Evaluation of a Stormwater Enterprise Fund

Town of Concord, Massachusetts | January 2025

TOWN OF CONCORD

Stormwater Enterprise Fund
Development and Implementation

January 2025

Weston & Sampson

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EXECUTIVE SUMMARY

The Town of Concord plans to implement a stormwater enterprise fund in 2025 to fund the Town's stormwater management needs, which include complying with federal permitting requirements which focus on water quality; reducing stormwater flooding; ensuring resiliency planning for future flood mitigation; and investing in aging infrastructure, while at the same time adopting a methodology for assigning fees that is fair and equitable to all users. After reviewing available funding mechanisms and examples of other municipalities in Massachusetts leading the way on stormwater management, the Town decided to explore the feasibility of implementing a stormwater enterprise fund. A stormwater enterprise fund collects fees to support the operation, maintenance, rehabilitation, and expansion of the existing stormwater system.

The desire to implement a stormwater enterprise fund is not a new concept in Concord. One of the goals of the Town's 2020 Climate Action and Resilience Plan was to ensure that Concord's critical infrastructure was prepared for climate change impacts, through the creation of a stormwater enterprise fund. Adoption of a stormwater enterprise fund was also recommended as part of the Town's 2023 Hazard Mitigation Plan Update "to provide a dedicated, predictable revenue stream to finance upgrades to the Town's stormwater infrastructure."

Over the last few decades, Concord's investments in stormwater infrastructure have not matched the Town's needs. If the Town continues to fall short in funding these needs, the Town will be forced to spend more money over the long-term reactively. The Town requires a dedicated funding source, and the hope is that the priorities outlined herein that are funded as part of a potential stormwater enterprise fund align with Concord's goals and interests. The environmental benefits are substantial. If the Town chooses to forgo the adoption of a stormwater enterprise, the funding still needs to come from another source and that burden would fall upon non-tax-exempt property owners under the general fund directing funds away from other town interests.

The approach of proactively preparing and funding stormwater management needs through an enterprise fund aligns with the careful planning and predictably that is a hallmark of how Concord has successfully managed and funded other town utilities and infrastructure needs. This planning and upfront investment in stormwater will translate to less money being spent reactively by the Town for stormwater over the long-term and allow the Town to re-direct those funds to other municipal needs.

STORMWATER MANAGEMENT GOALS

INVEST IN THE FUTURE

The Concord community will need to invest more in stormwater infrastructure to ensure an adequate level of service and regulatory compliance than what has been invested historically. By creating a stormwater enterprise fund, the Town can invest in the future without burdening other departments financed through the General Fund.

REDUCE STORMWATER FLOODING

Urban stormwater runoff is directly correlated to the amount of impervious area, which keeps stormwater from seeping into the soil and recharging groundwater. In heavy downpours, storm drainage systems can become overwhelmed. Funds generated through a stormwater enterprise fund can be used to upgrade existing stormwater conveyance systems and construct green infrastructure, which uses natural properties to filter pollutants and allow water to soak into the soil rather than flood our streets.

MEET REGULATORY REQUIREMENTS

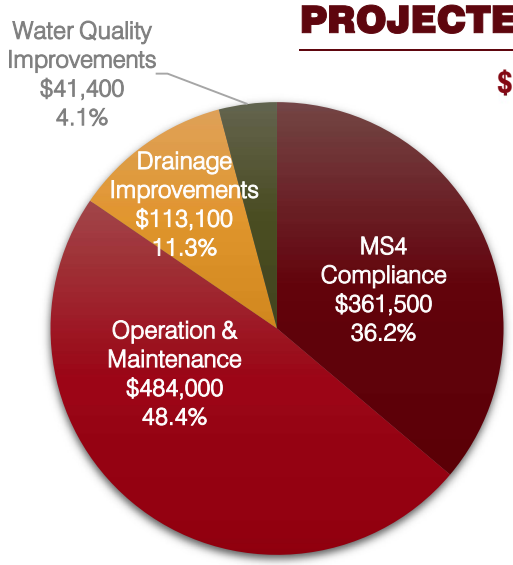
The Town must comply with the extensive requirements of the Environmental Protection Agency's Municipal Separate Storm Sewer Systems (MS4) Permit. The Town will incur significant costs to continue to meet the requirements of this federal permit. A reliable funding source will be necessary for the foreseeable future.

CONTROL WATER POLLUTION

Stormwater flowing from impervious surfaces, like roadways and parking lots, carries pollutants into rivers and streams. Water contamination is harmful to drinking water sources, wildlife and recreation. Water pollution results in both direct costs (e.g., water treatment, emergency response) and indirect costs (e.g., reduced fish populations, loss of biodiversity and disruption of food webs, reduced recreational opportunities, reduced property value, loss of tourism, etc.).

PROJECTED STORMWATER BUDGET

$1 MILLION ANNUALLY



The projected stormwater budget for FY2026 to FY2035 covers compliance with the 2016 MS4 Permit, culvert and drainage improvements, operation and maintenance, as well as staffing and equipment needs. The total target revenue goal to be raised under a stormwater enterprise fund is approximately **$1 million annually**. The revenue generated from the proposed stormwater enterprise fee would cover immediate operation & maintenance needs with a modest allowance for capital improvement.

STORMWATER ENTERPRISE FUND FEASIBILITY

A stormwater enterprise fund offers a reliable and equitable funding mechanism to meet the Town's stormwater management needs compared to other funding sources. At present, there are at least twenty-nine (29) communities in Massachusetts with stormwater fee systems in place. There are several other communities actively working to develop stormwater funding mechanisms or that have passed enabling legislation.

Funding	Pros	Cons
General Fund	➢ Historical source of funding where protocol is already in place.	➢ Cost burdens from continued compliance with the MS4 Permit would increase the amount of funding going towards stormwater from the General Fund, which could limit funding for other departments. ➢ Not all properties are taxed, therefore not all property owners would contribute to the cost of stormwater management. Taxes paid by individual property owners also do not correlate to a property's impact on the stormwater system and the Town's water resources. ➢ Stormwater has not historically been recognized as a necessary investment and is often underfunded as part of the annual budget review process. ➢ Approved budgets have been variable. If stormwater needs appropriated from the General Fund are insufficient, bonds may be needed, which comes at a higher cost.
Grants	➢ Brings in funding from outside of the Town.	➢ Grants only fund specific types of projects, are not a reliable funding source and often require a cash match. ➢ Grants are typically awarded to communities with greater documented need.
Stormwater Enterprise Fund	➢ Guaranteed source of funding. ➢ A more equitable fee based on impact to stormwater system with all property owners contributing. ➢ Funds can be leveraged as a match for grants.	➢ Initial time and effort involved in implementation and oversight going forward.

HOW WOULD A STORMWATER ENTERPRISE WORK?

One of the most equitable ways to create a stormwater enterprise fund is to calculate the fee based on a parcel's impact upon the drainage system and/or the Town's surface water and groundwater resources. Parcels with greater impervious area, and without stormwater controls on-site, discharge greater amounts of stormwater runoff off-site. Even for those parcels that manage stormwater on-site, the property owners utilize the Town's roadways, which drain to the public stormwater system, and therefore they should share in the cost of operating and maintaining the Town's storm drain system. Therefore, the first step in calculating a stormwater enterprise fee is to measure the impervious area on parcels with different types of development. The second step is to analyze various ways to calculate stormwater user fees and corresponding billing rates. Some towns use an Equivalent Residential Unit (ERU) to compare impact to the stormwater system across different land use types and it is typically based on the average impervious area of the dominant land use type. In Concord, the ERU equals the average impervious surface on a single-family residential parcel or 5,570 square feet.

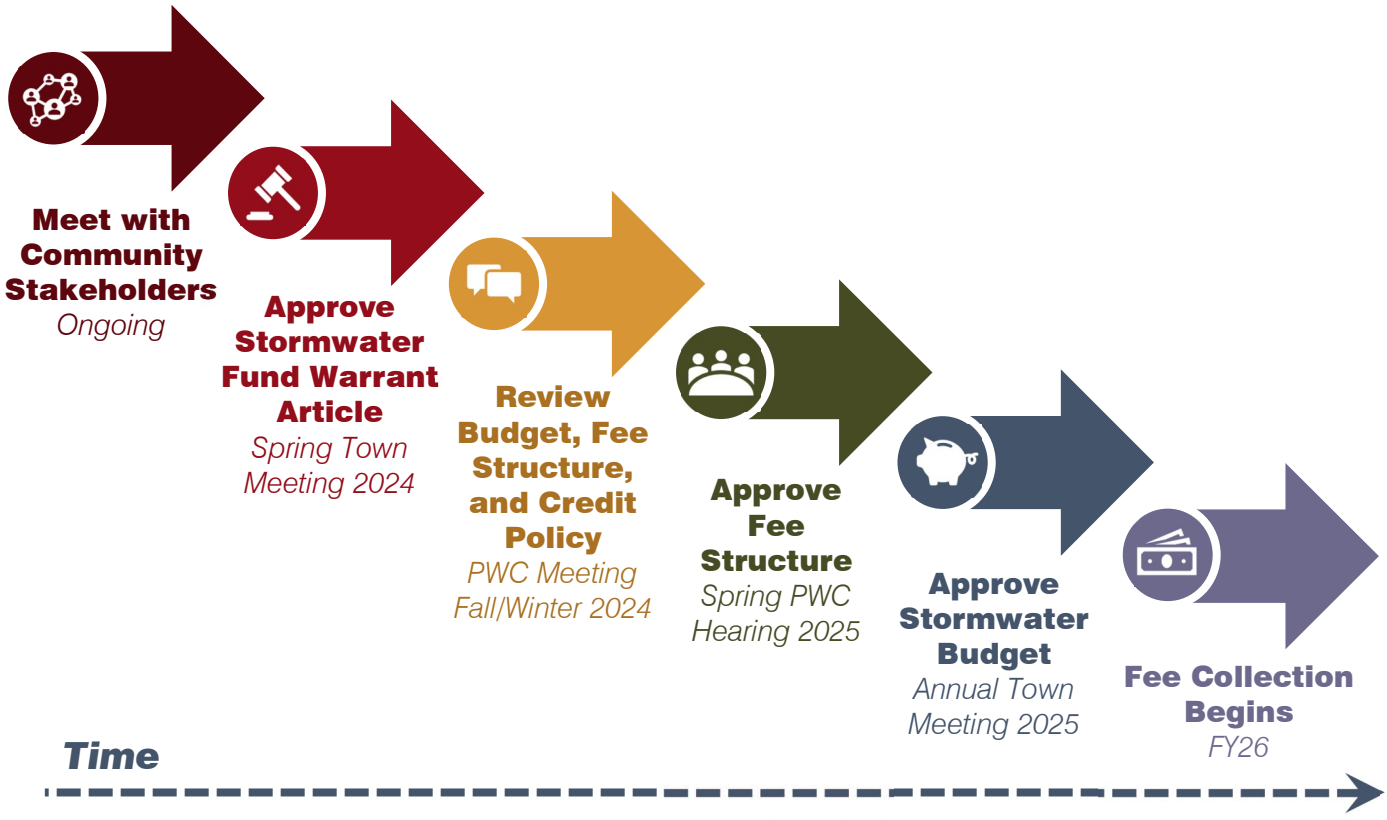
The Town reviewed the following four (4) fee structure scenarios, which examined assignment of fees based on a flat rate and/or based on the amount of impervious surface area on a particular parcel. Under some scenarios, a tiered billing system was developed, which correlates to the impervious surface area on a parcel. Option 2B is the preferred fee structure and offers a 5-tiered structure for 1 to 3-family residential parcels and a 10-tiered structure for non-residential and larger multi-family residential parcels. Fees would be administered through Concord's existing utility billing system. Abatements would be offered, as well as a simple credit or incentive program system.

	1 to 3-Family Residential	Non-Residential and Larger Multi-Family Residential
Option 1	Flat Fee *($118/year)*	Impervious Area using ERU *($118/ERU)*
Option 2	4 Tiers Based on Impervious Area *(Starting at $41.30/year)*	10 Tiers Based on Impervious Area *(Starting at $118/year)*
Option 2B	5 Tiers Based on Impervious Area *(Starting at $41.30/year)*	10 Tiers Based on Impervious Area *(Starting at $118/year)*
Option 3	3 Tiers Based on Impervious Area *(Starting at $105.60/year)*	10 Tiers Based on Impervious Area *(Starting at $118/year)*

STORMWATER ENTERPRISE ADOPTION TIMELINE

The Town has been following a phased approach with the implementation of this stormwater enterprise fund and has been actively engaging with the public to seek their feedback and support during the adoption process. This approach provides ample time for the public to understand the proposed framework of the enterprise and for the Town to receive public input. The Town introduced the concept of a stormwater enterprise fund and sought public feedback at public meetings in 2023 including a Water Symposium held on December 5, 2023, and a Public Works Commission Meeting held on December 13, 2023. More recently, the Town's consultant presented an overview of fee structures under consideration at the Public Works Commission Meeting held on October 9, 2024. All of these meetings have been recorded and are available to the public for viewing.

At Spring 2024 Town Meeting, a Stormwater Fund Article passed by a substantial majority and set up the framework to move forward with the implementation of a stormwater enterprise fund by asking the public to adopt the state's enabling legislation. This article included the adoption of a Stormwater Enterprise Fund Bylaw for the purpose of setting, assessing, and collecting fees for the support of stormwater infrastructure and management throughout the Town, such fund to be managed by the Public Works Commission and Concord Public Works under the direction of the Town Manager. The Town plans to include the Stormwater Enterprise budget on the Spring 2025 Town Meeting Warrant. If passed, fee collection will begin in FY26.



Timeline of Stormwater Enterprise Fund implementation

CONCLUSION

The Town of Concord has considered the possibility of implementing a stormwater enterprise fund for several years to achieve goals relating to preparedness for climate change, hazard mitigation, and the preservation of natural resources. The Town's 2020 Climate Action and Resilience Plan outlines Concord's vision of preparedness for future impacts associated with climate change, including extreme storms and flooding. The plan emphasizes that while Concord's natural resources help minimize how these impacts affect the Town, it is necessary to ensure Concord's stormwater systems are resilient and can continue to provide valuable services to the community into the future. One of the preparedness goals highlighted in this plan is to ensure that Concord's critical infrastructure is prepared for climate change impacts through the creation of a stormwater enterprise fund. Adoption of a stormwater enterprise fund or a stormwater user fee is also highlighted in the Town's 2023 Hazard Mitigation Plan Update. This plan details how extreme weather events are expected to become more intense and more frequent as a result of climate change. The Town highlights that the planning, construction, operation, and maintenance of drainage systems are integral to flood hazard mitigation and includes the adoption of a stormwater enterprise fee as a potential hazard mitigation measure "to provide a dedicated, predictable revenue stream to finance upgrades to the Town's stormwater infrastructure." The approach outlined within this report mirrors that of other equally progressive Massachusetts communities, driven by the desire to establish a fiscally responsible program while also achieving regulatory compliance for water quality. It also considers drainage infrastructure maintenance and expansion with a climate resilience focus while ensuring fairness and equity in the stormwater fee system.

1.0 INTRODUCTION

Stormwater is runoff from rain or snow melt. Most stormwater currently flows into the Town's drainage system and ultimately ends up in ponds, streams or wetlands. Stormwater can carry pollutants (such as bacteria, oil and grease, fertilizer, sand, and trash), which can contaminate drinking water supplies, surface waters utilized for recreational activities, fish and wildlife habitat. Impervious surfaces do not allow any stormwater to infiltrate or seep into the ground. Therefore, areas with widespread impervious surfaces can channel large amounts of stormwater to the drainage system, which can become overwhelmed during intense periods of rainfall. Stormwater management programs are intended to reduce stormwater pollution and mitigate flooding. The ability of the Town's current stormwater management system to meet its intended purpose can be improved by complying with federal regulatory requirements and investing in the future. The goals of the Town's stormwater program are to:

- Meet Stormwater Regulatory Requirements and Improve Water Quality
- Reduce Stormwater Flooding and Prepare for the Increased Frequency of Extreme Storm Events
- Invest in the Future by Rehabilitating Aging and Failing Stormwater Infrastructure
- Move Towards Predictive Maintenance

The Town analyzed historic and current stormwater management practices and expenditures as well as projected stormwater needs and investments to gain a full understanding of the current stormwater program budget constraints and anticipated annual costs of meeting its goals. The Town placed particular emphasis on efforts needed to ensure continued compliance with the requirements of the 2016 Municipal Separate Storm Sewer System (MS4) General Permit, which has an overall goal of improving receiving water quality by reducing pollutant loadings to valuable water resources.

1.1 Background

The Town of Concord is developing a strategy to fund the Town's stormwater management needs, while at the same time ensuring costs are distributed equitably across all users. After reviewing available funding mechanisms and examples of other municipalities in Massachusetts, the Town decided to pursue the implementation a stormwater enterprise fund. A stormwater enterprise fund collects fees to support the overall management of the stormwater system, including operation, maintenance, rehabilitation, and expansion of the existing stormwater system to improve water quality and provide flood mitigation.

The General Permit for Stormwater Discharges from Small Municipal Separate Storm Sewer Systems in Massachusetts also known as the MS4 Permit, is a permit that was first issued by the EPA in 2003 and was re-issued in 2016 in an effort to improve water quality in our waterbodies. It identifies a variety of actions required by municipalities to reduce pollutants entering our stormwater systems and water bodies from urbanized areas. The MS4 Permit requires that the Town of Concord manage stormwater runoff, and operate and maintain their stormwater system, with the overall goal of improving stormwater

discharges to protect and enhance receiving water quality. The Town will need to invest in stormwater infrastructure to ensure system function and address aging infrastructure, in addition to meeting the extensive compliance requirements of the permit. Moving forward, the Town will incur significant costs to meet the mandates of the permit, and a reliable funding source will be necessary for the foreseeable future. By creating a stormwater enterprise fund, the Town can invest in the future without burdening other departments financed through the General Fund.

The Town of Concord has been considering the possibility of implementing a stormwater enterprise fund for several years to achieve goals relating to preparedness for climate change, hazard mitigation, and the preservation of natural resources. The Town's 2020 Climate Action and Resilience Plan outlined Concord's vision of preparedness for future impacts associated with climate change, including extreme storms and flooding. The plan emphasized that while Concord's natural resources help minimize how these impacts affect the Town, it is necessary to ensure Concord's stormwater systems are resilient and can continue to provide valuable services to the community into the future. One of the preparedness goals highlighted in this plan was to ensure that Concord's critical infrastructure was prepared for climate change impacts through the creation of a stormwater enterprise fund. Adoption of a stormwater enterprise fund or a stormwater user fee was also highlighted in the Town's 2023 Hazard Mitigation Plan Update. This plan detailed how extreme weather events are expected to become more intense and more frequent as a result of climate change. The Town highlighted that the planning, construction, operation, and maintenance of drainage systems are integral to flood hazard mitigation and included the adoption of a stormwater enterprise fee as a potential hazard mitigation measure "to provide a dedicated, predictable revenue stream to finance upgrades to the Town's stormwater infrastructure."

Over the last few decades, Concord's investments in stormwater infrastructure have not matched the Town's needs. If the Town continues to fall short in funding these needs, the Town will be forced to reactively spend more money over the long-term. The Town requires a dedicated funding source, and the hope is that the priorities outlined herein that are funded as part of a potential stormwater enterprise align with Concord's goals and interests. The environmental benefits are substantial. If the Town chooses to forgo the adoption of a stormwater enterprise, the funding still needs to come from another source and that burden would fall back on non-tax-exempt property owners under the general fund, pulling money away from other town interests. The approach of proactively preparing and funding stormwater management needs through an enterprise fund aligns with the careful planning and predictably that is a hallmark of how Concord has successfully managed and funded other town utilities and infrastructure needs. This planning and upfront investment in stormwater will translate to less money being spent by the town for stormwater in the long-term and allow the Town to re-direct those funds to other municipal needs.

1.2 Implementation Timeline

The Town has been following a phased approach with the implementation of this stormwater enterprise and has been actively engaging with the public to seek their feedback and support during the adoption

process. This approach will provide ample time for the public to understand the proposed framework of the stormwater enterprise fund and for the Town to collect public input. The Town introduced the concept of a stormwater enterprise and sought public feedback at public meetings in 2023 including a Water Symposium held on December 5, 2023, and a Public Works Commission Meeting held on December 13, 2023. More recently, the Town's consultant presented an overview of fee structures under consideration at the Public Works Commission Meeting held on October 9, 2024. All of these meetings were recorded and are available for public viewing.

At Spring 2024 Town Meeting, a Stormwater Fund Article passed by a substantial majority and set up the framework to move forward with the implementation of a stormwater enterprise fund by asking the public to adopt the state's enabling legislation. This article included the adoption of a Stormwater Enterprise Fund Bylaw for the purpose of setting, assessing, and collecting fees for the support of stormwater infrastructure and management throughout the Town, such fund to be managed by the Public Works Commission and Concord Public Works under the direction of the Town Manager. The Town plans to include the Stormwater Enterprise budget on the Spring 2025 Town Meeting Warrant. If passed, fee collection will begin in FY26.

1.3 Current Stormwater Management Costs and Funding

The Town's current funded stormwater budgetary needs include base level maintenance items such as street sweeping and catch basin cleaning, limited urgent capital improvement projects, and MS4 Permit compliance activities. The Town's existing stormwater program is currently funded through the General Fund, which is financed through property taxes, and with aid from the Commonwealth primarily through the Chapter 90 Program as it relates to limited stormwater improvements performed as part of roadway reconstruction efforts. Authorized through Massachusetts General Laws (M.G.L) Chapter 90, Section 34, the Chapter 90 program is a Massachusetts Department of Transportation (MassDOT) funded reimbursement program, under which the state awards reimbursement grants to municipalities for maintaining, repairing, improving and reconstructing roads. By relying on the General Fund, stormwater management must compete with other budgets and is often not prioritized when compared with other highly visible or critical needs, such as public safety and schools. However, when regulations necessitate funding for additional compliance, like the MS4 Permit, the Town must reallocate funds to required stormwater management, which limits funding for other departments. Certain stormwater system improvements can be financed through other external finance mechanisms (i.e., grants); however, none are specifically for stormwater management or guaranteed long-term funding sources. Chapter 90 reimbursable funds are for capital improvement projects such as the construction, preservation and improvement of public roadways. Stormwater projects that need to be completed in conjunction with such projects are eligible for reimbursement. However, if stormwater projects could be financed through an alternative source, more of this funding could be allocated to roadway improvements and sidewalk construction.

1.4 Near- and Long-Term Stormwater Management Costs and Funding

Using information provided by the Town and informed by other municipal programs, a comprehensive 10-year stormwater management budget that captures the Town's current and future stormwater needs was developed. This budget includes both capital projects, non-capital items related to MS4 Permit compliance, such as operation and maintenance of the drainage system, and capital items such as associated equipment. This budget, presented in more detail in Appendix C, 10-Year Stormwater Budget Projection, and summarized in Table 1-1 reflects estimated annual planning level costs. It incorporates the costs for MS4 Permit compliance presented separately in Appendix D, MS4 Permit Compliance Cost Tables.

Table 1-1 summarizes the Town's projected stormwater costs to be funded by the proposed enterprise for fiscal years 2026 to 2035. The Town anticipates a target revenue goal of approximately $1 million annually in funding through a stormwater enterprise fund. As evidenced in the 10-Year Stormwater Budget Projection included in Appendix C, additional stormwater management needs would still require funding separately outside of the stormwater enterprise fund. The 10-year projections include both ongoing and future municipal activities related to system operation and maintenance (such as street sweeping and catch basin cleaning) and a modest allowance for infrastructure repairs. The 10-year projections for MS4 Permit compliance were developed using the Notice of Intent submitted by the Town to obtain coverage under the 2016 MS4 Permit, MS4 Annual Reports documenting compliance, deliverables prepared to date for compliance and projected costs associated with the implementation of the MS4 Permit requirements based on an understanding of the permit.

Table 1.1: Estimated Non-Capital and Capital Stormwater-Related Costs by Fiscal Year

Stormwater Costs by Fiscal Year	Stormwater Enterprise Funded Costs	
	Non-Capital Costs	Capital Costs
FY2026	$518,000	482,000
FY2027	$713,000	287,000
FY2028	$697,000	303,000
FY2029	$800,000	200,000
FY2030	$951,000	49,000
FY2031	$912,000	88,000
FY2032	$923,000	77,000
FY2033	$834,000	166,000
FY2034	$845,000	155,000
FY2035	$846,000	154,000
Average	**804,000**	**196,000**

2016 MS4 Permit Compliance

Although the Town is still actively working to fulfill the requirements of the 2016 MS4 Permit as the compliance timeframe for various requirements extends to June 30, 2028, EPA issued a 2024 Draft Massachusetts MS4 General Permit for public comment on November 22, 2024. When final, the 2024 Draft Permit will replace the Final Massachusetts MS4 General Permit issued on April 4, 2016, and modified on December 7, 2020. This 2024 Draft Permit carries forward and builds upon the requirements of EPA's previous Massachusetts small MS4 General Permits, with a marked shift from the planning initiatives that were the hallmark of the 2016 MS4 Permit to more implementation-based requirements. With this change in focus, the expectation is that the Town will need to significantly increase funds expended for stormwater management to ensure permit compliance. When the 2024 Draft MS4 Permit is finalized, the Town will be providing a detailed review that includes update of the Town's 10-year stormwater budgetary projections to adequately document this need and ensure that the funds are available within the framework of the Town's budget to meet these needs.

Compliance requirements remaining under the 2016 MS4 Permit are presented in a series of tables included in Appendix D, MS4 Permit Compliance Tables. These individual tables are organized by permit year for Years 8 (FY26) through 10 (FY28). The tables provide a description of each permit requirement by item number as identified in the permit. In addition, information is presented regarding Concord's specific needs and the work that the Town will need to complete over the permit term and beyond. Tasks that the Town plans to complete "in-house" using existing staff, along with tasks where the Town may require assistance from an outside contractor or consultant are differentiated in the attached tables, but overall, it follows a cost effective planning approach to funding. While detailed information regarding stormwater compliance requirements beyond Permit Year 10 will not be solidified until the 2024 Draft MS4 Permit is final, a placeholder budget of $300,000 was used to account for anticipated requirements under the next MS4 Permit iteration. The continued funding of the design and construction of structural BMPs for phosphorus reduction is a priority in the 2024 Draft MS4 Permit. These budgetary placeholders will be re-evaluated upon issuance of the Final 2024 MS4 General Permit. As discussed, the projected costs for stormwater management are higher than the revenue goal set for the stormwater enterprise fund, so the Town may need to obtain supplemental funding from the General Fund.

A majority of the costs related to compliance with the 2016 MS4 Permit can be attributed to the Illicit Discharge Detection and Elimination (IDDE) Program requirements of the permit, as well as compliance with the permit requirements associated with phosphorus-impaired receiving waters. The Town of Concord has investigated approximately 31% of their piped drainage catchment areas; opening, inspecting, and sampling, when flow is present, key junction drain manholes for evidence of non-stormwater discharges entering the Town's drainage system. The Town has not yet started wet weather sampling of permit regulated outfalls. Per Section 2.3.4.8.c of the 2016 MS4 Permit, the Town has documented 48 regulated outfalls that have at least one system vulnerability factor (SVF) that triggers wet weather sampling under the permit. Wet weather samples must be collected at these outfalls by June 30, 2028. In addition to IDDE investigations, significant budget expenditures are related to the implementation of the Town's Phosphorus Source Identification Report (PSIR) for phosphorus impairments related to the

Merrimack River. In Permit Years 4 and 5, the Town developed a Phase I PSIR for the Assabet River Watershed. Upon further review of town, as well as state-wide waterbody impairments, it was determined that the Town of Concord will need to expand the scope of this PSIR to include the entire urbanized portion of the town. The Town of Concord lies entirely within the Concord and Shawsheen watersheds, which are both tributary to the Merrimack River. The Merrimack River has a phosphorus impairment without an approved Total Maximum Daily Load (TMDL). Therefore, the entire urbanized portion of the town is subject to the requirements of Appendix H of the 2016 MS4 Permit, which require the Town to develop a plan and schedule for the implementation of stormwater BMP retrofits in high phosphorus-loading catchment areas as determined as part of the PSIR development process.

Staffing Needs

Through DPW staff interviews conducted as a part of the DPW Capabilities Assessment, it was determined that complying with the 2016 MS4 Permit, as well as maintaining and operating the Town's drainage system, will require employing supplementary full-time staff in addition to allocating funds for drainage improvement projects. Based on information gathered as part of this assessment, it is recommended that the Town hire a GIS technician, an additional equipment operator, and additional administrative support. For FY26, $50,000 has been allocated in the staffing budget for billing assistance and administrative support in implementing the enterprise, with this allocation being reduced to $25,000 in each subsequent year. Additionally, $50,000 has been allocated in the staffing budget annually for consulting support with abatement and credit applications. Hiring additional staff dedicated to stormwater management will allow the Town to expand on the stormwater operation and maintenance-related items that the Town can provide in-house at a cost savings to the Town. In addition, the use of Town staff to perform operation and maintenance activities allows for Town staff to gain institutional system knowledge that provides many added benefits as the Town works to operate and maintain their drainage system. In some instances, the use of private sector and consulting support may result in cost savings through lower overhead/fringe benefit costs. Outsourcing of specific stormwater program elements could be handled under contract arrangement especially for those tasks that are infrequent or require specialized skill sets that may be expensive for the Town to maintain on a full-time basis.

Equipment Needs

In addition to staffing, equipment needs supported by the proposed budget include the purchase of a jetter truck. The purchase of a jetter truck will allow the Town to shift from utilizing outside contractors for sewer and drainpipe cleaning to performing these services in-house. Purchase of a TV inspection truck would also allow the Town to investigate critical drainage infrastructure on an ongoing basis however it was ultimately not included in the stormwater enterprise budget in place of more critical items.

Climate Preparedness

The development of a town-wide Hydrologic and Hydraulic (H&H) Model will allow the Town to examine in greater detail flooding and flood threats due to climate change. Flooding is a town-wide issue, and an H&H Study is integral for the preservation of Concord's infrastructure, historic architecture, and natural resources. Maintenance, repair, or replacement of Concord's 171 culverts and 9 bridges will also

be fundamental in preventing future damage due to flooding. The 2023 *Town-Wide Bridge and Culvert Asset Management Plan (2023)* provided a comprehensive assessment of the Town's culverts and bridges, providing a 10-year infrastructure improvement plan for the Town's culverts outlining recommended improvements for each culvert, along with associated capital costs. Although culvert maintenance was not included in the Stormwater Enterprise Fund budget, this is still an important aspect of stormwater management that the Town will need to prioritize going forward.

Water Quality Monitoring

Additional capital projects the Town may be interested in implementing in future years involve the ongoing monitoring and management of the Town's ponds. The Town of Concord currently works with the sampling agency G&L Labs to monitor the water quality of several ponds in Concord including White Pond and Silver Hill Pond. The *White Pond Watershed Management Plan (2015)* and the *Final White Pond Monitoring Report (2017)* detailed several recommendations to maintain water quality in White Pond, including proper maintenance of BMPs, which is critical to their continued function, and periodic monitoring is also recommended. In-pond management options were also recommended for consideration to address the occasional reoccurrence of nuisance algae blooms, including hypolimnetic aeration or oxygenation, sediment nutrient inactivation, and water column nutrient inactivation. The Town may want to consider a similar Watershed Management Plan for Silver Hill Pond, which has been noted to have elevated E. coli concentrations. The development of a Watershed Management Plan for this waterbody would help to identify possible pollutant sources and develop a plan for improving and maintaining water quality.

A dedicated stormwater funding source, like a stormwater enterprise fund, will be invaluable in helping the Town to comply with the extensive requirements of the MS4 General Permit, to maintain the Town's drainage infrastructure, and to advance the extensive needs detailed herein.

2.0 STORMWATER FUNDING MECHANISMS

To finance future stormwater needs, the Town of Concord has identified a target revenue goal of approximately $1 million annually over the next 10 years, although stormwater related costs are conservatively projected to cost the Town in excess of $2 million annually. Few funding alternatives exist to meet this need. To avoid pulling funding away from other municipal needs, a viable funding source is needed. One way to finance stormwater operations and future investment is to increase taxes, which is limited by Proposition 2 ½. Taking advantage of available grant opportunities is another alternative. However, grant opportunities do not provide a stable source of funding and often require a town match. Chapter 90 funds from the Commonwealth may also be used for stormwater management in some cases, but this funding source is limited. Using Chapter 90 funds for stormwater also reduces the amount of money that can be spent addressing roadway reconstruction needs. Another more sustainable alternative is a stormwater enterprise fund. Stormwater enterprise funds collect user fees based on a parcel's impact on the stormwater system. A stormwater enterprise fund was determined to be the best alternative for further analysis because it provides a stable funding source that is equitably distributed based on a property's impact on the stormwater system.

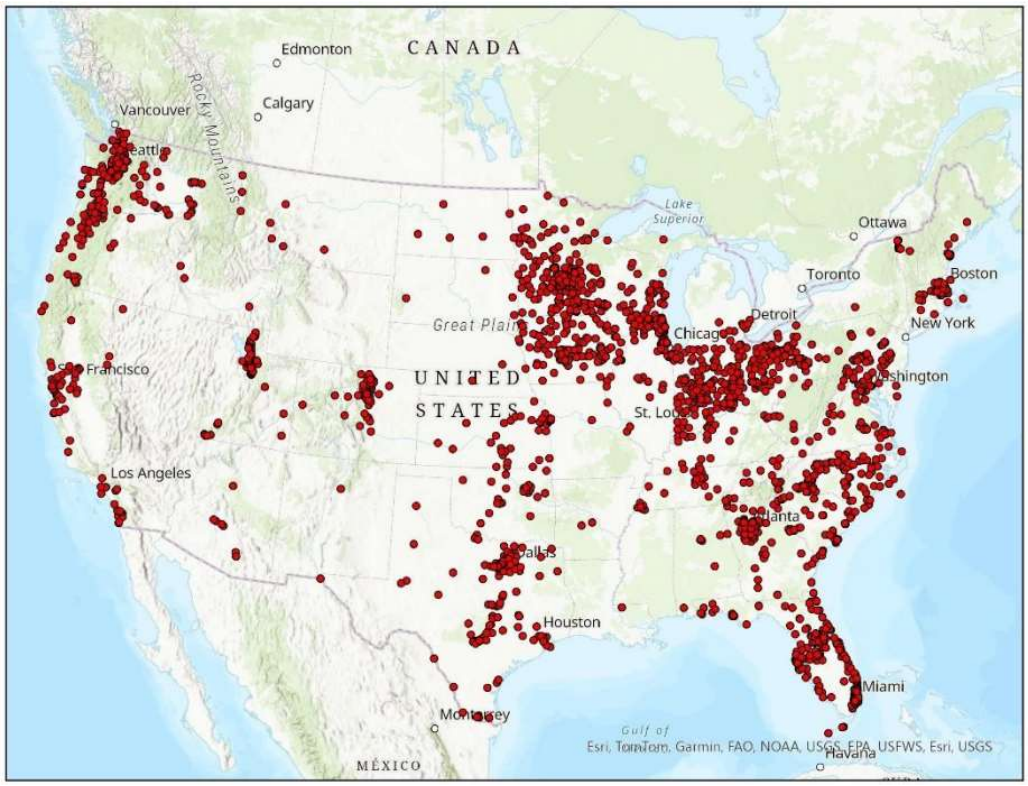


Figure 1. Stormwater Utilities, 2024

Campbell, C. Warren. (2024). Western Kentucky University Stormwater Utility Survey 2024. Western Kentucky University, Bowling Green, KY. pp.10
https://digitalcommons.wku.edu/cgi/viewcontent.cgi?article=1019&context=seas_faculty_pubs

Stormwater enterprise funds have been successfully implemented in other Massachusetts municipalities and in more than 2,100 communities across the United States. At present, there are at least 29 communities in Massachusetts with stormwater fee systems in place. There are several other communities actively working to develop stormwater funding mechanisms or that have passed enabling legislation. However, Massachusetts lags other states in implementation of a dedicated stormwater funding source. At least 42 states and the District of Columbia now have stormwater utilities. Nine of those states have more than 100, and two have more than 200 stormwater utilities. (Campbell, 2024). Figure 1 depicts the distribution of stormwater funding mechanisms by state.

Stormwater fee structures are generally based upon the amount of impervious surface on a parcel as a measure of the user's impact on the stormwater system. Some municipalities measure the amount of impervious surface on each parcel and charge a fee accordingly. Most use a metric called "equivalent residential unit". This metric can be used to compare a parcel's impact on the stormwater system across various land use types and is similar to the way many municipalities establish water and sewer rates. For instance, Concord's existing utility billing system utilizes a tiered system based on service category that correlates to service class (i.e., residential vs non-residential), and bills costumers based on a set rate established per cubic foot of water usage, and the unit cost increases by tier. Equivalent residential units are generally based on the average use of a single-family residential home because single-family residential parcels are usually the dominant land use type. For stormwater funding mechanisms, an equivalent resident unit (ERU) usually equals the average impervious area associated with a single-family residential parcel.

Stormwater enterprise funds have been implemented in communities like Concord. A few communities in Massachusetts with stormwater fee structures are highlighted in Table 2-1, which also provides information on the rate structure and the amount of revenue generated, where available. A comprehensive list of communities in Massachusetts with stormwater funding mechanisms is included in Appendix B.

Table 2-1: Stormwater Funding Mechanisms in Massachusetts Communities

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Chelmsford	35,906	Stormwater Enterprise Fund (2018)	3,990	Single Family and Two-Family - $64/year All Other Properties – Tiered System based on impervious area, fees range from $169 to $33,590/yr *Revenue Generated: ~$1.6 million annually*

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Dedham	24,997	Stormwater Enterprise Fund (2023)	2,627	Residential Tiers *(1 to 3 Family, 2&3 Unit Condos)*- 3 Tiers: $188 (94%), $508 (5%), $1,286 (1%) Other Residential / Non-Residential Tiers ranging from $300 - $120,000 *Revenue Generated: ~$4.1 million annually*
Newton	87,381	Stormwater Enterprise Fund under DPW (2006)	3,119	Residential (1 to 4 Family Dwellings) $114/yr. All Other Properties $0.047/ 1SF IA, or at least $150/parcel/year *Revenue Collected = Approx. $2 million annually*
Wellesley	30,524	Stormwater Utility Enterprise Fund	3,100 Impervious Area Map Link	Single Family Residential: Tier 1: 0.7 ERUs - $157.50/yr Tier 2: 1.0 ERU - $225/yr Tier 3: 1.7 ERUs - $382.50/yr Tier 4: 3.0 ERUs (>9,300 SF IA) - $225/ERU/yr Non-Residential and Multi-Family Residential: $225/ERU/yr Approved at Spring 2023 TM FY24 Budget of $1,974,232 Funded Through: ▪ Transfer from Tax Impact Operating Budget - $989,232 ▪ Borrow for Capital (ARPA) - $985,000 Fee Collection Began July 1, 2024 to fund FY25 budget
Westford	24,353	Stormwater Management Utility Fee; Rates Set by Board of Selectmen (2019) Map Link	3,500	Multi-Family Residential - $75/yr per ERU Single-Family Residential (SFR): SFR1 (IA< 2,000 SF, 0.5 ERUs) - $37.50/yr SFR2 (2,000<IA<=2,900, 0.7 ERUs) - $52.50/yr SFR3 (2,900<IA<=4,100, 1.0 ERUs) - $75.00/yr SFR4 (4,100<IA<=5,500, 1.3 ERUs) - $97.50/yr SFR5 (IA>5,500 SF, 2.0 ERUs) - $150/yr FY24 - $1,765,000 Capital Request Funded by SWE FY25 - $2.95 million Capital Request

3.0 FEE STRUCTURES AND BILLING

3.1 Fee Structures

Stormwater fees are generally structured as flat fees based on land use type or as user fees based on impervious area. Municipalities in Massachusetts with stormwater funding mechanisms have used each type. Note, the term rate is not interchangeable with fee, rather it is the dollar amount associated with the fee. For example, a flat fee could have a rate of $100 per year.

A flat fee refers to a universal rate or charge (e.g., $100 per user) and in Massachusetts is most often applied to smaller residential parcels. A user fee is generally calculated based on the amount of impervious surface area on a parcel. A rate is assigned to the "equivalent residential unit", usually the average impervious area on a single-family parcel. To calculate the user fee, each property would be assigned an ERU based on the amount of impervious surface on the parcel. For example, if the ERU is set to 1,000 square feet and the parcel has 10,000 square feet of impervious surface, the property would be charged 10 ERUs.

A tiered user fee involves a stepped rate (e.g., $100, $150, and $200 per year) assigned to groups with specific impervious area amounts. Tiered fees can be used for several reasons, including when the precise quantity of service (impervious area) is impracticable to calculate for each individual user. In addition, tiered user fees are helpful when there is significant variance in impervious area that can be reasonably approximated and then clustered into groups where a change in impervious area could result in a change in tier and fee. In some respects, a tiered fee system can also be easier to implement and maintain. Instead of all paying different user fees, users pay according to a set number of tiers with established rates, which simplifies the billing process. Also, with a tiered system, changes in impervious area would not automatically equate to a change in fee making the billing system easier to maintain over time.

3.2 Fee Structures and Rate Analysis

Various fee structures and potential billing rates for a proposed stormwater enterprise fund were analyzed based on the projected future costs of the Town's stormwater management program. An assessment of the Town's stormwater needs was performed as presented in Table 1.1, and it is estimated that stormwater related capital costs, including MS4 Permit Compliance, and stormwater operation and maintenance, staffing and equipment needs are conservatively projected to cost the Town in excess of $2 million annually although the Town has set a target revenue goal of $1 million annually over the next ten years to be funded through the stormwater enterprise.

To determine how potential user fees could be calculated under a stormwater enterprise fund, parcel-specific information was obtained including Town land use, zoning, and tax assessor's information.

Using 2021 Google aerial imagery, the most recent high-resolution digital ortho-photography publicly available, a GIS feature class was developed to describe the impervious surface on approximately 5,500 residential and non-residential parcels located throughout the town. Each impervious surface has an associated area expressed in square feet. The following impervious surface types were included as part of this analysis: Concrete pads (e.g., utilities, etc.); Paved driveways; Paved walkway/sidewalks; Roof structures; Parking; Road/street surfaces excluding municipal roadways (e.g., private roads in condo or apartment complexes) Swimming pools; Greenhouse roof structures; and Other/misc.

Town-wide, the largest portion of impervious area is categorized as roof structures, making up almost 37% of the Town of Concord's total impervious area, followed closely by paved driveways, which make up approximately 26.1% of the total impervious area. The figure below shows the distribution of the different categories of impervious area Town wide, excluding right-of-way areas such as municipal roadways.

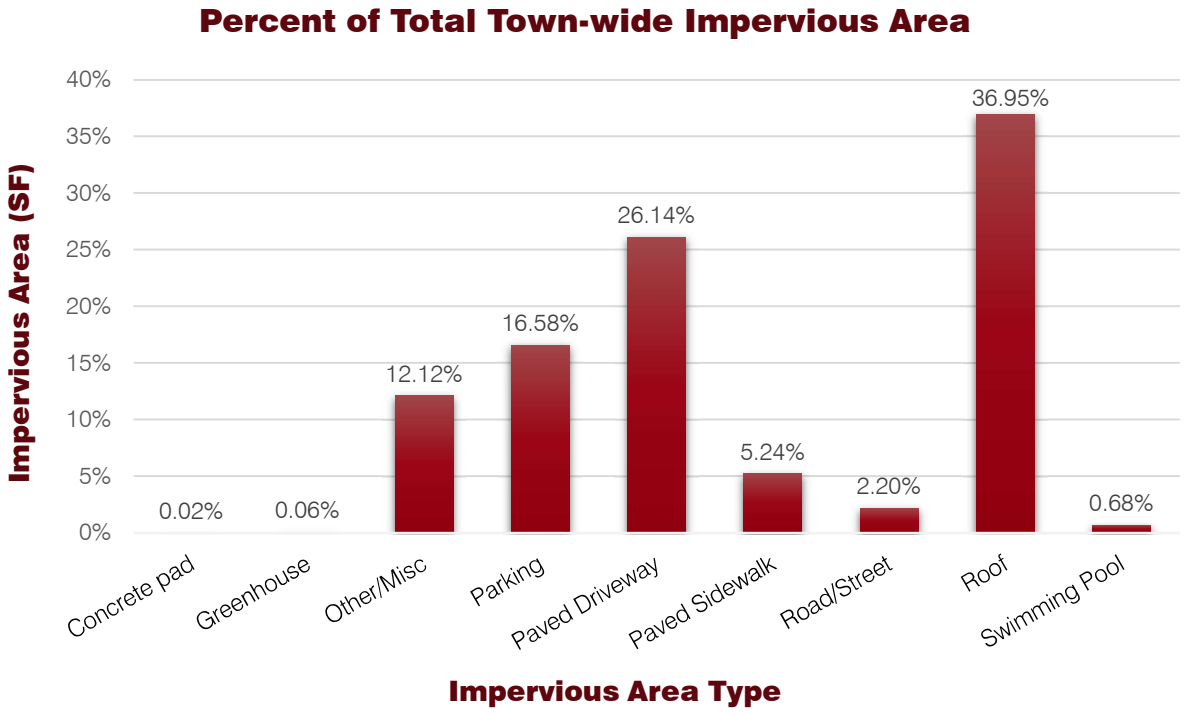


Figure 2. Impervious Area Distribution in the Town of Concord Massachusetts

The parcel data was broken up into two (2) categories: small (1 to 3-family) residential and non-residential/larger multi-family residential. Small residential parcel categories include single family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos. Impervious surfaces were delineated on a total of 4,890 small residential parcels. Of these parcels, 20 had no impervious area and were omitted from the fee structure. Non-residential parcels/large residential

parcels categories include condos with 4 or more units, apartments complexes, commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcels with appreciable impervious area even if identified as a vacant or undeveloped property. Parcels with no impervious area were omitted from the fee structures.

Existing land uses and the number of properties under each land use type were examined to gain a better understanding of the distribution of parcels associated with each land use type. A summary is provided in Table 3-1.

Table 3-1: Distribution of Parcels/Units by Land Use

Land Use Classification	No. of Parcels/Units[1]	Total Impervious Area (SF)	Percent of Total Impervious Area
Small (1 to 3-Family) Residential			
• Single Family	4,595	25,531,851	48.41%
• Two-Family	101	486,351	0.92%
• Three-Family	2	10,452	0.02%
• Multiple Houses [2]	53	773,608	1.46%
• One to Three Family Condo	108	547,688	1.04%
• Accessory Land [3]	11	38,458	0.07%
TOTAL	**4870**	**27,491,921**	**52.10%**
Non-Residential/Larger (Multi-Family) Residential			
Larger (Multi-Family) Residential [4]			
• Apartments	35	1,670,150	3.16%
• Condo – Four Family or More	34	2,109,719	3.99%
Non-Residential	235	9,077,341	17.19%
Vacant Land (Private)	72	421,780	0.80%
Tax-Exempt/Non-Profits			
• Municipal	133	4,166,791	7.89%
• State	29	4,374,719	8.28%
• Other Tax-Exempt	114	3,612,932	6.84%
TOTAL	**652**	**25,272,881**	**47.90%**

(1) Number of parcels reflects the number of parcels in each category with a non-zero impervious area value.
(2) Multiple Houses include those properties that have more than one residential building on each parcel.
(3) Incidental accessory land, buildings or improvements would include garages, sheds, in-ground swimming pools, tennis courts, etc. Non-incidental accessory land, classified and coded differently, would include mixed use properties, such as a variety store, machine shop, etc. on a residential parcel. (Reference)
(4) "Larger (Multi-Family) Residential" includes parcels identified as apartments and condominium complexes with more than 4-units.

Using the Town's current GIS parcel data, there are 5,522 parcels that fall into the category of either residential or non-residential that were delineated with greater than zero square feet of impervious area and are subject to the stormwater rates proposed in this analysis. Table 3-2 provides a breakdown by parcel type. This table also presents the impervious area associated with each parcel type.

Table 3-2: Impervious Area Distribution by Parcel Type

Parcel Type	Number of Parcels (1)	Percent of Parcels	Impervious Area (SF)	Percent of Impervious Area
Small (1 to 3-Family) Residential	4,870	88.2%	27,382,307.42	51.8%
Non-Residential/Larger (Multi-Family) Residential	652	11.8%	25,433,431.68	48.2%

(1) Number of parcels reflects the number of parcels in each category with a non-zero impervious area value.

A summary of the impervious area analysis was presented at the Public Works Commission Meeting held on October 9, 2024, previously referenced in the executive summary of this report. During this presentation, the Town discussed several graphics illustrating the distribution of impervious area town-wide. Several maps were included in this presentation showing examples of small (1 to 3-family) residential, non-residential, and larger (multi-family) residential properties and their impervious area. Of the small 1 to 3-family residential parcels, the highest percentage of parcels has between 5,000 to 10,000 square feet of impervious area, with approximately 18% of these parcels falling below that range and 15% falling above. In general, non-residential and larger (multi-family) residential properties had a much larger total impervious area, with approximately 30% of these properties having over 100,000 SF of impervious area, and approximately 12.5% having over 500,000 SF of impervious area.

A discussion was also held concerning the distribution of impervious area on small 1 to 3-family residential properties in residential Zones A, AA, B, and C. In general, it was found that in Zone B and Zone C, a large portion of parcels (73% and 87%, respectively) had a total impervious area lower than 5,000 SF. The total impervious area on parcels located in Zone A and Zone AA skewed slightly higher. For more information on this analysis and the distribution of impervious area data, refer to the presentation slides located on the Town's stormwater utility webpage.

One to Three-Family Residential properties encompass 51.8% of the total impervious area, or 27,382,307 SF. Non-residential properties encompass 48.2% of the total impervious area, or 25,433,431 SF. Based on the impervious area distribution, 51.8% of the Town's stormwater enterprise revenue was allocated to 1 to 3-family residential parcels, and 48.2% of the revenue was allocated to larger multi-family and non-residential properties.

An annual revenue goal of $1,111,111 was used to account for an estimated 10% loss of revenue from stormwater credits. Credits or incentives lower a property's utility bill if the customer takes a specific action, such as implementation of stormwater best management practices, which help to mitigate stormwater runoff and improve general water quality. Additionally, needs based credits may be awarded to groups such as senior low-income residents. Stormwater credits are discussed further in section 4.0 of this report.

Table 3-3 divides the annual revenue based upon the percentages of impervious area presented in Table 3-2 for an equitable assignment of fees.

Table 3-3: Alternate Funding Targets

Parcel Type	Percent of Funding Required	Funding Required	Average Annual Cost per Parcel
Small (1 to 3-Family) Residential	51.8%	$576,055	$119
Non-Residential/Larger (Multi-Family) Residential	48.2%	$535,055	$821

Three (3) fee structure options were examined. The first option calculates fees for small (1 to 3-family) residential parcels based on a flat rate and non-residential/larger (multi-family) residential parcels based on the impervious area of each individual parcel divided by the ERU, while the two other options present different tiered fee structures for both small (1 to 3-family) residential and non-residential/larger (multi-family) residential parcels. Option 2 divides small (1 to 3-family) residential parcels into 4 tiers with the first tier equal to an approximate value of ½ ERU, and non-residential/larger (multi-family) residential parcels into 10 tiers, with the first tier equal to the approximate value of 1 ERU. Option 2B expands on option 2 by dividing the small (1 to 3-family) residential parcels into 5 tiers to achieve more equitable fee distribution. Option 3 divides small (multi-family) residential parcels into 3 tiers and non-residential/larger (multi-family) residential parcels into 10 tiers but expands the first tier of both classifications to include approximately 3 times the approximate ERU in order to encompass a greater percentage of parcels in the first tiers.

Parcels with an impervious area value of zero were excluded in the assessment of all fee structure options. The required ERU rate was calculated by dividing the target revenue by the fraction of the total impervious area associated with both residential and non-residential parcels and the calculated ERU of 5,570 square feet. Using this method, it was determined that an ERU rate of $118 would be required to generate a total annual revenue of $1M.

3.3 Option 1

Small (1 to 3-Family) Residential: Flat Fee

Non-Residential/Larger (Multi-Family) Residential: Fee Based on Exact Parcel Impervious Area (IA) and Equivalent Residential Unit (ERU) Rate

Under this option, all small residential property owners pay the same flat ERU rate. Other residential properties (four or more family condominiums, four or more-unit apartment complexes, etc.) and non-residential properties each pay a unique rate depending on the number of equivalent residential units (ERU), which is calculated by dividing the impervious area for each property by 5,570 square feet (1 ERU). There is a total of approximately 4,708 ERUs associated with non-residential and large residential properties. However, no parcel shall pay less than 1.0 ERU even if the impervious area calculated is less than the ERU. Where the ERU is calculated as less than 1.0 for a particular parcel, it was rounded to 1.0.

Table 3-4: Option 1 Revenue by Parcel Type

Small (1 to 3-Family) Residential – Option 1					
Parcel Type	**Number of Parcels (1)**	**Percent of Parcels**	**ERUs**	**Flat Rate**	**Fees Collected**
Single Family Residential	4595	94.35%	-	$118	$542,210.00
Two-Family Residential	101	2.07%	-	$118	$11,918.00
Three-Family Residential	2	0.04%	-	$118	$236.00
Multiple Houses	108	2.22%	-	$118	$12,744.00
One to Three Family Condo	53	1.09%	-	$118	$6,254.00
Accessory Land	11	0.23%	-	$118	$1,298.00
TOTAL	**4870**	**100.00%**	**-**	**-**	**$574,660.00**
Non-Residential and Larger (Multi-Family) Residential – Option 1					
Parcel Type	**Number of Parcels (1)**	**Percent of Parcels**	**ERUs**	**ERU Rate**	**Fees Collected**
Apartment	35	5.37%	302.89	$118	$35,741.23
Four Family Condo or Greater	34	5.21%	378.76	$118	$44,694.22
Non-Residential	231	36.04%	1,652.89	$118	$195,041.27
Tax Exempt Properties	133	42.33%	2,256.86	$118	$266,309.14
Vacant Land	45	11.04%	116.99	$118	$13,804.65
TOTAL	**652**	**100.00%**	**4,708.39**	**-**	**$555,590.52**
				Total Revenue Collected:	**$1,130,250.52**
				Total Revenue (Assuming 10% Credits):	**$1,017,225.47**

(1) Number of parcels reflects the number of parcels in each category with a non-zero impervious area value.

3.4 Option 2

Small (1 to 3-Family) Residential: Four-Tiered Fee Structure

Non-Residential/Larger (Multi-Family) Residential Parcels: Ten-Tiered Fee Structure

Under this option, 1 to 3-family residential parcels are divided into 4 tiers based on their impervious area, and non-residential and larger multi-family residential properties are divided into 10 tiers based on their impervious area. The tier divisions represent natural breaks in the distribution of impervious area data, with the first tier encompassing all parcels with impervious area less than or equal to the approximate ERU. The rate for each tier is based on the ratio of that tier's mean impervious area to the ERU. For large residential/non-residential parcels, it was determined that no parcel shall pay less than 1.0 ERU even if the ratio of that tier's mean impervious area is less than the ERU. Where the ERU is calculated as less than 1.0 for a particular parcel, it was rounded to 1.0.

Table 3-5: Option 2 Revenue by Parcel Type

Small (1 to 3-Family) Residential – Option 2							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Annual Fee**	**Fees Collected**
1	0	2,500	634	13.02%	0.350	$41.30	$26,184.20
2	2,500	5,000	2269	46.59%	0.663	$78.23	$177,512.95
3	5,000	25,000	1927	39.57%	1.527	$180.19	$347,218.42
4	25,000	N/A	40	0.82%	6.216	$733.49	$29,339.52
TOTAL			**4870**	**100.00%**	**-**	**-**	**$580,255.09**
Non-Residential and Larger (Multi-Family) Residential – Option 2							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Annual Fee**	**Fees Collected**
1	0	5,000	215	32.98%	1.000	$118.00	$25,370.00
2	5,000	10,000	108	16.56%	1.311	$154.75	$16,713.44
3	10,000	15,000	71	10.89%	2.214	$261.26	$18,549.72
4	15,000	25,000	83	12.73%	3.594	$424.10	$35,200.28
5	25,000	50,000	70	10.74%	6.467	$763.12	$53,418.09
6	50,000	75,000	27	4.14%	11.014	$1,299.66	$35,090.87
7	75,000	100,000	24	3.68%	15.142	$1,786.72	$42,881.19
8	100,000	250,000	35	5.37%	23.785	$2,806.64	$98,232.43
9	250,000	500,000	13	1.99%	58.633	$6,918.73	$89,943.46
10	500,000	N/A	6	0.92%	197.864	$23,347.99	$140,087.92
TOTAL			**652**	**100.00%**	**-**	**-**	**$555,487.40**
						Total Revenue:	**$1,135,742.49**
						Total Revenue (Assuming 10% Credits):	**$1,022,168.24**

3.5 Option 2B

Small (1 to 3-Family) Residential: Five-Tiered Fee Structure

Non-Residential/Larger (Multi-Family) Residential Parcels: Ten-Tiered Fee Structure

Under this option, 1 to 3-family residential parcels are divided into 5 tiers based on their impervious area, and non-residential and larger multi-family residential properties are divided into 10 tiers based on their impervious area. The tier divisions represent natural breaks in the distribution of impervious area data, with the first tier encompassing all parcels with impervious area less than or equal to the approximate ERU. The rate for each tier is based on the ratio of that tier's mean impervious area to the ERU. For large residential/non-residential parcels, it was determined that no parcel shall pay less than 1.0 ERU even if the ratio of that tier's mean impervious area is less than the ERU. Where the ERU is calculated as less than 1.0 for a particular parcel, it was rounded to 1.0

Table 3-6: Option 2B Revenue by Parcel Type

Small (1 to 3-Family) Residential – Option 2B							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Annual Fee**	**Fees Collected**
1	0	2,500	634	13.02%	0.350	$41.30	$26,184.20
2	2,500	5,000	2269	46.59%	0.663	$78.23	$177,512.95
3	5,000	10,000	1475	30.29%	1.223	$144.31	$212,863.15
4	10,000	25,000	452	9.28%	2.519	$297.24	$134,353.38
5	25,000	N/A	40	0.82%	6.216	$733.49	$29,339.52
TOTAL			**4870**	**100.00%**	**-**	**-**	**$580,253.20**
Non-Residential and Larger (Multi-Family) Residential – Option 2B							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Annual Fee**	**Fees Collected**
1	0	5,000	215	32.98%	1.000	$118.00	$25,370.00
2	5,000	10,000	108	16.56%	1.311	$154.75	$16,713.44
3	10,000	15,000	71	10.89%	2.214	$261.26	$18,549.72
4	15,000	25,000	83	12.73%	3.594	$424.10	$35,200.28
5	25,000	50,000	70	10.74%	6.467	$763.12	$53,418.09
6	50,000	75,000	27	4.14%	11.014	$1,299.66	$35,090.87
7	75,000	100,000	24	3.68%	15.142	$1,786.72	$42,881.19
8	100,000	250,000	35	5.37%	23.785	$2,806.64	$98,232.43
9	250,000	500,000	13	1.99%	58.633	$6,918.73	$89,943.46
10	500,000	N/A	6	0.92%	197.864	$23,347.99	$140,087.92
TOTAL			**652**	**100.00%**	**-**	**-**	**$555,487.40**
						Total Revenue:	**$1,135,740.49**
						Total Revenue (Assuming 10% Credits):	**$1,022,166.54**

3.6 Option 3

Small (1 to 3-Family) Residential: Three-Tiered Fee Structure

Non-Residential/Larger (Multi-Family) Residential Parcels: Ten-Tiered Fee Structure

Under this option, small (1 to 3-family) residential parcels are divided into 3 tiers based on their impervious area, and non-residential and larger (multi-family) residential properties are divided into 10 tiers based on their impervious area. The tier divisions represent natural breaks in the distribution of impervious area data, with the first tier encompassing all parcels with impervious area less than or equal to 3 times the approximate ERU and charged the flat ERU rate.

Table 3-7: Option 3 Revenue by Parcel Type

Small (1 to 3-Family) Residential – Option 3							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Fee**	**Fees Collected**
1	0	15,000	2903	59.61%	0.895	$105.60	494,940.35
2	15,000	30,000	1927	39.57%	3.494	$412.24	66,783.56
3	30,000	N/A	40	0.82%	7.412	$874.67	18,368.06
TOTAL			**4870**	**100.00%**	**-**	**-**	**$580,091.97**
Non-Residential and Larger (Multi-Family) Residential – Option 3							
Tier	**Min IA (SF)**	**Max IA (SF)**	**Number of Parcels**	**Percent of Parcels in Tier**	**Avg. IA/ERU**	**Fee**	**Fees Collected**
1	0	15,000	394	60.43%	1.000	$118.00	46,492.00
2	15,000	30,000	96	14.72%	3.762	$443.87	42,611.18
3	30,000	45,000	46	7.06%	6.428	$758.50	34,891.22
4	45,000	60,000	23	3.53%	9.303	$1,097.74	25,248.00
5	60,000	75,000	15	2.30%	11.842	$1,397.38	20,960.68
6	75,000	100,000	24	3.68%	15.142	$1,786.74	42,881.67
7	100,000	150,000	27	4.14%	21.088	$2,488.36	67,185.70
8	150,000	300,000	15	2.30%	40.881	$4,824.00	72,359.95
9	300,000	500,000	6	0.92%	68.687	$8,105.12	48,630.70
10	500,000	N/A	6	0.92%	197.864	$23,348.01	140,088.03
TOTAL			**652**	**100.00%**	**-**	**-**	**$541,349.13**
						Total Revenue:	**$1,121,441.10**
						Total Revenue (Assuming 10% Credits):	**$1,009,296.99**

3.7 Recommended Fee Option

Of those options presented in this section, Option 2B was identified as the recommended methodology for assigning stormwater fees in Concord. Under this option, 1 to 3-family residential parcels are divided into 5 tiers based on their impervious area, and non-residential and larger multi-family residential properties are divided into 10 tiers based on their impervious area. Under this option, 60% of residential parcels would pay under $80 per year and 13% of residential parcels would pay under $40 per year.

The total revenue generated from Option 2B would be approximately $1,135,740 before credits are applied and would cover annual budgetary needs for stormwater management in Concord discussed in section 1.4. The final stormwater fee structure shall be reviewed and approved at a future Public Works Commission rate hearing.

3.8 Revenue Collection Systems

Municipal governments have several options for collecting stormwater fees. Fees are most often collected through an existing water or sewer utility billing system to reduce costs if the option is available, or a bill can be sent as a standalone mailing. Adding the fee to property tax bills is not allowed under the state law in Massachusetts. Table 3-11 lists general benefits and limitations of each approach.

Table 3-8. Bill Delivery Approach, Benefits, and Limitations

Bill Delivery Approach	Benefits	Limitations
Add fee onto an existing utility billing (e.g., water and sewer)	• Reduces cost of implementation • Simplifies implementation • Improves likelihood of fee collection	• A separate bill may still need to be sent for properties not on Town water or sewer
Create a stand-alone billing process	• Clarifies the purpose of the fee	• Increases cost of implementation • Complexity of developing a new billing/collection system • A new bill may be off-putting to ratepayers

Most communities administer their billing using in-house staff, adding the fee to an existing billing platform (e.g., utility bills). By using in-house staff and procedures, this billing approach is less expensive and generally easier to implement than other approaches. Additionally, since ratepayers are already accustomed to paying existing utility bills, the payment process is also easier for customers.

4.0 ABATEMENTS AND CREDITS

Abatements lower a property's utility bill when their account has been charged incorrectly. Credits or incentives lower a property's utility bill if the customer takes a specific action.

4.1 Credit Systems in Other Communities

Some communities offer credits to reduce the stormwater fee paid if the property owner takes specific measures focused on decreasing the amount of stormwater runoff leaving their property and entering the municipal storm drain system. In Massachusetts, fee reductions usually max out at a certain percentage, ranging from 10 to 50%, even if a property owner infiltrates all stormwater runoff generated on site. The reduction percentage awarded can vary based on the type of infiltration/treatment system implemented or the amount of impervious area treated. Everyone ultimately pays at least a portion of the stormwater fee because all property owners use public roadways, which drain to the public stormwater system. Credit systems incentivize the implementation of stormwater best management practices, which help to improve overall water quality.

Some communities offer other kinds of credits as well. Select communities in Massachusetts award education credits to private and public K-12 educational institutions that provide the public with an opportunity to understand and participate in improving stormwater quality and protecting our water resources. Additionally, some communities offer needs-based credits for groups such as senior residents, disabled veterans, blind residents, or low-income residents. Other opportunities for credits in Massachusetts communities include properties that have documented land restrictions for private and public farmland, forest land, and recreational land; multiple undeveloped properties that are adjacent and have the same owner; and properties that employ the use of stormwater management structures and systems.

Some communities opt out of providing a stormwater credit system as an initial aspect of their stormwater enterprise fund, deciding instead to focus on the adoption and implementation of the enabling legislation, budget, and fee structure system. Credits systems can increase the cost of the administration of the enterprise fund and may decrease revenue generated by up to an estimated 10%. Therefore, credit systems may ultimately lead to higher stormwater fees as communities look to generate additional revenue to offset the amount paid back in credits. Credits systems can also provide negligible payback to property owners because the cost of treating stormwater onsite often outweighs the fee reduction.

4.2 Town of Concord Credit Policy

Concord has decided to pursue the development of a simple credit system as part of the development of their Stormwater Enterprise Fund framework. The full draft credit policy developed by the Town is included in Appendix E of this report. The goal of the credit policy is to provide an incentive for property owners to construct, operate, and maintain stormwater best management practices (BMPs), which

decrease the Town's stormwater management burden. This policy also allows for credits based on a property owner's income or abatements adjusting the fee if a stormwater fee is calculated incorrectly.

Property owners who believe their stormwater fee has been incorrectly calculated can apply for an abatement. A draft abatement application is included in Appendix B of the Credit Policy, which can be found in Appendix E of this report.

The Town of Concord has included three separate credit categories in their Draft Credit Policy:

1. **Small Residential Credit** This credit is being offered for small residential properties. Small residential parcel categories include single family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos. Small residential properties may receive up to 25% credit by reducing the downstream impacts of stormwater runoff through the construction and maintenance of approved small-scale stormwater improvements such as rain gardens and dry wells, or the use of permeable or porous pavers.
2. **Non-Residential and Large Residential Credit** This credit is being offered for condominium complexes with 4 or more units, apartment complexes, commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcels with appreciable impervious area even if identified as a vacant or undeveloped property, that have constructed and maintained approved stormwater control systems or best management practices (BMPs). Non-Residential and larger multi-family residential properties can up to 50% credit of the total value of the stormwater fee for the property, depending on the percent of the impervious surface on the property being treated by the BMP.
3. **Senior and Low-Income Resident Discount** Financial eligibility for a stormwater fee discount mirrors the Town's water, electric, and property tax assistance programs. If you receive assistance through any of these programs, you are eligible for a stormwater discount: CMLP Residential Rate Assistance, 41A Real Estate Tax Deferral, 17D or 41C Real Estate Tax Exemptions, Means Tested Senior Property Tax Exemption, or a "Senior Circuit Breaker" Massachusetts Income Tax Credit. Qualifying residents will receive a 25% stormwater enterprise fee reduction.

Multiple credits may be given to eligible properties. The total credit approved for a property may not exceed 50% of the stormwater fee for that property. The property owner of record may apply for stormwater credits and provide the necessary documentation for each credit type. Credit applications are available from and may be submitted to Concord Public Works. A draft credit application form is included in Appendix C of the Credit Policy, which can be found in Appendix E of this report. All credits must be renewed annually through the submission of the credit application form.

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APPENDIX A

Definitions

DEFINITIONS

Best Management Practices (BMPs) – Schedules of activities, practices (and prohibitions of practices), structures, vegetation, maintenance procedures, and other management practices to prevent or reduce the discharge of pollutants to waters of the United States. BMPs also include treatment requirements, operating procedures, and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

Credit – A reduction in the amount of a Stormwater Enterprise Fee charged to the owner of a property where that property owner owns, maintains and operates stormwater management systems or facilities, or provides services or activities that reduce or mitigate the Town's cost of providing stormwater management services, in accordance with the Town's Credit Policy.

Equivalent Residential Unit (ERU) – An Equivalent Residential Unit is a billing unit for the amount of storm water runoff from the impervious area of the average-sized residential parcel. It is a measure that serves to compare runoff generated by different size and type of properties with different storm water generation characteristics. In Concord, the ERU equals the average impervious surface on a single-family residential parcel or 5,570 square feet.

Impaired Water – A water is impaired if it does not meet one or more of its designated use(s). For purposes of this permit, "impaired" refers to categories 4 and 5 of the five-part categorization approach used for classifying the water quality standards attainment status for water segments under the TMDL program. Impaired waters compilations are also sometimes referred to as "303(d) lists." Category 5 waters are impaired because at least one designated use is not being supported or is threatened and a TMDL is needed. Category 4 waters indicate that at least one designated use is not being supported but a TMDL is not needed (4a indicates that a TMDL has been approved or established by EPA; 4b indicates other required control measures are expected in result in the attainment of water quality standards in a reasonable period of time; and 4c indicates that the nonattainment of the water quality standard is the result of pollution (e.g. habitat) and is not caused by a pollutant). See USEPA's 2006 Integrated Report Guidance, July 29, 2005, for more detail on the five-part categorization of waters [under EPA National TMDL Guidance http://www.epa.gov/owow/tmdl/policy.html].

Impervious Surface/Impervious Area (IA) – Any material or structure on or above the ground that prevents water from infiltrating into the underlying soil, including without limitation roads, paved parking lots and driveways, sidewalks, and rooftops.

Large Residential Property – Large residential parcels include apartments, or condominiums with four or more dwelling units.

Municipal Separate Storm Sewer – A conveyance or system of conveyances (including roads with drainage systems, municipal streets, catch basins, curbs, gutters, ditches, manmade channels, or

storm drains):(i) Owned or operated by a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, stormwater, or other wastes, including special districts under State law such as a sewer district, flood control district or drainage district, or similar entity, or an Indian tribe or an authorized Indian tribal organization, or a designated and approved management agency under section 208 of the CWA that discharges to waters of the United States; (ii) Designed or used for collecting or conveying stormwater;(iii) Which is not a combined sewer; and (iv) Which is not part of a Publicly Owned Treatment Works (POTW) as defined at 40 CFR 122.2.

Municipal Separate Storm Sewer System (MS4) – All separate storm sewers that are defined as "large" or "medium" or "small" municipal storm sewer systems pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7) or designated under paragraph 40 126.26(a) (1)(v). For the purposes of this permit "MS4" may also refer to the permittee with jurisdiction over the sewer system.

National Pollutant Discharge Elimination System (NPDES) Stormwater Discharge Permit – A permit issued by United States Environmental Protection Agency or jointly with the Commonwealth that authorizes the discharge of pollutants to waters of the United States.

Non-Residential Property – Non-residential properties include commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcel with appreciable impervious area even if identified as a vacant or undeveloped property.

Pervious Surface – Those areas that allow the unimpeded infiltration of stormwater into the soil. Common pervious surfaces include, but are not limited to, lawn area, forestland, agricultural lands, meadows and other undeveloped land. In determining stormwater fee calculations, all land on a parcel of property not defined as impervious land will be considered to be pervious.

Pollutant – Dredged spoil, solid waste, incinerator residue, filter backwash, sewage, garbage, sewage sludge, munitions, chemical wastes, biological materials, heat, wrecked or discarded equipment, rock, sand, cellar dirt, and industrial, municipal and agricultural waste discharged into water.

Pollutant Of Concern – A pollutant which causes or contributes to a violation of a water quality standard, including a pollutant which is identified as causing an impairment in a State's 303(d) list.

Small Municipal Separate Storm Sewer System (MS4) – All separate storm sewer systems that are (i) owned or operated by the United States, a State, city, town, borough, county, parish, district, association, or other public body (created by or pursuant to State law) having jurisdiction over disposal of sewage, industrial wastes, storm water, or other wastes, including special districts under State law such as a sewer district, flood control district, or drainage district, or similar entity or an Indian tribe or an authorized Indian tribal organization or a designated and approved management agency

under section 208 of the CWA that discharges to waters of the United States, and (ii) not defined as "large" or "medium" municipal separate storm sewer system pursuant to paragraphs 40 CFR 122.26 (b)(4) and (b)(7) or designated under paragraph 40 126.26(a) (1)(v). This term includes systems similar to separate storm sewer systems in municipalities, such as systems at military bases, large hospital or prison complexes, and highways and other thoroughfares. This term does not include separate storm sewers in very discrete areas, such as individual buildings.

Small Residential Property – Small residential properties include *s*ingle family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos.

Stormwater – The surface water runoff from precipitation.

Stormwater Fee – The periodic user fee imposed pursuant to this article by the Town of Concord for providing stormwater management.

Stormwater Management – All services provided by the Town which relate to the:

(1) Transfer, control, conveyance, treatment or movement of stormwater runoff through Town-owned infrastructure;

(2) Maintenance, repair, grading and replacement of existing stormwater management systems and facilities and equipment owned by the Town;

(3) Planning, development, design and construction of additional stormwater management systems and facilities to meet current and anticipated needs, including grading of roads to facilitate the movement of stormwater;

(4) Regulation of the use of stormwater management services, systems and facilities;

(5) Compliance with applicable local, state and federal Stormwater Management; and

(6) Services addressing the quality of Stormwater runoff as well as the quantity thereof.

Stormwater Management Systems And Facilities – Those natural and man-made channels, swales, ditches, rivers, streams, brooks, creeks, wetlands, branches, reservoirs, ponds, drainageways, drainage structures, conveyances, storm drains, catch basins, inlets, gutters, pipes, culverts, bridges, headwalls, storm sewers, lakes, outfalls, and other physical works, properties, and improvements that collect, transport, transfer, control, pump, treat, convey, detain, retain, dispose of, or otherwise influence the movement of stormwater runoff.

Total Maximum Daily Loads (TMDLs) – A TMDL is a calculation of the maximum amount of a pollutant that a waterbody can receive and still meet water quality standards, and an allocation of that amount to the pollutant's sources. A TMDL includes waste load allocations (WLAs) for point source discharges, load allocations (LAs) for nonpoint sources and/or natural background and must include a

margin of safety (MOS) and account for seasonal variations. (See section 303(d) of the Clean Water Act and 40 CFR 130.2 and 130.7).

Urbanized Area – US Census designated area comprised of a densely settled core of census tracts and/or census blocks that meet minimum population density requirements, along with adjacent territory containing non-residential urban land uses as well as territory with low population density included to link outlying densely settled territory with the densely settled core. For the purposes of this permit, Urbanized Areas as defined by any Census since 2000 remain subject to stormwater regulation even if there is a change in the reach of the Urbanized Area because of a change in more recent Census data.

Water Quality Limited Water – for the purposes of this permit, a water quality limited water is any waterbody that does not meet applicable water quality standards, including but not limited to waters listed in categories 5 or 4b on the Massachusetts Integrated Report of waters listed pursuant to Clean Water Act section 303(d) and 305(b).

Water Quality Standards – A water quality standard defines the water quality goals of a water body, or portion thereof, by designating the use or uses to be made of the water and by setting criteria necessary to protect the uses. States and EPA adopt WQS to protect public health or welfare, enhance the quality of water and serve the purposes of the Clean Water Act (See CWA sections 101(a)2 and 303(c)).

Abbreviations And Acronyms

BMP – Best Management Practice
CWA – Clean Water Act (or the Federal Water Pollution Control Act, 33 U.S.C. §1251 et seq)
EPA – U. S. Environmental Protection Agency
ERU – Equivalent Residential Unit
IA – Impervious Area
IDDE – Illicit Discharge Detection and Elimination
MS4 – Municipal Separate Storm Sewer System
NOI – Notice of Intent
NPDES – National Pollutant Discharge Elimination System NRHP – National Register of Historic Places
PSIR – Phosphorus Source Identification Report
SWMP – Stormwater Management Program
SWPPP – Stormwater Pollution Prevention Plan
TMDL – Total Maximum Daily Load
WLA – Waste load Allocation
WQS – Water Quality Standard

APPENDIX B

Stormwater Funding Mechanisms in Massachusetts

Stormwater Funding Mechanisms in Massachusetts Communities

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Ashland	18,466	Stormwater Enterprise Fund (2018)	Impervious Area Map	Tier 1: Residential: $8.75/quarter per parcel Tier 2: Commercial, Government and Other non-tax properties: $0.80/100 square feet of Impervious Area or a minimum of $20/quarter
Ayer	8,424	Stormwater Enterprise Fund Established (2011) DRAFT Stormwater Utility Rules and Regulations (2024)	3,200	Single-Family Residential $23.75 per quarter – Flat fee Multi-Family Residential) /Commercial/Industrial/Tax-Exempt $23.75 per quarter per ERU Draft Rate Structure - No Fees Collected
Braintree	38,567	Stormwater Utility Administered through DPW Collection through water/sewer bill (2018)	2,780	Single-Family Residential $15 per quarter – Flat fee Multi-Family Residential) /Commercial/Industrial/Tax-Exempt $15 per quarter per ERU (2022) *Revenue Collected: Approx. $630,000/yr*
Canton	24,609	Bylaw	-	No available information on implementation
Chicopee	54,980	Stormwater Fee under Water Pollution Control Dept. (1998)	-	Single Family Homes $25/quarter Multi-Family, Commercial, Industrial or other Properties $0.45/1,000 SF (quarterly) Minimum charge $25/quarter, Maximum charge $160/quarter *Revenue Collected = Approx. $500,000/yr* (2022)
Chelmsford	35,906	Stormwater Enterprise Fund (2018)	3,990	Single Family and Two-Family - $64/year All Other Properties – Tiered System based on impervious area, fees range from $169 to $33,590/yr *Revenue Generated: ~$1.563 million annually*
Dedham	24,997	Stormwater Enterprise Fund (2023)	2,627	Residential Tiers *(1 to 3 Family, 2&3 Unit Condos)*- 3 Tiers: $188 (94%), $508 (5%), $1,286 (1%) Other Residential / Non-Residential Tiers ranging from $300 - $120,000 *Revenue Generated: ~$4.114 million annually*
Dracut	32,060	Stormwater Enterprise Fund (2017)	-	No Fees Collected

Stormwater Funding Mechanisms in Massachusetts Communities

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Fall River	93,682	Sewer Commission Stormwater Fee (also funds CSO abatement) (2008)	2,800	All properties $50/quarter for every 2,800 SF of impervious area
Franklin	33,656	Stormwater Utility Fee	Impervious Area Map	One Billing Unit (BU) is $18.66 per 1,000 SF 1 BU (200 SF<=IA<=1,499 SF) 2 BU (1,500<=IA<=2,499 SF) 3 BU (2,500<=IA<=3,499 SF) 4 BU (3,500<=IA<=4,499 SF) Each additional 1,000 SF range is rounded as above, and adds $18.66 per year
Gloucester	29,836	Ordinance (2009)	-	No Fees Collected
Hudson	19,744	Stormwater Utility Fee (2023)	3,400	Tier 1: Any Property 0 – 499 SF - $0/Quarter Tier 2: SFR - 500 – 5,000 SF - $24.75/Quarter Tier 3: SFR - 5,001 – 10,000 SF - $34.75/Quarter Tier 4: NSFR >= 500 SF - $24.75/Quarter/ERU
Longmeadow	15,632	Stormwater Enterprise Fund – Department of Public Works (2017)	3,400	Small Residential Property $6.41/month – Flat Rate Increases to $7.61/month for FY24 Non-Residential Declining Block Rate Block ERU Range: Block Coefficient ($6.41 per ERU per month, increases to $7.61 per ERU per month for FY24) 1-10: 1 11-50: 0.9 51-100: 0.8 101-500: 0.7
Millbury	13,936	Stormwater Enterprise Fund Established (2020)	-	No Fees Collected
Millis	8,836	Stormwater Enterprise Fund Administered by DPW Annual Bill (2018)	Impervious Area Map	Impervious Area Square Feet: Annual Fee 1-199 SF: $0 200 -1,499 SF: $33 1,500 – 2,499 SF: $66 2,500 – 3,499 SF: $99 One additional billing unit for each additional 1,000 SF greater than 3,499 SF ($2.75 per month)

Stormwater Funding Mechanisms in Massachusetts Communities

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Milton	28,364	Stormwater Utility Enterprise – Stormwater Management Fee – Administered by DPW (2016)	-	Single Family: Tier 1 (0 to 2,075 SF) - $44/yr. Tier 2 (2,076 to 2,675 SF) - $59/yr. Tier 3 (2,676 to 4,225 SF) - $81/yr. Tier 4.1 (4,226 to 8,365 SF) - $145/yr. Tier 4.2 (8,366 o 15,895 SF) – $273/yr. Tier 4.3 (15,896 SF and greater) – $572/yr. Other Residential: Condos, Multi-Family - $2.49 x 100 SF Commercial/Industrial: Office, retail, etc. - $2.49 x 100 SF Tax Exempt: Municipal, Institutional - $2.49 x 100 SF *Revenue Collected = Approx. $700,000/yr.*
Newton	87,381	Stormwater Enterprise Fund under DPW (2006)	3,119	Residential (1 to 4 Family Dwellings) $114/yr. All Other Properties $0.047/ 1SF IA, or at least $150/parcel/year *Revenue Collected = Approx. $2M/yr.*
Northampton	29,327	DPW Stormwater and Flood Control Utility (2014)	2,671	Residential (1 to 3 Family Dwellings): $66.18 – impervious area less than 2,250 SF $94.24 – impervious area 2,250 – 3,056 SF $130.01 – impervious area 3,056 – 4,276 SF $268.13 – impervious area greater than 4,276 SF All other Parcels – Fee Based on Impervious Area *Revenue Collected = Approx. $2M annually*
Pepperell	11,620	Stormwater Enterprise Fund Included on Water and Sewer Billing (2018)	3,500	Single-Family residential - $60/yr Multi-Family residential - $30 per housing unit per year Non-residential 1 to 2 ERUs - $60/yr 3 to 5 ERUs - $120/yr 6 – 10 ERUs - $240/yr 11 to 20 ERUs -$480/yr 21 or more ERUs - $960/yr
Reading	25,205	Stormwater Enterprise Fund under DPW (2006)	3,210	Single or Two-Family - $10/quarter. All other properties - $40/ERU/yr
Rockport	6,925	Ordinance in Place	-	No Fees Collected

Stormwater Funding Mechanisms in Massachusetts Communities

Municipality	Population (2022)	Stormwater Fee Structure	ERU (SF)	Fees/Total Revenue Collected
Shrewsbury	39,805	Stormwater Enterprise Fund administered by DPW; Rates Set by Sewer Commission (2019)	4,188	Residential (1-3 Family Homes, 2-unit Condominiums/ Townhouses, and Multiple Houses) $90 - Tier 1 (0 < IA ≤ 5,000) $200 - Tier 2 (5,000 < IA ≤ 10,000) $325 – Tier 3 (IA > 10,000) Undeveloped Vacant Parcels $45 Flat Fee Other Residential / Non-Residential All Other Properties – Tiered System based on impervious area – fees range from $90 to $7,500/yr
Tewksbury	30,833	Stormwater Enterprise Fund; Rates Set by Board of Selectmen (2019)	4,443	Residential (3 units or less) - $75/yr Flat Rate Commercial / Residential (4 units or more) – Rate varies by ERU
Wellesley	30,524	Stormwater Utility Enterprise Fund (2023)	3,100 Impervious Area Map	Single Family Residential – Tier 1, 0.7 ERUs - $157.50/yr Tier 2, 1.0 ERUs - $225/yr Tier 3, 1.7 ERUs - $382.50/yr Tier 4 (>9,300 SF IA) - $225/ERU/yr Non-Residential and Multi-Family Residential - $225/ERU/yr • FY24 Budget of $1,974,232 Funded Through: ▪ Transfer from Tax Impact Operating Budget - $989,232 ▪ Borrow for Capital (ARPA) - $985,000 • Fee Collection to Begin July 1, 2024, to fund FY25 budget
Westfield	40,535	Stormwater Enterprise Fund under DPW (2010)	-	Residential - $30/yr Non-Residential - $0.045/SF of impervious area, maximum fee of $640 and a minimum fee of $100/yr. *Revenue Collected = Approx. $560,000 annually (2012)*
Westford	24,353	Stormwater Management Utility Fee; Rates Set by Board of Selectmen (2019)	3,500 Impervious Area Map	Multi-Family Residential - $75/yr per ERU Single-Family Residential (SFR) SFR1 (IA< 2,000 SF, 0.5 ERUs) - $37.50/yr SFR2 (2,000<IA<=2,900, 0.7 ERUs) - $52.50/yr SFR3 (2,900<IA<=4,100, 1.0 ERUs) - $75.00/yr SFR4 (4,100<IA<=5,500, 1.3 ERUs) - $97.50/yr SFR5 (IA>5,500 SF, 2.0 ERUs) - $150/yr FY24 - $1,765,000 Capital Request Funded by SWE FY25 - $2.95 million Capital Request

APPENDIX C

10-Year Capital Improvement Plan

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 1 - FY2026					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 8 (FY26)	This project will provide funds to assist with compliance with the requirements of MS4 Permit Year 8. Includes annual requirements, as well as specific IDDE requirements related to drainage mapping, wet weather outfall screening & sampling, catchment investigations, removal of illicit discharges, etc. (Breakdown of estimated costs included in Appendix D.)	NC	$ 250,000	MS4 Permit Cost Compliance Evaluation - See Attachment B.
MS4 Permit Compliance	MS4 Permit Compliance - PSIR Implementation	The Town must install a structural stormwater BMP retrofit within a high phosphorus loading catchment area based on the analysis performed, and the schedule included, in the Town's D*raft Phosphorus Source Identification and Potential Structural BMPs Report*. Placeholder also referenced in Appendix D - MS4 Permit Cost Compliance tables.	C	$ 300,000	MS4 Permit Cost Compliance Evaluation, Draft Phosphorus Source Identification and Potential Structural BMPs Report updated June 2023
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Estmated at $3.00 per LF for inspection and cleaning.; Purchase of Jetter trailer during Permit Year 7 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	**Billing Assistance/Administrative Support** – $50,000 **Consulting Assistance** – $50,000	NC	$ 100,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Operation & Maintenance	Equipment Needs	Purchase of a CCTV Truck.	C	X	DPW Staff Interviews
Operation & Maintenance	Equipment Needs	Purchase of a Jetter Trailer.	C	$ 30,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 152,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY26 include: **A-16: 972 Lowell Rd** – Scour & Embankment Improvements – $8,400 **A-47: 1 Lindsey Pond Rd** – Rehabilitate Wall(s) – $6,900 **A-48: 2 Lindsey Pond Rd** – Rehabilitate Wall(s) – $6,900 **A-53: Strawberry Hill Roa**d – Replace Culvert Reconstruct Wall(s), Scour & Embankment Improvements – $53,100 **A-6: 25 Spencer Brook Rd** – Replace Culvert, Reconstruct Wall(s), Scour & Embankment Improvements – $ 294,300 **C-32: 103 Minot Rd Concord** – Replace Culvert, Reconstruct Wall(s), Scour & Embankment Improvements – $44,900 **S-3: 216 Sudbury Rd Rd** – Reconstruct Wall(s) – $47,700	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 5,000	DPW Staff Interviews
			FY26 Total Non-Capital Project Costs =	**$518,000**	
			FY26 Total Capital Project Costs =	**$482,000**	
			FY26 Total All Project Costs =	**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 2 - FY2027					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 9 (FY27)	This project will provide funds to assist with compliance with the requirements of MS4 Permit Year 9. Includes annual requirements, as well as specific IDDE requirements related to drainage mapping, wet weather outfall screening & sampling, catchment investigations, removal of illicit discharges, etc. (Breakdown of estimated costs included in Appendix D.)	NC	$ 170,000	MS4 Permit Cost Compliance Evaluation
MS4 Permit Compliance	MS4 Permit Compliance - PSIR Implementation - Permit Year 9	The Town must install a structural stormwater BMP retrofit within a high phosphorus loading catchment area based on the analysis performed, and the schedule included, in the Town's D*raft Phosphorus Source Identification and Potential Structural BMPs Report*. Placeholder also referenced in Appendix D - MS4 Permit Cost Compliance tables.	C	$ 250,000	MS4 Permit Cost Compliance Evaluation, Draft Phosphorus Source Identification and Potential Structural BMPs Report updated June 2023
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^3$ = $113,543 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^3$ = $118,344 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 310,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 37,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY27 include: **A-28: Barretts Mill Road** – Clean/Flush Pipe, Stream Restoration – $67,000 **A-29: 2 Annursnac Hill Road** – Rehabilitate Wall(s) Stream Restoration – $63,400 **C-2: Bedford Street** – Clean/Flush Pipe, Reconstruct Wall(s) Stream Restoration – $100,000 **C-5: 147 Minot Road** – Slip Line, Rehabilitate Wall(s) – $30,000 **M-3: Main Street** – Scour & Embankment Improvements – $8,400 **S-1: 40 Coolidge Road** – Slip Line – $ 17,700 **S-2: Nashoba Road** – Reconstruct Wall(s), Stream Restoration – $ 94,800 **S-31: 612 Main Street** – Line Scour & Embankment Improvements – $77,200	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	White Pond Water Quality Improvements	The *White Pond Watershed Management Plan* (2015) and the *Final White Pond Monitoring Report* (2017) detailed several recommendations to maintain water quality in White Pond. Recommendations include choosing one of the following in-pond management options: Stabilization of Areas of Recurring Erosion - $65,000-$105,000 Implementation/Upgrade of Stormwater BMPs - $65,000	NC	$ 65,000	White Pond Watershed Management Plan (2015) - Estimated costs adjusted for inflation.
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 5,000	DPW Staff Interviews - Cost adjusted for inflation
			FY27 Total Non-Capital Project Costs =	**$713,000**	
			FY27 Total Capital Project Costs =	**$287,000**	
			FY27 Total All Project Costs =	**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 3 - FY2028					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 10 (FY28)	This project will provide funds to assist with compliance with the requirements of MS4 Permit Year 9. Includes annual requirements, as well as specific IDDE requirements related to drainage mapping, wet weather outfall screening & sampling, catchment investigations, removal of illicit discharges, etc. (Breakdown of estimated costs included in Appendix D.)	NC	$ 145,000	MS4 Permit Cost Compliance Evaluation
MS4 Permit Compliance	MS4 Permit Compliance - PSIR Implementation - Permit Year 10	The Town must install a structural stormwater BMP retrofit within a high phosphorus loading catchment area based on the analysis performed, and the schedule included, in the Town's D*raft Phosphorus Source Identification and Potential Structural BMPs Report*. Placeholder also referenced in Appendix D - MS4 Permit Cost Compliance tables.	C	$ 250,000	MS4 Permit Cost Compliance Evaluation, Draft Phosphorus Source Identification and Potential Structural BMPs Report updated June 2023
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^4$ = $116,949 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^4$ = $121,894 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 320,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 53,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance or replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY28 include: **A-10: 667 Barrett's Mill Road** – Rehabilitate Wall(s) – $4,600 **A-38: 298 Harrington Avenue** – Replace Culvert Reconstruct Wall(s) – $41,700 **A-39/A-40: 349 Harrington Avenue** – Slip Line Reconstruct Wall(s) – $52,700 **A-54: 108 Cummerford Road** – Rehabilitate Wall(s) – $1,600 **A-56: 2 Commerford Road** – Rehabilitate Wall(s) – $1,600 **A-8: 202 Strawberry Hill Road** – Scour & Embankment Improvements – $8,400 **C-1: Balls Hill Road** – Clean/Flush Pipe, Rehabilitate Wall(s) Scour & Embankment Improvements – $16,100 **C-23: 1 Red Coat Lane** – Clean/Flush Pipe – $5,300 **C-30: Birch Drive** – Reconstruct Wall(s) – $33,000 **E-3: 353 Old Bedford Road** – Rehabilitate Wall(s) – $4,600 **M-12: 412 Thoreau Street** – Clean/Flush Pipe – $5,300 **M-13: 500 Walden Street** – Clean/Flush Pipe – $5,300 **M-15: 68 Old Bedford Road** – Clean/Flush Pipe – $5,300 **M-38: 187 Old Bedford Road** – Rehabilitate Wall(s) – $2,100 **S-10: 90 Fitchburg Turnpike** – Wall Spot Repair Scour & Embankment Improvements – $9,800 **S-11: 1585 Sudbury Road** – Reconstruct Wall(s) – $120,000 **S-22: The Valley Road** – Scour & Embankment Improvements – $8,400 **S-24: 505 Garfield Road** – Replace Culvert, Reconstruct Wall(s) – $41,700 **S-26: 334 Elm Street** – Clean/Flush Pipe Scour & Embankment Improvements – $13,600 **S-30: 19 Ursula Drive** – Rehabilitate Wall(s) – $3,800 **S-4: Sudbury Road** – Scour & Embankment Improvements – $8,400 **S-6: Williams Road** – Clean/Flush Pipe – $5,300	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	White Pond Water Quality Improvements	The *White Pond Watershed Management Plan* (2015) and the *Final White Pond Monitoring Report* (2017) detailed several recommendations to maintain water quality in White Pond. Recommendations include choosing one or two of the following in-pond management options: Hypolimnetic Aeration/Oxygenation – $63,000 Sediment Nutrient Inactivation – $221,000 Water Column (Low-dose) Nutrient Inacvitvation – $63,000	NC	$ 63,000	Final White Pond Monitoring Report (2017) - Costs adjusted for inflation
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 6,000	DPW Staff Interviews - Cost adjusted for inflation
		FY28 Total Non-Capital Project Costs =		**$697,000**	
		FY28 Total Capital Project Costs =		**$303,000**	
		FY28 Total All Project Costs =		**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 4 - FY2029					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 11 (FY29)	This project will provide funds to assist with compliance with MS4 Permit Year 11 requirements.	NC	$ 300,000	MS4 Permit Cost Compliance Evaluation
MS4 Permit Compliance	MS4 Permit Compliance - PSIR Implementation - Permit Year 11	The Town must install a structural stormwater BMP retrofit within a high phosphorus loading catchment area based on the analysis performed, and the schedule included, in the Town's D*raft Phosphorus Source Identification and Potential Structural BMPs Report*. Placeholder also referenced in Appendix D - MS4 Permit Cost Compliance tables.	C	$ 150,000	MS4 Permit Cost Compliance Evaluation, Draft Phosphorus Source Identification and Potential Structural BMPs Report updated June 2023
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^5$ = $120,458 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^5$ = $125,550 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 330,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 50,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and/or replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY29 include: **A-14: Baker Avenue** – Scour & Embankment Improvements – $8,400 **A-19: 1 Farmers Cliff Rd** – Clean/Flush Pipe – $5,300 **A-21: Hunters Ridge Road** – Clean/Flush Pipe – $5,300 **A-23: Commerford Road** – Clean/Flush Pipe – $5,300 **A-26: Annursnac Hill Road** – Clean/Flush Pipe – $5,300 **A-51: 25 Spencer Brook Road** – Scour & Embankment Improvements – $8,400 **A-52: 25 Spencer Brook Road** – Scour & Embankment Improvements – $8,400 **A-55: 150 Commerford Road** – Wall Spot Repair – $300 **A-59: 430 Annursnac Hill Road** – Rehabilitate Wall(s) – $2,100 **A-62: 442 Annursnac Hill Road** – Rehabilitate Wall(s) – $1,600 **A-63: Annursnac Hill Road** – Scour & Embankment Improvements – $8,400 **A-64: 700 Annursnac Hill Road** – Scour & Embankment Improvements – $8,400 **C-18: Monument Farm Road** – Clean/Flush Pipe – $5,300 **C-19: Monument Farm Road** – Clean/Flush Pipe – $5,300 **C-22: 147 Silver Hill Road** – Wall Spot Repair – $1,000 **C-29: Flint Street** – Replace Culvert, Reconstruct Wall(s) – $74,200 **E-5: 178 Virginia Road** – Replace Culvert, Reconstruct Wall(s) – $227,300 **M-17: 840 Lexington Road** – Clean/Flush Pipe – $5,300 **M-25: 36 Bow Street** – Scour & Embankment Improvements – $8,400 **S-17: 1755 Sudbury Road** – Clean/Flush Pipe – $5,300	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 7,000	DPW Staff Interviews - Cost adjusted for inflation
			FY29 Total Non-Capital Project Costs =	**$800,000**	
			FY29 Total Capital Project Costs =	**$200,000**	
			FY29 Total All Project Costs =	**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 5 - FY2030					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 12 (FY30)	This project will provide funds to assist with compliance with MS4 Permit Year 12 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^6$ = $124,072 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^6$ = $129,317 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 330,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 49,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance or replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY30 include: **M-1: 75 Bow St** – Replace Culvert, Reconstruct Wall(s) – $2,254,000	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Drainage Improvements	Climate Vulnerability: Town-Wide H&H Model	This project involves a town-wide hydrologic study and flood model which identifies high risk flood locations and flood threats to critical infrastructure related to the stormwater system and riverine flooding from future storm events.	NC	$ 150,000	DPW Staff Interviews
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 8,000	DPW Staff Interviews - Cost adjusted for inflation
			FY30 Total Non-Capital Project Costs =	**$951,000**	
			FY30 Total Capital Project Costs =	**$49,000**	
			FY30 Total All Project Costs =	**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 6 - FY2031					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 13 (FY31)	This project will provide funds to assist with compliance with MS4 Permit Year 13 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^7$ = $127,794 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^7$ = $133,197 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 340,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 88,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY31 include: S-5: 324 Old Road to nine Acre Cor – Replace Culvert, Reconstruct Wall(s) – $508,900	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Silver Hill Pond Water Quality Management	Development of a watershed management plan for Silver Hill Pond will help address ongoing concerns relating to elevated counts of E. coli and improve overall water quality.	NC	$ 100,000	DPW Staff Interviews
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 9,000	DPW Staff Interviews - Cost adjusted for inflation
		FY31 Total Non-Capital Project Costs =		**$912,000**	
		FY31 Total Capital Project Costs =		**$88,000**	
		FY31 Total All Project Costs =		**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 7 - FY2032					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 14 (FY32)	This project will provide funds to assist with compliance with MS4 Permit Year 14 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^8$ = $131,628 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^8$ = $137,193 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 350,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 77,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY32 include: **M-2: 61 Lowell Road** – Replace Culvert, Reconstruct Wall(s) – $741,900	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Water Quality Monitoring	Budget allowance for Silver Hill Pond water quality improvements based on the recommendations from the Watershed-Based Plan included in budget for FY31.	NC	$ 100,000	DPW Staff Interviews
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 10,000	DPW Staff Interviews - Cost adjusted for inflation
		FY32 Total Non-Capital Project Costs =		**$923,000**	
		FY32 Total Capital Project Costs =		**$77,000**	
		FY32 Total All Project Costs =		**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 8 - FY2033					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 15 (FY33)	This project will provide funds to assist with compliance with MS4 Permit Year 15 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^9$ = $135,576 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^9$ = $141,309 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 360,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 166,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY33 include: **S-12: Powder Mill Road** – Replace Culvert, Reconstruct Wall(s) – $361,100	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 11,000	DPW Staff Interviews - Cost adjusted for inflation
		FY33 Total Non-Capital Project Costs =		**$834,000**	
		FY33 Total Capital Project Costs =		**$166,000**	
		FY33 Total All Project Costs =		**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 9 - FY2034					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - permit Year 16 (FY34)	This project will provide funds to assist with compliance with MS4 Permit Year 16 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^{10}$ = $139,644 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^{10}$ = $145,548 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 370,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 155,000	DPW Staff Interviews / Annual Allowance
Drainage Improvements	Culvert Maintenance	The *Town-Wide Bridge and Culvert Asset Management Plan* (2023) developed by Wright-Pierce includes a 10-year capital improvement plan for the maintenance and replacement of Concord's 171 culverts and 9 bridges. Culverts/bridges prioritized for maintenance during FY34 include: S-25: 95 Pine Hill Lane – Replace Culvert, Reconstruct Wall(s) – $409,000	C	X	Town-Wide Bridge and Culvert Asset Management Plan (2023)
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 12,000	DPW Staff Interviews - Cost adjusted for inflation
		FY34 Total Non-Capital Project Costs =		**$845,000**	
		FY34 Total Capital Project Costs =		**$155,000**	
		FY34 Total All Project Costs =		**$1,000,000**	

Stormwater Budget - 10-Year Projection (FY2026 - FY2035)
Concord, MA

Note: Items highlighted in pink have been excluded from Stormwater Enterprise Budget. The Town of Concord can choose to fund these items either through grant opportunities or through the Town's General Fund.

Project Type	Project	Project Scope	Project Budget	Estimated Project Cost	Source of Need/Cost
Year 10 - FY2035					
MS4 Permit Compliance	MS4 Permit Compliance Implementation - Permit Year 17 (FY35)	This project will provide funds to assist with compliance with MS4 Permit Year 17 requirements.	NC	$ 300,000	Cost to be updated once next iteration of draft MS4 Permit is released. Placeholder value of $300,000 assuming construction of structural BMPs to reduce phosphorus loadings will be a permit priority.
Operation & Maintenance	Catch Basin Cleaning/ Repair	Assume inspection and cleaning of 50% of the Town's 3,785 catch basins annually. Catch basin cleaning and repairs are completed in-house currently. The MS4 Permit requires that no catch basin sump be more than 50% full at any given time. Town may need to increase cleaning frequency to meet MS4 Permit requirements. To be adjusted once Catch Basin Cleaning Optimization Plan is developed.	NC	$ 82,000	Cost of 25% of CBs currently cleaned in house accounted for in staffing needs, plus an additional 25% estimated at $55 per catch basin for cleaning and disposal. Cost provided also includes disposal cost for 25% of CBs cleaned in-house.
Operation & Maintenance	Street Sweeping	Conduct street sweeping of every public roadway at least twice annually. The MS4 Permit requires that all municipal roadways be swept at least a minimum of once per year. Increased street sweeping to twice per year in the fall and spring is required in drainage catchments tributary to nutrient impaired receiving waters. The Town of Concord lies within the Concord and Shawsheen River watersheds, which are both tributary to the Merrimack River, which has a phosphorus impairment without an approved TMDL. The entire Town is therefore subject to Appendix H requirements related to increased street sweeping frequency within the MS4 regulated area. Currently, Concord's street sweeping program covers 107 miles of public roadway, 4 miles of private roadway, and Town parking lots and sidewalks. These areas are all swept once annually each spring. Current street sweeping does not meet the impaired waters requirements included under Appendix H of the 2016 MS4 Permit.	NC	$ -	DPW Staff Interviews / Include disposal allowance for street sweepings. Maintenance performed by in-house staff. Cost accounted for under staffing needs.
Operation & Maintenance	Cleaning & Inspection of Storm Drains & Manholes	Clean and inspect 5% of storm drains per year (326,582 LF x 0.05 = 16,329 LF) - only assumes light cleaning. Prioritize critical drainage infrastructure for cleaning and inspection.	NC	$ 49,000	Purchase of Jetter trailer in FY25 will allow for in-house cleaning going forward.
Operation & Maintenance	BMPs	Inspect and maintain muncipally-owned stormwater BMPs annually. There are currently 80 municpal stormwater BMPs town-wide.	NC	$ 25,000	DPW Staff Interviews / Some maintenance performed by in-house staff. Cost accounted for under staffing needs. / Allowance included for outside maintenance support.
Operation & Maintenance	Staffing Needs	GIS Technician – Salary = ($86,590) X (1 FTE) X (1.20) X $(1.03)^{11}$ = $143,833 Equipment Operator – Salary = ($90,251) X (1 FTE) X (1.20) X $(1.03)^{11}$ = $149,914 Billing Assistance – $25,000 Consulting Assistance – $50,000	NC	$ 370,000	The Town of Concord plans to keep currrent staffing funded by the General Fund and to fund any new employees added to aid the stormwater program by the Stormwater Enterprise Fund. Salary estimates come from the Concord Classification and Compensation Plan dated 7/1/23. A yearly salary increase of 3% was estimated from FY2024 on based on the Concord FY24 Salary increase plan. An additional 20% was added to employee salaries to account for the cost of employeebenefits. Staffing additions and percentage of staff salary allocated to stormwater were added based on DPW Staff Interviews.
Operation & Maintenance	Billing Software	National Information Solutions Cooperative (NISC) Annual Fee – Software to support stormwater enterprise billing system.	NC	$ 7,000	DPW Staff Interviews
Drainage Improvements	Drainage System Improvements/Stream Restoration	Annual Appropriation for upgrades & repairs to the stormwater conveyance system, culvert maintenance and replacement, and stream restoration. Stream improvements include removal of debris and sedimentation, restoration of channel bottoms as well as repairs to side walls, and banks. Improvements will restore system capacity and mitigate flooding. Also includes repair and replacement of failing drainage infrastructure based on TV Inspection.	C	$ 154,000	DPW Staff Interviews / Annual Allowance
Water Quality Improvements	Water Quality Monitoring	The Town of Concord currently works with the sampling agency G&L Labs to monitor water quality of three ponds in Concord including White Pond and Silver Hill Pond at a cost of $1500 per pond.	NC	$ 13,000	DPW Staff Interviews - Cost adjusted for inflation
		FY35 Total Non-Capital Project Costs =		**$846,000**	
		FY35 Total Capital Project Costs =		**$154,000**	
		FY35 Total All Project Costs =		**$1,000,000**	

APPENDIX D

2016 Massachusetts MS4 Permit Cost Tables

CONCORD, MA
MS4 GENERAL PERMIT COMPLIANCE
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
SECTION 1 - INTRODUCTION				
1.10.3	Update written SWMP	As Necessary	Update the SWMP as needed on an annual basis.	Assume updates to the SWMP after Year 1 will be made in conjunction with preparation of the Town's Annual Report.
SECTION 2 - NON-NUMERIC EFFLUENT LIMITATIONS				
2.1 - Water Quality Based Effluent Limitations				
2.1.1.b	For MS4 discharges to a water body with an approved TMDL identified in Part 2.2.1, comply with Part 2.2.1 and Appendix F of the Permit	See Appendix F of the 2016 Final MA MS4 General Permit	The Assabet River (MA-82B-07), which Concord discharges to, has an approved TMDL for phosphorus that is regulated by the permit.	-
2.1.1.c	For MS4 discharges to a water body that is a water quality limited and not subject to an approved TMDL or for municipalities listed within Part 2.2.2a-b., comply with Part 2.2.2 and Appendix H of the Permit.	See Appendix H of the 2016 Final MA MS4 General Permit	Per the MS4 General Permit, Concord contains waterbodies or their tributaries with impairments for phosphorus and/or bacteria, and is therefore subject to the requirements of Appendix H.. The segment of the Assabet River (MA-82B-07) that Concord discharges to is impaired for fecal coliform and e.coli. This river is also a tributary of the Merrimack River, which is impaired for phosphorus and requires the development of a TMDL.	-
2.1.1.d	For all other discharges (not subject to the requirements of Part 2.1.1.b and Part 2.1.1.c of the Permit) contributing to a violation of applicable receiving water quality standards, eliminate condition causing or contributing to exceedance of water quality standards	Within 60 days of becoming aware of the situation	If a discharge is identified that contributes to an exceedance of applicable water quality standards, eliminate the conditions contributing to or causing the exceedance within 60 days.	Cost included under IDDE under Item 2.3.4.2.a.
2.1.2	Written notification to NHDES & EPA as needed & documentation in the Town's SWMP regarding new or increased stormwater discharges	As needed	Any new or increased stormwater discharges must satisfy MA antidegradation regulations.	-
2.2 - Discharges to Certain Impaired Waters				
IMPAIRED WATERS WITH AN APPROVED TMDL				
2.2.1	For MS4 discharges to a water body with an approved TMDL, comply with Appendix F, Part A of the Permit	See Appendix F of the 2016 Final MA MS4 General Permit	The Assabet River (MA-82B-07), which Concord discharges to, has an approved TMDL for phosphorus that is regulated by the permit.	
ASSABET RIVER PHOSPHORUS TMDL				
F.V.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Years 8 through 10
F.V.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
F.V.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
F.V.1.a.i.3	2.3.7 Sweep streets/lots ≥2/yr spring & fall	Sweep at least twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in drainage areas tributary to the Assabet River.	Cost included under 2.3.7.a.iii.3 & 4.
WATER QAULITY LIMITED WATERS (WITHOUT APPROVED TMDL)				
IMPAIRED - PHOSPHORUS (INCLUDES TRIBUTARIES)				
H.II.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	Cost included under F.V.1.a.i.1
H.II.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
H.II.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
H.II.1.a.i.2	2.3.6 Ordinance to require BMPs optimized for Phosphorus removal	With 2.3.6; 2 years from effective date	Include in Town's Stormwater Management Bylaw a requirement that new development and redevelopment stormwater BMPs be optimized for phosphorus removal.	Cost included under 2.3.6.a.ii.
H.II.1.a.i.2	2.3.6.d to include consideration of BMPs that Infiltrate stormwater	With 2.3.6.d; 4 years from effective date	Inventory and priority ranking of Town property and infrastructure that could be retrofitted with BMPs to include consideration of BMPs that infiltrate stormwater.	Cost included under 2.3.6.a.ii.
H.II.1.a.i.3	2.3.7 Grass-clippings procedures & blowing prohibited for MS4 property	With 2.3.7; 2 years from effective date	Develop program to manage grass clippings and leaf litter on permittee owned property.	Cost included under 2.3.7.a.ii.
H.II.1.a.i.3	2.3.7 Sweep streets/lots 2x/yr in spring and fall	Sweep twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in regulated catchment areas.	Cost included under 2.3.7.a.iii.3 & 4.
H.II.1.b	Complete Phosphorus Source Identification Report	4 years from effective date; With Year 4 Annual Report	Develop Phosphorus Source Identification Report to include: (1) calculation of total MS4 area draining to the the impaired water or its tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to Part 2.3.4.6, (2) All screening and monitoring results pursuant to Part 2.3.4.7.d., targeting the receiving water segment(s); (3) Impervious area and DCIA for the target catchment; (4) Identification, delineation and prioritization of potential catchments with high phosphorus loading; and (5) identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area of permittee-owned properties. The Town of Concord developed their Phase I Phosphorus Source Identification Report for areas tributary to the Assabet River during Permit Year 4 and 5. During Permit Year 6, it was determined that Concord would need to expand this report's scope to cover the entire Town of Concord.	$25,000 to $35,000

CONCORD, MA
MS4 GENERAL PERMIT COMPLIANCE
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
H.II.1.c.	Complete Phase II Phosphorus Source Identification Report	5 years from effective date	After the submission of the PSIR, the Town must develop a Phase II PSIR to evaluate all permittee-owned properties within the drainage area that could be candidates for a BMP retrofit. This evaluation must include: (1) The next planned infrastructure, resurfacing or redevelopment activity planned for the property or planned retrofit date; (2) The estimated cost of redevelopment or retrofit BMPs; and (3) The engineering and regulatory feasibility of redevelopment of retrofit BMPs. The Town of Concord developed their BMP Retrofit report as part of their Phase I PSIR for areas tributary to the Assabet River during Permit 5. During Permit Year 6, it was determined that Concord would need to expand this report's scope to cover the entire Town of Concord.	$30,000 to $40,000
H.II.1.c	Install BMPs	As per plan/schedule in Updated PSIR	Install BMPs in accordance with implementation plan and schedule included in the in the Town's *Draft Phosphorus Source Identification and Potential Structural BMPs Report*.	Budget $150,000 to $300,000 annually for design & construction of BMP Retrofit Projects for PSIR Compliance. Assume 1 location per year in Years 8 through 10. (PSIR BMP Retrofit Cost Accounted for Separately in Stormwater Budget Worksheet.)
H.II.1.c	Track/report BMP installations & estimated phosphorus removal	Annual Report after installation; Not later than Year 8	Document in Annual Report: type of BMP installed, total area treated by BMP, design storage volume of the BMP and estimated amount of phosphorus removed.	Cost included under Item 4.4.
IMPAIRED - BACTERIA OR PATHOGENS				
H.III.2.a.i	Distribute residential message on pet waste management (over/above 2.3.2).	Annually	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Years 8 through 10 (Cost partially included under H.II.1.a.i.1.)
H.III.2.a.i	Disseminate required public education information to dog owners.	At license renewal (or similar)		
H.III.2.a.i	Send public education materials to septic system owners.	Not specified; assume annually		
H.III.2.a.ii	2.3.4.7 IDDE - Catchments to Bacteria/Pathogen Impaired Waters to be ranked Problem or High	With 2.3.4.7; 1 year from effective date	Rank catchments to bacteria/pathogen impaired waters as Problem or High in catchment ranking to be completed under Item 2.3.4.7.a.ii.	Cost included under 2.3.4.7.a.ii.
2.3 - Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)				
PUBLIC EDUCATION & OUTREACH				
2.3.2.a-d	Distribute at least 2 educational messages to each of 4 targeted audiences (residents, businesses/commercial/institutional, developers and industrial). Different messages to the same targeted audience shall be distributed at least one year apart.	Begin year 2 at the latest; continue throughout permit term	Develop/distribute a minumum of 8 messages over the permit term. Educational messages can include brochures, newsletters, information posted to the Town's website, newspaper articles, public service announcements, displays in municipal buildings, etc. The Town of Concord has met the public education requirements of 2.3.2.a-d and should continue to update and distribute materials through the rest of the Permit term.	Budget $1,000 to $2,000 per year in Permit Years 8 through 10 to develop, update, & distribute materials to increase message effectiveness. Assume some pre-developed materials will be utilized and social media will also be utilized where feasible to convey messages.
2.3.2.e	Identify method to evaluate effectiveness of message; implement	Not stated	Determine method to evaluate message effectiveness; implement method.	
2.3.2.f	Modify ineffective messages/methods	Before next message distribution	Modify message or distribution methods if applicable.	
2.3.2.g	Report on messages as per permit	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
PUBLIC INVOLVEMENT & PARTICIPATION				
2.3.3.a	Meet Public Notice requirements	Continuous	Ensure that all public involvement activities comply with state public notice requirements.	-
2.3.3.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to public	Continuous	Make the SWMP and annual reports available on the website for or at the offices of the Concord Public Works (CPW).	-
2.3.3.b	Public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of the Concord Public Works website, hotline, clean-up teams, monitoring teams, or a stormwater advisory committee.	Budget $1,500 to $2,500 per year to assist with implementation of public participation initiatives.
2.3.3.c	Report on public participation opportunities	Annually	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.

CONCORD, MA
MS4 GENERAL PERMIT COMPLIANCE
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
ILLICIT DISCHARGE DETECTION & ELIMINATON				
2.3.4.2.a	Eliminate illicit discharges	60 days from detection or as expeditiously as possible	Eliminate illicit discharges as they are identified or establish a schedule for elimination for discharges that cannot be removed within 60 days.	Budget $15,000 to $25,000 per year starting in Year 8 and going through Year 10 (time period over which IDDE investigations will occur) as an allowance for removal of illicit connections.
2.3.4.2.a	Report dates of illicit identification and schedules for removal	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.4.a	Mitigate SSOs	Expeditiously as possible	Eliminate SSO as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants until elimination is completed.	-
2.3.4.4.c	Report SSOs	24 hours of awareness	Provide verbal notice to EPA within 24 hours, and written notice to EPA and NHDES within 5 days.	-
2.3.4.4.d	Update SSO inventory	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.5.b	Map the MS4 features required in 2.3.4.5.b under Phase 2 including outfall spatial location, pipes, manholes, catch basins, refined catchment delineations, and the municipal sanitary system (if available) and the municipal combined sewer system (if applicable).	Annually during catchment investigation procedures; **Within 10 years from permit effective date**	Phase 2 mapping is ongoing and will be completed within 10 years from the permit effective date. The Town's existing drainage GIS is updated periodically as new information is collected but may not be completely reflective of the current drainage system. All outfalls and receiving waters and open channel conveyances appear to be mapped, however interconnections do not appear to be included in the Town's current drainage GIS. Thirty-three storm detention basins are mapped, however the Town reported having approximately 80 stormwater treatment structures. Several areas on the current drainage GIS lack connectivity as well,. Although new infrastructure is added to the Town's GIS system during development and redevelopment projects, the Town has not completed in-field GPS'ing and condition assessment of structures since the 1990s.	Assume an allowance of $10,000 per year for additional mapping updates beginning in Year 8 going through to Year 10 when IDDE investigation work is complete.
2.3.4.5.e	Report on mapping progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.7.a	Report on list of catchments and results of rankings & update annually	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.a	Complete Investigation of catchments associated with Problem Outfalls	**7 years from effective date**	Implement Illicit Discharge Detection and Elimination Investigations as required by the conditions of the permit. For budgeting purposes, it is assumed that an Illicit Discharge Detection and Elimination Investigation Program will need to be implemented in all catchments. Catchments with no potential for illicit discharges (based on the catchment ranking exercise completed under Task 2.3.4.7.c.) can be excluded from the IDDE Program. 57 catchments have been successfully investigated to-date of the 144 total (**40%**). An additional 13 catchment inspections occurred where the outfall was identified as "not an outfall", which have been excluded from the totals reported.	Budget $75,000 to $80,000/yr allowance in Years 8 to 10 for IDDE investigation, sampling & reporting. Budget includes $25,000 allowance in Years 7 to 10 for CCTV inspection and dye testing to investigate illicit connections. Budget allowance for removal of illicit connections included under 2.3.4.2.a.
2.3.4.8.a	Complete Investigations of catchments where info on outfall/interconnection identifies sewer input	**7 years from effective date**		
2.3.4.8.a	Complete Investigations of catchments associated with all Problem, High- and Low-Priority outfalls	**10 years from effective date**		
2.3.4.8.c.i	Document the presence or absence of system vulnerability factors	Annual Report	Document the presence or absence of system vulnerability factors for each catchment. The Town of Concord completed their SVF matrix in Permit Year 6.	Cost included under Item 2.3.4.8.c.ii.2.
2.3.4.8.c.ii.2	Wet weather sampling	Upon completion of any dry weather investigation	Wet weather sampling must be completed at all outfalls where the catchment has a minimum of one (1) System Vulnerability Factor. Based on the System VUlnerability Factor Analysis, 48 outfalls/interconnections in Concord have at least one System Vulnerability Factor in its catchment, which triggers the requirement for wet-weather sampling. Wet weather sampling parameters shall include, at a minimum, ammonia, chlorine, conductivity, salinity, E.coli, surfactants and temperature. For outfalls that discharge to receiving waters with impairments for phosphorus, samples collected will have to be analyzed for these parameters as well. (Budget assumes lab analysis for most sampling parameters.)	Budget $18,000 to $25,000/yr allowance in Years 8 and 9 for wet weather sampling.
2.3.4.8.c.iii	Report on all data collected as part of the catchment investigations	Annual MS4 stormwater reports	Report data in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.e.i	Report on each illicit discharge identified and date of removal	Annual MS4 stormwater reports	For each confirmed source, the following information shall be included: location of discharge and source; description of discharge; method of discovery; date of discovery; date of elimination, mitigation or enforcement action or planned corrective measures; and estimate of the volume of flow removed.	Cost included under Item 4.4.
2.3.4.8.e.ii	Conduct confirmatory outfall or interconnection screening	1 year from removal of discharges	If confirmatory screening indicates evidence of illicit discharge, the catchment shall be scheduled for additional investigation.	Cost is dependent on the number of illicit discharges identified.
2.3.4.9	Evaluate & report IDDE program progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.10	Reprioritize catchments and schedule ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling once all catchments have been investigated and all illicit discharges have been removed	Once every 5 years	Ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling shall be completed every 5 years once all catchments have been investigated and all illicit discharges have been removed.	Catchment investigation work will not be complete until Year 13 so this work will not occur until at least Year 18.
2.3.4.11	Conduct IDDE employee training	At least annually	Continue to train employees about the IDDE Program including how to recognize illicit discharges and SSOs.	Budget $3,000 to $5,000 per year to prepare training materials and complete required training in Years 8 through 10.
2.3.4.11	Report on IDDE employee training	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.

CONCORD, MA
MS4 GENERAL PERMIT COMPLIANCE
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
2.3.5	Implement & enforce Construction Site Stormwater Runoff Control (CSSRC) Program	Not stated	Implement and enforce a program to reduce pollutants in stormwater runoff from construction activities per the 2003 Permit.	-
2.3.5.c.iii	Require developers to implement a sediment and erosion control program that includes BMPs appropriate for the conditions at the construction site.	Not stated	Ensure that current requirements meet all the conditions of the permit, and revise as needed.	-
2.3.5.c.iv	Include requirements for waste control, including but not limited to, discarded building materials, concrete truck wash out, chemicals, litter, and sanitary wastes, in the CSSRC ordinance.	Not stated	Amend existing zoning bylaw and/or development regulations as needed to include requirements for waste control.	-
POST-CONSTRUCTION STORMWATER MANAGEMENT				
2.3.6.a	Implement & enforce SW management for New Development/Redevelopment	Not stated	Implement and enforce a program to address post-construction stormwater runoff from new development and redevelopment projects.	-
2.3.6.a	Adopt regulatory mechanism that regulates runoff from new development/redevelopment	Should have been completed under 2003 permit.	The Town of Concord Stormwater Regulations and the Concord Public Works Design and Construction Standards govern post-construction stormwater management.	-
2.3.6.a.ii	Amend existing regulatory mechanism to contain provisions at least as stringent as those outlined under Part 2.3.6.a.ii.	2 years from effective date	Section 2.2.2 of the Concord Public Works Design and Construction Standards currently requires compliance with the Massachusetts Stormwater Management Standards. Some standards such as the TSS/TP treatment requirement are missing.	Budget $5,000 to $7,500 to review post-construction stormwater management regulatory mechanisms, modify the regulations for compliance & develop/update written procedures as needed.
2.3.6.a.iii	Develop procedures for Post Construction Stormwater Management to ensure submission of as-built plans within two (2) years from completed construction, and long-term O&M of BMPs; include in written SWMP.	2 years from effective date	Section 19.030 of the Town's General Bylaws currently requires the submission of a post-construction O&M Plan. Review existing requirements and update as need to meet permit requirements. Update Section 19.050 Part L of the Town's general bylaws to require submission of as-builts within two years of completion of construction.	Cost included under Item 2.3.6.a.ii.
2.3.6.a.iii	Report on measures to comply with 2.3.6.b in annual MS4 stormwater report	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.6.d	Report progress on implementation of BMP retrofits in Annual Report	Beginning with the Year 5 annual report and subsequently thereafter	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
GOOD HOUSEKEEPING & POLLUTION PREVENTION FOR PERMITEE-OWNED OPERATIONS				
2.3.7.a.ii.2	Provide training on use, storage, & disposal of petroleum products to applicable staff as necessary	Not stated	Provide training on use, storage, & disposal of petroleum products to applicable municipal staff as necessary. Employees receive stormwater, spill control and counter measure training annually.	Cost included under Item 2.3.7.b.ii & iii
2.3.7.a.iii.2	Implement routine inspection/cleaning/maintenance of catch basins to ensure sumps <50% full; report on activities as specified; investigate excessive sediment; log/report CB cleaning	Continuous; Annual MS4 stormwater reports	To control stormwater pollution, the Town continues to clean at least 25% of Town owned catch basins annually. The Town utilizes GIS mapping for data tracking. Catch basin cleanings include a survey of condition and any issues are recorded, as well as the height of the debris before and after the cleaning has been completed.	Town Forces - CB Cleaning costs are not included in the MS4 Budget, and instead are included as part of a separate O&M cost under the stormwater budget. Costs must factor in disposal costs as well. Once the catch basin optimization plan is complete, additional funding may need to be allocated to increase catch basin cleaning frequency to meet permit requirements. The Town has been collecting data to build their optimization plan.
2.3.7.a.iii.3 & 4.	Sweep streets/parking lots 1x/year in spring; report on efforts	Annually; Annual MS4 stormwater reports	The Street Sweeping program covers 107 miles of public roadway, the paved portion of 4 miles of private roadway, Town parking lots and sidewalks each Spring with the goal of completion by early June. This process helps Concord to achieve the goal of removing sand, silt and other debris from the stormwater system.	Town Forces
2.3.7.a.iii.4	Ensure proper storage of CB cleanings & street sweepings to prevent runoff	NA	The Concord Public Works Department has dedicated an area at the material storage yard for temporary storage of catch basin residuals. This area has protective measures to prevent the residuals from leaching away from the piles and entering the stormwater system.	Cost included under 2.3.7.1 (Document as part of written O&M procedures.)
2.3.7.a.iii.5	Establish procedures for winter road maintenance	Not stated	Snow is loaded out and hauled to the Town snow storage site at the landfill or Commonwealth Ave during storm events.	Cost included under 2.3.7.a.i.
2.3.7.a.iii.6	Establish/implement procedures to inspect/maintain storm drains & structural BMPs; and for annual inspection of treatment structures	Not stated	The Town currently maintains seven (7) bio-retention areas during the year. The Town's maintenance program ensures proper drainage, pollutant filtration, and general aesthetics. In the Spring, the Town inspects and removes trash and weeds from the bioretention basins, mulches 2-3 inches, and removes and replaces dead vegetation if necessary. In the Summer, the Town inspects and removes trash and weeds (not included in the plant list). In the Fall, the Town continues trash and weed removal, and 22 also prunes the dead heads in the bio retention basins. In the future, the Town plans to incorporate more Low Impact Development techniques to manage urban runoff.	Cost to develop procedures included under 2.3.7.a.i.; implementation & inspection to be completed by the Town.
2.3.7.a.iv	Report on all Good Housekeeping/Pollution Prevention requirements	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.

CONCORD, MA
MS4 GENERAL PERMIT COMPLIANCE
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.7.a.v	Keep written record of all Good Housekeeping/Pollution Prevention activities under 2.3.7.a	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
2.3.7.b.ii & iii	Perform SWPPP required actions/inspections/training	Frequencies as per permit	The Town has developed a Stormwater Pollution Prevention Plan (SWPPP), a Spill Prevention Control and Countermeasure Plan, and an Integrated Contingency Plan for the Public Works Department. As part of the SWPPP, the Town has developed a Garage Inspection form that works to evaluate the hazardous waste accumulation bay, the mechanics bay, the highway/park/tree bays and other general concerns. These inspection forms are filed weekly.	Assume facility operators to complete required inspections in-house. Budget $4,000 to $6,000 per year to complete required SWPPP training and prepare required training materials.
2.3.7.b.iii	Report on Stormwater Pollution Prevention Plan inspections	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.b.iv	Maintain written records for all SWPPP related items under 2.3.7.b	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
SECTION 3 - ADDITIONAL REQUIREMENTS FOR DISCHARGES TO SURFACE DRINKING WATER SUPPLIES AND THEIR TRIBUTARIES				
3.2.a	MS4s that discharge to public drinking water sources and their source protection areas must consider these sources priority resources when implementing the control measures of Part 2.3.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.b	Provide pretreatment/spill control for MS4 discharges to public surface drinking water supply sources & their tributaries	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.c	Avoid direct discharges to groundwater and surface water drinking water sources and ensure any discharges near source protection areas of water supply wells or intakes comply with the applicable state requirements.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
SECTION 4 - PROGRAM EVALUATION, RECORDKEEPING & REPORTING				
4.1.a	Self-evaluate compliance with the permit; include documentation of evaluation in written SWMP	Annually	Annually evaluate compliance with permit conditions.	Cost included under Item 4.4.
4.1.b	Evaluate BMP effectiveness & change if needed under provisions of permit	Not stated	Evaluate BMP effectiveness in achieving permit objectives & modify BMPs accordingly as needed.	Cost included under Item 4.4.
4.1.c	Report BMP modifications	Annual MS4 stormwater reports	Include in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.2	MS4 must keep records for ≥5yrs; make available to public	Continuous	Maintain annual MS4 stormwater reports and make available to the public.	-
4.3	Document results of MS4 outfall screening/sampling & any other monitoring/studies	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.4	Prepare & Submit Annual MS4 Stormwater Report.	Annually 90 days from effective date	Prepare Annual MS4 Stormwater Report.	$5,000 - $7,500/yr

Planning Level Estimate for Full Permit Compliance in Years 8-10:	**$445,500 to $558,500**
Planning Level Estimate for Permit Year 8:	**$194,500 to $249,500**
Planning Level Estimate for Permit Year 9:	**$134,500 to $167,000**
Planning Level Estimate for Permit Year 10:	**$116,500 to $142,000**

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 8 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
SECTION 1 - INTRODUCTION				
1.10.3	Update written SWMP	Annually	Update the SWMP annually. Provide formal updates on progress to select town boards and commissions to allow public opportunity to participate in plan implementation.	Assume updates to the SWMP after Year 1 will be made in conjunction with preparation of the Town's Annual Report.
SECTION 2 - NON-NUMERIC EFFLUENT LIMITATIONS				
2.1 - Water Quality Based Effluent Limitations				
2.1.1.b	For MS4 discharges to a water body with an approved TMDL identified in Part 2.2.1, comply with Part 2.2.1 and Appendix F of the Permit	See Appendix F of the 2016 MA MS4 General Permit	The Assabet River (MA-82B-07), which Concord discharges to, has an approved TMDL for phosphorus that is regulated by the permit.	Costs included under F.V.1.
2.1.1.c	For MS4 discharges to a water body that is a water quality limited and not subject to an approved TMDL or for municipalities listed within Part 2.2.2a-b., comply with Part 2.2.2 and Appendix H of the Permit.	See Appendix H of the 2016 MA MS4 General Permit	Per the 2016 MA MS4 General Permit, Concord discharges directly to waterbodies that are impaired for bacteria and discharges to water bodies that are tributary to receiving waters with impairments for phosphorus, and is therefore subject to the requirements of Appendix H. The segment of the Assabet River (MA 82B-07) that Concord discharges to is impaired for fecal coliform and E.coli. This river is also a tributary of the Merrimack River. The 2016 Integrated List of Waters, as well as subsequent iterations of this list, indicate that portions of the Merrimack River are impaired for phosphorus, including segments 84A-03 and 84A-04, which appear to be downstream of the Concord River, to which the Town also discharges. The Town is therefore required to implement the requirements of Appendix H (including development of a PSIR) in any portion of the Town's urbanized/MS4-reglulated area that is tributary to the Merrimack, which apears to be a majority of the town.	Costs included under H.II and H.III.
2.1.1.d	For all other discharges (not subject to the requirements of Part 2.1.1.b and Part 2.1.1.c of the Permit) contributing to a violation of applicable receiving water quality standards, eliminate condition causing or contributing to exceedance of water quality standards	Within 60 days of becoming aware of the situation	If a discharge is identified that contributes to an exceedance of applicable water quality standards, eliminate the conditions contributing to or causing the exceedance within 60 days.	Cost included under IDDE under Item 2.3.4.2.a.
2.1.2	Written notification to MassDEP & EPA as needed & documentation in the Town's SWMP regarding new or increased stormwater discharges	As needed	Any new or increased stormwater discharges must satisfy MA antidegradation regulations.	-
2.2 - Discharges to Certain Impaired Waters				
IMPAIRED WATERS WITH AN APPROVED TMDL				
ASSABET RIVER PHOSPHORUS TMDL				
F.V.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Permit Years 8 through 10
F.V.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
F.V.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
F.V.1.a.i.3	2.3.7 Sweep streets/lots ≥2/yr spring & fall	Sweep at least twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in drainage areas tributary to the Assabet River.	Cost included under 2.3.7.a.iii.3 & 4.
WATER QUALITY LIMITED WATERS (WITHOUT APPROVED TMDL)				
IMPAIRED - PHOSPHORUS (INCLUDES TRIBUTARIES)				
H.II.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	Cost included under F.V.1.a.i.1
H.II.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
H.II.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
H.I.1.a.i.3	2.3.7 Sweep streets/lots 2x/yr in spring and fall	Sweep twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in regulated catchment areas tributary to the Merrimack River.	Cost included under 2.3.7.a.iii.3 & 4.
H.II.1.b	Complete Phosphorus Source Identification Report	4 years from effective date; With Year 4 Annual Report	Develop Phosphorus Source Identification Report to include: (1) calculation of total MS4 area draining to the the impaired water or its tributaries, incorporating updated mapping of the MS4 and catchment delineations produced pursuant to Part 2.3.4.6, (2) All screening and monitoring results pursuant to Part 2.3.4.7.d., targeting the receiving water segment(s); (3) Impervious area and DCIA for the target catchment; (4) Identification, delineation and prioritization of potential catchments with high phosphorus loading; and (5) identification of potential retrofit opportunities or opportunities for the installation of structural BMPs during redevelopment, including the removal of impervious area of permittee-owned properties. The Town of Concord developed their Phase I Phosphorus Source Identification Report for areas tributary to the Assabet River during Permit Year 4 and 5. During Permit Year 6, it was determined that Concord would need to expand this report's scope to cover the entire regulated portion of Town that is tributary to the Merrimack River.	$25,000 to $35,000

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 8 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
H.II.1.c.	Complete Phase II Phosphorus Source Identification Report	5 years from effective date	The Town must develop a Phase II PSIR to evaluate all permittee-owned properties within the drainage area that could be candidates for a BMP retrofit. This evaluation must include: (1) The next planned infrastructure, resurfacing or redevelopment activity planned for the property or planned retrofit date; (2) The estimated cost of redevelopment or retrofit BMPs; and (3) The engineering and regulatory feasibility of redevelopment of retrofit BMPs. The Town of Concord developed their BMP Retrofit Report as part of their Phase I PSIR for areas tributary to the Assabet River during Permit 5. During Permit Year 6, it was determined that Concord would need to expand this report's scope to cover the entire regulated portion of Town that is tributary to the Merrimack River.	$30,000 to $40,000
H.II.1.c	Install BMPs	As per plan/schedule in Updated PSIR	Install BMPs in accordance with implementation plan and schedule included in the in the Town's *Draft Phosphorus Source Identification and Potential Structural BMPs Report*.	Budget $150,000 to $300,000 annually for design & construction of BMP Retrofit Projects for PSIR Compliance. Assume 1 location per year in Years 8 through 10. (PSIR BMP Retrofit Cost Accounted for Separately in Stormwater Budget Worksheet.)
H.II.1.c	Track/report BMP installations & estimated phosphorus removal	Annual Report after installation; Not later than Year 8	Document in Annual Report: type of BMP installed, total area treated by BMP, design storage volume of the BMP and estimated amount of phosphorus removed.	Cost included under Item 4.4.
IMPAIRED - BACTERIA OR PATHOGENS				
H.III.2.a.i	Distribute residential message on pet waste management (over/above 2.3.2).	Annually	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Years 8 through 10 (Cost partially included under H.II.1.a.i.1.)
H.III.2.a.i	Disseminate required public education information to dog owners.	At license renewal (or similar)		
H.III.2.a.i	Send public education materials to septic system owners.	Not specified; assume annually		
2.3 - Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)				
PUBLIC EDUCATION & OUTREACH				
2.3.2.a-d	Distribute at least 2 educational messages to each of 4 targeted audiences (residents, businesses/commercial/institutional, developers and industrial). Different messages to the same targeted audience shall be distributed at least one year apart.	Begin year 2 at the latest; continue throughout permit term	Develop/distribute a minumum of 8 messages over the permit term. Educational messages can include brochures, newsletters, information posted to the Town's website, newspaper articles, public service announcements, displays in municipal buildings, etc. The Town of Concord has met the public education requirements of 2.3.2.a-d, but should continue to update and distribute materials annually.	Budget $1,000 to $2,000 per year in Permit Years 8 through 10 to develop, update, & distribute materials to increase message effectiveness. Assume some pre-developed materials will be utilized and social media will also be utilized where feasible to convey messages.
2.3.2.e	Identify method to evaluate effectiveness of message; implement	Not stated	Determine method to evaluate message effectiveness; implement method.	
2.3.2.f	Modify ineffective messages/methods	Before next message distribution	Modify message or distribution methods if applicable.	
2.3.2.g	Report on messages as per permit	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
PUBLIC INVOLVEMENT & PARTICIPATION				
2.3.3.a	Meet Public Notice requirements	Continuous	Ensure that all public involvement activities comply with state public notice requirements.	-
2.3.3.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to public	Continuous	Make the SWMP and annual reports available on the Town's website or at the offices of the Concord Public Works (CPW).	-
2.3.3.b	Public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of the Concord Public Works website, hotline, clean-up teams, monitoring teams, or a stormwater advisory committee.	Budget $1,500 to $2,500 per year to assist with implementation of public participation initiatives.
2.3.3.c	Report on public participation opportunities	Annually	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
ILLICIT DISCHARGE DETECTION & ELIMINATION				
2.3.4.2.a	Eliminate illicit discharges	60 days from detection or as expeditiously as possible	Eliminate illicit discharges as they are identified or establish a schedule for elimination for discharges that cannot be removed within 60 days.	Budget $15,000 to $25,000 per year starting in Year 8 and going through Year 10 (time period over which IDDE investigations will occur) as an allowance for removal of illicit connections.
2.3.4.2.a	Report dates of illicit identification and schedules for removal	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.4.a	Mitigate SSOs	Expeditiously as possible	Eliminate SSO as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants until elimination is completed.	-
2.3.4.4.c	Report SSOs	24 hours of awareness	Provide verbal notice to EPA within 24 hours, and written notice to EPA and MassDEP within 5 days.	-
2.3.4.4.d	Update SSO inventory	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.

CONCORD, MA

MS4 GENERAL PERMIT REVIEW - YEAR 8 REQUIREMENTS

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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.4.5.b	Map the MS4 features required in 2.3.4.5.b under Phase 2 including outfall spatial location, pipes, manholes, catch basins, refined catchment delineations, and the municipal sanitary system (if available) and the municipal combined sewer system (if applicable).	Annually during catchment investigation procedures; Within 10 years from permit effective date	Phase 2 mapping is ongoing and will be completed within 10 years from the permit effective date. The Town's existing drainage GIS is updated periodically as new information is collected but may not be completely reflective of the current drainage system. All outfalls and receiving waters and open channel conveyances appear to be mapped. However, interconnections do not appear to be included in the Town's current drainage GIS. These should be field investigated and mapped if they do in fact exist. There are 33 mapped stormwater treatment structures; however the Town has conveyed having approximately 80 stormwater treatment structures. Several areas within the current Drainage GIS lack connectivity as well. Although new infrastructure is added to the Town's GIS system during development and redevelopment projects, the Town has not GPS mapped or performed a condition assessment of structures in recent years, aside from culverts.	Assume an allowance of $10,000 per year for additional mapping updates beginning in Year 8 going through to Year 10 when IDDE investigation work is complete.
2.3.4.5.e	Report on mapping progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.7.a	Report on list of catchments and results of rankings & update annually	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.a	Complete Investigation of catchments associated with Problem Outfalls	7 years from effective date	Implement Illicit Discharge Detection and Elimination Investigations as required by the conditions of the permit. For budgeting purposes, it is assumed that implementation of an Illicit Discharge Detection and Elimination Investigation Program is required in all regulated catchments. Catchments with no potential for illicit discharges (based on the catchment ranking exercise completed under Task 2.3.4.7.c.) can be excluded from the IDDE Program. Of the 144 catchments identified for IDDE investigations, 57 catchments have been successfully investigated to date (40%). An additional 13 catchment investigations occurred where the outfall was identified as "not an outfall". These have been excluded from the totals reported.	Budget $75,000 to $80,000/yr allowance in Years 8 to 10 for IDDE investigation, sampling & reporting. Budget includes $10,000 allowance in Years 8 to 10 for CCTV inspection and dye testing to investigate illicit connections. Budget allowance for removal of illicit connections included under 2.3.4.2.a.
2.3.4.8.a	Complete Investigations of catchments where info on outfall/interconnection identifies sewer input	7 years from effective date		
2.3.4.8.a	Complete Investigations of catchments associated with all Problem, High- and Low-Priority outfalls	10 years from effective date		
2.3.4.8.c.ii.2	Wet Weather Outfall/Interconnection Sampling	Upon completion of any dry weather investigation	Wet weather sampling must be completed at all outfalls where the catchment has a minimum of one (1) System Vulnerability Factor. Based on the System VUlnerability Factor Analysis, 48 outfalls/interconnections in Concord have at least one System Vulnerability Factor in its catchment, which triggers the requirement for wet-weather sampling. Wet weather sampling parameters shall include, at a minimum, ammonia, chlorine, conductivity, salinity, E.coli, surfactants and temperature. For outfalls that discharge to receiving waters with impairments for phosphorus, samples collected will have to be analyzed for these parameters as well. (Budget assumes lab analysis for most sampling parameters.)	Budget $18,000 to $25,000/yr allowance in Years 8 and 9 for wet weather sampling.
2.3.4.8.c.iii	Report on all data collected as part of the catchment investigations	Annual MS4 stormwater reports	Report data in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.e.i	Report on each illicit discharge identified and date of removal	Annual MS4 stormwater reports	For each confirmed source, the following information shall be included: location of discharge and source; description of discharge; method of discovery; date of discovery; date of elimination, mitigation or enforcement action or planned corrective measures; and estimate of the volume of flow removed.	Cost included under Item 4.4.
2.3.4.8.e.ii	Conduct confirmatory outfall or interconnection screening	1 year from removal of discharges	If confirmatory screening indicates evidence of illicit discharge, the catchment shall be scheduled for additional investigation.	Cost is dependent on the number of illicit discharges identified.
2.3.4.9	Evaluate & report IDDE program progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.10	Reprioritize catchments and schedule ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling once all catchments have been investigated and all illicit discharges have been removed	Once every 5 years	Ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling shall be completed every 5 years once all catchments have been investigated and all illicit discharges have been removed.	Catchment investigation work will not be complete until Year 10 so this work will not occur until at least Year 15.
2.3.4.11	Conduct IDDE employee training	At least annually	Continue to train employees about the IDDE Program including how to recognize illicit discharges and SSOs.	Budget $3,000 to $5,000 per year to prepare training materials and complete required training in Years 8 through 10.
2.3.4.11	Report on IDDE employee training	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.

CONCORD, MA

MS4 GENERAL PERMIT REVIEW - YEAR 8 REQUIREMENTS

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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
2.3.5	Implement & enforce Construction Site Stormwater Runoff Control (CSSRC) Program	Not stated	Implement and enforce a program to reduce pollutants in stormwater runoff from construction activities per the 2003 Permit.	-
POST-CONSTRUCTION STORMWATER MANAGEMENT				
2.3.6.a	Implement & enforce SW management for New Development/Redevelopment	Not stated	Implement and enforce a program to address post-construction stormwater runoff from new development and redevelopment projects.	-
2.3.6.a	Adopt regulatory mechanism that regulates runoff from new development/redevelopment	Should have been completed under 2003 permit.	The Town of Concord Stormwater Regulations adopted in 2011 and the Concord Public Works Design and Construction Standards govern post-construction stormwater management.	-
2.3.6.a.ii	Amend existing regulatory mechanism to contain provisions at least as stringent as those outlined under Part 2.3.6.a.ii.	3 years from effective date	Section 2.2.2 of the Concord Public Works Design and Construction Standards currently requires compliance with the Massachusetts Stormwater Management Standards. Some standards such as the TSS/TP treatment requirement are missing. The Town should update their Stormwater Regulations to be fully compliant with the requirements of the 2016 MS4 Permit as it relates to post-construction stormwater management.	Budget $5,000 to $7,500 to review post-construction stormwater management regulatory mechanisms, modify the regulations for compliance & develop/update written procedures as needed.
2.3.6.a.iii	Develop procedures for Post Construction Stormwater Management to ensure submission of as-built plans within two (2) years from completed construction, and long-term O&M of BMPs; include in written SWMP.	3 years from effective date	Section 19.030 of the Town's General Bylaws currently requires the submission of a Post-Construction O&M Plan. Update Section 19.050 Part L of the Town's general bylaws to require submission of as-builts within two years of completion of construction. Language currently included in Town's Design Standards. The Town should update their Stormwater Regulations to be fully compliant with the requirements of the 2016 MS4 Permit as it relates to post-construction stormwater management.	Cost included under Item 2.3.6.a.ii.
2.3.6.a.iii	Report on measures to comply with 2.3.6.b in annual MS4 stormwater report	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.6.d	Report progress on implementation of BMP retrofits in Annual Report	Beginning with the Year 5 annual report and subsequently thereafter	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
GOOD HOUSEKEEPING & POLLUTION PREVENTION FOR PERMITEE-OWNED OPERATIONS				
2.3.7.a.ii.2	Provide training on use, storage, & disposal of petroleum products to applicable staff as necessary	Not stated	Provide training on use, storage, & disposal of petroleum products to applicable municipal staff as necessary. Employees receive stormwater, spill control and counter measure training annually.	Cost included under Item 2.3.7.b.ii & iii
2.3.7.a.iii.2	Implement routine inspection/cleaning/maintenance of catch basins to ensure sumps <50% full; report on activities as specified; investigate excessive sediment; log/report CB cleaning	Continuous; Annual MS4 stormwater reports	Clean catch basins as needed to ensure that no sump is more than 50% full at any given time. The Town reported that they have approximately 3,785 catch basins in their MS4 System in their Year 5 MS4 Annual Report and removed 404 cubic yards of material. The Town inspected & cleaned 15% of Town owned catch basins during Permit Year 5. The Town utilizes their GIS mapping and an electronic data collection form for tracking. Catch basin cleaning records include a condition assessment, where any defects are recorded, as well as the amount of debris removed.	Town Forces - CB Cleaning costs are not included in the MS4 Budget, and instead are included as part of a separate O&M cost under the stormwater budget. Costs must factor in disposal costs as well. Once the catch basin optimization plan is complete, additional funding may need to be allocated to increase catch basin cleaning frequency to meet permit requirements. The Town has been collecting data to build their optimization plan.
2.3.7.a.iii.3 & 4.	Sweep streets/parking lots 1x/year in spring; report on efforts	Annually; Annual MS4 stormwater reports	The Town's Street Sweeping Program includes 107 miles of public roadway, 4 miles of private roadway, 12 municipally-owned parking lots and 44 miles of sidewalk, which are swept each spring. The Town will need to increase sweeping frequency of municipally-owed roadways and parking lots to twice annually - once in the spring and once in the fall - to meet permit requirements.	Town Forces - Town to add additional staffing resources to meet street sweeping frequency requirements. Town will also incur additional street sweeping diposal costs. The Town currently performs sweeping in-house. These costs are not included in the MS4 Budget, and instead are included as part of separate O&M cost under the stormwater budget. The Town will need to adjust street sweeping frequency so that streets located within catchments of phosphorous impaired waters are swept twice per year.
2.3.7.a.iii.4	Ensure proper storage of CB cleanings & street sweepings to prevent runoff	NA	The Concord Public Works Department has dedicated an area at the material storage yard for temporary storage of catch basin residuals. This area has protective measures to prevent the residuals from leaching away from the piles and entering the stormwater system.	Town Forces
2.3.7.a.iii.6	Establish/implement procedures to inspect/maintain storm drains & structural BMPs; and for annual inspection of treatment structures	Not stated	The Town currently maintains seven (7) bioretention areas during the year. The Town's maintenance program ensures proper drainage, pollutant filtration, and general aesthetics. In the Spring, the Town inspects and removes trash and weeds from the bioretention basins, mulches 2-3 inches, and removes and replaces dead vegetation if necessary. In the summer, the Town inspects and removes trash and weeds (not included in the plant list). In the Fall, the Town continues trash and weed removal, and also prunes the dead heads in the bioretention basins. Town has a number of other BMPs that are not currently being maintained. Up to 80 BMPs have been reported. Town must inspect treatment structures annually at a minimum.	Town maintains bioretention areas. Additional maintenance required for other BMPs not currently being maintained. Costs for maintenance calculated as part of separate O&M cost under stormwater budget.
2.3.7.a.iv	Report on all Good Housekeeping/Pollution Prevention requirements	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.a.v	Keep written record of all Good Housekeeping/Pollution Prevention activities under 2.3.7.a	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-

CONCORD, MA

MS4 GENERAL PERMIT REVIEW - YEAR 8 REQUIREMENTS

Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.7.b.ii & iii	Perform SWPPP required actions/inspections/training	Frequencies as per permit	The Town has developed Stormwater Pollution Prevention Plans (SWPPPs) for the following facilities: Concord Public Works Department, the Concord Wastewaster Treatment Facility, the Concord Bus Depot, and the Concord Light Plant. As part of the Concord Public Works SWPPP, the Town has developed a Garage Inspection form that works to evaluate the hazardous waste accumulation bay, the mechanics bay, the highway/park/tree bays and other general concerns. These inspection forms are filed weekly. In their Year 3 Annual Report, the Town reported that formal SWPPP inspection forms were created in November 2020 to officially document inspections of Town-owned facilitiies where a SWPPP has been developed. It was reported that SWPPP inspection reports would be filled out quarerly for each facility and reported on in future annual reports, however the PY4 and PY5 annual reports reported that 0 inspections were performed.	Assume facility operators to complete required inspections in-house. Budget $4,000 to $6,000 per year to complete required SWPPP training and prepare required training materials.
2.3.7.b.iii	Report on Stormwater Pollution Prevention Plan inspections	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.b.iv	Maintain written records for all SWPPP related items under 2.3.7.b	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
SECTION 3 - ADDITIONAL REQUIREMENTS FOR DISCHARGES TO SURFACE DRINKING WATER SUPPLIES AND THEIR TRIBUTARIES				
3.2.a	MS4s that discharge to public drinking water sources and their source protection areas must consider these sources priority resources when implementing the control measures of Part 2.3.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.b	Provide pretreatment/spill control for MS4 discharges to public surface drinking water supply sources & their tributaries	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.c	Avoid direct discharges to groundwater and surface water drinking water sources and ensure any discharges near source protection areas of water supply wells or intakes comply with the applicable state requirements.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
SECTION 4 - PROGRAM EVALUATION, RECORDKEEPING & REPORTING				
4.1.a	Self-evaluate compliance with the permit; include documentation of evaluation in written SWMP	Annually	Annually evaluate compliance with permit conditions.	Cost included under Item 4.4.
4.1.b	Evaluate BMP effectiveness & change if needed under provisions of permit	Not stated	Evaluate BMP effectiveness in achieving permit objectives & modify BMPs accordingly as needed.	Cost included under Item 4.4.
4.1.c	Report BMP modifications	Annual MS4 stormwater reports	Include in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.2	MS4 must keep records for ≥5yrs; make available to public	Continuous	Maintain annual MS4 stormwater reports and make available to the public.	-
4.3	Document results of MS4 outfall screening/sampling & any other monitoring/studies	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.4	Prepare & Submit Annual MS4 Stormwater Report.	Annually 90 days from effective date	Prepare Annual MS4 Stormwater Report.	$5,000 to $7,500
			Planning Level Estimate for Full Permit Compliance in Year 8:	**$194,500 to $249,500**

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 9 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
SECTION 1 - INTRODUCTION				
1.10.3	Update written SWMP	Annually	Update the SWMP annually. Provide formal updates on progress to select town boards and commissions to allow public opportunity to participate in plan implementation.	Assume updates to the SWMP after Year 1 will be made in conjunction with preparation of the Town's Annual Report.
SECTION 2 - NON-NUMERIC EFFLUENT LIMITATIONS				
2.1 - Water Quality Based Effluent Limitations				
2.1.1.b	For MS4 discharges to a water body with an approved TMDL identified in Part 2.2.1, comply with Part 2.2.1 and Appendix F of the Permit	See Appendix F of the 2016 MA MS4 General Permit	The Assabet River (MA-82B-07), which Concord discharges to, has an approved TMDL for phosphorus that is regulated by the permit.	Costs included under F.V.1.
2.1.1.c	For MS4 discharges to a water body that is a water quality limited and not subject to an approved TMDL or for municipalities listed within Part 2.2.2a-b., comply with Part 2.2.2 and Appendix H of the Permit.	See Appendix H of the 2016 MA MS4 General Permit	Per the 2016 MA MS4 General Permit, Concord discharges directly to waterbodies that are impaired for bacteria and discharges to water bodies that are tributary to receiving waters with impairments for phosphorus, and is therefore subject to the requirements of Appendix H. The segment of the Assabet River (MA 82B-07) that Concord discharges to is impaired for fecal coliform and E.coli. This river is also a tributary of the Merrimack River. The 2016 Integrated List of Waters, as well as subsequent iterations of this list, indicate that portions of the Merrimack River are impaired for phosphorus, including segments 84A-03 and 84A-04, which appear to be downstream of the Concord River, to which the Town also discharges. The Town is therefore required to implement the requirements of Appendix H (including development of a PSIR) in any portion of the Town's urbanized/MS4-reglulated area that is tributary to the Merrimack, which apears to be a majority of the town.	Costs included under H.II and H.III.
2.1.1.d	For all other discharges (not subject to the requirements of Part 2.1.1.b and Part 2.1.1.c of the Permit) contributing to a violation of applicable receiving water quality standards, eliminate condition causing or contributing to exceedance of water quality standards	Within 60 days of becoming aware of the situation	If a discharge is identified that contributes to an exceedance of applicable water quality standards, eliminate the conditions contributing to or causing the exceedance within 60 days.	Cost included under IDDE under Item 2.3.4.2.a.
2.1.2	Written notification to MassDEP & EPA as needed & documentation in the Town's SWMP regarding new or increased stormwater discharges	As needed	Any new or increased stormwater discharges must satisfy MA antidegradation regulations.	-
2.2 - Discharges to Certain Impaired Waters				
IMPAIRED WATERS WITH AN APPROVED TMDL				
ASSABET RIVER PHOSPHORUS TMDL				
F.V.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Permit Years 8 through 10
F.V.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
F.V.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
F.V.1.a.i.3	2.3.7 Sweep streets/lots ≥2/yr spring & fall	Sweep at least twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in drainage areas tributary to the Assabet River.	Cost included under 2.3.7.a.iii.3 & 4.
WATER QUALITY LIMITED WATERS (WITHOUT APPROVED TMDL)				
IMPAIRED - PHOSPHORUS (INCLUDES TRIBUTARIES)				
H.II.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	Cost included under F.V.1.a.i.1
H.II.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
H.II.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
H.I.1.a.i.3	2.3.7 Sweep streets/lots 2x/yr in spring and fall	Sweep twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in regulated catchment areas tributary to the Merrimack River.	Cost included under 2.3.7.a.iii.3 & 4.
H.II.1.c	Install BMPs	As per plan/schedule in Updated PSIR	Install BMPs in accordance with implementation plan and schedule included in the in the Town's *Draft Phosphorus Source Identification and Potential Structural BMPs Report*.	Budget $150,000 to $300,000 annually for design & construction of BMP Retrofit Projects for PSIR Compliance. Assume 1 location per year in Years 8 through 10. (PSIR BMP Retrofit Cost Accounted for Separately in Stormwater Budget Worksheet.)
H.II.1.c	Track/report BMP installations & estimated phosphorus removal	Annual Report after installation; Not later than Year 8	Document in Annual Report: type of BMP installed, total area treated by BMP, design storage volume of the BMP and estimated amount of phosphorus removed.	Cost included under Item 4.4.
IMPAIRED - BACTERIA OR PATHOGENS				
H.III.2.a.i	Distribute residential message on pet waste management (over/above 2.3.2).	Annually	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Years 8 through 10 (Cost partially included under H.II.1.a.i.1.)
H.III.2.a.i	Disseminate required public education information to dog owners.	At license renewal (or similar)		
H.III.2.a.i	Send public education materials to septic system owners.	Not specified; assume annually		

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 9 REQUIREMENTS
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Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3 - Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)				
PUBLIC EDUCATION & OUTREACH				
2.3.2.a-d	Distribute at least 2 educational messages to each of 4 targeted audiences (residents, businesses/commercial/institutional, developers and industrial). Different messages to the same targeted audience shall be distributed at least one year apart.	Begin year 2 at the latest; continue throughout permit term	Develop/distribute a minumum of 8 messages over the permit term. Educational messages can include brochures, newsletters, information posted to the Town's website, newspaper articles, public service announcements, displays in municipal buildings, etc. The Town of Concord has met the public education requirements of 2.3.2.a-d, but should continue to update and distribute materials annually.	Budget $1,000 to $2,000 per year in Permit Years 8 through 10 to develop, update, & distribute materials to increase message effectiveness. Assume some pre-developed materials will be utilized and social media will also be utilized where feasible to convey messages.
2.3.2.e	Identify method to evaluate effectiveness of message; implement	Not stated	Determine method to evaluate message effectiveness; implement method.	
2.3.2.f	Modify ineffective messages/methods	Before next message distribution	Modify message or distribution methods if applicable.	
2.3.2.g	Report on messages as per permit	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
PUBLIC INVOLVEMENT & PARTICIPATION				
2.3.3.a	Meet Public Notice requirements	Continuous	Ensure that all public involvement activities comply with state public notice requirements.	-
2.3.3.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to public	Continuous	Make the SWMP and annual reports available on the Town's website or at the offices of the Concord Public Works (CPW).	-
2.3.3.b	Public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of the Concord Public Works website, hotline, clean-up teams, monitoring teams, or a stormwater advisory committee.	Budget $1,500 to $2,500 per year to assist with implementation of public participation initiatives.
2.3.3.c	Report on public participation opportunities	Annually	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
ILLICIT DISCHARGE DETECTION & ELIMINATION				
2.3.4.2.a	Eliminate illicit discharges	60 days from detection or as expeditiously as possible	Eliminate illicit discharges as they are identified or establish a schedule for elimination for discharges that cannot be removed within 60 days.	Budget $15,000 to $25,000 per year starting in Year 8 and going through Year 10 (time period over which IDDE investigations will occur) as an allowance for removal of illicit connections
2.3.4.2.a	Report dates of illicit identification and schedules for removal	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.4.a	Mitigate SSOs	Expeditiously as possible	Eliminate SSO as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants until elimination is completed.	-
2.3.4.4.c	Report SSOs	24 hours of awareness	Provide verbal notice to EPA within 24 hours, and written notice to EPA and MassDEP within 5 days.	-
2.3.4.4.d	Update SSO inventory	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.5.b	Map the MS4 features required in 2.3.4.5.b under Phase 2 including outfall spatial location, pipes, manholes, catch basins, refined catchment delineations, and the municipal sanitary system (if available) and the municipal combined sewer system (if applicable).	Annually during catchment investigation procedures; Within 10 years from permit effective date	Phase 2 mapping is ongoing and will be completed within 10 years from the permit effective date. The Town's existing drainage GIS is updated periodically as new information is collected but may not be completely reflective of the current drainage system. All outfalls and receiving waters and open channel conveyances appear to be mapped. However, interconnections do not appear to be included in the Town's current drainage GIS. These should be field investigated and mapped if they do in fact exist. There are 33 mapped stormwater treatment structures; however the Town has conveyed having approximately 80 stormwater treatment structures. Several areas within the current Drainage GIS lack connectivity as well. Although new infrastructure is added to the Town's GIS system during development and redevelopment projects, the Town has not GPS mapped or performed a condition assessment of structures in recent years, aside from culverts.	Assume an allowance of $10,000 per year for additional mapping updates beginning in Year 8 going through to Year 10 when IDDE investigation work is complete.
2.3.4.5.e	Report on mapping progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.7.a	Report on list of catchments and results of rankings & update annually	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.a	Complete Investigation of catchments associated with Problem Outfalls	7 years from effective date	Implement Illicit Discharge Detection and Elimination Investigations as required by the conditions of the permit. For budgeting purposes, it is assumed that implementation of an Illicit Discharge Detection and Elimination Investigation Program is required in all regulated catchments. Catchments with no potential for illicit discharges (based on the catchment ranking exercise completed under Task 2.3.4.7.c.) can be excluded from the IDDE Program. Of the 144 catchments identified for IDDE investigations, 57 catchments have been successfully investigated to date (40%). An additional 13 catchment investigations occurred where the outfall was identified as "not an outfall". These have been excluded from the totals reported.	Budget $75,000 to $80,000/yr allowance in Years 8 to 10 for IDDE investigation, sampling & reporting. Budget includes $10,000 allowance in Years 8 to 10 for CCTV inspection and dye testing to investigate illicit connections. Budget allowance for removal of illicit connections included under 2.3.4.2.a.
2.3.4.8.a	Complete Investigations of catchments where info on outfall/interconnection identifies sewer input	7 years from effective date		
2.3.4.8.a	Complete Investigations of catchments associated with all Problem, High- and Low-Priority outfalls	10 years from effective date		

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 9 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.4.8.c.ii.2	Wet Weather Outfall/Interconnection Sampling	Upon completion of any dry weather investigation	Wet weather sampling must be completed at all outfalls where the catchment has a minimum of one (1) System Vulnerability Factor. Based on the System VUlnerability Factor Analysis, 48 outfalls/interconnections in Concord have at least one System Vulnerability Factor in its catchment, which triggers the requirement for wet-weather sampling. Wet weather sampling parameters shall include, at a minimum, ammonia, chlorine, conductivity, salinity, E.coli, surfactants and temperature. For outfalls that discharge to receiving waters with impairments for phosphorus, samples collected will have to be analyzed for these parameters as well. (Budget assumes lab analysis for most sampling parameters.)	Budget $18,000 to $25,000/yr allowance in Years 8 and 9 for wet weather sampling.
2.3.4.8.c.iii	Report on all data collected as part of the catchment investigations	Annual MS4 stormwater reports	Report data in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.e.i	Report on each illicit discharge identified and date of removal	Annual MS4 stormwater reports	For each confirmed source, the following information shall be included: location of discharge and source; description of discharge; method of discovery; date of discovery; date of elimination, mitigation or enforcement action or planned corrective measures; and estimate of the volume of flow removed.	Cost included under Item 4.4.
2.3.4.8.e.ii	Conduct confirmatory outfall or interconnection screening	1 year from removal of discharges	If confirmatory screening indicates evidence of illicit discharge, the catchment shall be scheduled for additional investigation.	Cost is dependent on the number of illicit discharges identified.
2.3.4.9	Evaluate & report IDDE program progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.10	Reprioritize catchments and schedule ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling once all catchments have been investigated and all illicit discharges have been removed	Once every 5 years	Ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling shall be completed every 5 years once all catchments have been investigated and all illicit discharges have been removed.	Catchment investigation work will not be complete until Year 10 so this work will not occur until at least Year 15.
2.3.4.11	Conduct IDDE employee training	At least annually	Continue to train employees about the IDDE Program including how to recognize illicit discharges and SSOs.	Budget $3,000 to $5,000 per year to prepare training materials and complete required training in Years 8 through 10.
2.3.4.11	Report on IDDE employee training	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
2.3.5	Implement & enforce Construction Site Stormwater Runoff Control (CSSRC) Program	Not stated	Implement and enforce a program to reduce pollutants in stormwater runoff from construction activities per the 2003 Permit.	-
POST-CONSTRUCTION STORMWATER MANAGEMENT				
2.3.6.a	Implement & enforce SW management for New Development/Redevelopment	Not stated	Implement and enforce a program to address post-construction stormwater runoff from new development and redevelopment projects.	-
2.3.6.a.iii	Report on measures to comply with 2.3.6.b in annual MS4 stormwater report	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.6.d	Report progress on implementation of BMP retrofits in Annual Report	Beginning with the Year 5 annual report and subsequently thereafter	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
GOOD HOUSEKEEPING & POLLUTION PREVENTION FOR PERMITEE-OWNED OPERATIONS				
2.3.7.a.ii.2	Provide training on use, storage, & disposal of petroleum products to applicable staff as necessary	Not stated	Provide training on use, storage, & disposal of petroleum products to applicable municipal staff as necessary. Employees receive stormwater, spill control and counter measure training annually.	Cost included under Item 2.3.7.b.ii & iii
2.3.7.a.iii.2	Implement routine inspection/cleaning/maintenance of catch basins to ensure sumps <50% full; report on activities as specified; investigate excessive sediment; log/report CB cleaning	Continuous; Annual MS4 stormwater reports	Clean catch basins as needed to ensure that no sump is more than 50% full at any given time. The Town reported that they have approximately 3,785 catch basins in their MS4 System in their Year 5 MS4 Annual Report and removed 404 cubic yards of material. The Town inspected & cleaned 15% of Town owned catch basins during Permit Year 5. The Town utilizes their GIS mapping and an electronic data collection form for tracking. Catch basin cleaning records include a condition assessment, where any defects are recorded, as well as the amount of debris removed.	Town Forces - CB Cleaning costs are not included in the MS4 Budget, and instead are included as part of a separate O&M cost under the stormwater budget. Costs must factor in disposal costs as well. Once the catch basin optimization plan is complete, additional funding may need to be allocated to increase catch basin cleaning frequency to meet permit requirements. The Town has been collecting data to build their optimization plan.
2.3.7.a.iii.3 & 4.	Sweep streets/parking lots 1x/year in spring; report on efforts	Annually; Annual MS4 stormwater reports	The Town's Street Sweeping Program includes 107 miles of public roadway, 4 miles of private roadway, 12 municipally-owned parking lots and 44 miles of sidewalk, which are swept each spring. The Town will need to increase sweeping frequency of municipally-owed roadways and parking lots to twice annually - once in the spring and once in the fall - to meet permit requirements.	Town Forces - Town to add additional staffing resources to meet street sweeping frequency requirements. Town will also incur additional street sweeping diposal costs. The Town currently performs sweeping in-house. These costs are not included in the MS4 Budget, and instead are included as part of separate O&M cost under the stormwater budget. The Town will need to adjust street sweeping frequency so that streets located within catchments of phosphorous impaired waters are swept twice per year.
2.3.7.a.iii.4	Ensure proper storage of CB cleanings & street sweepings to prevent runoff	NA	The Concord Public Works Department has dedicated an area at the material storage yard for temporary storage of catch basin residuals. This area has protective measures to prevent the residuals from leaching away from the piles and entering the stormwater system.	Town Forces

CONCORD, MA

MS4 GENERAL PERMIT REVIEW - YEAR 9 REQUIREMENTS

Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)

Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.7.a.iii.6	Establish/implement procedures to inspect/maintain storm drains & structural BMPs; and for annual inspection of treatment structures	Not stated	The Town currently maintains seven (7) bioretention areas during the year. The Town's maintenance program ensures proper drainage, pollutant filtration, and general aesthetics. In the Spring, the Town inspects and removes trash and weeds from the bioretention basins, mulches 2-3 inches, and removes and replaces dead vegetation if necessary. In the summer, the Town inspects and removes trash and weeds (not included in the plant list). In the Fall, the Town continues trash and weed removal, and also prunes the dead heads in the bioretention basins. Town has a number of other BMPs that are not currently being maintained. Up to 80 BMPs have been reported. Town must inspect treatment structures annually at a minimum.	Town maintains bioretention areas. Additional maintenance required for other BMPs not currently being maintained. Costs for maintenance calculated as part of separate O&M cost under stormwater budget.
2.3.7.a.iv	Report on all Good Housekeeping/Pollution Prevention requirements	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.a.v	Keep written record of all Good Housekeeping/Pollution Prevention activities under 2.3.7.a	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
2.3.7.b.ii & iii	Perform SWPPP required actions/inspections/training	Frequencies as per permit	The Town has developed Stormwater Pollution Prevention Plans (SWPPPs) for the following facilities: Concord Public Works Department, the Concord Wastewaster Treatment Facility, the Concord Bus Depot, and the Concord Light Plant. As part of the Concord Public Works SWPPP, the Town has developed a Garage Inspection form that works to evaluate the hazardous waste accumulation bay, the mechanics bay, the highway/park/tree bays and other general concerns. These inspection forms are filed weekly. In their Year 3 Annual Report, the Town reported that formal SWPPP inspection forms were created in November 2020 to officially document inspections of Town-owned facilitiies where a SWPPP has been developed. It was reported that SWPPP inspection reports would be filled out quarerly for each facility and reported on in future annual reports, however the PY4 and PY5 annual reports reported that 0 inspections were performed.	Assume facility operators to complete required inspections in-house. Budget $4,000 to $6,000 per year to complete required SWPPP training and prepare required training materials.
2.3.7.b.iii	Report on Stormwater Pollution Prevention Plan inspections	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.b.iv	Maintain written records for all SWPPP related items under 2.3.7.b	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
SECTION 3 - ADDITIONAL REQUIREMENTS FOR DISCHARGES TO SURFACE DRINKING WATER SUPPLIES AND THEIR TRIBUTARIES				
3.2.a	MS4s that discharge to public drinking water sources and their source protection areas must consider these sources priority resources when implementing the control measures of Part 2.3.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.b	Provide pretreatment/spill control for MS4 discharges to public surface drinking water supply sources & their tributaries	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.c	Avoid direct discharges to groundwater and surface water drinking water sources and ensure any discharges near source protection areas of water supply wells or intakes comply with the applicable state requirements.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
SECTION 4 - PROGRAM EVALUATION, RECORDKEEPING & REPORTING				
4.1.a	Self-evaluate compliance with the permit; include documentation of evaluation in written SWMP	Annually	Annually evaluate compliance with permit conditions.	Cost included under Item 4.4.
4.1.b	Evaluate BMP effectiveness & change if needed under provisions of permit	Not stated	Evaluate BMP effectiveness in achieving permit objectives & modify BMPs accordingly as needed.	Cost included under Item 4.4.
4.1.c	Report BMP modifications	Annual MS4 stormwater reports	Include in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.2	MS4 must keep records for ≥5yrs; make available to public	Continuous	Maintain annual MS4 stormwater reports and make available to the public.	-
4.3	Document results of MS4 outfall screening/sampling & any other monitoring/studies	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.4	Prepare & Submit Annual MS4 Stormwater Report.	Annually 90 days from effective date	Prepare Annual MS4 Stormwater Report.	$5,000 to $7,500
			Planning Level Estimate for Full Permit Compliance in Year 9:	**$134,500 to $167,000**

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 10 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
SECTION 1 - INTRODUCTION				
1.10.3	Update written SWMP	Annually	Update the SWMP annually. Provide formal updates on progress to select town boards and commissions to allow public opportunity to participate in plan implementation.	Assume updates to the SWMP after Year 1 will be made in conjunction with preparation of the Town's Annual Report.
SECTION 2 - NON-NUMERIC EFFLUENT LIMITATIONS				
2.1 - Water Quality Based Effluent Limitations				
2.1.1.b	For MS4 discharges to a water body with an approved TMDL identified in Part 2.2.1, comply with Part 2.2.1 and Appendix F of the Permit	See Appendix F of the 2016 MA MS4 General Permit	The Assabet River (MA-82B-07), which Concord discharges to, has an approved TMDL for phosphorus that is regulated by the permit.	Costs included under F.V.1.
2.1.1.c	For MS4 discharges to a water body that is a water quality limited and not subject to an approved TMDL or for municipalities listed within Part 2.2.2a-b., comply with Part 2.2.2 and Appendix H of the Permit.	See Appendix H of the 2016 MA MS4 General Permit	Per the 2016 MA MS4 General Permit, Concord discharges directly to waterbodies that are impaired for bacteria and discharges to water bodies that are tributary to receiving waters with impairments for phosphorus, and is therefore subject to the requirements of Appendix H. The segment of the Assabet River (MA 82B-07) that Concord discharges to is impaired for fecal coliform and E.coli. This river is also a tributary of the Merrimack River. The 2016 Integrated List of Waters, as well as subsequent iterations of this list, indicate that portions of the Merrimack River are impaired for phosphorus, including segments 84A-03 and 84A-04, which appear to be downstream of the Concord River, to which the Town also discharges. The Town is therefore required to implement the requirements of Appendix H (including development of a PSIR) in any portion of the Town's urbanized/MS4-reglulated area that is tributary to the Merrimack, which apears to be a majority of the town.	Costs included under H.II and H.III.
2.1.1.d	For all other discharges (not subject to the requirements of Part 2.1.1.b and Part 2.1.1.c of the Permit) contributing to a violation of applicable receiving water quality standards, eliminate condition causing or contributing to exceedance of water quality standards	Within 60 days of becoming aware of the situation	If a discharge is identified that contributes to an exceedance of applicable water quality standards, eliminate the conditions contributing to or causing the exceedance within 60 days.	Cost included under IDDE under Item 2.3.4.2.a.
2.1.2	Written notification to MassDEP & EPA as needed & documentation in the Town's SWMP regarding new or increased stormwater discharges	As needed	Any new or increased stormwater discharges must satisfy MA antidegradation regulations.	-
2.2 - Discharges to Certain Impaired Waters				
IMPAIRED WATERS WITH AN APPROVED TMDL				
ASSABET RIVER PHOSPHORUS TMDL				
F.V.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Permit Years 8 through 10
F.V.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
F.V.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
F.V.1.a.i.3	2.3.7 Sweep streets/lots ≥2/yr spring & fall	Sweep at least twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in drainage areas tributary to the Assabet River.	Cost included under 2.3.7.a.iii.3 & 4.
WATER QUALITY LIMITED WATERS (WITHOUT APPROVED TMDL)				
IMPAIRED - PHOSPHORUS (INCLUDES TRIBUTARIES)				
H.II.1.a.i.1	Distribute clippings/fertilizer message to required audiences	Annually in March/April	Develop and disseminate required public education information.	Cost included under F.V.1.a.i.1
H.II.1.a.i.1	Distribute pet waste management message to Residential	Annually in June/July		
H.II.1.a.i.1	Distribute leaf litter disposal message to Residential/Business/Commercial	Annually August-October		
H.I.1.a.i.3	2.3.7 Sweep streets/lots 2x/yr in spring and fall	Sweep twice/year	Increase frequency of sweeping of public streets and municipal parking lots to a minimum of two times per year in regulated catchment areas.	Cost included under 2.3.7.a.iii.3 & 4.
H.II.1.c	Install BMPs	As per plan/schedule in Updated PSIR	Install BMPs in accordance with implementation plan and schedule included in the in the Town's *Draft Phosphorus Source Identification and Potential Structural BMPs Report*.	Budget $150,000 to $300,000 annually for design & construction of BMP Retrofit Projects for PSIR Compliance. Assume 1 location per year in Years 8 through 10. (PSIR BMP Retrofit Cost Accounted for Separately in Stormwater Budget Worksheet.)
H.II.1.c	Track/report BMP installations & estimated phosphorus removal	Annual Report after installation; Not later than Year 8	Document in Annual Report: type of BMP installed, total area treated by BMP, design storage volume of the BMP and estimated amount of phosphorus removed.	Cost included under Item 4.4.
IMPAIRED - BACTERIA OR PATHOGENS				
H.III.2.a.i	Distribute residential message on pet waste management (over/above 2.3.2).	Annually	Develop and disseminate required public education information.	$1,000 - $2,000 per year in Years 8 through 10 (Cost partially included under H.II.1.a.i.1.)
H.III.2.a.i	Disseminate required public education information to dog owners.	At license renewal (or similar)		
H.III.2.a.i	Send public education materials to septic system owners.	Not specified; assume annually		

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 10 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3 - Requirements to Reduce Pollutants to the Maximum Extent Practicable (MEP)				
PUBLIC EDUCATION & OUTREACH				
2.3.2.a-d	Distribute at least 2 educational messages to each of 4 targeted audiences (residents, businesses/commercial/institutional, developers and industrial). Different messages to the same targeted audience shall be distributed at least one year apart.	Begin year 2 at the latest; continue throughout permit term	Develop/distribute a minumum of 8 messages over the permit term. Educational messages can include brochures, newsletters, information posted to the Town's website, newspaper articles, public service announcements, displays in municipal buildings, etc. The Town of Concord has met the public education requirements of 2.3.2.a-d, but should continue to update and distribute materials annually.	Budget $1,000 to $2,000 per year in Permit Years 8 through 10 to develop, update, & distribute materials to increase message effectiveness. Assume some pre-developed materials will be utilized and social media will also be utilized where feasible to convey messages.
2.3.2.e	Identify method to evaluate effectiveness of message; implement	Not stated	Determine method to evaluate message effectiveness; implement method.	
2.3.2.f	Modify ineffective messages/methods	Before next message distribution	Modify message or distribution methods if applicable.	
2.3.2.g	Report on messages as per permit	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
PUBLIC INVOLVEMENT & PARTICIPATION				
2.3.3.a	Meet Public Notice requirements	Continuous	Ensure that all public involvement activities comply with state public notice requirements.	-
2.3.3.a	Make Stormwater Management Plan & Annual MS4 Stormwater Report available to public	Continuous	Make the SWMP and annual reports available on the Town's website or at the offices of the Concord Public Works (CPW).	-
2.3.3.b	Public opportunity to participate in the review/implementation of the Stormwater Management Program	Annually	May be implemented through the use of the Concord Public Works website, hotline, clean-up teams, monitoring teams, or a stormwater advisory committee.	Budget $1,500 to $2,500 per year to assist with implementation of public participation initiatives.
2.3.3.c	Report on public participation opportunities	Annually	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
ILLICIT DISCHARGE DETECTION & ELIMINATION				
2.3.4.2.a	Eliminate illicit discharges	60 days from detection or as expeditiously as possible	Eliminate illicit discharges as they are identified or establish a schedule for elimination for discharges that cannot be removed within 60 days.	Budget $15,000 to $25,000 per year starting in Year 8 and going through Year 10 (time period over which IDDE investigations will occur) as an allowance for removal of illicit connections.
2.3.4.2.a	Report dates of illicit identification and schedules for removal	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.4.a	Mitigate SSOs	Expeditiously as possible	Eliminate SSO as expeditiously as possible and take interim mitigation measures to minimize the discharge of pollutants until elimination is completed.	-
2.3.4.4.c	Report SSOs	24 hours of awareness	Provide verbal notice to EPA within 24 hours, and written notice to EPA and MassDEP within 5 days.	-
2.3.4.4.d	Update SSO inventory	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.5.b	Map the MS4 features required in 2.3.4.5.b under Phase 2 including outfall spatial location, pipes, manholes, catch basins, refined catchment delineations, and the municipal sanitary system (if available) and the municipal combined sewer system (if applicable).	Annually during catchment investigation procedures; Within 10 years from permit effective date	Phase 2 mapping is ongoing and will be completed within 10 years from the permit effective date. The Town's existing drainage GIS is updated periodically as new information is collected but may not be completely reflective of the current drainage system. All outfalls and receiving waters and open channel conveyances appear to be mapped. However, interconnections do not appear to be included in the Town's current drainage GIS. These should be field investigated and mapped if they do in fact exist. There are 33 mapped stormwater treatment structures; however the Town has conveyed having approximately 80 stormwater treatment structures. Several areas within the current Drainage GIS lack connectivity as well. Although new infrastructure is added to the Town's GIS system during development and redevelopment projects, the Town has not GPS mapped or performed a condition assessment of structures in recent years, aside from culverts.	Assume an allowance of $10,000 per year for additional mapping updates beginning in Year 8 going through to Year 10 when IDDE investigation work is complete.
2.3.4.5.e	Report on mapping progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.7.a	Report on list of catchments and results of rankings & update annually	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.a	Complete Investigation of catchments associated with Problem Outfalls	7 years from effective date	Implement Illicit Discharge Detection and Elimination Investigations as required by the conditions of the permit. For budgeting purposes, it is assumed that implementation of an Illicit Discharge Detection and Elimination Investigation Program is required in all regulated catchments. Catchments with no potential for illicit discharges (based on the catchment ranking exercise completed under Task 2.3.4.7.c.) can be excluded from the IDDE Program. Of the 144 catchments identified for IDDE investigations, 57 catchments have been successfully investigated to date (40%). An additional 13 catchment investigations occurred where the outfall was identified as "not an outfall". These have been excluded from the totals reported.	Budget $75,000 to $80,000/yr allowance in Years 8 to 10 for IDDE investigation, sampling & reporting. Budget includes $10,000 allowance in Years 8 to 10 for CCTV inspection and dye testing to investigate illicit connections. Budget allowance for removal of illicit connections included under 2.3.4.2.a.
2.3.4.8.a	Complete Investigations of catchments where info on outfall/interconnection identifies sewer input	7 years from effective date		
2.3.4.8.a	Complete Investigations of catchments associated with all Problem, High- and Low-Priority outfalls	10 years from effective date		

CONCORD, MA
MS4 GENERAL PERMIT REVIEW - YEAR 10 REQUIREMENTS
Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.4.8.c.iii	Report on all data collected as part of the catchment investigations	Annual MS4 stormwater reports	Report data in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.8.e.i	Report on each illicit discharge identified and date of removal	Annual MS4 stormwater reports	For each confirmed source, the following information shall be included: location of discharge and source; description of discharge; method of discovery; date of discovery; date of elimination, mitigation or enforcement action or planned corrective measures; and estimate of the volume of flow removed.	Cost included under Item 4.4.
2.3.4.8.e.ii	Conduct confirmatory outfall or interconnection screening	1 year from removal of discharges	If confirmatory screening indicates evidence of illicit discharge, the catchment shall be scheduled for additional investigation.	Cost is dependent on the number of illicit discharges identified.
2.3.4.9	Evaluate & report IDDE program progress	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.4.10	Reprioritize catchments and schedule ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling once all catchments have been investigated and all illicit discharges have been removed	Once every 5 years	Ongoing dry weather and wet weather (where system vulnerability factors are present) screening and sampling shall be completed every 5 years once all catchments have been investigated and all illicit discharges have been removed.	Catchment investigation work will not be complete until Year 10 so this work will not occur until at least Year 15.
2.3.4.11	Conduct IDDE employee training	At least annually	Continue to train employees about the IDDE Program including how to recognize illicit discharges and SSOs.	Budget $3,000 to $5,000 per year to prepare training materials and complete required training in Years 8 through 10.
2.3.4.11	Report on IDDE employee training	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
CONSTRUCTION SITE STORMWATER RUNOFF CONTROL				
2.3.5	Implement & enforce Construction Site Stormwater Runoff Control (CSSRC) Program	Not stated	Implement and enforce a program to reduce pollutants in stormwater runoff from construction activities per the 2003 Permit.	-
POST-CONSTRUCTION STORMWATER MANAGEMENT				
2.3.6.a	Implement & enforce SW management for New Development/Redevelopment	Not stated	Implement and enforce a program to address post-construction stormwater runoff from new development and redevelopment projects.	-
2.3.6.a.iii	Report on measures to comply with 2.3.6.b in annual MS4 stormwater report	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.6.d	Report progress on implementation of BMP retrofits in Annual Report	Beginning with the Year 5 annual report and subsequently thereafter	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
GOOD HOUSEKEEPING & POLLUTION PREVENTION FOR PERMITEE-OWNED OPERATIONS				
2.3.7.a.ii.2	Provide training on use, storage, & disposal of petroleum products to applicable staff as necessary	Not stated	Provide training on use, storage, & disposal of petroleum products to applicable municipal staff as necessary. Employees receive stormwater, spill control and counter measure training annually.	Cost included under Item 2.3.7.b.ii & iii
2.3.7.a.iii.2	Implement routine inspection/cleaning/maintenance of catch basins to ensure sumps <50% full; report on activities as specified; investigate excessive sediment; log/report CB cleaning	Continuous; Annual MS4 stormwater reports	Clean catch basins as needed to ensure that no sump is more than 50% full at any given time. The Town reported that they have approximately 3,785 catch basins in their MS4 System in their Year 5 MS4 Annual Report and removed 404 cubic yards of material. The Town inspected & cleaned 15% of Town owned catch basins during Permit Year 5. The Town utilizes their GIS mapping and an electronic data collection form for tracking. Catch basin cleaning records include a condition assessment, where any defects are recorded, as well as the amount of debris removed.	Town Forces - CB Cleaning costs are not included in the MS4 Budget, and instead are included as part of a separate O&M cost under the stormwater budget. Costs must factor in disposal costs as well. Once the catch basin optimization plan is complete, additional funding may need to be allocated to increase catch basin cleaning frequency to meet permit requirements. The Town has been collecting data to build their optimization plan.
2.3.7.a.iii.3 & 4.	Sweep streets/parking lots 1x/year in spring; report on efforts	Annually; Annual MS4 stormwater reports	The Town's Street Sweeping Program includes 107 miles of public roadway, 4 miles of private roadway, 12 municipally-owned parking lots and 44 miles of sidewalk, which are swept each spring. The Town will need to increase sweeping frequency of municipally-owed roadways and parking lots to twice annually - once in the spring and once in the fall - to meet permit requirements.	Town Forces - Town to add additional staffing resources to meet street sweeping frequency requirements. Town will also incur additional street sweeping diposal costs. The Town currently performs sweeping in-house. These costs are not included in the MS4 Budget, and instead are included as part of separate O&M cost under the stormwater budget. The Town will need to adjust street sweeping frequency so that streets located within catchments of phosphorous impaired waters are swept twice per year.
2.3.7.a.iii.4	Ensure proper storage of CB cleanings & street sweepings to prevent runoff	NA	The Concord Public Works Department has dedicated an area at the material storage yard for temporary storage of catch basin residuals. This area has protective measures to prevent the residuals from leaching away from the piles and entering the stormwater system.	Town Forces
2.3.7.a.iii.6	Establish/implement procedures to inspect/maintain storm drains & structural BMPs; and for annual inspection of treatment structures	Not stated	The Town currently maintains seven (7) bioretention areas during the year. The Town's maintenance program ensures proper drainage, pollutant filtration, and general aesthetics. In the Spring, the Town inspects and removes trash and weeds from the bioretention basins, mulches 2-3 inches, and removes and replaces dead vegetation if necessary. In the summer, the Town inspects and removes trash and weeds (not included in the plant list). In the Fall, the Town continues trash and weed removal, and also prunes the dead heads in the bioretention basins. Town has a number of other BMPs that are not currently being maintained. Up to 80 BMPs have been reported. Town must inspect treatment structures annually at a minimum.	Town maintains bioretention areas. Additional maintenance required for other BMPs not currently being maintained. Costs for maintenance calculated as part of separate O&M cost under stormwater budget.

CONCORD, MA

MS4 GENERAL PERMIT REVIEW - YEAR 10 REQUIREMENTS

Breakdown of Remaining Permit Requirements & Estimated Costs (Based on 2016 Massachusetts MS4 General Permit)

	Requirements specific to discharges to waters with approved TMDLs (see Appendix F)
	Requirements specific to discharges to impaired waters without an approved TMDL (Appendix H)

Item No.	Requirement	Deadline	Needs Specific to Concord	Estimated Cost to Comply
2.3.7.a.iv	Report on all Good Housekeeping/Pollution Prevention requirements	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.a.v	Keep written record of all Good Housekeeping/Pollution Prevention activities under 2.3.7.a	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
2.3.7.b.ii & iii	Perform SWPPP required actions/inspections/training	Frequencies as per permit	The Town has developed Stormwater Pollution Prevention Plans (SWPPPs) for the following facilities: Concord Public Works Department, the Concord Wastewaster Treatment Facility, the Concord Bus Depot, and the Concord Light Plant. As part of the Concord Public Works SWPPP, the Town has developed a Garage Inspection form that works to evaluate the hazardous waste accumulation bay, the mechanics bay, the highway/park/tree bays and other general concerns. These inspection forms are filed weekly. In their Year 3 Annual Report, the Town reported that formal SWPPP inspection forms were created in November 2020 to officially document inspections of Town-owned facilitiies where a SWPPP has been developed. It was reported that SWPPP inspection reports would be filled out quarerly for each facility and reported on in future annual reports, however the PY4 and PY5 annual reports reported that 0 inspections were performed.	Assume facility operators to complete required inspections in-house. Budget $4,000 to $6,000 per year to complete required SWPPP training and prepare required training materials.
2.3.7.b.iii	Report on Stormwater Pollution Prevention Plan inspections	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
2.3.7.b.iv	Maintain written records for all SWPPP related items under 2.3.7.b	Continuous	Keep written record of all maintenance activities, inspections and training completed.	-
SECTION 3 - ADDITIONAL REQUIREMENTS FOR DISCHARGES TO SURFACE DRINKING WATER SUPPLIES AND THEIR TRIBUTARIES				
3.2.a	MS4s that discharge to public drinking water sources and their source protection areas must consider these sources priority resources when implementing the control measures of Part 2.3.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.b	Provide pretreatment/spill control for MS4 discharges to public surface drinking water supply sources & their tributaries	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
3.2.c	Avoid direct discharges to groundwater and surface water drinking water sources and ensure any discharges near source protection areas of water supply wells or intakes comply with the applicable state requirements.	Continuous; Report annually	Concord does not have any stormwater discharges to surface drinking water supply sources or their tributaries.	-
SECTION 4 - PROGRAM EVALUATION, RECORDKEEPING & REPORTING				
4.1.a	Self-evaluate compliance with the permit; include documentation of evaluation in written SWMP	Annually	Annually evaluate compliance with permit conditions.	Cost included under Item 4.4.
4.1.b	Evaluate BMP effectiveness & change if needed under provisions of permit	Not stated	Evaluate BMP effectiveness in achieving permit objectives & modify BMPs accordingly as needed.	Cost included under Item 4.4.
4.1.c	Report BMP modifications	Annual MS4 stormwater reports	Include in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.2	MS4 must keep records for ≥5yrs; make available to public	Continuous	Maintain annual MS4 stormwater reports and make available to the public.	-
4.3	Document results of MS4 outfall screening/sampling & any other monitoring/studies	Annual MS4 stormwater reports	Report progress in Annual MS4 Stormwater Report.	Cost included under Item 4.4.
4.4	Prepare & Submit Annual MS4 Stormwater Report.	Annually 90 days from effective date	Prepare Annual MS4 Stormwater Report.	$5,000 to $7,500
			Planning Level Estimate for Full Permit Compliance in Year 10:	**$116,500 to $142,000**

APPENDIX E

Draft Credit Policy

TOWN OF CONCORD

Stormwater Enterprise Credit Policy

December 2024

Table of Contents

1.0 INTRODUCTION

Stormwater is runoff from rain or snow melt. Most stormwater currently flows into the Town's drainage system and ultimately ends up in ponds, streams or wetlands. Stormwater can carry pollutants (such as bacteria, oil and grease, fertilizer, sand, and trash), which can contaminate drinking water supplies, surface waters utilized for recreational activities, fish and wildlife habitat. Impervious surfaces do not allow any stormwater to infiltrate or seep into the ground. Therefore, areas with widespread impervious surfaces can channel large amounts of stormwater to the drainage system, which can become overwhelmed during intense periods of rainfall. Stormwater management programs are intended to reduce stormwater pollution and mitigate flooding. The ability of the Town's current stormwater management system to meet its intended purpose can be improved by complying with federal regulatory requirements and investing in the future. The goals of the Town's stormwater program are to:

- Invest in the Future by Rehabilitating Aging and Failing Infrastructure
- Reduce Stormwater Flooding and Erosion and Prepare for the Increased Frequency of Extreme Storm Events
- Meet Regulatory Requirements of the Environmental Protection Agency's Municipal Separate Storm Sewer Systems (MS4) Permit
- Control Water Pollution

The Town analyzed historic and current stormwater management practices and expenditures as well as projected stormwater needs and investments to gain a full understanding of the current stormwater program budget constraints and anticipated annual costs of meeting its goals. The Town placed particular emphasis on efforts needed to ensure continued compliance with the requirements of the MS4 General Permit, which has an overall goal of improving receiving water quality by reducing pollutant loadings to valuable water resources.

1.1 About the Stormwater Enterprise Fund

Concord's Stormwater Regulations were adopted in 2011 to protect Concord's surface water, groundwater, and wetlands resources by managing stormwater during construction and post-construction activities, as well as regulating discharges to the storm drain system. Additionally, the Concord Public Works Design and Construction Standards and Details, adopted by the Public Works Commission in 2016, provide construction standards for the physical aspects of infrastructure system improvements within Concord. Concord Public Works is continuously working to reduce stormwater pollution, improve surface water quality, and to fulfill the requirements of the EPA's NPDES (National Pollutant Discharge Elimination System) MS4 Permit. In 2016, a new MS4 Permit was issued with more extensive requirements to foster improvement of surface water quality. Complying with this permit has substantially increased the Town's stormwater costs and will continue to do so going forward. Complying with this permit will be a significant ongoing level of effort for the Town for the foreseeable future.

A stormwater enterprise is a dedicated and consistent municipal funding mechanism for stormwater management within a community. A stormwater enterprise is typically established to provide funding to more effectively address a community's stormwater needs. It provides funding for compliance with environmental regulations, to maintain and improve stormwater infrastructure, construct climate resilient infrastructure, and provide public education on stormwater management needs. The enterprise plays a crucial role in providing the funding needs to prevent water pollution, reduce flood risks, and maintain the overall health of our local water bodies. Definitions for words, terms, and phrases relating to the stormwater enterprise are included in Appendix I.

Adopting a stormwater enterprise fund benefits all municipal departments. By creating a stormwater enterprise and assigning user fees, existing funding can be made available for other priorities, such as roadway paving and reconstruction, sidewalks, and schools. It also reduces reactionary spending by allowing the Town to better plan and budget for future stormwater needs.

The Stormwater Fund Article, which was included on the Spring 2024 Town Meeting warrant and passed by a substantial majority, sets up the framework to move forward with the implementation of a stormwater enterprise. This article included the adoption of a Stormwater Enterprise Fund Bylaw for the purpose of setting, assessing, and collecting fees for the support of stormwater infrastructure and management throughout the Town, such fund to be managed by the Public Works Commission and Concord Public Works under the direction of the Town Manager.

1.2 Purpose of the Credit Policy

Concord's Stormwater Enterprise Fund Bylaw provides Concord Public Works with the authority to develop a Stormwater Management Credit Policy. This policy defines activities that reduce an individual property's burden on the municipal stormwater system or activities that provide an ongoing public benefit that are eligible for a fee reduction. The goal of the credit policy is to provide an incentive for property owners to construct, operate, and maintain stormwater best management practices (BMPs), which decrease the Town's stormwater management burden. This policy also allows for abatements based on a property owner's income or adjustments if a stormwater fee is calculated incorrectly.

1.3 Appeals and Abatements

Property owners who believe their stormwater fee has been incorrectly calculated can apply for an abatement. No application for an abatement will be accepted on an account unless all amounts due on that account, including interest and penalties, for all billing periods prior to the contested period covered by the abatement application have been paid in full. The abatement application is included in Appendix II of this policy.

2.0 STORMWATER CREDITS

2.1 General Policies

The following general policies apply to all stormwater credits discussed in this section:

- Credit will only be given to eligible properties as defined in the description of each credit type.
- Multiple credits may be given to eligible properties. The total credit approved for a property may not exceed 50% of the stormwater fee for that property.
- The property owner of record may apply for stormwater credits and provide the necessary documentation for each credit type.
- Credit applications are available from and may be submitted to Concord Public Works.
- Credit applications will be first reviewed for completeness. Incomplete applications will not be considered. Complete applications will be reviewed by Concord Public Works within four weeks of the date of receipt. Notice of the results of the review will be sent to the applicant by mail.
- Concord Public Works or its representative may inspect a property during the credit application review process and at any time that a property is receiving credit to determine credit applicability. If property access for the purpose of inspection is denied, Concord Public Works reserves the right to revoke all or part of the credit.
- Concord Public Works may reduce or revoke a credit at any time if the qualified stormwater system or the associated stormwater components are not performing properly or being maintained to function as designed.
- Credits are not transferrable when a property is sold or transferred. The new property owner will need to re-apply for credit and acknowledge acceptance of and intent to comply with the operation and maintenance requirements for the stormwater system on their property.

2.2 Small Residential Credit

Eligible Properties: Includes small residential properties. Small residential parcel categories include single family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos.

Credit: Small residential properties may reduce the downstream impacts of stormwater runoff through the construction and maintenance of approved small-scale stormwater improvements such as rain gardens and dry wells, or the use of permeable or porous pavers. Table 1 outlines the minimum treatment requirements and maximum available credit for small-scale BMPs.

Table 1: Small Residential Stormwater Enterprise Credit

BMP	Minimum BMP Size	Minimum Treatment Area	Applicable Design Standard	Available Credit
Rain Garden	Volume sufficient to infiltrate 1 inch from treatment area	Greater of 500 SF or ¼ of impervious area on parcel	Massachusetts Stormwater Handbook	25%
Dry Well	Volume sufficient to infiltrate 1 inch from treatment area	Greater of 500 SF or ¼ of impervious area on parcel	Must drain completely within 48 hours of a 1-inch storm	25%
Porous Pavers	500 SF or ¼ of impervious area	Greater of 500 SF or ¼ of impervious area on parcel	Massachusetts Stormwater Handbook	25%

Application Process: A complete Small Residential credit application includes the following information:

- A complete Credit Application Form (Appendix III)
- Photos of the BMP and the property before, during, and after construction
- Prior inspection and maintenance reports
- Inspection of the BMP by Concord Public Works

Duration of Credit: Small Residential credits must be renewed annually. Property owners can submit recent, time-stamped photos of the BMP and recent maintenance records to Concord Public Works at least thirty (30) days before the expiration date to apply for credit renewal. If approved, the credit renewal is effective on the expiration date of the original credit.

2.3 Non-Residential and Large Residential Credit

Eligible Properties: This credit is applicable to condominium complexes with 4 or more units, apartment complexes, commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcels with appreciable impervious area even if identified as a vacant or undeveloped property, that have constructed and maintained approved stormwater control systems or best management practices (BMPs).

Credit:

- All stormwater management systems that are included in a credit application shall meet the design requirements as defined by the current Massachusetts Stormwater Handbook; the Town of Concord Stormwater Regulations and Public Works Design Standards and Details; and other technical references as defined by Concord Public Works.
- Eligible types of BMPs are listed in the table below and must be designed in accordance with Volume 2 Chapter 2 of the current version of the Massachusetts Stormwater Handbook. BMPs shall be sized to meet the treatment standards required by the Massachusetts Department of Environmental Protection Stormwater Management Standards. BMPs shall have been constructed no earlier than February 2008 (date of the Massachusetts Stormwater Handbook)

Credit Value: The value of this credit is up to 50% of the total value of the stormwater fee for the property, depending on the percent of the impervious surface on the property being treated by the BMP. The credit value will be equal to the maximum possible credit value of 50%, multiplied by the percentage of impervious surface on the property treated by the BMP. For example, if a Bioretention Area treats 50% of the impervious surface on a property, the property is eligible to receive a credit equal to 25% of the stormwater fee for the property (50% maximum possible credit, multiplied by 50% of the impervious surface on the property, equals a 25% credit).

Table 2: Stormwater Quality Credit

BMP	Minimum Treatment Requirement	Applicable Design Standard	Maximum Available Credit
Oil/Grit Separators	Must remove more than 25% of TSS from tributary area	MA Stormwater Handbook;	10%*
Proprietary Hydrodynamic Separators	Must remove more than 25% of TSS from tributary area	MA Stormwater Handbook	10%*
Sediment Forebays	Must remove more than 25% of TSS from tributary area	MA Stormwater Handbook	10%*

Table 2: Stormwater Quality Credit			
BMP	Minimum Treatment Requirement	Applicable Design Standard	Maximum Available Credit
Rain Gardens	Must remove more than 90% of TSS and more than 60% of TP from tributary area (can include removal from pretreatment)	MA Stormwater Handbook	25%
Constructed Stormwater Wetlands	Must remove more than 80% of TSS and more than 60% of TP from tributary area (can include removal from pretreatment)	MA Stormwater Handbook	25%
Filters (Sand or Proprietary Media)	Must remove more than 80% of TSS and more than 50% of TP from tributary area (can include removal from pretreatment)	MA Stormwater Handbook	25%
Extended Dry Detention Basins	Must remove more than 50% of TSS and more than 30% of TP from tributary area (can include removal from pretreatment)	MA Stormwater Handbook	25%
Wet Basins (Wet Retention Ponds)	Must remove more than 80% of TSS and more than 60% of TP from tributary area (can include removal from pretreatment)	MA Stormwater Handbook	25%
Porous Pavers	Must remove more than 80% of TSS from tributary area	Massachusetts Stormwater Handbook	25%

*Credit will only be given for these BMPs when used as a standalone treatment device. Additional credit will not be given if used as pretreatment for another treatment BMP listed in this table.

**BMP credits will only be applied to that portion of a property, or properties served by that BMP. Awarded credit will be a function of the fraction of the total area of impervious surface that is treated by a BMP.

Application Requirements: An application for a Stormwater Best Management Practice (BMP) Credit must include the following:

- A complete Credit Application Form (Appendix III)

- An approved Storm Water Management Plan and/or Erosion and Sedimentation Control Plan, if applicable, with all related stamped design documents. Properties with a Stormwater Management Plan and/or Erosion and Sedimentation Control Plan approved more than 2 years prior to the date of submission of the credit application must also submit any inspection and maintenance records associated with the BMP.
- For projects without a Stormwater Management Plan and/or Erosion and Sedimentation Control Plan, the following information must also be submitted:
  - Documentation that the system is in good working order, including photographs of the system, inspection and maintenance records, and the stormwater management plan or operation and maintenance plan for the system.
  - A plan or map showing the land use and land cover in the drainage area tributary to the stormwater system or BMP.
  - Any additional information documenting the design, installation, or current condition of the stormwater system, such as design drawings or an as-built survey.

Duration of Credit: Non-Residential and Large Residential credits must be renewed annually. Property owners can submit recent photos of the BMP and recent maintenance records to Concord Public Works at least thirty (30) days before the expiration date to apply for credit renewal. If approved, the credit renewal is effective on the expiration date of the original credit.

2.4 Senior and Low-Income Resident Discount

Eligible Property Owners: Financial eligibility for a stormwater fee discount mirrors the Town's water, electric, and property tax assistance programs. If you receive assistance through any of these programs, you are eligible for a stormwater discount: CMLP Residential Rate Assistance, 41A Real Estate Tax Deferral, 17D or 41C Real Estate Tax Exemptions, Means Tested Senior Property Tax Exemption, or a "Senior Circuit Breaker" Massachusetts Income Tax Credit.

Credit: This credit provides needs-based rate relief for seniors and low-income residents.

Credit Value: Qualifying residents will receive a 25% stormwater enterprise fee reduction.

Application Requirements: Eligible property owners may receive the stormwater discount by submitting a Credit Application Form (Appendix III) and a copy of the previous year's tax returns.

Duration of Credit: Senior and Low-Income Resident discounts must be renewed annually.

APPENDIX I

Definitions

DEFINITIONS

CREDIT – A reduction in the amount of a stormwater fee charge to a particular property.

IMPERVIOUS AREA – Any material or structure on or above the ground that prevents water from infiltrating into the underlying soil, including without limitation roads, paved parking lots and driveways, sidewalks, and rooftops.

LARGE RESIDENTIAL PROPERTY – Large residential parcels include apartments, or condominiums with four or more dwelling units.

NON-RESIDENTIAL PROPERTY – Non-residential properties include commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcel with appreciable impervious area even if identified as a vacant or undeveloped property.

PERVIOUS SURFACE – Those areas that allow the unimpeded infiltration of stormwater into the soil. Common pervious surfaces include, but are not limited to, lawn area, forestland, agricultural lands, meadows and other undeveloped land. In determining stormwater fee calculations, all land on a parcel of property not defined as impervious land will be considered to be pervious.

SMALL RESIDENTIAL PROPERTY – Small residential properties include single family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos.

STORMWATER – The surface water runoff from precipitation.

STORMWATER FEE – The periodic user fee imposed pursuant to this article by the Town of Concord for providing stormwater management.

STORMWATER MANAGEMENT – All services provided by the Town which relate to the:

(1) Transfer, control, conveyance, treatment or movement of stormwater runoff through Town-owned infrastructure;

(2) Maintenance, repair, grading and replacement of existing stormwater management systems and facilities and equipment owned by the Town;

(3) Planning, development, design and construction of additional stormwater management systems and facilities to meet current and anticipated needs, including grading of roads to facilitate the movement of stormwater;

(4) Regulation of the use of stormwater management services, systems and facilities;

(5) Compliance with applicable local, state and federal Stormwater Management; and

(6) Services addressing the quality of Stormwater runoff as well as the quantity thereof.

STORMWATER MANAGEMENT SYSTEMS AND FACILITIES – Those natural and man-made channels, swales, ditches, rivers, streams, brooks, creeks, wetlands, branches, reservoirs, ponds, drainageways, drainage structures, conveyances, storm drains, catch basins, inlets, gutters, pipes, culverts, bridges, headwalls, storm sewers, lakes, outfalls, and other physical works, properties, and improvements that collect, transport, transfer, control, pump, treat, convey, detain, retain, dispose of, or otherwise influence the movement of stormwater runoff.

APPENDIX II

Stormwater Bill Abatement Application

CONCORD PUBLIC WORKS

135 Keyes Road
Concord, Massachusetts 01742

APPLICATION FOR ABATEMENT OR ADJUSTMENT

This form is intended for property owners in Concord who believe their stormwater enterprise fee has been calculated in error to apply for an abatement or adjustment. All fields must be filled out completely and applicable supporting documents must be attached.

INSTRUCTIONS:

- This form must be signed by the property owner of record or the financially responsible individual, officer, director, partner, or registered agent with authority to execute instruments for the owner of record.

- Completed applications can be mailed or hand delivered to: Concord Public Works
  135 Keyes Road
  Concord, Massachusetts 01742

PARCEL OWNER INFORMATION	
Mailing Address: Click or tap here to enter text.	**Owner Name:** Click or tap here to enter text.
	Email: Click or tap here to enter text.
	Phone Number: Click or tap here to enter.
Property Address (if different from mailing address): Click or tap here to enter text.	**Impervious Area Managed (SF):** Click or tap here to enter text.
Stormwater Account Number: Click or tap here to enter text.	**Parcel ID:** Click or tap here to enter text.

BILLING PERIOD: Request an abatement or adjustment for the billing period _____ (date of bill) due to the reason(s) stated below.

Customers who file abatement applications or requests for adjustments are required to have paid **all** uncontested prior bills (including penalties and interest, if applicable) and to have made a payment on the contested bill. The request for an abatement or adjustment must be received in the **Concord Public Works office** within **30 days** of the date of the bill in dispute.

Customers are encouraged to pay the contested bill on or before the due date to avoid interest charges. DOR guidelines demand that interest charges accrue on accounts with unpaid balances after the due date. The Director of Public Works and/or Review Officer does not have the authority to put an account on "No Finance Charge" status.

REASON FOR ABATEMENT/ADJUSTMENT

Please check the type of adjustment/abatement:

☐ Abatement for stormwater enterprise discount/credit not applied

☐ Adjustment for error or miscalculation in a bill (i.e. incorrect impervious area delineation)

☐ Abatement/adjustment for the following reason:
Click or tap here to enter text.

Other information to support this application (please attach additional sheets if necessary): Click or tap here to enter text.

Bill Date: Click or tap to enter a date. **Bill Amount:** Click or tap here to enter text.

Customer Signature: Click or tap here to enter text. **Date:** Click or tap here to enter text.

Please attach any other supporting documentation.

For questions or assistance with this application, please call 978-318-3240

APPENDIX III

Stormwater Credit Application Form

CONCORD PUBLIC WORKS

135 Keyes Road
Concord, Massachusetts 01742

STORMWATER ENTERPRISE CREDIT APPLICATION

This form is intended for property owners in Concord to apply for a credit to their stormwater enterprise fee for structural stormwater improvements installed and maintained on their property. All fields must be filled out completely and supporting documents must be attached to ensure an accurate and timely review.

INSTRUCTIONS:

- This form must be signed by the property owner of record or the financially responsible individual, officer, director, partner, or registered agent with authority to execute instruments for the owner of record.
- Completed applications can be mailed or hand delivered to: Concord Public Works
  135 Keyes Road
  Concord, Massachusetts 01742

APPLICATION STATUS (CHOOSE ONE):

☐ This is a first-time credit application
☐ This is a credit renewal application

NOTE: PROPERTY OWNERS WHO FILE AN APPLICATION WITH CONCORD PUBLIC WORKS BEFORE JUNE 1ST WILL RECEIVE THE STORMWATER FEE CREDIT AFTER JULY 1ST OF THE YEAR THE APPLICATION IS APPROVED OR THE NEXT BILL AFTER THE APPLICATION IS FILED, UNTIL JUNE 30TH.

1.0 PARCEL OWNER INFORMATION	
Mailing Address: Click or tap here to enter text.	**Owner Name:** Click or tap here to enter text.
	Email: Click or tap here to enter text.
	Phone Number: Click or tap here to enter.
Property Address (if different from mailing address): Click or tap here to enter text.	**Impervious Area Managed (SF):** Click or tap here to enter text.
Stormwater Account Number: Click or tap here to enter text.	**Parcel ID:** Click or tap here to enter text.

2.0 CREDIT TYPE(S) (CHECK ALL THAT APPLY)

☐ Small Residential Credit (includes single family residential, two-family residential, three-family residential, multiple houses on one parcel, accessory land to residential (parcels with small buildings, garages, etc.), and two and three-family condos)

☐ Non-Residential and Large Residential Credit (includes condominium complexes with 4 or more units, apartment complexes, commercial and industrial properties, and tax-exempt properties such as cemeteries, churches, hospitals, and private schools, state owned or municipally owned properties, and other parcels with appreciable impervious area even if identified as a vacant or undeveloped property

☐ Senior and/or Low-Income Resident Discount

2.1 SMALL RESIDENTIAL CREDIT: BEST MANAGEMENT PRACTICE (BMP) DESCRIPTION – Check all that apply and include quantity of each.

☐__ Rain Garden

☐__ Dry Well

☐__ Porous/Permeable Paving

2.2 NON-RESIDENTIAL AND LARGE RESIDENTIAL CREDIT: BEST MANAGEMENT PRACTICE (BMP) DESCRIPTION – Check all that apply and include quantity of each.)

☐__ Oil/Grit Separators

☐__ Proprietary Separators

☐__ Sediment Forebay

☐__ Rain Garden

☐__ Constructed Stormwater Wetland

☐__ Proprietary Media Filter

☐__ Sand/Organic Filter

☐__ Extended Dry Detention Basin

☐__ Wet Basin (Wet Retention Pond)

☐__ Aboveground Infiltration Basin

☐__ Infiltration Trench

☐__ Subsurface Structure

☐__ Porous/Permeable Paving

2.3 STORMWATER MANAGEMENT SYSTEM DESCRIPTION – Describe the stormwater management system, date of installation, percent pollutant removal efficiency based on the MA Stormwater Handbook, and total design storage volume.

Click or tap here to enter text.

2.4 SENIOR AND/OR LOW-INCOME RESIDENT DISCOUNT – Check off the assistance program you currently participate in (select only one):

☐ CMLP Residential Rate Assistance

☐ Means Tested Senior Exemption

☐ "Senior Circuit Breaker" Massachusetts Income Tax Credit

☐ 41A real estate tax deferral

☐ 17D real estate tax exemption

☐ 41C real estate tax exemption

3.0 REQUIRED ATTACHMENTS

3.1 SMALL RESIDENTIAL CREDIT

☐ Completed Application Form

☐ Sketch Plan, Drainage Area Map, or specifications of BMP

☐ Amount of Impervious Area Treated by BMP

☐ Recent Photographs of the BMP and Inspection and Maintenance Records

3.2 NON-RESIDENTIAL AND LARGE RESIDENTIAL CREDIT

☐ Completed Application Form

☐ Approved Stormwater Management Plan and/or Erosion Control Plan

If there is no approved Stormwater Management Plan and/or Erosion Control Plan for the property, provide the following:

☐ Sketch Plan, Drainage Area Map, and specifications of BMP
☐ Amount of Impervious Area Treated by BMP
☐ Recent Photographs of the BMP and Inspection and Maintenance Records
3.3 SENIOR AND/OR LOW-INCOME RESIDENT DISCOUNT
☐ Completed Application Form
☐ Copy of Most Recent Tax Return

OWNER CERTIFICATION

- I am the property owner or financially responsible entity for the parcel in question. I have reviewed this application in its entirety and believe that it is true to the best of my knowledge.

- I am responsible for maintaining the stormwater management system in good working condition.

- I give authorization to Concord Public Works to enter onto my property for the purposes of verifying information included in this application. I understand that if the Town determines that the condition of stormwater management system is not consistent with the contents of this application or is not properly maintained, the system will no longer be eligible for credit if deficiencies are not corrected within the time frame provided by the Town.

SIGNATURE: Click or tap here to enter text.

NAME: Click or tap here to enter text.

DATE: Click or tap to enter a date.

For questions or assistance with this application, please call 978-318-3240