, fiscal implications for the city, Painesville is in the unique and advantageous situation of being able to partner with Lake County in its efforts to manage MS4 permit obligations.

Services currently provided by Lake County Stormwater Department to the City of Painesville. Lake County, Ohio, like Painesville and every other urban community across the country, has its own NPDES MS4 permit requirements to meet. However, under a unique program designed to help meet the needs of the municipalities within Lake County as well as meet their own water quality improvements, the Lake County Stormwater Department developed a **Level of Service** program. The program enables municipalities within the county to pay a fee to receive technical, management, and implementation services to meet their permit requirements.

* Budgeted

According to the county, “fees are charged on individual parcels of land based on the amount of impervious area on the property (hard surface). The amount of impervious land is used because it has been shown to be a good indicator of the amount of runoff that leads to pollution.”¹³ There are two levels of service offered to municipalities by Lake County.¹⁴ Services provided in **Level 1** include:

- Technical assistance in program administration, regulation and enforcement;
- Assistance in public education and involvement; and,
- Financial services.

Communities that receive Level 1 are charged a flat fee for these services. In 2014, Painesville was charged \$53,000 annually. For those communities that choose **Level 2** services, they receive:

- Data collection and management;
- Planning, design and construction of regional drainage systems;
- Assistance with operations and maintenance; and,
- Direct billing of stormwater customers.

Communities that choose Level 2 are charged based on the number of customers or ratepayers. The county then assesses the fee directly to those ratepayers on the county tax bill. Currently, the county charges each property \$15 per year. As a result, the collective total fee to Painesville would be approximately \$110,000 annually.¹⁵

This program with the county has enabled Painesville, as well as other participating communities to more effectively administer their MS4 permit requirements. For example, with Level 1, the community received resources related to MCM 1 (public education and outreach), MCM 2 (public participation and involvement), and MCM 3 (illicit discharge detection and elimination). Though these services were very important to Painesville and clearly saved the city money (we address the specifics of the financing in the next section), the Level 1 services did not address the remaining three MCMs. It should also be noted that public participation and involvement opportunities are available but appear to have not been taken advantage of to the extent that Painesville could have under the current Lake County Program. Lake County has many municipalities to serve and those who express more interest and willingness to work with the county as well as make direct contact with the county will be the ones to receive the benefits of more locally sponsored activities and events that engage the public on stormwater activities and programs.

Of the 15 municipalities that participate in the Level of Service program, Painesville is currently the only one that has Level 1 rather than Level 2 service.¹⁶ Level 2 Service covers all of the minimum control measures necessary to comply with permit obligation. Additional benefits of

¹³ <http://www.lakecountyohio.gov/smd/StormwaterAssessmentFee.aspx>

¹⁴ Ibid

¹⁵ we provide a more thorough description of how stormwater fees are assessed in Section 2.2.

¹⁶ Fair Harbor was at Level 1 but recently upgraded to Level 2 Service; <http://www.news-herald.com/general-news/20140315/fairport-harbor-agrees-to-upgrade-service-level-from-lake-county-stormwater-management>

the Level 2 service include: more opportunities to engage the Chagrin River Watershed Partners on a variety of watershed management activities¹⁷; and, more grant opportunities in partnership with the county.

Perhaps the most important benefit to communities that chose the Level 2 service is the associated capital investments in infrastructure improvements. Because Lake County is providing stormwater services to multiple communities, they are able to take advantage of economies of scale. In other words, on a per capita basis, it is much cheaper for Lake County to implement the six MCM requirements than for the municipalities to do so on their own. As a result, the county spends approximately 20% of the collected revenue on permit compliance, i.e. implementing the six minimum control measures. The remaining revenues are then invested back into the communities in the form of capital projects. This is a tremendous benefit to the participating communities. Lake County meets annually with each municipality in its Level 2 program to prioritize capital projects. Capital funds can also be used to leverage grants or pay down existing debt. There is also a credit program available for non-residential properties that wish to lower their fee without the concern of a reduction in service provided by the county. Lake County also takes on the responsibility of submitting the MS4 permit annual report to Ohio EPA. In summary, in addition to the TMDL requirement that will be in the new permit, there are potentially many other opportunities for participating Level 2 municipalities to take advantage of the County program.

Services currently provided by Lake County Soil and Water Conservation District to the City of Painesville. Even before the City of Painesville held an NPDES MS4 permit for stormwater, the Lake County Soil and Water Conservation District (the District) was working with the city to perform voluntary sediment control. This relationship dates back to 1996 and is one of the more positive things Painesville has done relating to stormwater management. Since 2011, the City of Painesville has had a Memorandum of Understanding (MOU) in place with the District to provide specific stormwater services. As an example of the value of this MOU, the District devoted 90 staff hours to Painesville in 2011.¹⁸ The primary services provided to Painesville include the administration of the city's erosion and sediment control ordinance, landowner assistance issues, natural resource protection/development issues, and public education. These services help Painesville meet some of MCM 1 requirements relating to public education and outreach through a high school program called the Arthur Holding Leader Institute (AHLI); MCM 4 pertaining to construction site runoff control; and a small part of MCM 6 relating to pollution prevention.

The partnership with the District is important and necessary and should be continued and strengthened. The District provides services to most of the municipalities within the county and is unable to single out Painesville for workshops, events, and watershed activities unless Painesville makes that connection with the District and shows a willingness and interest to be the location for holding such events and trainings. The more organized and active Painesville is

¹⁷ The Chagrin River Watershed Partners is a subcontractor to the Lake County stormwater program. They provide watershed restoration and protection technical assistance to local communities.

¹⁸ Lake County Soil and Water Conservation District 2011 Service Report – Painesville City.

on stormwater and improves communication with the District, the more opportunity Painesville has to increase their availability to all of the resources the District has to offer.

2.2: Revenue analysis and cost estimates. Since every stormwater program is as unique as the location it serves, the stormwater financing strategy used by a city like Painesville must be specifically designed to reflect the nature and characteristics of that community. Even in cases where a community is able to establish an appropriate financing strategy, community leaders often design a program that is insufficient and covers little beyond essential services and must forego any enhanced or proactive approaches that would help to manage stormwater before an emergency repair is needed. Rarely do communities create a financing strategy that reaches an optimal level of funding and is aggressive enough to deal with the majority of their stormwater needs. As a result, costs and expenses can be two to three times more than anticipated estimates. Finally, projecting expenses into the future is especially daunting to communities when designing a financing strategy. It requires periodic review and assessment as well as the engagement and input of citizens and businesses to ensure that the existing system or changes being made to an existing stormwater financing mechanism are considered adequate, fair, and sufficient enough to meet the needs throughout the years.

Service Fees and Stormwater Enterprise Programs. In lieu of supporting stormwater programs through its general fund, the City of Painesville established a stormwater utility or enterprise fund. Enterprise funds are used for services provided to the public on a user charge (fee) basis, similar to the operation of a commercial enterprise.¹⁹

An enterprise fund establishes a separate accounting and financial reporting mechanism for municipal services for which a fee is charged in exchange for goods or services. Under enterprise accounting, the revenues and expenditures of services are separated into a distinct fund with its own financial statements, rather than commingled with the revenues and expenses of all other government activities.²⁰

There are two key features of a stormwater enterprise program. First, a stormwater enterprise fund is by definition a public entity charged with providing a specific service. Clear budgetary authority is given to a single agency or program. As a result, the establishment of a stormwater enterprise program often results in increased efficiencies, which in turn reduces program costs. Second, stormwater enterprises result in a sustainable, dedicated revenue stream, in the form of a fee. An enterprise fund may be self-supporting or it may be subsidized (e.g., debt and capital exclusions) by the general fund.²¹

A key advantage of fee systems is that fees are charged to taxpaying and tax-exempt properties alike. As a result, stormwater utilities address the shortcomings and inequities of funding stormwater management by property taxes or water/sanitary service fees. There are currently more than 1,400 fee-supported stormwater systems in operation across the country.²²

¹⁹ State of Maryland Comprehensive Annual Financial Report, FY 2009. See "Fund Financial Statements," p. 12-13.

²⁰ Pioneer Consulting Group, Inc. Enterprise Fund Accounting System.
http://www.municipalconsultants.net/enterprise_fund_accounting_systems.aspx.

²¹ Ibid.

²² Western Kentucky University Stormwater Utility Survey 2013. Page 1.

Types of Stormwater User Fees. There are three basic methods that stormwater utilities use to calculate service fees:

- *Intensity of Development (ID):* This stormwater cost allocation system is based on the percentage of impervious area²³ relative to an entire parcel's size;
- *Equivalent Hydraulic Area (EHA):* Parcels are billed on the basis of the combined impact of their impervious and pervious areas in generating stormwater runoff; and,
- *Equivalent Residential Unit (ERU):* The most widely used billing method is the ERU system. An ERU is usually the average impervious area on a single-family residential parcel, although some communities define it as the average of all residential parcels.

As with the majority of communities across the country, Painesville's fee is based on an ERU system and is assessed differently for residential and commercial customers. Residential customers pay a flat fee of \$2.75 per month. Fees for commercial or non-residential customers are proportional to the ratio of the parcel's impervious area to the ERU (in other words, they are charged based on the actual impervious surface existing on the parcel). National surveys show that the mean was 3,050 square feet of impervious surface.²⁴

A primary advantage of Painesville's ERU fee system is that it technically creates a relationship (or nexus) between impervious area and stormwater impact, which is relatively easy to explain to the public, i.e. the more hard surfaces you have, the more you pay (at least in the case of commercial customers). In addition, the nexus between impervious surface and the fee makes it easier to explain what revenues are being used for; this is critically important for small urban communities like Painesville with limited fiscal resources.

It should be noted that Lake County also uses an ERU system to assess the fees related to the Level of Service program. The county charges \$1.15 per ERU per month, for a total annual fee of \$15. Coincidentally, the county sets the ERU at the national mean level of 3,050 square feet.

Current Stormwater Revenue. In 2013, Painesville collected \$427,000 in revenue through its stormwater fee. This included:

- Approximately \$216,000 in revenue collected from 504 commercial or non-residential accounts.
- Approximately \$211,000 in revenue collected from 7,144 residential accounts.

Revenues collected from the fee are transferred to Fund 760, which supports the stormwater program.

Current Stormwater Expenses. As is typical of most urban stormwater programs, Painesville's stormwater expenses are associated with all three core program components: operations and

²³ Impervious surfaces are areas covered by material that impedes the infiltration of water into the soil. Examples of impervious surfaces are buildings, pavement, concrete, and severely compacted soils. Because of the adverse impacts that impervious surfaces have on water resources, impervious area is the most logical metric to use to calculate stormwater fees.

²⁴ Western Kentucky University Stormwater Utility Survey 2013. Page 2.

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maintenance, capital investments, and permit compliance. The details of current expenses are below:

Salaries and benefits:	\$127,839
Materials and supplies:	\$ 12,450
Services and charges:	\$ 64,300
Capital projects:	\$100,000
Debt service expense ²⁵ :	\$ 87,277
<u>Total:</u>	<u>\$391,866</u>

In FY 2014, there is a budgeted program/fund surplus of \$ 38,834.

Salaries and benefits: the salaries of fifteen city employees were charged to the Stormwater Fund 760²⁶ in 2013. Fourteen of these were Public Works staff, and were supported at a level of 10% each. It also included 25% of the Public Works Director’s salary. As a result, approximately **two FTEs**²⁷ were supported by Fund 760 in 2013.

Services and charges: this includes the \$53,000 payment to Lake County associated with the MS4 permit support.

Debt service: Total debt expenses were \$552,780, which included rolling over 1-year notes in support of past stormwater capital projects. The \$80,000 represents the actually cash flow in support of debt retirement. The City estimates that the existing \$480,000 in debt obligations, which includes both capital projects and lease obligations, will be retired by 2019.

Expected Future Stormwater Expenses and Capital Requirements. The good news is that Painesville’s existing stormwater program is operating in the black with a budget surplus of more than \$38,000. The bad news is, according to Painesville’s 2013 budget description, the stormwater program is falling significantly short on meeting the needs within the community. In this section, we provide an estimate of what those stormwater needs within each of the core stormwater program components will be and the resources that will be necessary for providing necessary stormwater services.

Operations and Maintenance. The City’s stormwater program is responsible for operating and maintaining all stormwater infrastructure and assets that are located on public property. Operations and maintenance (O&M) activities vary from periodic activities such as cleaning pipes and conveyances to structural repairs aging pipes and infrastructure. Though the cost of O&M activities is relatively small compared to capital investments, expenses are impacted by a variety of factors, including:

²⁵ Actual debt service was \$484,677, which included debt service expense plus rolling over remaining debt into new 1-year notes.

²⁶ For accounting and finance purposes, this is the code designated for stormwater in the city’s budgets.

²⁷ An FTE, which stands for Full-time equivalent (FTE), is a unit that indicates the workload of an employed person in a way that makes workloads comparable across various departments, functions, and contexts.

- The age of the system: Painesville has a relatively old stormwater system, which will require more aggressive maintenance activities in the future. This is complicated by the fact that the city has not yet allocated the resources necessary to conduct a detailed infrastructure and asset inventory exercise.
- Water quality requirements: the increase in federal and state water quality requirements can add to O&M costs due to the increase in necessary projects.
- Quantity of stormwater practices: very simply, the larger a community's stormwater system and infrastructure, the more resources will be required to operate and maintain that system.

What is certain is that the actual cost of maintaining a stormwater system is unique to each community. As a budget planning exercise, it appears as though the city's staffing levels are on the low side, but would be sufficient if the program were highly organized and strategic operations and management systems in place. One of the priorities of this planning exercise, which we address in the next section, should be to conduct a detailed FTE analysis to determine the exact level of activity that is necessary for operating and maintaining the city's system. In lieu of that analysis, we will assume that the existing estimate of two FTEs should be maintained, and should be sufficient, for the foreseeable future.

Capital investments. The most significant cost to the city's stormwater system is associated with necessary capital investments. As we indicated above, the city has historically made relatively significant capital investments into its stormwater infrastructure. What is less clear, however, is whether those investments were made as part of a codified or strategic infrastructure or capital plan.

Tiber Creek is the primary watershed in Painesville, and represents the city's most significant stormwater capital investment need. Two recent engineering studies outline the capital investments that are needed to address drainage and flooding problems throughout the watershed.

Metcalfe & Eddy Tiber Creek Drainage Study.²⁸ The first study was conducted by the engineering firm Metcalfe & Eddy of Ohio, Inc. (M&E) in 2008. M&E performed a drainage study and made recommendations for improving flooding and drainage problems, which included planning level cost estimates. M&E recommended storm sewer improvements totaling **\$2,420,000.**²⁹

ARCADIS Watershed Study. The second study was conducted by the engineering firm ARCADIS in 2011 provided recommendations for detention projects as well as stream restoration improvements that would help alleviate many of the flooding concerns and problems in the southwest portion of the city. Total cost estimates for implementing the Tiber Creek watershed improvements are **\$1,915,000.**³⁰

The total capital improvements necessary for improving the drainage in the Tiber Creek

²⁸ Source: Metcalfe & Eddy Tiber Creek Drainage Study. August 11, 2008.

²⁹ This does not include a \$1,198,000 estimate to improve storm sewers on Chestnut Street and Cedarbrook Drive; these improvements are addressed in the ARCADIS study described below.

³⁰ ARCADIS Tiber Creek Watershed Study for the City of Painesville, February 2013. Page 19.

watershed is **\$4,335,000**. Specifically, the two studies identify the following capital projects and locations as being priorities:

Cedarbrook Basin	\$ 1,431,000
Maplewood Basin	\$ 288,000
Cedarbrook Drive Inlet	\$ 196,000
Gingerbread	\$ 640,000
Mentor/Jackson	\$ 1,174,000
Nelson	\$ 606,000
Total:	\$ 4,335,000

In spite of the importance of the Tiber Creek watershed improvements, those recommended improvements would only address about 1/3 of the city’s drainage area. Therefore, without the benefit of a codified capital investment plan, we are assuming some level of capital investment will be necessary for the remainder of the city, though not as extensive as the Tiber Creek area. For example, in the northern part of the city where flat topography and clay soils result in significant ponding and basement flooding, a green infrastructure or bio-infiltration strategy appears to be most appropriate. In addition, those sections of the city where the interaction between the storm and sanitary sewers are causing basement flooding, a backflow preventer program should be implemented (see Section 3 for a detailed recommendation).

Table 3 provides a cursory estimate of future capital investment needs. To address known infrastructure needs, as well as to react to new problems and innovative new technological solutions in the future, we believe that a total capital investment of \$5 million should be planned for. There are several caveats associated to this estimate. First, as we stated above,

Table 3: Anticipated Capital Investments

Tiber Creek drainage improvement requirements:	\$4,335,000
Backyard and green infrastructure program:	\$ 500,000
Sanitary/stormwater backflow preventer program:	\$ 500,000
Other capital improvements:	\$ 500,000
Total:	\$5,835,000

the estimate is based on an incomplete stormwater management strategy. Second, though we feel strongly that an investment of this magnitude will dramatically improve the quality of life for Painesville residents, we are not suggesting that recommended capital improvements will enable Painesville’s stormwater system to convey or treat all of the water from some significant rain events. The fact is that 11 inches of rain in 48 hours is more than any stormwater system can handle; flooding will occur in those situations. The goal of these investments, as we discuss in more detail in the following section, is to improve the quality of life for the Painesville

community by effectively addressing more common and frequent weather events.

Permit and regulatory requirements. Finally, we assessed the necessary level of annual investment required to be in compliance with the city’s MS4 stormwater permit. The vast majority of the costs associated with successfully implementing the six minimum control measures is related to personnel expenses (though there are miscellaneous other expenses involved). Therefore, our next step was to estimate the number of FTEs necessary for managing a Phase 2 general permit effectively. As with operations and maintenance needs, staff time needed to implement the six MCMs is related to a variety of factors and community conditions including population, size of the city, the age of the infrastructure, etc. Therefore, to estimate the number of FTEs required to implement the city’s permit compliance efforts, we utilized analysis conducted by the Chesapeake Stormwater Network (CSN), a nonprofit located in Ellicott City, Maryland.

Table 4 provides a summary of CSN’s FTE analysis for the six MCMs, with a total estimated staffing requirement of 1.7 – 3.6 FTEs. We then compared those estimates to the cities staffing commitments. Because the city has not yet conducted a detailed FTE analysis (see next section) we compared the city’s Level 1 payment to the county (\$53,000 annually) to the city’s DPW staffing levels. Going back to our estimate of 2 FTEs associated with the \$113,000 personnel expenses in the 2014 Painesville budget, we determined that the city is paying the county the equivalent of 1 FTE (conversely, the city is receiving the equivalent of 1 FTE worth of service for the \$53,000 payment). Level 1 service with the county covers MCMs 1 through 3; going back to Table 4, we see that those 3 MCMs have an estimated FTE need of .5 – 1.2. Therefore, the city’s \$53,000 payment is well within the value of the services the county is providing.

The city’s MOU with the Soil and Water Conservation District also addresses some of the FTE requirements. As we indicated in Section 2.1, that MOU helps the city cover parts of MCMs 1, 4, and 6. Assuming that half of the responsibilities are covered as a result of that partnership, about .7 FTEs are provided, which again is well worth the investment for the city.

Table 4: FTE Staffing Requirements for MS4 Permit Compliance

MCM 1	0.2	0.5
MCM 2	0.1	0.2
MCM 3	0.2	0.5
MCM 4	0.5	1
MCM 5	0.5	1
MCM 6	0.2	0.4
Total:	1.7	3.6

Though the city is definitely getting its money’s worth in its relationship with the county, our analysis of the needed FTEs and the level of service provided by the county indicates that the

city still has about .5 – 1 FTEs unaccounted for in its stormwater program. We address that need in the following section.

Comparison of stormwater expenses to other cities. As a comparative exercise, we provide the following brief case studies analysis of three comparable cities that have recently addressed stormwater financing issues in their communities. Although they are located in the Mid-Atlantic, these communities are also NPDES MS4 Phase II communities with similar infrastructure and water quality issues.

Salisbury, Maryland: Salisbury is a city located on the Eastern Shore of Maryland with a population of 31,243. Based on a recent stormwater feasibility study, the City of Salisbury will need to spend approximately \$23.2 million over the next ten years for repairs and improvements to their stormwater system with almost \$20 million set aside just for capital improvements. This cost is conservative in that it is an estimate based on data that was collected before their new green infrastructure plan was developed. The total new hires needed to provide an appropriate level of service to the city were estimated at 6 FTE over the next 5 years.

Manheim Township, Pennsylvania: Manheim Township has a population of 38,113 and is a NPDES MS4 Phase II community located in Lancaster County, Pennsylvania. Manheim Township has a robust program with sufficient existing capacity and resources available to manage current stormwater permit requirements. They are not, however, prepared to meet future TMDL and new state requirements that will soon impact the community with their new NPDES MS4 permit. Based on a detailed analysis done in 2013 by the Environmental Finance Center located at the University of Maryland, Manheim Township will need to incur approximately \$10.1 million in stormwater related expenses over the next five years. With current stormwater expenses currently just over \$500,000, a significant increase in stormwater funding will be required to continue to provide the appropriate level of service to the community and meet new permit requirements. This amount included five additional FTE's required by their Public Works department that were necessary to do all of the planned activities.

Bowie, Maryland: The City of Bowie is a community located in Prince George's County, Maryland and is a suburb of Washington, DC. It has a population of 56,129. A detailed analysis was conducted by the Environmental Finance Center located at the University of Maryland in 2013 to determine projected revenue requirements to meet current and future permit obligations and also provide water quality improvements to the Chesapeake Bay. The analysis revealed that Bowie would need almost \$1.8 million a year for the next five years to meet their water quality improvement goals. This amount includes two new FTE's and approximately \$1.6 million in annual capital project outlay. Since Bowie already provides a very high level of service to its citizens and has a very large staff currently managing stormwater, the new FTE's are kept to a minimum with most of the money being spent on capital projects around the city.

Certainly the situation and financing needs in every community is unique to that community. However, these three case studies are indicative of the number of FTEs that will be necessary for Painesville to administer its program effectively and in compliance with permit requirements. In the next section of the report, we provide specific recommendations for how the city can address staffing, investment, and management needs well into the future.

Section 3: Recommendations for Moving Forward

There's no question that Painesville must take steps to improve the performance, efficiency, and effectiveness of its stormwater management and financing program. There is also no question that the city has the ability and resources necessary for making that happen. Based on our assessment of the city's program, we are convinced that Painesville is well positioned to move forward. In this section of our report we provide recommendations for moving the city's stormwater program forward in a way that is sustainable, sufficient, and most importantly, doable. As a way of framing our recommendations in terms of the needs and dynamics of the community, we offer the following overarching goals for the city's stormwater management program.

1. Reestablish trust in the system. First, the city's primary focus at this point should be to establish and maintain the trust of the citizens, taxpayers, and ratepayers within the community. The four public meetings provided us with an opportunity to directly engage residents and business leaders on issues concerning them related to stormwater management. Many of the concerned citizens who participated in those events expressed reservations about the city's capacity and commitment to actually solving their stormwater and flooding problems. Though we feel strongly that the city has many of the right people in place to address and mitigate stormwater problems and issues, that is not necessarily the perception of many in the community. Painesville, like the rest of the country, was certainly impacted by the economic downturn of the past 6 years or so. As a result, investments in critical community infrastructure, like stormwater, were understandably reduced. However, when resources are in short supply, it's even more critical for public leaders to become more visible within their community, assuring residents and citizens that scarce resources are being invested efficiently and effectively, and above all else, that community leaders care about the issues faced by their citizens.
2. Build a partnership with the community. Building on the point made above, it is imperative that city leaders establish strong connections to the citizens and businesses in the community. Stormwater management is too complex, expensive, and encompassing for the city to be successful on its own. Just as partnerships with other communities and institutions will be essential in the future, so too is will be working in direct partnership with citizens moving forward.
3. Incorporate stormwater management into all facets of life and activity. One of the most effective ways to finance stormwater programs is to ensure that virtually all other investments and activities within the city are influenced by the goals of the stormwater program. In some ways this connection is obvious, such as incorporating stormwater management practices into new road construction or other infrastructure improvements. Other times, however, the connection can be less obvious or direct, such as establishing education and outreach events and programs within local schools. Directly or indirectly, all of these activities have impact and importance to the city's stormwater financing efforts.
4. Make stormwater financing a priority. Finally, and perhaps most obviously, we recommend heightening the importance of stormwater management and financing in community decision making. It could be argued that part of Painesville's financing conundrum is based

on the fact that not enough attention has been given to stormwater issues and financing needs in the recent past. That is clearly beginning to change, due in large part to the efforts of the new city manager and his team. Our experience has been that those communities that aggressively and innovatively address stormwater management issues are the ones that are able to reduce long-term costs, improve efficiency, and accomplish aspirational program goals most effectively.

Using these four overarching goals as a framework, we offer the following recommendations for improving the city's stormwater financing program. The recommendations are presented in three categories: leadership, organization, and planning; allocating resources; and, making capital improvements.

Recommendations Part 1: Leadership, Organization, and Planning. Our first set of recommendations is focused on improving the management and administration of Painesville's stormwater program. Regardless of the financing decisions that will need to be made by community leaders, every jurisdiction must take steps to ensure that every dollar invested is done so efficiently and effectively. This will require leadership and management structures that are transparent, result in accountability, and focused on results.

Recommendation 1: Develop a detailed stormwater management plan. The most elemental task in the City's new financing effort should be to develop a detailed stormwater management plan. The plan should incorporate three key elements:

1. A detailed operations and maintenance strategy and schedule, which focuses on ensuring that the city's stormwater system functions at its maximum capacity;
2. A thorough infrastructure assessment with an updated mapping and inventory of the city's stormwater system; and,
3. A detailed capital investment plan that accounts for the stormwater needs of the entire city.

We recognize that there are many uncertainties related to the long-term improvement of the city's stormwater infrastructure, including the availability of capital. Those uncertainties, however, necessitate the development of a codified plan and strategy for investing O&M and capital resources. Up to this point, the city has been operating without a long-term plan that is focused on long-term solutions. The first step in the process should be to conduct an assessment of the city's stormwater infrastructure to fully understand the condition of the infrastructure. That assessment should serve as the basis for a subsequent operations and maintenance strategy and capital improvement plan. The most important outcome of a detailed stormwater management plan is that it will enable the city to become much more proactive moving forward. Infrastructure financing tends to become very expensive when O&M and capital improvements are addressed in reaction to catastrophic events and problems. A detailed plan, including implementation strategy, will enable the city to become more cost effective in the long-term.

In addition to the detailed O&M strategy, the city must establish a prioritized capital investment plan. Our cursory estimate in Section 2 is based on the two engineering studies as well as an evaluation of the citizen surveys conducted during the four public meetings. Stormwater leaders must be much more proactive in identifying stormwater issues throughout

the city as well as potential solutions to those problems. Once that is done, a prioritization process can take place that will enable the city to establish more robust capital investment estimates in the future.

Recommendation 2: Provide clear reporting and accountability in the stormwater program.

This is perhaps the recommendation that has the greatest potential for being fully implemented, given that it's already happening. The new city manager has begun to shift responsibilities and reporting structures in various departments in a way that is creating more accountability, transparency, and potential for long-term effectiveness. New leadership in the Department of Public Works is a great example.

It's hard to overstate the importance of continuing the management restructuring and leadership development process. As we mentioned above, the citizens of Painesville must become partners in, and advocates for, the city's stormwater management efforts. That partnership will not happen if city staff is not engaged and motivated to improve the program's performance. Again, recent decisions by the city manager have been important first steps in the process.

Recommendation 3: Establish a citizen-based watershed organization to work in partnership and in collaboration with City leaders.

Effective public policies and programs are those that reflect the ideas, needs, expertise, and opinions of citizens. Local watershed organizations are by their very definition organized in a way that represent the needs of both citizens within the community in regards to the management, protection, and restoration of water-based resources. In effect, citizen-based watershed organizations provide a conduit between public agencies and the citizens they serve.

The Chagrin River Watershed Partners provides an excellent example of an organization that was started by the public sector to serve as that conduit. Therefore, it's entirely appropriate for Painesville's leaders to help establish this type of organization. Benefits to the community would be:

- Helping with permit compliance and management of MCMs (specifically those focused on education and outreach).
- Generating support for fee programs.
- Providing technical assistance with onsite implementation of best management practices.
- Identifying and leverage grants, as well as developing co-financing opportunities.

We recognize that it might appear counterintuitive to have the public sector initiate a private organization to serve as a potential partner. Keep in mind, however, that the Chagrin River Watershed Partners was actually formed by a coalition of municipalities within the watershed. They recognized the need for this type of group in their communities and took the steps necessary to facilitate its development. We suggest the City of Painesville consider a similar approach.

Recommendations Part 2: Resource Allocation. The following recommendations are directly related to maximizing cash flow in the stormwater financing system, while at the same time ensuring that every dollar invested in stormwater management results in maximum benefit to the community.

Recommendation 4: Expand the partnership with Lake County by moving to the Level 2 service agreement. There are certain activities that are not options for the city, and permit compliance is one of them. By moving to Level 2 in the county's stormwater management partnership program, which will cost each resident \$1.25 per month, the city will gain two ways. First, the county has estimated that of the \$112,000 annual payment³¹, about \$25,000 of that revenue would go towards managing the six minimum control measures. Because of the county's economy of scale in this area, they have a competitive advantage over smaller municipalities like Painesville. It would cost the city about 4 to 5 times as much in equivalent FTEs to achieve the same service results if they were to provide the services on their own. The second benefit to the city would come in the form of increased capital investment. The county proposes to hold a percentage of the total revenue in a reserve fund as a way to reduce implementation risk. The remainder, approximately \$50,000 annually, would be available for capital infrastructure projects in Painesville.

Finally, by moving to Level 2 with the county, the city's existing \$58,000 payment to the county would be rolled into the county's assessed fee. This would enable the city to allocate those revenues in its budget to other needs, including infrastructure improvements. The bottom line is that the city gains tremendous financial benefit from moving up to the Level 2 service with the county.

Recommendation 5: Maintain the city's existing stormwater fee. The natural instinct for many people will be to discontinue the \$2.75 monthly stormwater fee in place of the county assessed \$1.25 fee. In our opinion, this would be a mistake for several reasons. First, the city funds both its operations and maintenance as well as its existing debt service obligations with the stormwater fee. Both of these obligations would have to be covered with the general fund revenues. This would create a tremendous fiscal burden for the city. In addition, as we will describe below, once the city meets its existing debt service obligations in 2019, around \$80,000 per year will be available for future capital investments. These are investments that are desperately needed by the city in the future.

It should be noted that the total household fee if the city were to combine the existing \$2.75 per month with the additional \$1.25 from the county would be \$4.00 per month. The national average monthly single-family fee is \$4.57,³² and the median single-family stormwater fee in the state of Ohio is \$3.00 a month.³³ Painesville's combined fee would be commensurate with what is the norm regionally and nationally.

By implementing recommendations 5 and 6, the city is positioning itself to increase its capital investments in the future. Specifically, the following cash flow benefits would result:

- Release of \$53,000 in Level 1 service fees;
- Increased capital investment by the county of approximately \$50,000; and,
- Cash flow gained with the retirement of existing debt would be \$80,000;

³¹ Based on an assessed fee of \$1.25 per month per ratepayer.

³² Western Kentucky University Stormwater Utility Survey 2013. Page 2.

³³ Based on calculations of all stormwater utility fees across Ohio

This results in a total of \$183,000 per year in increased revenue flows. When added to the existing capital expenditures of \$100,000 plus the anticipated \$38,834 surplus in the existing budget, the total available future revenue for capital investments would be an estimated \$321,834 per year. The logical question then is, would this be enough? Using our needed capital investment estimate in Section 2 as a guide, the \$5,835,000 estimate financed over 20 years at 2% interest would require debt service payments of approximately \$356,850. Achieving this level of capital investment, therefore, would require the city to raise its stormwater fee at some point in the near future.

However, if the city were to prioritize necessary capital investments throughout the city and reduce total investments to \$5,000,000, then the total revenue necessary to service debt under the same conditions would be \$306,000 per year, which is well within anticipated revenues estimated above. The \$5,000,000 would address a significant portion of the city's capital investment needs and would go a long way towards improving the quality of life for the community.

There are some caveats to this type of cursory forecast. First, the city will not leverage all \$5 - \$5.835 million in one year. In fact some of the projects may be financed as pay-go, i.e. with cash, while others will be staggered over time, thereby staggering any necessary leveraging. In other words, projects will be designed, constructed, and financed over a period of time. Our point with this estimate, however, is that with one or two imminently doable steps, the city is in a position to dramatically increase its cash flow and potential for restructuring its financing system.

Recommendation 6: Establish a stormwater impact fee. One of the most basic tenants of environmental finance is to not take actions today that will make the problem more expensive to fix tomorrow. Unfortunately, improperly managed land development most often does exactly that, and the implications are being felt in Painesville right now. Financing urban stormwater management becomes more expensive and more difficult when new development activity is done without local environmental conditions in mind. Development-based impact fees would allow the city to account for stormwater management costs before they become a financial burden on the city and its stormwater program. The purpose of the fee is not to disincentivize development, but to ensure that new development is financially sustainable in the long-term.

Recommendations Part 3: Capital Improvements. Finally, we provide recommendations for implementing critical capital infrastructure improvements across the city. Our recommendations are based the capital investment estimates provided on page 21 of Section 3. We recognize that recommending capital investments prior to establishing a long-term stormwater capital improvement plan based on a detailed stormwater plan is in some ways premature. However, our recommendations are based on current understanding of the infrastructure needs in the city (specifically the Tiber Creek drainage area), as well as potential programs that are flexible in nature, thereby allowing for course changes once the stormwater plan is completed. We stress again that the \$5 -- \$5.835 million capital investment estimate will almost certainly change as the planning process takes shape. We remain convinced, however, that the scale is appropriate and effective for planning purposes.

Establishing an infrastructure investment strategy is perhaps the most complex and encompassing part of the city's stormwater planning and implementation process. Again, there are some uncertainties associated with the part of the financing process, especially in regards to the timing of future revenue flows. Assuming the city agrees to move to Level 2 with Lake County while at the same time keeping its stormwater fee intact, the revenues necessary to support capital projects will begin to avail themselves over time. The following recommendations, therefore, must be implemented based on the timing of necessary political decisions.

Finally, the implementation of new programs such as the backflow preventer program and the drainage rebate program will be guided directly by the infrastructure mapping and stormwater planning process. We are making assumptions at this point on the necessary scale and structure of these programs. Moving from assumptions to certainty is of course the point of stormwater plan.

Recommendation 7: Make the Tiber Creek watershed improvements. The city's primary infrastructure need at this time is to improve structural drainage issues associated with Tiber Creek. The detention projects as well as the drainage improvements recommended in the study are essential for addressing some of the worst flooding issues in the city. The city's new stormwater management plan and CIP should begin by addressing those recommended improvements.

Recommendation 8: Implement a Drainage Assistance Rebate Program. Though the Tiber Creek improvements are essential, they will address drainage in only 1/3 of the city. And, as was made clear in the four public meetings, flooding continues to be a growing concern for all of the city's residents. Therefore, a more comprehensive investment strategy is necessary.

There are many parts of the city where onsite flooding is caused by poorly draining or clay soils, flat topography, or obstructed conveyances (or a combination of all three, in some instances). In these cases an onsite drainage assistance program would be very beneficial. Such a program would incentivize site-specific approaches to localized flooding problems. When implemented as part of a comprehensive stormwater management strategy, this disaggregated green infrastructure approach could be highly efficient and cost effective in addressing localized flooding problems.

Case Study: The City of Mentor Drainage Assistance Program. For many years, the City of Mentor has experienced flooding problems on private property similar to Painesville. Mentor officials felt they had a responsibility to their citizens to offer some sort of assistance to alleviate the growing residential property flooding that was occurring. In the early 1990s, Mentor developed the Drainage Assistance Program; through this program the city would install drainage systems and green infrastructure or onsite bio-infiltration practices measures on private property. Property owners were only charged for the cost of materials.

The program required two or more neighboring residents to mutually agree to solve standing water issues. The average cost to the property owner for reimbursement to the city for materials was approximately \$300. After providing proof that a flooding problem actually existed, the property owner was required to provide the necessary easements to the city for

access to the property. The city provided labor for all approved projects. Initially, work was conducted with internal staff but later the city contracted the work out when it became too time consuming.

The total cost for each approved project ranged from \$1,200 to \$1,500. The City of Mentor found that this program did address many of the private property complaints of flooding. The program is now being discontinued because almost all of the properties with serious concerns of flooding who applied to the program since its inception have been addressed, leaving only minor requests that can be managed without the need for a formal program. The City of Mentor is now looking into focusing their efforts on infrastructure mapping and analysis.

It is important to note that this type of program would not replace the need for structural infrastructure improvements in many areas. However, it provides a resource for many homeowners that are experiencing flooding problems that may be independent of larger infrastructure needs. And, for a relatively small amount of money, the city could invest in significant improvements in the quality of life for many of its citizens.

Specific recommendation for Painesville. The idea of a drainage assistance program is not unique to the City of Mentor. In fact, similar programs have been successfully implemented in many other places across the country like communities in North Carolina, Washington, Oregon, and Delaware. Though there are many variations among these programs, each resulted in flooding improvement. We recommend that Painesville implement a program similar to the one developed in Mentor. Specific recommendations include:

- Implement the program through rebates rather than cost reimbursement. We recommend that Painesville reimburse residents a set amount per project; this would be done in lieu of cost reimbursement. A rebate would require significantly less administration, which would lower transaction costs to the city. Alternatively, the city could reimburse contractors directly upon proof of completed work. Running this as a rebate program will avoid the need for an easement on private property. It will also avoid having the city to do the work themselves when capacity is already very limited. Finally, a rebate system will allow homeowners to choose the contractor of their choice to do the work rather than being forced to choose the lowest bidder.
- Begin with a pilot program. As with any program of this type, the goal is to ensure that flooding problems are actually being addressed successfully. Therefore, the entire program should be piloted in certain parts of the city and monitored carefully to ensure that it is effective. The pilot program should prioritize residents who are able to submit the necessary paperwork and complete the project in a timely manner so the program can ensure results and show progress.

Recommendation 9: Implement a backflow preventer program. One of the most significant and costly flooding problems in the city is the result of backflow through sanitary sewer drains in the basements of certain homes. The results of this type of flooding can be economically and even emotionally catastrophic for homeowners. In the most basic terms, backflow problems are caused by the unintended interaction between the sanitary and storm sewers. It's entirely possible that in some neighborhoods the most appropriate solution to the backflow problems

will be to prevent the interaction between the two systems. However, another potentially effective option is to install backflow prevention systems. And, as with the backyard drainage program, the City of Mentor provides an informative case study on how the program can work.

Case Study: The City of Mentor Sanitary Sewer Backup Reduction Grant Program. The Sanitary Sewer Backup Reduction Grant program in Mentor reimburses approximately 75 percent of the total costs of installing a backflow prevention system. The costs can range up to \$2,500 but Mentor will reimburse up to \$1,500 of the total cost.³⁴ Mentor has put aside \$1 million in a grant program that began in August 2013 and has dispersed more than \$125,000 to date to the 170 residents who applied to the program with approximately 50 more applications still in the process of being approved. According to the City of Mentor³⁵, these devices appear to have helped the problem, though more study is required to understand the nature of the problem. The program began as a result of a heavy rain event in July 2013 that led to 500 residents calling to complain of problems.³⁶

Specific recommendation for the City of Painesville. We recommend that Painesville initiate a similar program to the City Mentor (a similar program has also been implemented in Wickliffe, OH). We also recommend that the Painesville dedicate funding towards the program as part of a one-year trial. Although the Mentor and Wickliffe programs differ slightly in the amount that is reimbursed to residents, it is a program that is showing interest and results. Before considering this program for Painesville, it is recommended that city officials contact both cities directly to follow up on how the back flow devices have fared in the 2014 spring thaws and rain events following a heavy snow in the winter.

Recommendation 10: Implement a green infrastructure grant program. Finally, we offer a series of recommendations related to establishing a green infrastructure grant program within the city. Green infrastructure is an approach to water management that protects, restores, or mimics the natural water cycle.³⁷ In the most practical terms, it means planting trees, establishing rain gardens, installing rain barrels, and allowing natural systems to help manage stormwater in urban communities.

The advantages of a implementing a green infrastructure program in Painesville would be threefold. First, it would compliment the backyard drainage program, and provide a cost effective option for homeowners to address flooding and ponding issues on their property. In short, green infrastructure practices offer another set of options for addressing flooding issues. Second, green infrastructure practices are most often used to address water quality concerns in urban communities, including restoration of aquatic habitats, like the Grand River watershed. As a result, the city would be in a position to address both flooding and water quality concerns through the same capital program. Finally, green infrastructure practices have a demonstrated

³⁴ <http://mentor.patch.com/groups/politics-and-elections/p/mentor-approves-grant-program-for-flood-victims>

³⁵ Based on a meeting with Mentor staff on January 9, 2014.

³⁶ <http://www.news-herald.com/general-news/20140216/mentor-sanitary-sewer-backup-reduction-grant-program-seeing-results>

³⁷ <http://www.americanrivers.org/initiatives/pollution/green-infrastructure/what-is-green-infrastructure/#sthash.YNQ4EsHP.dpuf>

track record for increasing property values and improving the quality of life in the communities that adopt them. Though hard infrastructure is often necessary to address major flooding concerns, traditional capital projects in and of themselves do not provide ancillary benefits to the community. Therefore, green infrastructure programs can become integral parts of economic development efforts in urban communities like Painesville.

Though green infrastructure practices are varied, we offer recommendations on two that are proven to be cost effective in myriad communities across the country: rain gardens and rain barrels. Please note, however, that in the long-term, the city would benefit from a green infrastructure program that incentivizes the use of a large swatch of urban bio-infiltration practices. One of the most effective ways to advance a more sophisticated program would be to establish a public/private partnership with an organization like the Chagrin River Watershed Association. In addition, the Lake County Soil and Water Conservation office can provide important resources.

Rain Garden Cost Share Program. There are many benefits to installing rain gardens on public and private properties in Painesville. Rain gardens are a natural way to help alleviate the problems of flooding and improve drainage by allowing the excess water from rain events to quickly soak into the ground. Using certain vegetation and incorporating better soils, rain gardens can act as an important filtering agent allowing for faster drainage rather than having widespread pooling of water that can last for days. Promoting more rain gardens would be extremely beneficial to the city, particularly in the north end of Painesville, where the area is flat and the soils don't filter water as quickly. Rain gardens will also help to remove excess nutrients from fertilizers and other pollutants leading to an improvement in local water quality.

By promoting the placement of rain gardens on appropriate properties, Painesville will add one more method for soaking up the water from rain events that flow off impervious surfaces like roofs, driveways and streets, as well as help minimize the excess water that cannot be absorbed by saturated lawns. It is estimated that rain gardens allow 30 percent more water to be absorbed compared to an equally sized patch of conventional lawn³⁸. Because rain gardens reduce the total amount of water entering storm drain systems, they can also help prevent street flooding and reduce erosion.

Recommendation for Painesville. Although there are some existing rain gardens located on private property in Painesville, it has not been widely promoted as a beneficial technique to control flooding and reduce runoff. The Lake County Soil and Water District provides assistance to municipalities in developing rain gardens³⁹ and also has a user-friendly homeowner's manual that can be made available to citizens of Painesville.

To get a rain garden program accepted and understood by residents, one or two rain gardens should be installed in strategic locations to be used as a demonstration site. A rain garden workshop should be conducted in partnership with the District and Chagrin River Watershed Partners. There are frequently grant opportunities available to help with developing an initial demonstration site and hosting a workshop. Chagrin River Watershed Partners and the

³⁸ <http://clean-water.uwex.edu/pubs/pdf/rgmanual.pdf>

³⁹ <http://www.lakecountyohio.gov/swcd/Landowners/RainGardens.aspx>

Conservation District would be valuable partners in helping to find suitable grants for launching this project.

Following the demonstration site and a workshop, the City of Painesville should continue to promote rain garden installations by offering mini-grants in an amount not to exceed \$250 per household as a reimbursement for the purchase of plants, mulch, or compost for a rain garden. There should be a limited number of applications accepted per year awarded on a first come, first serve basis. For example, if Painesville sets aside \$2,000 a year for the rain garden program and allows \$250 reimbursed per rain garden, it can expect to see 8 gardens set up around the city. To verify that the work has been done correctly, reimbursement will be given only after a city official does an on-site visit. Planting receipts can be requested in order to receive reimbursement. Be sure to reimburse participants for actual documented expenses within a given time frame rather than reimbursing for unused material. Ensure that reimbursement is done in a timely manner, usually within 30 days, so the program earns a reliable reputation. Make sure rain garden owners understand that all future maintenance costs will be the responsibility of the homeowner and not of the city.

While important as a residential program, a rain garden program for Painesville should not be limited to just residential property owners, but should also be promoted in schoolyards, public parks, and on commercial property.

Rain Barrel Program. Rain Barrels are storage containers that collect rainwater from downspouts. Downspouts lead the rainwater from the roof to the ground or storm sewer. Rain barrels usually consist of a plastic storage container with a lid, a system that diverts water into the barrel, an overflow that diverts water away from the house, a screen to keep out debris, and a water spigot to which a hose can attach. The rain barrel is connected into the downspout system, in order to capture and store some of the rainwater.

Storing rainwater in a barrel serves multiple purposes. First, the water can be used for gardening, watering the lawn, etc. rather than using potable water. Second, the rain barrels serve an environmental purpose. By storing the rainwater, there is a decreased impact of stormwater runoff to streams which helps to protect the environment and minimizes sewer back ups that are prevalent in Painesville. Based on the survey responses and feedback at the public meetings, rain barrels are currently used by some residents in Painesville but on a small scale.

Recommendation for Painesville. It is recommended that the City of Painesville provide free rain barrels to residents. A rain barrel workshop should be organized and attendees could be provided with a free rain barrel after attending the workshop. Similar to the recommendation for rain gardens, working with the Lake County Soil and Water Conservation District and the Chagrin River Watershed Partners is a great way to organize a workshop and launch the rain barrel program. A set number of rain barrels can be purchased for each workshop held. This is a fairly inexpensive and easy way to lessen property flooding and conserve water in the summer months.

By way of example of how another community used rain barrels to control local flooding, the Town of Oxford, Maryland held a rain barrel workshop in the summer of 2013 and then asked

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local artists to paint several rain barrels to be auctioned off later at a local festival. The proceeds from the auction were used for environmental activities around the town. The painted rain barrels were a big hit and sold to residents who proudly displayed them on many historic properties around town. One rain barrel is featured in the front of Oxford Town Hall where it is now part of a walking tour around the community to show off their recent environmental activities.

Conclusion

We conclude our report where we began, by stressing what is possible in the Painesville community. Clearly, many of the issues and recommendations that we addressed in this report and through this project create challenges for the Painesville community. Stormwater has been adversely impacting the community for many years, which is requiring the city to make some very difficult political decision in the near future. However, we remain convinced that there are opportunities for the community to not only overcome stormwater management and financing barriers, but to do so in a way that improves the quality of life for Painesville citizens. Again, stormwater management can become a community asset rather than liability.

Acknowledgments

We would like to thank the Painesville, Ohio community for the opportunity to implement this study. Specifically, we would like to thank the following people for their assistance, feedback, and time over the past six months:

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Lake Erie College

Appendix 1: Public Outreach and Community Engagement

An important part of the City of Painesville Stormwater Study was to engage the public and answer any questions the community had about stormwater, to the extent the information was available. This was considered an important component of the study since it provided the community with ample opportunity to share specific information relating to stormwater concerns in their homes, on their property, and in their neighborhoods.

Public Outreach Objectives and Approach. It was considered insufficient to rely solely on past engineering studies and information made available from city officials when making recommendations for stormwater management improvements for Painesville. It became clear early on in the study that stormwater was a major concern for certain areas of the city and that residents and businesses needed a chance to voice their complaints and concerns relating to stormwater. Therefore, the following objectives for public outreach and community engagement were used by Sandy Point in order to be more inclusive of local opinions relating to stormwater:

- Educate and inform citizens and businesses about Painesville’s current stormwater management program and why it is now a priority for the city.
- Engage citizens and businesses about where they see the biggest problems relating to stormwater and compare their input to the information received from past engineering studies and from city officials who manage stormwater.
- Determine priority areas for improvements based on community feedback and ensure that all concerns and complaints are being considered to the extent that is practical and feasible.
- Provide an opportunity for citizens and businesses to be heard and for the city to provide a platform that begins to address growing stormwater management problems the community is facing.

The public outreach and community engagement approach focused on the following actions:

- Provide citizens and businesses with multiple opportunities to provide specific feedback through written comment via a stormwater survey available on the City of Painesville’s website.
- Hold public meetings, at least one in each of the four Wards, to allow for more direct input from citizens and businesses.
- Conduct site visits to areas within the city that were declared by citizens as being of most concern.
- Provide updates and information regarding stormwater management within the city through regular communication with citizens and businesses. This was done by developing an informational page on stormwater on the city’s website and putting an article in the January 2014 issue of the Painesville Pride newsletter regarding the importance of managing stormwater.
- Follow up with emails and phone calls to citizens who contacted Sandy Point with specific questions and concerns by regarding their stormwater problems around the city.

Overview of Public Meetings

A public meeting was held in each ward at the following times and locations:

Ward 1: November 12, 2013 at Elm Street Elementary School

Ward 2: November 13, 2013 at Morley Library

Ward 3: December 9, 2013 at Chestnut Elementary School

Ward 4: December 10, 2013 at Maple Elementary School

All meetings were well attended and lasted approximately an hour and a half. Each meeting had on display two large-scale laminated maps of streets and infrastructure locations to use as a reference point for the properties that were being discussed as well as note cards for additional details that may be provided by citizens. All those who attended the meetings were encouraged to fill out the stormwater survey and submit photos of stormwater concerns. A brief summary of each meeting's highlights is listed below:

Ward 1 Public Meeting: There were eighteen people who attended the meeting. The Ward 1 meeting began with an introduction of what stormwater was but it soon became very clear that all who attended this and subsequent meetings knew what stormwater was and the impact it was having on their community. Homes along the edge of the Grand River, North Avenue, Hine, Owego, and North St. Clair were mentioned as areas of biggest concern. There were several people who cited the biggest problems being on Hine and North Avenue with many in attendance saying their backyards flooded regularly and the water stayed there for sometimes days. Stormwater would often overflow on the driveways and go in garages as well as flood within the basements.

Basement flooding in Ward 1 was a serious concern with several homes having high water levels with some having significant damage to personal property as a result of water in the basement. More than one resident mentioned Rotary Park as a possible cause of the problem although neither engineering studies nor the city engineer confirmed that this is the reason for the problem in Ward 1.

In general, residents felt that flooding on property in Ward 1 occurs from normal rain and not just when the rain is considered catastrophic. Concern was also expressed about regular maintenance of the local storm drain system, specifically regarding leaf and grass clippings where residents will rake their leaves or put cut grass in the storm drains in order to dispose of it. Since there appears to be few clean outs of stormwater drains on a regular basis, residents felt that the water backs up and overflows on to properties when there is a rain event. Regularly scheduled maintenance to clean out and maintain drains as well as developing an educational campaign for citizens regarding keeping leaves and debris out of storm drains was urged.

Ward 2 Public Meeting: There were fourteen people who attended the public meeting in Ward 2. Streets that caused the most concern in Ward 2 were Meadow, Eastwood, Mildred, Laurel Court, Bank, Southington, Thornwood Lane, Liberty, Marion, Casement, and Skinner. The primary concerns were standing water around the property that doesn't quickly dissipate after a rainfall; water in the basement, street flooding, and debris in river. Several residents had

standing water in their yard as almost a year round problem that existed with or without rain since the water doesn't have a proper place to drain to. Sump pumps seem to be inefficient or ineffective in keeping up with the problem when there is a significant rain. Almost all of the attendees at the Ward 2 meeting said that flooding became a major problem after the July 2006 flooding event and has since become a regular flooding problem around the city but in Ward 2 specifically. It was stated that there is also significant pooling of water along railroad tracks between Bank Street and State Street all the way through Liberty Street, which should be addressed.

On Marion Ave, a resident documented all of the dates of flooding issues going back to the July 2006 storm event. A total of eight major floods occurred and on each occasion, the resident called the Day/Night sewer back up number and never received a call back.

Ward3 Public Meeting: There were approximately twenty-four people who attended the public meeting in Ward 3. At this meeting, several residents brought photographs to show the extent of property damage caused by flooding due to stormwater and other photos showing the high water levels that were on their property at the July 2006 stormwater flooding event and at other significant rain events occurring after the July 2006 event.

Homes and properties of particular concern at this meeting were located on streets of Miller Court, Cedarbrook, Levan, Colonial, Chestnut, Southington, Monroe, Lucille, Malvern, Sherwood, Glenwood, Settler's and Trailwood.

Some of the more serious concerns expressed by residents at the Ward 3 meeting related to basement flooding that came up through the floors and several homes had sewage in their basement flooding. In fact, when asked at this meeting about basement flooding, almost twenty people said they had water in their basement at least one time and a dozen people had sewage issues within their basement flooding at some point. Levan Avenue and Cedarbrook Drive were mentioned several times as having significant flooding and sewage issues with some of the homes having several inches of water to several feet of water in the basement. Some of the residents in Ward 3 have paid thousands of dollars in the past to repair flood damage to their home or to waterproof their basements. Residents from Owego and Cedarbrook Drive said that ever since the July 2006 flood, their properties now flood every year. It was the belief of many who attended that new development added to the stormwater problem saying that there wasn't enough piping for the amount of water.

Many sited that sump pumps couldn't keep up with water flow within their homes during significant rains. A home on Settler's for instance, had stormwater coming through the drains and windows even when the sump pump is running constantly. It was mentioned by at least three people that the retention basin at the school located in Ward 3 never seems to have water in it or just wasn't functioning properly while the neighborhood was filling up with stormwater. Others noted that leaves in the sewer drains were an issue. Some said sidewalks and driveways were often flooded. Residents stated they knew the infrastructure was old and built decades ago and that since 2006, flooding has gotten worse. Many wondered if the pipes were big enough to carry the water away from their property.

The homes located on or near Levan Street by Lake Erie College seem to have significant flooding. Snow will melt causing large flooding in the street. People stated that they go to bed at night worrying if their house will flood while they sleep. Since water feeds from this area directly into Tiber Creek, garbage often collects and fills in at the bottom of Tiber Creek due to a lack of maintenance by the city. Cutting back grass and cleaning up debris on a regular basis was highly recommended. Ward 3 has also experienced sinkholes in several locations, most notably near Cedarbrook and Malvern. The sinkholes were assumed to be a result of aging infrastructure. Standing water was said to be a constant occurrence around Ward 3. On Southington, it was stated that backyards flood and it will be seven days or more for the backyard to drain. Several said they only cut the lawn two or three weeks out of the year because the yard is constantly wet.

The proximity of Tiber Creek to several homes located within the ward has been more heavily impacted by stormwater resulting in serious flooding on and in their homes. Homes and businesses on Chestnut Street including Chestnut Storage and the television store have had water pooling up to the train tracks area resulting in high water levels, silt, and brush debris to this part of the city requiring residents and business owners to clear away in order for the stormwater to drain properly.

Ward 4 Public Meeting: There were 29 residents who attended the public meeting in Ward 4. This was by far the largest public meeting and their stormwater concerns were considered significant. Streets said to have significant stormwater problems include Poplar Lane, Chatfield, Hayer, Birchwood, Thornwood, Button, Mentor, Chestnut, Cherrywood, and several other streets in the Heisley Park neighborhood.

The first half of the Ward 4 meeting centered on stormwater concerns in the Heisley Park neighborhood. There were approximately ten homes in this newer development that had problems with flooding in their neighborhood. The problems here have been ongoing running north from Jackson Street down to the tracks with some mentioning the lack of maintenance by the tracks as well as concern that the outlet there is not big enough to handle the water. Sump pumps were said to be running constantly and they needed to be replaced frequently. In one property on Greenfield Lane, for example, the sump pump was replaced four times in seven years.

Residents on Chatfield cited that when Tiber Creek floods, it goes into the back yard and keeps that area under water. Chatfield residents have experienced serious back yard flooding with water reaching the front door on some homes.

On Hayer Drive, which seems to have significant stormwater flooding concerns, residents experienced water flowing into their houses on three or four occasions. Some having had finished basements that were damaged and caused thousands of dollars in damaged property.

Birchwood homes experience stormwater problems saying that developers of Heisley Park put in sump pumps to address the problem and the city put in French drains but that hasn't alleviated all of the problems yet.

Thornwood Street had concerns related to maintenance and Button Avenue homes experienced basement flooding and sewage backup with three feet of sewage. Residents expressed their concern that they are afraid to sleep during a rain for fear of flooding at night.

Mentor Avenue homes experienced garage flooding as well as basement flooding with one resident saying there was \$80,000 in lost property. Residents said that to the west of Mentor Avenue, it is not maintained and there is a problem with people placing items in the creek. Everyone agreed that since the 2006 flooding event, it has become significantly worse in Ward 4.

The Ward 4 public meeting had many comments about how severe flooding was in this part of the city. The residents expressed anger and disappointment and concern about not being able to sell their homes at the value they should be getting for them. Many felt that the city should not have approved development in certain areas of the city and should restrict or prohibit future development to be done when it causes increased stormwater problems.

Stormwater Survey Results

In addition to capturing information about the extent of stormwater problems in the city, Sandy Point developed a stormwater survey specific to Painesville (see Appendix X). This survey was made available at all of the public meetings as well as posted on the City of Painesville website with a new tab on the website created just for stormwater. The survey was limited to ten questions but allowed for additional details to be added as necessary. The survey was made available for completion from the beginning of November 2013 through March 1, 2014. Some who were not able to fill out and return the survey but wanted to contribute their information via email or letter had their information added manually by Sandy Point. In addition, the City of Painesville officials sent several comments about properties of concern to be tracked in the survey from residents and businesses who reported problems directly to the city.

There were seventy-four responses to the survey. Summaries of key findings from the survey are as follows:

- 52% of the respondents said stormwater always collects on or runs through their property at almost every storm, including the smallest events, which results in stormwater on their property; 38% said sometimes but only with above average precipitation; 10% said stormwater never collects or runs through their property.
- When asked to describe stormwater issues on their property, multiple answers to this question were possible and the results showed that 59% responded that stormwater pools on a portion of their property; 63% said stormwater runs through a portion of their property; 46% said that stormwater accumulates quickly and is slow to leave; 49% said that stormwater accumulates inside their property; and 41% said that stormwater on their property is significant.
- When asked to characterize stormwater on their property as a concern, 8% of respondents said that it was a non-issue; 5% said it was a small concern; 18% said it was a moderate concern; and 69% said it was a serious concern.

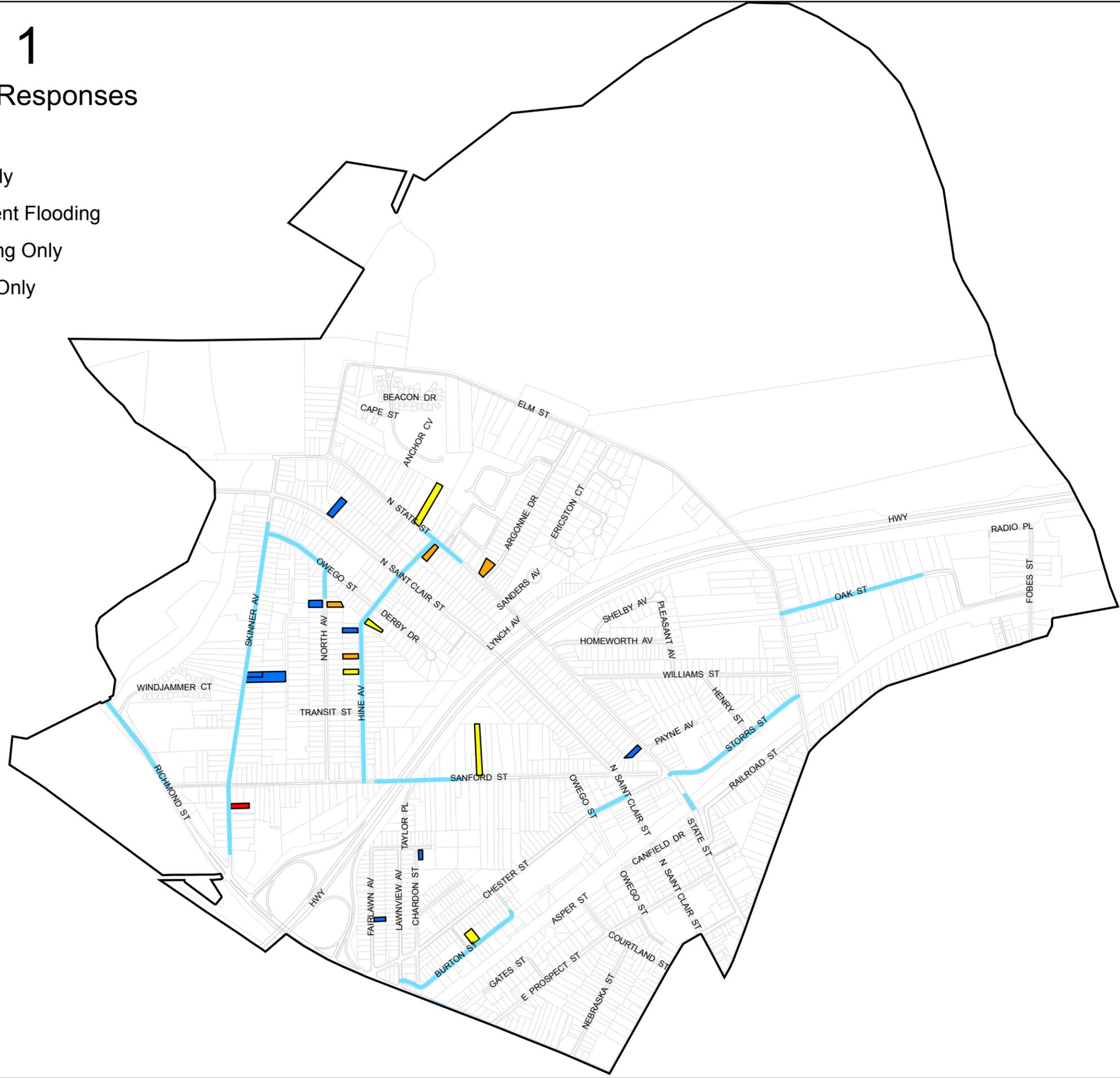
- When asked about stormwater controls on property such as rain barrels, French drains, and sump pumps, 69% answered that they have some sort of stormwater control on their property, most often a sump pump; 31% had no stormwater control.
- When asked about stormwater issues on Painesville roads that impact residents, 84% of the respondents stated that stormwater pools on certain Painesville roads; 52% said that stormwater runs across certain roads; and 66% said that stormwater accumulates quickly and is slow to leave from certain Painesville roads. The list of most impacted roads sited in the survey are attached in Appendix X.
- When asked what other public property is impacted by stormwater, 88% said that sidewalks were most impacted; 22% said parking lots; and 25% said parks. Multiple answers were allowed.
- Many offered additional comments about the need for specific maintenance areas and stormwater improvements to be made in certain areas around the city.

Ward 1

Citizen Flooding Responses



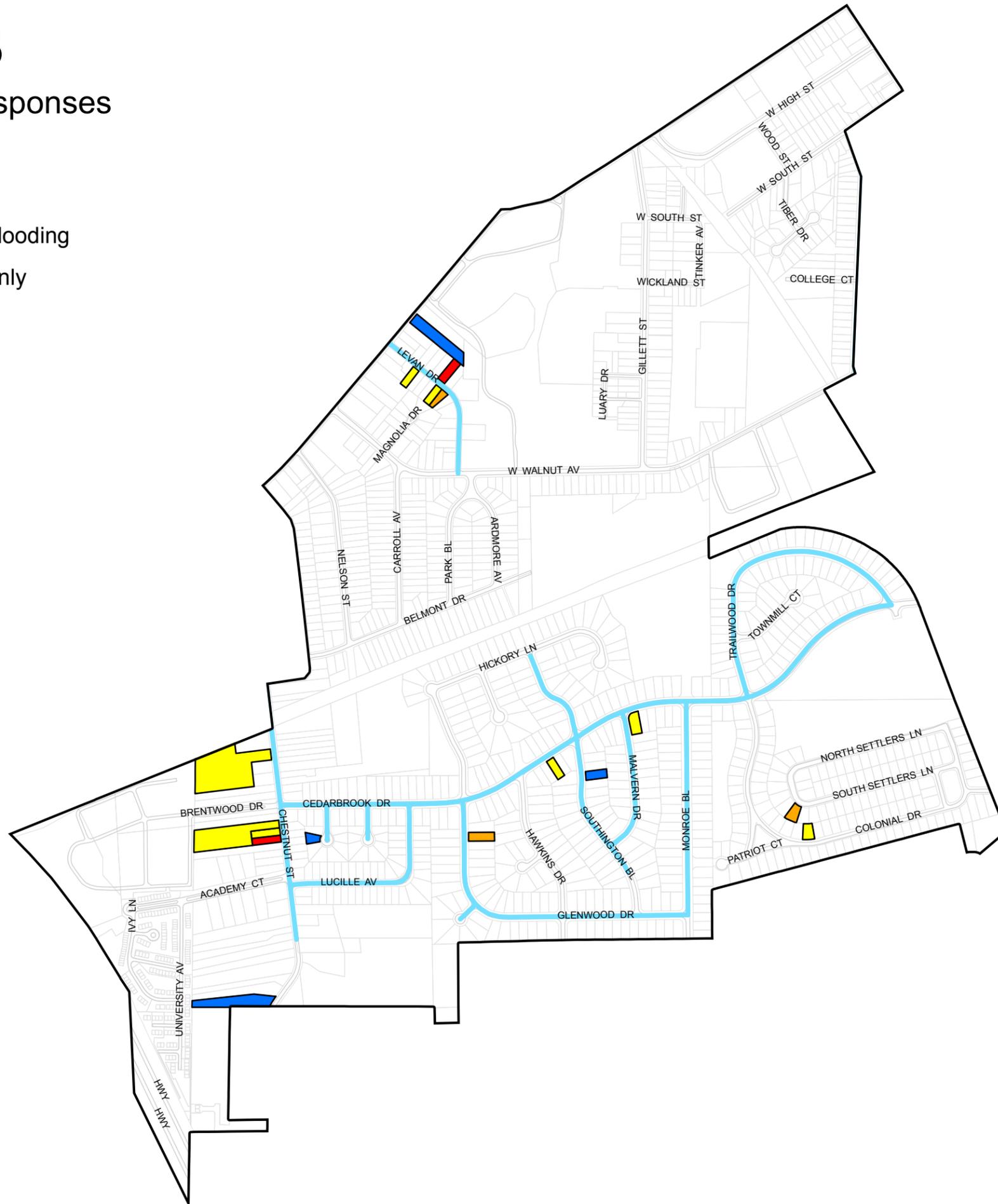
-  Yard Flooding Only
-  Yard and Basement Flooding
-  Basement Flooding Only
-  Sanitary Backup Only
-  Flood Areas



Ward 3

Citizen Flooding Responses

-  Yard Flooding Only
-  Yard and Basement Flooding
-  Basement Flooding Only
-  Sanitary Backup Only
-  Flood Areas



Ward 4

Citizen Flooding Responses



-  Yard Flooding Only
-  Yard and Basement Flooding
-  Basement Flooding Only
-  Sanitary Backup Only
-  Flood Areas

