

SOUTHERN MAINE COMMUNITY COLLEGE
Municipal Separate Storm Sewer System
2022-2027 State/Federal General Permit
Permit # MER042004

YEAR 1 (2022-2023) ANNUAL COMPLIANCE REPORT



2 Fort Road
South Portland, ME 04206

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SUBMITTED ELECTRONICALLY
ON SEPTEMBER 7, 2023

INTRODUCTION

This is the annual compliance report for Southern Maine Community College (SMCC) as required under the *General Permit for the Discharge of Stormwater from Small State and Federally Owned Municipal Separate Storm Sewer Systems* (MS4) issued by the Maine Department of Environmental Protection (DEP).

While the new permit did not take effect until October 1, 2023, the information herein reflects stormwater activities and compliance for the period from July 1, 2022 to June 30, 2023. This time period will be referred to as Permit Year 1 (PY1).

The Stormwater Management Plan and the General Permit require SMCC address six Minimum Control Measures or MCMs. For each MCM, SMCC has defined specific Best Management Practices (BMP's) which will be implemented in accordance with the schedule of compliance established in the college's Modified Stormwater Management Plan dated 9.23.2023.

One editorial change was made to SMCC's SWMP. Section 10. Duly Authorized Representatives will now include the title "Director of Public Safety/Interim Dean of Administration," in addition to those already listed.

MCM 1 - EDUCATION/OUTREACH PROGRAM

Southern Maine Community College is a member of the Casco Bay Interlocal Stormwater Working Group (ISWG) – pronounced "izzy-wig". ISWG is a coalition of 14 MS4 municipalities and two nested colleges in the greater Portland and Saco. This coalition is facilitated by the Cumberland County Soil and Water Conservation District (CCSWCD).

Southern Maine Community will fulfill the requirements for the Public Education/Outreach Program (MCM1) through participation in ISWG.

BMP 1A: Outreach to Raise Awareness Campaign

Message: "Water that lands on our roads, roofs, and other hard surfaces picks up pollutants and carries them to our local waterbodies without being treated."

Tool 1: Think Blue Maine Website Content updated 12/21/2022 by switching website platform, updating layouts, and adding search engine optimization features. Website traffic: 1,165; updated 6/12/2023 by

adding new page to host pet waste information, research project, and act as landing page for online ads. Website traffic: 3,220.

Tool 2: 12 posts on Think Blue Maine Instagram account on 1/12/23, 1/26/23, 2/9/23, 2/23/23, 5/12/23, 5/13/23, 5/14/23, 5/14/23, 5/15/23, 5/17/23, 6/1/23, 6/6/23. Post engagement: 43 Post Views: 416

Tool 3: Social media ad on Think Blue Maine Instagram account from 3/8/23 - 6/6/23. Ad engagement: 805 People reached: 1,347

BMP 1B: Outreach to Change Behavior Campaign

Behavior Change - Ages 25-34

Message: "Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values, harm our drinking water, and hinder recreational and economic opportunities."

Tool 1: 12 posts shared on Think Blue Maine Instagram account on 1/17/23, 1/31/23, 2/14/23, 2/28/23, 3/14/23, 3/28/23, 5/11/23, 5/11/23, 5/18/23, 5/20/23, 6/2/23, 6/30/23, Post Engagement: 33 Post Views: 352

Tool 2: 3 Content Shares with Partner on Instagram stories on 6/22/23, 6/23/23, 6/28/23 Post Views: 2,625

Tool 3: 4 Outreach Events 6/3/23, 6/11/23, 6/27/23, 6/30/23, 72 interactions in age group.

Regional behavior observation data (July 2022):

Willard Beach: 44 dogs, 61.4% visibly carried dog bag supplies, 100% success dog deposits cleaned up
Field survey second survey deposits (for both BMP 1.2 audiences): 13

Behavior Change - Ages 35-55

Message: "Dispose of dog waste as a solid waste, so it does not end up in our stormwater. Once in the stormwater, dog waste contributes nutrients, bacteria, and pathogens to our ponds, lakes, streams, rivers, and bays, which can lower property values, harm our drinking water, and hinder recreational and economic opportunities."

Tool 1: 12 posts shared on Think Blue Maine Facebook account 1/17/23, 1/31/23, 2/14/23, 2/28/23, 3/14/23, 3/28/23, 5/11/23, 5/11/23, 5/18/23, 5/20/23, 6/2/23, 6/30/23 Post Engagement: 140 Post Views: 2,986

Tool 2: 1 Item with Branding: Disposable pet waste bag screen print "Protecting water quality from pollution", 223 rolls distributed

Tool 3: 90 Days Facebook Ads, 3 ads consecutively run from 3/3/23 - 6/1/23, People Reached: 5,350 Ad Engagement: 412

Regional behavior observation data (July 2022):

Willard Beach: 55 dogs, 50.9% visibly carried dog bag supplies, 100% success dog deposits cleaned up

Field survey second survey deposits (for both BMP 1.2 audiences): 13

BMP 1C: Effectiveness Evaluation

The details presented above provide an evaluation of program effectiveness for MCM1. Additional details and photos for the Year 1 2022 Permit Dog Waste Study can be viewed in Appendix A.

The Effectiveness Evaluation - PY5 is not applicable this permit year.

Non-Permit Required Activities Which Took Place During PY1



Throughout PY1, SMCC continued to link our intranet to the Think Blue Maine.org website and the Cumberland County Soil & Water Conservation District YardScaping website

On July 1, 2022, SMCC launched a pet waste education brochure titled “You are the solution to pet waste pollution.” A copy of the pet waste flier is located in Appendix B. Due to a decline in public interest for the pet waste flier program, the fliers will be phased out in PY2, to be replaced with fixed signage providing educational points on pet waste impact to stormwater and the Casco Bay.

On 6.12.2023, the Environmental Health & Safety Coordinator received concerns of pet waste in the college’s Community Garden. Visitors to the garden were leaving unbagged pet waste on the ground and depositing bagged pet waste along the fence line (not taking it to the trash can). SMCC issued a reminder to Community Gardeners that pet waste is not compost or fertilizer. Gardeners received a copy of the “You are the solution to pet waste pollution” flier to further the educational moment.

MCM 2 - PUBLIC INVOLVEMENT AND PARTICIPATION

Southern Maine Community will fulfill the requirements for the Public Education/Outreach Program (MCM2) through participation in ISWG.

BMP 2A: Public Notice Requirement

In PY1, SMCC had no stormwater activities which required Public Notice. ISWG meetings are public noticed through CCSWCD website.

A copy of SMCC’s Stormwater Management Plan (SWMP) which contains our Notice of Intent (NOI) is posted on the “[Consumer Information](#)” section of the [SMCCME.edu website](#) under the section titled “Health & Safety.”

Details on the college's participation in ISWG and information on ISWG meetings is posted on the Environmental Health & Safety portlet of the my.smccme.edu website which is accessible to staff, students, and the general public.

ISWG met on: 7/21/22, 9/15/22, 11/17/22, 1/19/23, 3/16/23, 4/27/23, and 5/18/23. SMCC's EH&S Coordinator attended five of the six regular ISWG Meetings. ISWG held an additional meeting on 4/27/2023 specifically to discuss an appeal related to the municipal permit.

BMP 2B: Public Event

347 people registered and 301 people participated in the Urban Runoff 5k on 4/22/2023. Participants either ran, walked, or volunteered in support of clean water education in regional schools and increased awareness of stormwater issues within view of Casco Bay. The event was advertised through the college's website, social media account, the Cumberland County Soil & Water Conservation District's social media accounts and e-newsletters from 12/15/22 through 4/23/23, and WMTW Channel 8 | Maine's CW throughout the month of April.



The 2023 Urban Runoff 5K Race & Walk was held on SMCC's campus. Team Southern Maine Community College was formed to gain employee participation. The event was internally communicated via posters, social media and an all employee email blast:

- 3.15.2023 the SMCC Employee Safety Minute was issued highlighting the Urban 5K Runoff. Details were also placed on the intranet
- 3.20.2023 SMCC's Communications Department posted details of the event on the school's Facebook page.
- Fliers promoting the event were posted throughout campus
- Team Southern Maine Community College had a total of 5 participants for the Urban Runoff

MCM 3 - ILLICIT DISCHARGE DETECTION AND ELIMINATION (IDDE) PROGRAM

Southern Maine Community College continues to implement its Illicit Discharge Detection and Elimination (IDDE) program, which includes:

- A Watershed-based map of the stormwater infrastructure,
- Maintain a Non-Stormwater Discharge Procedure
- A written IDDE Plan which describes:
 - Inspections of the infrastructure during dry weather
 - Investigations of potential illicit discharges,
 - A Quality Assurance Project Plan (QAPP)
- A list of outfalls that have the potential to cause illicit discharges during wet weather.

Below is a summary of how SMCC meet MCM3 during PY1.

BMP 3A: Maintain the College's Non-Stormwater Discharge Procedure

On 11.14.2022 the EHS Coordinator reviewed the SMCC Non-Stormwater Discharge Procedure for accuracy and found updates or revisions were not required.

BMP 3B: Creation of a Written IDDE Plan

A written IDDE Plan, which includes a QAPP was written in 2022 and submitted with the Modified Stormwater Management Plan on September 23, 2022. Revisions were not required during PY1.

BMP 3C: Stormwater Infrastructure Map

On 11.14.2023, SMCC reviewed its online stormwater infrastructure map and determined revisions were not necessary. There have been no changes to the college's stormwater infrastructure.

BMP 3D: Dry Weather Inspections

On 6.9.2023 SMCC inspected each of its six outfalls. A summary table of inspection findings is located in the table below. For formatting purposes, several fields were omitted.

Outfall ID	Inspection Date	Temperature	Wind Present	3 Day Precipitation	Pipe Flow	Seepage Flow	Sediment	Structure Condition	Color	Odor	Water Clarity	Solids	Notes
BW_10	6/9/2023	54	No	0.21	None	None	1/4 Full	Fair					Plastic rim of pipe continues to slowly break down
BW_11	6/9/2023	54	No	0.21	None	None	1/2 Full	Good					Consistent
BW_12	6/9/2023	54	No	0.21	None	None	Open	Good					Consistent - small amount of barnacles growing inside pipe
WB_11	6/9/2023	54	No	0.21	None	Trickle	Open	Poor					The pipe is badly eroded, seepage appears to be from surrounding ground but not easy to distinguish. EHS will review drain upline to confirm no flow.
WB_12	6/9/2023	54	No	0.21	None	None	null	Good					Someone is uprooting plants around drain. Drain was blocked by fallen debris but ultimately located.
WB_15	6/9/2023	54	No	0.21	Trickle	None	Open	Good	Clear	None	Clear	No	Low tide 10:05am

Point to note for PY1 Dry Weather Outfall Inspections:

- In the 8 days before the 6.9.23 inspections there was a total of 1.35 inches of rain in South Portland, ME
- Outfall WB_11 is in poor condition with the metal eroding well into the pipe. The trickle of water observed on 6.9.2023 was confirmed to be seepage as basin CB_1341 was viewed and no flow observed. Photos of WB_11 are below.



This goal must be achieved by September 30, 2027.

BMP 3F: Review of Allowable Non-Stormwater Discharges

The EHS Coordinator reviewed campus activities and confirmed there have been no new significant contributors identified during PY1.

Non-Permit Required Activities Which Took Place During PY1

SMCC also performed 5 of 6 outfall inspections on 7.18.2022 only to realize that they would not count for permit year 1 which started on October 1, 2022. A summary table of inspection findings is located in the table below. For formatting purposes, several fields were omitted.

Outfall ID	Temp	Wind Present	3 Day Precip	Pipe Flow	Seepage Flow	Sediment	Structure Condition	Notes
BW_10	72	No	0	None	None	1/4 Full	Good	Tidal influence on rocks in pipe. Photo taken
BW_11	72	No	0	None	None	1/2 Full	Good	In good order - tidal influence on how many rocks in the pipe. Photo taken
BW_12	72	No	0	None	None	Open	Good	In good order picture taken
WB_11	73	No	0	None	None	Open	Poor	In good order - photo taken
WB_12	73	No	0	None	None	Open	Good	In good order - photo taken

MCM 4 - CONSTRUCTION SITE STORMWATER RUNOFF CONTROL

SMCC must implement and enforce a program to minimize or eliminate pollutants in any stormwater runoff to the regulated small MS4 from construction activities that result in a land disturbance of greater than or equal to one acre. Reduction of stormwater discharges from construction activity disturbing less than one acre must be included in the program if that construction activity is part of a larger common plan of development or sale that would disturb one acre or more.

SMCC does not anticipate new development or redevelopment projects of this scale will occur during this permit cycle.

Below is a summary of how SMCC meet MCM4 during PY1.

BMP 4A: Erosion and Sediment Control Procedure

This goal must be achieved by July 1, 2024.

BMP 4B: Erosion and Sediment Control Procedure

This goal must be achieved by July 1, 2024.

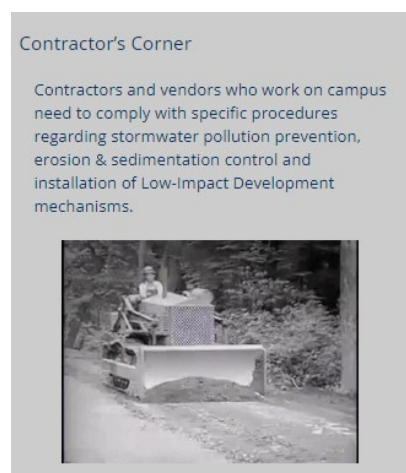
BMP 4C: Procedures to Notify Construction Site Developers and Operators

There were no new development or redevelopment projects on campus during PY1.

BMP 4D: Construction Site Stormwater Recordkeeping

There were no new development or redevelopment projects on campus during PY1.

SMCC has until June 30, 2024 to develop procedures for site inspections and enforcement of erosion and sediment control measure for future construction projects.



Non-Permit Required Activities Which Took Place During PY1

In an effort to educate contractors who are bidding on jobs or working on campus, SMCC created an “[SMCC Contractor’s Corner](#)” on my.smccme.edu with links to relevant stormwater related procedures and policies.

MCM 5 - POST-CONSTRUCTION STORMWATER MANAGEMENT IN NEW DEVELOPMENT AND REDEVELOPMENT

SMCC must implement and enforce a program to address post construction stormwater runoff from new development and redevelopment projects that disturb greater than or equal to one acre, including projects less than one acre that are part of a larger common plan of development that discharge into the MS4.

SMCC does not anticipate new development or redevelopment projects of this scale will occur during this permit cycle.

Below is a summary of how SMCC meet MCM5 during PY1.

BMP 5A: Required LID Techniques

The Southern Maine Community College Low Impact Development Statement was written and approved by the college president on 5.24.2023. The statement takes effect on July 1, 2023 and will serve as the performance standard on new and redevelopment sites, on the South Portland Campus, that disturb greater than or equal to one acre, including projects less than one acre that are part of the larger common plan of development. Full language of the statement is located in Appendix C.

BMP 5B: Post Construction BMP Inspections

The post-construction BMP's on SMCC property were installed before July 1, 2008 and/or are under 1 acre in size. This permit requirement is not currently applicable.

SMCC will ensure that future/new post-construction stormwater BMP's installed after the date of this SWMP and which fall under the scope of MCM4 and MCM5, are inspected, managed, and documented following the requirements of this permit.

Non-Permit Required Activities Which Took Place During PY1

Annually, SMCC inspects the stormwater BMP's installed on campus prior to July 1, 2008. Below is a summary of these inspections.

Date	Device/Area Inspected	Inspected By	Observations, Deficiencies and Recommended Corrective Actions	Action Taken
4.10.2023	Infiltration Basin- Hildreth Hall	otenti	WO# 20748725 remove woody plants mow/weedwack and reseed bare spots on slope of swale	Completed 6/30/2023
4.10.2023	Rain Garden- Spring Point Residence Hall	otenti	None needed - area is in good shape	none needed
4.10.2023	Infiltration Swale- Lot D	otenti	WO# 20748851 reseed at head of swale, rake/regrade dirt that has been pushed in by plow, clear off catch basin CB_3309	
4.10.2023	Infiltration Swales- Lot B	otenti	WO# 20748792 rake/regrade dirt that has been pushed in by plow, clear off catch basin CB_6883	
5.17.2023	StormTreat System	otenti	no action needed skimmer were not floating but appeared in good shape	none needed
6.19.2023	Pickett St. StormTECH Treatment System	Cumberland County Soil & Water Conservation District	System is in good order. Vegetated islands could use some mulch. Work Order # 21077320 created	

MCM 6 - POLLUTION PREVENTION/GOOD HOUSEKEEPING FOR FACILITY OPERATIONS

The objective of this program is to mitigate or eliminate pollutant runoff from state and federal facility roads, other paved surfaces, infrastructure and facility operations on property that is owned or managed by the permittee.

In 2014, the DEP determined that SMCC did not require a stormwater pollution prevention plan (SWPPP). Our operations have not changed. SMCC will continue to operate via a written Stormwater O&M Plan which will be reviewed and updated prior to October 1, 2022.

Below is a summary of how SMCC meet MCM6 during PY1.

BMP 6A: Stormwater O&M Plan

SMCC operates via a written Stormwater O&M plan which was revised in September 2022 to align with the new MS4 Permit and requirements of the Modified SWMP. No changes were required during PY1.

BMP 6B: Stormwater O&M Plan Training

During PY1, SMCC Stormwater O&M training was conducted on-line. Between January 1, 2023 and June 15, 2023, twenty-six (out of thirty) Facilities staff reviewed a PowerPoint presentation and completed a quiz to demonstrate their understanding of their role and responsibilities under the SMCC MS4 Permit and our Stormwater O&M Plan. A copy of the training presentation is attached as Appendix D.

BMP 6C: Annual Street Sweeping



For PY1, a property maintenance company was contracted to sweep SMCC owned paved streets and parking lots. The contracted vendor used a vacuum truck with water for dust control to sweep roads and parking areas. The work was performed over six non-consecutive days in May and June, 2023.

Left and below are photos inside the vendor's catchment hopper. Debris was predominantly sand and plant matter.



BMP 6D: Catch Basin Management

SMCC has 74 stormwater drains which accumulate sediment. In PY 1, 67% of these drains were inspected and cleaned. Pet waste bags were not observed in the catch basins. Data from this task is shown in the table below. Three drains were determined to have excess sediment and will be cleaned again in PY2:

- CB-7199 is located at Outfall BW-11 and is impacted by the tide which frequently pushes large debris such as driftwood, rocks, plastic waste or other floating objects inside
- CB-9999 is located at the Dining Hall in an alcove which accumulates leaves and plant debris

- CB-5107 is located in a high traffic area near the Campus Center and stormwater frequently washes sediment into the drain due to the slope of the adjacent land

ID #	Location Information	Sump Depth	≥ 50% Sump	Sediment Depth	Is Sediment ≥50% of Sump?	List Debris or Pollution Present	Catch Basin Condition	Maintenance Need?
CB-7200	Seawall Center	24	12	6- 12 inches	No	None	Good	No
CB-7201	Seawall Center Ocean	24	12	6- 12 inches	No	None	Good	No
CB-5001	Lighthouse Building M CCS	24	12	0 - 6 inches	No	None	Good	No
CB-7199	Lighthouse Building Seawall	24	12	24+ inches	Yes	Excessive Sediment Floatables	Fair	No
CB-7202	Seawall MMFish	24	12	6- 12 inches	No	None	Good	No
CB-3309	Parking Lot D-swale inlet	27	14	0 - 6 inches	No	None	Good	No
CB-3312	Spring Point- Rear inlet	18	9	0 - 6 inches	No	None	Good	No
CB-3313	Spring Point- rear infiltration	24	12	0 - 6 inches	No	None	Good	No
CB-4779	Spring Point- rear infiltration (right)	24	12	0 - 6 inches	No	None	Good	No
CB-4780	Spring Point- rear infiltration (left)	24	12	0 - 6 inches	No	None	Good	No
CB-4783	Parking Lot C-Swale N	24	12	6- 12 inches	No	None	Good	No
CB-4784	Parking Lot C-Swale S	36	18	6- 12 inches	No	None	Good	No
CB-4996	Slocum Dr- Parking lot SS	48	24	0 - 6 inches	No	None	Good	No
CB-5006	Jewett- central entrance	36	18	6- 12 inches	No	None	Good	No
CB-6885	Jewett- North side	24	12	6- 12 inches	No	None	Good	No
CB-6886	Jewett- South Side	36	18	6- 12 inches	No	None	Good	No
DM-3311	Parking Lot C-drain	24	12	0 - 6 inches	No	None	Good	No
OT-4782	Spring Point- Outlet control	none	none	0 - 6 inches	No	None	Good	No
CB-4781	Spring Point- Stairwell	24	12	6- 12 inches	No	None	Good	No

ID #	Location Information	Sump Depth	> 50% Sump	Sediment Depth	Is Sediment >50% of Sump?	List Debris or Pollution Present	Catch Basin Condition	Maintenance Need?
CB-6617	Campus Center at Cates	24	12	0 - 6 inches	No	None	Good	No
CB-7136	Pickett Parking lot (bar)	24	12	6- 12 inches	No	None	Good	No
CB-7137	Pickett Parking lot (broadway)	24	12	6- 12 inches	No	None	Good	No
DM-6469	Pickett Street Lot A leading to SoPo Connector	36	18	0 - 6 inches	No	None	Good	No
DM-6470	Pickett Parking lot (street facing front right)	36	18	6- 12 inches	No	None	Good	No
DM-6471	Pickett Parking lot (street facing front center)	36	18	0 - 6 inches	No	None	Good	No
DM-6472	Pickett Parking lot (street facing front left)	36	18	6- 12 inches	No	None	Good	No
DM-6473	Pickett Parking lot (street facing rear left)	36	18	0 - 6 inches	No	None	Good	No
DM-6474	Pickett Parking lot (street facing rear center)	36	18	0 - 6 inches	No	None	Good	No
DM-6475	Pickett Parking lot (street facing rear right)	36	18	0 - 6 inches	No	None	Good	No
CB-5106	Fort Road- Fort Building Sump	No	no	12 - 18 inches	No	None	Fair	No
CB-9999	Sodexo Dinning Hall	18	9	6- 12 inches	Yes	None	Fair	No
CB_9997	Staff Parking Lot BB FRENCH DRAIN	No	no	6- 12 inches	No	None	Good	No
CB-0827	Parking Lot B- swale inlet	48	24	0 - 6 inches	No	None	Good	No
CB-0828	Parking Lot B- McKernan	24	12	0 - 6 inches	No	None	Good	No
CB-1340	Parking Lot B- McKernan	48	24	6- 12 inches	No	None	Good	No
CB-5004	Bunker lane	Invert	no	6- 12 inches	No	None	Fair	No

ID #	Location Information	Sump Depth	> 50% Sump	Sediment Depth	Is Sediment >50% of Sump?	List Debris or Pollution Present	Catch Basin Condition	Maintenance Need?
CB-5005	Bunker Lane	Invert	no	6- 12 inches	No	None	Fair	No
CB-5017	Parking Lot B- inlet	18	9	0 - 6 inches	No	None	Good	No
CB-6883	Parking Lot B- swale inlet	36	18	0 - 6 inches	No	None	Good	No
DM-6376	Automotive rear grass fort	Invert	no	0 - 6 inches	No	None	Good	No
DM-6377	Automotive in grass (roof drain)	6	3	0 - 6 inches	No	None	Good	No
CB-5012	Shoreway Ln- Pavillion	24	12	0 - 6 inches	No	None	Good	No
CB-5013	Parking Lot II- CSEC	24	12	0 - 6 inches	No	None	Good	No
CB-5103	Shoreway Ln- Lot EE	24	12	0 - 6 inches	No	None	Good	No
CB-5104	Campus Center Dr- Sign post at east end	24	12	0 - 6 inches	No	None	Good	No
CB-5105	Campus Center Dr- at Fort Building	24	12	6- 12 inches	No	None	Good	No
CB-5107	Campus Center Dr- at sign post by café	18	9	12 - 18 inches	Yes	None	Good	No
CB-5102	Cates Sump	No	no	6- 12 inches	No	None	Good	No
CB-5014	Field beyond softball field	24	12	6- 12 inches	No	None	Good	No
CB-5779	Field at outfall 11 sign	24	12	6- 12 inches	No	None	Good	No

Excess accumulation of sediment is greater than or equal to 50% of the sump filled. Example: A 24 inch sump IS considered to have excess accumulation of sediment when the 12-18 inch category is checked. The same sump would not have access accumulation of sediment when the 6-12 inch field is checked

BMP 6E: Stormwater Structure Repairs

SMCC will evaluate and implement a schedule for repairing or upgrading the conveyances, structures and outfalls under SMCC's jurisdiction in accordance with the necessity of needed repairs or maintenance. The following structures were repaired in PY1.

Basin ID#	Location Information	Maintenance	Date of Completion
CB_5000	Slocum Drive @ Horticulture	Brick and concrete repair	8.16.2022
CB_5013	Parking Lot II	Grate reset, concrete and pavement repairs	8.16.2022



Above Left: BEFORE CB_5000 showing signs of deterioration. Above Right: AFTER CB_5000 concrete repaired



Photos above show CB_5013 before repairs and grate reset.

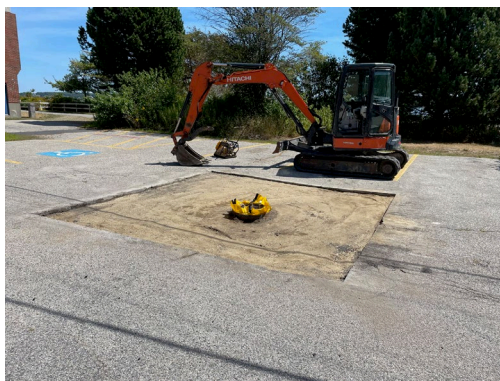


Both photos above show AFTER repairs made to CB_5013

Non-Permit Required Activities Which Took Place During PY1

The following additional stormwater related items were addressed on campus:

- On 7.26.2022, the EH&S Coordinator attended the “Soak up the Rain: New England Stormwater Retrofit Manual” webinar.
- On 8.3.2022, EH&S Coordinator observed the paving vendor sweeping loose asphalt up and placing it back into their trailer as outlined in the SMCC Stormwater O&M Plan.
- On 8.12.2022, EH&S Coordinator provided Stormwater Permit training to SMCC’s newly hired Director of Human Resources
- On 8.16.2022, EH&S Coordinator observed vendor hired to repair catch basins had installed a sediment catcher in the drain where paving was to occur. Photo below.



- On 9.1.2022, Facilities installed a new spill cart with sorbent, a shovel and broom next to the Marine Science 1,000 gallon heating oil tank. The original spill cart went missing.
- EH&S Coordinator attended the Soak up the Rain webinar: Dissolved Phosphorous and Green Infrastructure: Fundamentals, Challenges and opportunities on 9.28.2022
- On 10.25.2022, EH&S Coordinator trained the new Director of Human Resources on the college’s SPCC Plan
- On 11.18.2022 Facilities swept/scooped up the debris which was accumulating around the sediment catcher located at Roccoland.
- EH&S Coordinator attended GHPPP training in Gorham to satisfy annual stormwater pollution prevention training on 4.4.2023
- In April, 2023 the Dean of Administration observed that the grate to CB_6885 was damaged, likely by winter plowing. A replacement was located and installed August 22, 2023.
- On the evening of 5.10.2023 a student reported an overflowing trash dumpster at the dormitory, with bags on the ground and birds pecking at them. This occurred while students were moving out of the building. Facilities was notified and the issue was resolved first thing in the morning 5.11.2023.



Above Left: Spring Point Dumpster late evening of 5.10.2023. Above Right: Same dumpster trash removed morning of 5.11.23

- On 5.16.2023, the EH&S Coordinator issued a SMCC Safety Minute highlighting soil erosion as the #1 stormwater pollutant in Maine. Referenced the DEP and Think Blue Maine websites for additional info. Included as Appendix E.
- On 6.15.2023, the EH&S Coordinator observed Facilities staff member Howie mowing grass clippings into the grass – not the pavement - following the college’s O&M Plan. Photo Below.



- On 6.28.2023, the EH&S Coordinator observed that the college’s paving vendor was following our Stormwater O&M plan guidelines by installing sediment catchers in drains AND adding mulch/loom/seeding to disturbed dirt. Photos below.



- Between July 1, 2022 and June 30, 2023, 130 new hire SMCC employees (faculty, staff and work study students) completed our online awareness course "SMCC Campus Stormwater Pollution Prevention for Staff"

Duly Authorized Representatives

The following positions are deemed duly authorized representatives with the authority to sign and certify documents under the current permit:

- EH&S Coordinator
- Director of Human Resources
- Dean of Administration
- Director of Public Safety/Interim Dean of Administration

Permit Year 1 MS4 Annual Report Certification Statement

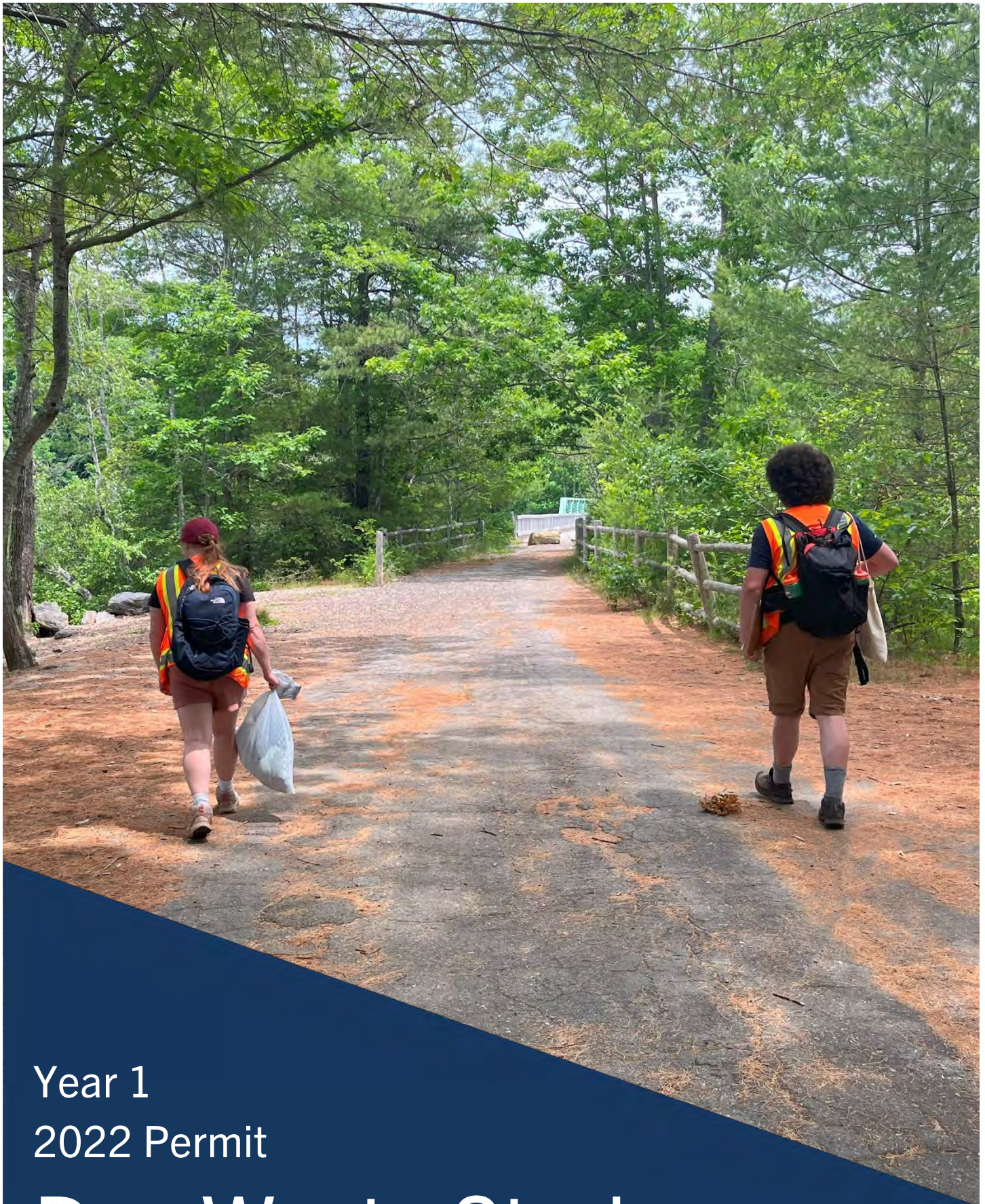
I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.



Signature & Title

9.7.2023
Date

APPENDIX A



Year 1

2022 Permit

Dog Waste Study

About the Authors

Maddy Broda was awarded a stipend through the Bates College Center for Purposeful Work to conduct this research during the summer of 2022. She is studying geology and biology and is interested in water quality and geochemistry.

Lucas Kirsch was an AmeriCorps Environmental Steward serving with the Cumberland County Soil & Water Conservation District during the 2022 study.

Acknowledgements

We would like to extend our gratitude to Ali Clift of the Cumberland County Soil & Water Conservation District and Martha Sheils of the New England Environmental Finance Center for their guidance and support throughout this project. We would also like to thank the Interlocal Stormwater Working Group members who listened to and engaged with our research.

The [Cumberland County Soil & Water Conservation District](#) (District) works “to assist and educate the public to protect soil and water resources”. Founded in 1946 and based in Windham, Maine, the District coordinates water quality improvement programs throughout the Southern Maine region. The District facilitates the Interlocal Stormwater Working Group (ISWG), a regional approach of 14 municipalities and two nested MS4 to implement stormwater permit requirements. In addition, the District implements Minimum Control Measures 1 and 2 requirements for ISWG.

The [New England Environmental Finance Center](#) is one of 10 university-based Environmental Finance Centers in the nation and serves the 6 New England states of EPA Region 1. Its mission is to build local capacity to pay for the growing costs of protecting the environment and to be better prepared to manage the chronic and acute problems of environmental protection and finance. The New England Environmental Finance Center is based at the [University of Southern Maine](#) (USM), part of the University of Maine system and situated in Portland, Maine’s economic and cultural center. USM is a public university with 8,000 undergraduate and graduate students and is known for its academic excellence, student focus and engagement with the community.



CUMBERLAND COUNTY
SOIL & WATER
CONSERVATION DISTRICT



Bates Center for

PURPOSEFUL | **WORK**

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Summary

The purpose of this project is to record and analyze the prevalence of dog waste pollution at parks, trails, and beaches in the fourteen Interlocal Stormwater Working Group (ISWG) communities in Cumberland and York Counties to establish a baseline and comply with the 2022 MS4 Stormwater Permit regulations. For this study, improper disposal is defined as dog waste left at the site either bagged or unbagged. Data is collected at 15 locations through field work that examined locations of dog waste, as well as presence of trash cans, restrooms, bag stations, and signage. All data is compiled and analyzed to assess the extent of improper dog waste disposal, both locally and regionally, to determine recommendations.

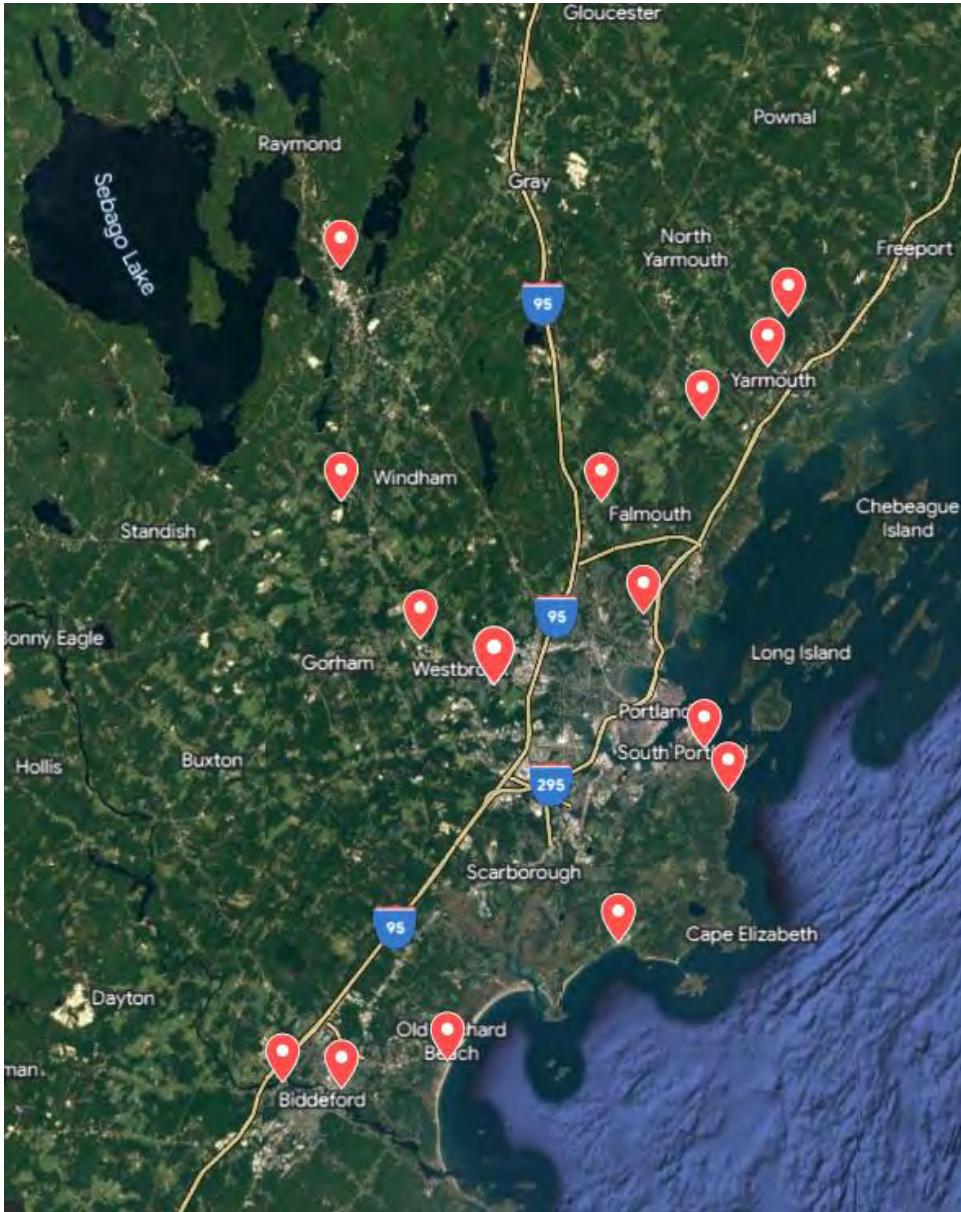


Figure 1. Selected Survey Locations

Methods

Pre-survey Methods

Prior to surveying the selected sites, municipal officials are contacted and informed of our two survey dates. Trail and park clean-up operations are asked to stop during the two-week period between the survey dates to ensure an accurate count of how much dog waste was left behind.

Field Methods

At each site, every trail is walked with two or more surveyors, with each surveyor scanning a side of the trail for dog waste. ArcGIS Quick Capture App is used to track surveyors' routes on trails and for cross sections across fields. This app also allows for recording the location of trash cans, bathrooms/porta potties, different types of signs (educational, ordinance, simple, and litter), entrances, bag stations, and bagged or unbagged dog waste. Once recorded, if the waste is not already bagged, the waste is bagged and added to a larger trash bag for disposal.

Community Engagement Methods

While completing field work, surveyors wear reflective orange safety vests and carry field kits with dog waste bagging supplies, trash bags, and other equipment. The surveyors often attract the attention of park-goers and dog owners. Field work is often paused to talk to community members about the project and the issue of dog waste pollution. Additionally, community members are asked about their observations and experiences with dogs and dog waste pollution at the site. Many of these conversations are noted in the datasheets and considered in analysis of the parks.

Analytical Methods

ArcGIS Quick Capture and Survey123 are used to record general site and survey information, track locations accurately, and tag all objects on the same device and automatically upload the data to ArcGIS online. These apps allow for same day visualization of the data on ArcGIS maps. Additional information about these apps and methods can be found in Appendix A.

Results

Individual Findings

The findings, analysis, and recommendations for each individual surveyed site are included for the five-year study starting in 2022. **Data is presented visually through maps, in which orange markers represent bagged dog waste and red markers represent unbagged dog waste. Signage, bag stations, trash cans, and bathrooms/porta potties are also represented by various colorful markers. Some markers may overlap each other.** Municipalities are listed in alphabetical order. Additional information about each site can be found in Appendix A.

Biddeford

Rotary Park and Dog Park, in Biddeford, contains a dog park, a beach, a disc golf course, and a trail encompassing the park. Dogs are required to be leashed outside of the dog park and are not permitted on the beach in the summer season. There are trash cans and a bag station located at the dog park entrance, along with several signs detailing harms of dog waste and information on leash laws (Figure 2).

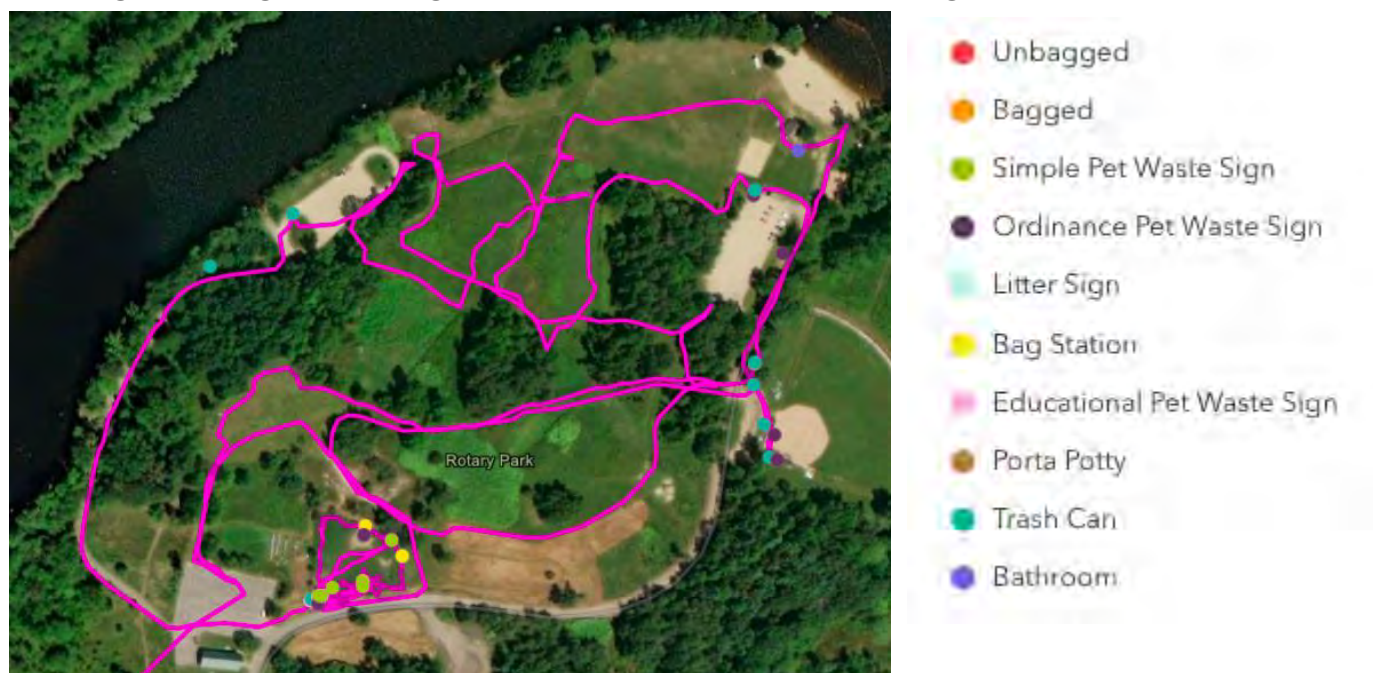


Figure 2. Map of infrastructure and route of survey at Rotary Park and Dog Park.

2022

The park's trails and dog park were surveyed on July 11, 2022 and on July 25, 2022. During the first survey, 44 deposits were found. During the second survey, there were **78 deposits**. Most of the dog waste was found inside the dog park and more specifically along the perimeter and towards the back of the dog park (Figure 3).

Recommendations: Since the park already has multiple bag stations, trash cans, and signage, this may be a great place for a couple of information sessions at the entrance to the dog park on why it is important to pick up after your dog!



Figure 3. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Rotary Park and Dog Park, 2022.

Cape Elizabeth

Fort Williams Park, in Cape Elizabeth, is a popular park with open fields and large looping trails. There is an off-leash section of the park, but most of the space requires leashes. The Park has a few trash cans by the popular dog off-leash area but otherwise is a carry in-carry out facility. There are two bag stations: one at the off-leash area and the other on the Pond Loop Trail. These stations have signage explaining the importance of their use and there are other dog waste signs around this area (Figure 4).



Figure 4. Map of infrastructure and route of survey at Fort Williams Park.

- Unbagged
- Bagged
- Simple Pet Waste Sign
- Ordinance Pet Waste Sign
- Litter Sign
- Bag Station
- Educational Pet Waste Sign
- Porta Potty
- Trash Can
- Bathroom

2022

The park's trails and open fields were surveyed on July 5, 2022 and on July 19, 2022. During the first survey, 3 deposits were found. During the second survey, **13 deposits were found**. Most of the dog waste was found nearby the off-leash area and near the parking lots (Figure 5). This site added a trash can in the off-leash dog area, but the rest of the facility is carry in-carry out and does not say there is a trash can in the back of the park.

Recommendations: Additional trash cans near the perimeter of the park.



Figure 5. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Fort Williams Park, 2022.

Cumberland

Twin Brook Recreation Area, in Cumberland, is a large recreational facility. Due to the size, the study focused on the park accessed from Tuttle Road, covering the several open, mowed sports fields and large network of surrounding wooded trails. There is no formal leash law, though there is a voice control requirement. There are bag stations and trash cans at each parking area at the Tuttle Road entrance and at the Greely Road entrance. Additional trash cans are located at the end of the trail into the sports fields and at the trail heads of the Paved Trail, Hill Trail, and Ravine Trail. Dog waste signage is located on information boards at each entrance (Figure 6).



Figure 6. Map of infrastructure and route of survey at Twin Brook Recreation Area.

2022

The park's trails and open fields were surveyed on July 8, 2022 and on July 22, 2022. During the first survey, 9 deposits were found. During the second survey, **16 deposits were found**. One thing to note is the addition of a trail and open fields for the second week. Most of the dog waste was found on Ravine Trail and the dog trails in the back (Figure 7).

Recommendations: More signage in areas of high concentrations, not just trail heads.



Figure 7. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Twin Brook Recreation Area, 2022.

Falmouth

Community Park, in Falmouth, consists of both recreational fields and trails in an adjacent meadow. Dogs are required on leash within 300 feet of the parking area. There are no bag stations or trash cans (per town ordinance Section 14-121 d. all town parks and facilities are currently “carry in-carry out”) and one sign encouraging the cleanup of dog waste at the very entrance (Figure 8). Falmouth Parks Department staff conduct daily dog waste cleanups during the weekdays while mowing the fields.



Figure 8. Map of infrastructure and route of survey at Falmouth Community Park.

2022

The park's trails and open fields were surveyed on July 7, 2022 and on July 21, 2022. During the first survey, 16 deposits were found. During the second survey, **23 deposits were found**. Most of the dog waste was found in the front trails and in the fields near the trails despite some of the signage nearby (Figure 9).

Recommendations: Reconsider the carry in-carry out policy for dog waste and add a dog waste trash can at the entrance.



Figure 9. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Falmouth Community Park, 2022.

Gorham

Cherry Hill Farm, in Gorham, consists of a large main trail running through farmland and into the forest with multiple side loops. There are no trash cans or bag stations, with one sign encouraging people to pick up dog waste at the entrance of the park, but none on the trails (Figure 10).



Figure 10. Map of infrastructure and route of survey at Cherry Hill Farm.

2022

The park's trails were surveyed on July 7, 2022 and on July 21, 2022. During the first survey, 19 deposits were found. During the second survey, **24 deposits were found**. Most of the dog waste was found on the Ecomaine Trail (first front loop) and many bagged deposits in a makeshift trash can near the porta potty at the entrance (Figure 11).

Recommendations: Reconsider the carry in-carry out policy, add a bag/trash can station, and increase signage on Ecomaine trail.



Figure 11. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second Cherry Hill Farm, 2022.

Old Orchard Beach

The **Ocean Park Beach and Dog Park** in Old Orchard Beach has a lot of visitors. The beach is open to dogs for certain hours dependent on the season. There are trash cans at every exit from the beach and several bag stations as well (Figure 12). The Ocean Park Association has a very active volunteer litter cleanup group in this area, with cleanup walks occurring multiple days a week.

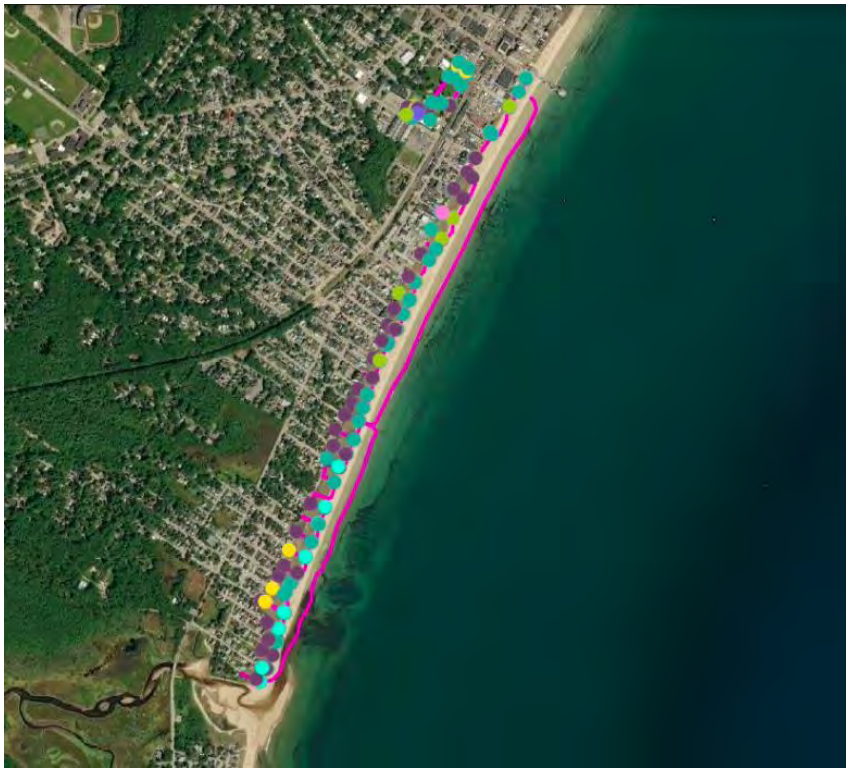


Figure 12. Map of infrastructure and route of survey at Ocean Park Beach and Dog Park.

2022

The area's beach and dog park were surveyed on July 11, 2022 and on July 25, 2022. During the first survey, 6 deposits were found. During the second survey, **24 deposits were found**. Almost all the dog waste was found inside the dog park and there were none on the parallel running roads to the beach, perhaps due to additional bag stations on some of those parallel streets (Figure 13).

Recommendations: Add more educational signage to dog park, no recommendations for beach.



Figure 13. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Ocean Park Beach and Dog Park, 2022.

Portland

The **Quarry Run Dog Park and Trails** in Portland has a network of trails extending from Quarry Run Dog Park. Dogs are allowed off-leash if under voice command on the trails. There is a trash can, bag station, and signage at the entrance to the dog park (Figure 14).



Figure 14. Map of infrastructure and route of survey at Quarry Run Dog Park and Trails.

2022

The park's trails and dog park were surveyed on July 7, 2022 and on July 21, 2022. During the first survey, 46 deposits were found. During the second survey, **64 deposits were found**. Most of the dog waste was found inside the dog park and near the trail/dog park parking lot (Figure 15).

Recommendations: Add a bag station, trash can, and signage on the trail just past the dog park where the deposits are most concentrated.



Figure 15. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Quarry Run Dog Park and Trails, 2022.

Saco

The **Saco Dog Park** in Saco is a small fenced-in field that allows dogs to be off leash. There are two sections, one for large dogs and one in the back for small dogs. There is one trash can in the small dog area. There is one trash can and bag station at the large dog entrance with several signs about picking up dog waste (Figure 16).

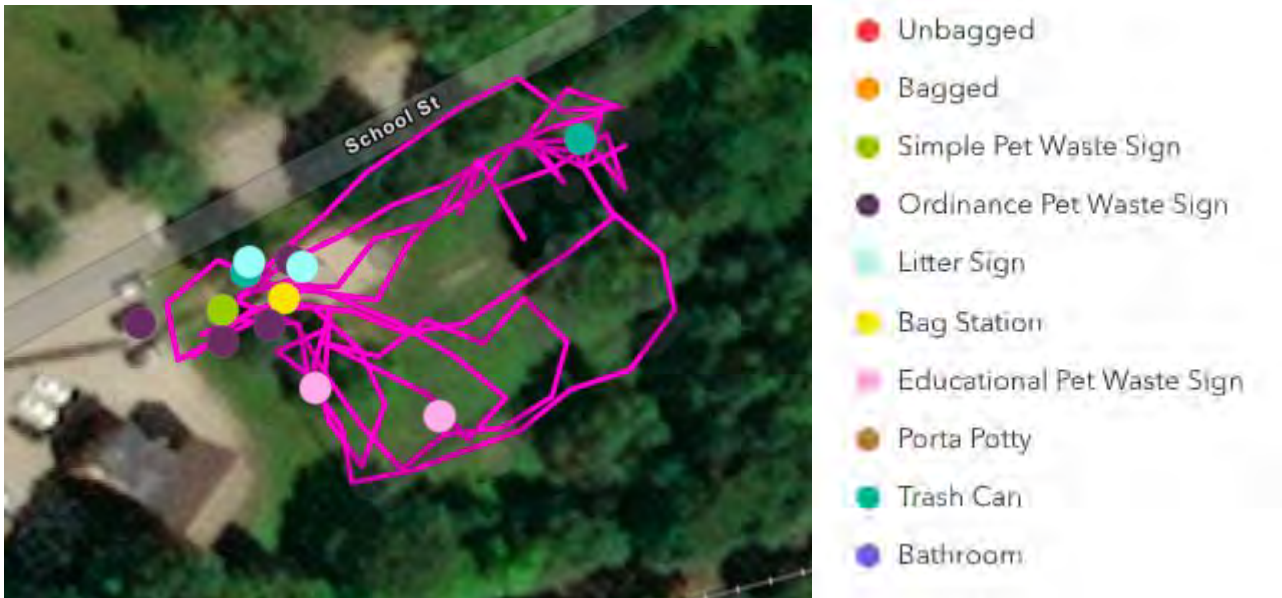


Figure 16. Map of infrastructure and route of survey at Saco Dog Park.

2022

The dog park was surveyed on July 11, 2022 and on July 25, 2022. During the first survey, 37 deposits were found. During the second survey, **34 deposits were found**. Most of the dog waste was found inside the dog park and more specifically along the perimeter and towards the back of the dog park (Figure 17). Users present during the survey suggested the owners may do a better job picking up if there are more dog bag stations dispersed between the two sections.

Recommendations: Add additional bag stations around the dog park and do an informational session on the importance of picking up after your dog.



Figure 17. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Saco Dog Park, 2022.

Scarborough

Higgins Beach in Scarborough is a small beach with one main entrance in the middle. Dogs are allowed off season and on a portion of the beach during peak summer season only if leashed or under voice control and only from sunrise to 9am or after 5pm until sunset. There are trash cans, bag stations, and signage near the neighborhood entrances (Figure 18).

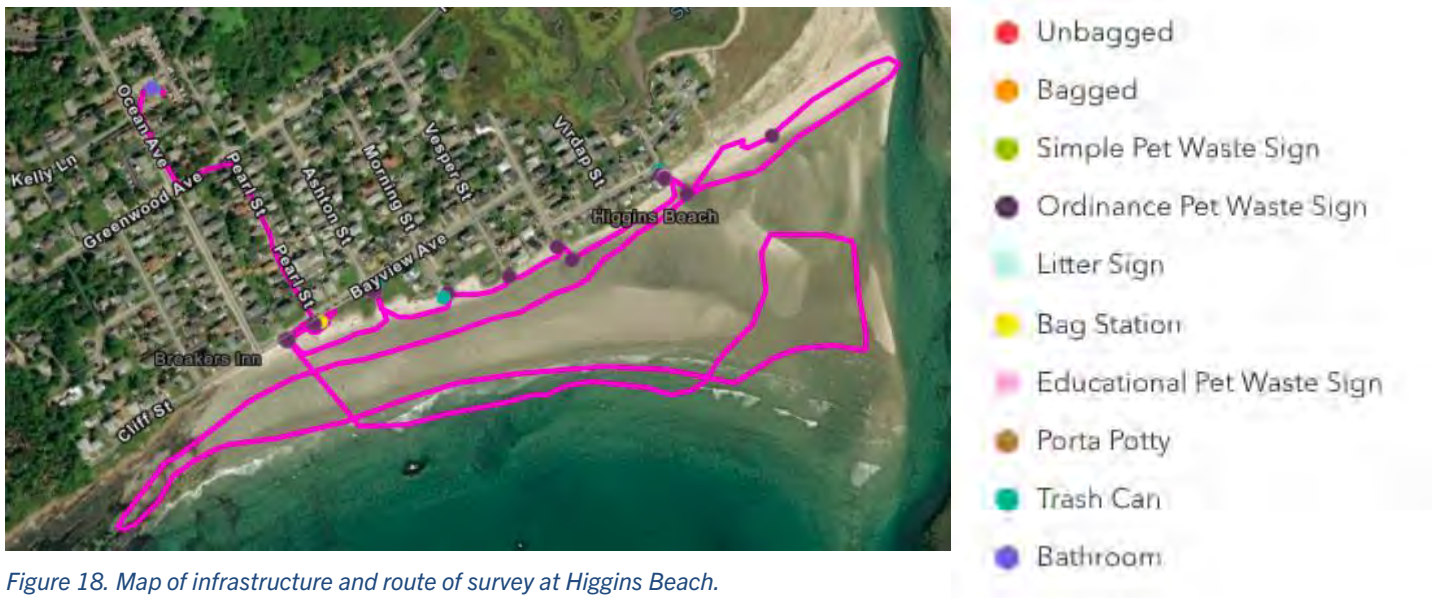


Figure 18. Map of infrastructure and route of survey at Higgins Beach.

2022

The area's beach and main street to the beach were surveyed on July 6, 2022 and on July 20, 2022. During the first survey, 1 deposit was found (bagged by the stairs to the beach). During the second survey, **0 deposits were found**. Many of the owners carried dog bags visibly and seemed to respect the rules on when and where on the beach their dogs were allowed to be.

Recommendations: None

South Portland

Willard Beach and Spring Point Trail in South Portland, allows off-leash dogs from 7-9 AM and 7-9 PM on the beach. At the access points on Willard Street and Beach Street, there are trash cans, by-donation bag stations, and signage encouraging the pickup of dog waste (Figure 19).

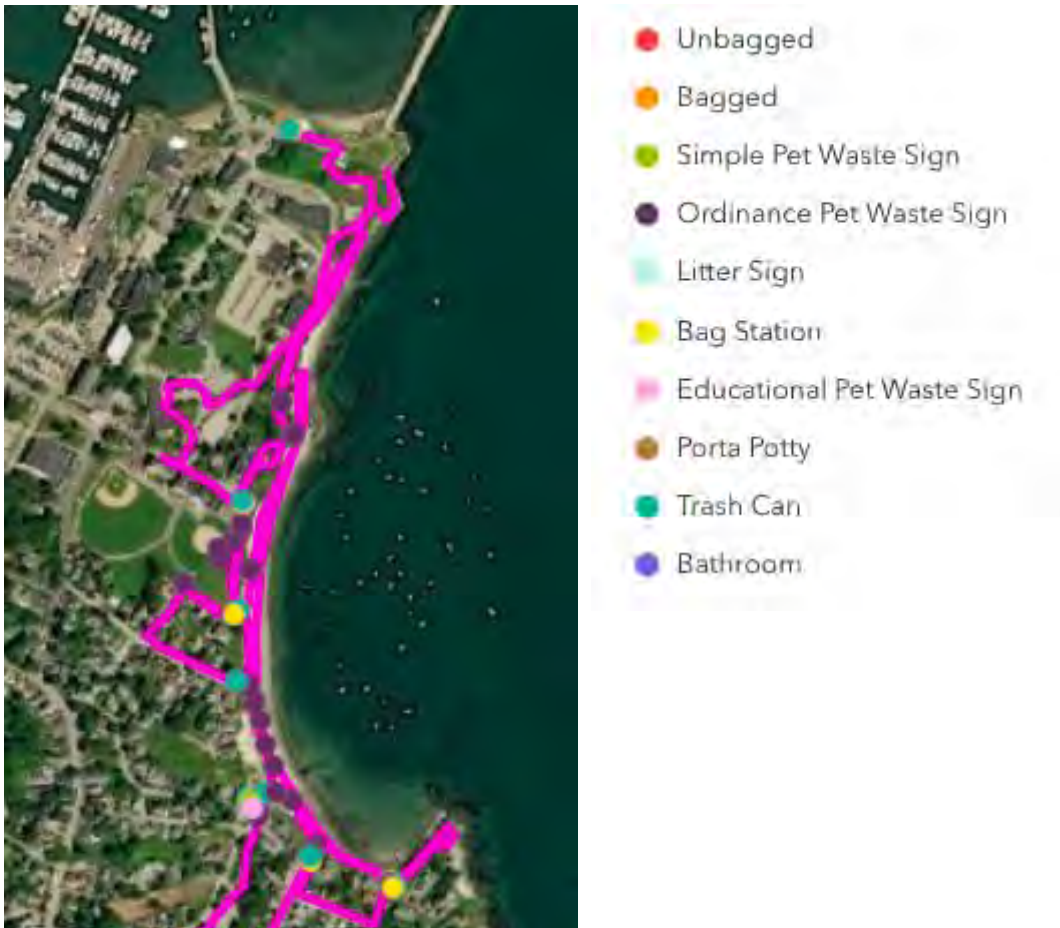


Figure 19. Map of infrastructure and route of survey at Willard Beach and Spring Point Trail.

2022

The area's trails and beach were surveyed on July 8, 2022 and on July 22, 2022. During the first survey, 3 deposits were found. During the second survey, **13 deposits were found**. Most of the dog waste was found on the Spring Point Trail (Figure 20).

Recommendations: Since there are already bag stations and trash cans, an increase in educational signage along the trail may help.



Figure 20. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Willard Beach and Spring Point Trail, 2022.

Westbrook

The **School to Skatepark Trail and Dog Park**, in Westbrook, begins at the skate and dog park, goes along several roads, through the high school sports fields before weaving between several residential neighborhoods and behind the Greater Portland Animal Refuge League shelter. The path did not appear to be heavily used and there are several signs stating that dogs are not permitted on the sports fields, which are right in the middle of the trail. Dogs are required to be on leash, but there are no dog waste signs, bag stations, or trash cans past the dog park (Figure 21).

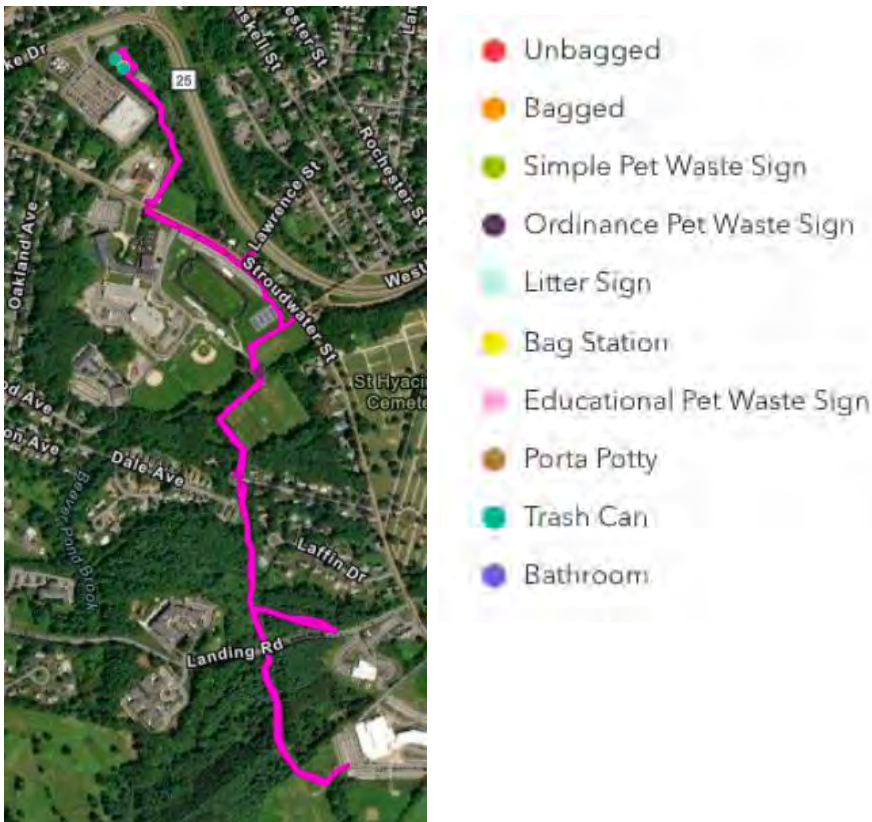


Figure 21. Map of infrastructure and route of survey at School to Skatepark Trail and Dog Park.

2022

The trail was surveyed on July 7, 2022 and on July 21 2022. During the first survey, 4 deposits were found. During the second survey, **22 deposits were found**. Most of the dog waste was found inside the dog park and near the Landing Road portion of the trail (Figure 22).

Recommendations: More signage and a bag station/ trash can on the Landing Road end of the trail.



Figure 22. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at School to Skatepark Trail and Dog Park, 2022.

Windham

Donnabeth Lippman Park in Windham consists of a main loop with several alternate loops circling Chaffin Pond. There are multiple signs at the entrance encouraging the removal and disposal of dog waste, as well as a trash can and a bag station (Figure 23). Dogs are not allowed on the playground which is located near the parking lot.

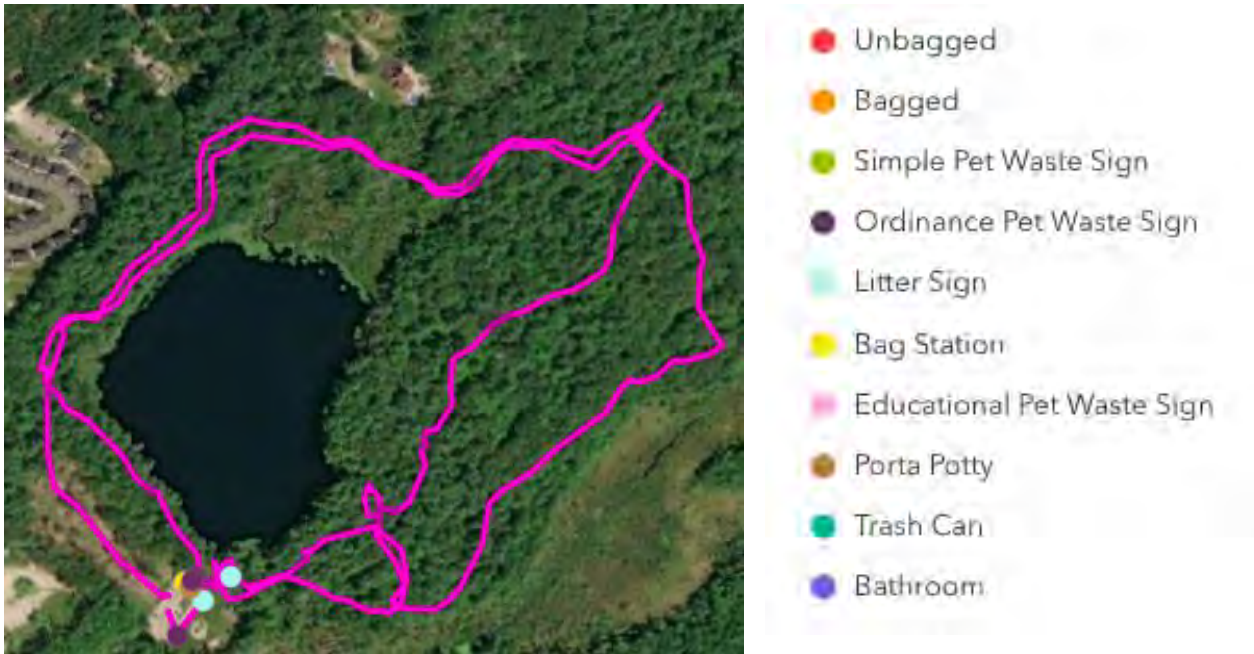


Figure 23. Map of infrastructure and route of survey at Donnabeth Lippman Park.

2022

The park's trails were surveyed on July 1, 2022 and on July 15, 2022. During the first survey, 7 deposits were found. During the second survey, **7 deposits were found**. Most of the dog waste was found closer to the parking lot and on the main trail that goes around the pond (Figure 24).

Recommendations: Continue signage past the trail heads and parking lot.



Figure 24. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Donnabeth Lippman Park, 2022.

Mountain Division Trail

A three-mile portion of the **Mountain Division Trail** in Windham and Gorham which is used for walking and biking had signage throughout the trail but only one bag station and trash can located at the Windham Gambo parking lot (Figure 25).

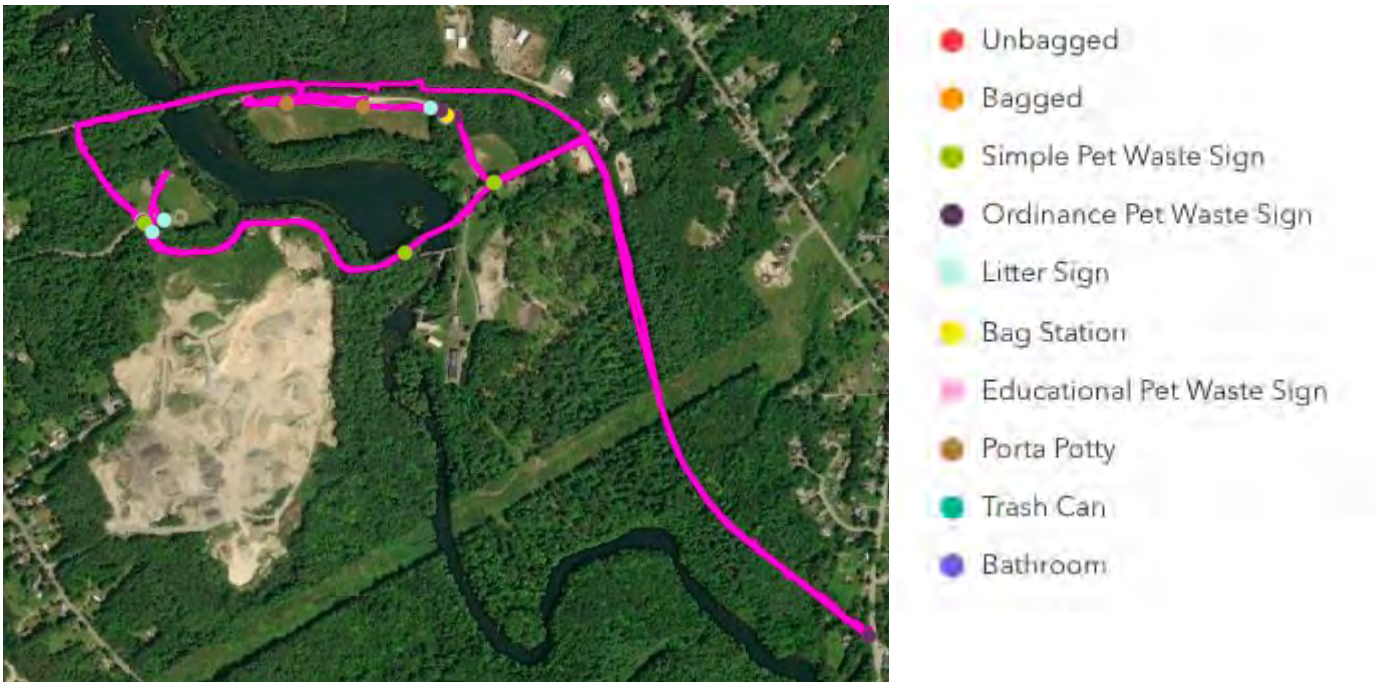


Figure 25. Map of infrastructure and route of survey at Mountain Division Trail.

2022

The park's trails were surveyed on July 1, 2022 and on July 15, 2022. During the first survey, 149 deposits were found. During the second survey, **97 deposits were found**. Most of the dog waste was found near the three main entrances (Figure 26).

Recommendations: More signage, trash cans, and bag stations spread out throughout the trails especially near those three concentrated entrances.



Figure 26. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Mountain Division Trail, 2022.

Yarmouth

Royal River Park in Yarmouth is an urban park that loops alongside the west bank of the Royal River. There are multiple access points from the city. A trash can and bag station are located at the primary trail parking lot with a bag station and additional trash cans located at other access points and signage encouraging their use (Figure 27).

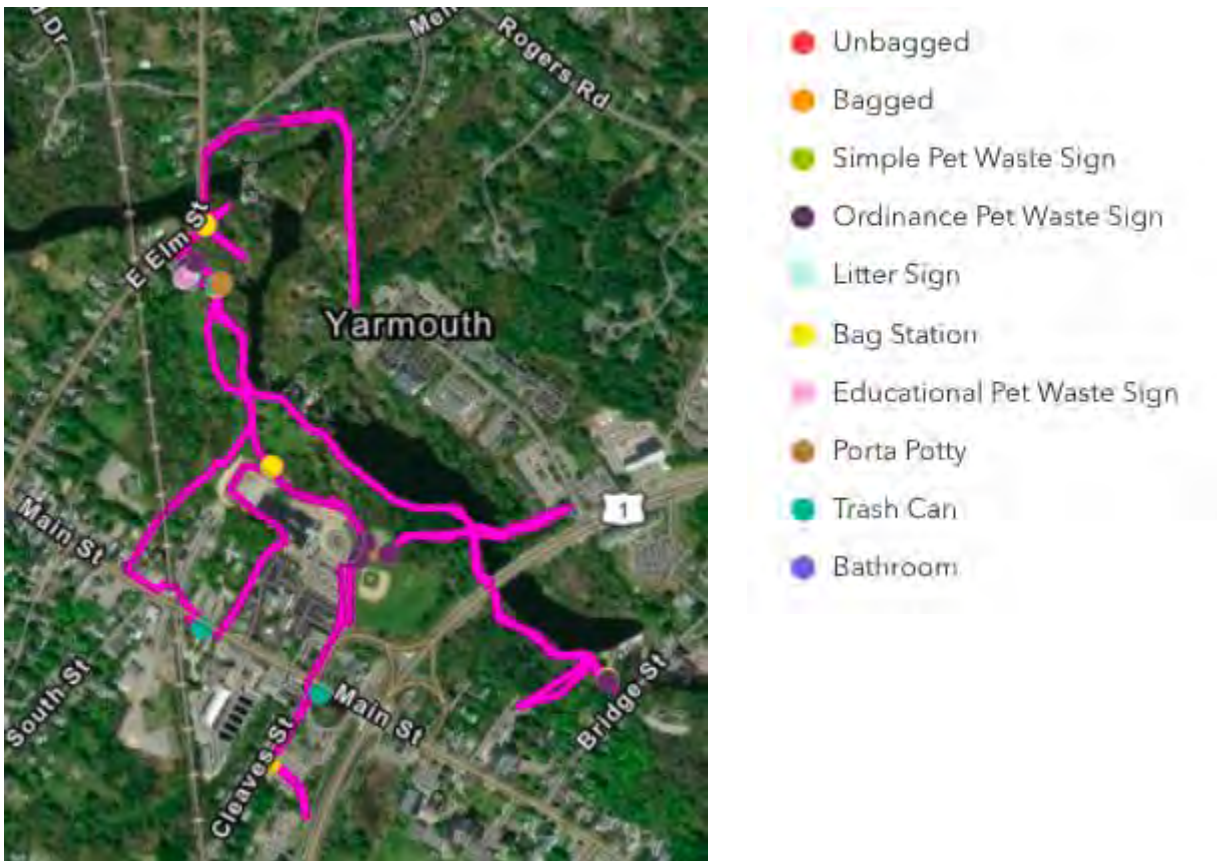


Figure 27. Map of infrastructure and route of survey at Royal River Park.

2022

The park's trails were surveyed on July 9, 2022 and on July 23, 2022. During the first survey, 3 deposits were found. During the second survey, **8 deposits were found**. Most of the dog waste was found by the Bridge Street entrance (Figure 28).

Recommendations: Add more signage by the Bridge Street entrance since there is already a trash can and bag station.



Figure 28. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Royal River Park, 2022.

Pratt's Brook Park in Yarmouth consists of a large network of trails through the forest. Off-leash dogs are permitted on the trails and many were encountered during the survey. There are no bag stations or trash cans and the only signage against leaving dog waste was on a kiosk at the entrance. There is signage at the entrance saying when you can let your dog off leash and when to put them back on leash near the parking lot (Figure 29).

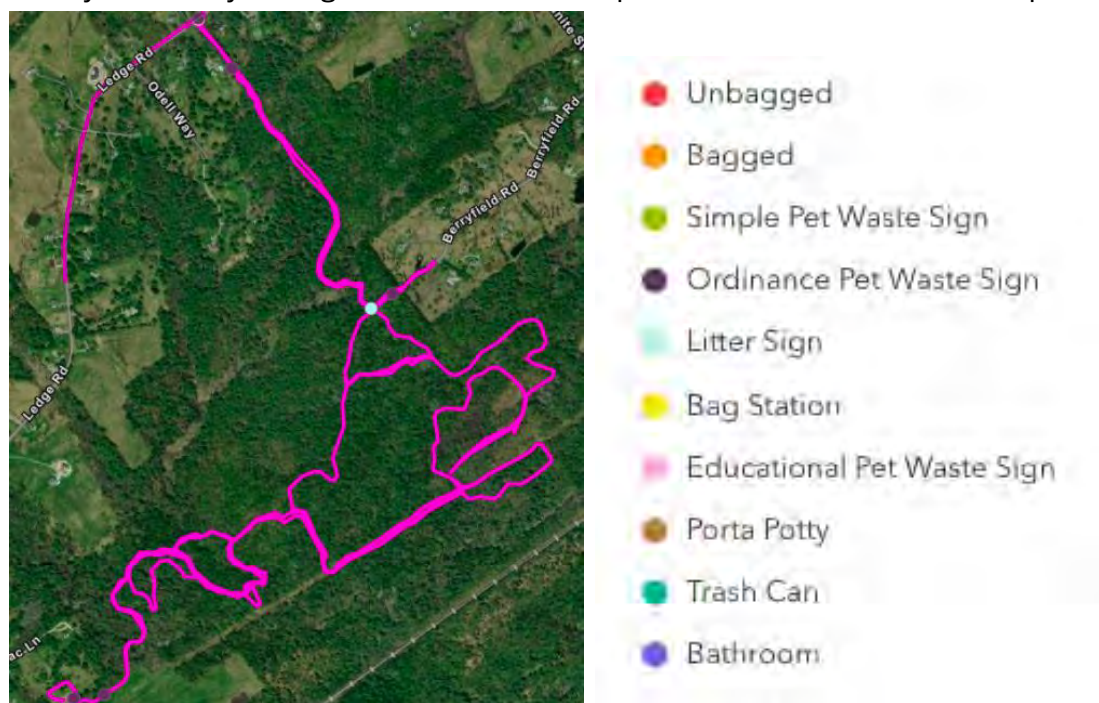


Figure 29. Map of infrastructure and route of survey at Pratt's Brook Park.

2022

The park's trails were surveyed on July 9, 2022 and on July 23, 2022. During the first survey, 13 deposits were found. During the second survey, **6 deposits were found**. Most of the dog waste was found by the three main entrances which do not have bag stations or trash cans (Figure 30).

Recommendations: Add a small trash can and bag station at each entrance.

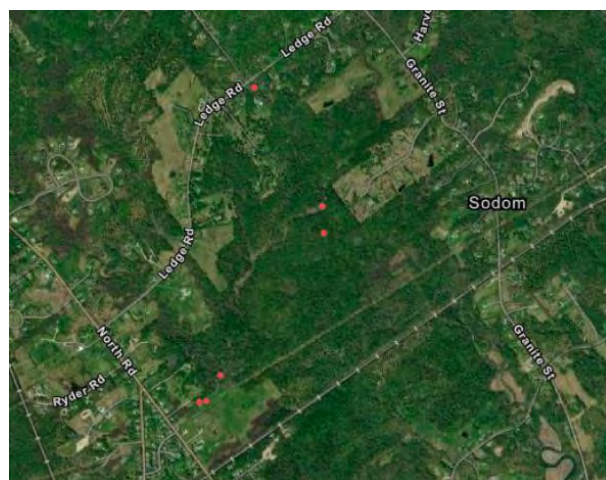


Figure 30. Collected dog waste deposits (showing unbagged in red and bagged in orange markers) during second survey at Pratt's Brook Park, 2022.

Regional Findings

Within the ISWG region, a wide variety of trail and park types were sampled from dog parks to beaches, forested trails, and open fields. This makes it difficult to test one variable, such as the presence of trash cans or bag stations for meaningful differences in how much dog waste is collected. While we are unable to adjust based on park popularity, we do know how many licensed dogs are in each municipality. In 2022, there are 25,867 licensed dogs in the ISWG region, additional unlicensed dogs and dogs accompanying tourists are unable to be accounted for but exacerbate the dog waste problem (Table 1).

Table 1. Density of licensed dogs in each municipality.

Municipality	Land (mi ²)	Licensed Dogs 2022	Licensed Dogs/mi ² 2022
Biddeford	59.08	2,200	37.23
Cape Elizabeth	45.93	1,082	23.56
Cumberland	26.25	1,145	43.62
Falmouth	36.34	1,275	35.09
Freeport	46.47	1,532	32.97
Gorham	51.29	3,150	61.42
Old Orchard Beach	22.53	1,232	54.68
Portland	21.54	1,857	86.21
Saco	52.83	2,770	52.43
Scarborough	70.63	2,830	40.07
South Portland	14.01	1,180	84.23
Westbrook	17.36	1,332	76.73
Windham	50.00	3,322	66.24
Yarmouth	22.94	960	41.85

Regional Deposits

After sampling 15 sites twice in July 2022, a total of 789 improperly disposed of deposits were collected, 360 in the first round of surveys and 429 in the second round of surveys. The range of dog waste deposits per site was evenly distributed and most improperly disposed of dog waste deposits were unbagged (Figures 31 and 32).



Figure 31. Range of dog waste deposits in survey sites

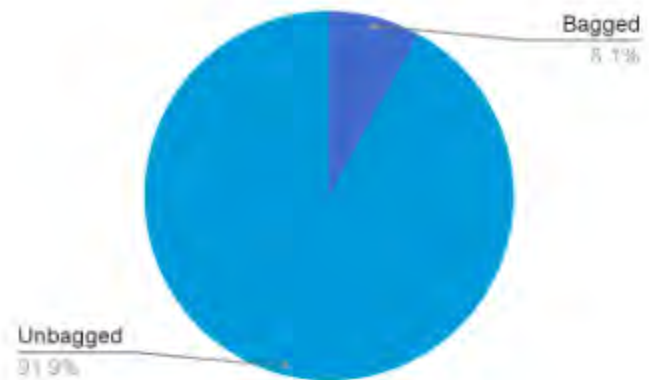


Figure 32. Percent total unbagged vs. bagged dog waste deposits

Observations

Another portion of data collection included site use observations in permit year one and five. A subsample of the sites were picked based on site type, regional location, and deposit density. Observers were stationed at entrances to the site and documented the total number of dogs observed, if a dog defecated within line of site of the observer, and if the person bagged and carried the dog waste out with them. The people with dogs were broken into two observed age groups, 25-34 and 35-55, due to permit requirements. The observations were conducted twice for three hours during popular site trail use hours based off Google data trends. The observations will be conducted again in permit year five as part of the behavior change analysis.

More 25–34-year-olds are prepared to pick up after their dogs based on the presence of visible dog waste bags. However, at almost every observation site, more 35–55-year-olds were observed walking their dog(s). Almost every observed deposit was properly disposed of, except for Portland’s Quarry Run Dog Park site (Table 2). However, from the field surveys of these sites, we know dog waste is still being left behind at all these locations which means the observers either were not observing when the irresponsible dog owners are using the sites or the observer’s presence was enough social pressure to have them pick up after their dog in that instance.

Table 2. Observed age groups with number of dogs, visible dog waste bags, and successful dog waste cleanup.

Site Name	25-34 Year Olds			35-55 Year Olds		
	Number of Dogs	Percent with Bags	Percent of Successful Pickup	Number of Dogs	Percent with Bags	Percent of Successful Pickup
MDT Blue Seal	7	28.6%	N/A	2	0.0%	N/A
MDT Gambo	16	56.3%	100.0%	18	33.3%	100.0%
MDT Shaw	9	55.6%	N/A	18	33.3%	100.0%
Royal River Park	8	25.0%	N/A	22	40.9%	100.0%
Willard Beach	44	61.4%	100.0%	55	50.9%	100.0%
Quarry Run Dog Park	26	65.4%	75.0%	21	52.4%	60.0%
Saco Dog Park	6	100.0%	100.0%	3	66.6%	100.0%

Trash Cans and Bag Stations

Other studies of dog walkers have shown lack of dedicated dog waste bins is the most important factor in respondents not properly disposing of their dog waste¹. Dog owner behavior observed during this study included people properly bagging their dog’s waste but then leaving it on the side of the trail or at the trailhead. This suggests that these dog owners know that it’s wrong to not pick up the dog waste, but the carry in-carry out policy of the park is too inconvenient. Similarly, at some sites, “community established” trash receptacles were observed in response to a lack of trash cans or having a carry-out policy. This results in high densities of bagged dog waste concentrated at trailheads, often overflowing due to a lack of a cleanup schedule.

Parks with only bag stations should consider adding trash cans. The bags left behind indicate that people are observing their dog and taking the time to deal with the waste, so it is very likely that they would also dispose of it if a trash can was nearby. It is important that sites utilize both trash cans and bag stations.

¹ Lowe, C. N., Williams, K. S., Jenkinson, S., & Toogood, M. (2014). Environmental and social impacts of domestic dog waste in the UK: investigating barriers to behavioral change in dog walkers. *International Journal of Environment and Waste Management*, 13(4), 344-345.

The existence of trash cans and bag stations also does not account for their location. If the bag stations and trash cans are in inconvenient locations, they are less likely to be used. Some parks might have signage and bag stations at the very entrance to the trail but none throughout the trail system that could have multiple access points. Therefore, the individual site recommendations should be used to determine if dog waste infrastructure is necessary and how to locate the infrastructure as close as possible to dog waste hotspots.

Signage

Signage varied between parks but generally focused on requests to keep parks and the community clean, the fact that not picking up dog waste is illegal and carries a fine, or education surrounding the stormwater impacts of dog waste (Figure 33 and 34). Education signage appeared more effective than signs that simply pointed out the illegality of leaving dog waste.



Figure 33. Examples of educational signage found at sites surveyed.

Signage focused on local ordinances and fines have little impact on dog owner behavior if ordinance enforcement is perceived to be low. It is recommended sites use a combination of signs with “keep community clean” requests to pick up litter or “carry in-carry out” along with educational signs which discuss the stormwater impacts of dog waste.



Leash Laws

Some parks in ISWG communities have recently enacted leash requirements for environmental and safety reasons. Of the 15 sites surveyed, 11 sites (73.3%) have an off-leash component, either being a dog park or off-leash areas, and 4 sites (26.6%) require leashes everywhere. While enacting these ordinances was not solely caused due to perceived dog waste issues, they seem to have helped reduce improper dog waste disposal. This aligns with other studies that conclude that leash requirements are effective in preventing improper dog waste disposal. Since dogs are most likely to defecate within the first quarter mile of a trail², leash requirements within a certain distance of a trailhead would help ensure dog owners observe their dog defecate, making them more likely to properly dispose of the waste.

² Blenderman, A., Taff, B. D., Schwartz, F., & Lawhon, B. (2018). Dog Guardian's Perceptions and Behaviors Related to the Disposal of Pet Waste in City of Boulder Open Space and Mountain Parks. Final Report prepared for City of Boulder, Colorado, Open Space and Mountain Parks by Pennsylvania State University and the Leave No Trace Center for Outdoor Ethics. pp.11-12.

Additional Considerations

This project and report are just the beginning of what is necessary to respond to improper dog waste disposal behavior in the ISWG communities. Each site was surveyed two times each year, meaning the study was just a snapshot of the site at that date and time. Several additional variables may have affected findings from this study, such as unknown municipal or volunteer cleanup schedules, poor weather, and leash laws allowing dogs to defecate off trail in an area surveyors could not access. These factors could mean some areas have a higher number of users who improperly dispose of dog waste than was captured in these surveys.

Future studies should incorporate visitor use demographics and trends. Sites were selected for surveying based on a perceived dog waste issue, however after observing some sites, it was clear this was not the case. For many sites, it is unclear how many dog owners use many of the trails. This information would help determine the percentage of users who do not pick up after their dog, putting lesser-used and heavily used trails on an even playing field. Additionally, knowing the age range of users, as well as if they are residents using the area or visitors would help determine if any specific groups of users are improperly disposing of dog waste more than others, allowing a more targeted education plan. Age of users in correlation to their behavior will be observed at some sites through an observational study in permit year one and five (Appendix A), however, usage demographics and statistics would likely need to be obtained in collaboration with the municipality or organization managing the area.

Conclusions

This year serves as baseline data going forward in the study. The use of bag stations, trash cans, signage, and education in purposeful locations may help decrease the deposits found at each site. Although each of these strategies separately may not show a decrease in the results alone, combined strategies may make for better results. Additionally, observing the behavior of the owners at selected sights and comparing this year's data with the observational data at the end of this study may also help provide more insight on the changes being made. Trash cans can be highly effective at taking away the inconvenience of carrying out dog waste, a major barrier to proper dog waste disposal. Along with trash cans, bag stations are an important additional piece of infrastructure to minimize dog waste being left behind. It is important that if bags are offered to users, there are adequate trash cans to avoid users leaving bagged dog waste behind. Both trash cans and bag stations should be placed in areas determined to be hotspots for dog waste to minimize reluctance to properly dispose of dog waste by visitors.

While installation and maintenance costs can be a prohibitive factor for these being installed, collaboration with interagency partners should be considered to maximize impact of dog waste prevention efforts. Many parks have multiple organizations who play a part in management, including "Friends" groups in some cases. Collaboration on infrastructure installation and maintenance, as well as volunteer cleanups, would be beneficial in reducing the municipal burden, while also providing a source of community pride.

One of the most important takeaways gained from this project is the value of community engagement and education. Educating dog owners and park goers on the importance of picking up dog waste is potentially the most impactful way to address the issue. There are many ways to work towards better community education, ranging from more comprehensive signage explaining the environmental impacts of dog waste in parks, to social media outreach, to cleanup awareness campaigns. As community members become more aware of the issue and how they can help, the responsibility is shared by a larger group which can often better address the issue.

Appendix A. Procedure Document

There are two components to the behavior change study as it relates to dog waste; performing a survey of 15 trails in ISWG communities to inventory dog waste deposit quantities and performing observations at five sites to determine age group behavior regarding dog waste disposal.

Site Walk Surveys

To determine if behavior change is occurring, dog waste quantities and locations will be tracked each year from Permit Year 1 through Permit Year 5 at 15 sites using site walks surveys. The purpose of collecting this data is to track the amount of dog waste not being properly disposed of along public trails and parks. This data allows trends to be identified, as well as management practices to be recommended to increase dog owner compliance. The sites selected are included in Table 3.

Sites were selected to ensure diversity in location throughout the region, trail surface, site type, and use patterns. Some communities in the region have fewer public trails and parks for people to access with their dog which may result in certain communities having more people walking their dog along neighborhood streets. This hypothesis will be tracked using the presence of dog waste in catch basin cleaning in those communities. Site walks are performed between July 1 and September 30. Each site walk survey should have two surveyors to ensure both sides of trails are checked for dog waste, as well as for efficiency.

Table 3. Sites Selected for 2022 Permit Site Walks

Site Name	Location	Site Type	Leash Requirement
Rotary Park & Dog Park	Biddeford	Dog park and gravel trails around park	Yes, on trails. No, in dog park
Fort Williams Park	Cape Elizabeth	Tourist-oriented park with paved walking paths and off-leash fields	Yes, except in designated off-leash areas
Twin Brook Recreation Area	Cumberland	Sports fields surrounded by forested trail network	No, voice control required
Falmouth Community Park	Falmouth	Sports fields surrounded by forested trail network	Yes, within 300' of trailheads
Cherry Hill Farm	Gorham	Forested and gravel trails	Yes
Ocean Park Beach & Dog Park	Old Orchard Beach	Beach and dog park	No, voice control required
Quarry Run Dog Park & Trails	Portland	Dog park and gravel trails	No, voice control required
Saco Dog Park	Saco	Small, grassy dog park	No
Higgins Beach	Scarborough	Beach	No, voice control required
Willard Beach & Spring Point Trail	South Portland	Beach and adjacent paved trail	No, on beach 7-9 AM and PM; Yes, on trail
Schools to Skatepark Trail & Dog Park	Westbrook	Neighborhood connector path, multiple trail surfaces	Yes
Donnabeth Lippman Park	Windham	Forested trail network	Yes
Mountain Division Trail	Windham/Gorham	Paved trail used by residents and neighboring communities	Yes
Pratt's Brook Park	Yarmouth	Forested trail network	No, except within 300' of trailhead
Royal River Park	Yarmouth	Paved trail	Yes

Surveyors complete the “ISWG Trail Survey Pet Waste” form on ArcGIS Survey123 and record all improperly disposed of dog waste and infrastructure using ArcGIS Quick Capture while completing the site walk. The Survey123 data sheet is used to record the site name, date, time started, weather, end time, and notes. Surveyors should begin their site walk at the parking area designated on the map. While on a site walk, surveyors will use the Quick Capture App on their smartphone to record locations of the following through picture geo-tagging: bagged dog waste; unbagged dog waste; trash cans; bag station; dog waste simple signs, educational signs, and ordinance signs; litter signs; restrooms; porta potties; and entrances.

ArcGIS Quick Capture App

Setting up the App: ArcGIS Quick Capture was setup online to have a point layer for all the items being photographed and a line layer to document the routes surveyed. Users can scan a QR code to save the Quick Capture project on their phone’s Quick Capture App.

In the Field: Upon arrival at the site, open the Quick Capture app, select the “Pet Waste Survey” project, select the site name, and start the transect by pressing the track button (a red recording icon will appear) so that the survey route is recorded. Bring dog waste bags, trash bags, hand sanitizer/wet wipes, solar phone charger and cord, and a fully charged phone in the pockets of the District orange safety vest. When an object of interest was found (such as dog waste) the corresponding button should be tapped, which opens the camera feature to take a required picture of the object. If the object is dog waste, the deposit should then be picked up and placed in a trash bag. Once a photo is taken the app will automatically record the location and upload the data. Surveyors follow the track designated on the map, with one checking the left side of the trail while the other checks the right side. Sides off-trail should be inspected as far out as can be reasonably observed from the trail (about 6’, the standard length of a leash). In some cases, surveyors may split up to cover diverging trails more efficiently. When this is required, surveyors should walk slowly, checking both sides of the trail and edges for dog waste as they walk if the trail will rejoin another trail later. If the off-shoot trail is an out and back, then the surveyor should check the right side of the trail going out and the left side of the trail on the return. Splitting up may also be required when checking large open fields. In this case, surveyors should travel on transects 30 feet apart to maximize line of sight. Once the site is completely surveyed, end the transect by hitting the track button again (the red recording icon will disappear), upload all data, and close out the Quick Capture button page to finish the site.

Back at the Office: Log into ArcGIS online to access the map with all the data from Quick Capture shown. The layers will show the route walked (transect line) and all the data that was photographed in the field in this tab. The different colored data points allow for quick analysis of the area as well as being able to see concentrated areas. This data can also be exported to use in applications such as Google Sheets or Excel.

Owner Observations

To determine if behavior change is occurring in age groups 25-34 and 35-55, observations will be performed at multiple popular dog-walking locations during Permit Year 1 and Permit Year 5 (Table 6). These observations will be performed unobtrusively during high-traffic times to observe if people with dogs are properly cleaning up their dog’s waste. Each site is observed two times between July 1 and September 30.

Surveyors should be at the designated observation location before the start time of the observation window. To not affect behavior, surveyors should wear plain clothes and perform actions to appear inconspicuous to visitors, such as texting on their phone, reading a book, or sketching in a sketchbook. Surveyors will also need dog waste bags,

trash bags, and a fully charged phone. Before the observation period begins, the date, time, and weather should be recorded on the Survey123 “Dog Waste Site Observations” form. Take pictures (with geotagging turned on) of the specific observation station so we know exactly where to return to on the second week and in PY5.

All people with dogs who enter the line of sight of an observer should be recorded as a tally in “Total Number of Dogs Observed” for the age group pertinent to the owner, and if the owner is noticeably carrying dog waste bags, a tally should be added to the pertinent box as well. If dog is off leash, look for the person carrying a leash or other dog related items to determine the age group. Each person with a dog in the two target age groups should be observed to determine if their dog defecates while in sight. If the dog does defecate, the person will be observed to determine if they properly dispose of the dog waste. **For this study, “Proper Disposal” is defined as bagging the dog waste and carrying the bag out as the walk is continued.** People who do not bag their dog’s waste or who bag the waste but leave the bag on the ground will be counted as improper disposal. A tally should be added to the “Yes” or “No” column of the relevant age group based on the person’s actions. If improper disposal is observed, a tally should be recorded, and the waste should be documented using ArcGIS QuickCapture and properly disposed of by the surveyor at the end of the observation period. After the observation period, surveyors should enter the end time, complete all notes, and submit their Survey123 form. Surveyors should confirm their data is showing in ArcGIS.

Table 6. Site selected for age group observations.

Site	Location	Popular Day of the Week ³	Time	Number of Observers	Observation Locations
Willard Beach	South Portland	Friday	7-9 AM	2	Each end of beach
Royal River Park	Yarmouth	Saturday	9 AM-12 PM	2	Fields near East Elm Street entrance
Quarry Run Dog Park	Portland	Saturday	9 AM-12 PM	1	Entrance for gravel loop path
Mountain Division Trail	Windham/Gorham	Saturday	9 AM-12 PM	3	Trail entrances at Route 202, Windham parking, and Gorham parking
Saco Dog Park	Saco	Saturday	9 AM-12 PM	1	Dog park

³ Day of week observation is made may vary due to weather conditions.

Pet waste is not fertilizer

**ONE DOG POOP, THE SIZE
OF A PEA, CONTAINS 23
MILLION FECAL BACTERIA**

Each time you pick-up after
your pet, you help protect
the water quality of the
Casco Bay and the health of
your family & furry friends.



Southern Maine Community College operates under a MS4
Stormwater Permit issued by the Maine Department of
Environmental Protection. If you have a question email us at:
environmentalsafety@smcme.edu

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YOU ARE THE SOLUTION

to dog poop pollution

1. Carry extra bags
2. Scoop the poop
3. Bag it
4. Trash it



If you can't carry your pet's waste home, place bagged waste in a trash barrel or dumpster on campus.

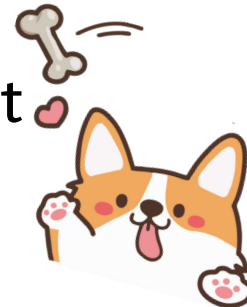
Please pick-up after your pup.

Rain washes dog poop directly into the Casco Bay, polluting the water.

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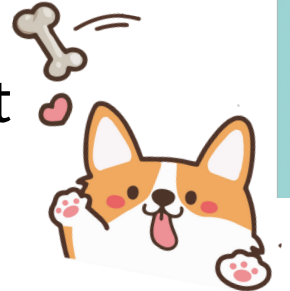
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Rain washes dog poop directly into the Casco Bay, polluting the water.

APPENDIX C

Final 5.24.2023

Southern Maine Community College Low Impact Development Statement

MCM5 Post-Construction Stormwater Management in New Development and Redevelopment

This statement satisfies SWMP BMP 5A Required LID Techniques

Southern Maine Community College (SMCC) construction requirements are set by the Maine Community College System and the Maine State Bureau of General Services. SMCC also abides by construction ordinances enacted by the City of South Portland and applicable regulations within Chapter 500, State of Maine Stormwater Management Rules (06-096 Chapter 500, *Stormwater Management*).

Effective July 1, 2023, the Low Impact Development (LID) techniques contained in Table 1 of Attachment F of SMCC's MS4 Federal State Permit MER042004 will serve as the performance standards on new and redevelopment sites, on the South Portland Campus, that disturb greater than or equal to one acre, including projects less than one acre that are a part of a larger common plan of development, unless such techniques are infeasible on a site. Attachment F is enclosed for guidance.

SMCC is committed to protecting and improving water quality. At such time as the City of South Portland enacts a LID Ordinance and/or Chapter 500 is revised with LID obligations, SMCC will adhere to the applicable LID governance and this statement will become obsolete.

ATTACHMENT F

Guidance

Low Impact Development (LID)

LID is a process of developing land that mimics the natural hydrologic regime. LID begins at the design phase of a new development or redevelopment, incorporating planning techniques that minimize site clearing and impervious surfaces to reduce impact and stormwater runoff generated from the site. By reducing the volume of water leaving a site, the pollutant loading is also reduced. Other techniques that will reduce the volume and peak flow rates of runoff from the development are then incorporated throughout the site. LID is an effective tool that reduces pollutant loading, thermal impacts, stream flows, and minimizes stream channel erosion.

LID is not a rigid set of standards, or a one size fits all approach and has many benefits:

- ✓ **Benefits to the Developer:** The owner and developer will see reduced costs for land clearing and grading, infrastructure, and stormwater management while seeing an increased aesthetic value in the development.
- ✓ **Benefits to the Municipality:** The local government and community will benefit from reduced infrastructure maintenance costs and reductions in property damage from flooding, while having more green space, protected natural resources, and increased water quality.
- ✓ **Benefits to the Environment:** The hydrologic cycle is preserved; streams are less prone to erosion, and stream flows are maintained which benefits fish and wildlife.

LID goals and objectives shall be incorporated into the site planning process as early as possible. The following steps serve as a guideline to use in the planning stage:

- ✓ Identify and preserve areas that will affect the hydrology of the site. Features that should be protected are sensitive areas and natural resources including down gradient waterways.
- ✓ Minimize site disturbance and impervious areas with an alternative layout for the development within the constraints of local development criteria.
- ✓ Minimize the impervious surfaces directly connected to drainage conveyance systems to reduce the time of concentration.
- ✓ Break the site into smaller drainage areas that can be handled using basic LID techniques.

PLANNING FOR LID

Minimize Site Clearing: Development typically involves new impervious surfaces such as roads and buildings, and landscaped areas for lawns. Avoid developing soils with high permeability where possible. Protect areas that are sensitive to disturbance and that will sustain groundwater recharge and reduce runoff. For example, developing a vegetated, tight clay soil area will have less impact on stormwater runoff than developing a forested area on sandy soils. Once the sensitive areas have been identified, the layout of the development should be aligned with the conservation of these areas.

Minimize Impervious Areas: The traffic distribution network (roadways, sidewalks, driveways, and parking areas) is generally the greatest source of site imperviousness and should be the focus for reducing impervious area. The following techniques may be considered, where appropriate and permitted by local land use codes and/or ordinances:

Alternative Roadway Layout: Alternative roadway layouts can be used to reduce total pavement, while allowing for the same amount of development. Cluster development, in accordance with and as allowed by local ordinances can decrease imperviousness.

- ✓ Narrow Road Sections: The width of pavement can be reduced by including the primary driving surface, a pervious base for the shoulders, and ditch drainage swale in place of curb and gutter as deemed appropriate. Use of this technique should be evaluated in accordance with site-specific conditions.
- ✓ Sidewalks: Sidewalks can be reduced to one side of the road or eliminated. The use of pervious materials can reduce runoff.
- ✓ On-Street Parking: Reduction to one side or elimination of on-street parking has significant potential to reduce overall site imperviousness. On-street parking may be a desirable practice in highly urbanized areas to reduce on-site disturbance.
- ✓ Rooftops: The number and size of buildings dictates the impervious area associated with rooftops. Vertical construction and/or the use of green roofs can minimize imperviousness.
- ✓ Driveways: Minimizing paved or impervious driveway area can be accomplished through the design of narrower driveways or by reducing the length of driveways. Shared driveways can also reduce imperviousness, where appropriate. In addition, the use of pervious materials can minimize runoff.

Minimize Connected Impervious Areas: The impacts from impervious surfaces can be minimized by disconnecting these areas from piped drainage networks and by managing runoff at the source.

- ✓ Paved driveways and roads can be directed to stabilized, vegetated areas.
- ✓ Flows from large, paved surfaces can be broken up to facilitate on-site management of smaller flows. Breaking flows up allows the flows to be directed to vegetation as sheet flow.
- ✓ LID techniques can be dispersed throughout the development, such as at individual house lots to obtain the most benefit. They can be incorporated into the landscaping of the property to provide a natural treatment system.

Maintain Time of Concentration: When development occurs, the time of concentration (T_c) is often shortened due to the impervious area, causing greater flows over a shorter period of time. LID practices can maintain the pre-development T_c by:

- ✓ Minimizing land disturbance,
- ✓ Detaining flows on site,
- ✓ Increasing the flow length,
- ✓ Increasing the surface roughness of the flow path,
- ✓ Creating flatter slopes, and/or
- ✓ Disconnecting impervious areas, which will decrease their travel rates.

Manage Stormwater at the Source: The impact from a development can be mitigated at the source by reestablishing a more natural hydrologic cycle that sustains a clean stream base flow. Typically, the most economical and simplistic stormwater management strategy is achieved by controlling runoff at the source with a variety of small treatment structures that will result in the reduction of stormwater discharge and more flexibility in the site design.

Soil Considerations:

Minimize Compaction: Compaction reduces the natural infiltrating ability of soils; thus, avoiding disturbance by heavy equipment can benefit infiltration. Designing development to situate impervious surfaces and development disturbances on the more impermeable soils of a site can leave more pervious soils to continue infiltrating runoff.

Increase Organic Content of Soils: When constructing many of the LID vegetated techniques, such as filtration Best Management Practices (BMP), a quality topsoil can optimize pollutant removal. In this case, the soil bed should consist of organic content as described in the relevant filtration BMP. This highly organic layer traps contaminants, absorbs more runoff and provides a medium for biological activity that helps break down pollutants. Planting soil provides a healthy growing medium for vegetation by encouraging strong root growth. In addition, microbes found in healthy soils transform nutrients for plant growth. Compost or other organic amendments can be added at the site preparation level, typically by the truckload. It is also available for little or no cost from many community leaf compost programs. For rain gardens and bioretention areas, organic content can also be valuable in absorbing and retaining moisture for plant life, filtering pollutants, and providing an active layer for microorganisms to reside and reproduce. A healthy microorganism population is key to the decomposition of many pollutants, whether in the home rain garden or in a parking lot.

- Avoid Pesticides/Herbicides: Healthy soil is alive with microorganisms that decompose and inactivate pollutants, but these may be killed by excessive chemicals. Although the soil microorganisms are not typically the target of these chemicals, many of them may fall victim to the use of pesticides. Additionally, insect species that prey on pests are also killed by pesticides. Since the predatory species tend to have slower reproduction than the pest species, a natural defense against insect pests may be lost.

LID TECHNIQUES

Many LID techniques rely on infiltration, retention, and evapotranspiration of stormwater to reduce runoff. When infiltration is not a possibility, the initial planning techniques described above should be the primary focus, followed by the use of small disconnected underdrained systems that rely on soil and vegetation to retain runoff. Examples of LID measures and techniques are shown on Table 1.

- Filters (Bioretention Cells and Rain gardens): Bioretention areas or rain gardens are built with a specific soil filter media (containing organic material and planted with vegetation that can handle wet and dry conditions) that will reduce the volume of runoff through absorption and evapotranspiration. A slight depression allows the ponding of stormwater as it filtrates through the soil media and into the groundwater or to an underdrain for surface discharge.
- Infiltration: Infiltration reduces runoff and mimics the natural hydrologic cycle by redirecting water into the ground rather than to a piped system. Runoff can be reduced by using smaller infiltration basins that fit into the natural landscape.
- Buffers: Vegetated buffers use soils and vegetation to remove pollutants from stormwater. Buffers can be used as a stormwater BMP for small developments by minimizing the amount of runoff generated through infiltration and evapotranspiration. Filter strips are typically used as pretreatment devices for bioretention cells and other infiltration practices.
- Collection Cisterns: In a commercial setting, the collection of rain runoff can be put to use in the building to off-set the cost of water supply. Cisterns can be located either above or below ground, and in out-of-the-way places that can easily be incorporated into a site design. Commercially available systems are typically constructed of high-density plastics and can include pumps and filtration devices. Rain barrels are inexpensive, effective, and easily maintainable when used in residential applications to capture roof runoff for later watering of lawns and gardens.
- Vegetated Rooftops: Vegetated rooftops provide three primary benefits: attenuation of stormwater runoff and peak flows, reductions of the heat island effects with an increase in building insulation, and a longer life expectancy for the base roof material. The stormwater benefit is that the smaller more common storm events are absorbed, which minimizes peak runoff and the net volume of runoff typically produced by roofs.

- ✓ Porous Pavement: Porous pavement is a permeable surface (pervious asphalt, concrete or pavers), a granular base, and subbase materials which allow the penetration of runoff into the underlying soils. The efficiency of pavement alternative systems depends on whether the pavement is designed to store and infiltrate most runoff, or only limited volumes of runoff (e.g., "first-flush") with the remainder discharged to a storm drainage system or overland flow. Maintenance is essential for long-term use and effectiveness. Pavement alternatives vary in load bearing capacities but generally can be designed for low traffic areas such as sidewalks, parking lots, overflow parking and residential roads. It is important to choose a material appropriate for the desired use (light, moderate or heavy use).
- ✓ Other Techniques: LID is about creativity. Multiple practices can be implemented and adapted into various sites and situations. However, they are mostly dependent upon the layout of the development and the disconnection of its individual elements.

Table 1 – LID Measures and Techniques*

LID Measure	Example Technique	Design
Minimize site clearing	• Promote compact development on the site • Place parking underneath or inside structures • Avoid developing in areas with high-permeable soils to retain natural infiltration • Align development layout with conservation of sensitive areas	
Protect natural drainage system	✓ Maintain a minimum 25 foot buffer on all natural water resources including intermittent channels ✓ Do not divert stormwater from its natural sub-watershed	Design practices developed at the planning phase that will help mitigate environmental impacts. Ideally, these are cost-effective and environmentally friendly.
Minimize the decrease in time of concentration	✓ Break up or disconnect the flow of runoff over impervious surfaces ✓ Sheet flow over pavement that is less than 100 feet	
Minimize impervious area or the effect of impervious area	✓ Build vertically with multi story buildings and parking garages ✓ More than 25% of pavement area (overflow) in pervious pavement. All pedestrian walkways are pavers or pervious pavement. Runoff from paved surfaces should be directed to stabilized, vegetated areas ✓ Disperse LID techniques throughout development and incorporate into the landscaping ✓ Infiltrate as much roof runoff as standards allow Minimize the use of paved areas (sidewalks, driveways and streets) Minimize the use of hardscaped areas.	

Table 1 – LID Measures and Techniques*		
LID Measure	Example Technique	Design
Minimize soil compaction	- Minimize the construction window and target the development area - Rototilling all areas to be revegetated	Design practices developed at the planning phase that will help mitigate environmental impacts. Ideally, these are cost-effective and environmentally friendly.
Minimize lawns and maximize landscaping that encourages runoff retention	- Low maintenance Maine native plants - No invasive plants - Limit the use of pesticides and biocides - Fertilizer application only during initial planting and repair of damaged areas.	
Provide vegetated open-channel conveyance systems	- Evaluate road gutters and roof gutters to determine effective means to direct runoff to treatment BMPs - Level spreaders to buffers where possible - Underdrained swales	
Rainwater is stored for later reuse for the building or landscape	Rain Collection Cisterns	
Stormwater Quality Treatment and Retention Requirements	Buffers	Design, size, install and maintain per the Maine recommended guidelines found in a document entitled <i>Maine Stormwater Management Design Manual, Technical Design Manual, Volume III, May 2016</i>
	Infiltration (basins, trenches, dry wells, etc.)	
	Underdrained grass filters	
	Underdrained filter bioretention	
	Roofline filtration	
	Roof Greening	
	Pervious Pavement	

*LID measures, example techniques and design practices in this table are intended to be illustrative and shall be taken into consideration where applicable, practicable and allowable pursuant to applicable land use planning and development requirements.

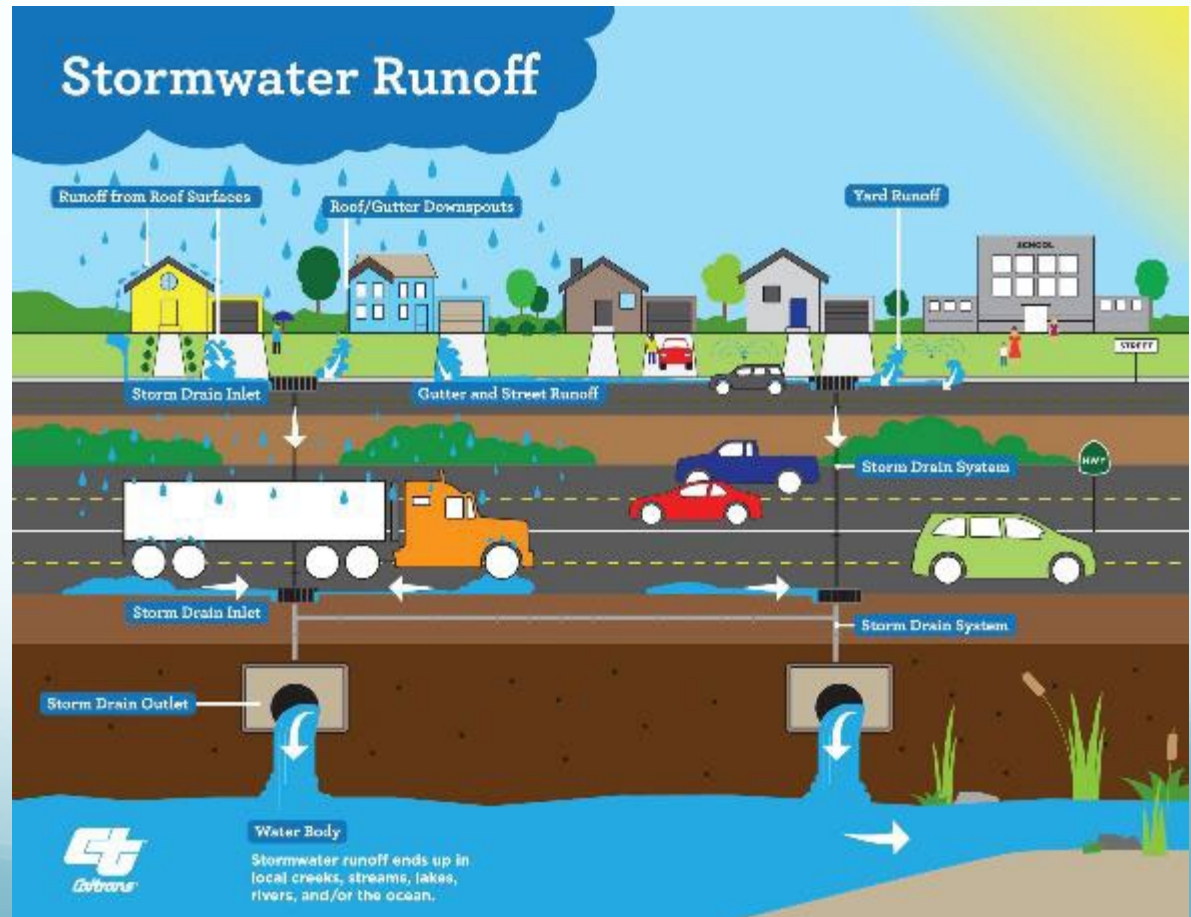
Stormwater Pollution Prevention

Facilities role at Southern Maine Community College



Stormwater

- Stormwater is rain or snowmelt that travels over the ground before discharging into a river, lake, stream or the ocean



Stormwater Pollution

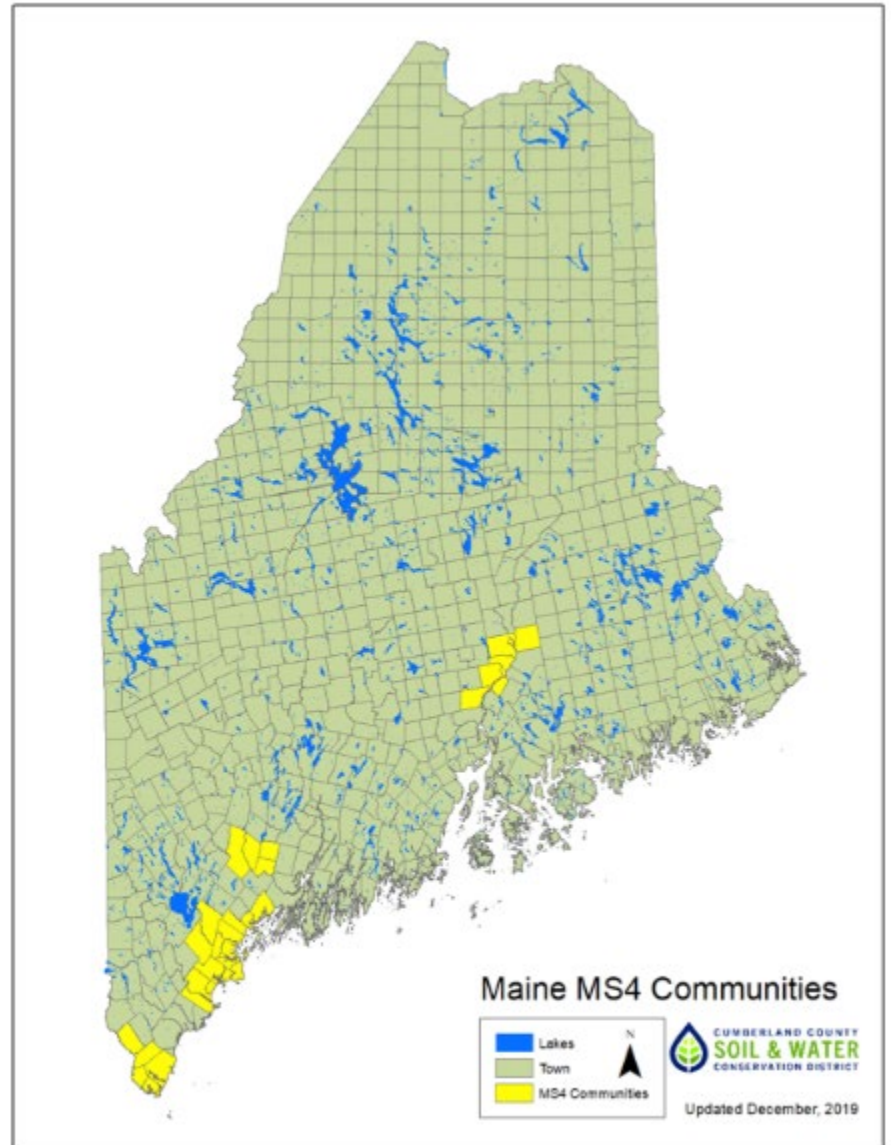
- Stormwater pollution is all of the chemicals, dirt, trash, grass clippings, leaves and pet waste which is picked up by stormwater and carried into the Casco Bay as rain or snowmelt travels



The sediment sock at Roccoland will not keep sediment or debris out of the storm drain if it is not properly in place.
This storm drain flows to the Port Harbor Marina.

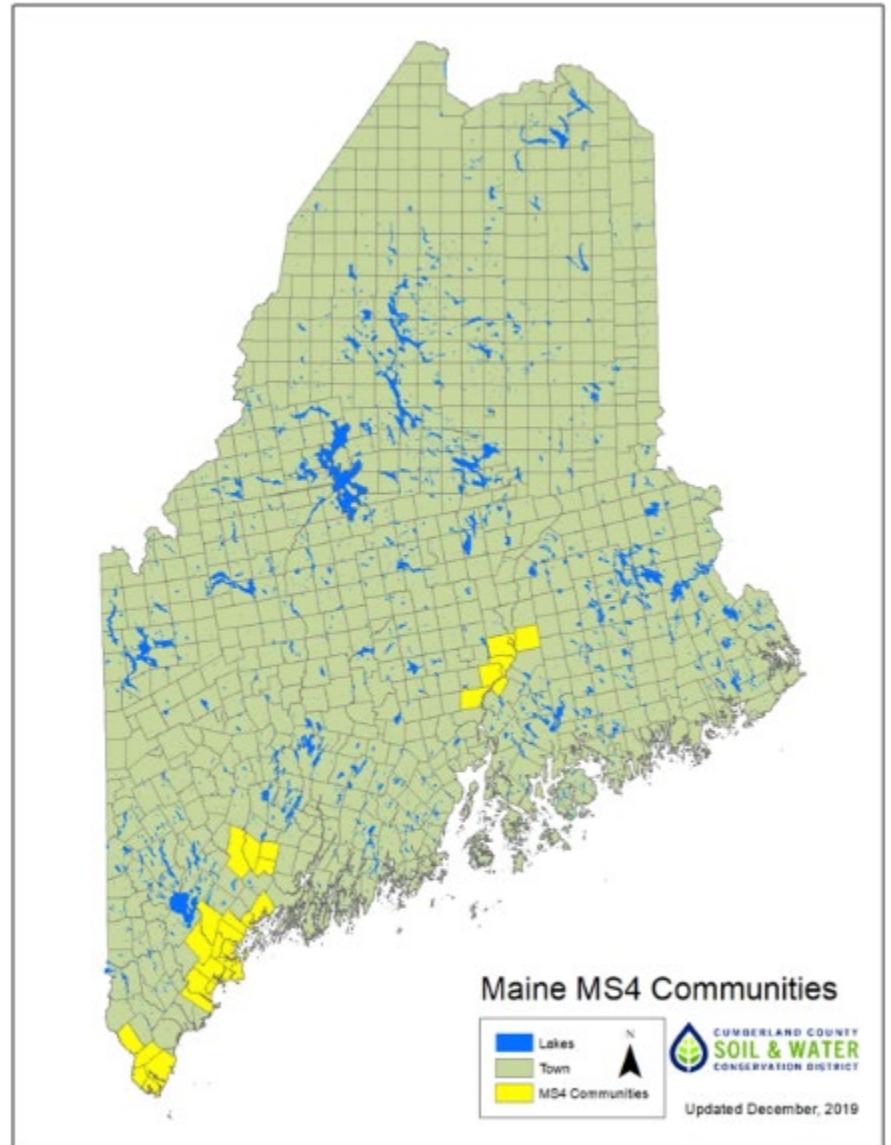
Why are we here?

- SMCC operates under a government issued MS4 permit to discharge stormwater to the Casco Bay.
- MS4 stands for
 - Municipal Separate Storm Sewer Systems



Why are we here?

- SMCC is one of 11 federal or state owned entities, in Maine, governed by a MS4 Stormwater Permit. Other entities include:
 - University of Southern Maine
 - Maine Air National Guard
- There are 30 municipalities in Maine operating under a similar permit including:
 - South Portland
 - Gorham
 - Scarborough
 - Yarmouth



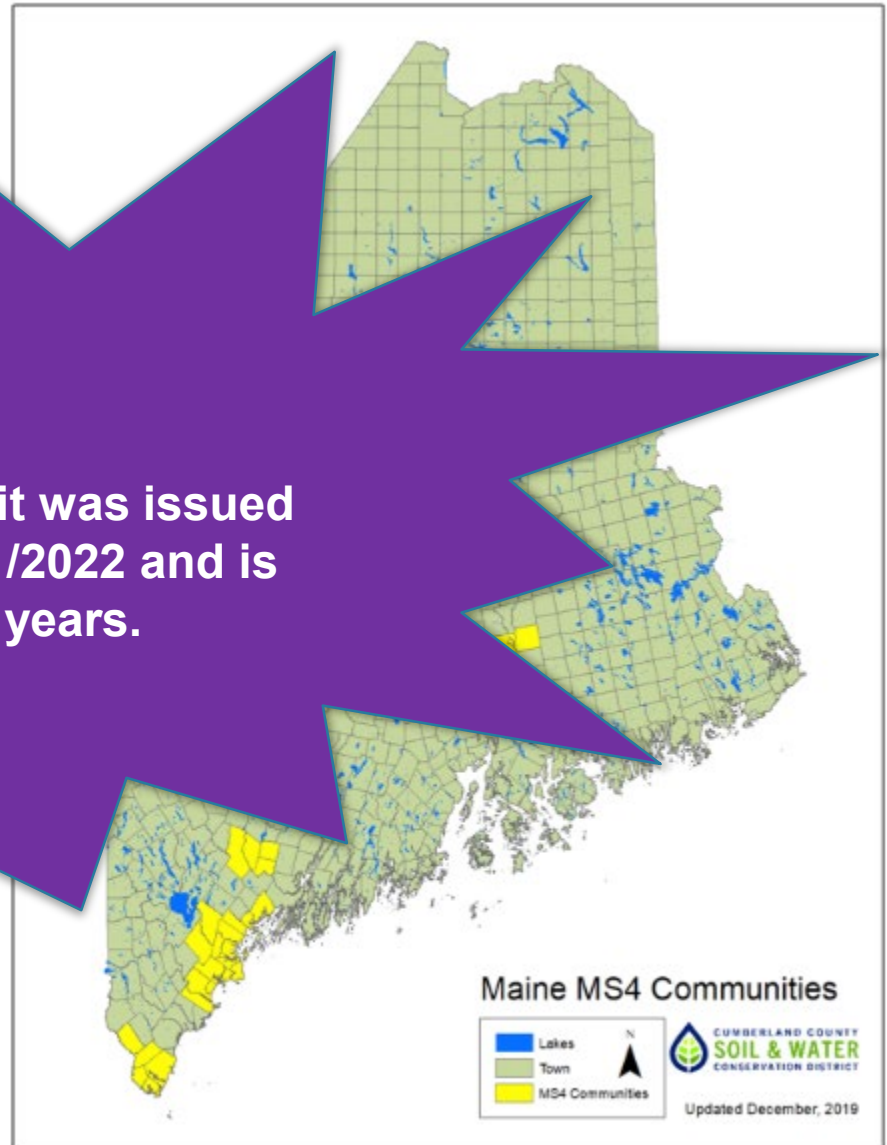
Why are we here?

- SMCC is one of 11 federal or state owned entities, in Maine, which must comply with an MS4 Stormwater Permit. Other entities include:

- Univ.
- UMaine

A new MS4 Permit was issued to SMCC on 10/1/2022 and is valid for 5 years.

- There are many other MS4 communities in Maine with similar permits including: SoPo, Portland, Gorham, and Yarmouth



Examples of Stormwater Pollution on Campus

- Road salt
- Mop or rinse water
- General trash
- Leaking dumpsters
- Paint or chemicals including gasoline and oil
- Organic materials such as grass clippings, mulch, loose soil or dirt and leaves



Road salt, while critical to controlling ice in the winter, is a stormwater pollutant when not swept up after a winter storm.

How is Stormwater Pollution a Problem?

- Stormwater is **not** filtered or treated
- Stormwater carries dirt and debris which clouds the water so animals can't see food and plants can't grow
- Stormwater pollution contains nutrients which can harm swimmers, fish, and bugs. Extra nutrients also cause algae blooms

SMCC's Stormwater Infrastructure Map



We know where
stormwater flows

*SMCC Stormwater map at right is not current.
Do not use this copy for planning purposes*

SMCC's Stormwater Infrastructure

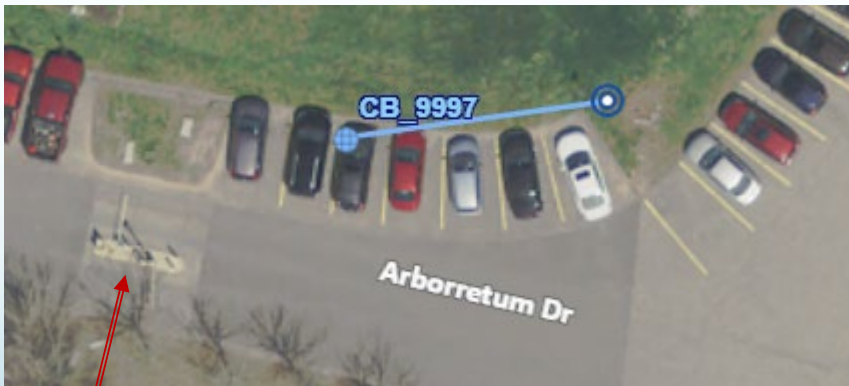
- SMCC has over 70 storm drains on campus



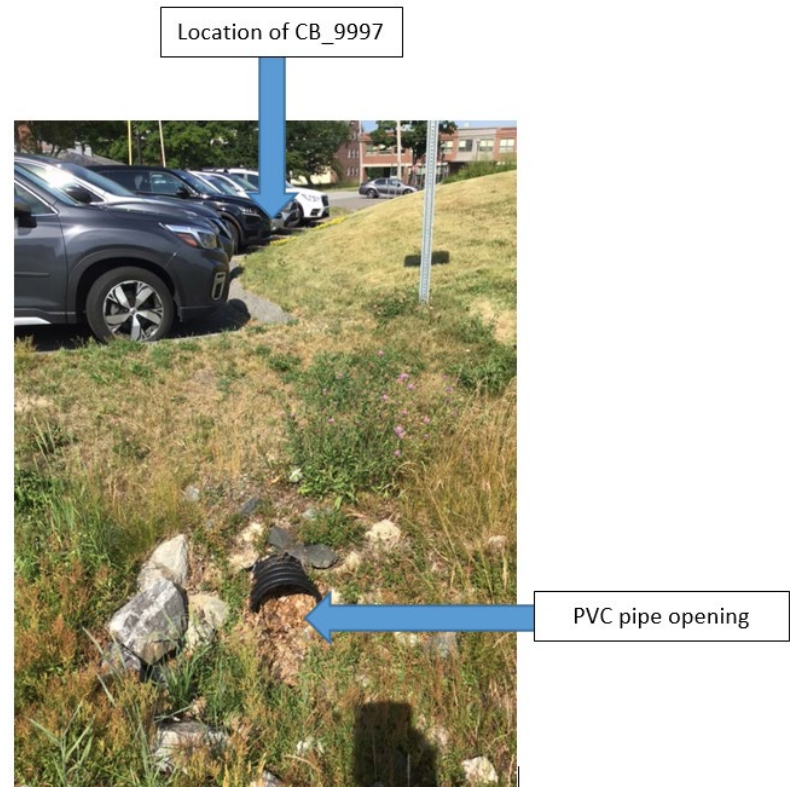


SMCC's Stormwater Infrastructure

- Drain CB_9997, located in Lot BB, was “discovered” during the spring of 2021. The drain was installed many years ago, but was not on SMCC’s radar. Until now.....



Gate into Lot B



SMCC's Stormwater Infrastructure

- SMCC has 6 outfalls under our control
 - 3 outfalls at the seawall
 - 3 outfalls on Willard Beach



Outfall WB_11 sits in the ledge behind the CSEC building.
To aid in the location of our 3 Willard Beach outfalls, each is posted on the shore walkway (photo on right).

Interconnecting Stormwater Infrastructure

- There are four locations where SMCC's stormwater infrastructure connects with the City of South Portland or the Marina
- If there is a chance that a spill could reach this connecting infrastructure SMCC must notify the City or the Marina

Water flows from SMCC Catch Basin	Location on SMCC Property	Flows to Interconnecting Infrastructure	Owned or Operated by	Ultimate Discharge Location
CB_4781	Spring Point Stairwell	TT_205	South Portland	Fore River Outfall BW_4
CB_6617	Campus Center Dr. at Fort Road	Sewer Manhole	South Portland	Wastewater Treatment
DM_6469	Parking Lot A	DM_0288	South Portland	Fore River Outfall BW_4
CB_5982	Adams Street	-unknown-	Port Harbor Marina	Casco Bay Outfall BW_7

Marine Science

Horticulture

Jewett

Ross Tech & Hague Hall

Parking Lot A

Campus Center

Marina/SoPo BW_7

SMCC CB_5982

SMCC DM_6469

SoPo DM_0288

SoPo TT_20

SMCC CB_4781

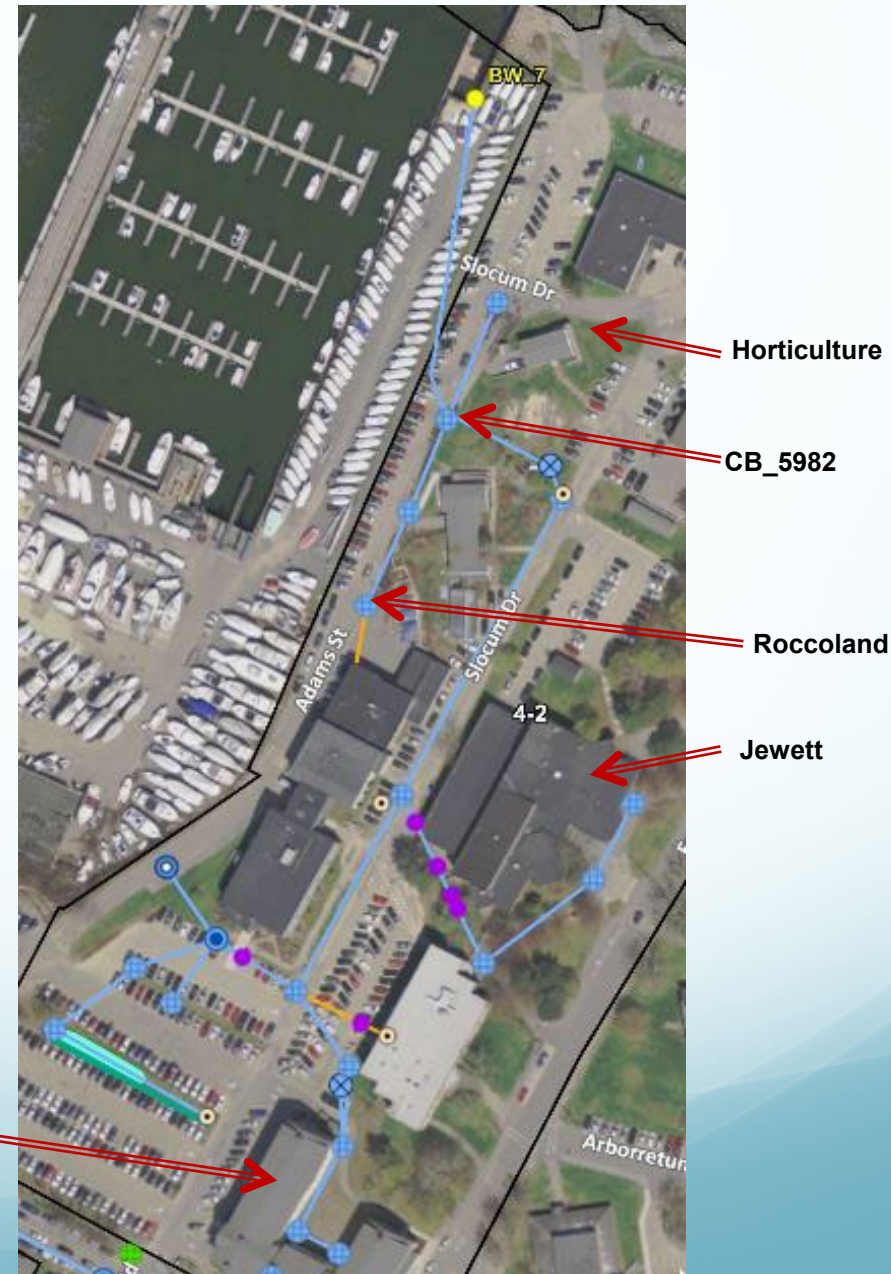
SMCC CB_6617

SoPo Wastewater Treatment

1" = 177 ft

Special Note on CB_5982

- Water and pollution entering any storm drain on the following roadways will flow down to CB_5982
 - Fort Road
 - Slocum Dr.
 - Adams St.
- Catch Basin CB_5982 is the **last** storm drain on SMCC campus before stormwater flows offsite to the Marina



Each blue circle on the map at the right represents one storm drain.
The blue lines show the piping which connects the drains

Non-stormwater discharges

- Only stormwater can be discharged into the storm drain system under our MS4 Permit
- Our Permit requires us to prevent non-stormwater discharges from entering storm drains
- SMCC has a procedure to support this permit requirement

SMCC procedure on non-stormwater discharges to storm sewerage

It is Southern Maine Community College's procedure that discharges to storm drains and other conveyances of the college stormwater collection system are not permitted or to be minimized depending upon the nature of the potential discharge.

Non permitted potential discharges include but are not limited to the following:

- Leakage from motor vehicles, other than *de minimus* drippage;
- Leakage from petroleum storage tanks;
- Dumping of any kind of grease, chemicals, cleaning products, solvents, and similar items;
- Dumping of solid and hazardous wastes;
- Filter rinses;
- Wash water of any kind.

Discharges to be minimized include runoff containing road sand and salt used to treat campus-owned roadways and parking lots during the winter. This procedure applies as well to discharges to campus ditches, drains, and marine waters.

Stormwater O&M Plan

- This plan supports compliance with the college's MS4 Stormwater Permit and identifies a set of activities with the potential to create stormwater pollution
- The O&M Plan has best management practices (BMPs) to minimize stormwater pollution from activities conducted on campus
- The O&M Plan is applicable to staff **and** contractors who perform tasks with the potential to create stormwater pollutants
- The O&M Plan is located on the internet, posted at Facilities and available from the EH&S Coordinator

Stormwater Operations & Maintenance Plan

	POTENTIAL STORMWATER POLLUTANTS												
Operations	Fats	Fuel	Oils	Greases	Fertilizer pesticides	General Trash	Sediment & Debris	Mop or Waste Water	Salt & Deicers	Solvents	Spills	Chlorinated Water	
Cutting, Grinding, Drilling, Sawing and All Paving							x	x			x		
Deicing, Snow Removal, Salt Shed Management									x				
Food Services	x		x	x		x					x		
Hydrant Line Flushing							x					x	
Landscaping Activities					x		x						
Outdoor Chemical Storage and Use		x									x		
Rubbish Storage						x					x		
Vehicles and Equipment: Washing, Storage, Fueling		x	x	x				x		x	x		

General Best Management Practices

- Maintain good housekeeping
 - Dispose of all dirty water into a sink or drain connected to the sewer
 - Do not pour dirty water on the ground outside or into a storm drain
 - Maintain each dumpster so the area around it is free of waste
 - Close dumpster lids/doors after putting waste inside
 - Report signs of a damaged or leaking dumpster to your supervisor
- Don't rinse dirt, oil, chemicals or grease onto the pavement

Salt Shed

- Continue to follow the salt shed housekeeping procedures



Mowing & Weed wacking

- When mowing or weed wacking use a pattern which will put the grass clippings back into the grass.
- Do not let the mower spew grass clippings onto the pavement.
- If grass clippings ends up on the pavement, sweep or blow them back into the grass OR collect the clippings and place them into the dumpster.



Landscaping

- When digging near a storm drain, apply sediment filter sock(s) around the perimeter of the work area
- Sediment socks capture dirt and debris **before** it reaches the storm drain
- Reseed or plant the area and leave the sediment sock(s) until the soil is stabilized



Green sediment socks are used to help keep dirt from flowing into storm drains when it rains

Stockpile Management

- Cover stockpiles of mulch and dirt
- Uncovered stock piles wastes money and creates stormwater pollution as good materials are washed down the drain in a rainstorm



No tarps



With tarps

Cutting, Grinding, Drilling, and Sawing

This procedure applies to wet sawing, grinding, cutting, drilling, or paving of brick, stone, asphalt, concrete and other hard materials/surfaces.

- Do not allow wet sawing, grinding, cutting or drilling wastewater to enter storm drains without first being filtered
- Sweep or shovel up the debris and sediment then dispose of the collected material in the proper location
- Dispose of all filter material appropriately. Do not leave the items to be washed out by rain or left to dry
- Water used for cleaning tools or equipment must be captured and properly disposed of in a sanitary sewer or a dedicated concrete washout bin
- Do not leave wastewater to be washed away by rain or left to dry

Cutting, Grinding, Drilling, and Sawing

This BMP was designed to prevent the dust and debris created by cutting the pavement from becoming stormwater pollution



Paving

- Prior to the start of any paving activity, an in-drain sediment catcher will be installed in each bar or grate style storm drain or catch basin within the work zone.
- The sediment catcher will remain in place until the project is complete
- The sediment catcher and all collected debris will be removed and properly disposed in a dumpster
- Collected sediment and debris is not permitted to be left on the ground beside the drain or dumped in the grass
- All loose paving material and debris will be swept from the vicinity of storm drains with solid lids and disposed in a dumpster

Paving



Vendor put a yellow sediment catcher inside the storm drain at the start of this project to prevent dust, debris and loose asphalt from becoming stormwater pollution

Vendor swept loose paving material from the roadway
YAY!!



Vehicle & Equipment Maintenance

- It is SMCC policy that fleet vehicles are taken off site for repair and maintenance
- Vehicles shall be inspected regularly for leaks & hazards
- Routine maintenance of power equipment
 - Follow manufacturer instructions
 - Change fluids indoors using a drip pan, spigot & funnel as needed
 - Keep spill materials on hand while maintenance is performed

Vehicle & Equipment Fueling

- Vehicle and Equipment Fueling
 - Fuel carefully
 - Clean all spills and drips immediately
 - Fuel on a paved area
 - Don't "Top Off" fuel tanks
 - Don't fuel near a storm drain
 - Dry mop when cleaning the fueling area floor

Vehicle & Equipment Washing vs. Rinsing

- SMCC policy is to **wash** all fleet vehicles and equipment at a commercial car wash facility. Commercial carwashes collect dirty water and dispose of it properly.
 - **Washing** involves detergents and removes dirt, sediment, oil, paint, grease and other pollutants from a vehicle or equipment
- IF a vehicle or piece of equipment is **rinsed off**, it shall be done in a grassy area with no storm drains in the vicinity of the rinse site.
 - **Rinsing** does not involve the use of detergents, cleaners, or solvents

Vehicle & Equipment Rinsing



Remember: Equipment and vehicle rinsing will occur in a grassy area with no storm drains in the vicinity of the rinse site

This photo shows dried equipment rinse water observed at Roccoland.
What should be done here to prevent stormwater pollution?

Vehicle & Equipment Rinsing



After



Thank you for washing the salter and truck at the local car wash!
This is an excellent example of the Stormwater O&M Plan in action.

Vehicle & Equipment Storage

- Park vehicles and equipment in their designated areas
 - Avoid parking on the grass
- Please do not park vehicles or equipment over storm drains
 - An example would be the storm drain between Health Science and Jewett



Stormwater Summary

- SMCC's MS4 Permit renewed October 1, 2022
- Following the O&M Plan may feel like extra steps but that does not mean a job has to take more time
 - **Everyone knows their job and does it well**
 - Work smarter (and safer) not harder
 - A task may need a little reengineering or some out-of-the-box thinking
 - Talk to your supervisor or the EH&S Coordinator if you have an idea or want to brainstorm on a solution



APPENDIX E

Jennifer Otenti <jotenti@smccme.edu>

SMCC Safety Minute - Get the dirt on soil erosion - May 16, 2023

1 message

Environmental Safety <environmentalsafety@smccme.edu>
To: Jennifer Otenti <jotenti@smccme.edu>

Tue, May 16, 2023 at 10:46 AM

According to the [Maine Department of Environmental Protection](#), the number one pollutant in Maine's rivers, streams, brooks, ponds and wetlands is soil from nearby eroding sites. **Soil Erosion** is a natural process where soil is moved by water or wind. Soil erosion reduces water quality, harms fish and other aquatic life, lowers shore front property values, increases property taxes, reduces recreational activities, and impacts the local economy through job loss and reduced business.

**#1 STORMWATER
POLLUTANT IN MAINE**

Good news - you can help reduce soil erosion! [Think Blue Maine](#) suggests this can be accomplished by capturing stormwater runoff, slowing runoff down, spreading runoff out, and by covering bare soil with plants, gravel, mulch, and other stabilization measures. Reduce soil erosion in your yard or community by:

- [Planting](#) trees, shrubs, and other plants to create a buffer between your property and any waterway or storm drain to filter out pollutants.
- Capturing runoff with [rain barrels](#), [rain gardens](#), and drip line trenches.
- Stabilizing paths and walkways with mulch, crushed gravel, or steps.
- Minimizing the time soil is exposed when you do construction or landscaping.

- **Maintaining** gravel roads and driveways.