

Stormwater Management Business Plan

The City of Baltimore has been providing stormwater management services to its citizens for more than 100 years. Historically, these services have been related to mitigating flooding within the roadways. Recently, however, our infrastructure-related stormwater management needs and environmental regulations have expanded, and the level of stormwater management services required to keep up with both has increased. The City is consequently facing steeply rising stormwater management costs and has limited options for generating the funds for those activities. In response, the City developed a program for effective stormwater management that assures a high quality of life for citizens and continued compliance with applicable laws. This Stormwater Management Program (SMP) relies on a separate stormwater fee for funding, as now required by Maryland State law (Environment Article §4-202.1), and outlines a level of service for stormwater management. The SMP will result in improved public safety through a properly maintained storm drain system and the improved livability of the City of Baltimore through water quality enhancement projects and education programs. This document serves as the SMP Business Plan Summary, to broadly outline the SMP and the financial plan developed to fund the program.

The Stormwater Management Program and its Drivers

Historically, the City of Baltimore has provided street-related stormwater services, specifically managing storm drain systems. In order to meet state mandates, decrease roadway flooding, and protect public safety, the City must significantly increase these services. However, the cost of doing so is high due to aging infrastructure that needs more frequent and extensive repair, rehabilitation, and replacement. Recent infrastructure failures caused road collapses, significant roadway flooding, and consequential threats to public safety. An example is the collapse in 2012 of a 120-year old storm drain tunnel under East Monument Street, which resulted in full roadway collapse and the temporary evacuation of residences and businesses.



In addition to the service requirements associated with flooding, drastic changes in regulations have expanded stormwater pollution control requirements in recent years. It is not enough to focus on the quantity of water transported by our system, we must also account for the quality of the water that is discharged into our streams, our harbor, and ultimately, the Chesapeake Bay. More stringent environmental regulations are the single greatest driver causing our stormwater management costs to increase. The City must comply with its National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit. The new permit doubles previous impervious area restoration goals, with a requirement to control runoff from 20% of uncontrolled impervious area by the end of 2018. The permit also requires the implementation of trash reduction strategies, the improvement of illicit discharge detection and elimination (IDDE) operations, and the expansion of public outreach and education programs. Each of these legal requirements is costly to meet, and funding is not available from the State or federal government. Though the stormwater management needs over the coming years are great, the City of Baltimore is well poised to effectively manage its obligations, with knowledgeable staff and a well-designed plan to execute the City's most crucial projects in a timely manner.



With the implementation of the SMP, the City will focus efforts on a variety of projects, including:

- Stream restorations in the Stony Run, Chinquapin Run, and Biddison Run sub-watersheds;
- Environmental site development (ESD) project implementation in the Cherry Hill and Butcher's Hill neighborhoods;
- Facility greening projects at local schools and interior parks; and
- Preventative measures beginning with the installation of inlet screens that capture pollution through our gateway corridors.



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Stormwater Management Business Plan



These projects are not effective without a working collection system, so the SMP also focuses on major infrastructure projects, like replacement of the collapsed Race Street tunnel that has caused a three-year road closure. Where feasible, the City will undertake public-private stormwater system projects. These partnerships can stretch our dollars and result in multifaceted improvements to the City, reaching well beyond a simple storm drain “fix.”

The SMP also enables the City to shift storm drain maintenance processes from reactive to proactive, assisted by a new asset management program for the inlets, manholes, and more than 1,000 miles of pipes. Proactive maintenance is more cost effective, as it identifies problems quickly and addresses them

systematically, often minimizing damage resulting from infrastructure failures. The program also incorporates a greatly expanded urgent needs component to quickly address future storm drain system failures. Improved storm drain maintenance helps keep our street network in better condition, reducing potholes, street closures, and impacts on other utilities. Finally, routine maintenance operations, such as inlet cleaning, have shown demonstrated water quality improvements.

The proactive storm drain maintenance, capital project construction, and regulatory compliance efforts mentioned above requires increased staffing and contracted services. These new employees include engineers, scientists, inspectors, technicians, and drainage system maintenance staff. The increased staff will work closely with the public to implement various projects. In addition, our monitoring and inspections staff will improve regulation enforcement.



Our Previous Stormwater Management Program

In recent years, the City’s budget for stormwater-related activities had been funded primarily from motor vehicle revenue and general funds. Historic budgets for stormwater-related activities are shown in the table below. Though funded before the implementation of the SMP, these costs are all related to stormwater management. Going forward, funding for these ongoing “baseline” services will come from the fee.

Description	Historic Cost
Operations	
Monitoring, enforcement, and program administration	\$ 3.1 M
Maintenance	\$ 4.8 M
Street sweeping*	\$ 3.3 M
Capital Improvements	
Infrastructure rehabilitation	\$ 1.5 M
Permit compliance	\$ 1.5 M
Total	\$ 14.2 M

***Note:** Street sweeping operating expenses portrayed in this table are only those allocable to stormwater management. There are additional street sweeping costs that will continue to be funded by other means, such as the general fund.

Stormwater Management Business Plan



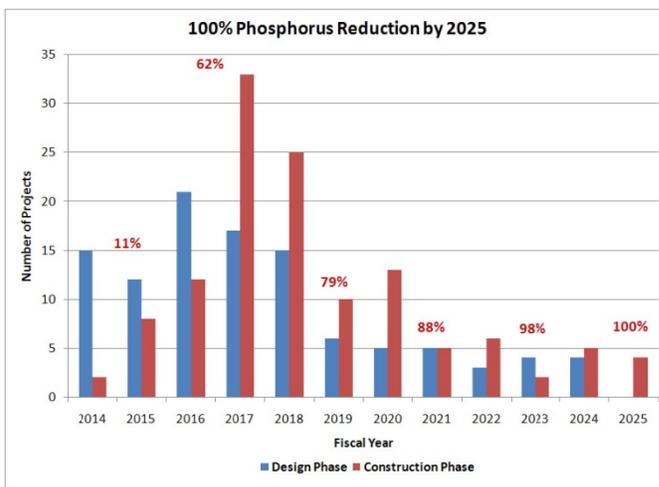
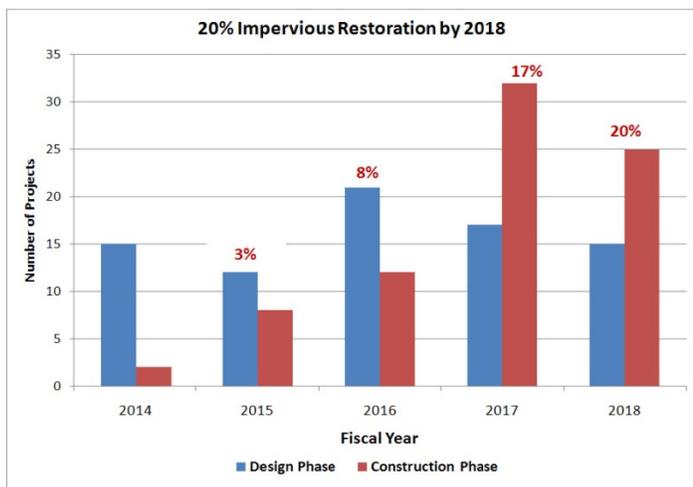
Our New Stormwater Management Program

The new SMP builds upon the “baseline” services shown above, increasing our level of service. The City’s increased operating efforts are necessary to comply with its more stringent NPDES permits, especially in regards to maintenance of the new stormwater management practices. These costs are expected to escalate over time in response to these needs. Operating costs are expected to exceed \$20 million by 2017. Capital project implementation will increase as well, as the City undertakes projects to improve surface water quality and replace essential components of the aging storm drain system. Many of these projects would not be possible without the stormwater fee.

In order to efficiently control costs and disruptions to the community (road closures, noise, etc.), the SMP will take every opportunity to collaborate with other City agencies, businesses, institutions, environmental groups and community organizations during the planning, design, and construction phases of the projects. This could be as simple as targeting our facility greening projects to geographically align with TreeBaltimore’s urban tree canopy strategy and scheduling projects within the roadway to coincide with other utility and roadway paving projects. Or, it could be as complex as integrating stormwater management practices within a large-scale community revitalization program.



Meeting the regulatory goals pertaining to nutrient and sediment reduction requires a combination of capital improvement projects and expanded operations. The permit compliance projects are a combination of traditional, ESD, and alternative best management practices focused on nutrient reduction and trash collection. The following graphs illustrate the implementation schedule and expectations for meeting the regulatory goals:



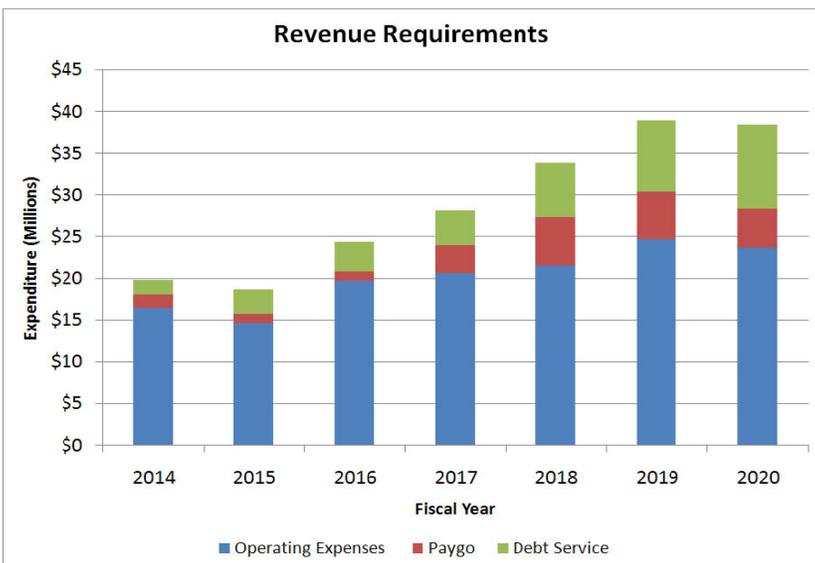
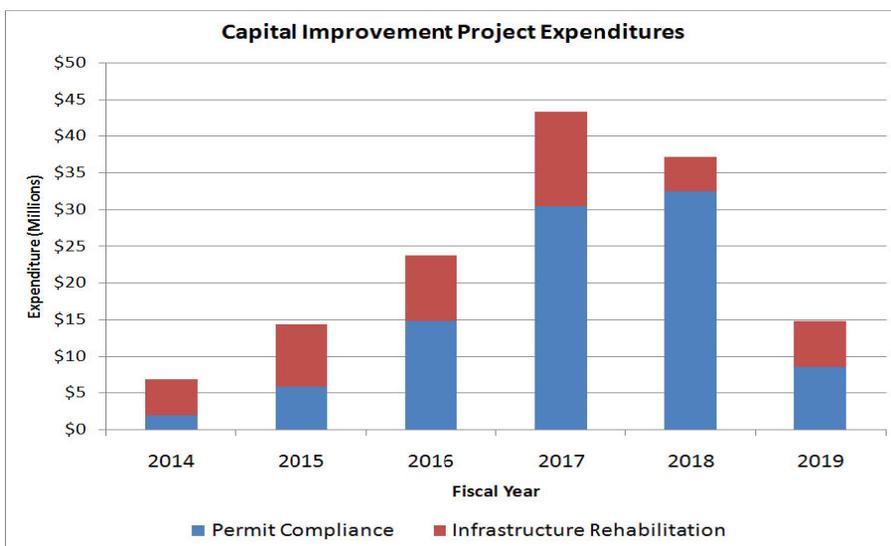
Stormwater Management Business Plan



The Stormwater Management Program Costs

The costs associated with continuing our existing stormwater management efforts, increasing our aging infrastructure repair and replacement efforts, and complying with new environmental regulations are expected to increase with each successive MS4 permit. The largest increase in budget expenditures will be in the form of capital improvement projects, both for permit compliance and infrastructure rehabilitation. A 6-year forecast of capital expenditures is as follows:

The forecasted costs include additions for personnel, vehicles, and other expenses that demonstrate the increased investment in the stormwater system that will be made over the next several years with revenues generated from the stormwater fees. In 2012, the City created a Stormwater Utility which acts as an enterprise fund, allowing greater protection of stormwater fee revenues and increased financing options, such as selling revenue bonds. Financing options help reduce the revenue requirements, as shown in the following graph:



Note: Debt service is the repayment of bonds issued by the Enterprise Fund to fund capital projects. PAYGO expenses are capital projects paid with existing cash. Many projects will rely upon a combination of financing options.

Financing the Stormwater Management Program

The Maryland Stormwater Fee is charged to property owners within the City based on the amount of impervious surface area on their property. Impervious area is the most appropriate rate structure for stormwater management fees in Baltimore because impervious area limits the amount of water that can be absorbed into the ground and increases the amount of stormwater runoff. It is also the metric most commonly used for estimating stormwater runoff and pollutant loading in state guidance documents. Essentially, the quantity of storm water relying on the City's drainage system increases and the quality of water eventually reaching water bodies is degraded. Based on this rate structure, the City conducted an analysis of Baltimore properties and determined appropriate rates that can fund the SMP.

Stormwater Management Business Plan



The rate structure for the Maryland Stormwater Fee is based on an equivalent residential unit (ERU), or the amount of impervious area on a typical residential lot in the City. Based on measured data, the ERU is 1,050 square feet of impervious area. For single family residential properties, each property will fall into one of three tiers based on the amount of impervious area on the property and will be charged the rate for that tier. The approved stormwater fee rates for Fiscal Years 2014 to 2017 are as follows:

Customer	Quarterly Fee
Tier 1 Residential	\$10
Tier 2 Residential	\$15
Tier 3 Residential	\$30
All other properties	\$15 / ERU

Maryland laws exempt State- and municipally owned properties from these fees. Because of these exemptions, projected fees are higher than they would be if all properties were subject to the fee.

Also, tax-exempt religious institutions in the City are eligible for a sharply reduced rate of just \$3 per ERU per quarter on buildings used for worship or K-12 education. And City customers whose property tax bills and stormwater bills are both at least \$1,000 are eligible to apply for a cap on their Maryland Stormwater Fee. This would especially help industrial customers with large amounts of impervious surface keep their stormwater bill to 20 percent of their property tax bill. These special situations decrease the stormwater program revenue without addressing the requirement of the MS4 permit conditions, thereby impacting the level of service the program is able to provide.

All customers have the opportunity to decrease their fees if they participate in citywide stormwater management efforts (like stream clean ups) or implement best management practices (BMPs) to decrease stormwater runoff or reduce stormwater pollution in runoff. The City issues stormwater fee credits that decrease the property owner's fee, and the credits are proportional to the mitigation of stormwater runoff impacts associated with the BMP or stormwater management effort. These activities and practices contribute to water quality improvements and help the City meet its MS4 environmental obligations. The City worked with a citizens committee to refine the details of this planned credit program, and more information is available on the cleanwaterbaltimore.org website.

Conclusion

The City recognizes the many needs of its citizens and recognizes our specific needs for increased infrastructure maintenance and for compliance with new State and federal laws. We have developed a SMP to respond to these needs now and into the future. This well-formed plan meets these needs as economically as possible, and achieves the goals of fairness and affordability. The program helps us maintain our infrastructure and our environmental quality so we may continue to stimulate growth in Baltimore City.

