City of Newton
MS4 Annual Report PY6
July 1, 2023 – June 30, 2024

Attachment A

MS4 General Permit Year 6
Performance Evaluation

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MEMORANDUM

PROJECT: Newton, MA Phosphorus Control Plan

PROJECT NUMBER: 0233351.00

DATE: June 2024

SUBJECT: MS4 General Permit Year 6 Performance Evaluation

PERFORMANCE EVALUATION SUMMARY

This memorandum documents the City of Newton's Phosphorus Control Plan (PCP) Permit Year 6 Performance Evaluation. A Performance Evaluation is required by the Massachusetts Municipal Separate Storm Sewer System (MS4) General Permit Appendix F to evaluate the effectiveness of the PCP by tracking changes in phosphorus load through implementation of stormwater control measures (SCMs) and development/redevelopment in the Charles River watershed (the Watershed).

Table 1 presents a summary of phosphorus exports and reductions. As described in more detail in the following sections, the reduction requirement decreased from 5,214 lb/year to 4,695.7 lbs/year based on updated land use/land cover analysis. Given current non-structural and structural credits through Permit Year (PY) 6, there is a gap to achieve the PY8 (June 2026) and PY10 (June 2028) reduction targets, which is anticipated to be met through structural SCM project implementation and/or increased non-structural operations.

TABLE 1: PERFORMANCE EVALUATION PHOSPHORUS LOAD SUMMARY (LB/YEAR)

Permit Requirements	
Baseline Load	8,563
Allowable Load	3,349
Required Load Reduction	5,214
Updated Requirements	
Increase/Reduction due to Development (2005 to June 2024)	-518.3
Updated Reduction Requirement	4,695.7
PY 8 (20% Load Reduction)	939.1
PY 10 (25% Load Reduction)	1,173.9
Existing Credits through PY6	
Non-Structural	63.4*
Structural	85.6
Total	149.0
Remaining Phosphorus Load Reduction Gap	
PY8 Reduction Remaining	790.1
PY10 Reduction Remaining	1,024.9
Additional Planned Credit	
Planned Non-Structural	5.0
Planned Structural (Identified Projects)	239.4
Planned Structural (Projects TBD)	780.5

*Non-structural credit policy is anticipated to change with MS4 General Permit reissuance. Leaf litter/organic debris collection credit could increase significantly per Clean Sweep (UNH) credit policy recommendations.

UPDATES TO NEWTON'S PHASE 1 PCP

The following sections are organized to align with the Phase 1 PCP for ease of reference.

Section 1: Phase 1 Introduction

No updates.

Section 2: Characterization of the Watershed and of Newton

No updates.

Section 3: Phosphorus Load Reduction Targets

The MS4 General Permit requires permittees to estimate the yearly phosphorus export rate from the PCP Area by subtracting phosphorus reductions through implemented nonstructural and structural controls from the baseline load and adding loading increases incurred through development to date. Changes in land use and cover impact phosphorus export loads. Therefore, development/redevelopment has been tracked within the PCP Area to account for phosphorus export changes. This information is documented in Attachment 1.

Newton's baseline load was updated from 2005 to 2021 conditions using land use/land cover (LULC) GIS data developed by the University of Vermont in conjunction with the Charles River Watershed Association. These calculations are documented in the Baseline Load Memorandum, included in this memorandum in Attachment 1. The 2021 baseline load update resulted in a decrease in the annual baseline load of 538.4 lbs compared to Newton's 2005 baseline load documented in the MS4 General Permit.

The baseline load was then further updated to current conditions (June 2024) on a site-by-site basis using permit application review data. The site-by-site analysis assessed projects that were permitted under the City's updated Stormwater Management Ordinance, dated May 2022. Therefore, there is a few months gap in available baseline load data and the associated update. This data gap is considered negligible and is anticipated to be captured in subsequent LULC data updates. The site-by-site analysis resulted in an increase in generated phosphorus load of about 20.1 lbs/year. These calculations are documented in Attachment 1.

TABLE 2: UPDATED BASELINE LOAD (LB/YEAR)

2005 MS4 General Permit Annual Baseline Load	2021 Annual Baseline Load	2024 Annual Baseline Load	Difference in Annual Baseline Load
8,562.8	8,024.4	8,044.5	-518.3

Section 4: Existing Stormwater Controls

The following section presents a summary of, and phosphorus reduction estimates for, existing non-structural, semi-structural, and structural SCMs.

Non-Structural

The City has implemented modifications to the non-structural program since Permit Year 5, primarily consisting of increased sweeping frequencies city-wide as well as to select streets, bike lanes and Village centers. As a result of these changes, the existing non-structural SCM credit has been increased from 50.1 to 63.4 lbs/year. This updated non-structural credit calculation is provided in Attachment 2. Additionally, the City has implemented the use of swaploader trucks and roll-off containers to increase operational efficiency during high-volume leaf litter collection periods.

Structural

The Phase 1 PCP documented load reduction of existing municipal structural SCMS. New municipal SCMs have since been accounted for. These include: an infiltration trench and leaching catch basin at the Richard McGrath Park tennis courts; an infiltration trench at the Pearl Street parking lot; rain gardens and swales at Levingston Cove; and two infiltration basins within the City right-of-way at the Craft Street and Walnut Street intersection. These additional municipal SCMs total 0.42 lbs/year of credit. Additionally, one project anticipated in the Phase 1 PCP to have been completed is still under construction resulting in a decrease of 4.07 lbs/yr from the Phase 1 PCP. The existing municipal structural SCM phosphorus load reduction now totals 23.46 lbs/year.

Additionally, the City has documented existing private structural SCMs that have been permitted and constructed since May 2022, the date their stormwater regulations were revised to require annual inspection and maintenance reporting. A total of 353 private, structural SCMs have been permitted, tracked, and accounted. These projects include approximately 40 special permits while the vast majority of projects are Major permits. Of these private projects, 261 have been constructed and inspected, while 92 are pending construction. The projects pending construction have been approved to be built by the City and are either pending a construction permit or are permitted and the contract has not yet requested an inspection. These systems are highlighted red and indicated as pending in the tracking spreadsheet. The constructed systems total an estimated net phosphorus reduction of 62.15 lbs/year, with 41.11 lbs/year reduction associated with those pending construction. Updated structural SCM credit calculations are provided in Attachment 3.

The additional municipal and private, constructed structural SCMs increase the existing structural SCM credit to 85.61 lbs/year. The private, structural SCMs that are pending construction are included in the planned structural SCM credit, discussed below.

Section 5: Planned Stormwater Controls

Non-Structural

The City has restructured their street sweeping routes and developed high priority routes based on discharge location, number of catch basins, and canopy cover percentage. This restructuring has resulted in nine priority routes that they plan to sweep biweekly beginning in the Fall of 2024 (PY7).

This approach is intended to enhance sweeping efficiency and phosphorus reduction through non-structural SCMs. This increased street sweeping, when implemented in PY7, is anticipated to increase the City's non-structural credit to 68.4 lbs/year. Compared to existing non-structural credit, this results in an increased credit of 5.0 lbs/year.

Additionally, the City collected street sweepings mass from January to August, 2023 and September to December, 2023, for assessment. The potential phosphorus reduction credit was reassessed using the Clean Sweep credit policy methodology and estimated to be 2,766.6 lbs/year. The planned non-structural SCM credit will be reevaluated, as applicable, once the MS4 General Permit is reissued.

Structural

In addition to the private SCMs (noted above) that are pending construction, which total 41.11 lbs/year, the City has multiple municipal projects currently being designed and permitted. These projects are anticipated to be constructed during Phase 1 and total an estimated phosphorus reduction of 198.3 lbs/year, increasing the planned structural SCM credit to 239.4 lbs/year.

The status of the municipal projects, their load reduction benefit, and construction schedules will be monitored for Plan reporting, as applicable. The projects are categorized below based on project phase: construction, design development or permitting, and funding or planning.

<u>Under Construction (Totals 11.19 lbs/year):</u>

- *Newton Commonwealth Golf Course:* A subsurface infiltration system and a wet pond are being constructed near the existing golf course maintenance building. The structural SCMs will provide an estimated reduction in phosphorus load of 3.12 lbs/year.
- *Gath Pool:* A subsurface infiltration system is being constructed in conjunction with municipal pool improvements. A reduction in impervious area is also proposed and documented, but not accounted for (since this is under construction), in the baseline load update. The structural SCM will provide an estimated reduction in phosphorus load of 1.28 lbs/year.
- *Lincoln-Eliot School:* Two infiltration basins and porous pavement are being constructed in conjunction with school improvements. A reduction in impervious area is also proposed and documented, but not accounted for (since this is under construction), in the baseline load update. The structural SCMs are proposed to provide a reduction in phosphorus load of 4.07 lbs/year.

- *Burr School:* Three infiltrating bioretention basins are being constructed in conjunction with athletic field and walkway improvements. An increase in impervious area is proposed and documented, but not accounted for (since this is under construction), in the baseline load update. The structural SCMs are proposed to provide a reduction in phosphorus load of 1.54 lbs/year.

- *Cooper Center for Active Living:* A subsurface infiltration system is being constructed with a building, parking area, and associated site improvements. An increase in impervious area is proposed and documented, but not accounted for (since this is under construction), in the baseline load update. The structural SCM is proposed to provide a reduction in phosphorus load of 0.89 lbs/year.

- *Upper Falls Greenway at Oak Street / Pette Square Parking:* Existing parking stalls are being resurfaced using porous pavement in conjunction with intersection reconstruction, traffic calming measures, landscaping and streetscaping, accessibility improvements, and drainage improvements. The porous pavement will provide an estimated reduction in phosphorus load of 0.29 lbs/year.

<u>Design Development/Permitting (Totals 19.83 lbs/year):</u>

- *Countryside Elementary School:* The existing school building is proposed to be demolished and replaced with a new building and associated site improvements. Construction is anticipated to start in the Summer of 2025 (PY7) and be completed in the Summer of 2027 (PY9). The project proposes a change in land use and cover, which will be documented in the baseline load update as the project schedule advances. Structural SCMs are proposed to provide a net reduction in phosphorus load of 1.69 lbs/year.

- *Franklin Elementary School:* The existing school building is proposed to be demolished and replaced with a new building and associated site improvements. Construction is anticipated to start in the Summer of 2025 (PY7) and be completed in the Summer of 2027 (PY9). The project proposes a change in land use and cover, which will be documented in the baseline load update as the project schedule advances. The project also removes an existing infiltration trench removing 0.20 lbs/year; however, structural SCMs are proposed to provide a net reduction in phosphorus load of 3.57 lbs/year.

- *McGrath Park:* In conjunction with athletic field improvements, a subsurface infiltration system is proposed in the northeastern section of McGrath Park to treat runoff from Myrtle Street and provide an estimated phosphorus reduction of 4.57 lbs/year. The project is anticipated to start construction this year.

- *Albemarle Field Phase 1/Craft Street:* The Charles River Watershed Association (CRWA) is partnering with the City to implement subsurface infiltration chambers at Albemarle Field, near the intersection of Craft Street and Albemarle Road, and bioswales along Cheesecake Brook. The project is currently being permitted. The project is estimated to provide a phosphorus reduction of 10 lbs/year.

Funding/Planning (Totals 167.3 lbs/year):

- *Crystal Street:* Design was completed for subsurface infiltration chambers within the City right-of-way at Crystal Street and Lake Avenue this Spring (2024). Permits are not anticipated to be required. Construction is pending funding. A phosphorus reduction of 3.3 lbs/year is anticipated.

Additionally, the City submitted two Clean Water State Revolving Fund (CWSRF) applications this calendar year to continue to advance their stormwater management program, including one Project Evaluation Form (PEF) for SCM implementation and one for stormwater asset management. If the City is approved, the SCM implementation PEF will support construction of the following projects. Notification is anticipated to be in Spring of 2025, final design submittal would be required in October of 2025, and construction would be anticipated to start by early 2026 for completion during Phase 1. These projects total an estimated planning-level phosphorus reduction of 164 lbs/year.

- *Newton Centre Playground:* Two stormwater improvement systems are proposed at this site, a subsurface infiltration chamber system and an infiltration basin. The total maximum estimated phosphorus reduction for this site is estimated to be about 80 lbs/year.

- *Pellegrini Park:* A subsurface infiltration chamber system is proposed in conjunction with park lighting and amenity improvements. The estimated maximum phosphorus reduction is 79 lbs/year.

- *Pelham Street Parking Lot:* A subsurface infiltration chamber system is proposed in conjunction with accessibility and resurfacing improvements. The estimated maximum phosphorus reduction is 5 lbs/year.

Planned Stormwater Control Summary:

The planned structural SCM projects total an estimated phosphorus reduction of 239.4 lbs/year lbs/year. Based on construction schedules, anticipated at this time, we estimate 138.1 lbs/year will be implemented by PY 8 and 101.3 lbs/year by PY10.

Additionally, as noted in the Phase 1 PCP, in 2022 EPA proposed a regulatory action to require privately owned commercial, industrial, and institutional properties with 1-acre or greater impervious cover located in the Charles River Watershed to seek coverage to reduce their phosphorus loads to the Charles River watershed under an EPA Clean Water Act permit, referred to as Residual Designation authority (RDA). As of May 2024, EPA's estimated target issuance date for a draft permit is now Fall of 2024. Due to the later anticipated issuance date of the draft permit, it is unclear if it will be implemented in time to impact the City's required reduction for Phase 1. However, it continues to be anticipated that the RDA, once implemented, will further the City's reduction of phosphorus and MS4 General Permit requirements. The City will continue to track the draft permit and evaluate the impacts, as appropriate.

Section 6: Operation and Maintenance Program for Structural Controls

Municipal SCMs

The City's Environmental Engineer inspected the municipal structural SCMs in Fall of 2023 and Spring of 2024. Summary reports documenting the findings from these inspections are provided in Attachment 4. These reports color-categorize inspection findings as follows and identify the department(s) responsible for, and anticipated to be involved in, performing maintenance activities. This categorization will allow for maintenance progress to be tracked over time. Inspection dates for each municipal SCM are presented in the City owned SCM inventory table provided in Attachment 3. It is understood that each municipal SCM must be maintained and certified to be functioning as designed by June 2026 (PY8) for compliance with phosphorus reduction crediting.

Black – SCM is functioning as intended, no corrective action necessary.

Italics – Inspection of the site found uncredited SCMs for possible phosphorus reduction.

Blue – Preventative measure suggestions to maintain optimal SCM function.

Red – SCM requires cleaning or other corrective action to function as intended.

Green – SCM has since been cleaned or maintained and is functioning as intended.

Tracking and Accounting

The City has implemented a Stormwater Inspection Submittal or Abatement Credit application on their Department of Public Work's NewGov/Viewpoint Cloud permitting website. This application portal allows City residents to submit required annual inspection forms and apply for stormwater fee abatement credit for their property. This process allows the City to track annual inspection and maintenance activities, and self-certification, for existing structural SCMs. The City's regulations currently require annual reports from Major stormwater permit holders (any development/redevelopment creating more than 1,000 square feet of new impervious area).

In addition to the Stormwater Inspection Submittal or Abatement Credit application, the City has a Stormwater Management Certificate of Compliance (SMCC) application. This application requires applicants to submit a final as-built survey of the property, letter from the engineer, and an annual O&M plan for the on-site drainage systems. The applicant is also required to obtain proof of recording from the Registry of Deeds for both the O&M plan and Certificate of Compliance before a Certificate of Occupancy is issued.

Education and Outreach

The City has performed outreach (via electronic communication) to over 300 developers to inform them of the required Stormwater Management Certificate of Compliance (SMCC) process. Submittal of an SMCC by developers is the first step in the private SCM O&M program, since it provides the City with an as-built and O&M plan.

The City has also developed a trifold brochure to distribute to existing, private structural SCM owners to inform them of annual inspection and maintenance requirements and available resources. This brochure is provided in Attachment 4. The City mailed this brochure to 223 private properties in PY6. Since distribution, numerous property owners have contacted the City regarding O&M obligations and were provided their property specific O&M plan by the City's Environmental Engineer. Engagement with the Stormwater Inspection Submittal and/or Abatement Credit application on NewGov, however, has been minimal. Only two inspection submittals have been recorded since the brochure was distributed; one was from an existing stormwater utility abatement credit holder and one from a new property.

The City will continue to engage with private property owners to support this private O&M program. The City is planning to distribute a brochure as an insert with private properties' stormwater utility bill in PY7. This brochure will target additional residences, outline O&M incentives, inform property owners of subsurface SCM indicators to support system identification, and provide guidance on how to contact the City for questions, clarification, and support regarding SCMs and their requirements.

In addition to these O&M specific education and outreach activities, the City has continued to engage through public educational messages (Minimum Control Measure (MCM) 1) and Community Outreach (Minimum Control Measure 2). A list of MCM 1 and 2 activities is provided in Attachment 4.

Enforcement

In the Phase 1 PCP O&M program implementation schedule, enforcement was anticipated to begin in PY7 to ensure private SCMs are inspected, maintained, and creditable by the end of PY8. The City now anticipates revisiting their Stormwater Management and Erosion Control Rules and Regulations (Rules and Regulations) and civil penalties in PY7 and is collaborating with internal departments and management about advancement.

Auditing

In the O&M program implementation schedule, auditing was anticipated to start in PY8 to ensure the credibility of the self-certification reporting of private SCMs. The City has initiated planning of future SCMs auditing procedures, and regulatory updates to support auditing of private properties.

Section 7: Phase 1 Implementation

In addition to the work completed to date, the City has received Massachusetts Clean Water Trust Asset Management Grant Program funding to advance stormwater asset management planning this year (PY7). This will support additional phosphorus control planning and implementation. The multi-faceted project includes tracking and documentation of existing SCMs, assessment of the City's permitting and tracking software for long-term support of the program, field verification of SCMs, O&M program development and cost/benefit assessment. Additionally, storm drain infrastructure critical to regional SCM implementation will also be assessed, as will stormwater collection infrastructure in support of non-structural O&M practices.

As discussed in further detail in Section 9, City is committed to a significant increase in their municipal stormwater budget. However, given the magnitude of the remaining, required phosphorus load reduction, an Alternative Schedule Request is still anticipated. This is discussed further in Section 10.

At this time, the changes in implementation cost to reflect increased street sweeping and O&M as a result of the projects completed are anticipated to be de minimis. Therefore, the implementation cost has not been updated at this time.

The primary elements of the implementation schedule are included in the updated Figure 7-4 below.

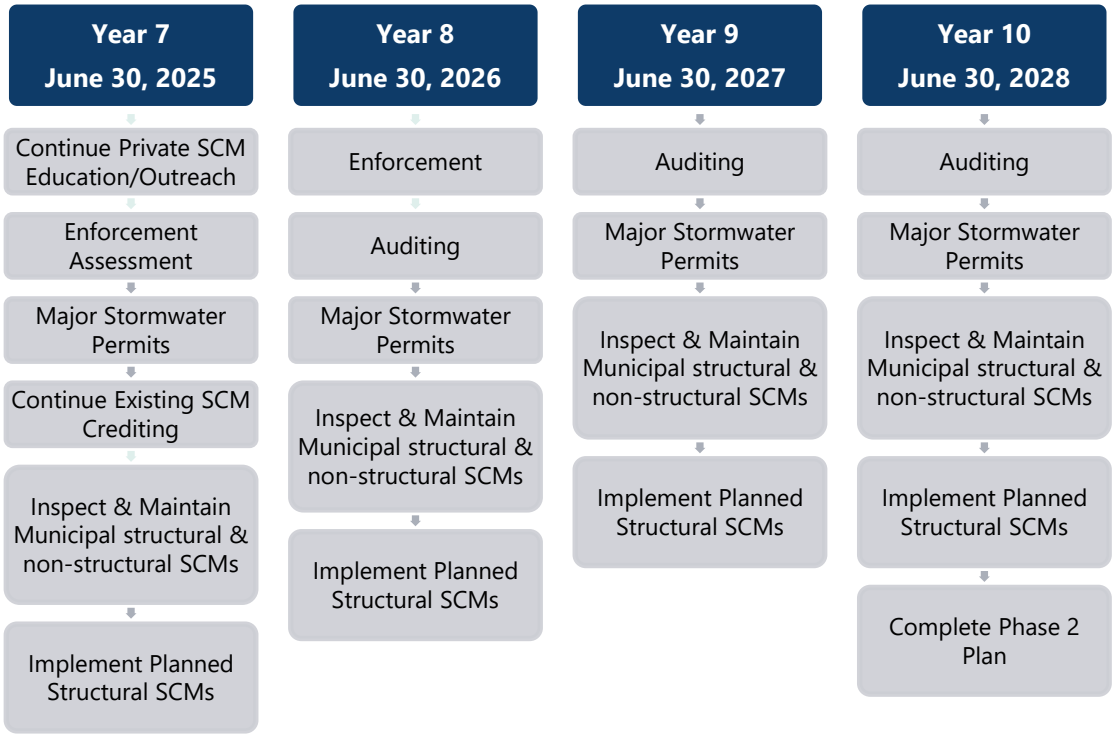

Figure 7-4: Phase 1 Implementation Schedule Elements

Section 8: Legal Analysis

The City has not modified their regulatory mechanisms, specifically the Stormwater Management Ordinance, since the Phase 1 PCP was prepared in June 2023. However, the City is considering updating this Ordinance to further support their O&M program. The City will continue to evaluate updates such as updating their SMCC definition, referencing their Stormwater Inspection Submittal and Abatement Credit application, and further defining the City's authority to implement fines for non-compliance with O&M requirements, to require retroactive annual inspection and maintenance reporting, and to support municipal auditing of SCMs on private property.

Section 9: Funding Source Assessment

The City has committed to increase their funding for stormwater projects, specifically to support the PCP implementation. The City has increased their stormwater utility fees for residential and commercial users. In 2019, the annual fee for family dwellings (1-4 units) was $100; effective July 1,2024, the annual fee is $140. Similarly, in 2019 the fee for all other properties was $0.047 per square foot of impervious area or $150 minimum; effective July 1, 2024 the fee is $0.068 per square foot of impervious area of $150 minimum. Additionally, the City has committed to increasing the stormwater fund budget to multimillion-dollar appropriations annually, in support of phosphorus mitigation. This increase in funding is anticipated to be finalized this fall (2024).

In support of compliance planning and a probable Alternative Schedule Request submission, the City has initiated an affordability analysis consistent with EPA's Clean Water Act Financial Capability Assessment Guidance. Taxpayer/ratepayer affordability is a required component of the Phase 1 Alternative Schedule Request.

Section 10: Alternative Schedule Request Assessment

The City is making significant financial advancements and commitments to their stormwater program to support their phosphorus control plan. Multiple departments within the City are collaborating to evaluate City projects identified in the PCP for regional opportunities. However, given the City of Newton's significant load reduction requirements, the scope of work necessary for compliance within the permit-defined timeline is not anticipated to be feasible. The City anticipates submitting an Alternative Schedule Request to EPA in PY7.

Attachments

Attachment 1: Baseline Load Memorandum

Attachment 2: Non-Structural SCM Documentation

Attachment 3: Structural SCM Documentation

Attachment 4: O&M Program Documentation

Attachment 1: Baseline Load Memorandum

2021 Baseline Load Memorandum

2021-2024 Changes in Baseline Load Calculations

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MEMORANDUM

PROJECT: Newton, MA Phosphorus Control Plan

PROJECT NUMBER: 0233351.00

DATE: June 2023, Revised December 2023

SUBJECT: Baseline Load Memorandum

The MS4 General Permit requires permittees to account and mitigate for any phosphorus load increases due to development since 2005. This memorandum summarizes the methodology used to update the City of Newton's baseline total phosphorus load due to development within the PCP Area. This memorandum has been updated to reflect Newton's baseline load update using 2021 land use/land cover data developed by the University of Vermont (UVM) Spatial Analysis Laboratory in conjunction with the Charles River Watershed Association (CRWA).

1.1 PCP Area

The PCP Area is defined in the MS4 General Permit as being the PCP implementation area selected by the permittee. The City of Newton's PCP Area excludes facilities or areas regulated under separate National Pollutant Discharge Elimination System (NPDES) permit. These include non-traditional (i.e. federal and state agencies) Municipal Separate Storm Sewer Systems (MS4s) MS4, such as the Massachusetts Department of Conservation and Recreation (MassDCR), Massachusetts Department of Transportation (MassDOT) and Massachusetts Bay Transit Authority (MBTA), and University of Massachusetts Amherst (Mount Ida Campus).

Newton's PCP Area was estimated by excluding the non-traditional MS4 areas from the total City area. The non-traditional MS4 area includes parcels and roadways. A figure showing the parcels and roads excluded from Newton's PCP Area is attached. Table 1 below summarizes Newton's PCP Area.

TABLE 1: NEWTON'S PCP AREA

Area (Acres)		
Newton's Total Charles River Watershed Urbanized Land Area	Non-Traditional MS4 Area	Newton's PCP Area
11,382	527	10,855

1.1.1 Parcels

The non-traditional MS4 parcel area was estimated using MassGIS 2020 parcel data property type classification codes (Use Codes). The non-traditional MS4 area, excluded from Newton's PCP Area, consists of the following Use Codes:

90 Public Service Properties

- 901 – (Intentionally left blank)

91 Commonwealth of Massachusetts – Reimbursable Land

- 910 – Department of Conservation and Recreation, Division of State Parks and Recreation
- 912 – Department of Corrections, Division of Youth Services
- 915 – Department of Conservation and Recreation, Division of Water Supply Protection
- 917 – Education – University of Massachusetts, State Colleges, Community Colleges

92 Commonwealth of Massachusetts – Non-Reimbursable Land

- 920 – Department of Conservation and Recreation, Division of Urban Parks and Recreation
- 922 – Department of Corrections, Division of Youth Services, Mass Military, State Police, Sheriffs' Departments
- 924 – Mass Highway Department
- 925 – Department of Conservation and Recreation Division of Water Supply Protection conservation restrictions and sewer easements, Urban Parks
- 927 – Education – University of Massachusetts, State Colleges, Community Colleges

97 Authorities

- 972 – Transportation Authority
- 975 – Vacant, Transportation Authority

1.1.2 Roadways

The non-traditional MS4 roadway area was estimated using roadway jurisdiction and Right-Of-Way width data. MassDOT and MassDCR roadway area was excluded from Newton's PCP Area. The excluded roadway area was estimated by using the value in the "Right-of-Way" field in the roads layer attribute table and running the "Buffer" geoprocessing tool with that right-of-way value. In cases where a right-of-way value was not populated in the attribute table, the value from the "Surface-Width" field was used. The buffer polygons were dissolved to avoid overlap of buffers and duplication of acreage.

1.2 Baseline Load Update

Newton's updated baseline load due to development was calculated using the UVM 2021 land use/land cover data and Brown & Caldwell's baseline load spreadsheet. The high-resolution 2021 data was prepared by the UVM Spatial Analysis Laboratory, in conjunction with the CRWA and funded by the Massachusetts Department of Environmental Protection (MassDEP), to support regional planning and effective assessment of current phosphorus loads.

Brown & Caldwell developed a spreadsheet to calculate baseline phosphorus loads in accordance with the methodology used in the MS4 General Permit and consistent with an EPA memorandum authored by Mark Voorhees and dated January 14, 2014. This baseline load update excludes non-traditional MS4 areas. Table 2 below summarizes Newton's updated baseline load.

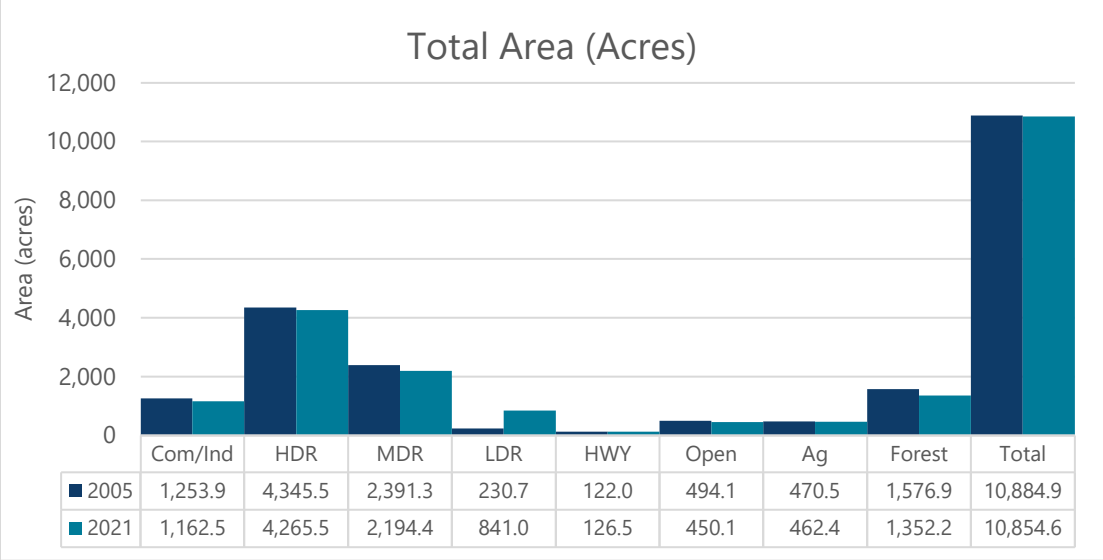
TABLE 2: 2021 BASELINE LOAD UPDATE RESULTS

Updated 2021 Annual Baseline Load (kg / lbs)	MS4 General Permit Annual Baseline Load (kg / lbs)	Difference in Annual Baseline Load (kg / lbs)
3,639.8 / 8,024.4	3,884 / 8,562.8	**-244.2 / -538.4**

The 2021 baseline load update resulted in a decrease in annual baseline load of 244.2 kg / 538.4 lbs compared to Newton's 2005 baseline load documented in the MS4 General Permit.

This slight decrease is likely due to minor inconsistencies of residential land use definition between the MassGIS 2005 and the UVM 2021 data. While UVM, CRWA, and the project's technical advisory committee attempted to replicate the MassGIS 2005 land use definitions, there are some inconsistencies. The MassGIS 2005 land use data appears to have been manually adjusted, while the UVM 2021 data utilized rules to categorize land use type, which can be replicated. The UVM 2021 data is the best available data for use in updating Newton's baseline load.

Newton's total PCP area and impervious area, organized by land use, is presented in the following charts.



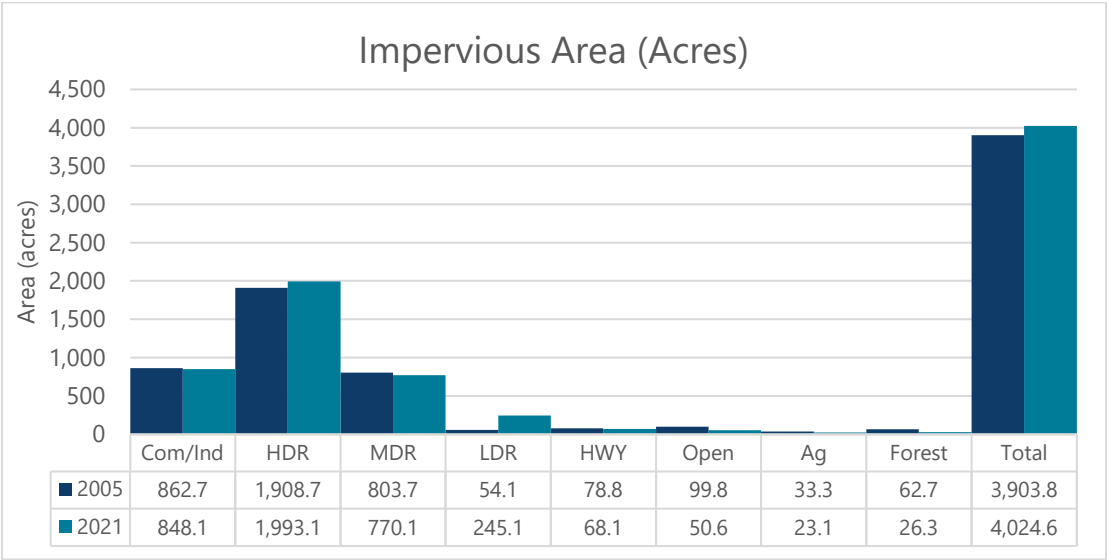


Table 2 below presents Newton's 2021 updated baseline load and the resulting phosphorus load reduction requirement.

TABLE 3: 2021 STORMWATER PHOSPHORUS LOAD REDUCTION

Annual Load (kg / lb)				
Updated Baseline Phosphorus Load (2021)	Allowable Phosphorus Load	Phosphorus Load Reduction Requirement	Percent Reduction in Phosphorus Load	Updated Phase 1 Permit Year 10 Reduction (lb)
3,639.8 / 8,024.4	1,519 / 3,348.8	2,120.8 / 4,675.6	58.3%	1,168.9

Based on the updated baseline load, the Year-10 reduction requirement of 1,168.9 lbs/year represents a decreased reduction of about 134.6 lbs compared to the permit requirement (1,303.5 lbs). The associated updated Year-8 reduction is 935.1 lbs, or a decrease of 107.7 lb reduction.

These baseline load results will be updated annually to account for development/redevelopment, and to report current baseline load conditions in MS4 Annual Reports. Load changes from development after 2021 through June 30, 2028 will be evaluated, as required, and reported.

Attachments

Attachment 1: Non-Traditional MS4 Area Figure

Attachment 2: 2021 Baseline Load Update

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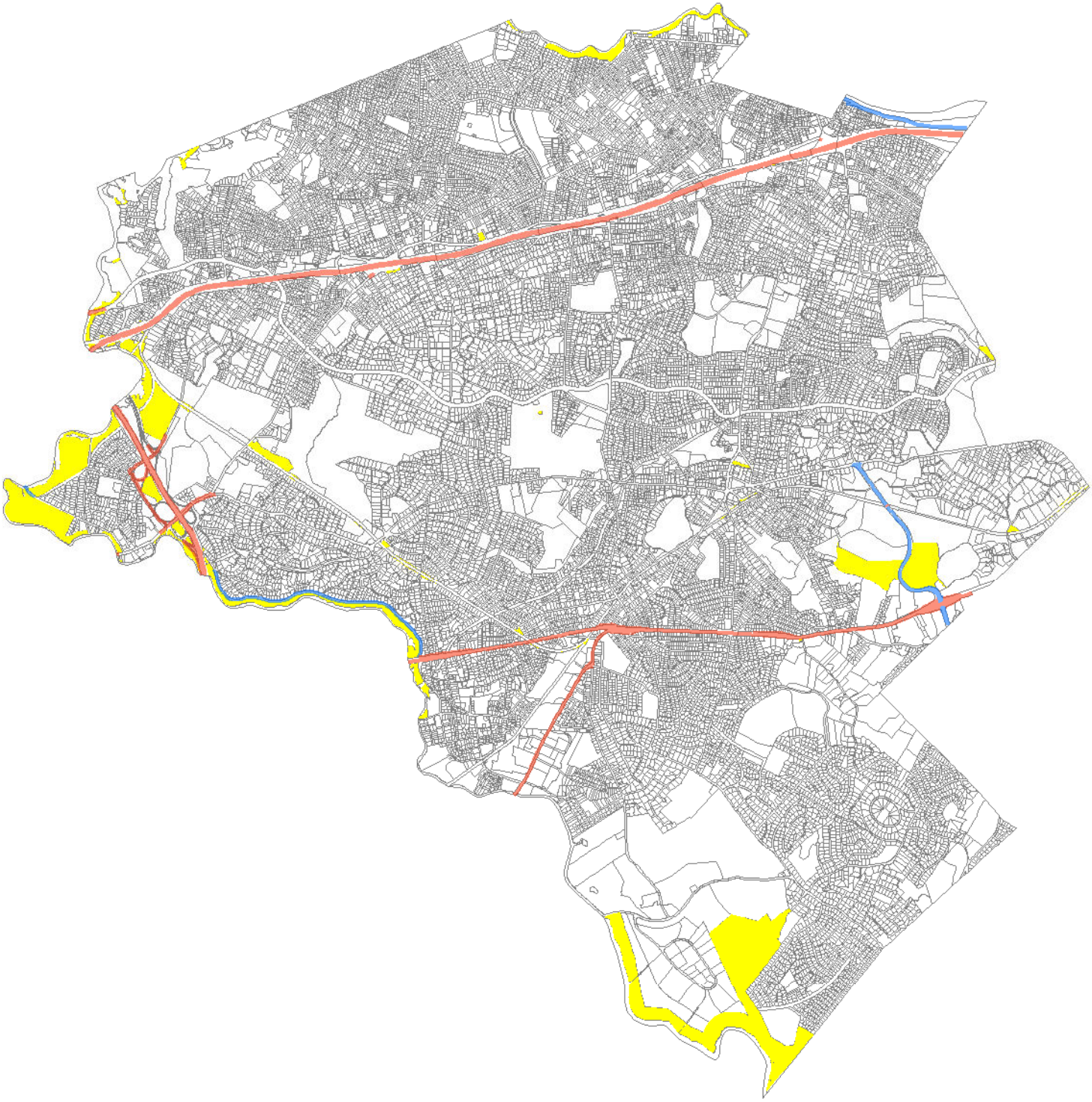
ATTACHMENT 1: NON-TRADITIONAL MS4 AREA



Commonwealth of Mass. Parcels

(ROW Width x Length)

MDOT Roadway

DCR Roadway

ATTACHMENT 2: 2021 BASELINE LOAD UPDATE

Phosphorus Land Use Group	Total Area (ac)	Impervious Area (ac)	Directly Connected Impervious Area							Pervious Area Phosphorus Load																			Disconnected Impervious Area			Total Avg Annual Phosphorus Load (lb/yr)
				Sutherland Coeffs						Perv HSG Area (ac)							Phosphorus Export Loading Rate (lb/ac/yr)						Avg Annual Phosphorus Export Load (lb/yr)									
			Percent Impervious	A	B	Percent Directly Connected Impervious Area (%)	Directly Connected Impervious Area (ac)	Phosphorus Loading Export Rate (lb/ac/yr)	Avg Annual Phosphorus Export Load (lb/yr)	A	B	C	C/D	D	Unk	Total	A	B	C	C/D	D	Unk	A	B	C	C/D	D	Unk	Total	Disconnected Impervious Area (ac)	Pervious Area Composite Phosphorus Export Loading Rate (lb/ac/yr)	Avg Annual Phosphorus Load (lb/yr)	
Commercial	1162.5	848.1	73%	0.4	1.2	68.8%	800.1	1.78	1,424.1	110.8	6.5	168.5	0.4	28.1	-	314.4	0.04	0.18	0.36	0.46	0.54	0.36	4.4	1.2	60.7	0.2	15.2	-	81.6	48.0	0.3	12.5	1,518.2
Industrial			0%	0.4	1.2	0.0%	0.0	1.78	-	-	-	-	-	-	-	-	0.04	0.18	0.36	0.46	0.54	0.36	-	-	-	-	-	-	-	-	-	-	-
High-density residential	4265.5	1993.1	47%	0.4	1.2	40.3%	1719.9	2.32	3,990.1	1,668.0	21.1	327.0	39.1	217.1	-	2,272.4	0.04	0.18	0.36	0.46	0.54	0.36	66.7	3.8	117.7	18.0	117.2	-	323.5	273.2	0.1	38.9	4,352.5
Medium-density residential	2194.4	770.1	35%	0.1	1.5	20.8%	456.2	1.96	894.2	995.4	44.5	167.7	24.3	192.4	-	1,424.2	0.04	0.18	0.36	0.46	0.54	0.36	39.8	8.0	60.4	11.2	103.9	-	223.2	313.9	0.2	49.2	1,166.7
Low-density residential	841.0	245.1	29%	0.1	1.5	15.7%	132.3	1.52	201.2	314.2	14.8	84.8	34.1	148.0	-	595.9	0.04	0.18	0.36	0.46	0.54	0.36	12.6	2.7	30.5	15.7	79.9	-	141.3	112.8	0.2	26.8	369.3
Highway	126.5	68.1	54%	0.1	1.5	39.5%	50.0	1.34	66.9	16.9	0.3	34.4	0.0	6.8	-	58.4	0.04	0.18	0.36	0.46	0.54	0.36	0.7	0.0	12.4	0.0	3.7	-	16.8	18.1	0.3	5.2	89.0
Forest	1352.2	26.3	2%	0.01	2	0.0%	0.5	1.52	0.8	467.6	354.9	205.9	16.2	281.3	-	1,325.9	0.11	0.14	0.19	0.21	0.23	0.19	51.4	49.7	39.1	3.4	64.7	-	208.3	25.8	0.2	4.1	213.2
Open land	450.1	50.6	11%	0.1	1.5	3.8%	17.0	1.52	25.8	128.3	18.4	231.1	5.1	16.7	-	399.5	0.04	0.18	0.36	0.46	0.54	0.36	5.1	3.3	83.2	2.3	9.0	-	103.0	33.6	0.3	8.7	137.5
Agriculture	462.4	23.1	5%	0.01	2	0.3%	1.2	1.52	1.8	216.4	49.2	61.3	3.4	109.1	-	439.3	0.07	0.29	0.60	0.76	0.91	0.60	15.1	14.3	36.8	2.6	99.3	-	168.0	22.0	0.4	8.4	178.2
Total	10,854.6	4,024.6	37%			29%	3,177.1		6,604.9	3,917.6	509.8	1,280.7	122.5	999.4	-	6,830.0							195.9	83.0	440.8	53.3	492.8	-	1,265.8	847.5		153.7	8,024.4

Fill in these cells

EPA-provided values (Source: EPA Memorandum, Authored by: Mark Voorhees, Dated: 1/14/2014, Entitled: Overview of Methodology to Calculate Baseline Stormwater Phosphorus Loads and Phosphorus Load Reduction Requirements for Charles River)

Calculated values

Total Avg Annual Phosphorus Load (kg/yr) 3,639.8

NOTES:
1. This spreadsheet was developed by Brown and Caldwell to calculate baseline phosphorus loads in accordance with the methodology used in the Massachusetts Small MS4 General Permit. EPA documented the baseline phosphorus load calculations in the EPA Memornadum authored by Mark Voorhess and dated 1/14/2014.
2. Only edit the yellow cells.
3. Brown and Caldwell is providing this spreadsheet as a courtesy to third parties. Brown and Caldwell makes no guarantees or warranties about its accuracy. You are responsible for verying all calculations. If you identify any issues, please contact Matt Davis (see contact info below)
4. This spreadsheet is valid only for calculating baseline phosphorus loads. The calculation of current loads is performed using a different methodology and phosphorus export loading rates.
5. For a detailed discussion of how baseline phosphorus loads are calculated, please watch the recorded video from the Charles River Watershed Association Phopshorus Control Planning Workshop #1 that was held on 3/8/2022.
6. Please contact Matt Davis at Brown and Caldwell if you have any questions. Email: mdavis@brwncald.com.

Woodard & Curran

40 Shattuck Road, Suite 110
Andover, MA 01810
Tel: 978.557.8150 Fax: 978.557.7948

CLIENT:	City of Newton, Massachusetts		
PROJECT:	Phosphorus Control Plan		
DESIGNED BY:	CQ	DATE:	6/28/2024
CHECKED BY:	SK	DATE:	7/1/2024
PROJECT NO.	233351.00		

Change in Baseline Phosphorus Load Calculations 2021 - June 2024

Property	Construction Date	Parcel ID	Address	Facility	Land Use	Change in Impervious Area (+/- SF)	Change In Pervious Area (+/- SF)	HSG	TP Load Generated (Increase +/ Decrease -) (lb/yr)
Municipal									
1	Under Construction	21022 0001	250 Albemarle Rd	Gath Pool	Open Space	-3,194	3,194	Unrated - C	-0.10
2	Under Construction	44035 0095	171 Pine St	Burr School	Open Space	12,632	-12,632	Unrated - C	0.38
3	Under Construction	12003 0004AQ	150 Jackson/15 Walnut	Lincoln-Eliot School	Commercial	-28,750	28,750	Unrated - C	-1.03
4	Under Construction	24010 0001	345 Walnut St	Cooper Center for Active Living	Commercial	5,227	-5,227	Unrated - C	0.19
5	5/3/2024	62001 0004	Lake Ave	Levingston Cove	Commercial	596	-596	A	0.02
6	Oct-22	City ROW	15 Walnut St	Craft St/Walnut St Intersection	HDR	-2,352	2,352	A	-0.12
7	Spring 2024	City ROW	N/A	Langley Rd/Warren St Intersection	HDR	-741	741	A	-0.04
8	10/17/2023	61032 0002	31 Willow St	Fire Station 3	Commercial	4,171	-4,171	A	0.17
9	1/1/2023	21022 0001A	687 Watertown St	Newton Early Childhood Program	Commercial	4,346	-4,346	A	0.17
								Sum (Constructed)	**0.20**

PENDING	Structures have been approved to be built by DPW Engineering and are either pending a construction permit or are permitted and the contractor hasn't requested an inspection yet
BUILT-PENDING	Structures that DPW Engineering inspectors have viewed as built or partially built and will provide an inspection date once they have fully passed inspection. Included in "constructed"

Private

Property	Site Review Date	Parcel ID	Address	Land Use	Change in Impervious Area (+/- SF)	Change In Pervious Area (+/- SF)	HSG	TP Load Generated (Increase +/ Decrease -) (lb/yr)	Inspection Date
1	7/25/2022		170 Elgin St	MDR	1,703	-1,703	A	0.08	PENDING
2	7/29/2022		275-281 Needham St	HDR	-110,207	110,207	C	-5.33	PENDING
3	8/3/2022		1930-1932 Commonwealth Ave	HDR	1,054	-1,054	A	0.06	PENDING
4	11/3/2022		82 Exeter St	MDR	1,160	-1,160	A	0.05	PENDING
5	12/7/2022		50 Wachusett Rd	MDR	409	-409	A	0.02	PENDING
6	1/19/2023		115 Elinor Rd	MDR	650	-650	A	0.03	PENDING
7	1/24/2023		244 Dudley Rd	MDR	11,047	-11,047	B	0.47	PENDING
8	2/21/2023		677 Winchester St	HDR	66,168	-66,168	D	2.96	PENDING
9	4/11/2023		21 Whitlowe Rd	MDR	-342	342	C	-0.01	PENDING
10	5/1/2023		206-210 Chestnut Hill Rd	MDR	196	-196	D	0.01	PENDING
11	5/4/2023		43 River Ave	HDR	2,390	-2,390	C	0.12	PENDING
12	5/8/2023		75 Royce Rd	MDR	549	-549	A	0.02	PENDING
13	5/31/2023		45 Fenwick Rd	MDR	875	-875	A	0.04	PENDING
14	7/19/2023		55 June Ln	MDR	1,175	-1,175	A	0.05	PENDING
15	7/28/2023		136-144 Hancock St	HDR	2,914	-2,914	A	0.15	PENDING
16	9/6/2023		29 Anthony Cir	MDR	249	-249	A	0.01	PENDING
17	9/7/2023		28 Clearwater Rd	MDR	713	-713	A	0.03	PENDING
18	9/14/2023		15 Kenmore St	MDR	874	-874	A	0.04	PENDING
19	9/14/2023		256 Highland st	MDR	642	-642	A	0.03	PENDING
20	9/22/2023		50 Elmore St	MDR	1,871	-1,871	A	0.08	PENDING
21	10/5/2023		20 Commonwealth Pk	MDR	876	-876	A	0.04	PENDING
22	10/10/2023		20 Washington St	MDR	978	-978	D	0.04	PENDING
23	10/24/2023		107-109 Elliot St	HDR	1,749	-1,749	A	0.09	PENDING
24	10/30/2023		105 Adams Ave	MDR	16	-16	C	0.00	PENDING
25	11/6/2023		129 Jewett St	MDR	265	-265	C/D	0.01	PENDING
26	11/21/2023		297 Webster St	MDR	3,300	-3,300	A	0.15	PENDING
27	11/30/2023		120 Stanley Rd	MDR	1,485	-1,485	A	0.07	PENDING
28	11/30/2023		84 Bigelow Rd	MDR	528	-528	A	0.02	PENDING
29	11/30/2023		20 Clinton St	HDR	1,871	-1,871	A	0.10	PENDING
30	12/4/2023		25 Beecher Pl	HDR	4,999	-4,999	A	0.26	PENDING
31	12/5/2023		40 Windsor Rd	MDR	468	-468	A	0.02	PENDING
32	12/11/2023		59 Pontiac Rd	MDR	990	-990	A	0.04	PENDING
33	12/13/2023		406 Woodward St	MDR	703	-703	A	0.03	PENDING
34	12/13/2023		11 Edgefield Rd	MDR	1,176	-1,176	A	0.05	PENDING
35	12/15/2023		27-29 Salisbury Rd	HDR	1,407	-1,407	A	0.07	PENDING
36	1/8/2024		95 Blake St	MDR	2,697	-2,697	A	0.12	PENDING
37	1/17/2024		41 Kilburn Rd	MDR	653	-653	A	0.03	PENDING
38	1/29/2024		6 Caulfield Cir	MDR	-996	996	A	-0.04	PENDING

				Private					
39	2/6/2024		19 Lucille Pl	MDR	620	-620	A	0.03	PENDING
40	2/8/2024		129 Dorset Rd	MDR	948	-948	A	0.04	PENDING
41	2/8/2024		873 Chestnut St	MDR	2,677	-2,677	A	0.12	PENDING
42	2/12/2024		48 Windsor Rd	MDR	804	-804	A	0.04	PENDING
43	2/14/2024		12 Sylvester Rd	MDR	1,158	-1,158	C	0.05	PENDING
44	2/20/2024		130 Arnold Rd	MDR	2,277	-2,277	A	0.10	PENDING
45	3/5/2024		38 Kappius Path	MDR	2,283	-2,283	A	0.10	PENDING
46	3/5/2024		315-317 Langley Rd	HDR	1,063	-1,063	A	0.06	PENDING
47	3/8/2024		20 Janet Rd	MDR	3,576	-3,576	A	0.16	PENDING
48	3/8/2024		290 Watertown St	HDR	-1,679	1,679	A	-0.09	PENDING
49	3/12/2024		56 Chinian Path	MDR	1,167	-1,167	A	0.05	PENDING
50	3/12/2024		15-17 Jewett Pl	HDR	3,581	-3,581	A	0.19	PENDING
51	3/14/2024		81 Sharpe Rd	MDR	1,957	-1,957	C/D	0.08	PENDING
52	3/15/2024		29 Montclair Rd	MDR	2,160	-2,160	A	0.10	PENDING
53	3/15/2024		57 Lawmarissa Rd	MDR	1,186	-1,186	B	0.05	PENDING
54	3/20/2024		5 Morrill St	MDR	842	-842	A	0.04	PENDING
55	3/25/2024		21 Lovett Rd	MDR	-809	809	A	-0.04	PENDING
56	3/27/2024		228 Mill St	MDR	1,893	-1,893	A	0.08	PENDING
57	4/8/2024		180 Wiswall Rd	MDR	440	-440	A	0.02	PENDING
58	4/11/2024		2202 Commonwealth Ave	HDR	2,691	-2,691	A	0.14	PENDING
59	4/12/2024		114 East Side Pkwy	HDR	1,719	-1,719	A	0.09	PENDING
60	4/17/2024		63 Drumlin Rd	MDR	226	-226	A	0.01	PENDING
61	4/18/2024		38 Indian Ridge Rd	MDR	1,389	-1,389	A	0.06	PENDING
62	4/18/2024		538 Ward St	MDR	507	-507	A	0.02	PENDING
63	4/25/2024		230 Temple St	MDR	2,014	-2,014	A	0.09	PENDING
64	4/29/2024		80-82 Louise Rd	HDR	-3,697	3,697	A	-0.19	PENDING
65	4/30/2024		45 Rochester Rd	MDR	1,558	-1,558	A	0.07	PENDING
66	5/3/2024		35 Wesley St	HDR	-50	50	D	0.00	PENDING
67	5/6/2024		19 Irvington St	MDR	1,921	-1,921	A	0.09	PENDING
68	5/7/2024		109 Harwich Rd	MDR	746	-746	C	0.03	PENDING
69	5/10/2024		1230 Commonwealth Ave	MDR	45	-45	A	0.00	PENDING
70	5/15/2024		3 Westland Ter	MDR	864	-864	A	0.04	PENDING
71	5/15/2024		124 Arnold Rd	MDR	-23	23	A	0.00	PENDING
72	5/20/2024		55 Brookline St	MDR	-494	494	A	-0.02	PENDING
73	5/20/2024		12 Clark St	MDR	1,132	-1,132	A	0.05	PENDING
74	5/21/2024		508 Walnut St	MDR	3,906	-3,906	A	0.17	PENDING
75	5/21/2024		18 Norman Rd	MDR	2,379	-2,379	A	0.11	PENDING
76	5/23/2024		624 Saw Mill Brook Pkwy	MDR	1,000	-1,000	A	0.04	PENDING
77	5/31/2024		43 Carver Rd	MDR	3,352	-3,352	A	0.15	PENDING
78	6/3/2024		213 Adams Ave	MDR	367	-367	C	0.01	PENDING
79	6/4/2024		115 Windsor Rd	MDR	793	-793	C	0.03	PENDING
80	6/11/2024		59-61 Westbourne Rd	HDR	997	-997	A	0.05	PENDING
81	6/11/2024		1828 Washington St	MDR	-280	280	A	-0.01	PENDING
82	6/11/2024		276 Lexington St	MDR	3,300	-3,300	A	0.15	PENDING
83	6/18/2024		21 Marshfield Rd	MDR	396	-396	A	0.02	PENDING
84	6/18/2024		22-24 Melbourne Ave	HDR	961	-961	A	0.05	PENDING
85	6/18/2024		97 Bound Brook Rd	MDR	671	-671	C	0.03	PENDING
86	6/20/2024		16 Fairmont Ave	MDR	--	--	D	0.00	PENDING
87	6/21/2024		14 Anthony Rd	MDR	944	-944	A	0.04	PENDING
88	6/21/2024		98 Beethoven Ave	MDR	-886	886	A	-0.04	PENDING
89	6/21/2024		99 Wallace St	MDR	688	-688	A	0.03	PENDING
90	6/21/2024		17 Berwick Rd	MDR	-51	51	A	0.00	PENDING
91	6/24/2024		125 Lincoln St	MDR	1,002	-1,002	A	0.04	PENDING
92	6/24/2024		1936-1938 Commonwealth Ave	HDR	2,749	-2,749	A	0.14	PENDING
93	1/11/2023		41-43 John St	HDR	2,844	-2,844	C	0.14	BUILT-PENDING
94	2/21/2023		24 Wyoming Rd	MDR	1,265	-1,265	A	0.06	BUILT-PENDING
95	2/27/2023		19-21 Johnson Pl	HDR	2,146	-2,146	A	0.11	BUILT-PENDING
96	2/28/2023		25-27 Johnson Pl	HDR	1,258	-1,258	A	0.07	BUILT-PENDING
97	3/8/2023		228-230 Auburn St	HDR	3,739	-3,739	A	0.20	BUILT-PENDING
98	4/10/2023		10-14 Mechanic St	HDR	3,925	-3,925	A	0.21	BUILT-PENDING
99	4/19/2023		1 Ridge Rd	MDR	472	-472	A	0.02	BUILT-PENDING
100	5/10/2023		50 Grace Rd	MDR	454	-454	A	0.02	BUILT-PENDING
101	7/19/2023		176 River St	MDR	-135	135	A	-0.01	BUILT-PENDING
102	11/3/2023		30 Nod Hill Rd	MDR	950	-950	C/D	0.04	BUILT-PENDING
103	12/28/2023		48 Fessenden St	MDR	621	-621	A	0.03	BUILT-PENDING
104	1/17/2024		57 Hatfield Rd	MDR	1,007	-1,007	A	0.04	BUILT-PENDING
105	~~11/30/2020~~		~~160 Stanton Ave~~	~~HDR~~	~~30,368~~	~~-30,368~~	~~A~~		~~9/1/2021~~
106	10/17/2023		106 River St	HDR	-3,245	3,245	A	-0.17	8/28/2024
107	12/12/2022		383-387 Boylston st	HDR	-2,356	2,356	C	-0.11	8/23/2024

				Private					
108	1/30/2023		71 Harwich Rd	MDR	647	-647	C	0.03	8/23/2024
109	6/12/2024		44 Westland Ave	MDR	2,398	-2,398	A	0.09	5/5/2022
110	6/24/2024		15 Ruane Cir	MDR	2,724	-2,724	A	0.08	5/5/2022
111	11/17/2021		187 Park St	MDR	3,765	-3,765	D	0.06	6/24/2022
112	2/7/2022		16 Osborne Path	MDR	1,317	-1,317	A	0.21	6/28/2022
113	5/12/2022		28 Edward Rd	MDR	669	-669	C	0.05	7/1/2022
114	6/9/2022		223 Webster St	MDR	1,341	-1,341	A	0.04	7/1/2022
115	2/16/2022		16 Scotney Rd	MDR	866	-866	A	0.14	7/5/2022
116	1/24/2022		1471 Beacon St	MDR	2,642	-2,642	B	0.09	7/14/2022
117	3/3/2022		75 Judith Rd	MDR	1,233	-1,233	A	0.04	7/14/2022
118	10/30/2022		2163 Commonwealth Ave	HDR	261	-261	1/3A and 2/3C	0.00	7/20/2022
119	12/15/2021		8 Colman St	MDR	377	-377	A	0.05	7/22/2022
120	5/2/2022		15 Emerald St	HDR	1,726	-1,726	A	0.06	7/25/2022
121	4/26/2022		24 Fairfield St	MDR	1,897	-1,897	A	0.03	7/28/2022
122	12/15/2021		1917-1919 Commonwealth Ave	HDR	-208	208	A	0.00	7/29/2022
123	2/16/2022		20 Old Farm Rd	MDR	3,252	-3,252	A	0.06	7/29/2022
124	5/28/2021		44 King St	MDR	515	-515	A	0.08	8/1/2022
125	8/19/2021		56 Albert Rd	MDR	668	-668	A	0.00	8/1/2022
126	9/20/2021		49 Fairway Dr	MDR	1,678	-1,678	A	0.04	8/2/2022
127	3/10/2022		274-276 Adams St	HDR	-184	184	A	0.06	8/2/2022
128	8/15/2022		284 Webster St	MDR	951	-951	A	0.00	8/16/2022
129	10/20/2021		85 Baldpate Hill Rd	MDR	5,253	-5,253	D	0.16	8/23/2022
130	5/6/2022		353 Linwood Ave	HDR	-146	146	A	-0.02	8/25/2022
131	5/5/2022		74 Rachel Rd	MDR	2,857	-2,857	C/D	-0.01	8/26/2022
132	6/6/2022		88 Levbert Rd	MDR	1,360	-1,360	A	0.07	9/2/2022
133	12/28/2021		24 Ruane Rd	MDR	1,307	-1,307	A	-0.04	9/14/2022
134	2/14/2022		75 Rachel Rd	MDR	1,200	-1,200	C/D	0.04	9/22/2022
135	6/24/2022		39 Billings Pk	MDR	990	-990	D	0.05	9/22/2022
136	5/31/2022		29 Gambier St	MDR	216	-216	A	0.00	10/14/2022
137	11/23/2021		38 Richardson St	HDR	603	-603	C	0.06	10/18/2022
138	6/22/2022		26 Kensington St	MDR	2,847	-2,847	A	0.06	10/24/2022
139	7/20/2022		24-26 Holland st	HDR	1,624	-1,624	D	0.03	11/4/2022
140	4/6/2022		12 Acacia Ave	MDR	1,578	-1,578	D	0.05	11/15/2022
141	3/14/2022		36-38 Chandler	HDR	497	-497	A	0.20	11/21/2022
142	5/13/2022		21 Cavanaugh Path	MDR	615	-615	A	0.03	11/21/2022
143	11/16/2021		22-24 Central Ave	HDR	804	-804	A	-0.05	11/23/2022
144	9/16/2022		72 Beethoven Ave	MDR	2,278	-2,278	A	0.04	11/28/2022
145	5/5/2022		323 Nevada St	HDR	147	-147	A	0.10	12/1/2022
146	7/22/2022		60 Ashton Ave	MDR	1,366	-1,366	A	-0.10	12/1/2022
147	2/9/2022		127 Clark St	MDR	1,640	-1,640	A	-0.04	12/6/2022
148	6/21/2022		70 Grasmere St	MDR	205	-205	D	0.14	12/7/2022
149	4/26/2022		50 Highland Ave	HDR	5,116	-5,116	C	0.02	12/19/2022
150	8/25/2021		44 Countryside Rd	MDR	883	-883	C/D	0.05	12/21/2022
151	10/7/2022		152 Suffolk Rd	MDR	1,998	-1,998	A	0.05	12/22/2022
152	1/31/2022		21 White Oak Rd	MDR	2,922	-2,922	A	0.03	1/3/2023
153	5/11/2022		47 Myerson Ln	MDR	356	-356	A	0.10	1/3/2023
154	11/1/2022		27 Nightingale Path	MDR	-562	562	A	0.01	1/12/2023
155	8/10/2022		301 Otis St (312 Highland)	MDR	2,300	-2,300	B	0.06	1/18/2023
156	9/1/2022		874 Commonwealth Ave	MDR	2,214	-2,214	A	0.06	1/18/2023
157	9/16/2022		55 Colella Rd	HDR	2,586	-2,586	A	-0.01	1/18/2023
158	9/16/2022		55 Chinian Path	MDR	470	-470	A	0.06	1/18/2023
159	8/19/2022		472-474 Watertown St (336-338 Nevada St)	HDR	2,333	-2,333	C	0.10	1/25/2023
160	9/15/2022		88 Carver Rd	MDR	50	-50	A	0.11	1/26/2023
161	7/5/2021		27 Floral St	HDR	2,351	-2,351	A	0.11	1/27/2023
162	2/3/2023		52 Sharpe Rd	MDR	-786	786	C	0.10	1/30/2023
163	1/24/2023		11 Marion St	MDR	1,096	-1,096	C	0.09	1/31/2023
164	4/15/2022		31 Karen Rd	MDR	650	-650	A	0.02	2/3/2023
165	10/20/2022		109 Wiswall Rd	MDR	-432	432	A	0.24	2/6/2023
166	9/28/2021		115 Oxford Rd	MDR	300	-300	A	0.10	2/8/2023
167	7/1/2021		74-76 Cummings Rd	HDR	2,680	-2,680	A	0.00	2/10/2023
168	8/11/2022		38 Winston Rd	MDR	600	-600	A	0.10	2/14/2023
169	8/25/2022		92 Langdon St	MDR	1,262	-1,262	D	0.03	2/21/2023
170	10/12/2022		633 Grove St	MDR	1,105	-1,105	A	0.02	3/8/2023
171	1/30/2023		142 Morton St	MDR	1,412	-1,412	A	-0.02	3/10/2023
172	10/6/2021		33 Bellevue St	MDR	1,334	-1,334	D	0.04	3/21/2023
173	8/29/2022		1411 Beacon St	MDR	1,165	-1,165	A	-0.36	3/28/2023
174	10/24/2022		2-4 Auburndale Ave	HDR	2,093	-2,093	A	-0.05	3/30/2023
175	10/28/2022		157 Langley Rd	HDR	3,647	-3,647	A	0.02	4/5/2023

				Private					
176	1/14/2022		250 Hartman Rd	MDR	524	-524	A	0.01	4/7/2023
177	7/20/2022		44 Billings Pk	MDR	405	-405	D	0.07	4/11/2023
178	3/30/2023		221 Mt Vernon St	MDR	1,748	-1,748	A	0.04	4/11/2023
179	2/6/2024		16 Lucille Pl	MDR	620	-620	A	0.03	4/12/2023
180	4/29/2022		31 Buswell Pk	MDR	1,245	-1,245	C/D	0.06	4/19/2023
181	12/6/2022		148 Church St	HDR	1,485	-1,485	C	0.04	4/21/2023
182	10/26/2021		13-19 Winter St	HDR	2,630	-2,630	A	0.04	4/28/2023
183	9/15/2022		12-14 Duncan Rd	HDR	1,524	-1,524	A	0.07	4/28/2023
184	1/17/2023		17 Marlboro st	HDR	865	-865	D	-0.04	4/29/2023
185	2/13/2023		26 Chinian Path	MDR	2,323	-2,323	A	0.10	5/1/2023
186	2/22/2023		791 Walnut St	Open	45,259	-45,259	A	0.09	5/2/2023
187	1/13/2022		36 Nardell Rd	MDR	743	-743	A	0.01	5/4/2023
188	4/20/2022		53-55 Athelstane Rd	MDR	410	-410	A	0.04	5/5/2023
189	10/24/2022		60 Esty Farm Rd	MDR	1,180	-1,180	A	-0.08	5/5/2023
190	10/12/2022		68-70 Washington St	HDR	-868	868	D	0.05	5/13/2023
191	1/5/2023		264-266 LaGrange St	HDR	5,411	-5,411	C	0.16	5/17/2023
192	4/6/2022		22 Charlemont St	MDR	555	-555	A	0.00	5/18/2023
193	7/5/2022		17 Cushing St	MDR	1,625	-1,625	A	0.16	5/23/2023
194	12/15/2021		130 Countryside Rd	MDR	1,350	-1,350	D	0.02	5/24/2023
195	1/18/2023		1119 Walnut St	MDR	1,049	-1,049	A	0.98	6/1/2023
196	10/24/2023		26 Magnolia Ave	MDR	5,140	-5,140	D	0.01	6/1/2023
197	4/22/2022		27 Avery Path	MDR	696	-696	A	0.07	6/2/2023
198	7/14/2023		224-226 Auburn St	HDR	467	-467	A	0.04	6/6/2023
199	11/21/2022		19 Vernon St	HDR	2,130	-2,130	D	0.02	6/7/2023
200	2/14/2023		4 Garrison St	MDR	175	-175	D	0.04	6/7/2023
201	3/7/2022		89 Ridge Rd	MDR	2,395	-2,395	A	0.08	6/12/2023
202	10/25/2022		24 Alban Rd	MDR	1,417	-1,417	A	0.12	6/13/2023
203	2/9/2023		71 Westland Ave	MDR	235	-235	A	1.73	6/13/2023
204	10/7/2022		204 Forest Ave	MDR	985	-985	A	0.00	6/15/2023
205	1/25/2023		45 Waterston Rd	MDR	1,004	-1,004	D	0.04	6/17/2023
206	1/17/2023		58 Valentine Pk	MDR	795	-795	C	0.06	6/18/2023
207	1/3/2023		20-22 Wetherell St	HDR	1,504	-1,504	A	0.04	6/22/2023
208	9/21/2022		18 Spiers Rd	MDR	301	-301	A	-0.02	6/26/2023
209	5/4/2023		166 Wiswall Rd	MDR	874	-874	A	0.01	6/26/2023
210	3/8/2022		194 Moffat Rd	MDR	879	-879	1/2A and 1/2C	0.04	6/27/2023
211	4/28/2022		290 Hartman Rd	MDR	590	-590	D	0.05	6/28/2023
212	11/15/2022		255 Mill St	MDR	1,768	-1,768	A	-0.01	6/28/2023
213	10/6/2022		34 John St	MDR	1,057	-1,057	C	0.02	7/12/2023
214	10/11/2022		34 Brookside Ave	HDR	2,549	-2,549	A	0.16	7/12/2023
215	2/16/2023		47-49 Ripley St	HDR	1,775	-1,775	A	0.01	7/13/2023
216	5/17/2023		250 Waltham St	COM	7,353	-7,353	1/3A and 2/3C	0.00	7/14/2023
217	5/18/2023		145 Oak St	MDR	777	-777	A	0.03	7/17/2023
218	1/12/2023		31 Botsford Rd	MDR	1,118	-1,118	A	0.07	7/20/2023
219	10/24/2022		62 Stanley Rd	MDR	2,188	-2,188	A	0.07	7/26/2023
220	2/28/2023		1766-1768 Commonwealth Ave	HDR	2,234	-2,234	A	0.18	8/1/2023
221	2/14/2022		483 Dedham St	Open	11,221	-11,221	D	0.04	8/2/2023
222	11/28/2022		5 Kappius Path	MDR	1,610	-1,610	A	0.02	8/14/2023
223	4/26/2023		167 Winchester St	HDR	2,822	-2,822	A	0.07	8/24/2023
224	5/23/2023		163 Winchester St	HDR	2,759	-2,759	A	0.07	8/24/2023
225	1/10/2023		11 Forest Ave	MDR	946	-946	B	0.06	8/29/2023
226	11/2/2022		22 Columbine Rd	MDR	1,606	-1,606	A	-0.02	9/8/2023
227	8/23/2022		190 Baldpate Hill Rd	MDR	1,580	-1,580	D	-0.21	9/12/2023
228	3/22/2023		510 Watertown St	HDR	764	-764	A	0.09	9/20/2023
229	5/16/2023		51 Waldorf Rd	MDR	659	-659	A	0.03	10/2/2023
230	12/28/2023		54 Redwood Rd	MDR	207	-207	A	0.17	10/11/2023
231	7/14/2023		18 Annawan Rd	MDR	3,919	-3,919	A	0.01	10/13/2023
232	6/28/2023		21 Redwood Rd	MDR	567	-567	A	0.03	10/17/2023
233	5/23/2023		1337 Commonwealth Ave	MDR	2,090	-2,090	A	0.04	10/24/2023
234	7/11/2022		20 Kinmomnth Rd	HDR	-4,252	4,252	C	0.06	10/25/2023
235	10/11/2022		172 Pearl St	HDR	1,177	-1,177	A	0.07	10/27/2023
236	9/28/2023		45-47 Hilltop St	HDR	-351	351	D	0.04	10/27/2023
237	7/28/2023		377 Waverley Ave (8 Brackett Rd)	MDR	1,902	-1,902	D	0.15	11/2/2023
238	1/31/2023		189 Hartman Rd	MDR	1,518	-1,518	A	0.15	11/6/2023
239	2/8/2023		175 Evelyn Rd	MDR	793	-793	A	0.07	11/7/2023
240	5/3/2023		192 Newtonville Ave	MDR	582	-582	D	0.30	11/7/2023
241	9/29/2022		68 Evergreen Ave	HDR	3,411	-3,411	A	0.12	11/8/2023
242	12/20/2022		140 Roundwood Rd	MDR	1,491	-1,491	A	0.10	11/14/2023
243	5/1/2023		71 Cloverdale Rd	HDR	1,426	-1,426	A	0.05	11/21/2023

				Private					
244	8/11/2023		184 Spiers Rd	MDR	656	-656	A	0.03	11/27/2023
245	10/30/2023		373 Commonwealth Ave	MDR	-4	4	D	0.28	11/28/2023
246	9/19/2023		21-23 Winchester Rd	HDR	186	-186	D	0.09	11/30/2023
247	9/22/2023		152 Crafts St	HDR	3,134	-3,134	A	0.04	12/4/2023
248	9/13/2022		45 Cross Hill Rd	MDR	443	-443	D	0.13	12/5/2023
249	5/15/2023		10 Champa St	MDR	-325	325	A	0.02	12/6/2023
250	10/24/2022		55-57 Louise Rd	HDR	980	-980	A	0.08	12/13/2023
251	6/15/2023		14 Sterling St	MDR	332	-332	A	0.04	12/21/2023
252	12/15/2023		71 Highland St	HDR	914	-914	C	0.01	12/21/2023
253	11/3/2022		190 Upland Rd	MDR	984	-984	C	0.04	12/22/2023
254	4/24/2023		27 Parsons St	HDR	-449	449	A	0.08	12/22/2023
255	8/24/2023		88 Harwich Rd	MDR	1,358	-1,358	A	0.03	12/23/2023
256	9/27/2023		52 Brookside Ave	MDR	930	-930	A	0.04	12/27/2023
257	2/14/2023		518 Quinobequin Rd	MDR	110	-110	A	0.04	1/18/2024
258	3/9/2023		1897 Washington St	Open	50,585	-50,585	A	0.06	1/23/2024
259	2/2/2023		215 Mill St	MDR	1,726	-1,726	A	0.01	1/24/2024
260	11/6/2023		104 Beethoven Ave	MDR	2,760	-2,760	A	0.11	1/24/2024
261	9/21/2023		185 Countryside Rd	MDR	979	-979	D	0.10	1/25/2024
262	7/19/2023		414 Waltham St	MDR	383	-383	A	0.01	1/26/2024
263	4/10/2023		120 Norwood Ave	HDR	732	-732	A	0.02	1/31/2024
264	12/13/2022		40 Canterbury Rd	MDR	1,626	-1,626	A	0.03	2/2/2024
265	10/7/2022		15-21 Lexington St	HDR	20,165	-20,165	C	0.05	2/6/2024
266	12/18/2023		404 Waltham St	MDR	175	-175	A	0.19	2/6/2024
267	10/11/2023		39 Stanton Ave	MDR	489	-489	A	0.05	2/8/2024
268	7/27/2023		61 Allison St	HDR	3,048	-3,048	A	0.07	2/9/2024
269	11/21/2023		83 Dorcar Rd	--	--	--	A	0.02	2/12/2024
270	6/13/2023		152-154 Lexington St	HDR	-1,436	1,436	A	0.26	2/16/2024
271	7/27/2023		33 Barbara Rd	MDR	1,354	-1,354	C	-0.04	2/16/2024
272	11/21/2023		236 Chapel St	HDR	3,009	-3,009	A	0.02	2/16/2024
273	7/27/2023		20 Carl St	MDR	913	-913	A	0.05	2/22/2024
274	10/27/2023		12 Freeman St	MDR	301	-301	A	0.03	3/5/2024
275	1/23/2024		112 Harvard St	HDR	1,650	-1,650	A	1.55	3/11/2024
276	8/2/2023		130 Nonantum Rd	HDR	1,917	-1,917	A	0.10	3/13/2024
277	7/27/2023		10 Malubar Ln	MDR	-980	980	1/3 D and 2/3 C/D	0.04	3/14/2024
278	2/1/2024		10 Osborne Path	MDR	1,593	-1,593	A	0.14	3/20/2024
279	11/9/2023		580 Walnut St	MDR	889	-889	A	0.08	3/21/2024
280	4/4/2023		113 Grove St	MDR	1,246	-1,246	A	0.07	3/22/2024
281	5/1/2023		1717 Beacon St	MDR	987	-987	A	0.05	3/22/2024
282	12/1/2023		56 Dearborn St	MDR	634	-634	A	0.03	3/26/2024
283	6/22/2023		120 Wells Ave	COM	980	-980	B	0.01	4/2/2024
284	10/19/2023		27 Rosalie Rd	MDR	1,957	-1,957	D	0.08	4/5/2024
285	9/19/2023		9 - 11 Jasset St	HDR	-871	871	A	0.02	4/9/2024
286	2/6/2024		26 Trowbridge St	MDR	443	-443	A	0.19	4/9/2024
287	2/21/2024		177 Wiswall Rd	MDR	268	-268	A	0.11	4/9/2024
288	6/27/2023		1185 Washington St	COM	-10,008	10,008	C	0.05	4/10/2024
289	3/15/2024		111 Gibbs St	MDR	825	-825	A	0.05	4/11/2024
290	1/20/2023		86 Winston Rd	MDR	543	-543	A	0.06	4/12/2024
291	3/16/2023		85 Parker St	MDR	-377	377	A	0.05	4/12/2024
292	2/14/2024		696 Dedham St	MDR	922	-922	D	0.05	4/18/2024
293	2/2/2023		45 Alexander Rd	MDR	2,358	-2,358	A	0.03	4/19/2024
294	12/14/2023		219 Melrose St	HDR	-84	84	A	0.14	4/19/2024
295	1/25/2024		19 Priscilla Rd	MDR	2,338	-2,338	A	0.01	4/19/2024
296	2/5/2024		1818 Beacon St	MDR	5,358	-5,358	A	-0.02	4/23/2024
297	12/15/2023		93 Ruane Rd	MDR	482	-482	A	0.03	4/26/2024
298	5/15/2023		949 Centre St	MDR	2,559	-2,559	A	0.04	4/30/2024
299	2/6/2024		356 Linwood Ave	HDR	1,807	-1,807	A	-0.03	4/30/2024
300	2/6/2024		350 Linwood Ave	HDR	1,737	-1,737	A	0.12	4/30/2024
301	9/21/2022		134 Sumner St	MDR	2,547	-2,547	A	0.00	5/1/2024
302	12/12/2023		462 Waltham St	MDR	2,249	-2,249	A	0.11	5/2/2024
303	1/22/2024		54 Woodward St	MDR	1,349	-1,349	A	0.10	5/3/2024
304	3/25/2024		65 Essex Rd	MDR	-202	202	D	0.10	5/7/2024
305	5/31/2023		435 Albemarle Rd	HDR	1,075	-1,075	A	0.14	5/10/2024
306	2/22/2024		86 Albert Rd	MDR	1,419	-1,419	A	0.02	5/10/2024
307	2/28/2024		22 Cavanaugh Path	MDR	264	-264	A	-0.02	5/14/2024
308	10/10/2023		29 Faxon St	HDR	1,883	-1,883	A	0.13	5/16/2024
309	2/9/2021		40 Albemarle Rd	MDR	677	-677	A	0.02	5/20/2024
310	7/21/2023		264 Hartman Rd	MDR	1,464	-1,464	D	0.09	5/21/2024
311	8/16/2019		93 Hanson Rd	MDR	362	-362	A	0.03	5/22/2024

				Private					
312	12/20/2023		197 Hartman Rd	MDR	1,198	-1,198	A	0.25	5/22/2024
313	4/5/2024		209-211 Adams St	HDR	2,605	-2,605	A	0.01	5/29/2024
314	3/8/2024		3 Central Ave	HDR	-813	813	A	0.07	5/30/2024
315	12/15/2023		280 Nevada St	HDR	-1,948	1,948	A	0.01	5/31/2024
316	2/13/2023		933-935 Walnut St	HDR	-974	974	A	0.06	6/4/2024
317	10/26/2023		25 Breamore Rd	MDR	1,067	-1,067	1/3D and 2/3C	0.10	6/4/2024
318	4/29/2024		39 Wheeler Rd / 7 Jane Rd	MDR	2,204	-2,204	A	0.04	6/4/2024
319	11/6/2023		47 Lawrence Rd	MDR	660	-660	A	0.03	6/5/2024
320	4/24/2024		131 Danehill Rd	MDR	5,056	-5,056	C	0.03	6/19/2024
321	4/24/2024		90 Auburndale Ave	MDR	1,202	-1,202	A	0.06	6/20/2024
322	11/7/2023		16 Crehore Dr	MDR	633	-633	A	0.07	6/25/2024
323	1/15/2015		114 Stanley Rd	MDR	--	--	A	0.13	6/26/2024
324	1/10/2023		56 Upland Rd	MDR	1,349	-1,349	A	0.03	6/26/2024
325	6/20/2023		21 Silver Birch Rd	MDR	1,353	-1,353	A	0.01	6/26/2024
326	12/5/2022		87 Clifton Rd	MDR	1,238	-1,238	A	0.05	7/1/2024
327	4/18/2024		240 Greenwood St	MDR	856	-856	A	0.04	7/3/2024
328	3/18/2024		265 Varick Rd	MDR	1,585	-1,585	A	0.06	7/8/2024
329	3/26/2024		123 Otis St	MDR	-853	853	A	0.06	7/8/2024
330	4/24/2024		43 Walker St	HDR	-305	305	A	0.11	7/10/2024
331	5/10/2024		951 Walnut St	MDR	-154	154	A	-0.01	7/10/2024
332	2/27/2023		7-9 Johnson Pl	HDR	3,064	-3,064	A	0.19	7/11/2024
333	3/23/2023		35 Mignon Rd	MDR	99	-99	A	0.04	7/12/2024
334	8/7/2023		15 Chase St	HDR	1,227	-1,227	1/3A and 2/3C	0.07	7/15/2024
335	9/26/2023		9 Carver Rd	MDR	966	-966	A	-0.01	7/18/2024
336	9/27/2023		27 Cross St	MDR	1,741	-1,741	A	0.02	7/26/2024
337	2/22/2024		98 Parker Ave	MDR	--	--	A	0.03	7/26/2024
338	4/11/2023		33 John St	HDR	1,298	-1,298	C	-0.01	8/2/2024
339	6/21/2024		1085 Centre St	MDR	--	--	A	0.14	8/6/2024
340	5/22/2023		5 Village Cir	MDR	1,568	-1,568	C	0.08	8/8/2024
341	8/31/2023		40 Oakmont Rd	MDR	742	-742	C	0.09	8/8/2024
342	12/4/2023		46 Valley Spring Rd	MDR	-122	122	D	0.02	8/9/2024
343	6/4/2024		83-85 Faxon St	HDR	930	-930	A	0.01	8/9/2024
344	6/15/2023		44 High St	HDR	1,755	-1,755	A	0.11	8/15/2024
345	5/21/2024		180 Hunnewell Ave	HDR	944	-944	D	0.05	8/15/2024
346	8/25/2022		16 Maguire Ct	COM	3,521	-3,521	A	0.04	1/5-6/23
347	10/31/2022		36 Algonquin Rd	MDR	968	-968	D	0.03	12/2-5/22
348	8/26/2022		194 Otis St	MDR	1,024	-1,024	A	0.06	2/9-10/23 - 4/13/23
349	1/25/2024		17-23 (19) Staniford St	MDR	4,792	-4,792	1/4B and 3/4A	0.06	4/23/24, 4/24/24, 5/1/24
350	6/6/2024		73 Lewis St	MDR	1,586	-1,586	D	0.14	6/15/2024 - 8/14/24
351	5/30/2023		22 Oakland St	HDR	1,740	-1,740	C	0.11	7/7-31/23
352	7/2/2022		40-42 Summit St	HDR	1,927	-1,927	D	0.12	8/15-16/2022
353	3/10/2022		224 Cherry St	MDR	342	-342	C	1.60	9/19-21/22
							Sum (Constructed)	**19.89**	
							Total Constructed (Municipal & Private)	**20.09**	

Attachment 2: Non-Structural SCM Documentation

Existing Non-Structural SCM Calculations

Planned Non-Structural SCM Calculations

Priority Sweeping Routes Figure

Woodard & Curran

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation

City-Owned Existing Non-Structural Phosphorus Reduction Analysis

Total TP Reduction with Existing Non-Structural Controls, PY6 data (July 2023 - June 2024)

Practice	P Credit (lb/yr)
Mechanical Broom (Weekly)	4.18
Vacuum Assisted (Weekly)	3.76
Mechanical Broom (Monthly)	48.97
Organic Waste and Leaf Litter Collection	6.53
Total	**63.44**

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation

City-Owned Non-Structural Phosphorus Reduction Analysis

Mechanical Broom, Minimum Weekly Frequency

Village Square	Roadways Swept	Length (ft)	Area (sq.ft.) (Parking Lots only)	Miles	Lane Width (ft)	Number of Lanes	IA (acres)	Estimated Lane Miles
Newton Corner	Washington St from Adams St	1,920	-	0.36	9	2	0.79	0.73
	Centre Ave to Centre St	610	-	0.12	12	4	0.67	0.46
	Centre St to Church St	605	-	0.11	12	2	0.33	0.23
	Centre St to Washington St	665	-	0.13	12	2	0.37	0.25
	Washington St to Park St	836	-	0.16	11	4	0.84	0.63
	Park St to Tremont St	558	-	0.11	20	1	0.26	0.11
	Park St to Washington St	554	-	0.10	20	1	0.25	0.10
	Washington St to Centre St	885	-	0.17	11	5	1.12	0.84
	Washington St. to Adams St.	2,960	-	0.56	11	4	2.99	2.24
	Pearl St Parking Lot	-	26,211	-	-	-	0.60	-
	Richmond St Parking Lot	-	21,883	-	-	-	0.50	-
	Sum Total or Average	**9,593**	**48,094**	**1.8**	**13**		**8.7**	**5.6**
Nonantum	Watertown St from Craft St to Capital St	3472	-	0.66	12	2	1.91	1.32
	Pearl St	100	-	0.02	11	2	0.05	0.04
	Chapel St (North of Watertown)	100	-	0.02	12	2	0.06	0.04
	Chapel St (South of Watertown)	100	-	0.02	12	2	0.06	0.04
	Bridge St	100	-	0.02	12	2	0.06	0.04
	Nevada St	100	-	0.02	15	2	0.07	0.04
	Adams St from Watertown St to Washington St	2506	-	0.47	12	2	1.38	0.95
	Adams St Parking Lot	-	73715	-	-	-	1.69	-
	Chapel St Parking Lot	-	9479	-	-	-	0.22	-
	Sum Total or Average	**6,478**	**83,194**	**1.2**	**12**		**5.5**	**2.5**
Newtonville	Washington St from Craft St to Lowell Ave	3336	-	0.63	12	4	3.68	2.53
	Walnut St from Cabot to Austin	978	-	0.19	11	2	0.49	0.37
	Walnut from Austin to Washington	384	-	0.07	9	5	0.40	0.36
	Walnut from Washington to Foster	447	-	0.08	11	3	0.34	0.25
	Austin St from Walnut St to Lowell St	970	-	0.18	11	2	0.49	0.37
	Sum Total or Average	**6,115**	**-**	**1.2**	**11**		**5.4**	**3.9**
est Newton	Washington St from Dustan St to Perkins St	7716	-	1.46	11	2	3.90	2.92
	Washington St 3rd Lanes	719	-	0.14	11	1	0.18	0.14
	Watertown St from Davis St to Washington St	679	-	0.13	11	2	0.34	0.26

Village Square	Roadways Swept	Length (ft)	Area (sq.ft.) (Parking Lots only)	Miles	Lane Width (ft)	Number of Lanes	IA (acres)	Estimated Lane Miles
We	Cherry St from Washington to Webster	435	-	0.08	13	2	0.26	0.16
	Elm St from Washington St to Webster St	427	-	0.08	14	2	0.27	0.16
West Newton	Waltham St from Washington St to Webster St	428	-	0.08	14	2	0.28	0.16
	Highland St from Washington St to Hunter St	548	-	0.10	13	2	0.33	0.21
	Chestnust St from Washington St to Hillside Ter	697	-	0.13	12	2	0.38	0.26
	Elm St Parking Lot	-	20455	-	-	-	0.47	-
	Sum Total or Average	**11,649**	**20,455**	**2.2**	**12**		**6.4**	**4.3**
Newton Highlands	Lincoln St from Woodward St to Walnut St	2096	-	0.40	14	2	1.35	0.79
	Mountford Rd	100	-	0.02	11	2	0.05	0.04
	Bowdoin St	100	-	0.02	12	2	0.06	0.04
	Chester St	100	-	0.02	9	2	0.04	0.04
	Columbus St	100	-	0.02	12	2	0.06	0.04
	Hartford St to Erie St to Bowdoin St	1213	-	0.23	12	2	0.67	0.46
	Walnut St from Forest St to Centre St	1242	-	0.24	12	2	0.68	0.47
	Station Ave	100	-	0.02	14	2	0.06	0.04
	Floral St	100	-	0.02	12	2	0.06	0.04
	Hartford St Parking Lot	-	18207	-	-	-	0.42	-
	Sum Total or Average	**5,151**	**18,207**	**1.0**	**12**		**3.4**	**2.0**
Newton Centre	Centre St from Bowen St to Paul St	3,343	-	0.63	15	2	2.30	1.27
	Beacon St from Lake Ave to Grant Ave	3,043	-	0.58	12	2	1.68	1.15
	Union St	787	-	0.15	14	1	0.25	0.15
	Langley from Centre St to Braeland Ave	997	-	0.19	12	1	0.27	0.19
	Pleasant St from Centre St to Pleasant St Parking Lot	232	-	0.04	15	1	0.08	0.04
	Pelham St from Centre St to Pelham St Parking Lot	203	-	0.04	15	1	0.07	0.04
	Lyman St from Centre St to Sumner St	558	-	0.11	16	1	0.20	0.11
	Willow St from Sumner St to Centre St	575	-	0.11	10	2	0.26	0.22
	Centre Green from Lyman to Langley	295	-	0.06	14	1	0.09	0.06
	Sumner St from Beacon St to Willow St	468	-	0.09	15	1	0.16	0.09
	Beacon St Parking Lot	-	53,092	-	-	-	1.22	-
	Sum Total or Average	**10,501**	**53,092**	**2.0**	**13.8**		**6.6**	**3.3**

Village Square	Roadways Swept	Length (ft)	Area (sq.ft.) (Parking Lots only)	Miles	Lane Width (ft)	Number of Lanes	IA (acres)	Estimated Lane Miles
Auburndale	Commonewealth Ave from Auburn St to Ash St	1,937	-	0.37	12	2	1.07	0.73
	Lexington/Auburn from Auburndale Ave to Grove St	1,937	-	0.37	13	2	1.16	0.73
	Auburn St from Lexington to Melrose	406	-	0.08	12	2	0.22	0.15
	Melrose from Auburn to Comm Ave	614	-	0.12	12	2	0.34	0.23
	Sum Total or Average	**4,894**	**-**	**0.9**	**12**	**8**	**2.8**	**1.9**
Waban	Beacons St from Chestnut to Manitoba Rd	2,657	-	0.50	11	2	1.34	1.01
	Waban Ave to Collins	267	-	0.05	12	1	0.07	0.05
	Collins to Beacon	524	-	0.10	15	1	0.18	0.10
	Woodward from Beacon to Wyman	88	-	0.02	25	2	0.10	0.03
	Wyman from Beacon to MBTA Waban Station	246	-	0.05	15	2	0.17	0.09
	Windsor Rd from Beacons St to Kinmonth	140	-	0.03	14	2	0.09	0.05
	Sum Total or Average	**3,922**	**-**	**1**	**92**		**2.0**	**1.3**
Peter Square	Chestnut St from Upper Falls Playground to Oak St	1,033	-	0.20	12	2	0.57	0.39
	Chestnut St from Oak St to Linden St	390	-	0.07	17	2	0.30	0.15
	Oak St from Saco to Chestnut St	410	-	0.08	16	2	0.30	0.16
	Oak St from Chestnut St to Elliot St	1,160	-	0.22	12	2	0.64	0.44
	Elliot St from Linden to High St	370	-	0.07	13	2	0.22	0.14
	Sum Total or Average	**3,363**	**-**	**1**	**70**	**-**	**2**	**1.27**

$$P_{credit} = IA_{swept} * PLER_{roadway} * PRF_{sweeper}$$

Total IA	Total Lane Miles
42.8	**25.9**

PLER road	1.95	(lb/acre/yr)
PRF	0.05	(weekly, mechanical broom sweeper)
IA swept	42.84	(acres)
Pcredit	**4.18**	(lb/acre/yr)

Notes

All Village Squares are swept at a minimum frequency of once per week.
Newton Corner, Nomantum, Newtonville, West Newton, Newton Hgihlands, and Newton Centre are swept daily
Waban is swept 2-3x per week
Auburndale and Peter Square are swept once per week
Length of each roadway, lane width, and number of lanes as measured on Google Earth
Lane miles calculated by multiplying lane width by number of lanes
Lane miles are rounded to the hundredth

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation
City-Owned Non-Structural Phosphorus Reduction Analysis

Vacuum-Assisted Sweeper, Minimum Weekly Frequency

Location	Lane Miles	Average Lane Width (ft)	Impervious Area (acres)	Phosphorus Load Reduction (lbs/year)
Albemarle Rd	2.07	18	5	0.71
Lake Ave	1.59	11	2	0.33
Rogers Rd	0.19	12	0	0.04
Cabot St	0.86	12	1	0.20
Webster St	1.53	12	2	0.35
Bike Lanes	22.63	5	14	2.14
Sum Total	**28.87**	**12**	**24**	**3.76**

$$P_{credit} = IA_{swept} * PLER_{roadway} * PRF_{sweeper}$$

IA Swept	24	(acres)
PLER road	1.95	(lb/acre/year)
PRF	0.08	(weekly, vacuum-assisted sweeper)
Pcredit	**3.76**	(lb/year)

Notes:

All areas with vacuum assisted sweeper was swept once per week

All bike lanes are swept with vacuum assisted sweeper, with an average lane width of 5 ft

Amongst the bike lanes, Cabot Street and Webster Street are counted as a vacuum roadway

Phosphorus Reduction Factor (PRF) of 0.08 is used, per Appendix F Attachment 2.

Woodard & Curran

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation
City-Owned Non-Structural Phosphorus Reduction Analysis
Mechanical Broom Sweeping, Monthly Frequency

Location	Lane Miles	Average Lane Width (ft)	Impervious Area (acres)
All roadways that have been swept up to eleven times per year in permitting year	628	12	913

$$P_{credit} = IA_{swept} * PLER_{roadway} * PRF_{sweeper} * AF$$

IA Swept	913	(acres)
PLER road	1.95	(lb/acre/yr)
PRF	0.03	(monthly, mechanical broom sweeper)
AF	0.92	(months done out of a year, 11/12)
Pcredit	**48.97**	(lb/year)

Notes:

All City-owned roadways excluding roads that are swept at a minimum weekly frequency (provided under Attachments 1 and 2)
Adjustment Frequency of 0.92 is used, to reflect sweeping frequency of eleven times during Permitting Year 6 (July '23 - June '24)
All lanes are swept with mechanical broom sweeper
Phosphorus Reduction Factor (PRF) of 0.03 is used, per Appendix F Attachment 2.

Woodard & Curran

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation
City-Owned Non-Structural Phosphorus Reduction Analysis
Organic Matter and Leaf Litter Collection

Location	Lane Miles	Average Lane Width (ft)	Impervious Area (acres)
Areas Swept Weekly with Mechanical Broom Sweeper	26	12	43
Areas Swept Weekly with Vacuum Assisted Sweeper	29	12	24
Sum Total or Average	**55**	**12**	**67**

$$P_{credit} = IA_{collected} * PLER_{roadway} * PRF_{organics/leaf\ litter}$$

IA Collected	67	(acres)
PLER road	1.95	(lb/acre/yr)
PRF	0.05	(reduction factor for organic waste and leaf litter collection)
Pcredit	**6.53**	

Notes:

Credit is applied for all roadways swept at a minimum of weekly frequency, between September 1st and December 1st

Lanes are swept with either a mechanical broom sweeper or vacuum assisted sweeper

Phosphorus Reduction Factor (PRF) of 0.05 is used, per Appendix F Attachment 2.

Woodard & Curran

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation

City-Owned Planned Non-Structural Phosphorus Reduction Analysis

Total TP Reduction with Planned Non-Structural Controls, Anticipated PY7 data (July 2024 - June 2025)

Practice	P Credit (lb/yr)
Mechanical Broom (Weekly) (Unchanged)	4.18
Vacuum Assisted (Weekly) (Unchanged)	3.76
Mechanical Broom (Monthly)	49.46
Vacuum Assisted (Monthly)	4.48
Organic Waste and Leaf Litter Collection (Unchanged)	6.53
Total	**68.41**

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation City-Owned Planned (PY7) Non-Structural Phosphorus Reduction Analysis

Mechanical Broom Sweeping, Monthly Frequency

Location	Lane Miles	Average Lane Width (ft)	Impervious Area (acres)
All roadways swept monthly that are outside of priority area roadways	502	12	731
All roadways swept monthly within priority area roadways, non-fall months	118	12	172

$$P_{credit} = IA_{swept} * PLER_{roadway} * PRF_{sweeper} * AF$$

	Non-Priority Roads	Priority Roads	
IA Swept	731	172	(acres)
PLER road	1.95	1.95	(lb/acre/yr)
PRF	0.03	0.03	(monthly, mechanical broom sweeper)
AF	1.00	0.67	(monthly (12/12) and non-fall months (8/12))
Pcredit	42.75	6.71	(lb/year)
Total Pcredit	**49.46**		(lb/year)

Notes:

All City-owned roadways excluding priority area roadways (per Street Sweeping Routes Warranting Additional Sweeping document shared by Town on August 2024) that are swept at a minimum monthly frequency (provided under Attachments 1 and 2) year-round, as well as priority roadways that are swept at a minimum monthly frequency for the non-fall months (January through August)
Adjustment Frequency of 1 is used, to reflect planned monthly sweeping frequency during Permitting Year 6 (July '23 - June '24)
All lanes are swept with mechanical broom sweeper
Phosphorus Reduction Factor (PRF) of 0.03 is used, per Appendix F Attachment 2.

Woodard & Curran

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation
City-Owned Planned (PY7) Non-Structural Phosphorus Reduction Analysis

Vacuum Sweeping, Monthly Frequency (Priority Roadways)

Location	Lane Miles	Average Lane Width (ft)	Impervious Area (acres)
Sweeping of Priority Area Roadways	118	12	172

$$P_{credit} = IA_{swept} * PLER_{roadway} * PRF_{sweeper}$$

IA Swept	172	(acres)
PLER road	1.95	(lb/acre/yr)
PRF	0.04	(monthly, vacuum assisted sweeper)
AF	0.33	(fall months, September through December: 4/12)
Pcredit	**4.48**	(lb/year)

Notes:

All City-owned priority area roadways (per Street Sweeping Routes Warranting Additional Sweeping document shared by Town on August 2024) excluding roads that are swept at a minimum weekly frequency during the fall months (September-December).
All lanes are swept with a vacuum assisted sweeper.
Phosphorus Reduction Factor (PRF) of 0.04 is used, per Appendix F Attachment 2.

City of Newton Phase 1 Phosphorus Control Plan - Permit Year 6 Performance Evaluation
City-Owned Non-Structural Phosphorus Reduction Analysis

Measured Organic Matter Collection Credit

Total Collected Wet Mass of Street Sweepings - Fall Season (lb)	3,935,140
Total Collected Wet Mass of Street Sweepings - Non-Fall Season (lb)	3,136,800

Table 1

Season	Average Moisture Content	TP Concentration from Mass (mg/kg)
Fall (Sept-Dec)	0.48	857
Non-fall (Jan-Aug)	0.2	414.00

Step 1) Determine the dry mass of sweeping matter collected, using Equation 1.

Equation 1: $Dry\ Mass\ (lb) = Wet\ Mass\ (lb) * (1 - Percent\ Moisture\ Content)$

Dry Mass for Fall Season (lb) =	2,046,273
Dry Mass for Non-Fall Season (lb) =	2,446,704

Step 2) Determine the TN or TP load removed by multiplying the dry mass determined in Step 1 and the seasonal TN or TP concentration, using Equation 2.

Equation 2: $TN\ or\ TP\ Removed\ (lb) = Dry\ Mass(lb) * TN\ or\ TP\ Concentration\ (mg/kg) * 1 \times 10^{-6}$

TP Removed - Fall (lb) =	1753.7
TP Removed - Non-Fall (lb) =	1012.9
Net Reduction (lbs/year)	**2766.6**

Model-Based Street Cleaning Credit

"Minimum Effort"

Sweeper Type	PRF (Phosphorus Reduction Factor)	Export Rate (lbs/ac/year)	Roadway Area (ac)	Phosphorus Load Reduction (lbs/year) Enhanced Sweeping
Mechanical Broom	0.01	1.95	907.2	17.7
			Net Reduction (lbs/year)	17.7

"Medium Effort"

Sweeper Type	PRF (Phosphorus Reduction Factor)**	Export Rate (lbs/ac/year)	Roadway Area (ac)	Phosphorus Load Reduction (lbs/year) Enhanced Sweeping
Mechanical Broom	0.15	1.95	42.8	12.5
			Net Reduction (lbs/year)	12.5

"Maximum Effort"

Sweeper Type	PRF (Phosphorus Reduction Factor)	Export Rate (lbs/ac/year)	Roadway Area (ac)	Phosphorus Load Reduction (lbs/year) Enhanced Sweeping
Vacuum-Assisted	0.25	1.95	24.0	11.7
			Net Reduction (lbs/year)	11.7

Sum of Street Cleaning Credit

Summary of Credits	Phosphorus Load Reduction (lbs/year)
Minimal Effort	17.7
Medium Effort	12.5
Maximum Effort	11.7
Net Reduction (lbs/year)	**41.9**

NOTES:

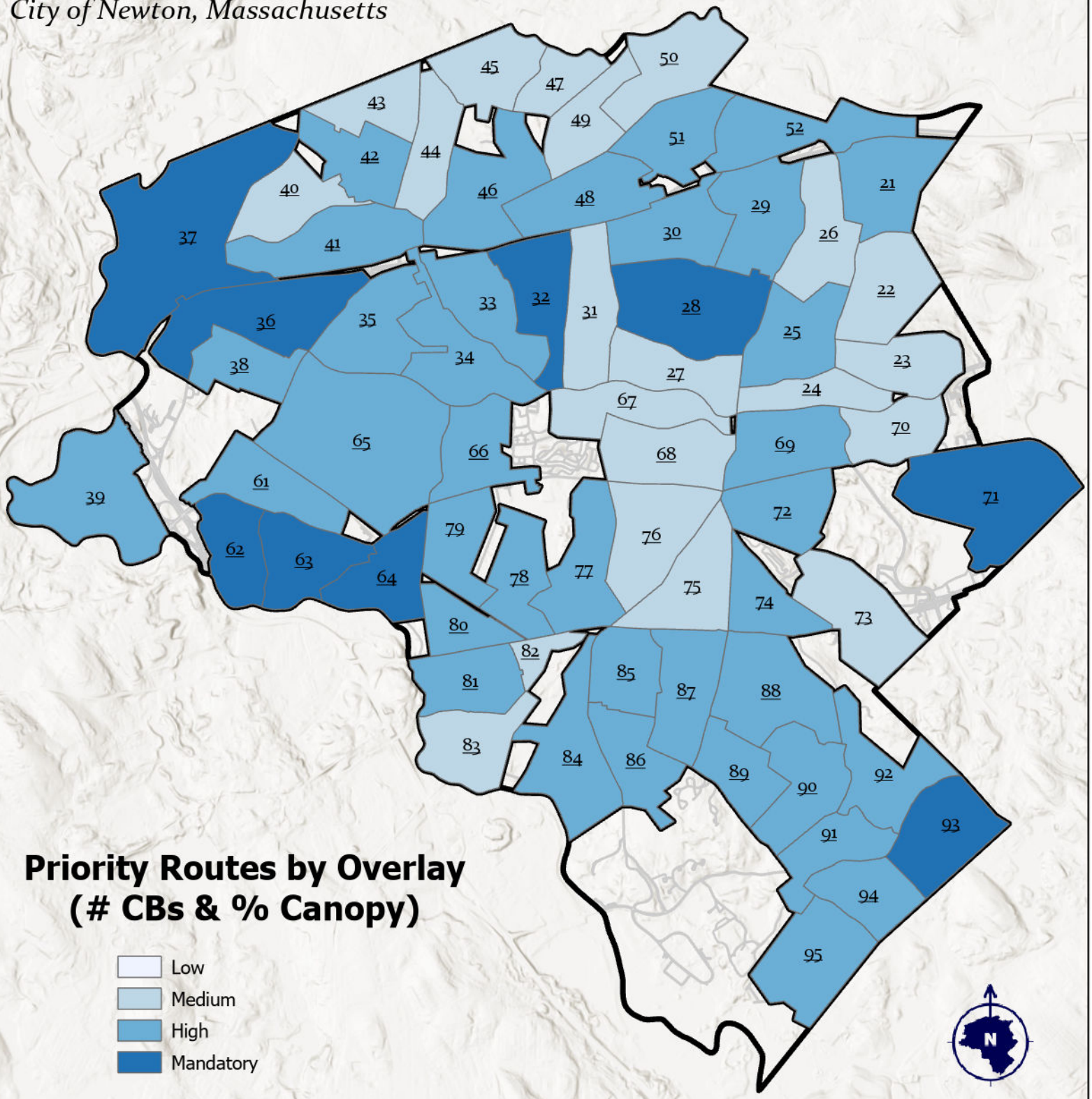
1. Clean Sweep Memorandum for enhanced sweeping credit: 2x/year sweeping using a mechanical broom sweeper (PRF = 1%), or vacuum-assisted sweeper (PRF = 2%). Entire paved area (driveways, parking lots, sidewalks, patios, etc.) is swept. Use Medium-Density Residential Land Use Export Rate.

2. Credit is based on data from the calendar year of 2023; therefore, Non-Fall data is from January to August 2023, fall data from September through December of 2023.

**Phosphorus Reduction Factor for "Medium Effort" calculations is increased by 10% as an additional removal factor based on weekly sweeping during fall season, per the Clean Sweep Memo

Street Sweeping Routes Warranting Additional Sweeping

City of Newton, Massachusetts



Priority Routes by Overlay (# CBs & % Canopy)

- Low
- Medium
- High
- Mandatory

N

0 0.5 1 2 Miles

Esri, NASA, NGA, USGS, FEMA

Map Date: January 17, 2024

CITY OF NEWTON, MASSACHUSETTS
Mayor - Ruthanne Fuller

Attachment 3: Structural SCM Documentation

City Owned Structural SCM Inventory

Privately Owned Structural SCM Inventory

Parcel ID	As-Built Date	Property Name	Address	BMP Type	BMP Description	BMP Drainage Area (AC)	BMP Volume Storage (cf)	Soil Infiltraiton Rate (in/hr)	TP Reduction (lbs/yr)	O&M 2nd Half 2023	O&M 1st Half 2024
84033 0003	7/25/2015	Fire Station #10	755 Dedham St	Infiltration Basin	Two leaching catch basins	0.461	432	2.41	0.19	8/31/2023	5/17/2024
			755 Dedham St	Infiltration Basin	Large recharge system under pavement	0.49	3610	2.41	0.86	8/31/2023	5/17/2024
61032 0002	10/17/2023	Fire Station #3	31 Willow St	2x Infiltration Basins	Two Infiltration Basins under parking lot and along street	1.137	2657	0.27	1.42	8/31/2023	5/17/2024
			31 Willow St	Porous Pavement	Parking Stalls in main parking lot	0.067	--	--	0.07	8/31/2023	5/17/2024
72039 0017 - 72039 0018	Under Construction	Newton Commonwealth Clubhouse	212 Kenrick St / Brookline Border (Undine Rd)	Surface Infiltration Basin	Large surface infiltration basin at far parking lot	0.7 (IA) + 0.13 (HSG-A) + 3.63 (HSG-D)	16,043	8.27	2.36	Under Construction	
				Wet Pond	Large Wet Pond close to Undine Rd entrance	1.7 (IA) + 0.29 (HSG-A) + 6.7 (HSG-D)	35,024	--	0.76		
21022 0001	Under Construction	Gath Pool	250 Albemarle Rd	Infiltration Basin	Located along backside of pool property facing softball field	0.72	2,563	8.27	1.28	Under Construction	
62001 0001	2/19/2014	Crystal Lake Bath House	30 Rogers St	Infiltration Trench	Within picnic field across fence from bathhouse	0.367	600	2.41	0.60	10/6/2023	5/6/2024
34037 0021	9/1/2018	Franklin School	125 Derby St	Infiltration Trench	Drywell located in playground just beyond fence	0.117	2,430	0.17	0.20	9/12/2023	6/24/2024
11020 0001	Under Construction	Lincoln-Eliot School	14 Walnut Pk	Infiltration Basin	Large Infiltration Basin in parking lot	2.34	20,629	2.41	3.31	Under Construction	
				Infiltration Basin	Small Infiltration Basin in loading area	0.3	13,014	2.41	0.30		
				Porous Pavement	Porous pavement in faculty parking stalls	0.44	--	--	0.46		
21022 0002	8/23/2013	F.A. Day Middle School	21 Minot Pl	Infiltration Trench	Located within parking lot front of school	0.109	447	8.27	0.19	9/26/2023	8/8/2024
21022 0001A	1/1/2023	Newton Early Childhood Program	687 Watertown St	Infiltration Basin	Located underneath bus lane	0.131	765	0.52	0.23	9/19/2023	6/28/2024
44035 0095	Under Construction	Burr School	171 Pine St	Rain Garden #1	South West Rain Garden w/overflow to MS4	0.105 IA + 1.105 PA (HSG-C)	927	1.02	0.38	Under Construction	
				Rain Garden #2	North Rain Garden outfalling to grass	0.139 IA + 1.53 PA (HSG-C)	8049	1.02	0.53		
				Rain Garden #3	West Rain Garden w/ overflow to MS4	0.13 IA + 2.36 PA (HSG-C)	904	1.02	0.63		
24010 0001	Under Construction	Cooper Center for Active Living	345 Walnut St	Subsurface Infiltration Basin	Located within parking lot entrance	0.5 IA + 0.066 PA (HSG-A)	2,657	8.27	0.89		
23001 0020	2013	Carr / Horace Mann School	225 Nevada St	Infiltration Basin	In grass area within bus loop	0.085 IA + 0.02 PA	212	8.27	0.14	9/16/2023	5/17/2024
81051 0047	9/1/2001	Newton South High School	140 Brandeis Rd	Infiltration Basin	By west wing of school	0.75	513	0.17	1.34	9/26/2023	6/24/2024
			140 Brandeis Rd	Infiltration Basin	Between back of school and athletic fields	0.75	513	0.17		9/26/2023	6/24/2024
64003 0005	Fall 2022	Newton Free Library	330 Homer St	Infiltration Trench and Basin	Infiltration pipe and basin network throughout lot	1.542 IA + 0.278 PA	1,996	2.41	2.08	9/27/2023	8/8/2024
				Porous Pavement	Parking stalls along South and West border	0.251	--	--	0.34	9/27/2023	8/8/2024
24018 0001	2010	Newton North High School	457 Walnut St	Infiltration Trench	Under football / athletic fields	5.518	36,750	1.02	10.18	9/26/2023	8/2/2024
55010 0056	1/1/2016	Angier School	1697 Beacon St	Infiltration Basin	Recharge system in pavement loop off Beacon St	0.681	4,989	8.27	1.21	9/14/2023	5/31/2024
			1697 Beacon St	Infiltration Basin	Recharge system in NE corner of school	1.158	10,469	8.27	2.06	9/14/2023	5/31/2024
54013 0003	8/1/2017	Zervas School	30 Beethoven Ave	Bio-swale	Bio-swale #1 (larger) in lot	0.407	2,096	0.27	0.39	9/14/2023	5/31/2024
			30 Beethoven Ave	Bio-swale	Bio-swale #2 (smaller) in lot	0.395	343	0.27	0.24	9/14/2023	5/31/2024
			30 Beethoven Ave	Porous Pavement	Emergency access road	0.3	--	--	0.33	9/14/2023	5/31/2024
22008 0008	12/3/2019	Cabot School	229 Cabot St	Infiltration Basin	Recharge system beneath entrance pavement	0.338	3,211	2.41	0.60	8/31/2023	6/28/2024
			229 Cabot St	Porous Pavement	Small pavement area in courtyard (by bridges ave)	0.031	--	--	0.03	8/31/2023	6/28/2024
			229 Cabot St	Tree box filter #1	In SW small lot near corner of cabot and bridges	0.089	162	2.41	0.07	8/31/2023	6/28/2024
			229 Cabot St	Tree box filter #2	in lot off bridges ave nearest bridges ave	0.11	200	2.41	0.08	8/31/2023	6/28/2024
			229 Cabot St	Tree box filter #3	in lot off bridges ave at other end of lot from #2	0.06	109	2.41	0.04	8/31/2023	6/28/2024
71005 0010	6/21/2024	Pearl St Parking Lot	N/A	Infiltration Trench	Located between entrance and exit trench drains	0.66	236	0.17	0.16	Added to Inventory 2024 (PY6)	N/A
City Right of Way	10/1/2022	Crafts St/Walnut St Intersection	15 Walnut St	2x Bio-swales and Infiltration Trench	Located infront of 15 Walnut St in place of old slip lane	0.085	544.7	2.41	0.11	Added to Inventory 2024 (PY6)	5/6/2024

Parcel ID	As-Built Date	Property Name	Address	BMP Type	BMP Description	BMP Drainage Area (AC)	BMP Volume Storage (cf)	Soil Infiltraiton Rate (in/hr)	TP Reduction (lbs/yr)	O&M 2nd Half 2023	O&M 1st Half 2024
62001 004	5/3/2024	Levingston Cove	Lake Ave Ctr	Rain Garden #1	East most rain garden closest to abutter	0.093	173	2.41	0.03	Added to Inventory 2024 (PY6)	5/6/2024
			Lake Ave Ctr	Grass Swale	Grass swale down entire bank draining into beehive CB	0.052	107	2.41			5/6/2024
			Lake Ave Ctr	Rain Garden #2	Center most rain garden east of paved stairs	0.064	143	2.41			5/6/2024
			Lake Ave Ctr	Rain Garden #3	Rain garden west of paved stairs	0.043	73	2.41			5/6/2024
			Lake Ave Ctr	Rain Garden #4	West most rain garden closest to paved ramp	0.029	56	2.41			5/6/2024
51001 0012	12/1/2016	Cook's "Elliot St" Bridge	391 Elliot St	Gravel Swale	Gravel Water Quality Swale within DCR land north of Elliot St	0.071	780	0.09	0.15	9/16/2024	5/17/2024
32024 0006A	8/1/2018	McGrath Tennis Courts	1600 Washington St	Infiltration Trench and Leaching CB	Located between parking lot and tennis court fence and on opposite side of courts	0.103	81.6	8.27	0.12	Added to Inventory 2024 (PY6)	5/6/2024
City Right of Way	Under Construction	Upper Falls Greenway at Oak Street / Pette Square Parking	Chestnut Street Parking	Porous Pavement	Porous pavement in parking stalls	0.35	--	--	0.29	Under Construction	

Added to Inventory 2024 (PY6)

Under Construction

Total Phosphorus Removed:	34.65
Total Phosphorus Removed (Constructed):	23.46
Total Phosphorus Removed (Planned):	11.19

PENDING	Structures have been approved to be built by DPW Engineering and are either pending a construction permit or are permitted and the contractor hasn't requested an inspection yet
BUILT-PENDING	Structures that DPW Engineering inspectors have viewed as built or partially built and will provide an inspection date once they have fully passed inspection. Included in "constructed" calculations

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.183	2,285	MDR	MDR	1.96	A	85%	4148.00	5851.00	0	PENDING
16.85	51,062	HDR, HSG-A, HSG-B, HSG-D	HDR	2.32	C	86.50%	797148.00	686941.20	0	PENDING
0.153	1,137	HDR, HSG-A	HDR	2.32	A	85%	3084.20	4138.60	0	PENDING
0.027	349	MDR	MDR	1.96	A	82%	0.00	1160.00	0	PENDING
0.023	349	MDR	MDR	1.96	A	80%	8300.00	8709.00	0	PENDING
0.023	395	MDR	MDR	1.96	A	80%	2610.00	3260.00	0	PENDING
0.256	3,631	MDR	MDR	1.96	B	80%	32184.31	43231.41	0	PENDING
4.63	14,723	HDR, HSG-D	HDR	2.32	D	94%	58065.00	124233.00	0	PENDING
0.0493	458	MDR	MDR	1.96	C	85%	2364.35	2022.23	0	PENDING
0.0428	425	MDR	MDR	1.96	D	80%	16406.00	16602.00	0	PENDING
0.087	566	HDR	HDR	2.32	C	93%	1858.00	4248.00	0	PENDING
0.04	428	MDR	MDR	1.96	A	80%	5369.00	5918.00	0	PENDING
0.0246	494	MDR	MDR	1.96	A	96%	3669.40	4544.40	0	PENDING
0.0527	697	MDR	MDR	1.96	A	87%	2368.00	3543.00	0	PENDING
0.55	5,874	HDR	HDR	2.32	A	99&	25983.54	28897.70	0	PENDING
0.612	570	MDR	MDR	1.96	A	85%	2608.60	2857.18	0	PENDING
0.019	216	MDR	MDR	1.96	A	96%	2755.60	3468.90	0	PENDING
0.0998	880	MDR	MDR	1.96	A	85%	3473.14	4347.39	0	PENDING
0.034	317	MDR	MDR	1.96	A	80%	10726.17	11368.43	0	PENDING
0.045	214	MDR	MDR	1.96	A	80%	1411.00	3282.00	0	PENDING
0.057	552	MDR	MDR	1.96	A	85%	2048.15	2924.00	0	PENDING
0.047	840	MDR	MDR	1.96	D	80%	1257.00	2235.00	0	PENDING
0.122	1,365	HDR	HDR	2.32	A	96%	5499.00	7248.40	0	PENDING
0.268	1,220	MDR	MDR	1.96	C	85%	4296.00	4312.00	0	PENDING
0.135	1,311	MDR	MDR	1.96	C/D	85%	5623.26	5887.91	0	PENDING
0.039	479	MDR	MDR	1.96	A	80%	2516.70	5816.80	0	PENDING
0.073	671	MDR	MDR	1.96	A	88%	2113.00	3598.00	0	PENDING
0.031	643	MDR	MDR	1.96	A	80%	8989.00	9517.00	0	PENDING
0.1286	735	HDR	HDR	2.32	A	85%	5552.43	7423.33	0	PENDING
0.129	1,981	HDR	HDR	2.32	A	80%	1783.00	6782.00	0	PENDING
0.129	1,016	MDR	MDR	1.96	A	82%	5606.00	6074.00	0	PENDING

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.053	738	MDR	MDR	1.96	A	80%	2877.00	3867.00	0	PENDING
0.072	1,002	MDR	MDR	1.96	A	80%	4266.00	4969.00	0	PENDING
0.079	1,525	MDR	MDR	1.96	A	87%	2380.00	3556.00	0	PENDING
0.089	1,259	HDR	HDR	2.32	A	85%	3873.00	5280.00	0	PENDING
0.122	1,546	MDR	MDR	1.96	A	85%	2614.23	5311.00	0	PENDING
0.07	610	MDR	MDR	1.96	A	96%	2617.40	3269.90	0	PENDING
0.065	614	MDR	MDR	1.96	A	85%	4166.65	3170.34	0	PENDING
0.014	227	MDR	MDR	1.96	A	80%	3252.00	3872.00	0	PENDING
0.038	566	MDR	MDR	1.96	A	80%	2753.00	3701.00	0	PENDING
0.108	1,245	MDR	MDR	1.96	A	85%	3081.30	5758.30	0	PENDING
0.051	348	MDR	MDR	1.96	A	80%	6177.00	6981.00	0	PENDING
0.07	1,274	MDR	MDR	1.96	C	85%	1895.20	3053.50	0	PENDING
0.112	1,045	MDR	MDR	1.96	A	87%	2940.00	5217.00	0	PENDING
0.076	622	MDR	MDR	1.96	A	87%	1327.00	3610.00	0	PENDING
0.14	1,498	HDR	HDR	2.32	A	80%	7852.00	8915.00	0	PENDING
0.138	1,785	MDR	MDR	1.96	A	80%	2864.00	6440.00	0	PENDING
0.172	2,004	HDR	HDR	2.32	A	100%	4645.90	2966.52	0	PENDING
0.07	871	MDR	MDR	1.96	A	90%	2311.00	3478.00	0	PENDING
0.119	2,302	HDR	HDR	2.32	A	85%	3319.17	6899.80	0	PENDING
0.125	1,176	MDR	MDR	1.96	C/D	90%	3856.00	5813.00	0	PENDING
0.134	1,612	MDR	MDR	1.96	A	90%	4196.00	6356.00	0	PENDING
0.229	1,263	MDR	MDR	1.96	B	85%	2594.00	3780.00	0	PENDING
0.051	589	MDR	MDR	1.96	A	80%	2583.00	3425.00	0	PENDING
0.091	1,872	MDR	MDR	1.96	A	85%	4806.08	3997.35	0	PENDING
0.068	917	MDR	MDR	1.96	A	80%	4019.00	5912.00	0	PENDING
0.068	915	MDR	MDR	1.96	A	87%	2810.00	3250.00	0	PENDING
0.206	1,228	HDR	HDR	2.32	A	84%	4127.00	6818.00	0	PENDING
0.092	1,089	HDR	HDR	2.32	A	90%	2888.00	4607.00	0	PENDING
0.07	51	MDR	MDR	1.96	A	85%	4214.00	4440.00	0	PENDING
0.065	788	MDR	MDR	1.96	A	85%	2072.00	3461.00	0	PENDING
0.134	1,457	MDR	MDR	1.96	A	85%	6281.00	6788.00	0	PENDING
0.197	1,524	MDR, HSG-A	MDR	1.96	A	85%	8572.00	10586.00	0	PENDING
0.097	1,536	HDR	HDR	2.32	A	80%	4188.40	491.50	0	PENDING

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.071	727	MDR	MDR	1.96	A	85%	1564.44	3122.06	0	PENDING
0.026	411	HDR	HDR	2.32	D	96%	3781.00	3730.80	0	PENDING
0.092	1,045	MDR	MDR	1.96	A	82.50%	2944.00	4865.40	0	PENDING
0.07	2,133	MDR	MDR	1.96	C	96%	2420.00	3166.10	0	PENDING
0.307	1,655	MDR	MDR	1.96	A	85%	2855.00	2900.00	0	PENDING
0.077	436	MDR	MDR	1.96	A	85%	1472.00	2336.00	0	PENDING
0.28	436	MDR	MDR	1.96	A	80%	3862.00	3839.00	0	PENDING
0.073	1,089	MDR	MDR	1.96	A	90%	3961.00	3467.00	0	PENDING
0.06	828	MDR	MDR	1.96	A	85%	3518.00	4650.00	0	PENDING
0.138	1,550	MDR	MDR	1.96	A	85%	3664.60	7570.40	0	PENDING
0.0772	1,252	MDR	MDR	1.96	A	85%	1675.31	4054.39	0	PENDING
0.073	697	MDR	MDR	1.96	A	85%	2622.00	3622.00	0	PENDING
0.137	1,350	MDR	MDR	1.96	A	85%	3443.00	6795.00	0	PENDING
0.063	910	MDR	MDR	1.96	C	85%	3200.27	3567.37	0	PENDING
0.115	1,133	MDR	MDR	1.96	C	85%	4692.00	5485.00	0	PENDING
0.044	592	HDR	HDR	2.32	A	85%	3411.60	4409.00	0	PENDING
0.09	708	MDR	MDR	1.96	A	85%	4214.25	3934.62	0	PENDING
0.115	1,170	MDR	MDR	1.96	A	85%	2516.70	5816.80	0	PENDING
0.041	544	MDR	MDR	1.96	A	80%	2402.44	2798.13	0	PENDING
0.093	461	HDR	HDR	2.32	A	90%	1838.00	2799.00	0	PENDING
0.089	2,037	MDR	MDR	1.96	C	82%	3353.20	4024.30	0	PENDING
0.167	1,002	MDR	MDR	1.96	D	80%	9619.00	N/A	0	PENDING
0.086	1,246	MDR	MDR	1.96	A	80%	2816.00	3760.00	0	PENDING
0.077	815	MDR	MDR	1.96	A	85%	4223.00	3337.00	0	PENDING
0.086	523	MDR	MDR	1.96	A	85%	2389.50	3077.30	0	PENDING
0.03	261	MDR	MDR	1.96	A	85%	5766.00	5715.00	0	PENDING
0.142	1,292	MDR	MDR	1.96	A	80%	5227.00	6228.50	0	PENDING
0.105	864	HDR, HSG-A	HDR	2.32	A	85%	0.00	2749.20	0	PENDING
0.075	1,742	HDR	HDR	2.32	C	96%	978.90	3822.60	0	BUILT-PENDING
0.0338	360	MDR	MDR	1.96	A	85%	2761.00	4026.00	0	BUILT-PENDING
0.263	2,004	HDR	HDR	2.32	A	86%	3610.00	5756.00	0	BUILT-PENDING
0.135	1,263	HDR	HDR	2.32	A	86%	4680.00	5938.00	0	BUILT-PENDING
0.296	1,350	HDR, HSG-A	HDR	2.32	A	85%	4329.00	8068.00	0	BUILT-PENDING

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.112	811	HDR	HDR	2.32	A	96%	2183.10	6107.70	0	BUILT-PENDING
0.011	238	MDR	MDR	1.96	A	80%	3426.00	3898.00	0	BUILT-PENDING
0.078	763	MDR	MDR	1.96	A	85%	2480.33	2934.71	0	BUILT-PENDING
0.104	523	MDR	MDR	1.96	A	80%	4529.00	4394.00	0	BUILT-PENDING
0.051	253	MDR, HSG-D	MDR	1.96	C/D	80%	4909.00	5859.00	0	BUILT-PENDING
0.055	697	MDR	MDR	1.96	A	85%	2409.00	3030.00	0	BUILT-PENDING
0.075	741	MDR	MDR	1.96	A	87%	2552.00	3559.00	0	BUILT-PENDING
0.159	1,217	HDR	HDR	2.32	A	85%	10847.22	7602.55	0	8/23/2024
0.364	1,885	HDR	HDR	2.32	C	80%	13112.50	10756.53	0	8/23/2024
0.059	697	MDR	MDR	1.96	C	87%	2432.00	3079.00	0	8/23/2024
0.007	77	MDR	MDR	1.96	C	80%	1374.00	1716.00	2	9/19-21/22
0.115	976	HDR	HDR	2.32	D	85%	3922.20	5849.00	3	8/15-16/2022
0.0839	748	HDR	HDR	2.32	C	85%	2260.76	4000.72	3	7/7-31/23
0.072	582	MDR	MDR	1.96	D	85%	1766.00	3352.10	2	6/15/2024 - 8/14/24
0.11	1,077	MDR	MDR	1.96	1/4B and 3/4A	96%	0.00	4792.00	3	4/23/24, 4/24/24, 5/1/24
0.07	597	MDR	MDR	1.96	A	85%	3577.00	4601.00	3	2/9-10/23 - 4/13/23
0.018	251	MDR	MDR	1.96	D	85%	2236.10	3203.70	2	12/2-5/22
0.123	1,391	COM	COM	1.78	A	85%	1855.40	5376.60	2	1/5-6/23
0.11	610	HDR	HDR	2.32	A	90%	1420.00	3175.00	1	8/15/2024
0.08	1,255	HDR	HDR	2.32	D	85%	2664.90	3609.00	1	8/15/2024
0.084	392	MDR	MDR	1.96	D	85%	3697.00	3575.00	2	8/9/2024
0.08	759	HDR	HDR	2.32	A	85%	2549.71	3479.22	1	8/9/2024
0.0644	916	MDR	MDR	1.96	C	85%	2913.74	4482.03	1	8/8/2024
0.0531	960	MDR	MDR	1.96	C	85%	2312.66	3054.38	1	8/8/2024
0.037	218	MDR	MDR	1.96	A	85%	N/A	N/A	1	8/6/2024
0.076	1,744	HDR	HDR	2.32	C	88%	2343.53	3641.60	1	8/2/2024
0.0935	1,388	MDR	MDR	1.96	A	85%	2658.51	4399.16	1	7/26/2024
0.025	200	MDR	MDR	1.96	A	85%	N/A	N/A	1	7/26/2024
0.05	541	MDR	MDR	1.96	A	96%	3640.70	4607.10	1	7/18/2024
0.0829	916	HDR	HDR	2.32	1/3A and 2/3C	85%	3768.58	4995.23	1	7/15/2024
0.083	697	MDR	MDR	1.96	A	87%	3528.00	3627.00	1	7/12/2024
0.104	915	HDR	HDR	2.32	A	85%	2823.00	5887.00	1	7/11/2024
0.111	845	HDR	HDR	2.32	A	85%	4390.52	4085.28	1	7/10/2024

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.044	454	MDR	MDR	1.96	A	85%	2237.00	2083.00	1	7/10/2024
0.066	562	MDR	MDR	1.96	A	80%	1676.00	3261.00	1	7/8/2024
0.034	261	MDR	MDR	1.96	A	80%	3017.00	2164.00	1	7/8/2024
0.07	871	MDR	MDR	1.96	A	85%	3349.00	4205.00	1	7/3/2024
0.073	922	MDR	MDR	1.96	A	80%	3278.66	4517.11	1	7/1/2024
0.335	741	MDR, HSG-B	MDR	1.96	A	85%	N/A	N/A	2	6/26/2024
0.087	570	MDR	MDR	1.96	A	80%	2053.00	3402.00	2	6/26/2024
0.091	784	MDR	MDR	1.96	A	90%	2838.00	4191.00	1	6/26/2024
0.052	282	MDR	MDR	1.96	A	85%	2725.00	3357.80	1	6/25/2024
0.07	818	MDR	MDR	1.96	A	85%	2694.64	3896.65	1	6/20/2024
0.1149	1,235	MDR	MDR	1.96	C	85%	353.29	5409.49	2	6/19/2024
0.023	215	MDR	MDR	1.96	A	100%	10720.00	11380.00	1	6/5/2024
0.121	1,133	HDR	HDR	2.32	A	--	6786.00	5812.00	1	6/4/2024
0.021	197	MDR	MDR	1.96	1/3D and 2/3C	80%	1749.00	2816.00	1	6/4/2024
0.103	1,002	MDR	MDR	1.96	A	82%	2803.00	5007.00	1	6/4/2024
0.42	4,840	HDR	HDR	2.32	A	96%	15671.20	13723.70	1	5/31/2024
0.056	419	HDR	HDR	2.32	A	80%	5351.65	4538.41	1	5/30/2024
0.149	1,502	HDR	HDR	2.32	A	96%	4325.00	6930.00	1	5/29/2024
0.043	174	MDR	MDR	1.96	A	85%	2898.00	3260.00	1	5/22/2024
0.1	1,185	MDR	MDR	1.96	A	87%	3425.00	4623.00	1	5/22/2024
0.079	784	MDR	MDR	1.96	D	80%	2224.00	3688.00	1	5/21/2024
0.055	294	MDR	MDR	1.96	A	85%	2147.00	2824.00	1	5/20/2024
0.0723	692	HDR	HDR	2.32	A	85%	1718.16	3601.34	1	5/16/2024
0.052	437	MDR	MDR	1.96	A	82.50%	2700.50	2964.00	1	5/14/2024
0.0756	806	HDR	HDR	2.32	A	85%	1505.00	2579.70	1	5/10/2024
0.067	675	MDR	MDR	1.96	A	85%	1646.05	3065.18	1	5/10/2024
0.632	5,187	MDR, HSG-C, HSG-D	MDR	1.96	D	80%	17256.00	17054.00	1	5/7/2024
0.1	737	MDR	MDR	1.96	A	85%	3034.76	4383.50	1	5/3/2024
0.099	1,217	MDR	MDR	1.96	A	85%	2314.98	4563.77	1	5/2/2024
0.101	860	MDR	MDR	1.96	A	80%	4833.00	7380.00	1	5/1/2024
0.136	1,158	MDR	MDR	1.96	A	80%	4059.00	6618.00	1	4/30/2024
0.0627	825	HDR	HDR	2.32	A	85%	1238.46	3045.66	1	4/30/2024
0.0658	1,014	HDR	HDR	2.32	A	85%	1454.80	3192.03	1	4/30/2024

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.018	446	MDR	MDR	1.96	A	80%	5109.00	5591.00	1	4/26/2024
0.12	1,170	MDR	MDR	1.96	A	87%	0.00	5358.00	1	4/23/2024
0.106	453	MDR	MDR	1.96	A	--	2260.00	4618.40	1	4/19/2024
0.134	2,150	HDR	HDR	2.32	A	82%	6033.00	5949.00	1	4/19/2024
0.054	590	MDR	MDR	1.96	A	80%	3240.00	5578.00	1	4/19/2024
0.081	871	MDR	MDR	1.96	D	90%	2597.00	3519.00	1	4/18/2024
0.083	911	MDR	MDR	1.96	A	85%	3612.81	4155.63	1	4/12/2024
0.063	839	MDR	MDR	1.96	A	96%	3126.50	2749.03	1	4/12/2024
0.027	314	MDR	MDR	1.96	A	85%	6170.00	6995.00	1	4/11/2024
2.9	3,816	COM	COM	1.78	C	85%	140552.00	130544.00	1	4/10/2024
0.098	1,177	HDR	HDR	2.32	A	91%	4047.00	3176.00	1	4/9/2024
0.082	848	MDR	MDR	1.96	A	98%	3193.00	3636.00	1	4/9/2024
0.094	1,123	MDR	MDR	1.96	A	85%	3842.33	4110.57	1	4/9/2024
0.086	927	MDR	MDR	1.96	D	85%	2529.12	4485.89	1	4/5/2024
0.114	800	COM, HSG-B	COM	1.78	B	80%	25402.00	26382.00	1	4/2/2024
0.062	744	MDR	MDR	1.96	A	85%	2321.00	2955.20	1	3/26/2024
0.053	915	MDR	MDR	1.96	A	85%	2329.00	3575.00	1	3/22/2024
0.029	261	MDR	MDR	1.96	A	80%	3689.00	4676.00	1	3/22/2024
0.135	479	MDR	MDR	1.96	A	80%	5733.00	6622.00	1	3/21/2024
0.083	1,001	MDR	MDR	1.96	A	87%	3132.00	4725.00	1	3/20/2024
0.128	1,263	MDR	MDR	1.96	1/3 D and 2/3 C/D	87%	6760.00	5780.00	1	3/14/2024
0.0825	734	HDR	HDR	2.32	A	85%	2146.90	4064.00	1	3/13/2024
0.123	1,373	HDR	HDR	2.32	A	85%	2569.00	4219.00	1	3/11/2024
0.0728	658	MDR	MDR	1.96	A	96%	3174.00	3475.00	1	3/5/2024
0.034	229	MDR	MDR	1.96	A	80%	1299.00	2212.00	1	2/22/2024
0.0658	626	HDR	HDR	2.32	A	85%	4967.80	3532.15	1	2/16/2024
0.065	263	MDR	MDR	1.96	C	96%	1734.40	3088.00	1	2/16/2024
0.104	960	HDR	HDR	2.32	A	85%	2196.34	5205.28	1	2/16/2024
0.108	443	HSG-A	--	--	A	80%	N/A	N/A	1	2/12/2024
0.092	697	HDR	HDR	2.32	A	80%	1076.00	4124.00	1	2/9/2024
0.016	216	MDR	MDR	1.96	A	96%	6582.50	7071.40	1	2/8/2024
0.88	8,102	HDR, HSG-C	HDR	2.32	C	85%	12306.00	32471.00	1	2/6/2024
0.017	174	MDR	MDR	1.96	A	96%	3538.50	3713.00	1	2/6/2024

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.094	828	MDR	MDR	1.96	A	82%	2450.00	4076.00	1	2/2/2024
0.216	2,309	HDR	HDR	2.32	A	85%	9473.00	10205.00	1	1/31/2024
0.016	156	MDR	MDR	1.96	A	80%	3662.00	4045.00	1	1/26/2024
0.217	1,101	MDR	MDR	1.96	D	96%	8904.50	9883.49	1	1/25/2024
0.1032	993	MDR	MDR	1.96	A	85%	3948.66	5674.37	1	1/24/2024
0.147	1,360	MDR	MDR	1.96	A	80%	3655.42	6415.69	1	1/24/2024
1.837	20,122	Open, HSG-A	Open	1.52	A	85%	5904.00	56489.00	1	1/23/2024
0.049	305	MDR	MDR	1.96	A	85%	3260.00	3370.00	1	1/18/2024
0.046	513	MDR	MDR	1.96	A	96%	4131.60	5061.90	1	12/27/2023
0.079	685	MDR	MDR	1.96	A	80%	2081.00	3439.00	1	12/23/2023
0.055	440	MDR	MDR	1.96	C	90%	1976.61	2960.79	1	12/22/2023
0.0912	658	HDR	HDR	2.32	A	85%	4635.00	4186.00	1	12/22/2023
0.056	218	MDR	MDR	1.96	A	85%	2458.00	2790.00	1	12/21/2023
0.0243	357	HDR	HDR	2.32	C	80%	8794.00	9708.00	1	12/21/2023
0.056	583	HDR	HDR	2.32	A	87%	2010.00	2990.00	1	12/13/2023
0.045	784	MDR	MDR	1.96	A	80%	3971.00	3646.00	1	12/6/2023
0.24	943	MDR	MDR	1.96	D	85%	3654.00	4097.00	1	12/5/2023
0.135	1,006	HDR	HDR	2.32	A	80%	2740.00	5874.00	1	12/4/2023
0.102	1,221	HDR	HDR	2.32	D	85%	5547.61	5733.61	1	11/30/2023
0.104	1,371	MDR	MDR	1.96	D	80%	9052.00	9048.00	1	11/28/2023
0.062	484	MDR	MDR	1.96	A	85%	2046.50	2702.64	1	11/27/2023
0.086	958	HDR	HDR	2.32	A	85%	3056.00	4482.00	1	11/21/2023
0.062	479	MDR	MDR	1.96	A	80%	1309.00	2800.00	1	11/14/2023
0.281	1,468	HDR	HDR	2.32	A	85%	0.00	3410.90	1	11/8/2023
0.0227	213	MDR	MDR	1.96	A	--	3394.06	4187.22	1	11/7/2023
0.0599	754	MDR	MDR	1.96	D	85%	3493.88	4076.24	1	11/7/2023
0.069	653	MDR	MDR	1.96	A	87%	1821.00	3339.00	1	11/6/2023
0.136	2,716	MDR	MDR	1.96	D	99%	4042.00	5943.70	1	11/2/2023
0.106	925	HDR	HDR	2.32	A	85%	4229.80	5406.50	1	10/27/2023
0.054	549	HDR	HDR	2.32	D	85%	3409.64	3058.83	1	10/27/2023
0.257	1,384	HDR	HDR	2.32	C	85%	15689.00	11437.00	1	10/25/2023
0.155	1,263	MDR	MDR	1.96	A	87%	4677.00	6767.00	1	10/24/2023
0.078	721	MDR	MDR	1.96	A	80%	2829.00	3396.00	1	10/17/2023

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.168	1,909	MDR	MDR	1.96	A	85%	3423.75	7342.55	1	10/13/2023
0.076	741	MDR	MDR	1.96	A	87%	3439.00	3646.00	1	10/11/2023
0.031	221	MDR	MDR	1.96	A	85%	2498.90	3158.20	1	10/2/2023
0.106	1,045	HDR	HDR	2.32	A	87%	3850.00	4614.00	1	9/20/2023
0.167	1,522	MDR	MDR	1.96	D	90%	3859.88	5439.57	1	9/12/2023
0.039	359	MDR	MDR	1.96	A	83%	5227.00	6833.00	1	9/8/2023
0.092	1,481	MDR	MDR	1.96	B	80%	9294.00	10240.00	1	8/29/2023
0.106	697	HDR	HDR	2.32	A	90%	1819.00	4641.00	1	8/24/2023
0.097	697	HDR	HDR	2.32	A	90%	1511.00	4270.00	1	8/24/2023
0.07	566	MDR	MDR	1.96	A	82%	1419.00	3029.00	1	8/14/2023
9.3	11,680	Open, HSG-A, HSG-D	Open	1.52	D	89%	10222.00	21443.00	1	8/2/2023
0.05	920	HDR	HDR	2.32	A	96%	0.00	2234.00	1	8/1/2023
0.102	1,133	MDR	MDR	1.96	A	85%	2569.00	4757.00	1	7/26/2023
0.052	871	MDR	MDR	1.96	A	80%	1939.00	3057.00	1	7/20/2023
0.028	261	MDR	MDR	1.96	A	85%	1719.00	2496.00	1	7/17/2023
0.217	1,889	COM	COM	1.78	1/3A and 2/3C	80%	3441.00	10794.00	1	7/14/2023
0.074	1,064	HDR	HDR	2.32	A	85%	1955.76	3730.50	1	7/13/2023
0.065	809	MDR	MDR	1.96	C	87%	2075.00	3132.00	1	7/12/2023
0.097	778	HDR	HDR	2.32	A	85%	2602.00	5150.90	1	7/12/2023
0.013	156	MDR	MDR	1.96	D	80%	3415.00	4005.00	1	6/28/2023
0.047	594	MDR	MDR	1.96	A	96%	4149.80	5918.00	2	6/28/2023
0.098	610	MDR	MDR	1.96	1/2A and 1/2C	85%	4051.08	4930.18	1	6/27/2023
0.026	349	MDR	MDR	1.96	A	85%	2123.00	2424.00	1	6/26/2023
0.0673	554	MDR	MDR	1.96	A	85%	2331.16	3205.36	1	6/26/2023
0.09	592	HDR	HDR	2.32	A	80%\	2367.00	3871.00	1	6/22/2023
0.0227	167	MDR	MDR	1.96	C	80%	4545.00	5340.00	1	6/18/2023
0.096	1,048	MDR	MDR	1.96	D	80%	4110.00	5114.00	2	6/17/2023
0.296	1,066	MDR	MDR	1.96	A	80%	16410.00	17395.00	1	6/15/2023
0.044	364	MDR	MDR	1.96	A	85%	1686.00	3103.00	1	6/13/2023
0.015	N/A	MDR	MDR	1.96	A	--	1992.20	2226.99	1	6/13/2023
0.066	597	MDR	MDR	1.96	A	85%	2996.00	5391.00	1	6/12/2023
0.111	1,386	HDR	HDR	2.32	D	85%	3432.26	5562.00	1	6/7/2023
0.016	58	MDR	MDR	1.96	D	80%	3195.00	3370.00	1	6/7/2023

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.057	915	HDR	HDR	2.32	A	85%	3833.00	4300.00	1	6/6/2023
0.052	505	MDR	MDR	1.96	A	80%	1609.20	2304.70	1	6/2/2023
0.048	449	MDR	MDR	1.96	A	80%	2450.00	3499.00	1	6/1/2023
0.145	737	MDR	MDR	1.96	D	96%	2360.00	7500.00	1	6/1/2023
0.115	3,186	MDR	MDR	1.96	D	85%	8145.70	9496.08	1	5/24/2023
0.041	392	MDR	MDR	1.96	A	80%	2632.00	4257.00	1	5/23/2023
0.086	760	MDR	MDR	1.96	A	85%	3187.00	3742.00	1	5/18/2023
0.107	1,180	HDR	HDR	2.32	C	96%	0.00	5410.70	1	5/17/2023
0.072	560	HDR	HDR	2.32	D	85%	4023.00	3154.90	1	5/13/2023
0.087	653	MDR	MDR	1.96	A	85%	3840.00	4250.00	1	5/5/2023
0.065	515	MDR	MDR	1.96	A	100%	2410.50	3590.00	1	5/5/2023
0.052	218	MDR	MDR	1.96	A	85%	2643.00	3386.00	1	5/4/2023
10.91	64,624	Open, HSG-B	Open	1.52	A	92%	35109.36	80368.20	1	5/2/2023
0.103	610	MDR	MDR	1.96	A	85%	2182.00	4505.00	1	5/1/2023
0.0778	855	HDR	HDR	2.32	D	85%	3347.58	4212.67	1	4/29/2023
0.107	784	HDR	HDR	2.32	A	80%	2650.00	5280.00	1	4/28/2023
0.095	769	HDR	HDR	2.32	A	85%	2731.70	4255.50	1	4/28/2023
0.113	610	HDR	HDR	2.32	C	85%	3828.90	5313.52	1	4/21/2023
0.05	566	MDR	MDR	1.96	C/D	80%	3411.00	4656.00	1	4/19/2023
0.021	218	MDR	MDR	1.96	A	80%	3252.00	3872.00	1	4/12/2023
0.02	271	MDR	MDR	1.96	D	80%	4127.00	4532.00	1	4/11/2023
0.085	1,180	MDR	MDR	1.96	A	96%	5079.30	6827.20	1	4/11/2023
0.082	566	MDR	MDR	1.96	A	85%	3055.00	3579.00	1	4/7/2023
0.142	638	HDR	HDR	2.32	A	85%	4339.93	7986.62	1	4/5/2023
0.046	305	HDR	HDR	2.32	A	100%	3217.10	5310.40	1	3/30/2023
0.025	436	MDR	MDR	1.96	A	80%	4556.00	5721.00	1	3/28/2023
0.039	697	MDR	MDR	1.96	D	85%	11282.00	12616.00	1	3/21/2023
0.253	1,045	MDR	MDR	1.96	A	81%	3415.00	4827.00	1	3/10/2023
0.06	717	MDR	MDR	1.96	A	100%	2634.20	3739.30	1	3/8/2023
0.081	874	MDR	MDR	1.96	D	96%	2553.20	3815.20	1	2/21/2023
0.105	915	MDR	MDR	1.96	A	85%	4374.00	4974.00	1	2/14/2023
0.113	908	HDR	HDR	2.32	A	85%	2254.00	4934.00	1	2/10/2023
0.018	527	MDR	MDR	1.96	A	80%	2205.30	2505.10	1	2/8/2023

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.07	614	MDR	MDR	1.96	A	85%	7200.22	6767.76	2	2/6/2023
0.02	416	MDR	MDR	1.96	A	80%	5581.00	6231.00	1	2/3/2023
0.026	541	MDR	MDR	1.96	C	96%	2364.60	3460.10	1	1/31/2023
0.078	763	MDR	MDR	1.96	C	85%	4736.95	3951.09	1	1/30/2023
0.202	1,011	HDR	HDR	2.32	A	80%	6462.00	8813.00	1	1/27/2023
0.054	466	MDR	MDR	1.96	A	85%	2458.86	2509.07	1	1/26/2023
0.064	349	HDR	HDR	2.32	C	85%	1536.00	3869.00	1	1/25/2023
0.051	626	MDR	MDR	1.96	B	80%	130.00	2430.00	1	1/18/2023
0.154	787	MDR	MDR	1.96	A	80%	6803.00	9017.00	1	1/18/2023
0.082	840	HDR	HDR	2.32	A	86%	1400.00	3986.00	1	1/18/2023
0.057	605	MDR	MDR	1.96	A	80%	3090.00	3560.00	1	1/18/2023
0.07	509	MDR	MDR	1.96	A	85%	3926.76	3364.35	1	1/12/2023
0.133	856	MDR	MDR	1.96	A	85%	3178.90	6100.90	1	1/3/2023
0.07	181	MDR	MDR	1.96	A	85%	3162.47	3518.18	1	1/3/2023
0.15	3,350	MDR	MDR	1.96	A	100%	13349.00	15347.00	2	12/22/2022
0.019	720	MDR	MDR	1.96	C/D	80%	4604.90	5487.60	1	12/21/2022
0.229	2,439	HDR	HDR	2.32	C	85%	5430.00	10546.00	1	12/19/2022
0.071	388	MDR	MDR	1.96	D	80%	2875.70	3080.20	1	12/7/2022
0.04	784	MDR	MDR	1.96	A	80%	3271.00	4911.00	1	12/6/2022
0.065	458	HDR	HDR	2.32	A	85%	2877.33	3024.11	1	12/1/2022
0.031	288	MDR	MDR	1.96	A	85%	2183.50	3549.80	1	12/1/2022
0.144	1,862	MDR	MDR	1.96	A	80%	4380.00	6658.00	1	11/28/2022
0.052	466	HDR	HDR	2.32	A	85%	2770.63	3574.46	1	11/23/2022
0.064	626	HDR	HDR	2.32	A	85%	2608.15	3105.49	1	11/21/2022
0.057	523	MDR	MDR	1.96	A	85%	1887.00	2502.00	1	11/21/2022
0.06	645	MDR	MDR	1.96	D	80%	2600.16	4178.25	1	11/15/2022
0.016	66	HDR	HDR	2.32	D	80%	2753.00	4377.00	1	11/4/2022
0.065	144	MDR	MDR	1.96	A	85%	0.00	2847.00	1	10/24/2022
0.09	375	HDR	HDR	2.32	C	80%	4764.40	5366.90	1	10/18/2022
0.027	191	MDR	MDR	1.96	A	80%	3448.00	3664.00	1	10/14/2022
0.027	628	MDR	MDR	1.96	C/D	80%	2784.65	3984.65	1	9/22/2022
0.029	60	MDR	MDR	1.96	D	80%	1403.00	2393.00	2	9/22/2022
0.034	280	MDR	MDR	1.96	A	96%	3313.00	4620.00	1	9/14/2022

Drainage Area (ac)	BMP Volume (ft^3)	Land Use (Provided)	Land Use	IA PLER	HSG	TSS Removal (%)	Pre IA Coverage (SF)	Post IA Coverage (SF)	Inspections	**Inspection Date**
0.091	1,089	MDR	MDR	1.96	A	85%	2869.00	4229.00	1	9/2/2022
0.272	1,426	MDR, HSG-D	MDR	1.96	C/D	85%	5512.00	8369.00	1	8/26/2022
0.079	458	HDR	HDR	2.32	A	85%	3776.00	3629.90	1	8/25/2022
0.321	5,089	MDR, HSG-B	MDR	1.96	D	85%	4834.00	10087.00	2	8/23/2022
0.071	550	MDR	MDR	1.96	A	85%	2131.10	3082.40	1	8/16/2022
0.094	784	MDR	MDR	1.96	A	85%	2226.00	3904.00	1	8/2/2022
0.045	460	HDR	HDR	2.32	A	80%	3825.90	3641.60	2	8/2/2022
0.055	597	MDR	MDR	1.96	A	80%	855.00	1370.00	1	8/1/2022
0.014	293	MDR	MDR	1.96	A	80%	2236.00	2904.00	1	8/1/2022
0.05	458	HDR	HDR	2.32	A	85%	3684.30	3476.00	1	7/29/2022
0.18	3,062	MDR	MDR	1.96	A	85%	5173.40	8425.50	2	7/29/2022
0.044	466	MDR	MDR	1.96	A	85%	2067.50	3964.56	3	7/28/2022
0.078	398	HDR	HDR	2.32	A	85%	1976.90	3702.90	1	7/25/2022
0.014	261	MDR	MDR	1.96	A	80%	1785.00	2162.00	1	7/22/2022
0.057	538	HDR	HDR	2.32	1/3A and 2/3C	80%	3523.00	3784.00	1	7/20/2022
0.107	2,936	MDR	MDR	1.96	B	85%	2006.10	4648.30	1	7/14/2022
0.067	458	MDR	MDR	1.96	A	85%	1780.06	3012.97	2	7/14/2022
0.09	566	MDR, HSG-D	MDR	1.96	A	85%	3165.00	4031.00	1	7/5/2022
0.053	471	MDR	MDR	1.96	C	85%	2627.00	3296.00	2	7/1/2022
0.076	152	MDR	MDR	1.96	A	85%	1855.10	3195.70	1	7/1/2022
0.066	505	MDR	MDR	1.96	A	85%	2485.40	3802.81	1	6/28/2022
0.094	1,571	MDR, HSG-B	MDR	1.96	D	85%	2837.00	6602.00	2	6/24/2022
0.119	784	MDR	MDR	1.96	A	80%	2752.00	5150.00	1	5/5/2022
0.121	695	MDR	MDR	1.96	A	85%	5658.00	8382.00	1	5/5/2022
1.24	10,289	HDR	HDR	2.32	A	80%	33227.00	63595.00	1	9/1/2021

Total Phosphorus Removed YTD by Constructed SCMs =	**-62.15**
Anticipated by SCMs Pending Construction =	**-41.11**

Attachment 4: O&M Program Documentation

Fall 2023 Structural SCM Inspection Report

Spring 2024 Structural SCM Inspection Report

SCM Outreach Brochure

Minimum Control Measure 1 & 2 Documentation

Summary of Existing BMPs and Inspections

Fall 2023 (*Revised January 2024)*

The City of Newton, in a collective effort to mitigate nutrient runoff and flooding on municipally owned properties, possesses approximately 25 structural BMPs (Best Management Practices) for controlling stormwater volume during rain events with more pending installation. These structural BMPs are comprised of Infiltration Trenches/Basins, Bio-Filtration Processes such as Tree Box Filters and Bio-swales, and applications of Porous Pavement to mitigate impervious surface area on city-owned parcels. As of October 2023, the combined BMP Phosphorus reduction stands at approximately -25.88 lbs/yr removed from entering the Charles River Watershed. Regular inspection and maintenance of these structural BMPs are critical for maintaining confidence in the city's nutrient reduction targets set by the EPA's Phosphorus TMDL (Total Maximum Daily Load) for the Charles River Watershed.

The following is a summary of inspection logs for all the accredited BMPs reported out to the EPA as part of the FY23 Year 5 MS4/NPDES Annual Report that can be found on the City of Newton's Stormwater Management Webpage. Unless stated otherwise, Inspections are carried out approximately 24hrs after a rain event or weather permitting to properly assess drainage function. BMPs that have not fully drained are returned to the following day to gauge drainage via measuring depth of water and assessing need for corrective actions.

Properties inspected are as follows: Angier Elementary School, Cabot Elementary School, Carr/Horace Mann Elementary School, Crystal Lake Bath House, Elliot St/Cook's Bridge, F.A. Day Middle School, Fire Station #3, Fire Station #10, Franklin Elementary School, Newton Early Childhood Program, Newton North High School. Newton Public Library, Newton South High School, and Zervas Elementary School.

Inspection findings as of the date of this report are presented visually as follows with respective department:

Black – SCM is functioning as intended, no corrective action necessary.

Italics – Inspection of the site found uncredited SCMs for possible Phosphorus reduction.

Blue – Preventative measure suggestions to maintain optimal SCM function (DPW/PRC).

Red – SCM requires cleaning or other corrective action to function as intended (DPW/PRC).

Green – SCM has since been cleaned or maintained and is functioning as intended.

1. Angier Elementary School (1697 Beacon St)

Description of Site:

Angier Elementary School located at 1697 Beacon St in Waban features 2x structural BMPs in the form of Infiltration Basins in the front and back parking lots of the school both fitted with Water Quality Structures (WQSs) designed to minimize sediment accumulation and extended the function lifespan of the BMPs.

Both Infiltrations were inspected 24hrs post storm on **September 14th, 2023**. All systems and school grounds were in good condition. WQS for both basins could be cleaned of any floating trash however there is little risk to the health of either system (DPW).

Infiltration Basin #1 (IB-1) # of Inspection Points: 5

Drainage Area: 0.681ac BMP Storage Volume: 4,989ft^3 TP Removed: 1.21 lbs/yr

System located behind school servicing impervious parking lot and roof drain runoff from school building. All four access manholes were inspected and found to be dry/moist 24hrs after rain with minimal sediment accumulation and no standing water. The WQS for this system had standing water in the sump with floating trash that was prevented from entering the infiltration basin. System in good standing and fully functional.

Infiltration Basin #2 (IB-2) # of Inspection Points: 7

Drainage Area: 1.158ac BMP Storage Volume: 10,469ft^3 TP Removed: 2.06 lbs/yr

System located in front of school servicing impervious parking lot, bus loop, and roof drain runoff from school building. All six access manholes were inspected and found to be dry/moist 24hrs after rain with minimal sediment accumulation and no standing water. The WQS for the system had standing water in the sump with floating trash that was prevented from entering the infiltration basin. System in good standing and fully functional.

2. Cabot Elementary School (229 Cabot St)

Description of Site:

Cabot Elementary School located at 229 Cabot St in Newtonville features 5x structural BMPs in the form of an Infiltration Basin, Porous Pavement, and 3x Tree Box Filters located in the front courtyard of the school and both parking lots. Infiltration Basin is fitted with 2x WQSs to minimize sediment accumulation and extend the functional lifespan of the BMP.

All structural BMPs were inspected 24hrs post storm on **August 31st, 2023**. Systems were in passable condition and appeared to be functioning as intended. All Tree Box Filters, while functional could have encroaching shrubbery trimmed back (PRC) and have pipes capped with a screen to prevent build-up of solid matter and animal life from entering the greater drainage system (DPW). *Upon inspection of this site there appears to be multiple BMPs installed that have not had their Phosphorus reduction calculated or accounted for such as an Infiltration Trench network connecting numerous catch basins on the east side of the property and porous playground surfacing.*

Infiltration Basin #1 (IB-1) # of Inspection Points: 6

Drainage Area: 0.498ac BMP Storage Volume: 3,211ft^3 TP Removed: 0.60 lbs/yr

System located in front of school main entrance servicing: courtyard, car loop, street, and roof drain runoff from building. All four access manholes were inspected and found to be dry 24hrs after rain with minimal sediment accumulation and no standing water. A raccoon was found taking residence within IB-1. Though it is not *necessarily* impacting drainage function there is a concern of how wildlife may enter the system (DPW). Both WQSs had standing water in the sump but appeared to be functioning accordingly to keep settled sediment from entering the basin. System in decent standing and fully functional.

Tree Box Filter #1 (TBF-1) # of Inspection Points: 1

Drainage Area: 0.06ac BMP Storage Volume: 109ft^3 TP Removed: 0.04 lbs/yr

Filter located in small front of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation.

Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe was clear of debris. System in good standing and fully functional.

Tree Box Filter #2 (TBF-2) # of Inspection Points: 1

Drainage Area: 0.110ac BMP Storage Volume: 200ft^3 TP Removed: 0.08 lbs/yr

Filter located closest to street in large back of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation. Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe had trace debris but no standing water to imply impact to function, precautionary cleaning is suggested (DPW). Encroaching decorative shrubs atop filter may begin to hinder long term function of system (PRC). System in decent standing and fully functional.

Tree Box Filter #3 (TBF-3) # of Inspection Points: 1

Drainage Area: 0.119ac BMP Storage Volume: 162ft^3 TP Removed: 0.07 lbs/yr

Filter is located closest to playground in large back of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation. Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe was clear of debris. Encroaching decorative shrubs atop filter may begin to hinder long term function of system (PRC). System in decent standing and fully functional.

Porous Pavement #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.031ac BMP Storage Volume: N/A TP Removed: 0.03 lbs/yr

Porous Pavement area in small east courtyard of the building between the two parking lots along Bridges Avenue. Condition of pavement and surroundings were good with minimal litter impacting drainage function. System in good standing and fully functional.

3. Carr/Horace Mann School (225 Nevada St)

Description of Site:

Carr/Horace Mann Elementary School located at 225 Nevada St in Nonantum features 1x structural BMP in the form of a combination Infiltration Trench/Dry Well located within the bus loop.

BMP was inspected 24hrs post storm on **September 19th, 2023**. System and school grounds were in good condition. Trench drains in bus loop should have invasive plants removed before they can establish root systems within the infiltration trench (DPW). *Upon inspection of this site there appears to be a WQS located within the parking lot that directly connects to the MS4 in Nevada St. The purpose of this structure is to capture sediment runoff from the parking lot and has not been assessed for possible Phosphorus reduction.*

Infiltration Trench #1 (IT-1) # of Inspection Points: 5

Drainage Area: 0.105ac BMP Storage Volume: 212ft^3 TP Removed: 0.14 lbs/yr

Infiltration Trench located within grass strip of bus loop off Nevada St. The system features a drywell centered between two halves of an infiltration trench connecting trench drains on both ends of the bus loop. All three manholes were inspected, and the central drywell was dry with minimal accumulating debris while both end of the trench had standing water in the sump below the trench lateral. Each trench drain in the bus loop had accumulating sediment, enough for plants to take root.

4. Crystal Lake Bath House (30 Rogers St)

Description of Site:

Crystal Lake Bath House located at 30 Rogers St in Newton Centre features 1x structural BMP in the form an Infiltration Basin within the park field just north of the bath house. The infrastructure here is isolated from the MS4 and contains a Double Catch Basin, Trench Drain, Drain Manhole, and WQS.

BMP was inspected 24hrs post storm on **September 19th, 2023**. Park grounds were in poor condition. Parking lot was littered with tree waste and needed to be swept, Trench Drain on boat ramp was inundated with acorns and tree waste (Has since been swept and cleaned). Double Catch Basin sump full of sediment (DPW). WQS emptying to infiltration basin less than 50% full.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.367ac BMP Storage Volume: 600ft^3 TP Removed: 0.60 lbs/yr

Infiltration Basin located within grassy park area north of bath house building. Drain manhole and WQS inspected for accumulated sediment, neither of which were over 50% full, both were in good standing. The Double Catch Basin had its sump full of sediment up to the invert (DPW). Trench Drain located on boat ramp was completely clogged (Has since been swept and cleaned).

5. Elliot St/Cook's Bridge (Needham – Newton Border)

Description of Site:

Elliot St/Cook's Bridge located at the Newton/Needham boundary over the Charles River in Newton Upper Falls features 1x structural BMP in the form of a Gravel Water Quality Swale which infiltrates and directs runoff from Elliot St north of the bridge towards the Charles River.

The BMP was inspected 24hrs post storm on **September 19th, 2023**. Roadway contributing to runoff was in good condition. Gravel Swale in poor condition, completely overgrown with Japanese Knotweed. Complex herbicide and manual removal program will need to be collaborated on between DPW and PRC.

Gravel Water Quality Swale #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.071ac BMP Storage Volume: 780ft^3 TP Removed: 0.15 lbs/yr

Gravel Swale located north of Elliot St on DCR owned land Southwest of Echo Bridge Mall servicing runoff from Elliot St. The Swale allows for infiltration of stormwater and is banked to direct overflow into the Charles River. The design of the swale makes management of invasive Japanese Knotweed very difficult as herbicide is deadly to aquatic life. Discussions between DPW and PRC are needed to determine a path forward.

6. F.A. Day Middle School (21 Minot Pl)

Description of Site:

F.A. Day Middle School located at 21 Minot Pl in Nonantum features 1x structural BMP in the form of an Infiltration Trench placed underneath the main entrance. 3x WQS are located throughout the site with two in the main bus loop and parking area and one in the back of the school by staff parking to mitigate accumulation of sediment throughout the drainage network and infiltration trench.

The BMP was inspected 24hrs post storm on **September 26th, 2023.** System and school grounds were in good condition and appear to be functioning as intended. No corrective actions necessary.

Infiltration Trench #1 (IT-1) # of Inspection Points: 5

Drainage Area: 0.109ac BMP Storage Volume: 447ft^3 TP Removed: 0.19 lbs/yr

Infiltration Trench located beneath main entrance area of the school with access manholes for each end of the perforated corrugated plastic pipe. Both ends had standing water in the sump up to the invert of the CPP with minimal sediment within the trench. All WQSs were inspected with standing water below invert apart from the back parking lot structure. No WQS featured considerable sediment accumulation to warrant cleaning at this time.

7. Fire Station #3 (25 Willow St)

Description of Site:

Fire Station #3 located at 25 Willow St in Newton Centre features 2x structural BMPs in the form of Infiltration Basins beneath the parking lot and grass along Willow St. Both basins feature WQSs to mitigate sediment accumulation.

All structural BMPs were inspected 24hrs post storm on **August 31st, 2023**. System and grounds were in relatively poor standing. Trench drains have begun to accumulate considerable sediment in both driveways with plants taking root and leaves clogging removable filter. WQSs in Centre St and Willow St driveways have collected considerable sediment warranting cleanouts, with the WQS in the parking lot inaccessible during time of inspection due to parked car but can be assumed to need cleanout as well (DPW).

Infiltration Basin #1 (IB-1) # of Inspection Points: 5

Drainage Area: ~0.57ac BMP Storage Volume: ~1,328ft^3 TP Removed: ~0.71 lbs/yr

Infiltration Basin located within main parking lot off Willow St servicing runoff from Centre St driveway, main parking lot, and roof drains. Access manhole was inspected with standing water up to the CPP lateral with minimum accumulated sediment in sump. WQS and associated trench drains were inspected on Centre St driveway side. Trench drains have sediment accumulation to allow plants to take root and should be cleaned. WQS in Centre St driveway has sediment accumulated up to the top of clean out and should be arranged to be cleaned out via vac truck (DPW).

Infiltration Basin #2 (IB-2) # of Inspection Points: 2

Drainage Area: ~0.57ac BMP Storage Volume: ~1,328ft^3 TP Removed: ~0.71 lbs/yr

Infiltration Basin located within grass area along Willow St servicing runoff from Willow St driveway and roof drains. No access manhole was designed to directly inspect the infiltration basin, as such the associated WQS and trench drains were inspected in place. Trench drain connected to IB-2 features a removable filter which has accumulated considerable leaves and sediment, should be easy to clean. Associated WQS considerably full of sediment and should be arranged to be cleaned out via vac truck (DPW).

Porous Pavement #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.067ac BMP Storage Volume: N/A TP Removed: 0.07 lbs/yr

Porous Pavement in the form of parking stalls located in main parking lot. Parking lot was in good condition and did not indicate any need to be vacuumed.

8. Fire Station #10 (775 Dedham St)

Description of Site:

Fire Station #10 located at 775 Dedham St in Oak Hill features 3x structural BMPs in the form of an Infiltration Basin and 2x Leaching Catch Basins on either side of the station building.

All structural BMPs were inspected 24hrs post storm on **August 31st, 2023,** and **October 31st, 2023**. Systems and grounds were in good condition.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.490ac BMP Storage Volume: 3,610ft^3 TP Removed: 0.86 lbs/yr

Infiltration Basin located beneath center grounds servicing runoff captured by central catch basin and roof drains. All four access manholes inspected were dry and had no standing water with minimal to no sediment accumulation. System is in good standing and fully functional.

Leaching Catch Basin #1 (LCB-1) # of Inspection Points: 1

Drainage Area: ~0.0685ac BMP Storage Volume: ~216ft^3 TP Removed: ~0.095 lbs/yr

Leaching Catch Basin located along south perimeter of station lot servicing primarily pervious area runoff. Upon inspection, the catch basin grate was cleaned of any leaf matter atop and the bottom of the galley system was clear of any standing water with minimal sediment accumulation. System is in good standing and fully functional.

Leaching Catch Basin #2 (LCB-2) # of Inspection Points: 1

Drainage Area: ~0.0685ac BMP Storage Volume: ~216ft^3 TP Removed: ~0.095 lbs/yr

Leaching Catch Basin is located along north perimeter of station building servicing primarily pervious area runoff. Upon inspection, the catch basin appeared to have a silt sack installed with moderate accumulation of vegetation and debris but no standing water. Punching a small hole in the filter allowed for a depth measurement and to check for any standing water in the galley system below. System was dry with no sediment accumulation. Silt sack was left in place as system was functioning perfectly fine with it.

9. Franklin Elementary School (125 Derby St)

Description of Site:

Franklin Elementary School located at 125 Derby St in West Newton features 1x structural BMP in the form of a Dry Well within the playground area on the east side of the school. The Dry Well is connected to a Catch Basin capturing runoff from the sidewalk and roof drains.

The structural BMP was inspected 24hrs post storm on **September 12th, 2023.** System and grounds were in poor standing. The Catch Basin directing runoff to the Dry Well has approximately 1.5ft of sediment clogging inverts, backing up roof drains, and flooding the respective wing of the Franklin School. The Dry Well in the playground also accumulated about a half foot of sediment and had standing water 24hrs post rain. This site is a high priority clean out operation (DPW). Catch Basin and Dry Well have since been cleaned and system function has been totally restored.

Dry Well #1 (DW-1) # of Inspection Points: 2

Drainage Area: 0.157ac BMP Storage Volume: 2,430ft^3 TP Removed: 0.20 lbs/yr

The Dry Well, located beneath the playground area on the east side of the school features impressive storage volume as it utilizes gravel filled cells that wrap around the playground structure beneath the surface. The Dry Well services the nearby Catch Basin that captures runoff from the sidewalk and roof drains. Upon inspection, the Catch Basin was filled with approximately 1.5ft of sediment, thoroughly clogging the inverts, backing up drainpipes, and ultimately preventing the system from ever functioning. Multiple flooding events have been noted at the property prior to inspection. The Dry Well also featured approximately .5ft of sediment and standing water warranting a clean out of both features on site (DPW).

Catch Basin and Dry Well have since been cleaned and system function has been totally restored.

10. Newton Early Childhood Program (687 Watertown St)

Description of Site:

Newton Early Childhood Program (NECP) Building located at 687 Watertown St in Nonantum features 1x structural BMP in the form of an Infiltration Basin beneath the Bus Lane on the east side of the building. 3x WQSs service the stormwater runoff throughout the property prior to the Infiltration Basin.

The structural BMP was inspected 24hrs post storm on **September 19th, 2023.** System and grounds were in good standing. Two of the Three WQSs were inaccessible during time of inspection as the NECP was ending for the day and buses and vehicles were covering WQSs. Upon inspection of the Infiltration Basin and immediate WQS the site appeared to be clean and functioning as intended.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.153ac BMP Storage Volume: 765ft^3 TP Removed: 0.23 lbs/yr

The Infiltration Basin, located beneath the bus lane on the east side of the NECP building services impervious and pervious stormwater runoff throughout the building parking lot and playground area. Upon inspection, the Infiltration Basin had clean, clear standing water below the weir which spills over into the infiltration cells. Associated WQS closest to the Infiltration Basin was also clean with standing water up to the invert which tying directly to Infiltration Basin access manhole. The other two WQSs on the property were inaccessible during time of inspection due to vehicles. System appeared in good condition and fully functional.

11. Newton North High School (457 Walnut St)

Description of Site:

Newton North High School located at 457 Walnut St in Newtonville features 1x structural BMPs in the form of an Infiltration Basin beneath the synthetic turf field. The system is difficult to access drainage function as it is only accessible through CCTV investigations of the trench drains around the synthetic field with no designated clean out.

The Infiltration Basin was inspected via CCTV on **September 5th, 2023,** solicited by Newton's Parks, Recreation, and Culture Department. Review of the CCTV footage indicated numerous inverts clogged with accumulating sediment with no clear means of removal. Function of the system is questionable considering PRC's concern with stormwater pooling atop the synthetic turf field. Further discussion is advised.

Infiltration Basin #1 (IB-1) # of Inspection Points: 7

Drainage Area: 8.938ac BMP Storage Volume: 36,750ft^3 TP Removed: 10.18 lbs/yr

Infiltration Basin #1 located beneath the synthetic turf field primarily services the roof runoff from the school building including the cafeteria courtyard area between the field and building via a trench drain. Inspecting this system is difficult as there are no clear inspection ports within the synthetic field besides the tributary trench drains which require CCTV investigation to access. Investigations were conducted at 7 different drainage points and many exhibit accumulated sediment resulting in water pooling in the pipes prior to reaching the Infiltration Basin. It is unclear whether sediment accumulation has impacted storage capacity of the system.

12. Newton Public Library (30 Homer St)

Description of Site:

Newton Public Library located at 330 Homer St in Newton Centre features 3x structural BMPs in the form of a complex network of Infiltration Trenches connecting various catch basins and drain manholes as well as large stretches of Porous Pavement that wrap around the perimeter of the parking lot. Lastly, all runoff congregates in a rain garden off the side of the parking lot which infiltrates into the soil over time and overflows into the City Hall ponds across Homer St.

All structural BMPs were inspected 48hrs post storm on **September 27th, 2023.** System and grounds were in relatively good condition. This site has a history of flooding during high rain events as the rain garden relies on an overflow connection to the City Hall ponds which are in need to be dredged of sediment to increase storage volume.

Infiltration Trench Network and Rain Garden #1 (IT-1) # of Inspection Points: 20

Drainage Area: 1.82ac BMP Storage Volume: 1,996ft^3 TP Removed: 2.08 lbs/yr

The Infiltration Trench Network connects all the catch basins and drain manholes throughout the Newton Library Parking Lot providing opportunities for groundwater recharge while directing flow of stormwater to a central Rain Garden which further overflows to the City Hall Ponds across Homer St. All associated catch basins and drain manholes were inspected, many of which had a couple inches of sediment and standing water. However, none exhibited concerning amounts of sediment and were well below the 50% full threshold to warrant cleaning. DMH-7 Directly ties level to OF-3 within the rain garden, this results in backflow from the rain garden into the Infiltration Trench System. Otherwise, system is in good standing and is functional.

Porous Pavement #1 (PP-1) # of Inspection Points: 2

Drainage Area: 0.251ac BMP Storage Volume: N/A TP Removed: 0.34 lbs/yr

The Porous Pavement lines the south and west perimeter of the Library Parking lot, allowing for infiltration into porous pipe beneath which tie into the Infiltration Trench Network. Upon inspection, both stretches of Porous Pavement appeared in good condition with the west corner stretch beginning to accumulate pine needs and other fall tree litter and could benefit from being vacuum cleaned (DPW).

13. Newton South High School (140 Brandeis Rd)

Description of Site:

Newton South High School is located at 140 Brandeis Rd in Oak Hill and features 2x structural BMPs in the form of 2x Infiltration Basins in the west lot of the school and between the school building and athletic fields. The HSG grade here is particularly poor and doesn't infiltrate into the ground very well compared to other BMPs throughout the City. Follow up visits were necessary to gauge BMP function.

All structural BMPs were inspected 24-48hrs post storm on **September 26th-27th, 2023.** System and grounds were in adequate standing. IB-1 in the west lot had standing water despite dropping a foot between visits. Cleaning may or may not have an impact on increasing infiltration capabilities as the HSG soils are poor to begin with (DPW). IB-2 was dry 24hrs post storm and is fully functional.

Infiltration Basin #1 (IB-1) # of Inspection Points: 1

Drainage Area: ~0.75ac BMP Storage Volume: ~513ft^3 TP Removed: ~0.67 lbs/yr

Infiltration Basin #1 located in the west lot of the school by the playground turnaround island is an impressive 15ft below the lot pavement and primarily services roof drain runoff. Basin structure had approximately 6ft of standing water and at least 3 inches of accumulated sediment. Returned 48hrs after storm to gauge depth of standing water and found that it dropped by 1ft, a determination was made based on HSG soil quality that the system, while slow, is still functional and its storage capacity has not been hindered. Cleaning the system may improve function but is likely to prove immensely difficult considering its depth and the resulting bump in infiltration rate is unlikely to make much of a difference (DPW).

Infiltration Basin #2 (IB-2) # of Inspection Points: 1

Drainage Area: ~0.75ac BMP Storage Volume: ~513ft^3 TP Removed: ~0.67 lbs/yr

Infiltration Basin #2 located between the back of the school building and athletic fields primarily services roof drain runoff. Basin structure was dry 24hrs post storm with minimal sediment accumulation. System fully functional.

14. Zervas Elementary School (30 Beethoven Ave)

Frank Zervas Elementary School located at 30 Beethoven Ave in Waban features 3x structural BMPs in the form of two Bio-swales within the grass strips in main parking lot area and an area of Porous Pavement south of the building. *It appears that application of permeable playground surfacing for playgrounds in the front and rear of the building.as a possible BMP has not yet been considered.*

All structural BMPs were inspected 24hrs-48hrs post storm on **September 14th-15th, 2023.** Systems and grounds were in relatively good condition but could use some basic maintenance from PRC staff. Bio-swale #1 had vegetation growth encroaching around the catch basin making access difficult. Both Bio-swales had several pieces of trash that could be removed (PRC). Bio-swale #1 had standing water 24hrs post storm and was returned to for a 48hr inspection to see that it was fully dry. Accumulating sediment sourced from parking lot could be at fault. All systems are in decent condition and fully functional.

Bio-Swale #1 (BS-1) # of Inspection Points: 3

Drainage Area: 0.407ac BMP Storage Volume: 2,093ft^3 TP Removed: 0.39 lbs/yr

Bio-Swale #1 is the far larger of the two swales within the grass strips of the parking lot primarily servicing impervious run off from the lot and bus loop. Inspection points included an assessment of the swale, catch basin drain, and manhole connection to property outfall. System in good condition with only suggestions being to trim back vegetation from catch basin and removal of accumulating trash (PRC).

Bio-Swale #2 (BS-2) # of Inspection Points: 3

Drainage Area: 0.395ac BMP Storage Volume: 343ft^3 TP Removed: 0.24 lbs/yr

Bio-Swale #2 is the smaller of the two swales within the grass strips of the parking lot primarily servicing impervious run off from the lot and bus loop. Inspection points included an assessment of the swale, catch basin drain, and manhole connection to property outfall. System in good condition with only suggestions being to remove accumulating trash (PRC).

Porous Pavement (PP-1) # of Inspection Points: 1

Drainage Area: 0.3ac BMP Storage Volume: N/A TP Removed: 0.33 lbs/yr

Porous Pavement application is within the strip by the emergency access behind the school. Pavement is in good condition and does not have any need to be swept/clean.

Maintenance Summary

Angier Elementary School

- Trash could be cleaned out of WQS for both Infiltration Basins. (DPW)

Cabot Elementary School

- Pipes leaving Tree-box Filters could have grate installed to prevent sediment from entering (DPW)
- Encroaching vegetation should be cut back from Tree-box Filters (PRC)

Carr/Horace Mann Elementary School

- Trench drains could have sediment and plants removed (DPW)

Crystal Lake Bath House

- Double Catch basin in parking lot must be cleaned out (DPW)

Elliot St/Cook's Bridge

- Coordinate with PRC on removal of Japanese Knotweed via careful herbicide application and manual removal (DPW & PRC)

F.A. Day Middle School

- No maintenance necessary as of now

Fire Station #3

- Trench drains and all WQS should be considered for clean out (DPW)

Fire Station #10

- No maintenance necessary as of now

Franklin Elementary School

- Catch basin and Drywell have since been cleaned and system is fully operational (DPW)

Newton Early Childhood Program

- No maintenance necessary as of now

Newton North High School

- Further inspection of the Infiltration Basin for clean out feasibility and drain lines should be flushed. (DPW)

Newton Public Library

- Porous pavement should be vacuum cleaned. (DPW)

Newton South High School

- Infiltration Basin #1 should be inspected during dry weather conditions to access level of sediment and access whether cleaning is necessary (DPW)

Zervas Elementary School.

- Vegetation could be cut back from catch basin in BS-1 to improve access (PRC)
- Trash should be removed from both Bio-swales. (PRC)

Summary of Existing BMPs and Inspections

August 2024

The City of Newton, in a collective effort to mitigate nutrient runoff and flooding on municipally owned properties, possesses approximately **33** structural BMPs (Best Management Practices) for controlling stormwater volume during rain events with more pending installation. These structural BMPs are comprised of Infiltration Trenches/Basins, Bio-Filtration Processes such as Tree Box Filters and Bio-swales, and applications of Porous Pavement to mitigate impervious surface area on city-owned parcels. As of **August 2024**, the combined BMP Phosphorus reduction stands at approximately **-31.30 lbs/yr** removed from entering the Charles River Watershed. Regular inspection and maintenance of these structural BMPs are critical for maintaining confidence in the city's nutrient reduction targets set by the EPA's Phosphorus TMDL (Total Maximum Daily Load) for the Charles River Watershed.

The following is a summary of inspection logs for all the accredited BMPs reported out to the EPA as part of the **FY24 Year 6 MS4/NPDES Annual Report** that can be found on the City of Newton's Stormwater Management Webpage. Unless stated otherwise, Inspections are carried out approximately 24hrs after a rain event or weather permitting to properly assess drainage function. BMPs that have not fully drained are returned to the following day to gauge drainage via measuring depth of water and assessing need for corrective actions.

Properties inspected are as follows: Angier Elementary School, Cabot Elementary School, Carr/Horace Mann Elementary School, Crystal Lake Bath House, Elliot St/Cook's Bridge, F.A. Day Middle School, Fire Station #3, Fire Station #10, Franklin Elementary School, Newton Early Childhood Program, Newton North High School. Newton Public Library, Newton South High School, Zervas Elementary School, **Crafts/Walnut St Intersection, Pearl St Lot, McGrath Tennis Courts,** and **Levington Cove**.

Inspection findings as of the date of this report are presented visually as follows with respective department:

Black – SCM is functioning as intended, no corrective action necessary.

Italics – Inspection of the site found uncredited SCMs for possible Phosphorus reduction.

Blue – Preventative measure suggestions to maintain optimal SCM function (DPW/PRC).

Red – SCM requires cleaning or other corrective action to function as intended (DPW/PRC).

Green – SCM has since been cleaned or maintained and is functioning as intended.

Needed Maintenance Summary

Angier Elementary School

- WQS recommended to be cleaned out of trash/debris (Utilities)

Cabot Elementary School

- Trees in Tree Box Filters appear dead, may need to be replaced (PRC)
- Encroaching shrubbery should be trimmed back from Tree Box Filters (PRC)
- Inverts in Tree Box Filters should be capped to prevent accumulation of debris/animal access (Utilities)

Carr/Horace Mann Elementary School

- Trench drains in bus loop should be cleaned out of sediment and plant matter (Utilities)

Crystal Lake Bath House

- Cleaned August, 2024.

Elliot St/Cook's Bridge

- Restoration of swale in planning between DPW, PRC, Newton Conservators anticipated September/October 2024.

F.A. Day Middle School

- All WQS should be cleaned out due to presence of dead animal and accumulation of sediment (Utilities)

Fire Station #3

- All WQS and Trench drains should be cleaned out due accumulated sediment (Utilities)

Fire Station #10

- No action needed

Franklin Elementary School

- Cleaned November 15th, 2023

Newton Early Childhood Program

- No action needed

Newton North High School

- Cleaned August 2nd, 2024.

Newton Public Library

- City Hall Ponds project completed May, 2024 increased overflow storage of system.
- Rain garden sediment around Outfall #3 should either be removed to prevent backflow into system or Outfall pipe should be raised. (Engineering/Utilities)

Newton South High School

- Sediment in Infiltration Basin 1 could be removed but is unlikely to improve function (Utilities)

Zervas Elementary School.

- Vegetation around Bio-swale catch basins could be trimmed back to improve access (PRC)

Crafts St/Walnut St Intersection

- Leaf matter and trash can be removed to improve aesthetics of BMP (PRC)

McGrath Tennis Courts

- No action needed

Pearl St Lot

- No action needed

Levingston Cove

- Leaf matter and debris can be removed from outfalls and rain gardens to improve conveyance. (PRC)
- Silt Sack on Rain Garden #4 needs to be replaced (PRC)

1. Angier Elementary School (1697 Beacon St)

Description of Site:

Angier Elementary School located at 1697 Beacon St in Waban features 2x structural BMPs in the form of Infiltration Basins in the front and back parking lots of the school both fitted with Water Quality Structures (WQSs) designed to minimize sediment accumulation and extended the function lifespan of the BMPs.

Both Infiltrations were inspected 24hrs post storm on **May 31st, 2024**. All systems and school grounds were in good condition. WQS for both basins could be cleaned of any floating trash however there is little risk to the health of either system.

Infiltration Basin #1 (IB-1) # of Inspection Points: 5

Drainage Area: 0.681ac BMP Storage Volume: 4,989ft^3 TP Removed: 1.21 lbs/yr

System located behind school servicing impervious parking lot and roof drain runoff from school building. All four access manholes were inspected and found to be dry/moist 24hrs after rain with minimal sediment accumulation and no standing water. The WQS for this system had standing water in the sump with floating trash that was prevented from entering the infiltration basin. System in good standing and fully functional.

Infiltration Basin #2 (IB-2) # of Inspection Points: 7

Drainage Area: 1.158ac BMP Storage Volume: 10,469ft^3 TP Removed: 2.06 lbs/yr

System located in front of school servicing impervious parking lot, bus loop, and roof drain runoff from school building. All six access manholes were inspected and found to be dry/moist 24hrs after rain with minimal sediment accumulation and no standing water. The WQS for the system had standing water in the sump with floating trash that was prevented from entering the infiltration basin. System in good standing and fully functional.

2. Cabot Elementary School (229 Cabot St)

Description of Site:

Cabot Elementary School located at 229 Cabot St in Newtonville features 5x structural BMPs in the form of an Infiltration Basin, Porous Pavement, and 3x Tree Box Filters located in the front courtyard of the school and both parking lots. Infiltration Basin is fitted with 2x WQSs to minimize sediment accumulation and extend the functional lifespan of the BMP.

All structural BMPs were inspected 24hrs post storm on **June 28th, 2024**. Systems were in passable condition and appeared to be functioning as intended. All Tree Box Filters possess seemingly dead trees. While functional, tree boxes could have encroaching shrubbery trimmed back and have pipes capped with a screen to prevent buildup of solid matter and animal life from entering the greater drainage system. Trace pieces of trash found in infiltration basin. *Upon inspection of this site there appears to be multiple BMPs installed that have not had their Phosphorus reduction calculated or accounted for such as an Infiltration Trench network connecting numerous catch basins on the east side of the property and porous playground surfacing.*

Infiltration Basin #1 (IB-1) # of Inspection Points: 6

Drainage Area: 0.498ac BMP Storage Volume: 3,211ft^3 TP Removed: 0.60 lbs/yr

System located in front of school main entrance servicing: courtyard, car loop, street, and roof drain runoff from building. All four access manholes were inspected and found to be dry 24hrs after rain with minimal sediment accumulation and no standing water. Both WQSs had standing water in the sump but appeared to be functioning accordingly to keep settled sediment from entering the basin. System in decent standing and fully functional. Trace pieces of trash found in one inspection manhole with no impact to infiltration.

Tree Box Filter #1 (TBF-1) # of Inspection Points: 1

Drainage Area: 0.06ac BMP Storage Volume: 109ft^3 TP Removed: 0.04 lbs/yr

Filter located in small front of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation.

Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe was clear of debris. System in good standing though planted tree appears dead.

Tree Box Filter #2 (TBF-2) # of Inspection Points: 1

Drainage Area: 0.110ac BMP Storage Volume: 200ft^3 TP Removed: 0.08 lbs/yr

Filter located closest to street in large back of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation. Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe had trace debris but no standing water to imply impact to function, precautionary cleaning is suggested. Encroaching decorative shrubs atop filter may begin to hinder long term function of system. System in good standing though planted tree appears dead.

Tree Box Filter #3 (TBF-3) # of Inspection Points: 1

Drainage Area: 0.119ac BMP Storage Volume: 162ft^3 TP Removed: 0.07 lbs/yr

Filter is located closest to playground in large back of school parking lot servicing runoff from said area. The Tree Box was inspected for foreign object accumulation in sump and pipe was inspected for any sediment accumulation. Though no foreign objects were present in the Tree Box sump, there was a moderate buildup of leaf litter. The pipe was clear of debris. Encroaching decorative shrubs atop filter may begin to hinder long term function of system. System in good standing though planted tree appears dead.

Porous Pavement #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.031ac BMP Storage Volume: N/A TP Removed: 0.03 lbs/yr

Porous Pavement area in small east courtyard of the building between the two parking lots along Bridges Avenue. Condition of pavement and surroundings were good with minimal litter impacting drainage function. System in good standing and fully functional.

3. Carr/Horace Mann School (225 Nevada St)

Description of Site:

Carr/Horace Mann Elementary School located at 225 Nevada St in Nonantum features 1x structural BMP in the form of a combination Infiltration Trench/Dry Well located within the bus loop.

BMP was inspected 24hrs post storm on **May 17th, 2024**. System and school grounds were in good condition. Trench drains in bus loop should have invasive plants removed before they can establish root systems within the infiltration trench. *Upon inspection of this site there appears to be a WQS located within the parking lot that directly connects to the MS4 in Nevada St. The purpose of this structure is to capture sediment runoff from the parking lot and has not been assessed for possible Phosphorus reduction.*

Infiltration Trench #1 (IT-1) # of Inspection Points: 5

Drainage Area: 0.105ac BMP Storage Volume: 212ft^3 TP Removed: 0.14 lbs/yr

Infiltration Trench located within grass strip of bus loop off Nevada St. The system features a drywell centered between two halves of an infiltration trench connecting trench drains on both ends of the bus loop. All three manholes were inspected, and the central drywell was dry with minimal accumulating debris while both end of the trench had standing water in the sump below the trench lateral. Each trench drain in the bus loop had accumulating sediment, enough for plants to take root.

4. Crystal Lake Bath House (30 Rogers St)

Description of Site:

Crystal Lake Bath House located at 30 Rogers St in Newton Centre features 1x structural BMP in the form an Infiltration Basin within the park field just north of the bath house. The infrastructure here is isolated from the MS4 and contains a Double Catch Basin, Trench Drain, Drain Manhole, and WQS.

BMP was inspected 24hrs post storm on **September 19th, 2023**. Park grounds were in good condition. Double Catch basin and Trench drain marked for maintenance has since been cleaned of sediment. WQS emptying to infiltration basin less than 50% full.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.367ac BMP Storage Volume: 600ft^3 TP Removed: 0.60 lbs/yr

Infiltration Basin located within grassy park area north of bath house building. Drain manhole and WQS inspected for accumulated sediment, neither of which were over 50% full, both were in good standing. All inlets cleared and fully functional.

5. Elliot St/Cook's Bridge (Needham – Newton Border)

Description of Site:

Elliot St/Cook's Bridge located at the Newton/Needham boundary over the Charles River in Newton Upper Falls features 1x structural BMP in the form of a Gravel Water Quality Swale which infiltrates and directs runoff from Elliot St north of the bridge towards the Charles River.

The BMP was inspected 24hrs post storm on **May 17th, 2024**. Roadway contributing to runoff was in good condition. Gravel Swale in poor condition, completely overgrown with Japanese Knotweed. Restoration plan in works in partnership between DPW, PRC, and Newton Conservators anticipated for September/October 2024.

Gravel Water Quality Swale #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.071ac BMP Storage Volume: 780ft^3 TP Removed: 0.15 lbs/yr

Gravel Swale located north of Elliot St on DCR owned land Southwest of Echo Bridge Mall servicing runoff from Elliot St. The Swale allows for infiltration of stormwater and is banked to direct overflow into the Charles River. Swale is overgrown with Knotweed, restoration plan in works in partnership between DPW, PRC, and Newton Conservators anticipated for September/October 2024.

6. F.A. Day Middle School (21 Minot Pl)

Description of Site:

F.A. Day Middle School located at 21 Minot Pl in Nonantum features 1x structural BMP in the form of an Infiltration Trench placed underneath the main entrance. 3x WQS are located throughout the site with two in the main bus loop and parking area and one in the back of the school by staff parking to mitigate accumulation of sediment throughout the drainage network and infiltration trench.

The BMP was inspected 24hrs post storm on **August 8th, 2024**. System and school grounds were in suboptimal condition. All WQS structures are recommended to be cleaned out due to accumulated sediment. None of which indicated sediment up to the invert elevation able to make its way down stream to BMP. WQS in staff parking lot had a large floating unidentifiable animal carcass and should be cleaned immediately.

Infiltration Trench #1 (IT-1) # of Inspection Points: 5

Drainage Area: 0.109ac BMP Storage Volume: 447ft^3 TP Removed: 0.19 lbs/yr

Infiltration Trench located beneath main entrance area of the school with access manholes for each end of the perforated corrugated plastic pipe. Both ends had standing water in the sump up to the invert of the CPP with minimal sediment within the trench. All WQSs were inspected with standing water below invert apart from the staff parking lot structure. WQSs had more accumulated sediment and should be cleaned. Dead animal found in WQS in staff parking lot, clean asap.

7. Fire Station #3 (25 Willow St)

Description of Site:

Fire Station #3 located at 25 Willow St in Newton Centre features 2x structural BMPs in the form of Infiltration Basins beneath the parking lot and grass along Willow St. Both basins feature WQSs to mitigate sediment accumulation.

All structural BMPs were inspected 24hrs post storm on **May 17th, 2024**. System and grounds were in relatively poor standing. Trench drains have begun to accumulate considerable sediment in both driveways with plants taking root and leaves clogging removable filter. WQSs in Centre St and Willow St driveways have collected considerable sediment warranting cleanouts, with the WQS in the parking lot inaccessible during time of inspection due to parked car but can be assumed to need cleanout as well. No action has been taken since October's report.

Infiltration Basin #1 (IB-1) # of Inspection Points: 5

Drainage Area: ~0.57ac BMP Storage Volume: ~1,328ft^3 TP Removed: ~0.71 lbs/yr

Infiltration Basin located within main parking lot off Willow St servicing runoff from Centre St driveway, main parking lot, and roof drains. Access manhole was inspected with standing water up to the CPP lateral with minimum accumulated sediment in sump. WQS and associated trench drains were inspected on Centre St driveway side. Trench drains have sediment accumulation to allow plants to take root and should be cleaned. WQS in Centre St driveway has sediment accumulated up to the top of clean out and should be arranged to be cleaned out via vac truck.

Infiltration Basin #2 (IB-2) # of Inspection Points: 2

Drainage Area: ~0.57ac BMP Storage Volume: ~1,328ft^3 TP Removed: ~0.71 lbs/yr

Infiltration Basin located within grass area along Willow St servicing runoff from Willow St driveway and roof drains. No access manhole was designed to directly inspect the infiltration basin, as such the associated WQS and trench drains were inspected in place. Trench drain connected to IB-2 features a removable filter which has accumulated considerable leaves and sediment, should be easy to clean. Associated WQS considerably full of sediment and should be arranged to be cleaned out via vac truck.

Porous Pavement #1 (PP-1) # of Inspection Points: 1

Drainage Area: 0.067ac BMP Storage Volume: N/A TP Removed: 0.07 lbs/yr

Porous Pavement in the form of parking stalls located in main parking lot. Parking lot was in good condition and did not indicate any need to be vacuumed.

8. Fire Station #10 (775 Dedham St)

Description of Site:

Fire Station #10 located at 775 Dedham St in Oak Hill features 3x structural BMPs in the form of an Infiltration Basin and 2x Leaching Catch Basins on either side of the station building.

All structural BMPs were inspected 24hrs post storm on **May 17th, 2024**. Systems and grounds were in good condition, no action needed.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.490ac BMP Storage Volume: 3,610ft^3 TP Removed: 0.86 lbs/yr

Infiltration Basin located beneath center grounds servicing runoff captured by central catch basin and roof drains. All four access manholes inspected were dry and had no standing water with minimal to no sediment accumulation. System is in good standing and fully functional.

Leaching Catch Basin #1 (LCB-1) # of Inspection Points: 1

Drainage Area: ~0.0685ac BMP Storage Volume: ~216ft^3 TP Removed: ~0.095 lbs/yr

Leaching Catch Basin located along south perimeter of station lot servicing primarily pervious area runoff. Upon inspection, the catch basin grate was cleaned of any leaf matter atop and the bottom of the galley system was clear of any standing water with minimal sediment accumulation. System is in good standing and fully functional.

Leaching Catch Basin #2 (LCB-2) # of Inspection Points: 1

Drainage Area: ~0.0685ac BMP Storage Volume: ~216ft^3 TP Removed: ~0.095 lbs/yr

Leaching Catch Basin is located along north perimeter of station building servicing primarily pervious area runoff. Upon inspection, the catch basin appeared to have a silt sack installed with moderate accumulation of vegetation and debris but no standing water. Punching a small hole in the filter allowed for a depth measurement and to check for any standing water in the galley system below. System was dry

with no sediment accumulation. Silt sack was left in place as system was functioning perfectly fine with it.

9. Franklin Elementary School (125 Derby St)

Description of Site:

Franklin Elementary School located at 125 Derby St in West Newton features 1x structural BMP in the form of a Dry Well within the playground area on the east side of the school. The Dry Well is connected to a Catch Basin capturing runoff from the sidewalk and roof drains.

The structural BMP was inspected 24hrs post storm on **June 24th, 2024.** System and grounds were in good standing, no action needed. Catch basin and Drywell were cleaned following October 2023 report.

Dry Well #1 (DW-1) # of Inspection Points: 2

Drainage Area: 0.157ac BMP Storage Volume: 2,430ft^3 TP Removed: 0.20 lbs/yr

The Dry Well, located beneath the playground area on the east side of the school features impressive storage volume as it utilizes gravel filled cells that wrap around the playground structure beneath the surface. The Dry Well services the nearby Catch Basin that captures runoff from the sidewalk and roof drains. System in good condition and fully functional.

10. Newton Early Childhood Program (687 Watertown St)

Description of Site:

Newton Early Childhood Program (NECP) Building located at 687 Watertown St in Nonantum features 1x structural BMP in the form of an Infiltration Basin beneath the Bus Lane on the east side of the building. 3x WQSs service the stormwater runoff throughout the property prior to the Infiltration Basin.

The structural BMP was inspected 24hrs post storm on **June 28th, 2024.** System and grounds were in good standing. Infiltration Basin has three WQSs upstream preventing sediment accumulation from impacting function of basin. Upon inspection of the Infiltration Basin and three WQSs the site appeared to be clean and fully functional, no action needed.

Infiltration Basin #1 (IB-1) # of Inspection Points: 4

Drainage Area: 0.153ac BMP Storage Volume: 765ft^3 TP Removed: 0.23 lbs/yr

The Infiltration Basin, located beneath the bus lane on the east side of the NECP building services impervious and pervious stormwater runoff throughout the building parking lot and playground area. Upon inspection, the Infiltration Basin had clean, clear standing water below the weir which spills over into the infiltration cells. All upstream WQSs were inspected and had minimal sediment accumulating with standing water up to the inverts. System is in good condition, no action needed.

11. Newton North High School (457 Walnut St)

Description of Site:

Newton North High School located at 457 Walnut St in Newtonville features 1x structural BMPs in the form of an Infiltration Basin beneath the synthetic turf field. System was previously in poor standing but has since been cleaned and has been restored to functional condition.

The Infiltration Basin was inspected numerous times completing on **August 2nd, 2024.** During reconstruction of the turf field, the system was excavated and inspected due to previous ponding concerns. Clogged invert contributing to ponding during the October 2023 has since been flushed out by PRC's contractor John Sewer on 8/2/24. System is once again taking in water and is currently fully functional. Additional inspection location/cleanout was added for future upkeep.

Infiltration Basin #1 (IB-1) # of Inspection Points: 7

Drainage Area: 8.938ac BMP Storage Volume: 36,750ft^3 TP Removed: 10.18 lbs/yr

Infiltration Basin #1 located beneath the synthetic turf field primarily services the roof runoff from the school building including the cafeteria courtyard area between the field and building via a trench drain. Additional inspection/cleanout point added to facilitate future inspection and maintenance of the system. System cleaned out and function restored.

12. Newton Public Library (330 Homer St)

Description of Site:

Newton Public Library located at 330 Homer St in Newton Centre features 3x structural BMPs in the form of a complex network of Infiltration Trenches connecting various catch basins and drain manholes as well as large stretches of Porous Pavement that wrap around the perimeter of the parking lot. Lastly, all runoff congregates in a rain garden off the side of the parking lot which infiltrates into the soil over time and overflows into the City Hall ponds across Homer St.

All structural BMPs were inspected 24hrs post storm on **August 8th, 2024.** System and grounds were in relatively good condition. This site has a history of flooding during high rain events as the rain garden relies on an overflow connection to the City Hall ponds which has since been cleaned out of sediment and restored to full functioning capacity. Outfall #3 of the parking lot system is below standing water level in rain garden allowing water to back up. Numerous frogs and tadpoles were found throughout the back of the parking lot property in all catch basins and manholes which drain to outfall #3. Outfall should be raised to prevent standing water and animals from making their way into the upstream inlets.

Infiltration Trench Network and Rain Garden #1 (IT-1) # of Inspection Points: 20

Drainage Area: 1.82ac BMP Storage Volume: 1,996ft^3 TP Removed: 2.08 lbs/yr

The Infiltration Trench Network connects all the catch basins and drain manholes throughout the Newton Library Parking Lot providing opportunities for groundwater recharge while directing flow of stormwater to a central Rain Garden which further overflows to the City Hall Ponds across Homer St. All associated catch basins and drain manholes were inspected, many of which had a couple inches of sediment and standing water. However, none exhibited concerning amounts of sediment and were well below the 50% full threshold to warrant cleaning. DMH-7 Directly ties level to OF-3 within the rain garden, this results in backflow from the rain garden into the Infiltration Trench System, numerous frogs and tadpoles were found during inspection proving negative impacts to conveyance.

Porous Pavement #1 (PP-1) # of Inspection Points: 2

Drainage Area: 0.251ac BMP Storage Volume: N/A TP Removed: 0.34 lbs/yr

The Porous Pavement lines the south and west perimeter of the Library Parking lot, allowing for infiltration into porous pipe beneath which tie into the Infiltration Trench Network. Upon inspection, both stretches of Porous Pavement appeared in good condition though could use a pass through with a vacuum sweeper.

13. Newton South High School (140 Brandeis Rd)

Description of Site:

Newton South High School is located at 140 Brandeis Rd in Oak Hill and features 2x structural BMPs in the form of 2x Infiltration Basins in the west lot of the school and between the school building and athletic fields. The HSG grade here is particularly poor and doesn't infiltrate into the ground very well compared to other BMPs throughout the City. Follow up visits were necessary to gauge BMP function.

All structural BMPs were inspected 24hrs post storm on **June, 24th 2024** and **August 8th, 2024.** System and grounds were in adequate standing. Cleaning may or may not have an impact on increasing infiltration capabilities as the HSG soils are poor to begin with. IB-2 had additional buried inspection point raised to grade to facilitate future inspections and maintenance.

Infiltration Basin #1 (IB-1) # of Inspection Points: 1

Drainage Area: ~0.75ac BMP Storage Volume: ~513ft^3 TP Removed: ~0.67 lbs/yr

Infiltration Basin #1 located in the west lot of the school by the playground turnaround island is an impressive 15ft below the lot pavement and primarily services roof drain runoff. Basin structure had approximately 6ft of standing water and at least 3 inches of accumulated sediment. Previous determination was made based on HSG soil grade that the system, while slow, is still functional and its storage capacity has not been hindered. Cleaning the system may improve function but is likely to prove immensely difficult considering its depth and the resulting bump in infiltration rate is unlikely to make much of a difference.

Infiltration Basin #2 (IB-2) # of Inspection Points: 1

Drainage Area: ~0.75ac BMP Storage Volume: ~513ft^3 TP Removed: ~0.67 lbs/yr

Infiltration Basin #2 located between the back of the school building and athletic fields primarily services roof drain runoff. Basin structure was dry 24hrs post storm with minimal sediment accumulation. System fully functional, no action needed. Additional inspection manhole which was previously buried was raised to grade and inspected to find standing water but no evidence of overflow.

14. Zervas Elementary School (30 Beethoven Ave)

Description of Site:

Frank Zervas Elementary School located at 30 Beethoven Ave in Waban features 3x structural BMPs in the form of two Bio-swales within the grass strips in main parking lot area and an area of Porous Pavement south of the building. *It appears that application of permeable playground surfacing for playgrounds in the front and rear of the building.as a possible BMP has not yet been considered.*

All structural BMPs were inspected 24hrs post storm on **May 31st, 2024.** Systems and grounds were in relatively good condition but could use some basic maintenance from PRC staff. Bio-swale #1 had vegetation growth encroaching around the catch basin making access difficult. No trash was found in bioswales during inspection. Bio-swale #1 had standing water 24hrs post storm and was returned to for a 48hr inspection to see that it was fully dry. Accumulating sediment sourced from parking lot could be at fault. All systems are in decent condition and fully functional.

Bio-Swale #1 (BS-1) # of Inspection Points: 3

Drainage Area: 0.407ac BMP Storage Volume: 2,093ft^3 TP Removed: 0.39 lbs/yr

Bio-Swale #1 is the far larger of the two swales within the grass strips of the parking lot primarily servicing impervious run off from the lot and bus loop. Inspection points included an assessment of the swale, catch basin drain, and manhole connection to property outfall. System in good condition with only suggestions being to trim back vegetation from catch basin.

Bio-Swale #2 (BS-2) # of Inspection Points: 3

Drainage Area: 0.395ac BMP Storage Volume: 343ft^3 TP Removed: 0.24 lbs/yr

Bio-Swale #2 is the smaller of the two swales within the grass strips of the parking lot primarily servicing impervious run off from the lot and bus loop. Inspection points included an assessment of the swale, catch basin drain, and manhole connection to property outfall.

Porous Pavement (PP-1) # of Inspection Points: 1

Drainage Area: 0.3ac BMP Storage Volume: N/A TP Removed: 0.33 lbs/yr

Porous Pavement application is within the strip by the emergency access behind the school. Pavement is in good condition and does not have any need to be swept/cleaned.

15. Crafts St / Walnut St Intersection (7 Walnut St)

Description of Site:

A roadway improvement project to remove a slip lane completed in 2021 at 7 Walnut St, Newton MA resulted in the inclusion of 2x moderately sized bio-swales hydraulically connected through a subsurface infiltration trench at the intersection of Crafts St and Walnut St. The system services street runoff from the intersection through 2x curb scuppers with an additional scupper functioning as an overflow back into the street.

All structural BMPs were inspected 24hrs post storm on **May 6th, 2024**. Systems were in decent condition with no indication of standing water, moderate build up of plant matter, and trace amounts of trash. Systems considered to be in decent condition and fully functional.

Bio-Swale #1& (BS-1 & BS-2) # of Inspection Points: 2

Drainage Area: 0.085ac BMP Storage Volume: 544.7ft^3 TP Removed: -0.114 lbs/yr

Bio-Swale #1 is the smaller of the two along Walnut St prior to the intersection, with Bio-Swale #2 being the larger of the two along Crafts St. The two are inspected independently on the surface but are considered the same system as they are connected through a subsurface infiltration trench which runs beneath the driveway of 7 Walnut St. Besides the accumulation of plant debris and a few pieces of litter, no standing water was present in either basin. No corrective action necessary besides removal of trash for beautification.

16. McGrath Tennis Courts (1600 Washington St)

Description of Site:

A renovation project constructed in 2017-2018 at the McGrath Tennis Courts located at 1600 Washington St, Newton MA resulted in the installation of a subsurface infiltration trench to offset increase impervious area. The primary inlet is a leaching catch basin servicing the increased runoff from the stone dust dog park area.

The structural BMP was inspected 24hrs post storm on **May 6th, 2024**. System was in good condition with no evidence of standing water and minimal accumulated sediment at the bottom of the leaching catch basin. No corrective actions necessary.

Infiltration Trench (IT-1) # of Inspection Points: 1

Drainage Area: 0.103ac BMP Storage Volume: 81.6ft^3 TP Removed: -0.12 lbs/yr

Infiltration Trench stretches across the NE fence of the dog park next to the parking stalls. Primary inlet and inspection location is the leaching catch basin which connects to the perforated pipe of the infiltration trench. Besides mild accumulation of sediment there was no evidence of standing water. System is in good condition and fully functional.

17. Pearl St Municipal Parking Lot

Description of Site:

A renovation project constructed in 2023 at the Pearl St Municipal Parking Lot located behind 283-291 Washington St in Newton Corner, MA resulted in the installation of a subsurface infiltration trench to capture sheet flow from the parking lot before it can enter the street. The primary inlets are trench drains within the entrance and exit ramps that route to respective manholes on each end of the infiltration trench.

The structural BMP was inspected 24hrs post storm on **May 6th, 2024** at all mentioned points above. Trench drains have begun to accumulate mild sediment though still well below invert elevation to manholes. An oily sheen was present atop the standing water in each manhole structure with water level up to the infiltration trench invert. Despite roadway pollution the system shows no signs of impairment to function and is considered in decent standing, no action needed.

Infiltration Trench (IT-1) # of Inspection Points: 4

Drainage Area: 0.66ac BMP Storage Volume: 236ft^3 TP Removed: 0.17 lbs/yr

Infiltration Trench stretches across parking lot side facing Pearl St with inlets on both side at the entrance and exit ramps. System is only designed for the first flush with overflow back into the Pearl St MS4. Besides oily sheen on standing water in manhole structures, the system has minimal sediment accumulation and does not currently require any maintenance.

18. Levingston Cove

Description of Site:

Levingston Cove at Crystal Lake abutting 230 Lake Ave in Newton, MA features 5x structural BMPs in the form of 4x rain gardens and 1x grass bio-swale designed to service impervious walkway runoff prior to an overflow outfall out into Crystal Lake. Each structural BMP features a beehive catch basin to convey excess ponding water to a subsurface overflow pipe out falling into the lake.

All structural BMPs were inspected 24hrs post storm on **May 6th, 2024**. Each catch basin is designed to have a silt sack installed to prevent plant matter from infiltrating the overflow pipes below each BMP. Rain Gardens #2-3 had plant matter blocking the overflow catch basin and are recommended to be cleaned but do not immediately impact conveyance. Rain Garden #4 had a busted silt sack and should be replaced. Outfalls exhibit some accumulation of debris but no impact to function, could be cleaned to improve beautification of the park landscape

.

Rain Gardens #1-5 # of Inspection Points: 8

Drainage Area: 0.281ac BMP Storage Volume: 552ft^3 TP Removed: 0.03 lbs/yr

Each rain garden is a assigned a number #1-5 left to right facing away from the lake towards Lake Ave. Mild sediment and leaf matter have begun to accumulate in Rain Gardens #2-3 but are not impacting function. Rain Garden #4 needs the silt sack filter to be replaced to improve ponding and filtration function. All outfalls were inspected with moderate accumulation of leaf litter and debris but no impact to function.

YOU MUST ANNUALLY INSPECT AND MAINTAIN SCMs. HOW?

Identify and locate the structural SCM on your property. Inspection will depend on the type of system you have. Look for signs of erosion, ponding water, or excess vegetation.

Contact the Registry of Deeds or the City Engineering Division for a copy of your system's Operation and Maintenance Plan. This will outline maintenance tasks and frequency to perform these tasks for your individual system.

Some types of inspection and maintenance activities commonly implemented on SCM areas are:

- Mowing, Landscaping, & Vegetation Management
- Debris & Litter Removal
- Sediment Removal
- Structure Integrity
- Water Level Inspection

EPA requires certification that SCMs are being maintained. Submit an Annual SCM Maintenance Report to Newton's DPW to document that maintenance was performed on your system.

INSPECTION FORM SUBMITTAL & ABATEMENT CREDITS

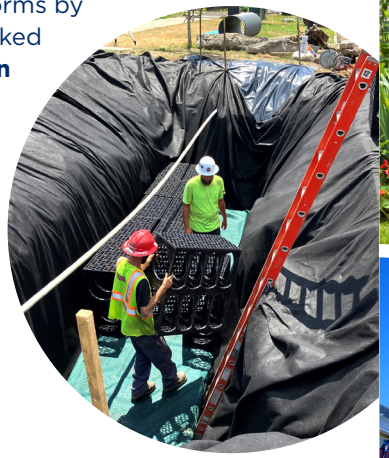
Please provide routine inspection forms to Newton's DPW at the following web address:
newtonma.viewpointcloud.com/categories/1079/record-types/1006709

Alternatively, you can navigate the City Webpage through the following drop down menus:

- **Government** > **Public Works** > Select **"DPW NewGov"** > Select **"Stormwater Inspection Submittal or Abatement Credit"**

Inspection forms will be reviewed by Newton's Environmental Engineer for completeness.

Property owners can also apply for an Abatement Credit to their Stormwater Utility Fee when submitting inspection forms by selecting **"Yes"**, when asked **"Are you applying for an Abatement Credit to your utility fee?"**



Eligible applicants will need to provide the following supporting documentation when applying for an Abatement Credit:

- As-built Engineering Plan locating SCMs on property
- Stormwater Drainage Analysis and Calculations from engineer who installed the system
- Operations & Maintenance Plan provided by engineer who installed the system

OR

- Valid Stormwater Management Certificate of Compliance (SMCC) as issued by Newton DPW during construction

MAINTAINING THE STORMWATER CONTROL MEASURES ON YOUR PROPERTY ANNUALLY

CITY OF NEWTON

WHY YOU'RE RECEIVING THIS BROCHURE

There is a Stormwater Control Measure (SCM) located on your property in Newton. This SCM was designed to remove sediment and pollutants from stormwater runoff and to control the effects of flooding.

MS4 GENERAL PERMIT

The City of Newton, under the requirements of our U.S. Environmental Protection Agency (EPA) Municipal Separate Storm Sewer System (MS4) General Permit, must reduce phosphorus from our stormwater discharges into the Charles River. Newton's Stormwater Management Ordinance requires installation and maintenance of SCMs, a key mechanism for the City to meet MS4 phosphorus reduction requirements.

MORE INFORMATION

about Newton's phosphorus reduction requirements can be found in Newton's MS4 Annual Report here:

www.newtonma.gov/government/public-works/water-sewer-division/stormwater-resources

CLEAN WATER IS EVERYBODY'S BUSINESS

MORE INFORMATION about EPA's MS4 General Permit can be found here: ***epa.gov/npdes-permits/massachusetts-small-ms4-general-permit***

WHAT IS STORMWATER?

Stormwater is rain or snow melt that flows off land and impervious surfaces (driveways, sidewalks, buildings, etc.). In a natural landscape, stormwater is absorbed into soil or flows into a waterbody. However, impervious surfaces prevent the infiltration of rain/snow melt. When stormwater can't be infiltrated, it flows downstream as runoff, picking up and transporting pollutants along the way.

HOW TO REDUCE PHOSPHORUS IN STORMWATER

Stormwater Control Measures (SCMs) are physical, permanent systems that capture and/or treat stormwater. Structural SCMs remove pollutants and provide flood control. They provide one of the primary methods of phosphorus reduction in stormwater.

It is the property owner's responsibility to have their structural SCMs inspected and maintained regularly to ensure proper function.

EXAMPLES OF STRUCTURAL STORMWATER CONTROL MEASURES (SCMs)

- Rain gardens
- Infiltration systems (basins and subsurface systems)
- Vegetated swales
- Wet ponds
- Porous pavement
- Detention basins
- Engineered wetlands

The City of Newton has municipally-owned SCMs and manages pollutants in stormwater by maintaining catch basins, sweeping streets, and educating the public.

WHAT YOU'RE REQUIRED TO DO

Property owners who are stormwater permit holders are required by Newton's Stormwater Ordinance and Stormwater Rules and Regulations to inspect and maintain their SCMs. Your stormwater permit includes an Operation and Maintenance Plan (O&M Plan). This Plan was required to be recorded at the South Middlesex County Registry of Deeds.

Newton's Stormwater Rules and Regulations:
www.newtonma.gov/home/showpublisheddocument/86082/637909874488270000

You are required to inspect and maintain your SCM annually in accordance with your system's O&M Plan. In order to account for the phosphorus removed by each SCM, Newton is required to certify and provide annual documentation of maintenance to EPA.

ENFORCEMENT

Through the Stormwater Ordinance, Newton can enforce inspection and maintenance of private SCMs through civil penalties. Existing Abatement Credits may be revoked if systems are not inspected regularly.

QUESTIONS? CONTACT:

Eric Highers, Environmental Engineer
Engineering Division, Department of Public Works, City of Newton, MA
environmentalmgr@newtonma.gov | 617-796-1038

MCM 1: Public Educational Messages - Permit Year 6 (July 1st, 2023 - June 30th, 2024)

ENGINEERING

8x Educational messages are to be generated and shared with the public over the course of each permit year (2x per audience type)

	Audience Type				
	Residential	Business / Commercial	Institutional	Construction/Industrial	Description
Spring	6/7/2024	6/7/2024	6/7/2024		Yard Waste and Fertilizer Use - Starting early June this flyer will go out to all residents over the next three months
				6/4/2024	Erosion Control Message at start of construction season
Summer					
	6/6/2024	6/6/2024	6/6/2024		Public O&M Mailer - Distributed to 223 Private Property Owners
Fall	10/6/2023	10/6/2023			Help Us Keep Storm Drains Clear - Mayor's Newsletter
	10/22/2023				Public Educational Mailers sent out to Title V Residents during EPA SepticSmart Week
Winter	1/9/2024	1/9/2024			Less is More when it comes to Deicing - Mayor's Newsletter
				3/19/2024	SMCC Overview Memo sent to approximately 315 developers previously conducted work within the City
On-going	On-going seasonally				Do your Doody - Pet Waste Flyer

MCM 2: Community Outreach - Permit Year 6 (July 1st, 2023 - June 30th, 2024)

Action Taken	Date/Status	Description and Goal
Harvest Fair Stormwater Booth	10/15/2023	Engineering Division Stormwater Booth with Enviroscape Model for Kids, Distribute Public Educational Material during event.
CRWA " What's New With Cheesecake Brook" Public Webinar	2/22/2024	Environmental Engineer represented Newton DPW in a public webinar regarding stormwater pollution and what property owners can do to mitigate runoff into their local watershed (Cheesecake Brook).
Newton South Highschool Community Pathways Event	3/27/2024	Environmental Engineer and Office Engineer represented Newton DPW in a highschool career fair describing the responsibilities that the City has taken up in regards to stormwater mitigation, offering career advice to high schoolers interested in pursuing a field in environmental sciences/engineering. Distributed public edcuational material to families about how they can mitigate their environmental impact.
Alex Griswold - Interview on the Streams of Newton and Stormwater Management	3/29/2024	The Environmental Engineer and City Engineer represented DPW in an interview for a exhibit project by a Newton resident on the history of Newton Streams, stormwater, and entering an era of climate change uncertainty. The interview will be transcribed in a format to support the resident's exhibit on display at the Newton Free Library
CRWA "Cheesecake Brook and Albemarle Field" Public/Hybrid Meeting	5/30/2024	The Environmental Engineer represented Newton DPW during a public/hybrid meeting regarding the progress of stormwater BMPs along the Albemarle Corridor and the Albemarle Field Improvements project. The meeting was hosted in partnership with the Charles River Watershed Association on Cheesecake Brook Restoration. Public Feedback was requested to envision what the future of the brook may look like.
"Cheesecake Brook and Other Waters of Newton, Massachusetts" Reception Event	6/11/2024	The Environmental Engineer represented Newton DPW during a public reception of Alex Griswold's "Cheesecake Brook and Other Waters of Newton, Massachusetts" reception event at the Newton Free Library to discuss the state of Newton's streams and impairments as well as discuss the City's MS4 and how stormwater pollution impacts water quality and ecosystem health.

Tentative / In Progress Complete

City of Newton
MS4 Annual Report PY6
July 1, 2023 – June 30, 2024

Attachment B

Permit Year 6 MS4 Annual Report:
IDDE Status

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40 Shattuck Road | Suite 110
Andover, Massachusetts 01810
www.woodardcurran.com

T 800.426.4262
T 978.557.8150
F 978.557.7948

MEMORANDUM

TO: Eric Highers, City of Newton

CC: Stephanie Kaiser, W&C

FROM: Robert Whalen and Katie Feeney, W&C

DATE: September 4, 2024

RE: Permit Year 6 MS4 Annual Report: IDDE Status

The following data summarizes the Illicit Discharge Detection and Elimination (IDDE) activities completed in the City of Newton during this reporting period, MS4 Permit Year 6 (July 1, 2023 – June 30, 2024) and year-to-date (January 1, 2024 - August 14, 2024).

Catchments Investigated to Date

Table 1 summarizes the catchment investigations that have been initiated to date, including linear feet of pipe investigated, total linear feet of storm drain pipe in the catchment area, and percent of pipe investigations complete per catchment area. Overall, the City is 66% complete with catchment investigations.

TABLE 1: PERCENT OF CATCHMENTS INVESTIGATED TO DATE

Catchment ID	Catchment Category	Pipe Length Investigated (LF)	Total Pipe Length (LF)	Percent Complete
11-9	Problem	13,480	14,378	94%
11-1	Problem	31,707	32,664	97%
11-2	Problem	20,132	21,075	96%
11-3	Problem	47,701	49,511	96%
11-4	Problem	22,626	23,050	98%
11-5	Problem	65,362	68,832	95%
11-6	Problem	66,511	72,184	92%
11-7	Problem	16,125	17,603	92%
11-8	Problem	8,798	9,071	97%
32	Problem	4,078	4,211	97%
66	High	1,460	23,033	6%
68-1	Problem	37,280	38,907	96%
68-10	Problem	34,905	35,330	99%
68-2	Problem	9,908	10,702	93%
68-3	Problem	38,544	43,057	90%

Catchment ID	Catchment Category	Pipe Length Investigated (LF)	Total Pipe Length (LF)	Percent Complete
68-4	Problem	21,670	24,748	88%
68-5	Problem	64,713	67,694	96%
68-6	Problem	44,824	51,606	87%
68-7	Problem	17,908	22,595	79%
68-8	Problem	17,249	17,495	99%
68-9	Problem	22,183	22,581	98%
73	High	259	6,957	4%
75A	High	293	1,128	26%
77	Problem	8,052	8,091	100%
77-1	Problem	46,077	47,448	97%
77-10	Problem	22,407	22,738	99%
77-11	Problem	58,005	59,295	98%
77-12	Problem	44,986	46,416	97%
77-13	Problem	54,077	55,249	98%
77-2	Problem	30,667	30,832	100%
77-3	Problem	45,747	46,260	99%
77-4	Problem	25,999	30,075	86%
77-5	Problem	10,368	10,381	100%
77-6	Problem	15,057	15,260	99%
77-7	Problem	4,765	4,825	99%
77-9	Problem	29,480	30,288	97%
80	Problem	20	849	2%
81	Problem	11,483	14,958	77%
81-1	Problem	12,146	13,098	93%
81-2	Problem	50,241	52,638	95%
84	High	26	26	100%
85	High	28	28	100%
85A	High	27	27	100%
85B	High	26	26	100%
85C	High	236	236	100%
86	High	615	1,923	32%
87	High	4,124	4,494	92%

Catchment ID	Catchment Category	Pipe Length Investigated (LF)	Total Pipe Length (LF)	Percent Complete
90	Problem	39	45	88%
81A*	High	18	18	100%
88	High	217	1,747	12%
95	High	6,450	8,084	80%
98C*	High	94	2,684	4%
78*	High	1,055	5,530	19%
*Catchments with pipes that interconnect into Problem Catchments.				
Total Pipe Length Investigated (LF)		1,090,249		
Total Drain Pipe Citywide (LF)		1,654,329		
Total % Drain Pipe Investigated Citywide		66%		

Activities Completed This Reporting Period

Permit Year 6 (July 1, 2023 – June 30, 2024)
&
Year-to-Date (January 1, 2024 – August 14, 2024)

IDDE field activities in Newton included manhole testing and building inspections. During Permit Year 6 (PY6) activities were completed in 12 Problem Catchments. Year-to-date activities were completed in three (3) Problem Catchments and eight (8) High Priority Catchments. All building inspections performed during Permit Year 6 and the year-to-date occurred in Problem Catchments. Manhole investigations completed during Permit Year 6 were conducted in Problem Catchments. Manhole investigations performed in the year-to-date occurred in High Priority Catchments.

Building Inspections

Letters were mailed to homeowners in preparation for building inspections to inform them about the inspection requirements and process. Homeowners may be sent multiple letters to facilitate dye testing. **Table 2** summarizes the number of letters sent within Catchments, both in Permit Year 6 and year-to-date. A total of 25 properties received letters during the Permit Year 6 period and/or this year-to-date. No follow-up letters were sent this period, therefore a total of 25 letters were sent during this reporting period (PY6). It is important to note that Permit Year 6 and year-to-date overlap, all building inspection letters that were sent out in the year-to-date fell within the Permit Year 6 reporting period.

TABLE 2: SUMMARY OF LETTERS MAILED FOR BUILDING INSPECTIONS

Catchment	# of Letters Sent Permit Year 6	# of Letters Sent Year-to-Date
11-1	2	2
11-3	8	3
11-5	2	2
77-1	2	1
77-3	1	1
77-4	1	1
77-11	2	0
77-13	1	1
81-2	6	0
Total	**25**	**11**

A total of 23 properties had dye tests completed during Permit Year 6 (PY6) and/or the year-to-date. Some of these 23 properties received letters in the previous Permit Year, but the inspection was performed in PY6. Specifically, properties within Catchment 11-2 received letters in pervious Permit Years and were tested in PY6; therefore, no letters were mailed within Catchment 11-2 during this reporting period, but six (6) dye tests were completed. In total 38 dye tests were completed in Permit Year 6 and ten (10) were completed year-to-date. This corresponds to 20 properties tested in PY6 and six (6) properties tested year-to-date. Of the

ten (10) dye tests performed this calendar year, seven (7) were completed after PY6 (in PY7) on three (3) properties. Some buildings/properties required multiple dye tests for complete results, such as apartment buildings or multi-family residences. **Table 3** summarizes the dye test results per catchment.

TABLE 3: SUMMARY OF DYE TEST RESULTS

Test Results by Catchment	Total Dye Tests Completed Permit Year 6	Total Dye Tests Completed Year-to-Date
11-1	**0**	**4**
Legal	0	4
11-2	**6**	**0**
Legal	6	0
11-3	**5**	**4**
Inconclusive – NDF*	1	1
Legal	4	3
11-5	**1**	**0**
Legal	1	0
77-1	**3**	**0**
Legal	3	0
77-11	**7**	**0**
Legal	7	0
77-13	**1**	**0**
Inconclusive – DIB**	1	0
81-2	**13**	**0**
Legal	11	0
Not Legal	2	0
SWOF-56	**2**	**2**
Legal	2	2
Total	**38**	**10**

***** NDF- No Dye Found

****** DIB- Dye in Both: Dye was found in both the sewer and the drain

Manhole Inspections

There were 243 manhole inspections completed in Permit Year 6 of which 59 manhole inspections were completed this year (year-to-date). **Table 4** summarizes the number of manhole inspections completed per catchment area.

TABLE 4: SUMMARY OF MANHOLE INSPECTIONS

Catchment	MH Inspections Completed Permit Year 6	MH Inspections Completed Year-to-Date
11-1*	57	0
11-3*	71	0
11-4*	7	0
11-5*	59	0
11-7*	46	0
66	0	5
73	0	3
75A	0	3
84	0	1
85A	0	1
85B	0	1
86	0	3
87	0	35
Other	3	7
Total	**243**	**59**

***** Problem Catchment

Verified Direct Illicit Connections

Illicit Discharge Unique ID	Code	Illicit Discharge Status	Street Name	Street No.	Catchment ID	Watershed	Estimated Flow (gpd)	Verification Date	Verification Method	Description of Discharge	30-d from DoV *(deadline for City to send initial notice)*	60-d from DoV (deadline for City's legal dept. to send notice if abatement is not complete)	90-d from DoV (deadline for City's legal dept. to send notice if abatement is not complete)	210-d from DoV	270-d from DoV	1st Notice Date	1st Notice Deadline	2nd Notice Date	2nd Notice Deadline	3rd Notice Date	Removal Date	# Days from Verification to Removal	# Days Outstanding (if not removed)	Alt. Schedule?	Alt. Schedule - Contractor Selection Deadline	Alt. Schedule - Abatement Deadline	Abatement Cost Paid by City	Abatement Cost Paid by Owner	Abatement Cost Reimbursed to City by Owner	Deadline for Confirmatory Sampling	Date Confirmatory Sampling Completed	Comments	Abatement Notice Date
1	AC	Abatement Complete	Jasset Street	Multiple	76		880	2004	NR	Sewer Exfiltration to Underdrain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	Estimated 16 houses with 1/8 of the flow leaking into the drains during heavy rainfall events only	NR
2	AC	Abatement Complete	Gray Cliff Road	10	77-13	Edmans Brook	440	10/2005	NR	Residential Sewer Connected to Storm Drain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	440 GPD removed was an estimated based on 4 bedroom house @ 110 gal/bedroom/day	NR
3	AC	Abatement Complete	Brookside Avenue	NR	68-9	Cheesecake Brook	1440	2006	NR	Sealed Sewer MH Leaking into Underdrain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	Estimated 2 gallons/min leading 50% of the time	NR
4	AC	Abatement Complete	Hillside Road	93	77-11	Edmans Brook	440	2/2006	NR	Residential Sewer Connected to Storm Drain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	440 GPD removed was an estimated based on 4 bedroom house @ 110 gal/bedroom/day	NR
5	AC	Abatement Complete	Nonantum Street	4	89		165	2007	NR	Leak Detected at House Connection to Sewer Main	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	Estimated half of the sewer flow from a 3 bedroom house; leak @ connection to sewer main, open joints in storm drain on this street. Previously listed as two entries, but there was actually only one illicit connection.	NR
6	AC	Abatement Complete	Solon Street	44	11-3	Crystal Lake	440	3/2010	NR	Residential Sewer Connected to Storm Drain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	440 GPD removed was an estimated based on 4 bedroom house @ 110 gal/bedroom/day	NR
7	AC	Abatement Complete	Boyd Street @ Watertown Line	Multiple	78		1320	2010-2011	NR	Sewer Main Cut Open Leaking Into Storm Drain	--	--	--	--	--	--	--	--	--	--	NR	--	--	--	--	--	--	--	--	--	--	--	Estimated 12 houses with 1/4 of the flow leaking into the drains during heavy rainfall events only	NR
8	AC	Abatement Complete	Linwood Avenue	340	68-9	Cheesecake Brook	220	2/8/2019	Dye Test	Residential Washing Machines Connected to Storm Drain	3/10/2019	4/9/2019	5/9/2019	9/6/2019	11/5/2019	--	--	--	--	--	6/20/2019	132	--	--	--	--	--	--	--	8/19/2019	5/26/2020	The washing machines that were connected to a roof drainage system at this location was fixed in late June. Confirmatory sampling to be completed.	8/26/2019
9	AC	Abatement Complete	Lexington Street	377	68-5	Cheesecake Brook	660	3/18/2019	Dye Test	Residential Sewer leaking into Storm Drain	4/17/2019	5/17/2019	6/16/2019	10/14/2019	12/13/2019	--	--	--	--	--	5/31/2019	74	--	--	--	--	--	--	--	7/30/2019	11/6/2020	Sewer service @ 377 Lexington St. was broken at storm drain crossing and was infiltrating into the Stormwater main . We replaced 10' of the 5" VCP sewer service with 5" SDR 35 pipe that was notched into the top of the stormwater main and repaired the brickwork. Confirmatory sampling to be completed under Phase 2.	6/12/2019
10	AC	Abatement Complete	Watertown Street	674-690	68-9	Cheesecake Brook	1440	4/23/2020	Dye Test & CCTV	Private sewer manhole exfiltration	5/23/2020										10/10/2020	170	--							12/9/2020	12/1/2020	Private sanitary manhole located on the property, connected to SMH-8467, is in very poor condition. The outlet pipe separated from the channel. The dye was then seen in a private drain manhole (with catch basin cover) 15 minutes later. This manhole has a raised outlet so under normal conditions the sewage (and dye) is not likely to get out to the street. However, the crew did sound test this manhole to SWCF-105. City will sent a letter to the Housing Authority. Titan Excavating CCTV'd the lines to assess the issues and made spot repairs, including filling holes with hydraulic cement.	11/4/2020
11	AC	Abatement Complete	Watertown Street	674-690	68-9	Cheesecake Brook	990	4/23/2020	Dye Test & CCTV	Sewer lateral leaking into storm drain on the Housing Authority property. 72 apartments											10/10/2020	170	--							12/9/2020	12/1/2020	A hole in a DMH at the "Approx. location of intruding lateral" on your map allowed sewerage to leak in from the sewer lateral. Another hole in the sewer lateral / SMH was also found. Titan Excavating CCTV'd the lines to assess the issues and made spot repairs, including filling holes with hydraulic cement.	11/4/2020
12	AC	Abatement Complete	Ripley Street	19	77-13	Edmans Brook	550	9/10/2021	Opportunistic Inspection	Insufficient sewer lateral repair	10/10/2021										9/10/2021	0	--							11/9/2021	11/7/2021	The house is a tear down and rebuild; currently under construction. The City's engineering construction inspector caught that the original sewer lateral was correctly piped to the sewer main. However, the gas company made a repair at this location and broke the old sewer pipe at the exact location it crossed our drain. The fix was a big concrete blog that allowed the sewer lateral to drop waste into our main drain. The new sewer service now goes under the main drain and a proper fix was made to the main drain.	9/10/2021
13	AC	Abatement Complete	Crescent Avenue	80	11-5	Crystal Lake	930	9/21/2021	Dye Test	Partial building plumbing directly connected to storm drain.	10/21/2021					10/22/2021					11/22/2021	62	--							1/21/2022	1/14/2022	On 11/15/21 Joe Jolly informed us the that work remediating the illicit connections on the east wing was complete. According to the building dye testing, one fixture in the west wing of the building was connected to the City's MS4. This final illicit connection is in the process of being removed. The final illicit connection was removed before Thanksgiving 2021. SDE performed post correction sampling at the manholes at Crescent and Centre St and they came back cleared.	1/6/2022
14	AC	Abatement Complete	Franklin Street	185	81-2	Charles River	550	11/8/2021	Dye Test	Residential Sewer Connected to City Underdrain	12/8/2021	1/7/2022				11/12/2021	12/12/2021	12/16/2021			5/23/2022	196	--			4/30/2022				7/22/2022	6/15/2022	On 11/8/2021 SDE performed a dye test at 185 Franklin Street which resulted in a Not Legal inspection. There is a direct connection to the City's MS4. The house is under sale agreement so the City granted an alternate schedule for the illicit connection to be removed by 4/30/2022. The illicit connection was removed by the owner in May 2022. A contractor completed repair of the sewer lateral. On June 15, 2022 a post correction test was completed, confirming the illicit connection has been removed.	5/23/2022
15	P	Responsible Party Notified, Abatement Pending	Newtonville Avenue	108	81-1	Charles River	330	11/8/2021	Dye Test	Residential Sewer Connected to Storm Drain	12/8/2021	1/7/2022				11/12/2021	12/12/2021						1045										On 11/8/2021 SDE performed a dye test at 108 Newtonville Avenue which resulted in a Not Legal Inspection. There is a direct connection o the City's MS4. The notification letter was mailed on 12/8/2021. As of 3/9/2022, the owner procured engineering services to develop a plan. As of 9/29/23 resident's submitted abatement plan was passed by Engineering. Plan is to break ground around spring.	
16	AC	Abatement Complete, Sampling Not Required*	Intervale Road	146	77-13	Hammond Brook	132	12/6/2021	Dye Test	Leaking Lateral	1/5/2022	2/4/2022				12/15/2021	1/15/2022				11/16/2023	710	--							1/15/2024		On 12/6/2021 SDE performed a dye test at 146 Intervale Road which resulted in a Dye In Both status. There is likely a leaking lateral at the property. The illicit connection notification letter was mailed on 12/15/2021. The City performed CCTV which showed a few offset joints on the sewer service. The owner is planning to repair these.	
17	AC	Abatement Complete	Washington Street	773	77-1	Charles River	300	12/9/2021	Dye Test	Floor Drain Connection	1/8/2022	2/7/2022				12/15/2021	1/15/2022				3/25/2022	106	--							5/24/2022	6/16/2022	On 12/9/2021 SDE performed a dye test at 773 Washington Street which resulted in a Partial Illegal status. The floor drain at the property is connected to the City's MS4. The illicit connection notification letter was mailed on 12/15/2021. The City visited this property and the owner is in the process of repairing the illicit connection. The floor drain tested by SDE connects to another floor drain and that floor drain has a cavern that connects to City drains on Court Street. The upper metal pipe in this photo connects to an oil water separator in their parking lot. The nasty wash water does not flow into the OWS due to the higher elevation unless there's a lot of water entering the floor drain all at once. The solution is to dig up part of their facility to cut and seal off the illegal connection and turn it into the OWS as it should have always been.	4/4/2022
18	AC	Abatement Complete, Sampling Not Required*	Intervale Road	121	77-13	Hammond Brook	132	1/13/2022	Dye Test	Leaking Lateral	2/12/2022	3/14/2022				3/15/2022	4/14/2022				8/3/2023	567	--							10/2/2023	8/3/2023*	City investigated and this is likely a leaking lateral. 121 Intervale has both a sewer and drain connection. It's possible that the drain connection is in poor condition given it's 90 years old and some sewer is leaking out and into this drain connection. The owner had the sewer videod by Boston Drain. Contact: Devon Germak Phone #617-694-4725 devon.dicklerico@gmail.com On 8.3.2023, after the lateral was lined. Contractor did post inspection after lining was complet. City submitted video to WBC on 3/20/2024.	
19	AC-SP	Abatement Complete, Confirmatory Sampling Pending	Ripley Street	51, 53, 57-59	77-13	Hammond Brook	88	5/12/2022	Dye Test	Shared Leaking Lateral	6/11/2022	7/11/2022				5/24/2022	6/23/2022				10/19/2022	160	--							12/18/2022		The basement sink tested dye in both the sewer and the drain at 51 and 53 Ripley. 51 and 53 Ripley St are attached however it appears that they have separate basements. Another crew tested 51 Ripley at an earlier date, and it was legal. On 5/12/2022 the City completed a dye test in a private manhole where the sewer services for 51, 53, and 57-59 enter and combine into a shared sewer service from the manhole located in the shared driveway to the sewer main in Ripley Street. This shared sewer service is leaking into the wrong pipe in the street. This illicit sewer service connection was confirmed via dye flushing from the manhole in the driveway and visual observation of the dye within the storm drain pipe. Owners at 51, 53, and 57-59 Ripley have been notified and are working on lining the shared sewer lateral. Sewer relining had passed inspection as of 10/19/23.	
20	AC	Abatement Complete, Sampling Not Required*	Waverly Avenue	162	81-2	Charles River	440	5/16/2022	Dye Test	Leaking Lateral	6/15/2022	7/15/2022									8/10/2022	86								10/9/2022	8/10/2022*	On May 16,2022, SDE performed a dye test at 162 Waverly Avenue. The dye test came showed dye in both the sewer and the drain. The dye was observed in the sewer first (about 5 minutes after it was flushed) and then in the drain about 5 minutes after that. The dye was equal intensity in both the sewer and the drain. On August 10, 2022, the homeowner had their sewer lateral lined. Contractor submitted a post inspection video to the City. City provided video to WBC on 3/20/2024.	8/14/2022
21	AC-SP	Abatement Complete, Confirmatory Sampling Pending	Needham Street	210	11-2	South Meadow Brook	1217	5/31/2023	Dye Test	Commercial Sewer Connected to Storm Drain	6/30/2023	7/30/2023									11/20/2023	173								1/19/2024		On May 22, 2023, SDE performed a dye test at 210 Needham Street. This building is a Home Goods Store. A toilet on the first floor was tested and after 10 minutes dye was seen in SWMH-4840 with full intensity. No dye was observed in SMH-7230. SDE was unable to access SMH-7257 due to the cover being stuck. Property Owner acted swiftly to abate the issue and connect to sewer line, passed engineering inspection as of 11/27/23.	
22	P	Responsible Party Notified, Abatement Pending	Intervale Road	NA	77-13	Hammond Brook	1440	10/23/2023	Dye Test	Public sewer main leaking into storm drain	11/22/2023	12/22/2023											331									On October 23, 2023, dye was added to sewer manhole SMH-9203. The drain manhole SWMH-4035 on Intervale Road tested positive for connection to the sewer.	
23	P	Responsible Party Notified, Abatement Pending	Pembroke St	4	81-2	Charles River		12/12/2023	Dye Test	Residential Sewer Connected to Storm Drain	1/11/2024	2/10/2024				12/12/2023	1/11/2024						281										On December 12, 2023, SDE performed a dte test at 4 Pembroke St and observed dye in DMH-3000 after 14 minutes. Resident is working with private engineer to repair private sewer manhole and abate hole connecting to drainpipe below confirmed 1/4/24	

Notes:
1) DoV = Date of Verification
2) For residential properties, flow is estimated based on 310 CMR 15.203 "System Sewage Flow Design Criteria" of 110 gallons per day per bedroom
3) NR = Not Recorded
4) #1-8 are historic illicit discharge removals provided by the Town of Newton

Codes:
V = Illicit Connection Verified, Responsible Party to be Notified
P = Responsible Party Notified, Abatement Pending
P-OD = One or More Abatement Deadlines is Overdue
AC-SP = Abatement Complete, Confirmatory Sampling Pending
AC = Abatement Complete, Confirmatory Sampling Complete or Not Required