

Standard Operating Procedure
University of Massachusetts Lowell
Facilities Management Department
Winter Road Maintenance



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Responsible Parties

Facilities Management Department
Storm Water Coordinator

Purpose of SOP

Document the University's procedures for winter road maintenance, use and storage of deicing materials, proper disposal of snow, and record keeping.

MS4 Permit – Required Level of Service

- Evaluate and implement ways to reduce the use of salts and/or use alternative materials in their place. (In the MS4 Permit, "salt" refers to any chloride-containing material used to treat paved surfaces for deicing, including sodium chloride, calcium chloride, magnesium chloride, and brine solutions.)
- Ensure that snow is not disposed into waters of the United States.

Equipment

The University owns, operates, and maintains various ice control and snow removal equipment, including 4 plow trucks (1 pickup truck, 2 small dump trucks, and 1 large dump truck), 2 Kubota tractors, 1 Toolcat Utility Work Machine, 1 sidewalk machine, 1 loader, 13 snow blowers, and 5 sidewalk sweepers.

Materials and Storage

Prior to each winter season, the University assesses deicing materials, and to the extent practical, selects materials that have the least impact on water quality while still effectively meeting the University's public safety needs for a variety of winter conditions. The University's major material used in snow and ice control is magnesium chloride. This material is stockpiled at the South Campus Salt Shed. The quantity of magnesium chloride is assessed in advance of a storm event to ensure supply is sufficient. Stocks are replenished between events.

- **Cover from Precipitation:** Deicing materials are stored in the salt shed at the South Campus Salt Shed unless active loading or spreading is occurring. The containment structure is permanent in its construction and made of materials that are not subject to salt corrosion. Temporary storage of deicers is not recommended; however, if materials must be stored outside of a permanent structure, the storage must be on a temporary basis only. Temporary storage piles are covered with a tarp and adequately secured at all times when not being actively worked.
- **Impervious Bottom:** Deicing materials are only stored on an impervious surface such as a concrete slab or an asphalt parking lot. The use of a tarp or other material as an impervious bottom is not adequate, unless specifically designed and certified by a professional engineer.
- **Management of Run-on and Run-off:** Deicing materials are stored away from storm drain inlets and other conveyance structures. Storage structures provide adequate barriers to prevent run-on into the storage pile, runoff from the storage pile, and minimize erosion from the pile.

Operations

- **Annual Winter Road Maintenance Procedures:** Each academic year, the University issues a Snow Procedures and Plans document that outlines the campus's snow and ice removal policies, communications, processes, priorities, contacts, safety guidelines, and more. Refer to this document for the most up-to-date information on the University's winter road maintenance procedures. The Snow Procedures and Plans document for the 2021 – 2022 Academic Year is attached to this SOP for reference.
- **Weather Forecasts:** The University uses all available resources to predict weather and track winter storms. They are contracted with two (2) weather services to provide updates regularly, and closely monitor local television weather forecasts, the Weather Channel on cable television, and satellite information available on the internet to inform winter operations.

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- **Mobilization:** If a storm begins during the typical workday, crew members receive direct orders regarding routes from the Facilities Manager. If a storm begins after hours, crew members will receive phone and text communications from the Facilities Manager to report and then will receive orders when they arrive onsite.
- **Route Prioritization:** The University plows and treats all University-owned roadways and parking lots for most storm events following established plowing routes. Primary and secondary roads are typically treated first to ensure campus roads remain passable for emergency vehicles. Sidewalks are typically maintained after all roadways are cleared.
- **Deicing:** The University evaluates the timing and extent that deicing materials are applied during and at the end of a storm event based on the post-storm weather and road conditions.
- **Equipment Calibration:** All equipment is calibrated annually in accordance with the manufacturer's instructions and the specified applications rates for the material being applied.
- **Application Rate:** The University uses the lowest application rate that will effectively treat surfaces to meet safety needs.
- **Loading:** When loading deicers, care is taken to not overfill the truck and spilled material is cleaned up following loading operations.
- **Snow Pile Placement:** The University stacks snow piles on lawns and other open spaces until snow hauling is needed. When snow pile removal is deemed necessary, it is relocated to one of three locations: on campus, the snow is either dumped at the southwest end of Riverview Lot (Broadway) on South Campus or the gravel area in Salem Street Parking Lot; off campus, the snow is relocated to the Dracut DPW Facility.

Maintenance

- Loading areas are swept frequently to prevent the build-up and run-off of deicers. At a minimum, loading areas are inspected and swept when needed.
- Plow trucks and other winter road maintenance equipment are stored at the Middlesex Street Maintenance Garage. Cleaning occurs at the car wash on Middlesex Street in Lowell.

Record Keeping and Documentation

- Copies of manufacturer's recommendations for equipment calibration, plowing speed, and deicer application rates as well as calibration records and documentation of new equipment purchases are kept at the Environmental Health and Safety Department at 600 Suffolk Street, Suite 212 in Lowell, MA.
- Every spring, invoices are tallied to document the total amounts of deicing materials used during the winter season.
- The University documents the miles of roads plowed or treated, the approximate totals of materials used, and evaluates opportunities to minimize the use of materials annually. Efforts to reduce chloride-containing materials are reported in the University's MS4 annual report.

Training

- This SOP is incorporated into annual training for applicable University staff. Documentation of the trainings, including sign-in sheets and learning materials used, will be included in the University's MS4 annual reports.

Revising the SOP

- These procedures are reviewed annually by the Facilities Manager and Storm Water Coordinator and updated as needed.



2021-2022 Academic Year Snow Procedures and Plans

This plan is intended to provide orderly and prioritized methods to fight most snowstorms

Each storm will present different problems. The on-site Snow Operations Manager (Grounds Manager or Grounds Supervisor) may need to continually adjust the plan to achieve the most benefit from the personnel and equipment available at the time.

General Note: This Snow and Ice Removal Plan will be implemented during inclement weather conditions both during and after normal work hours. Any deviations from this plan must be coordinated with, and approved by, the Executive Director of Operations and Services. The plan's priority of work and effort may vary depending on the severity of the weather conditions.

1. PURPOSE/OBJECTIVES

This operation plan has been developed to help assure a viable plan for the removal of snow and ice through established guidelines and specific responsibility assignments. The plan helps provide an acceptable maintenance level of snow removal on University roads, walks, stairs, ramps, parking lots and building entries. The main objectives are to minimize accidents, property damage, and personal injury and maintain emergency access to campus.

2. SAFETY GUIDELINES

Please remember that snow plows & snow equipment have the right of way at all times. Pedestrians and vehicles should allow a wide safety area around plows/equipment when they are working. While all operators try to watch out, their main focus is on the job of removing snow for public safety. Walking or driving too closely behind equipment can endanger you and the snow plow operator.

Staff and students are encouraged to wear proper footwear for snowy and icy conditions, and to plan on taking extra time to reach destinations because of weather conditions. Ice and snow mitigation treatments on walks, steps, and streets are repeated throughout the day as conditions warrant, but proper care and concern by everyone traveling across campus is still the best defense for a safe journey.

In addition, proper snow and ice traction tires on your vehicles are advisable during the winter months.

Remember, primary responsibility for your safety resides with you. **Please be careful.**

3. SUMMARY

University Operations and Services maintains approximately 6.5 miles of walkways and sidewalks, in addition to 2.2 million square feet of parking lots. During the winter months, the department has the responsibility for plowing and removing snow as well as minimizing and treating icy conditions. The department's goal is to provide practical safe access for students, faculty and staff during winter storms. We will use all available sources to predict and track winter storms. Two (2) contracted weather services that provide updates regularly, Local television weather forecasts, the Weather Channel on cable television, and satellite information available on the internet will all be monitored closely. When severe weather is forecasted, the University also receives notification bulletins from the National Weather Service. O&S will make every effort to ensure that campus roads remain passable for emergency vehicles throughout the snow removal period.

4. BACKGROUND

During winter months the parking lots and roadways on the University are inspected on a continual basis by staff in the University Operations and Services Department. During the nighttime hours, University Police will closely monitor street conditions due to severe weather conditions (snow, ice and windstorms). When snow or ice removal is required, University Police contacts the Grounds Department.

The staff available to remediate the snow and icy conditions varies by the day of week, and hour of the day. When adequate staff or resources are not available, call-in procedures are implemented to bring appropriate resources on campus to deal with the weather situation.

Many of the situations faced by the grounds crews are influenced by the time of day that the storm hits, the day of the week or time of the year. We are also mindful of the fact that residence hall occupancy, the Americans with Disabilities Act (ADA), class sessions, and general University business dictate a varying degree of response. A period of high level of activity, with classes in session and full residence hall occupancy, dictates a higher level of response than would be required during periods of time when there are no classes scheduled and residence halls are lightly occupied.

5. POLICY STATEMENT

The University will make every effort to ensure that all campus roads remain passable for emergency vehicles throughout the snow removal period. This is always the first priority. Final clearing curb to curb may be performed later in the process but initially roads must be kept passable.

- Day crews are on duty from 6:30 a.m. to 3:00 p.m. Monday through Friday, from mid-November through late March.
- If an overnight snowfall creates a situation where roads have been opened but the parking lots will not be usable before 7:00 a.m., the Grounds manager and Grounds supervisor on campus must continually assess this situation. If a campus closure or restrictions are needed, the decision is made by 4:30 a.m. This process will determine whether a campus can remain open after a snowstorm, remain open with limited parking available, or if it must close.
- Housekeeping Supervisors (18s or 14s) will contact Building Services Manager when they arrive on site and inform them of the number of essential personnel. Housekeeping Supervisors will contact Building Services Manager before leaving to ensure all areas are cleared.
- Contractors will contact Snow Operations Manager when they arrive on site and inform them of the number and types of equipment in use. Contractors will contact Snow Operations Manager before leaving to ensure all areas are cleared.

6. COMMUNICATIONS

If the decision is made to close, the University will utilize various communication platforms. In addition to the media outlets, school closing information will be broadcast over the UMass Lowell Emergency Alert System. Text messages and e-mails will be sent to everyone enrolled in this as well as the information will be placed on the UMass Lowell website www.UML.edu. Go to this site to enroll if you have not already done so. You can also call [REDACTED].

In the event of a campus closing, Essential personnel are required to report as directed to campus as well as Dining Services to prepare and provide meals for resident students

7. SNOW REMOVAL PROCESS & LOGISTICS

7.1. During plowing activities:

Any vehicle parked or abandoned on a campus drive, in a fire lane, parking lot, or otherwise illegally parked and interfering with plowing activities, is subject to immediate tow, without warning and at the owner's expense.

UMass Lowell may declare a snow removal emergency. During a snow removal emergency and upon notification via posters and announcements placed in the UMass Lowell Announcements and the residence halls, students will be asked to move their vehicles in a specified order from lots to allow for a clean removal of all snow. The notifications will identify the alternative parking location for that day and the sequence of lots to be cleared. During a snow emergency, vehicles remaining in lots that are scheduled to be cleared, are subject to tow at the owner's expense, these vehicles risk being stranded in snowdrifts due to plowing activities. For safety considerations Plow Drivers must stay a safe distance from parked vehicles while plowing. UMass Lowell personnel are not responsible for removing snow from a parked vehicle.

7.2. University Facilities Grounds Department follows a detailed process for systematic snow removal

- Pre-treat Walkways, Parking Lots, and Roadways
- When roads become icy, salting will begin.
- When Parking Lots become icy or lines become obscured, salting will begin.
- When the depth of snow on the roadways is approximately two inches plowing will begin.
- When snow in parking lots is between two and four inches, parking lot plowing will begin.
 - It should be noted that it is virtually impossible to clear parking spaces in the parking lots while cars are parked there. Snow storms which happen during a work day are handled by keeping parking lot entrances and aisles open. The parking surface for vehicles is cleared overnight after cars have departed the lot.
- Parking lots are cleared by plowing lots nearest academic buildings then service areas and residential lots. Ideally, all these areas are cleaned simultaneously when enough people and equipment are available.
- During an especially concentrated storm, it may be necessary to continually return to plowing of campus roadways and egress lanes from parking lots. Areas lower on the priority list may have to wait until the storm subsides.

7.3. Priorities for Snowplowing

1. Campus roads / Open building ADA access / Open building entrances / Fire lanes
2. Parking lots
 - A. Academic lots
 - B. Service lots
 - C. Residential lots
3. Walkways
 - A. Parking lot walkways to buildings
 - B. Lateral walkways
 - C. Walkways parallel to roads
 - D. Include all public walkways between campuses, adjacent to streets and roads, direct access between buildings, and non-public access routes.
4. Sidewalks
 - A. Primary walking routes- maintained during the snow event.
 - B. Secondary walking routes- cleared within 24 Hrs. after snow ceases

7.4. Snow Farms

Snow removed from campus lots and walkways will be dumped in the following locations:

- South Campus: the southwest end of Riverview Lot (Broadway).
- Gravel Area in Salem St. Lot.
- Dracut DPW facility.

Snow piles will be stacked on lawns and other open spaces until snow hauling is deemed needed.

7.5. Parking Lot Operations

The primary goal is to maintain orderly, normal parking lot function with visible markings. Snow removal in parking lots is more difficult and time consuming than roadway snow removal. The following Snow parking policy has been approved by the Executive Committee:

Nonessential staff, faculty and commuter students: the facilities team, provost office and public safety officials don't take the closing of campus lightly and will only close campus when conditions are unsafe. When conditions are unsafe and the campus is closed PLEASE stay off campus. Not only will your vehicle on campus cause delays in snow removal efforts, your personal safety as well as the safety of your vehicle may be at risk. Exception to this rule may be granted through the Office of the Provost, or the appropriate Vice Chancellor. In all cases parking will be limited to designated snow parking areas. For the safety of our drivers and vehicles Transportation Services is closed and the shuttles and/or buses are not running when the campus is closed for weather related emergencies.

Residential Students: Resident students are asked to check with their RD to determine where their vehicles should be parked during the snow emergency. Vehicles should be moved back to their designated lot 24 hours after the snow emergency is lifted. For the safety of our drivers and vehicles, Transportation Services is closed and the shuttles and/or buses are not running when the campus is closed for weather related emergencies.

8. SNOW / WEATHER CANCELLATION AND PARKING BAN PROCEDURES

8.1. Snow / Weather Cancellation Procedure

1. Associate Director of Operations & Services mobilizes snow removal process:
Meaghan Healey [REDACTED]
2. Activate Grounds staff to plow and treat areas.
Norm LeClair [REDACTED] [REDACTED]
3. Contact snow removal contractor
 - a. EJ Paving (North Campus, and East Campus)
Ryan Daigle [REDACTED]
 - b. Kilmoyley Construction (South Campus & University Crossing)
Padraig Sheehy [REDACTED]
4. Activate the essential personnel list for internal staff.
 - a. Housekeeping for shoveling:
Jose Rivera-Rodriguez [REDACTED]
Orlando Borba [REDACTED]
Marta Moran [REDACTED]
Nancy Amedee [REDACTED]
5. Activate the Housekeeping Contractor for RVS, RHV, GPS and One Perkins Street.
 - a. UG2

Julio Romera [REDACTED] [REDACTED]

6. Facilities Management-Operations and Services department will inspect condition of parking lots and roads between 4 and 5 a.m.
7. **EEM Department** will coordinate a conference call with Provost/Academic Affairs representative and all other departments EEM thinks is needed before 5 a.m. and provide update of campus conditions (# inches, surface conditions, recommendations) to determine if University closure is necessary.

Call in following order: (note* only one person needs to be called)

Cell

1. Mai Nguyen [REDACTED]
2. Kerry Donohoe [REDACTED]

8. **Call University Police with decision: 978-934-2394**

9. **Call designated University Relations staff member to mobilize communications to campus community.**

Call in following order: (note* only one person needs to be called)

Cell

Home

Office

1. Nancy Cicco [REDACTED]
2. Jonathan Strunk [REDACTED]

10. **Notify UCaps Office if University will be closed, so proper door and security schedule can be implemented**

Call in following order: (note* only one person needs to be called)

Cell

Office

- a. Jon Victorine [REDACTED]
- b. Paulo Pinheiro [REDACTED]

11. **University Relations will take the following steps:**

- a. Issue a notice about the cancellation on RAVE
 - i. This will go to all faculty, staff and student campus email addresses.
 - ii. This will also go by text to the cell phones of faculty, staff and students who have signed up for that service.
- b. Update [REDACTED] cancellation line, as follows:

If help is needed, contact Bill Anyon at [REDACTED] [REDACTED] or Steve Hall, [REDACTED] [REDACTED]

** Sample message: "You have reached the University of Massachusetts Lowell weather hotline. Today is (day/month/year). UMass Lowell, including the Haverhill campus, is closed today. All in-person classes and operations on campus are canceled, though remote classes and operations will be held as scheduled. (A campus parking ban is in effect.) Essential personnel should report as directed. For more information, visit www.uml.edu/alert/storm.*

c. Update UMass Lowell website banner.

i. Email banner words to [REDACTED]

1. e.g. "Because of inclement weather, UMass Lowell is closed Wednesday, Dec. 1. All day and evening classes are cancelled. Essential personnel only report."
2. Call Elaine Keough [REDACTED] to alert her that the message has been sent to her.
3. If Elaine is not available, send information to:

	Cell	Home	Office
a. Sarah Eisenklam	[REDACTED]	[REDACTED]	[REDACTED]
b. Michael Pueschel	[REDACTED]	[REDACTED]	[REDACTED]
4. If the closing is complicated and includes more information (e.g. about parking bans or transportation) add the words "for more information" at the end of the banner message, which will link to a page with more information.
5. That information needs to be provided to Elaine or her designee, after giving her/him a phone heads-up that it is being sent to him.

d. Social media

i. Keep social media staff copied on all messages and updates:

	Cell	Home	Office
1. Elaine Keough	[REDACTED]		[REDACTED]
2. Sarah Eisenklam	[REDACTED]	[REDACTED]	[REDACTED]
3. Michael Pueschel	[REDACTED]		[REDACTED]

e. Contact print and broadcast media

8.2 Parking and Parking Ban Procedures

1) Before the storm

- a) Executive Director of Facilities Operations or designee will contact Provost 6-10 hours before storm to discuss weather forecast and whether a parking ban is prudent.
- b) Six hours before storm Operations & Services (O&S) staff will notify the following people by phone and email regarding parking ban:
 - i) Parking Department

	Cell	Office
1. Tom Miliano	[REDACTED]	[REDACTED]
2. Nick Piscitello	[REDACTED]	[REDACTED]
 - ii) University Police

1. Ron Dickerson
2. Melissa Mullen

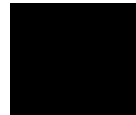
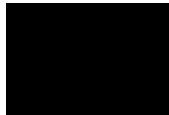


iii) Res Life

Cell

Office

1. Joel McCarthy
2. Amanda Surgens
3. RD on Duty

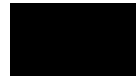
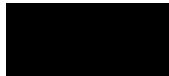


iv) UCAPS office

Cell

Office

1. Jon Victorine
2. Paulo Pinheiro



v) Aramark

Cell

Office

1. Jirair Derkrikorian



vi) Athletics

Cell

Office

1. Alan Zebrak



vii) University Relations, in the following order:

Cell

Home

Office

1. Nancy Cicco
2. Jonathan Strunk



c) Resident students will be told to move their vehicles to the following designated locations:

i) South Campus and Riverview Suites: South Garage

ii) East Campus: East Garage, Hall Street Garage (Please Note: East Campus Garage and Hall St. Garage Roofs will be **CLOSED** on December 1st for the winter months)

iii) North Campus: North Campus garage, student section

d) University Relations communication actions:

- i) Notify the following RAVE distribution list that a parking ban has been called for a specific time (e.g. "midnight" or "4 a.m.") and direct people to web site for full parking ban policy/info.
- ii) Update the ext. 4-2121 cancellation line with information about the parking ban.
- iii) Call Elaine Keough to have notice of ban put on website banner.

2) During the storm:

- a) Essential personnel and food service staff will park in the following lots: North Campus Garage faculty/staff section, South Garage, Campus Recreation Center Lot.
- b) Parking for faculty and nonessential staff is allowed ONLY WITH Vice Chancellor or provost approval. Those cars must park in designed lots noted above. All other parking lots will be closed to cars and overnight parking. O&S will contact University Police and/or RD on duty to attempt to find individual car owners with stickers.


- c) Vehicles without UMass Lowell decals will be towed immediately at the owner's expense; all others will be relocated to a snow emergency lot at the expense of the owner. Relocation of UMass Lowell-decaled vehicles will only take place after attempts to contact the vehicle owner/operator.
- d) During plowing activities, any vehicle parked or abandoned on a campus drive, in a fire lane, or otherwise illegally parked, is subject to immediate tow, without warning and at the owner's expense.

3) After the Storm:

- a) O&S will notify University Relations when cars may return to their regular lots:

	Cell	Home	Office
1. Nancy Cicco			
2. Jonathan Strunk			

- b) Office University Relations staff will communicate that the parking ban is ended and at what time and that cars should be returned to their regular lots via:

- i) RAVE
- ii) UMass Lowell website banner
- iii) School cancellation line, 

All vehicles in designated snow lots are required to be moved into normally assigned lots within 24 hours of the parking ban being lifted. Vehicles parked in excess of the 24-hour limit are subject to ticketing/towing

12. SNOW OPERATIONS ROLES AND RESPONSIBILITIES

Kilmoyley Construction

- **SOUTH CAMPUS:**
 - All South Campus Parking lots
 - Roof of Parking Garage
 - All South Campus Roadways
 - Solomont Way
 - Behind Durgin
 - Behind Mahoney
 - Behind Coburn
 - All Main Sidewalks and Walkways
 - Broadway
 - Wilder
 - Riverview Lot Stairs
 - Riverview Suites
 - Parking Lot
 - Fire Access road
 - Hauling of snow from South Campus Parking lots

- Snow farms: South Campus Riverview Lot (Southwest Corner) and West Campus
- **UNIVERSITY CROSSING:**
 - University Crossing Parking Lots
 - Salem Street Lot
 - Fletcher Street Lot
 - Metered Lot
 - Dane Street
 - Sidewalks around University property

EJ Paving

- **NORTH CAMPUS:**
 - All North Campus Parking lots
 - Roof North Campus Garage
 - All North Campus Sidewalks and Walkways
 - University Ave
 - VFW boulevard
 - Riverside St
 - Plymouth Street
 - North Campus Garage and Stairs
 - Saab ETIC Loading Dock
 - Roadway behind Costello
 - North campus Bus Stop
 - Shovel Stairs in Riverside Lot
 - Hauling of snow to snow farm behind Field or West Campus
 - Cumnock Hall
 - Riverside Lot
- **EAST CAMPUS:**
 - **Support to UML Staff as needed**

Facilities Staff- Grounds and Essential Personnel

- Plow, shovel/snow blow:
 - All East Campus Parking Lots
 - Including Perkins St Stairs
 - East Campus Parking Garage
 - Hall Street Garage
 - RiverHawk Village
 - Stairs on South Campus (between Durgin Hall and Concordia Hall)
 - Primary and Secondary Walking Routes
 - Boat House
 - All East Campus Sidewalks and Walkways
 - Pawtucket St
 - Atkins St/Hall St/Perkins St
 - Tsongas Garage
 - Salt all Campuses after Storm

HOUSEKEEPING

- Shovel/snow blow
 - Building entrance/exits
 - 150 Wilder and 851 Broadway
 - Stairs next to Costello and Garage Restroom entrance
 - South Campus Garage and Stairs
 - Sidewalk from South Garage to Riverview Suites

EQUIPMENT INVENTORY

- 4-plow trucks(1 pickup, 2 small dumps, 1 large dump)
 - Usual drivers- Norman, John, Chris
- 2-Kabota Tractors
 - Usual drivers- Ambior, Joao, Brad
- 1-toolcats
 - Usual drivers- Ambior, Joao, Brad, Chris
- 1-sidewalk machine
 - Tom, Ambior
- 1 loader
 - Norman, Chris
- 13 Snow Blowers
- 5 Sidewalk Sweepers

Standard Operating Procedure
University of Massachusetts Lowell
Facilities Management Department
Catch Basin Inspection and Cleaning



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Responsible Parties

Facilities Management Department
Storm Water Coordinator

Purpose of SOP

Document the University's procedures for the operation and maintenance of catch basins, frequency and optimization of cleaning programs, disposal of cleanings, and record keeping.

MS4 Permit – Required Level of Service

- Document the number of catch basins cleaned, inspected, and the total volume or weight of material removed from catch basins annually.
- Establish a catch basin cleaning schedule with the goal of providing routine cleaning at a frequency that ensures no catch basin will be more than 50 percent full of sediment at any time.
- Prioritize catch basin cleaning in areas with high potential pollutant loads that discharge to waters impaired by turbidity and total suspended solids.
- Clean catch basins more frequently if they are located near construction sites or if annual inspection and maintenance activities indicate excessive sediment (sump greater than 50 percent full) or debris loadings.
- Verify catch basin cleanings are stored and disposed of properly.

Equipment

The University subcontracts catch basin inspections and cleanings to a contractor that owns and operates a clamshell bucket.

Operations

- All University-owned catch basins are inspected and, if necessary, cleaned annually.
- The goal of the catch basin inspection/cleaning schedule is to conduct routine cleanings to confirm that no catch basin will become more than 50 percent full. Each catch basin sump is assessed to determine if it is more than 50 percent full based on whether the contents exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.
- If necessary, schedule adjustments will be made to prioritize catch basins located at known problem areas (low spots) and near construction activities (roadway construction, residential, commercial, or industrial development). If inspections and maintenance activities indicate excessive sediment and debris loading, these catch basins will be marked for more frequent cleaning.
- The cleaning schedule will be assessed annually and updated as necessary.
- Catch basin inspection and cleaning procedures address both the grate opening and the basin sump.
- Catch basin inspections and cleanings are performed by a subcontractor. Actions and repairs associated with identified problem areas and structural damages are self-performed by the University.
- For each catch basin cleaned, the University's subcontractor documents the date, location, and estimated quantity of material removed. This information is provided to the University in an invoice following each annual inspection and cleaning event.
- If spills that reach the catch basin occur or visual evidence of illicit discharges are observed within the catch basin, the University's subcontractor shall report the information to the Facilities Manager by the observing personnel within 24 hours.

Standard Operating Procedure
University of Massachusetts Lowell
Facilities Management Department
Catch Basin Inspection and Cleaning



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Maintenance

- If catch basins require repair and maintenance, the issues shall be reported to the Facilities Manager by the observing personnel.

Management, Storage, and Disposal

- Water from cleanings is decanted during catch basin cleaning.
- The University's subcontractor disposes of catch basin cleanings off-campus, in accordance with applicable rules and regulations.
- The University's subcontractor must keep any cleanings that are visually contaminated in a separate stockpile to evaluate appropriate disposal options.

Record Keeping and Documentation

- Record logs are kept at the Environmental Health and Safety Department at 600 Suffolk Street, Suite 212 in Lowell, MA.
- The University maintains records of the total number of catch basins cleaned and inspected and the amount of cleaning residuals. This information is summarized and reported in the University's MS4 annual report.

Training

- This SOP will be incorporated into annual training for applicable University staff. Documentation of the trainings, including sign-in sheets and learning materials used, will be included in the University's MS4 annual reports.

Revising the SOP

- These procedures are reviewed annually by the Facilities Manager and Storm Water Coordinator and updated as needed.

Standard Operating Procedure
University of University Lowell
Facilities Management Department
Sweeping Streets and Parking Lots



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Responsible Parties

Facilities Management Department
Storm Water Coordinator

Purpose of SOP

The University currently does not have an active street sweeping program. The University does not use sand for winter road maintenance operations, and annual catch basin inspections show low amounts of sediment entering and settling in catch basins each year. The University will continue to evaluate their catch basin inspection results to identify whether street sweeping operations should be conducted on a regular basis in the future. The University will continue to clean all catch basins annually regardless of sediment input. If street sweeping is deemed necessary at any point, the University will contract with an outside company to perform the work.

The purpose of this SOP is to document the procedures for the operation and maintenance of street sweepers, frequency of sweeping, disposal of sweepings, and record keeping that the University should follow if they identify a future need to conduct street sweeping operations on campus. These procedures should be implemented to keep the University's roads and parking lots clean and to minimize pollution entering the stormwater drainage systems.

MS4 Permit – Required Level of Service

- All University owned streets and parking lots shall be swept a minimum of once per year in the spring.
- Increase street sweeping frequencies on all streets and parking lots that discharge to waters impaired by Total Phosphorus or with a high potential pollutant load to a minimum of twice per year, during the spring and the fall.
- If necessary, sweep streets more frequently based on catch basin cleaning and inspection results, nearby land uses, potential for pollutant road reduction, or if there are nearby water quality-limited or TMDL waters.
- Verify street sweepings are stored and disposed of properly.
- Document the mileage of streets swept and total volume or weight of street sweepings removed annually.

Equipment

The University currently does not own any street sweeping equipment.

Operations

- At a minimum, street and parking lot sweeping takes place once per year, during the spring months. Certain priority streets get swept more than once per year.
- If necessary, schedule adjustments are made to prioritize streets with known problem areas (low spots or where catch basin inspections indicate excessive sediment and debris loading) and near construction activities (roadway construction, residential, commercial, or industrial development).
- The University distributes street and parking lot sweeping schedules to inform faculty, staff, and students of their sweeping activities.
- The sweeping schedule is assessed annually and updated as necessary.
- Sweeping does not typically take place during rain events or during the winter months.
- If spills occur or illegal discharges are observed during sweeping, the information is reported to the Facilities Manager within 24 hours.
- Sweepers are operated according to the manufacturer's recommended settings, standards, and procedures.

Standard Operating Procedure
University of University Lowell
Facilities Management Department
Sweeping Streets and Parking Lots



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Maintenance

- Sweepers are checked for mechanical issues or leaks after every use.
- Staff immediately contain and properly clean up any spills and dispose of material properly. Spill clean-up supplies are available at the Facilities Management Department. Mechanical issues are reported to the Facilities Manager.
- Equipment is washed and stored at the Facilities Management Department.
- Left-over debris is scraped out from the hopper daily and disposed of properly.

Storage and Disposal

- Street sweepings are temporarily stockpiled at the Facilities Management Department. Material is sampled annually and analyzed by a laboratory for contaminants. The material is then hauled to a proper disposal location, in accordance with applicable rules and regulations.

Record Keeping and Documentation

- Records, including the most recent sweeping equipment manufacturer's recommended settings, standards, and procedures, are kept at the Environmental Health and Safety Department at 600 Suffolk Street, Suite 212 in Lowell, MA.
- Street sweeping locations, dates, and estimated quantities of materials swept are recorded after each sweeping event. This information is summarized and reported in the University's MS4 annual report.

Training

- This SOP will be incorporated into annual training for applicable University staff. Documentation of the trainings, including sign-in sheets and learning materials used, will be included in the University's MS4 annual reports.

Revising the SOP

- These procedures are reviewed annually by the Facilities Manager and Storm Water Coordinator and updated as needed.

Standard Operating Procedure

University of Massachusetts Lowell

Facilities Management Department

Inspection and Maintenance of Structural Stormwater Control Facilities (aka BMPs)



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Responsible Parties

Facilities Management Department

Storm Water Coordinator

Purpose of SOP

Procedures for inspection and maintenance of constructed BMPs to ensure proper function.

MS4 Permit – Required Level of Service

- Establish and implement inspection and maintenance frequencies and procedures for all stormwater BMPs such as water quality swales, retention/detention basins, infiltration structures, proprietary treatment devices, or other similar structures owned or operated by the permittee.
- All University-owned stormwater BMPs (excluding catch basins) shall be inspected annually at a minimum.

Operations

- All University-owned BMPs are inspected at a minimum of once a year. BMPs found to have recurring issues will be inspected at a higher frequency.
- University-owned BMPs are inspected for potential problems including, but not limited to: standing water; clogging; structural damage; erosion; trash or debris within basins and banks; tree growth on embankments; damage to emergency spillways; and sediment accumulation around outlets.
- Inspection staff refer to the BMP's specific Operation and Maintenance (O&M) Plan or utilize the attached Table 1, for general Massachusetts BMP inspection and maintenance requirements.
- For each BMP inspected, staff document date, time, location, issues found, and follow-up actions taken (including maintenance, if conducted). BMPs are photographed during inspections.
- Confirm, through inspections, that any documented issues have been resolved. Document the date of all follow-up inspections.
- If new BMPs are discovered during inspection, note type and location, conduct a preliminary inspection, and report them to the DPW to include in the University's BMP inventory.

Maintenance

- Ensure proprietary treatment structures are operating and maintained per the manufacturer's recommended standards and any specific O&M requirements.
- Maintain BMPs at appropriate frequencies based on inspection results and O&M requirements (see Table 1, attached).
- Should any problems be encountered, necessary maintenance or repairs should be scheduled and completed as quickly as possible.

Record Keeping and Documentation

- Records, including specific O&M requirements, are kept at the Environmental Health and Safety Department at 600 Suffolk Street, Suite 212 in Lowell, MA.
- The total number of BMP inspections and related maintenance and repairs are documented. This information is summarized and reported in the University's MS4 annual report.

Standard Operating Procedure

University of Massachusetts Lowell

Facilities Management Department

Inspection and Maintenance of Structural Stormwater Control Facilities (aka BMPs)



Issue Date: May 2022

Revision: 1

Revision Date: Sept. 2022

Training

- This SOP will be incorporated into annual training for applicable University staff. Documentation of the trainings, including sign-in sheets and learning materials used, will be included in the University's MS4 annual reports.

Revising the SOP

- These procedures are reviewed annually by the Facilities Manager and Storm Water Coordinator and updated as needed.

Table 1*Inspection and Maintenance Guidance for Constructed Best Management Practices (BMPs)*

Stormwater Treatment System Classification	Common Best Management Practice Names	Estimated Labor-Hours for Inspections	Estimated Crew-Hours for Maintenance	Typical Inspection and Maintenance Activities	Recommended Maintenance Frequency
Filter	Bioretention Areas and Rain Gardens, Constructed Stormwater Wetlands, Proprietary Media Filters, Sand & Organic Filters	30-45 Minutes	2-8 Hours	<ul style="list-style-type: none"> • Check for Erosion • Remove Sediment/Debris • Check Filter Media Quality and Replace Surface Mulch • Perform Landscaping (Weed, Trim, etc.) • Check for Clogging/Blockages • Inspect Any Control Structures 	2x/Year and Following Large Storm Events
Detention	Wet Pond, Wet Basins, Dry/Extended Dry Detention Basins	30 Minutes	3-4 Hours	<ul style="list-style-type: none"> • Check Embankment Conditions for Damage from Erosion and/or Rodents • Remove Sediment/Debris • Check for Clogging/Blockages • Check Vegetation/Mow Embankments/ • Inspect Any Control Structures 	2x/Year and Following Large Storm Events
Infiltration	Dry Wells, Infiltration Basins, Infiltration Trenches, Leaching Catch Basins, Subsurface Structures, Porous Pavement	30-45 Minutes	1-2 Hours (may be more for porous pavements and subsurface structures)	<ul style="list-style-type: none"> • Check for Clogging/Blockages • Remove Sediment/Debris • Check for Joint Separation/Blockages in Porous Pavements and Vacuum Sweep • Conduct Infiltrometer Test if Failure is Observed • Inspect Any Control Structures 	2x/Year and Following Large Storm Events
Conveyance and Distribution	Drainage Channels, Grassed Channel (Biofilter Swale), Water Quality Swale	30 Minutes	2-4 Hours	<ul style="list-style-type: none"> • Check for Erosion • Remove Sediment/Debris • Perform Landscaping 	2x/Year
Buffer	Vegetated Filter Strips	30 Minutes	2 Hours	<ul style="list-style-type: none"> • Check for Erosion • Remove Sediment/Debris • Perform Landscaping 	2x/Year

Stormwater Treatment System Classification	Common Best Management Practice Names	Estimated Labor-Hours for Inspections	Estimated Crew-Hours for Maintenance	Typical Inspection and Maintenance Activities	Recommended Maintenance Frequency
Sediment Separator	Deep Sump Catch Basins, Oil/Grit Separators, Proprietary Separators	30-45 Minutes	2-4 Hours	<ul style="list-style-type: none"> • Check Surface Conditions (signs of erosion/settling) • Skim Floatables • Remove Sediment • Replace Booms (as needed) 	Inspections will ultimately dictate schedule. Late Fall (after leaf-fall and before snowfall)

Notes:

1. All inspection and maintenance requirements herein are intended to provide general guidance to municipal staff. In any instance where these requirements and a BMP's specific Operations and Maintenance (O&M) Plan conflict, the O&M Plan shall govern.
2. For the recommended labor-hours above, an Inspection Crew consists of one person and a Maintenance Crew consists of two people, which includes an experienced, trained supervisor and a laborer.