



STORMWATER POLLUTION PREVENTION AND GOOD HOUSEKEEPING PROGRAM

Town of West Newbury
Massachusetts

June 2020

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Table of Contents

Stormwater Pollution Prevention and Good Housekeeping Program Town of West Newbury

1	Introduction	1
2	Parks and Open Space	2
2.1	General	2
2.2	Pesticides, Herbicides, and Fertilizers	2
2.3	Irrigation	3
2.4	Mowing	3
2.5	Waterfowl Management	3
2.6	Trash Management	3
3	Building and Facilities Management	5
3.1	Trash and Recyclables	5
3.2	Building Maintenance	5
3.3	Storage of OHM and Potential Pollutants	6
4	Vehicle Maintenance and Storage	7
4.1	Vehicle Storage	7
4.2	Vehicle Maintenance	7
4.3	Fueling	7
4.4	Material Management	8
4.5	Vehicle Washing	8
5	Street and Parking Lot Sweeping	9
5.1	Sweeping Frequency	9
5.2	Press Release	9
5.3	Roads and Parking Lots	9
5.4	Sweeping Practices	9
5.5	Sweepings Reuse and Disposal	10
6	Catch Basin Cleaning	11
6.1	Inspection and Cleaning Frequency	11
6.2	Inspection and Cleaning Procedures	11
6.3	Handling and Disposal of Catch Basin Cleanings	12
7	Winter Operations	13
7.1	Equipment and Maintenance	13
7.2	Material Storage	13
7.3	Procedures	14
7.4	Snow Storage and Disposal	15

8	Treatment System Inspection and Maintenance.....	17
8.1	Bioretention Areas and Rain Gardens.....	17
8.2	Constructed Stormwater Wetlands	17
8.3	Extended Dry Detention Basins	18
8.4	Proprietary Media Filters	18
8.5	Sand and Organic Filters.....	19
8.6	Wet Basins	19
8.7	Dry Wells	20
8.8	Infiltration Basins.....	20

Appendices

Appendix A – West Newbury MS4 Regulated Area

Appendix B – List of Municipal Facilities

Appendix C – Sweeping Log

Appendix D – Roads and Parking Lots for Sweeping

Appendix E – Ice Control and Snow Removal Equipment



1 Introduction

The Town of West Newbury owns and operates a municipal separate storm sewer system (MS4), made up of a network of catch basins, manholes, drainage pipes, and swales that carry stormwater to wetlands and waterbodies. Stormwater is water from rain or melting snow that does not soak into the ground but instead flows over roofs, pavement, bare soil, and sloped lawns into storm drains or directly into waterbodies. As stormwater flows, it picks up soil, animal waste, salt, pesticides, fertilizers, oil and grease, debris, and other potential pollutants. Drainage pipes and swales carry stormwater to the nearest waterway, usually with little or no treatment. In West Newbury, whatever flows down a storm drain comes out in the Merrimack River, Indian River, Mill Pond, Beaver Brook, or upstream wetlands and creeks.

West Newbury Department of Public Works (DPW) manages the MS4 in compliance with the Phase II National Pollutant Discharge Elimination System General Permit for Stormwater Discharges from Small MS4s in Massachusetts (MS4 Permit). To comply with the MS4 Permit, the Town must follow six minimum control measures (MCMs):

- MCM 1. Public Education & Outreach: Provide educational material about stormwater to four audiences (residents, industry, commercial, and construction).
- MCM 2. Public Participation: Provide an opportunity for the public to participate in the Town's stormwater management program.
- MCM 3. Illicit Discharge Detection and Elimination: Find and eliminate sources of non-stormwater discharges (e.g. sewage) from the storm sewer system.
- MCM 4. Management of Construction Site Runoff: Adopt an ordinance and procedures for site plan review and erosion and sediment control on construction sites.
- MCM 5. Management of Post-Construction Site Runoff: Address stormwater runoff from new development and redevelopment projects. The goal of this measure is to try to management stormwater where it falls and retain it on site.
- MCM 6. Good Housekeeping in Municipal Operations: Implement good housekeeping practices in municipal operations to prevent stormwater pollution and maintain the MS4 in good condition.

As part of MCM 6, this Stormwater Pollution Prevention and Good Housekeeping Program establishes procedures for maintaining West Newbury's MS4 infrastructure and for reducing stormwater pollutants that may be conveyed through the MS4 into receiving waterbodies. The MS4 Permit requires these practices to be implemented within the MS4 regulated area, as illustrated in Appendix A. A list of applicable municipal facilities is provided in Appendix B.



2 Parks and Open Space

Parks and open space operation and maintenance activities commonly involve the operation of equipment such as mowers and tractors; disposal of waste from mowing, planting, weeding, raking, pruning, and trash collection; application of pesticides, herbicides, and fertilizers; and cleaning and maintenance of park amenities. General use of West Newbury's parks and open spaces by the public may include athletic events, dog walking, and horse riding. These activities have the potential to generate contaminants such as trash, sediment, excessive nutrients, animal waste, and oil and hazardous materials (OHM) that may be picked up by stormwater runoff. West Newbury Department of Public Works (DPW) follows best practices for parks and open space maintenance to reduce stormwater pollution. These practices are described below.

2.1 General

- When establishing new plantings, use drought resistant and native plants to reduce the need for irrigation and application of fertilizers and pesticides.
- Repair/reseed damage to bare areas as soon as possible to prevent erosion. If there are areas of erosion or poor vegetation, repair them as soon as possible, especially if they are within 50 feet of a waterbody.
- Remove (sweep or shovel) materials such as soil, mulch, and grass clippings from parking lots, streets, curbs, gutters, sidewalks, and drainage-ways.
- Do not clean up any unidentified or possibly hazardous materials found during maintenance; notify a supervisor immediately.
- Do not leave open containers on the ground where they may accidentally tip over.
- Never wash or sweep debris into the storm drain.
- All portable toilets should be staked down in flat, secure locations where they are less likely to be knocked down or blown over. They should be placed in a location that would retain any spillage from washing into the MS4 or receiving waters. Ensure routine maintenance and cleaning of portable toilets.

2.2 Pesticides, Herbicides, and Fertilizers

- Minimize the use of pesticides, herbicides, and fertilizers (PHF).
- Use integrated pest management (IPM) practices where practicable to reduce the use of PHF for turf maintenance and landscaping activities.
- Use fertilizers in accordance with Massachusetts 330 BMP 31.00 Plant Nutrient Application Requirements for Agricultural Land and Non-Agricultural Turf and Lawns.¹
- Only apply fertilizer in areas where a soil test indicates that nutrients are inadequate.
- When fertilizer is needed, use slow-release fertilizers in only the quantities warranted by the soil test results.
- Avoid fertilizing before a heavy-rain event or during a drought.
- Do not apply fertilizer within 25 feet of a waterbody or wetland.

¹ MassDEP Plant Nutrient Management <https://www.mass.gov/service-details/plant-nutrient-management>



- Store PHF in high and dry locations.
- Regularly inspect PHF storage areas for leaks or spill.
- Dispose of fertilizer and pesticides according to the manufacturer's instructions and applicable regulations.

2.3 Irrigation

- Repair broken sprinkler heads as soon as possible.
- Only irrigate at a rate that can infiltrate into the soil to limit run-off.
- Avoid irrigating close to impervious surfaces such as parking lots and sidewalks.

2.4 Mowing

- Remove debris and trash from landscaped areas prior to mowing.
- Reduce mowing frequencies wherever possible by establishing low/no-mow areas in lesser-used spaces.
- Brush off mowers (reels and decks) and tractors over grassy areas or in contained washout areas.
- Leave clippings on grassy areas or dispose of them in the trash or by composting.
- Do not blow or sweep organic waste material (grass cuttings, leaf litter) into the street, gutter, storm drains or waterbodies.
- Do not hose off mowers over paved areas that drain into the MS4 or directly to surface waters.
- Follow proper vehicle and equipment maintenance procedures to prevent leaks.

2.5 Waterfowl Management

- Identify undesirable waterfowl congregation areas and take steps to prevent waterfowl droppings from entering the MS4 or surrounding waterbodies.
- Take measures to discourage waterfowl congregation near waterbodies and the MS4. Actions may include using strobe lights or reflective tape, establishing no-mow zones to reduce available feeding areas, or planting thick vegetation along shorelines. If waterfowl congregation cannot be managed, then isolate the drainage from congregation areas away from the storm system and waterbodies.
- Install signage to educate the public on the negative effects of feeding wildlife and the impacts of waterfowl feces entering the stormwater system or nearby waterbodies.

2.6 Trash Management

- Provide pet waste stations with bags and trash receptacles where pets are permitted. Post signs describing the proper disposal of pet waste.
- Place waste and recycling containers indoors or under a roof or overhang whenever possible.
- Clean and sweep up around outdoor waste containers regularly.



- Arrange for waste and recyclables to be picked up regularly and disposed of at approved disposal facilities.
- Do not wash out waste or recycling containers outdoors or in a parking lot.
- Periodically inspect waste areas to check for leaks and spills.
- Ensure there are enough trash and recycling containers at appropriate areas.
- Monitor waste and recycling containers at heavily-used sites and on holidays to ensure that there is no overflow.



3 Building and Facilities Management

Buildings and facilities often store and utilize OHM, and therefore may be potential sources of pollutant discharges to the MS4. West Newbury DPW follows best practices, as described below, for the use, storage, and disposal of OHM and other stormwater pollutants to reduce pollutant discharge from the MS4.

3.1 Trash and Recyclables

- Ensure that waste and recycling receptacles are leak-tight with tight-fitting lids or covers.
- Place waste or recycling receptacles indoors or under a roof or overhang whenever possible.
- Keep lids closed on dumpsters unless adding or removing material. If using an open-top roll-off dumpster, cover it and tie it down with a tarp unless adding materials.
- Locate dumpsters on flat, paved surfaces and install berms or curbs around storage areas to prevent run-on and run-off.
- Do not locate dumpsters over or adjacent to drainage inlets/catch basins.
- Prior to transporting waste, trash, or recycling, ensure that containers are not leaking (double bag if needed) and properly secure containers to the vehicle.
- Clean and sweep around outdoor waste containers regularly.
- Clean up any liquid leaks or spills with dry cleanup methods.
- Never place OHM in a dumpster or recycling or trash container.
- Do not wash trash or recycling containers outdoors or in parking lots.
- Periodically inspect solid and liquid waste storage areas to check for leaks and spills.
- In dumpster areas, regularly pick up surrounding trash and debris and regularly sweep the area.
- In compactor areas, regularly check the hydraulic-fluid hoses and reservoir to ensure that there are no cracks or leaks. Regularly sweep the area.

3.2 Building Maintenance

- When power washing buildings and facilities, ensure that the washwater does not flow into the MS4. Provide containment or filtering systems.
- Do not apply paint and other chemicals on the outside of buildings when it is raining or prior to expected rain.
- When painting, use a drop cloth and clean up any spills immediately. Do not leave open containers on the ground where they may accidentally tip over.
- Sweep parking lots regularly and clean areas surrounding the facilities to reduce runoff of pollutants.
- West Newbury does not operate a public pool. Private pools should be dechlorinated and tested before being emptied into the MS4.



3.3 Storage of OHM and Potential Pollutants

- Disconnect floor drains in OHM storage areas from the stormwater system.
- Routinely inspect buildings and facilities for areas of potential OHM leaks or other sources.
- Conduct oil changes indoors for equipment that fits indoors.
- Store materials away from high traffic areas
- Never treat or dispose of hazardous materials unless licensed to do so
- Develop spill prevention plans such as Spill Prevention Control and Countermeasure (SPCC) Plans where applicable, based on inventories of material storage and potential pollutants. Coordinate with the local fire department if necessary.
- Provide secondary containment as necessary for OHM storage areas.
- Maintain spill response materials (i.e., granular absorbents, pads, containment booms, etc.) for small manageable release of OHM.
- Do not store drums or other containers of OHM outdoors unless under cover and within secondary containment.
- Exterior OHM storage areas with secondary containment may require periodic pumping of accumulated rainwater to maintain storage capacity. Prior to rainwater discharge, the accumulated water must be inspected for visual or olfactory evidence of OHM. If no visual or olfactory evidence of OHM is observed, the accumulated rainwater may be discharged to the ground surface. At no time should accumulated rainwater be discharged without direct observation. At no time should secondary containment drains or pumps be left open or allowed to operate periodically without direct observation.
- Train Town employees responsible for handling these products.



4 Vehicle Maintenance and Storage

Regular maintenance of vehicles and heavy equipment helps reduce the potential for leaking of fluids associated with normal wear and tear. Potential pollutants include fuels, oil, antifreeze, brake fluid, solvents, and battery acid. West Newbury DPW follows best practices, as described below, for vehicle and equipment maintenance and storage to reduce stormwater pollution.

4.1 Vehicle Storage

- Store vehicles indoors where practicable.
- If vehicles cannot be stored indoors, park vehicles on paved surfaces that are regularly inspected and swept.
- Monitor vehicles and equipment for leaks and use drip pans as needed until repairs can be performed. When drip pans are used, inspect frequently to ensure no overtopping.
- Drain fluids from leaking or wrecked vehicles and parts as soon as possible. Dispose of fluids properly.

4.2 Vehicle Maintenance

- Regularly inspect heavy equipment and vehicles to proactively identify maintenance needs or potential leaks.
- Conduct all body repair and painting work indoors.
- Use designated areas for engine, parts, or radiator cleaning. Do not wash or rinse parts outdoors.
- Do not dump any liquids or other materials outside, especially near or in storm drains or ditches.
- Use dry cleanup methods (vacuum, sweep) to clean up spills and fine debris. Sweep debris from wet sanding after allowing it to dry overnight on the shop floor. Dispose of waste properly; never dump waste into storm or sanitary sewers.

4.3 Fueling

DPW stores diesel at the DPW garage and fuels Town vehicles with unleaded fuel at a commercial gas station. The Fire Department has a diesel tank at the fire station, located within the MS4 area.

- Locate vehicle fueling areas on a concrete slab or paved area.
- Design fueling areas to minimize contact with rain and run-on.
- Inspect fueling areas regularly to ensure that pollutants (e.g., gasoline or oil) do not enter the MS4.
- Equip fueling areas with dry cleanup materials and spill kits.
- Clean fuel overflows and spills using dry methods. Do not allow spills to run off or evaporate. Sweep up absorbent material with a broom and dispose of as a hazardous waste.
- Do not wash down fueling area with a hose.



4.4 Material Management

- Store materials and waste in labeled containers under cover and in secondary containment.
- Do not combine chemicals in containers.
- Label and store hazardous waste according to MassDEP hazardous waste regulations².
- Carefully transfer collected fluids from containers into designated storage areas as soon as possible.
- Store new and used batteries securely to avoid breakage. Store indoors or in secondary containment to contain potential acid leaks. Recycle used batteries.
- Conduct periodic inspections of storage areas to detect possible leaks.
- Do not wash or hose down storage areas unless there is prior approval to collect and discharge the water into the sanitary sewer. Use dry cleanup methods whenever possible.
- Keep lids on containers. Store them indoors or under cover to reduce exposure to rain.
- Inspect and maintain all pretreatment equipment, including interceptors, according to the manufacturer's maintenance schedule and at least once per year.

4.5 Vehicle Washing

- Vehicles and equipment should be washed indoors whenever possible to reduce runoff to the stormwater system.
- Avoid outdoor washing of vehicles unless wash water is contained in a tight tank or similar structure. Where no alternative wash system is available, and full containment of wash water cannot be achieved, adhere to the following procedures:
 - Do not discharge any wash water directly to the MS4, waterbody or wetland.
 - Minimize the use of water to the extent practicable.
 - Where the use of detergent cannot be avoided, use products that do not contain regulated contaminants. The use of a biodegradable, phosphate-free detergent is preferred.
 - Do not use solvents except in dedicated solvent parts washer systems or in areas not connected to a sanitary sewer.
 - Do not power wash, steam clean, or perform engine or undercarriage cleaning.
 - Impervious surfaces discharging to the MS4 should not discharge directly to a surface water unless treatment is provided. The treatment device should be positioned such that all drainage must flow through the device, preventing bypassing or short-circuiting.
 - Periodically sweep and/or clean the washing area to prevent pollutant build-up.
 - Maintain absorbent pads and drip pans to capture and collect spills or noticeable leaks observed during washing activities.

² Massachusetts Hazardous Waste Regulations 310 CMR 30.000 <https://www.mass.gov/regulations/310-CMR-30000-massachusetts-hazardous-waste-regulations>



5 Street and Parking Lot Sweeping

Regular sweeping of streets and parking lots is important for maintaining clean and safe roadways. It also plays a vital role in keeping pollutants like sand, trash, and leaves out of the drainage system and reducing discharge of those pollutants to receiving waters. This section documents the Town's sweeping procedures and best practices to reduce discharge of pollutants from the MS4.

5.1 Sweeping Frequency

The Town of West Newbury Department of Public Works (DPW) is responsible for cleaning Town-owned streets and parking lots. The Town owns over 46 miles of roadways and seven parking facilities. These roadways and parking lots are cleaned annually in the spring by a contractor and the program usually takes 10 to 11 workdays to complete.

Appendix C provides a Daily Log that is completed by Town staff tracking the date, the number of days the contractor was in town, and the areas done each day. An estimate of dump truck loads of street cleaning debris is also estimated on a daily basis.

5.2 Press Release

The following is a sample press release that is posted on the Town's website.

The Town of West Newbury Department of Public Works (DPW) will be conducting our yearly Street Sweeping Program in the next few weeks. The program takes about 10 to 11 workdays to complete and causes minor to no inconvenience to the general public. The sweeping will occur during the weekday between the hours of 7 am – 4 pm.

Please use caution when passing the slow-moving street sweeper. If you have any questions, feel free to contact DPW at 978-363-1100 ext. 120 or by e-mail at DPWDirector@WNewbury.org.

5.3 Roads and Parking Lots

Appendix D provides a list of the roadways and parking lots that require cleaning. This list is assigned to Town staff and is used as a checklist and final confirmation that the program has been completed per the Town's specifications and this information is included in the annual stormwater report.

5.4 Sweeping Practices

The following best practices are implemented by the Town and its contractor to minimize stormwater pollution:



- In the spring, sweep as soon as possible after snow melt to capture sand and debris before it is washed into the storm drainage system.
- Sweep more frequently in areas that generate higher loads of sediment, trash, or other pollutants.
- Sweep during dry weather; not during or immediately following storms.
- Use dry cleaning methods whenever possible, except for very fine water spray for dust control. Avoid wet cleaning or flushing of the pavement.
- Sweep in a manner that avoids depositing debris into storm drains.
- Select sweeping equipment (mechanical, regenerative air, vacuum filter, tandem sweeping) depending on the level of debris.
- Set brush alignment, sweeper speed, rotation rate, and sweeping pattern to optimal levels to manage debris.
- Routinely inspect and perform maintenance on sweeping equipment to reduce the potential for leaks.

5.5 Sweepings Reuse and Disposal

- Reuse and/or dispose of street sweepings in accordance with current Massachusetts Department of Environmental Protection (MassDEP) policies and regulations³.
- If street sweepings are to be reused (e.g., as anti-skid material or fill in parking lots), ensure that they not contain evidence of wastewater, animal wastes, or petroleum products.
- Sweepings intended for reuse can be stored for up to one year in approved temporary storage areas. Protect storage areas to prevent erosion and runoff, and locate away from regulated wetland areas and within 50 feet of regulated wetland resource areas, surface water, or groundwater.
- If not reused, dispose of sweepings at solid waste disposal facilities.

³ MassDEP Policy # BAW-18-001: Reuse and Disposal of Street Sweepings <https://www.mass.gov/doc/street-sweepings-reuse-disposal-policy-baw-18-001/download>



6 Catch Basin Cleaning

Catch basins help minimize flooding and protect water quality by removing trash, sediment, leaves, and other solids from stormwater runoff. These materials are retained in a sump below the invert of the outlet pipe (older catch basins may not have a sump). Catch basin cleaning reduces foul odors, prevents clogs in the storm drain system, and reduces the loading of trash, suspended solids, nutrients, bacteria, and other pollutants to receiving waters. This section provides guidance on catch basin inspection and cleaning to reduce discharge of pollutants from the MS4.

West Newbury DPW's contractor cleans catch basins in the MS4 once per year area and the remaining catch basins every other year. DPW inspects catch basins and records sediment accumulation in sumps every year.

6.1 Inspection and Cleaning Frequency

- Clean catch basins at a frequency that ensures that catch basins are no more than 50 percent full⁴ at any time.
- Establish inspection and maintenance frequencies needed to meet this "50 percent" goal. If a catch basin sump is more than 50 percent full during two consecutive inspections, document the findings, investigate the contributing drainage area for sources of excessive sediment loading, and, if possible, address the contributing sources. If no contributing sources are found, increase the inspection and cleaning frequencies of the sump.
- Inspect and clean catch basins near construction activities or high-use areas more frequently if inspection finds excessive sediments or debris loadings.
- Street sweeping performed on an appropriate schedule will reduce the amount of sediment, debris, and organic matter entering the catch basins, which will in turn reduce the frequency with which they need to be cleaned.

6.2 Inspection and Cleaning Procedures

- Clean and inspect both the grate opening and the catch basin structure, including the sump and any inlet and outlet pipes.
- Document observations about the condition of the catch basin structure and grate.
- Document observations of structural damage, noxious materials, sewage, or heavy flow.

In general, adhere to the following procedures when inspecting and cleaning catch basins:

1. Implement appropriate traffic safety procedures (e.g., traffic cones).
2. Work upstream to downstream in each drainage network.
3. Clean sediment and trash off the grate.
4. Visually inspect the outside of the grate.

⁴ A catch basin sump is more than 50 percent full if the contents within the sump exceed one half the distance between the bottom interior of the catch basin to the invert of the deepest outlet of the catch basin.



5. Remove the grate and visually inspect the inside of the catch basin to determine cleaning needs.
6. Inspect the catch basin for structural integrity.
7. Clean the basin using appropriate equipment and method. Vacuum equipment is preferred. Limit the use of excessive washdown waters to remove debris.
8. If contamination is suspected, chemical analysis will be required to determine if the materials comply with the Massachusetts DEP Hazardous Waste Regulations, 310 CMR 30.000⁵. Chemical analysis required will depend on suspected contaminants. Note the identification number of the catch basin on the sample label and note sample collection on the Catch Basin Inspection Form.

6.3 Handling and Disposal of Catch Basin Cleanings

- Properly dispose of catch basin cleanings (solid material removed from stormwater collection system during cleaning operations).
- Cleanings from stormwater-only drainage systems may be disposed at any landfill that is permitted by MassDEP to accept solid waste. MassDEP does not routinely require stormwater-only catch basin cleanings to be tested before disposal, unless there is evidence that they have been contaminated by a spill of OHM or some other means.
- Cleanings may need to be placed in a drying bed to allow water to evaporate before proper disposal. In this case, ensure that the screenings are managed properly to prevent pollution.
- Follow MassDEP policies for handling and disposal of catch basin cleanings⁶.

⁵ Massachusetts Hazardous Waste Regulations, 310 CMR 30.000 <https://www.mass.gov/regulations/310-CMR-30000-massachusetts-hazardous-waste-regulations>

⁶ MassDEP fact sheet: Management of Catch Basin Cleanings <https://www.mass.gov/doc/catch-basin-cleanings-management-guidelines/download>



7 Winter Operations

Winter operations include snow removal and the use of salt, sand, or deicers on roads and sidewalks to ensure safe conditions. Proper maintenance procedures and use and storage of materials can help reduce the discharge of pollutants, such as sand and salt, from the MS4 to receiving waters. This section documents procedures and best practices for using and storing salt and sand appropriately, minimizing the use of salt, evaluating opportunities for use of alternative materials, and ensuring that snow disposal does not impact surface waters.

7.1 Equipment and Maintenance

West Newbury DPW owns and maintains ice control and snow removal equipment, as listed in Appendix E. DPW also operates a wash bay located at the DPW Garage at 693 Main Street, West Newbury, which lies outside the MS4 regulated area.

When conditions warrant, DPW installs plows on the three larger trucks to move snow from the traveled roadway. Average time to install a plow is approximately 30 minutes. Four smaller trucks are available for plowing of residential streets and clearing public lots.

When conditions warrant, DPW installs sand spreaders on the three larger trucks to spread sand on the traveled roadway. Each spreader is calibrated prior to the deicing season and every two to three weeks thereafter. Spreaders are calibrated to dispense 200 pounds per lane mile. The spreaders are installed at the beginning of winter and remain installed on the three large dump trucks until the end of winter.

Equipment operation and maintenance adheres to the vehicle owner's manual and the following best practices:

- Calibrate equipment to reduce and optimize salt use and ensure deicing agents are being used efficiently. Provide employee training on calibration procedures.
- Do not overfill trucks with deicing materials as it may lead to spills.
- Encourage the use of automated application equipment like zero velocity spreaders.
- When possible, retrofit vehicles to include equipment such as on-board application regulators, temperature sensors for air and pavement, and anti-icing and pre-wetting equipment.
- Regularly inspect and maintain equipment to reduce the potential for leaks.

7.2 Material Storage

DPW uses and stores coarse sand and a coarse salt mix for winter operations. These materials are stockpiled in advance of an event and are immediately available when needed and stocks are replenished between events.



Sand is used as an abrasive for traction on slick roadways. Approximately 900 tons are anticipated to be used per year and are ordered from *Kingston Materials / Torromeo Industries* prior to each deicing season. Sand is stored at the DPW Facility. Loading areas and yards are swept after each event to prevent sand build-up and run-off.

Salt is used to expedite the melting of snow and ice from the street surface and also to keep the ice from forming a bond to the street surface. Approximately 1,900 tons of mixture salt are anticipated to be used per year and are ordered from Eastern Minerals during the winter season. Salt is stored in the covered facility located at the DPW Facility. Loading areas and yards are swept after each event to prevent salt build-up and run-off.

DPW implements the following best practices for sand and salt storage.

- Store materials under covered or enclosed areas and on impervious surfaces.
- Ensure that there are adequate drainage controls in and up-gradient of storage areas to prevent runoff from entering the stormwater system.
- Follow appropriate loading and unloading procedures. If there are spills when loading or unloading materials, collect solid materials and return them to their stockpile, and contain/retrieve liquid materials while preventing access to the stormwater system.
- Frequently sweep near the storage/loading areas to reduce the amount of salt, sand, or other materials that is tracked out.
- For liquid deicing chemicals, provide secondary storage containment.
- Do not store road salt near drinking water supplies, surface water resources, groundwater resources, recharge areas, and wells.
- Follow MassDEP guidelines for storage and management of deicing materials⁷.

7.3 Procedures

Sand and Salt Mix Application

1. Whenever conditions warrant, salt is applied to the roadway prior to accumulation of snow to prevent compacted snow from bonding to the roadway surface. The DPW Director and/or the Foreman will instruct staff when salt application is appropriate. Salting will not be done when pavement temperatures are above 34 degrees F.
2. Prior to salt application, equipment will be checked to ensure proper working order and ensure proper calibration of equipment. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. The standard salt application speed is between 10-18 mph.
4. Follow the prioritized route or schedule. This schedule is located in each vehicle, DPW garage, DPW Directors office and can be found on-line at the DPW Highway web-site.

⁷ MassDEP Guidelines on Road Salt Storage <https://www.mass.gov/guides/guidelines-on-road-salt-storage>



5. Before parking any truck or equipment after use, all fluid levels will be checked and filled. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the Foreman. The Foreman will determine importance and will assign the repairs according to schedule. All deicing chemical will be washed from equipment at the wash bay or designated wash area.

Snow Plowing

1. As the storm develops and enter snow amount 2 to 3 inches of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.
2. Prior to plowing operations, equipment will be checked to ensure proper working order. All fluid levels will be checked and filled to proper levels, all lights must be in working order. A visual walk-around inspection of the truck or equipment must be made. Any repairs must be made and reported to a supervisor or mechanic before leaving the yard.
3. Avoid plowing, pushing, blowing or storing excess snow, deicer, or other debris in or near creeks, watercourses or storm drainage systems.
4. Reduce plowing speed in sensitive areas (near creeks, wetlands or other water courses) to prevent snow and deicing materials from entering waterways.
5. The standard plowing speed is 8 to 15 mph.
6. Follow the prioritized route or schedule. This schedule is located in each vehicle, DPW garage, DPW Directors office and can be found on-line at the DPW Highway website.
7. Before parking any truck or equipment after use, all fluid levels will be checked and filled. Blades or bolts, which need replacing, will be taken care of unless told to do otherwise. Chains that need repairs will be repaired. All minor repairs will be done by the operator. Any repairs the operator cannot perform will be written up on the proper forms and turned in to the Foreman. The Foreman will determine importance and will assign the repairs according to schedule.

Record Keeping and Documentation

1. Maintain a master schedule of prioritized snow and sanding routes and the miles or roads plowed or sanded. This data can be found at the DPW Directors Office.
2. Keep copies of manufacturer's recommendations for equipment calibration, plowing speed and salt/sand application rates. This information can be found the DPW Garage.
3. Keep records of the amounts of salt and sand applied per season. This data can be found at the DPW Directors Office.
4. Keep a list of all employees trained in the facility's Stormwater Pollution Prevention binder or computer file.

7.4 Snow Storage and Disposal

- Do not push or dump snow into waterbodies or wetlands, into stormwater drainage swales or ditches, or on top of catch basins.
- Avoid storing snow near drinking water sources, waterbodies, or wetlands.



- Consider sun exposure when selecting snow storage locations. Snow in areas with higher sun exposure will melt faster but may require repeated use of deicers if the snowmelt crosses drives/roadways and refreezes.
- Consider practices such as living snow fences to contain snow piles and reduce snow drifting.
- Follow MassDEP⁸ guidelines for snow storage and disposal.

⁸ MassDEP Snow Disposal Guidelines <https://www.mass.gov/guides/snow-disposal-guidance>



8 Treatment System Inspection and Maintenance

West Newbury does not currently own or operate stormwater treatment systems. The following inspection and maintenance procedures are included in this manual for future use.

8.1 Bioretention Areas and Rain Gardens

Bioretention areas and rain gardens are shallow depressions filled with sandy soil, topped with a thick layer of mulch and planted with dense native vegetation. Never store snow within a bioretention area or rain garden. Inspect and maintain bioretention areas according to the schedule below. If failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the soil, replant vegetation, and mulch the surface.

Maintenance Schedule: Bioretention

Activity	Time of Year	Frequency
Inspect for soil erosion and repair	Year round	Monthly
Inspect for invasive species and remove if present	Year round	Monthly
Remove trash	Year round	Monthly
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Twice annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually
Replace all media and vegetation	Late Spring/Early Summer	As Needed

8.2 Constructed Stormwater Wetlands

Constructed stormwater wetlands maximize the pollutant removal from stormwater through the use of wetland vegetation uptake, retention and settling. Inspect and maintain according to the schedule below. Never store snow within a constructed stormwater wetland. When failure is discovered, excavate the bioretention area, scarify the bottom and sides, replace the filter fabric and soil, replant vegetation and mulch the surface.

Maintenance Schedule: Constructed Stormwater Wetlands

Activity	Time of Year	Frequency
Inspect for invasive species and remove if present	Year round	Monthly
Clean forebays	Year round	Annually
Clean sediment in basin/wetland system	Year round	Once every 10 years
Mulch Void Areas	Spring	Annually
Remove dead vegetation	Fall and Spring	Twice annually
Replace dead vegetation	Spring	Annually
Prune	Spring or Fall	Annually



8.3 Extended Dry Detention Basins

Extended dry detention basins are designed to hold stormwater for at least 24 hours, allowing solids to settle and to reduce local and downstream flooding. Pretreatment is required to reduce the potential for overflow clogging. The outflow may be designed as either fixed or adjustable. Additional nutrient removal may be achieved by a micropool or shallow marsh.

Inspect and maintain extended dry detention basins according to the schedule below. Potential problems may include erosion within the basin and banks, tree growth on the embankment, damage to the emergency spillway, and sediment accumulation around the outlet.

Maintenance Schedule: Extended Dry Detention Basins

Activity	Time of Year	Frequency
Inspect basins	Spring and Fall	Twice annually, and during and after major storms
Examine outlet structure for clogging or high outflow release velocities	Spring and Fall	Twice annually
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Twice annually
Remove trash and debris	Spring	Annually or as needed
Remove sediment from basin	Year round	At least once every 5 years

8.4 Proprietary Media Filters

Media Filters are designed to reduce total suspended solids and other target pollutants, such as organics, heavy metals or nutrients, which are sorbed onto the filter media, which is contained in a concrete structure. The substrate used as filter media depends on the target pollutants, and may consist of leaf compost, pleated fabric, activated charcoal, perlite, amended sand in combination with perlite, and zeolite. Dry Media Filters are designed to dewater within 72 hours. Wet Media Filters maintain a permanent pool of water as part of the treatment system.

Inspection or maintenance of the concrete structure may require OSHA confined space training. Dry Media Filters are required to dewater in 72 hours, thus preventing mosquito and other insect breeding. Proper maintenance is essential to prevent clogging. Wet Media Filters require tight fitting seals to keep mosquitoes and other insects from entering and breeding in the permanent pools.

Maintenance Schedule: Proprietary Media Filters

Activity	Time of Year	Frequency
Inspect for standing water, trash, sediment and clogging	Fall and spring	Twice Annually
Remove trash and debris	N/A	Each Inspection
Examine to determine if system drains in 72 hours	After large storm	Annually
Inspect filtering media for clogging	Per manufacturer's schedule	



8.5 Sand and Organic Filters

Sand and organic filters, also known as filtration basins, improve water quality by removing pollutants through a filtering media and settling pollutants on top of the sand bed and/or in a pretreatment basin. Pretreatment is required to prevent filter media from clogging. Runoff from the filters is typically discharged to another BMP for additional treatment.

Maintenance requirements include raking the sand and removing sediment, trash and debris from the surface of the BMP. Over time, fine sediments will penetrate deep into the sand requiring replacement of several inches or the entire sand layer. Discolored sand is an indicator of the presence of fine sediments, suggesting that replacement of the sand should be completed.

Maintenance Schedule: Sand and Organic Filters

Activity	Frequency
Inspect filters and remove debris	After every major storm for the first 3 months after construction completion. Every 6 months thereafter.

8.6 Wet Basins

Wet basins are intended to treat stormwater quality through the removal of sediments and soluble pollutants. A permanent pool of water allows sediments to settle and removes the soluble pollutants, including some metals and nutrients. Additional dry storage is required to control peak discharges during large storm events, and if properly designed and maintained wet basins can add fire protection, wildlife habitat and aesthetic values to a property.

To ensure proper operation, wet basin outfalls should be inspected for evidence of clogging or excessive outfall releases. Potential problems to investigate include erosion within the basin and banks, damage to the emergency spillway, tree growth on the embankment, sediment accumulation around the outlet and the emergence of invasive species. Should any of these problems be encountered, perform repairs immediately. An on-site sediment disposal area will reduce sediment removal costs.

Maintenance Schedule: Wet Basins

Activity	Time of Year	Frequency
Inspect wet basins	Spring and/or Fall	Annually (Minimum)
Mow upper stage, side slopes, embankment and emergency spillway	Spring through Fall	Twice annually (Minimum)
Remove sediment, trash and debris	Spring through Fall	Twice annually (Minimum)
Remove sediment from basin	Year round	As required, but at least once every 10 years



8.7 Dry Wells

Dry wells are used to infiltrate uncontaminated runoff. These BMPs should never be used to infiltrate stormwater or runoff that has the potential to be contaminated with sediment and other pollutants. Dry wells provide groundwater recharge and can reduce the size and cost required of downstream BMPs or storm drains. However, they are only applicable in drainage areas of less than one acre and may experience high failure rates due to clogging.

Proper dry well function depends on regular inspection. Clogging has the potential to cause high failure rates. The water depth in the observation well should be measured at 24- and 48-hour intervals after a storm and the clearance rate calculated. The clearance rate is calculated by dividing the drop in water level (inches) by the time elapsed (hours).

Maintenance Schedule: Dry Wells

Activity	Frequency
Inspect dry wells	After every major storm for the first 3 months after construction completion. Annually thereafter.

8.8 Infiltration Basins

Infiltration basins are designed to contain stormwater quantity and provide groundwater recharge. Pollution prevention and pretreatment are required to ensure that contaminated stormwater is not infiltrated. Infiltration basins reduce local flooding and preserve the natural water balance of the site, however high failure rates often occur due to improper siting, inadequate pretreatment, poor design and lack of maintenance.

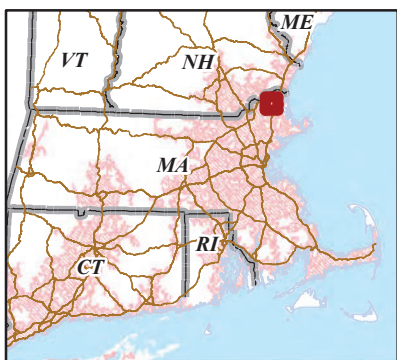
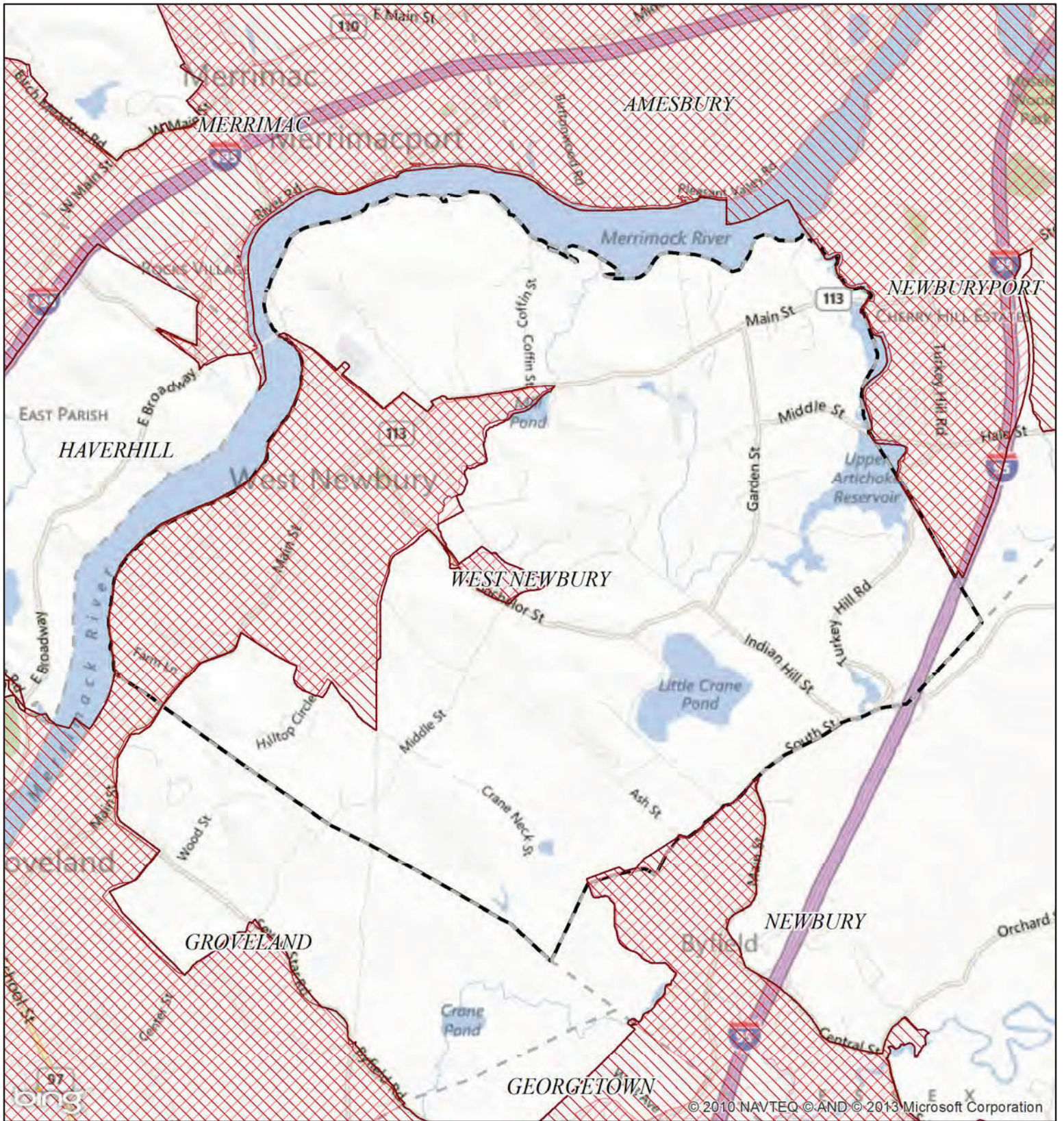
Regular maintenance is required to prevent clogging, which results in infiltration basin failure. Clogging may be due to upland sediment erosion, excessive soil compaction or low spots. Inspections should include signs of differential settlement, cracking, erosion, leakage in the embankments, tree growth on the embankments, riprap condition, sediment accumulation and turf health.

Maintenance Schedule: Infiltration Basins

Activity	Time of Year	Frequency
Preventative maintenance	Spring and Fall	Twice annually
Inspection	Spring and Fall	After every major storm for the first 3 months after construction completion. Twice annually thereafter and discharges through the high outlet orifice.
Mow/rake buffer area, side slopes and basin bottom	Spring and Fall	Twice annually
Remove trash, debris and organic matter	Spring and Fall	Twice annually

Appendix A

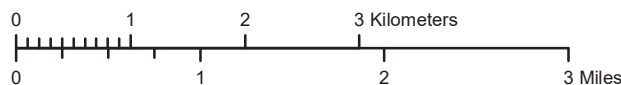
West Newbury MS4 Regulated Area



NPDES Phase II Stormwater Program
Automatically Designated MS4 Areas

West Newbury MA

Regulated Area:



Town Population: **4235**
Regulated Population: **1819**
(Populations estimated from 2010 Census)



Urbanized Areas, Town Boundaries:
US Census (2000, 2010)
Base map © 2013 Microsoft Corporation
and its data suppliers

Appendix B

Municipal Facilities

Town of West Newbury Municipal Facilities

Facility Name	Categories	Address	Within MS4 regulated area?
West Newbury Town Hall	Buildings & Facilities	381 Main Street	Yes
West Newbury Fire Department - Headquarters	Buildings & Facilities; Vehicle Maintenance and Storage; Fueling	403 Main Street	Yes
West Newbury Public Library - G. A. R. Memorial Library	Buildings & Facilities	490 Main Street	Yes
West Newbury Police Department	Buildings & Facilities; Vehicle Maintenance and Storage	403 Main Street	Yes
West Newbury Post Office	Buildings & Facilities	284 Main Street	Yes
Mill Pond Recreation Area	Parks & Open Space	Main Street	No
Pipestave Recreation Area	Parks & Open Space	Main Street	No
Burham Field/ Action Cove	Parks & Open Space	Bachelor Street	Yes
Pentucket Regional High School & Middle School	Buildings & Facilities	24 Main Street	Yes
Dr John C Page Elementary School	Buildings & Facilities	694 Main Street	No
Merrimack Cemetery	Parks & Open Space	Pleasant Street	Yes
Bridge Street Cemetery	Parks & Open Space	Bridge Street	No
Ferry Park	Parks & Open Space	Ferry Lane	Yes
Training Field	Parks & Open Space	Training Field Rd	Yes
DPW Garage	Buildings & Facilities; Vehicle Maintenance and Storage; Fueling	693 Main Street	No

Appendix C

Sweeping Log

**Town of West Newbury
Daily Street Cleaning Log**

Day Number	Date	Area Cleaned	Number of Dump Trucks Loads	Town Supervisor
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				
15				
16				

General Notes:

Appendix D

Roads and Parking Lots for Sweeping

**Town of West Newbury
Street Sweeping List**

Street Name	To	From	Public or Private	Roadway Length in feet	Date Completed
Albion Ln	Bridge St	Main St	Public	1,953	
Appleton Ct	Main St	Prospect St	Public	528	
Archelaus Hill Rd	Middle St	To Circle	Public	2,640	
Archelaus Pl	Stewart St	Dead End	Public	2,059	
Ash St	Montclair Rd	Spring Hill Rd	Public	8,470	
Ash St	Georgetown Rd	Montclair Rd	Public	3,666	
Avon Ln	Donovan Dr	Dead End	Public	792	
Bachelor St	Main St	Cherry Hill St	Public	10,665	
Baileys Ln	Main St	Dead End	Public	2,904	
Barberry Ln	Main St	Dead End	Public	1,625	
Brake Hill Terr	Main St	Dead End	Public	460	
Brickett St	Ash St	Moulton St	Public	1,584	
Bridge St	Main St	Bridge	Public	5,280	
Browns Ln	Garden St	Dead End	Public	1,584	
Capt. Pierce Dr	Middle St	Dead End	Public	739	
Chase St	Main St	Middle St	Public	2,745	
Cherry Hill St	Bachelor St	Indian Hill St	Public	2,481	
Chestnut Hill St	Meadow Sweet Rd	Dead End	Public	420	
Chestnut Ln	Chestnut Hill St	Dead End	Public	310	
Chestnut St	Farm Ln	Meadow Sweet Rd	Public	1,636	
Church St	Main St	Bridge St	Public	5,174	
Coffin St	Main St	River Rd	Public	4,752	
Cortland Ln	Coffins St	Dead End	Public	1,672	
Crane Neck St	Main St	Newbury Line	Public	13,780	
Crescent Dr	Hilltop Cir	Hilltop Cir	Public	1,161	
Doles Pl	Pleasant St	Doles Pl Extension	Public	1,637	
Doles Pl Extension	Rivercrest Dr	Doles Pl Extension	Public	593	
Donovan Dr	Stewart St	Dead End	Public	2,217	
Emery Ln	Main St	Dead End	Public	2,745	
Farm Ln	Main St	Dead End	Public	2,112	
Felton Ln	Main St	Dead End	Public	580	
Ferry Ln	Church St	Bridge St	Public	211	
Garden St	Main St	Indian Hill St	Public	9,081	
Georgetown Rd	Groveland Line	Maple St	Public	7,656	
Hanover Ln	Way To The River	Dead End	Public	475	
Harrison Ave	Main St	Pleasant St	Public	633	
Hemingway Pl	Stewart St	Dead End	Public	526	
Hickory Ln	Bridge St	Dead End	Public	475	

**Town of West Newbury
Street Sweeping List**

Hilltop Cir	Robin Rd	To Circle	Public	3,379	
Illsley Hill	Moulton St	Dead End	Public	1,214	
Indian Hill St	South St	Middle St	Public	8,764	
Indian Ridge Rd	Indian Hill St	Dead End	Public	1,056	
Kimball Rd	Middle St	Dead End	Public	1,848	
Main St	Maple St	Town Hall / Baileys Lane	Public	6,500	
Maple St	Main St	Georgetown Rd	Public	3,379	
Marshall Dr	Main St	Dead End	Public	1,056	
Meadow Sweet Rd	Farm Ln	Rivercrest Dr	Public	2,376	
Mechanic St	Main St	Dead End	Public	1,267	
Meeting House Hill Rd	Ash St	Bachelor St	Public	2,956	
Merrill St	Main St	Dead End	Public	792	
Middle St	Groveland Line	Ash St	Public	6,637	
Middle St	Garden St	Newburyport Line	Public	3,503	
Middle St	Ash St	Garden St	Public	12,709	
Mirra Way	Norino Dr	Dead End	Public	1,320	
Montclair Rd	Ash St	Dead End	Public	1,214	
Moulton St	Bachelor St	South St	Public	8,923	
Newell Farm Dr	Main St	Dead End	Public	1,267	
Norino Dr	Main St	Dead End	Public	2,006	
Parsons Rd	Main St	Dead End	Public	1,584	
Pleasant St	Main St	River Meadow Dr	Public	3,643	
Poores Ln	Garden St	Dead End	Public	422	
Poorhouse Ln	Archelaus Pl	Dead End	Public	1,056	
Prospect St	Main St	Church St	Public	2,904	
River Meadow Ct	River Meadow Dr	Dead End	Public	528	
River Meadow Dr	Pleasant St	Circle	Public	2,112	
River Meadow Pl	River Meadow Dr	Dead End	Public	528	
River Rd	Bridge St	Dead End	Public	13,108	
Rivercrest Dr	Doles Pl Extension	Dead End	Public	2,112	
Robin Cir	Robin Rd	Dead End	Public	264	
Robin Rd	Crane Neck St	Crane Neck St	Public	1,953	
Rogers St	Garden St	Turkey Hill Rd	Public	5,016	
Sawmill Brook Rd	Bachelor St	Stewart St	Public	1,161	
South St	Moulton St	Newbury Line	Public	5,280	
Spring Hill Rd	Ash St	Dead End	Public	1,742	
Steed Ave	Bridge St	Dead End	Public	897	
Stewart St	Main St	Middle St	Public	6,705	
Sullivans Ct	Whetstone St	Dead End	Public	844	
Summer Sweet Ln	Meadow Sweet Rd	Dead End	Public	369	
Tewksbury Ln	Crane Neck St	Georgetown Rd	Public	1,584	
Training Field Rd	Main St	Baileys Ln	Public	528	

**Town of West Newbury
Street Sweeping List**

Turkey Hill Rd	South St	Newburyport Line	Public	8,500	
Twig Rush Ln	Rivercrest Dr	Dead End	Public	528	
Upland Ln	Parsons Rd	Dead End	Public	528	
Waterside Ln	Doles Pl	Dead End	Public	792	
Way To The River	Main St	River Rd	Public	3,273	
Whetstone St	Main St	Dead End	Public	1,531	
Woodcrest Dr	Hilltop Cir	Dead End	Public	1,056	
Worths Ln	River Rd	Dead End	Public	633	

Town Total in Feet **251,368** estimated at 47.61 miles

Town Properties / Facilities

Band Stand Parking Lot					
Cammett Field Parking Lot					
Library Parking					
Old Town Hall					
Page School - Eugene Shike Willis Rd					
Public Safety Complex					
Public Works					
Town Offices					

Total water usage reported to WN Water Department = gallons

Amount of debris removed from storage yard at DPW =

Appendix E

Ice Control and Snow Removal Equipment

Ice Control and Snow Removal Equipment Owned by West Newbury DPW

Equipment Number	Make	Description	Additional Equipment	Primary Use
1	2015 Peterbilt	Dump Truck	Salt spreader with 10' plow	General Salting and Plowing and Construction
2	2011 International	Dump Truck	Salt spreader with 10' plow	General Salting and Plowing and Construction
3	2008 Ford 250	Utility Body Pick-up	8' Plow	Facility Maintenance
4	2016 Ford 350	Dump Truck	8' Plow	DPW Operations
5	2016 Ford 250	Pick-up Truck	8' Plow	DPW Operations
6	2009 International	Dump Truck	Salt spreader with 10' plow	General Salting and Plowing and Construction
7	2008 Ford 350	Dump Truck	8' Plow	DPW Operations
8	2004 International	Dump Truck	Salt spreader with 10' plow	General Salting and Plowing and Construction
20	2009 Ford Ranger	Pick-up Truck	None	DPW Operations
21	2013 Cat	Loader	Bucket	Loading of material including salt and snow removal
22	2010 John Deere	Backhoe	Bucket	DPW Operations
40	2008 Holder	Sidewalk Plow	Plow and Blower	Snow clearance