Salt Reduction Plan

Town of Andover, Massachusetts

JUNE 29, 2021

Prepared For:

Town of Andover DPW
5 Campanelli Drive
Andover MA 01810

Prepared By:

Comprehensive Environmental, Inc.
41 Main Street
Bolton, MA 01740

Table of Contents

List of Tables

Appendices

1. Introduction

The Environmental Protection Agency (EPA) regulates stormwater discharges from municipal systems through the National Pollutant Discharge Elimination System (NPDES) Municipal Separate Storm Sewer System (MS4) permit program, applicable within regulated urbanized areas. This document for the Town of Andover, Massachusetts addresses permit requirements set forth in Appendix H Section IV of the Massachusetts Small MS4 General Permit due to discharges to waterbodies listed as impaired due to chloride.

This Salt Reduction Plan features Best Management Practices (BMPs) to help reduce the amount of chloride discharging to the impaired waterbodies associated with winter maintenance of roads and parking lots. Chloride impaired waters in the Town of Andover include:

- Fish Brook (Segment ID MA84A-40, 4.10 miles)
- Unnamed Tributary to Shawsheen River starts near Dascomb Road (Segment ID MA83-20, 0.9 miles)
- Unnamed Tributary to Meadow Brook, known as "Pinnacle Brook" (Segment ID MA83-15, 2.1 miles)

The Town of Andover Department of Public Works is responsible for winter maintenance on approximately 207 center miles of roadways, 32 miles of sidewalk, and municipal parking lots. The Town performs a variety of maintenance activities to ensure safe winter driving conditions on its roads and parking lots and has incorporated activities to limit the amount of snow and/or deicing chemicals entering surface waters. These are outlined in the Town of Andover Snow and Ice Control Plan included in Appendix A and summarized in Section 2 along with additional measures the Town will implement.

The Town of Andover also requires that new development and redevelopment projects minimize salt usage and will require that private property owners prevent exposure of any salt stockpiles to precipitation and runoff. The Town's commercial and industrial education program also includes an annual message to private road salt applicators on proper storage and application rates of winter deicing material. These are described in Section 3 of this document.

2. Actions or Enhanced BMPs for Municipally Maintained Surfaces

This section applies directly to municipally owned and maintained surfaces. This section provides information on how the amount of salt used will be tracked and also includes the different BMPs that will be used as part of this Salt Reduction Plan.

2.1 Salt Tracking

The Town of Andover performs snow and ice removal and de-icing/abrasive placement within the Town limits on all municipal properties, Town accepted roadways, and any private roadway which the Town has agreed to accept the responsibility for. The Town currently tracks all salt, calcium chloride, and sand applied to all municipally owned and maintained surfaces using the

Snow and Ice Report included in Attachment 8 of the Town's Snow and Ice Control Plan included in Appendix A. The total salt use will also be reported in the MS4 Permit annual reports. This data will be analyzed each year and used in planning winter maintenance for the next year.

2.2 BMPs for Salt Reduction

This section describes existing and proposed Town BMPs to reduce the amount of chloride discharged to impaired waterbodies.

2.2.1 Operational BMPs

A. Roadway Anti-icing (Pre-treatment)

Anti-icing is a proactive approach to roadway winter maintenance and is used as the first in a series of practices to manage roadways during a snow or ice storm. It differs from deicing procedures because brine is applied to the roadways before precipitation begins. The intent is to apply freezing point depressants before the storm to prevent the bond from forming between the roadway surface and snow or ice.

The Town of Andover currently does the following:

- Calcium chloride is occasionally used as an anti-icing agent prior to a winter weather event when meteorological conditions call for the possibility of ice formation on the roadways.

The Town of Andover is implementing a brine making system to replace calcium chloride use for pre-treatment and will ensure that:

- The brine making system is fully incorporated into the Town's winter maintenance program before the 2021-2022 winter season. The system will create a 23.3% by weight concentration for pre-treatment of all roads throughout the Town. Andover plans to apply brine at a rate of approximately 40-50 gallons per lane mile and make adjustments as necessary. This is consistent with rates used by NHDOT and other communities in eastern Massachusetts.

Currently, the Town loads approximately 100-130 tons of salt per storm event into trucks for pre-treatment, but some trucks come back to the loading area with salt remaining, so it is estimated 90-100 tons are used for pre-treatment before each storm event. With the brine solution, only 20-30 tons of salt will likely be required allowing for a significant reduction in salt usage. The salt reduction will be impacted by several factors, including the type and temperature of storm event, since the brine is more effective with cold temperatures and when there is no rain leading up to the storm event.

B. Increasing Plowing Prior to De-Icing

Proper plowing of the road is essential to controlling the amount of deicer used. Snow plowing needs to remove as much snow as possible prior to the application of deicers. Snow and ice that is left on the pavement will only work to dilute the deicer that has been applied and decrease the effectiveness. Applying more deicer will have little benefit if the snow is not adhering to the pavement surface, when plowing is the appropriate operation.

The Town of Andover currently does the following:

- Snow removal equipment normally begins operation on paved roadways after an accumulation of one (1) inch of new snow. Paved roads are plowed before the surfaces have de-icing and abrasive materials applied to them. These surfaces may then have de-icing and abrasive materials applied to them in part, or in whole, with emphasis upon intersections, hills, curves, and shady areas, and/or other locations of a particular topographical or traffic feature. The Department of Public Works strives to provide "bare" pavement conditions whenever and wherever possible. During plowing operations, cutting edges are kept as close to the pavement as possible in an attempt to remove all snow and slush off the roadway.

Andover will continue to plow surfaces at the current rate to provide "bare" pavement conditions whenever and wherever possible.

C. Monitoring of Road Surface Temperatures

The two most critical factors that can produce winter road hazards are pavement temperature and the dew point/precipitation rate. The pavement temperature directly effects the formation, development, and breaking of a bond between fallen or compacted precipitation and the road surface. The pavement temperature also determines the effectiveness of any applied chemicals.

The Town of Andover currently does the following:

- The Town uses two primary weather forecasting services to monitor air temperatures and make the decisions of whether or not to initiate treatment as well as when to start and what treatment to apply.
- To monitor road surface temperatures, the Town uses a combination of mobile, fixed and virtual pavement sensors to make decisions of whether or not to start treatment. Additionally, through the WeatherSentry application, the Town has access to a Road Weather Information System (RWIS) used by MassDOT near its I-93 maintenance facility that can be used to forecast air and pavement temperature at its River Road location.
- The Town of Andover ceases deicing when the pavement temperature reaches 15 degrees.

2.2.2 Equipment BMPs/Modifications

A. Automated Pre-Wetting Equipment Systems

Pre-wetting is a term referring to a liquid deicer that is applied to a solid-based deicer in order to create a quicker reaction time for the solid deicer to begin melting snow and ice. By introducing moisture into salt prior to application, the results are a quicker melting action, reduced bounce and scatter of material, and a reduced application rate. Studies have shown that by pre-wetting road salt it reduces scatter by 32% and increases the amount of road salt that stays in the center of the road which saves money, increases level of service, and reduces chloride in the environment.

The Town of Andover currently does the following:

- Highway Division trucks are equipped with onboard pre-wetting systems that apply calcium chloride to dry rock salt as it exits the truck.

B. Ground Speed Control Systems

Ground speed control systems accurately distribute the amount of material required given the storm conditions by adjusting the flow in proportion to ground speed. These systems have the potential to greatly reduce salt usage and limit impacts to impaired waterbodies.

The Town of Andover will perform the following:

- The Town will conduct a pilot program and install ground speed control systems on three vehicles for the 2021-2022 winter season. The data for these vehicles will be compared to vehicles without ground speed control systems and salt usage from previous years. It is expected that ground speed control systems will be installed on the remaining vehicles for the 2022-2023 season. These controllers will have the ability to be calibrated to accurately dispense material, including salt and brine, regardless of vehicle speed.

C. Routine Calibration Rates and Adjustments

The goal of calibrating is to know how much material is put down on a roadway or parking lot for every setting on the truck used. During winter operations, changes may occur in mechanical linkages, hydraulic systems and other components. Yearly calibration of equipment allows for better control of application rates for various gate heights/openings. Gate heights or gate openings should be adjusted to spread the desired chemical application rate for each set of unique conditions. Recalibration should be done if any changes are made to the equipment or if a different deicing material is used.

The Town of Andover currently does the following:

- Equipment is calibrated yearly to reduce and optimize salt use and ensure deicing agents are being used efficiently. Recalibration is completed if any service is done on a truck.
- A calibration chart is assigned to each truck to inform operators of application rates of individual spreaders. All spreaders are maintained using the recommendations of the Salt Institute, including their chart for calibrating solid material spreaders with manual controllers to ensure accurate application of snow and ice control materials. Calibration procedures are included in Attachment 5 of the Town's Snow and Ice Control Plan included in Appendix A.

Calibrated settings will continue to be logged using a master sheet and stored inside the vehicle.

D. Equipment Cleaning & Maintenance

During winter operations, proper equipment cleaning and maintenance can help ensure equipment and machinery functions properly and maintains calibration measures for longer periods of time. Spreader maintenance is a year-round task that will help control costs and minimize impact on the environment.

The Town of Andover currently does the following:

- Equipment is washed using proper procedures stated in the Town's Operation and Maintenance (O&M) Plan to prevent pollutants from entering the stormwater system.
- Designated wash areas are used for vehicle and equipment washing. The vehicle wash bay is located at 5 Campanelli Drive.
- Equipment is regularly inspected and maintained to reduce the potential for leaks.

2.2.3 Training and Outreach

A. Training

Training municipal personnel on best winter maintenance and salt reduction practices ensures the team is successful in reducing salt usage.

The Town of Andover currently does the following:

- Training is provided to municipal personnel each year to improve efficiency in salt use. Training is conducted by the Baystate Roads program under the UMass Transportation Center. The training is centered around industry BMPs and achieving a lower salt model with discussions on when and how to use salt more efficiently.

B. Public Education

Educating the public can also be a good way to help reduce the amount of chloride that ends up in the permittee's waterbodies. By educating the public on various chloride/winter related issues, they can reduce their salt use as well.

The Town of Andover uses information from the Greenscapes North Shore Coalition to provide public education covering the following outreach topics:

- Modifications to driving behavior in winter weather;
- Methods to reduce salt use on private property; and
- Alternatives to traditional road salting practices.

The Greenscapes North Shore Coalition is a regional service with collaboration between local communities, volunteers, business, and other partners focusing on stormwater and watershed related issues. The program provides outreach and education that support municipalities, including Andover, in meeting MS4 Stormwater requirements.

The Town of Andover has also published their Snow/Ice Maintenance Winter Tips & FAQs document on their website for the public. It answers common questions and provides tips for modifying driving and managing snow/ice on a resident's private property.

2.2.4 Adoption of Guidelines for Application Rates for Roads and Parking Lots

The goal of winter operations is to maintain the specified level of service and safety to the public while using the minimum practical amount of deicer. Spreading rates and timing of application are decisions that need to be made based on variables in weather conditions. The success of application depends on five factors: pavement temperature, application rate, precipitation, beginning concentration, and chemical type.

The Town of Andover currently does the following:

- Application rates for anti-icing materials can be found in Attachment 7 of the Town's Snow and Ice Control Plan in Appendix A. The application rates are specified for the different types of storms as follows: light snow storm, light storm with period(s) of moderate or heavy snow, moderate or heavy snow storm, frost or black ice, freezing rain storm, and sleet storm. The application rate of deicers is also adjusted based on the type of agent used and the anti-icing and pre-wetting techniques used.
- Guidelines have been adopted within the Snow and Ice Control Plan to pre-treat roads with brine before storm events to help prevent ice from forming and to make plowing easier.

The Town will continue to use the application rates in Attachment 7. The Town's rates are generally lower and more conservative than those outlined in the *Winter Parking Lot and Sidewalk Maintenance Manual (Revised edition June 2008)* and the *Minnesota Snow and Ice*

Control: Field Handbook for Snow Operators (September 2012) referenced in the MS4 Permit and allow the Town to reduce the amount of chloride ending up in impaired waterbodies.

2.2.5 Designation of Low Salt and/or No Salt Zones

The Town of Andover is committed to reducing chloride loadings throughout the Town. Instead of limiting salt reduction practices as outlined in the sections above to areas in close proximity to impaired waterbodies, the Town will implement them throughout the entire Town which will have a greater impact on salt reduction. The Town currently uses Road Rangers to monitor and inspect conditions throughout the Town and will allocate additional personnel time to monitor road conditions during the first year of implementing these low salt practices.

2.2.6 Facility Modifications and Good Housekeeping BMPs

A. Snow Storage

Proper snow storage and good housekeeping can help reduce runoff and direct snowmelt from reaching nearby waterbodies and resources, which can minimize chloride loadings.

The Town of Andover currently does the following:

- Snow and ice which is cleared from the roadways to improve travel is placed on or in the adjacent shoulder, across the end of a residents' driveway/parking area, ditch, or right-of-way, except during snow removal/hauling operations which may require temporary placement of snow and ice on the traveled portion of the roadway.
- Excess snow is brought to the designated snow disposal area on High St. The snow disposal area is prepared using the following procedures from the Town's Snow and Ice Control Plan:
    - Securely install a silt fence or equivalent barrier on the downgradient side of the snow disposal site to reduce the potential for bulk pollutant migration as the snow melts.
    - Maintain at least a 50-foot vegetative buffer strip during growing seasons for all disposal sites adjacent to waterbodies.
    - Clear debris from site prior to snow disposal.
    - Dispose of snow on or near a pervious surface so as to allow the natural infiltration and treatment of snowmelt, and the removal of any associated debris in the spring.
    - Clear snow disposal-related debris from site at the end of the snow season.
    - Do not dispose of snow in salt marshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, Zone IIs or Interim Wellhead Protection Areas (IWPAs) of public water supply wells, Outstanding Resource Waters, or Areas of Critical Environmental Concern.
    - Do not dispose of snow where trucks may cause shoreline damage or erosion.

B. Salt Stockpile BMPs and Protection from Precipitation and Runoff

Massachusetts has published Guidelines on Road Salt Storage that applies to all parties storing road salt or other chemical deicing agents. The components of an "environmentally friendly" roadway deicing salt storage facility include a flat site, adequate space for the piles, runoff collection/containment, stored on an impervious/paved area, and stored under a roof. The Town of Andover will ensure that:

- Salt and sand stockpiles are stored inside of the salt sheds located at the Municipal Services Facility. The large stockpile shed is on the southwest corner of the facility and the small stockpile shed for public use is located on the west side of the facility.
- There is currently one loading point for all trucks and delivery and loading of materials are completed in a covered area. The loading area is cleaned on a regular basis. Loading areas and yards are swept periodically to help prevent product buildup and runoff.
- The salt and sand stockpiles are stored indoors with no exposure to stormwater runoff. Stormwater runoff from surrounding areas discharges to drainage infrastructure and BMPs or vegetated buffer.
- De-icing agents are stored in two antifreeze 3,000-gallon ASTs outdoors on a covered concrete pad and surrounded by concrete bollards away from areas subject to flooding. Caution is taken to not overfill the tanks during loading. Stormwater runoff flows to drainage infrastructure and BMPs or vegetated buffer.
- Storage areas are inspected for leaks on a regular basis, for evidence of runoff such as salt stains, and for evidence of lumping or water contamination. De-icing tank leaks are repaired immediately.

2.3 Schedule of Planned Activities / BMPs

Depending on the severity of the weather, each winter the Highway Division uses between 6,000 and 9,000 tons of salt with an average yearly usage of 6,500 tons. In total, snow and ice control comprise approximately 14% of the annual public works operating budget with an average of $1.4 million spent annually on labor, equipment, and materials.

The Town has incorporated and currently implements several salt reduction techniques as part of its ice and snow control program. These are summarized in Table 1 along with the estimated reduction in salt use associated with each of the techniques. These reductions are already accounted for in the Town's current salt use, therefore are only listed as a percentage in Table 1.

Table 1. Estimated Salt Reduction for Existing Salt Reduction BMPs	
BMP or Activity	**Estimated % Reduction per storm[1]**
Pre-wetting the Salt	20%
Monitoring road surface temperatures and Adapting Application Rates to Temperatures	5%
Proper calibration	5%
Proper equipment cleaning and maintenance	5%

1. Estimated percent salt reductions associated with each BMP are taken from the NH Small MS4 Salt Reduction Plan Template. Salt reductions are already accounted for in the Town's current salt use quantities.

Table 2. Estimated Salt Reduction for Future Planned BMPs					
BMP or Activity	**Estimated Salt Loading per storm (tons)[1]**	**Estimated % Reduction per storm[2]**	**Estimated Reduction per storm (tons)**	**Estimated Storms per year (#)[3]**	**Estimated Salt Reduction Total per year per BMP (tons)**
Implement Brine Pre-treating	325	20%	65	20	1,300
Upgrade to Ground Speed Control Systems	325	5%	16	20	325
Estimated Salt Reduction for Future Planned BMPs:					1,625

1. Estimated salt loading per storm is based on historic average annual salt usage assuming 20 storms per year and accounts for existing salt reduction BMPs used by the Town. Actual usage varies depending on the number and type of storms.
2. Estimated percent salt reductions associated with each BMP are taken from the NH Small MS4 Salt Reduction Plan Template.
3. An estimated 20 storms per year is used to illustrate potential annual salt reductions. The actual number of storms will vary from year to year.

The Town of Andover has developed a schedule for implementation of this Salt Reduction Plan based on the BMPs listed above. The anticipated schedule is summarized in the table below:

Table 3. Schedule of Planned Activities Table		
BMP or Activity	**Date(s) Implemented:**	**Date(s) Completed:**
Implement Brine Pre-treating	By 2021-2022 Winter Season	
Upgrade to Ground Speed Control Systems	By 2021-2022 Winter Season	

3. Actions for Privately Maintained Facilities that Drain to the MS4

3.1 Regulatory Mechanisms

The Town of Andover is working to incorporate a bylaw under Part II: By-Laws, Article XII Miscellaneous Bylaws that outlines regulations governing salt storage at commercial and industrial properties. A copy of the Draft Miscellaneous Bylaws: Regulations governing salt storage at commercial and industrial properties is included in Appendix B. The Town plans to have this adopted by Spring 2022.

3.2 Public Education and Outreach

The Town of Andover will include supplemental information in its Commercial/Industrial education program with an annual message to private road salt applicators and commercial and industrial site owners on the proper storage and application rates of winter deicing material. The educational materials will be disseminated in the November/December timeframe and will describe steps that can be taken to minimize salt use and protect local waterbodies.

3.3 Stormwater Management in New Development and Redevelopment

The Town of Andover updated their Stormwater Management and Erosion Control Regulations. The new regulations require the following:

"For a new development or redevelopment project that discharges stormwater to a waterbody identified as impaired due to chloride, the applicant shall include measures in the required Operation and Maintenance (O&M) Plan to minimize salt usage or use alternative deicing materials and practices. The applicant shall consult with the Andover Department of Public Works to develop these O&M provisions."

Appendix A
Town of Andover
Snow and Ice Control Plan

Town of Andover Snow and Ice Control Plan

January 2020

Christopher M Cronin

Director of Public Works

Revised: October 2020

Table of Contents

Executive Summary

Snow and ice control is the single largest cost item in the Highway Division's maintenance budget. According to statistics compiled by the U.S. Federal Highway Administration, winter maintenance costs for snow and ice removal by states exceed $2.3 billion annually. For this reason and because of the need to keep roads open and minimize the impact on public safety, including the reduction of accidents, snow and ice control deserves special attention from all levels of the Highway Division and other operational divisions. The public is less tolerant of failure in snow and ice control than in any other highway function. A snowstorm affects the entire community and often the entire state. Unless a storm is handled capably by maintenance forces, it can upset the daily routines of individuals, adversely affect business, and endanger public safety.

To effectively and efficiently address the needs for snow and ice removal on 192 center miles of roads and 32 miles of sidewalk, the Highway Division has at its disposal 48 Town-owned plow equipment, over 120 contractor-owned plow equipment, 42 employees, and approximately 6,000 tons of salt during any given snow and ice season. Depending on the severity of the weather, each winter the Highway Division uses between 6,000 and 9,000 tons of salt with an average yearly usage of 6,500 tons. In total, snow and ice control comprises approximately 14% of the annual public works operating budget with an average of $1.4 million spent annually on labor, equipment, and materials.

The Highway Division's snow and ice removal program begins with support from the all of divisions from the Department of Public Works. Each division takes steps to adequately plan and prepare for the approaching winter season. This plan includes equipment readiness, truck routing, call-out procedures, supplemental drivers, construction schedule notification, training, and material inventory control. As winter sets in, the Highway Division utilize its snow and ice control plan to treat and remove ice and snow from the roadways during winter weather events.

Through the years, the Highway Division has developed, used and continues to use several tried and true practices that support snow and ice control efforts. These practices range from equipment and materials to guidance, personnel scheduling, plowing and treatment routes review, spreader calibration, truck design and procurement and vehicle maintenance. Although some practices have been more successful than others, all contribute to the overall success of Highway Division's snow and ice operations.

This plan was also prepared and developed to meet the requirements of the 2016 MA Small MS4 General Permit requirement as it relates to the storage and application of salt and sand to roadways to control snow and ice.

1.0 Equipment

1.1 Trucks

The Highway Division snow and ice fleet is made up of a combination of class 2A – 7 trucks by gross vehicle weight rating (GVWR) and heavy construction hydraulic equipment. Highway Division trucks are equipped with onboard pre-wetting systems that apply calcium chloride to dry rock salt as it exits the truck. On-board wetting systems are calibrated to deliver a specified quantity of liquid per ton of salt and the application at the spinner reduces the corrosive effects of the calcium chloride by limiting direct contact to the truck.

Vehicle Type	Quantity
CDL	14
Non-CDL	22
Hydraulic	12

Table 1 : Vehicle type by quantity

In addition to Town-owned equipment, the Highway Division has approximately over 120 pieces of contracted plowing equipment it can call upon, should weather conditions indicate a plowable event. Town-owned snow and ice control equipment is listed in Attachment 6. General equipment maintenance is conducted in accordance with the *Vehicle and Equipment Storage and Maintenance SOP (SOP-20-008).* Vehicle washing is conducted in accordance with the *Vehicle & Equipment Washing SOP (SOP-20-007).* The vehicle wash bay is located at 5 Campanelli Drive.

1.2 Spreaders

Most Town-owned trucks used during snow and ice operations have material spreading equipment. All spreaders range in size from 3.0 yd to 8.0 yd. Spreader box types (hopper, v-box, slide-in, tailgate and auger) and spinner locations (rear) are chosen to fit operational experiences and constraints. The Highway Division does not operate any "zero velocity" spreaders within its fleet.

Liquid chemical spreading may also be distributed directly on the road, parking lot or walkway surface from a variety of tank systems mounted on trucks and other vehicles. All class 7 trucks are equipped with double saddle calcium chloride tanks for solid material pre-wetting.

The variables affecting the application rate of a given material are 1) area of the gate opening on a hopper box or the opening in the bottom of the tailgate hopper, 2) auger speed, and 3) truck speed. The gate opening height is an adjustment made at the time of calibration and generally is not changed during treating operations. The Highway Division uses all manual controls on all of its trucks to adjust the amount of material being spread. It is extremely important to calibrate spreaders to ensure that the desired quantity of material is being applied. All spreaders are calibrated before winter operations begin and a calibration chart is assigned to each truck to inform operators of application rates of individual spreaders. All spreaders are maintained using the recommendations of the *"SALT INSTITUTE PROCEDURES AND CHART USED TO CALIBRATE SOLID MATERIAL SPREADERS WITH MANUAL CONTROLLERS"* to ensure accurate application of snow and ice control materials. Calibration procedures are included in Attachment 5.

Beginning in the snow and ice season of 2019-2020, the Highway Division began utilizing auger-style spreaders.

1.3 Plows and Cutting Edges

Plow blade types used by the Highway Division include one-way only, reversible and V-blade plows for sidewalk snow removal. Some class 7 trucks have underbody "belly scrapers" for hard-pack removal and one has a wing plow for additional snow removal capabilities. All cutting edges used by class 7 trucks carbide insert cutting edges with steel cover and curb-guards. During plowing operations, cutting edges are kept as close to the pavement as possible in an attempt to remove all snow and slush of the roadway.

2.0 Materials

2.1 Solid Chemicals

The Highway Division uses sodium chloride as the exclusive solid chemical for anti-icing and de-icing applications. Amount of sodium chloride applied to a particular winter weather event will depend on operating conditions and particular event characteristics. Sodium chloride used by the Highway Division is in accordance with ASTM D 632 – Standards Specification for Sodium Chloride (Attachment 4).

Types and approximate amounts of snow removal materials used in Andover each year are listed in the table below:

Type of Materials	Source	Approximate Amount Per Year
Road Salt		
Sand		
Liquid Calcium Chloride		
Solid Magnesium Chloride		

Table 2 : Snow Removal Materials

2.1.1 Solid Chemical Storage Facility

Solid chemicals for the Highway Division are stored inside of the salt shed located at the Municipal Services Facility. There is currently one loading point for all trucks used by the Highway Division and it is near the salt shed. The salt shed has an approximate holding capacity of 6,000 tons of roadway salt.

2.2 Liquid Chemicals

Calcium chloride as a liquid chemical is used by the Highway Division for two primary operational goals: 1) solid chemical pre-wetting as it exits the spreader and 2) under appropriate winter weather conditions, as an anti-icing agent prior to a winter weather event. Mixing solid sodium chloride with liquid calcium chloride enhances the performance of rock salt by initiating the chemical reaction for the salt to move into solution, limiting product bounce and scattering on the pavement and lowers the salt effective working temperature in colder conditions. Studies have shown that by pre-wetting road salt it reduces scatter by increasing by 32% the amount of road salt that stays in the center of the road.

2.2.1 Chemical Solution Storage Facility

The Highway Division currently stores all of its calcium chloride solution in two (2) 3,000 gallons vertical storage tanks. Calcium chloride is ordered via a contracted supplier that delivers on an as-needed basis. Trucks pull up to the loading station and fill the prewetting saddle tanks prior to a winter weather event.

2.2 Abrasives

Abrasives, such as sand, play and important but decreasing role in snow and ice control. That role is very narrow and very clear. They are typically used when it is too cold for chemicals to work, on low volume and unpaved roads that have a low level of service. They are also used as a customer service tool by mixing with sodium chloride and providing this mix at no cost to the residents for their personal use.
While significantly less expensive, initially, compared to other snow and ice control chemicals, they have hidden monetary and environmental costs considerations that often make them more expensive to use than other chemicals. They typically require a higher application rate than other chemicals thus resulting in a larger amount of material being spread across a roadway. When the cost of spring clean up and the more frequent applications associated with abrasives are added, using abrasives where chemicals would otherwise work results in higher overall costs.

3.0 Decision Making Tools

The decision to initiate treatment, call in contractors and personnel or delcare a parking ban relies on many different sources of information. Some of these are described in further detail below.

3.1 Weather Forecast Information

The Highway Division uses two primary weather forecasting services to make the decision of whether or not to initiate treatment and when to start and what treatment to apply. Hometown Forecast Services provides a location-specific weather forecasting service to the Town of Andover by releasing two (and sometimes more) weather forecasts per day; one at 2:00 AM and the other at 2:00 PM. The timing of these forecasts allows the Highway Division to be able to schedule personnel, if necessary, before or after the rush hour commute, depending on weather timing. In addition, the Highway Division utilizes WeatherSentry as an additional forecasting service. While less personalized, it has additional capabilities such as text messaging alert depending on specific weather conditions, radar capabilities and other features. In addition, it provides historical weather databases to access at any given point in time.

3.2 Road and Weather Information

While atmospheric temperature is an important factor in determining when to start snow and ice control operations, the single most important factor that determines the operations is pavement temperature. The solubility of all chemicals varies with temperature; the lower the temperature the less the solubility. The pavement temperature will determine if it will form an ice-melting interface at the pavement surface.

The Highway Division uses a combination of mobile, fixed and virtual pavement sensors to accomplish the monitoring and warning function necessary to make decision of whether or not to start treatment.

Through the WeatherSentry application, the Highway Division has access to an RWIS used by MassDOT near its I-93 maintenance facility that can be used to forecast air and pavement temperature at its River Road location.

3.3 Road Rangers

Use of Road Rangers is a highly effective way of evaluating the weather conditions and conditions of the pavement surface. Through this visual observation, the Highway Division utilizes Road Rangers to monitor and inspect conditions throughout the Town. Routes are divided equally and conditions are reported back to the Snow Operations Center (SOC) to inform decision making.

4.0 Operations

The Highway Division employs various operational techniques to mechanically remove snow and ice from accumulating in Town roadways and certain portions of sidewalks.

4.1 Plow Routes

The Highway Division is responsible for plowing approximately 192 center lane miles of accepted roadways and 15 center lane miles of unaccepted roadways that the Town has assumed responsibility for plowing. Roadways are divided into 44 plowing routes and assigned equipment and personnel to each route in order to maintain the routes free and clear of snow and ice. These routes also include school and municipal parking lot snow removal.

4.2 Treatment Routes

In addition to the plowing routes, the Highway Division utilizes 15 different treatment routes for anti-icing operations. When meteorological conditions call the possibility of ice formation on the roadways, 15 spreader trucks are deployed throughout the Town to spread solid sodium chloride throughout the roadways.

4.3 Sidewalk Plowing Routes

The Highway Division also removes approximately snow and ice from approximately 32 miles of sidewalk throughout the Town out of a total sidewalk inventory of 67 miles. The primary focus is sidewalks leading to and from schools within the Town limits. Snow and ice removal in and around the Central Business District is the responsibility of the property owners directly abutting these sidewalks.

4.4 Deployment of Personnel

Timing of deployment of personnel varies greatly by storm conditions. Typically, public works treatment personnel and supervisory staff will arrive first to commence anti-icing operations. Depending on timing and type of weather events, additional treatments may be warranted or treatment operations will be switched over to plowing operations with additional contracted support. By minimizing mobilization time, total crew time may be reduced.

Name	Title	Responsibilities	Contact
Carlos Jaquez	Deputy Director	Operations Manager	38714
Stephen Surette	Highway Foreman	Operations Manager	38802
Scott Bernard	Working Foreman	Road Ranger	38803
Peter Gallant	Working Foreman	Road Ranger	38782
Jeff Ring	Working Foreman	Road Ranger	38781
Don Einsenhaur	Working Foreman	Road Ranger	38863
Anthony Reppucci	Assistant Town Engineer	Dispatcher	38773

Table 2: Responsible Personnel

4.5 Anti-Icing Practices

While no two storms are ever alike, in general, and in accordance with recommended practices, the Highway Division recognizes six different weather events, as part of its snow and ice control plan:

- Light Snow Storm
- Light Snow Storm with Period(s) of Moderate or Heavy Snow
- Moderate or Heavy Snow Storm
- Frost or Black Ice
- Freezing Rain Storm
- Sleet Storm

General rules of practice for selecting anti-icing strategies are based upon Federal Highway Administration (FHWA) guidance. These strategies are only used as a starting point and do not represent the totality of strategies implemented during a snow and ice event. Recommendations are modified when necessary in order to accommodate the local experience, specific site concerns, agency objectives and specific levels of service.

4.6 Snow Operations Center (SOC) Activation

When a major winter weather related emergency strikes, centralized winter weather emergency management is necessary. The SOC provides this needed centralized management. When activated, representatives from Town departments will report to the SOC to coordinate Town decision making, simultaneously coordinate department activities, and liaison with different levels of government as well as with private entities. The SOC provides a centralized focus of authority and information and allows for face-to-face coordination among personnel who must set priorities for use of resources and evaluate the need to request mutual aid.

4.6.1 When to Activate the SOC

The SOC is activated when field response agencies need support during any significant winter weather incident. At the discretion of the Director of Public Works or designee the SOC may be partially or fully staffed to meet the demands of the winter weather event. When the Town's SOC is activated, the Director of Public Works or designee will contact Emergency Management Working Group (EMWG) and inform them of where they will be convening.

Upon decision to activate, the Director of Public Works or designee will contact the Town Manager and EMWG and the following will occur:

- The SOC is being activated at Level ___
- SOC contact number is:_____

Contact Public Safety Dispatch at 978-470-2842 and send a status report as soon as possible to indicate Town SOC activation.

Continue briefing with Director and Deputy Director of Public Works until initial planning meeting and current objectives have been created.

4.6.2 Levels of Activation

The SOC has three (3) levels of activation:

Level One – Minimum Staffing. A Level 1 winter weather event is any incident, potential or actual, that will not seriously affect the overall functional capacity of the Town. These would be winter weather events that can be resolved with existing resources or limited outside help. Examples include minor treatment operations. Key personnel needed to conduct operations as designated by the Director of Public Works or designee. At the discretion of the Director of Public Works the SOC may not be physically set up at this level.

Level Two – Functional Position Staffing. A Level 2 winter weather event is any incident, potential or actual, that affects the entire Town and which may disrupt the overall operations of the Town. These require a coordinated response beyond normal operating channels. Outside services will probably be required, as well as major efforts from other Town Departments. These situations are those that are likely to affect some community members, e.g., extended power outages, downed wires or trees. The Town Manager and EMWG staff are notified. The SOC may be partially or fully activated. Some, but not all positions may be filled to coordinate and support the response to the incident.

Level Three – Full Staff. A Level 3 winter weather event is any incident that has the potential or does seriously impair or halt Town operations. In some cases, death of personnel and severe property damage may be sustained. Such major winter weather disasters require a coordinated response by all Town resources and outside services would be essential. In all cases, the Town's Emergency Operations Center (EOC) will be activated, and the appropriate support and operational plans implemented. The Town Manager and EMWG staff are notified. All SOC positions are activated. The Town may request that the Massachusetts Emergency Management Agency support services be deployed to assist in the recovery efforts.

4.6.3 Organization of SOC Staffing

The SOC staffing level includes:

Director of Public Works (as needed)
Deputy Director of Public Works
Highway General Foreman
Highway Working Foreman

Superintendent of Parks and Forestry (as needed)
Dispatcher
Communication Specialist (as needed)
Business Manager (as needed)
Representative from Police Department (as needed)
Representative from Fire Department (as needed)
Representative from Facilities Department (as needed)
Representative from School Department (as needed)
Representative from Town Manager's Office (as needed)

Minimum SOC staff is expected to have the SOC functional within one hour of notification.

4.6.4 Outside Agency Representation

An outside Agency Liaison will directly support the Director of Public Works and furnish a direct conduit to and from SOC Management and the other outside agency liaisons assigned to the SOC. The outside agency liaisons will report to the SOC Liaison supporting the Director of Public Works and will be afforded support capabilities as available.

In the event additional outside agency liaison positions are needed, they will be provided support capabilities in an ancillary location as close as practical to the SOC. Outside agency representatives assigned to the SOC will be able to communicate

directly with SOC Sections as appropriate to facilitate collaborative emergency response activities.

4.6.5 Information Flow From and To SOC

The SOC will receive information by field Incident Commander/Command Post and/or dispatch, radio, telephone or social media.

Method of Transmittal

- The SOC will receive messages from the field incident commander, command post, dispatcher, radio, telephone or social media.
- The message will be distributed through the public via CodeRed, Andover 311, social media or other appropriate communications system, as necessary. Information will flow via Dispatcher or Communication Specialist, when position is staffed.
- When necessary, documents will be forwarded to Business Manager to assist in recovery filings.

4.7 Road Maintenance Procedure

Prior to the Start of the Snow and Ice Season

- Mark islands, fire hydrants, catch basins, manholes, sidewalk segments, and other infrastructure that could be obscured by snow or cause a hazard to the plow and the operator.
- Existing conditions of the above infrastructure, or any infrastructure that might be damaged by winter maintenance activities, should be noted for comparison with post-season conditions and evaluation of any damage done.
- Conduct recertification training for all Town staff responsible for ice and snow removal.
- Ensure all snow equipment is in good working order and conduct maintenance as needed (Vehicle & Equipment Storage & Maintenance SOP (SOP-20-008)).
- Install snow plows, spreaders, and brine applicators, as applicable on vehicles.
- Calibrate all snow equipment to ensure efficiency and to minimize salt use. Calibration procedures are outlined in Attachment 5.
- Ensure road crews are familiar with mapped plowing routes to efficiently cover the entire municipality.

Prior to Leaving the Facility

- Speak with supervisor to determine special circumstances of storm (i.e. heavy rain, temperature conditions). These circumstances will determine if pre-treatment will occur.
- Inspect all vehicles. Check fluid levels and fill to proper levels. Ensure lights are in working order. Document any repairs made to the vehicle.
- Load all necessary materials on impervious surfaces. Sweep storage areas and their surroundings after loading/unloading or after spillage.

Snow and Ice Treatment and Removal

- For salt application, the optimal vehicle speed is 25 MPH. Salting will generally not be done when pavement temperatures are below 15 degrees F. When used, the material will be applied at an approximate rate of 240 pounds per lane mile. Use Attachment 7 for general application rates based on temperature and weather.
- As the storm develops and 1 inch of snow has accumulated, all of the drivers and available equipment will begin to plow their assigned routes.
    - Avoid plowing, pushing, blowing, or storing excess snow, deicer, or other debris in or near creeks, watercourses, or storm drain systems.
    - Reduce plowing speed in sensate areas to prevent materials from entering waterways.
    - The optimal plowing speed is 25 MPH.
- The Town's excess storage facility is currently located on High Street.
    - Securely install a silt fence or equivalent barrier on the downgradient side of the snow disposal site to reduce the potential for bulk pollutant migration as the snow melts.
    - Maintain at least a 50-foot vegetative buffer strip during growing seasons for all disposal sites adjacent to waterbodies.
    - Clear debris from site prior to snow disposal.
    - Dispose of snow on or near a pervious surface so as to allow the natural infiltration and treatment of snowmelt, and the removal of any associated debris in the spring.
    - Clear snow disposal-related debris from site at the end of the snow season.
    - Do not dispose of snow in salt marshes, vegetated wetlands, certified vernal pools, shellfish beds, mudflats, drinking water reservoirs and their tributaries, Zone IIs or Interim Wellhead Protection Areas (IWPAs) of public water supply wells, Outstanding Resource Waters, or Areas of Critical Environmental Concern.
    - Do not dispose of snow where trucks may cause shoreline damage or erosion.

Upon Return to Facility

- Wash vehicle following the *Vehicle & Equipment Washing SOP (SOP-20-007)*.
- Before parking any truck or equipment after use, check all fluid levels. Note any minor repairs conducted and other repairs that may be needed. Follow the *Vehicle & Equipment Storage & Maintenance SOP (SOP-20-008)*.
- Report amount of snow removal materials used to supervisor using the sample operations report in Attachment 8.

4.8 Level of Service

4.8.1 General

Removal of snow or ice, and placing of de-icing and abrasive materials on the Town's secondary road system is primarily for the benefit of the local residents in the community. Each storm has individual characteristics that must be dealt with accordingly. The portion of a roadway or municipal parking area improved for travel will have upon it snow, and/or ice, possibly in a compacted condition. These conditions may be continuous or they may be concentrated on hills, valleys, shady sections, curves, intersections, parking areas and/or other locations of a particular topographical or traffic feature.

4.8.2 Removal/De-Icing

The Highway Division's existing snow removal equipment will be utilized to implement these procedures and the level of snow removal and de-icing/abrasive material placement with respect to winter conditions which require such efforts. These tasks shall be accomplished within the amount of funds budgeted for snow and ice removal duties in the Department of Public Works budget, or any other supplemental funds so approved by the Board of Selectmen and Finance Committee.

4.8.3 Removal Operations

The Highway Division may not clear the entire roadway of snow and/or ice depending upon the conditions of the current storm and all previous storms. Snow and ice which is cleared from the roadways to improve travel shall be placed on or in the adjacent shoulder, across the end of a residents driveway/parking area, ditch, or right-of-way, except during snow removal/hauling operations which may require temporary placement of snow and ice on the traveled portion of the roadway. Snow windrows (or banks) which are created as a result of snow and ice removal operations may reduce a motorist's sight distance in each direction of the roadway. The snow removed from intersections will be placed at the corners of the intersection and may result in large

piles of unequal height. The line-of-sight, sight distances, or visibility of motorists approaching these intersections may be greatly reduced or impaired as a result of the snow and ice removal operations. The Town shall not be responsible for snow and ice pushed or otherwise placed on the roadways by any other person or vehicle not employed by the Town of Andover.

4.8.4 Parking Ban

The Town of Andover has implemented an emergency parking ban, as called for by the Director of Public Works, the Chief of Police, or designated representative. This ban prohibits the parking of any motor vehicle on all public roadways or private roadways which the Town has agreed to assume the snow and ice removal responsibilities. Motor vehicles which are illegally parked during this ban may be ticketed. Motor vehicles which are illegally parked during a storm event and interfere with the snow and ice removal operations, as determined by the Director of Public Works, or their delegated representative may be ticketed and towed at the owner's expense. Motor vehicles legally parked on Town roadways which are interfering with the snow and ice removal operations during a storm event will be asked to move. If the Town is unsuccessful in getting the vehicle moved, then at the discretion of the Director of Public Works or their delegated representative the said vehicle may be towed at the owner's expense.

4.8.5 Motor Vehicle Operator

Motorists shall operate their vehicles during these winter conditions with additional caution and watchfulness, especially in respect to the surface of the roadways, and reduced/impaired visibility. Motorists are advised to reduce their speeds well below the posted maximum speed. In respect to roadways that have only one lane open to traffic additional watchfulness and extreme caution should be exercised by motorists, and their speed should be reduced by 10 - 20 MPH less than the posted maximum speed. During these conditions there will be no additional warning or regulatory signs and/or barricades erected to warn motorists of impaired sight distances, visibility at intersections, conditions of roadway surfaces, and one-lane conditions. It is the motorist's responsibility to be cognizant of these conditions.

4.8.6 Municipal Road

Snow and ice removal or de-icing/abrasive placement will be performed within the Town limits on all municipal properties, Town accepted roadways, and any private roadway which the Town has agreed to accept the responsibility for snow and ice removal and de-icing/abrasives placement.

4.9 Sequence of Service

The Director of Public Works or the designated representative shall commence snow and ice maintenance procedures based on each individual storm's characteristics which may include but are not limited to; weather forecast, air and road temperature and expected accumulation. In the implementation of snow and ice removal and de-icing/abrasive placement on the Town's secondary road system under these procedures, the Director of Public Works or the designated representative shall select the actual sequence of roads and the type of service required as provided for in this section. The Director of Public Works or their delegated representative shall also determine when drifting, wind velocity, and additional snow or snowstorm require that the snow and ice removal equipment be removed from the secondary roadways for reasons of hazardous visibility, a lack of progress in said snow and ice removal, or that additional clearance of the main arterials and primary roadway system be accomplished prior to the clearance of the secondary roadway system. Generally, the Town's priorities will be all main arterials and primary roadways are to be addressed first. Secondary roadways which are throughways will be the second priority. Secondary roadways which are not throughways but have residences along with municipal properties and parking lots will be the next priority. Municipal school properties may be considered a first priority depending on whether the snow and ice removal operations are necessary during the beginning and ending of the normal school day to accommodate the arrival and departure of students and staff. Dirt, stone, and oiled surfaced roads with no residences along them will be the last priority and may not be plowed or receive de-icing/abrasive placement if the Director of Public Works, or their delegated representative, determines that there isn't a need. Finally, after all necessary roadways, municipal properties, and parking areas have been addressed; snow removal crews will perform snow and ice removal on the Town's sidewalk infrastructure. In accordance with this plan, roadways will be plowed to enable motorist's access from one direction, and then as storm conditions permit the roadways will be plowed to accommodate two-way traffic. In the event of a severe storm or severe drifting, all roadways will be open to one-way traffic until all residences have a way out. The Town of Andover is not responsible for the removal of snow banks at the end of a resident's driveway or parking area which are a result of the snow removal operations. The snow and ice removal operations will continue to open roads for two-way travel as weather conditions allow. There is no time limit after a storm subsides within which any portion of these procedures is affirmed by the Town to have been completed or implemented. The Town will have the flexibility in determining how to address the hazards of snow and ice events depending upon the individual characteristics of each storm.

4.9.1 Bituminous Concrete Surface Roadways

- The initial effort will be to get all roads open to one-lane traffic as soon as possible.
- After one-lane travel is possible, subsequent snow and ice removal will be carried on to accommodate two-way travel. Snow and ice removal operations may occur outside of the normal working hours as described in Section 4.9.
- Although it is not the standard for the Town to provide "bare" pavement conditions, the Highway Division strives to meet this goal whenever and wherever possible.
- After the bituminous concrete surfaced roads have been plowed as provided in this section these same surfaces may have de-icing and abrasive materials applied to them in part, or in whole, with emphasis upon intersections, hills, curves, and shady areas. The de-icing/abrasive placement operation will normally cease when the ambient air temperature is 15 degrees or lower. These road surfaces may not have any additional de-icing/abrasives placed upon them between snow and ice storm events if there will not be any benefit derived from such placement as determined by the Director of Public Works or the delegated representative.
- Snow removal equipment will normally begin operation after an accumulation of one (1) inch of new snow. Snow removal equipment may operate at less than two (1) inch of new snow if the particular characteristics of a storm warrant such operations.

4.9.2 Unpaved Surface Roadways

- The initial effort will be to get one-lane access open to all residences as soon as possible during daylight hours after a storm has subsided.
- After one-lane access is possible, subsequent snow and ice removal will be carried on only during normal working hours to accommodate two-lane travel. Snow and ice removal operations may occur outside of the normal working hours as described in Section 4.9.
- Snow and ice removal equipment may not operate on particular oiled and stone surfaced roads without residences if the Director of Public Works, or their delegated representative, determines that there isn't any benefit derived from such operations.
- Snow removal equipment will normally begin operation after an accumulation of four (4) inches of new snow. Snow removal equipment may operate at less than four (4) inches of new snow if the particular characteristics of a storm warrant such operations.

4.9.3 Sidewalks

- Snow removal equipment will normally begin operations after a storm has subsided where three (3) inches or more of the new snow has accumulated and the preceding priorities as stated in this section of these procedures have been completed. Snow removal equipment may operate at less than three (3) inches of new snow if the particular characteristics of a storm warrant such operations.
- This plan does not require the placement of de-icing/abrasive materials on sidewalks.
- Snow and ice removal on the sidewalks in the downtown Central Business District will be the responsibilities of the adjoining property owners.

4.10 Miscellaneous

4.10.1 Mailboxes and Mailbox Posts

The Town shall not pay for damaged mailboxes and/or mailbox posts unless actual contact is made by a snow removal unit. Residents should properly mark mailboxes in drift prone areas, or if there are high snow banks, to help snow removal equipment avoid them. Claims for damaged mailboxes and/or posts should be submitted or phoned in to the Highway Division of the Department of Public Works within 48 hours to be considered for replacement or payment at the Town's option.

4.10.2 Mailboxes and Mailbox Posts

The Town shall not pay for damaged fences and shrubbery unless actual contact is made by snow removal equipment and the damaged item is on private property. Residents should properly mark such items in drift prone areas, or if there are high snow banks, to help snow removal equipment avoid them. Claims for damaged fences and shrubbery, should be submitted to the Highway Division of the Department of Public Works within 30 days to be considered for replacement or payment at the Town's option.

4.10.3 Obstructions

Obstructions located within the right-of-way such as lawn decorations, vehicles, fences, sprinkler heads, shrubbery, or stone/brick walls shall not be the responsibility of the Town to replace or rebuild if they are damaged from snow and ice removal operations. Any of these obstructions that may cause drifting of snow shall be promptly removed by the owners or tenants of the property. The Town shall not be liable for damage to stalled, stranded, or parked vehicles on the traveled portion of the roadway. The owners of stalled or stranded vehicles should immediately notify the Police Department

and the Highway Division of the Department of Public Works, and shall remove the vehicles as soon as possible.

4.10.4 Private Roads

The Town will not conduct snow and ice removal operations on private roadways, unless the Town in certain instances has agreed with the appropriate party to assume these responsibilities. Normal Town snow and ice removal operations may result in snow or ice being deposited in private roadways and driveways adjacent to public roadways. Snow and ice from private driveways shall not be placed on public roadways or shoulders, or other Town properties.

4.11 Emergencies

4.11.1 Response

The sequence of the snow and ice removal service may be suspended during an "Emergency" condition. The Town will attempt to respond to an emergency condition when a blocked or impassable roadway is involved.

4.11.2 Definition and Determination

An "Emergency" condition shall be considered as one where loss of life is probable, where a serious injury has occurred or is probable, or where extensive loss of property is imminent. Reports of such emergencies should be made directly to the Highway Division of the Department of Public Works or the Police Department. The existence of any such condition shall be determined by the Director of Public Works or their delegated representative. Upon determination of the existence of an Emergency condition, the Director of Public Works or their delegated representative shall implement the appropriate emergency procedures including snow and ice removal operations if the use of such equipment is warranted by the nature of the emergency condition.

4.11.3 Disaster

The provisions of this plan shall be further suspended in the event the Governor of Massachusetts, by proclamation, implements the State disaster plan, or the Town Manager, by proclamation, implements the Town disaster plan. If such an event occurs the Town snow and ice removal equipment and operating personnel shall be immediately subject to the direction of the Governor of Massachusetts or the Town Manager in accordance with disaster plan proclamation.

5.0 Administrative and Financial

All snow and ice operations are managed and directed from the Snow Operations Center (SOC) located at 5 Campanelli Drive. During a snow and ice event, the SOC will be activated at three different levels, depending on the type and duration of the winter weather event. Staffing levels will depend on activation level.

The Highway Division operates on an annual appropriated snow and ice budget of $1,247,000.00. Most of this budget is spent on contractor compensation, material acquisition and personnel overtime. Based on current rate of compensation and amount of snow and ice contractors available, the burn rate for a snow and ice event is $13,313.50

Equipment	Hourly Rate
Pickup truck	$80.00
1-ton	$85.00
6-wheeler	$100.00
6-wheeler w/wing plow	$115.00
10-wheeler	$110.00
Loader (2-cy or less)	$120.00
Loader (over 2-cy)	$135.00
Bobcat/Skid Steer with v-plow or blower	$90.00
Pretreating	$120.00

Table 3 : Contracted equipment rates

Record Keeping and Documentation

- Maintain a master schedule of prioritized snow and salting routes and the miles or roads plowed or sanded.
- Keep copies of manufacturer's recommendations for equipment calibration, plowing speed, and salt/sand application rates.
- Keep records of the amounts of salt, liquid deicer, and salt alternatives applied per season.
- Keep a list of employee training performed.

6.0 Post-storm Assessment

After any large scale winter weather event, senior leadership from the DPW along with operators from the past weather event, meets to discuss both the successes and failures of the winter maintenance operation. As part of the post-storm assessment, costs and effectiveness of the anti-icing strategies deployed during events are discussed and evaluated and are also compared to past weather events.

Attachment 1:
Plow Routes

Street Name

- ALPINE DRIVE
- APOLLO CIRCLE
- ASPEN CIRCLE
- ATWOOD LANE
- AVERY LANE
- BITTERSWEET LANE
- BRIERWOOD CIRCLE
- BRUNDRETT AVENUE
- CAMPANELLI DRIVE
- CHRISTIAN WAY
- COBBLESTONE LANE
- DEERBERRY LANE
- FISKE STREET
- FOREST HILL DRIVE
- FOSSEN WAY
- FURNARI FARM LANE
- GEMINI CIRCLE
- GREENBRIAR CIRCLE
- GREYBIRCH ROAD
- INWOOD LANE
- JILLIAN WAY
- LAUNCHING ROAD
- LAUREL LANE
- MERCURY CIRCLE
- MULBERRY CIRCLE
- NOLLET DRIVE
- OLD RIVER ROAD
- PEPPERIDGE CIRCLE
- PETEROF CIRCLE
- PHEASANT RUN
- RAVENS BLUFF
- SANDALWOOD LANE
- STONEYBROOK CIRCLE
- SUGARBUSH LANE
- WINCHESTER DRIVE
- WINTERGREEN CIRCLE

METHUEN
DRACUT
TEWKSBURY
WHEELER STREET
LOWELL STREET
LOWELL BOULEVARD
METHUEN STREET
VARNUM AVENUE
MERRIMAC AVENUE
RIVER ROAD
BAILEY ROAD
FISKE STREET
MONTCLAIR AVENUE
QUAIL RUN
OVERLOOK DRIVE
FRANCIS DRIVE
HOOD DRIVE
CHRISTIAN WAY
FISKE STREET
PHEASANT RUN
ATWOOD LANE
AVERY LANE
STONEYBROOK CIRCLE
RAVENS BLUFF
NOLLET DRIVE
FRASER DRIVE
BOUTWELL ROAD
ASHFORD LANE
PLEASANT STREET
OLD SCHOOL HOUSE ROAD
SEVILLA ROAD
KNOLLCREST DRIVE
HACIENDA WAY
PETEROF CIRCLE
GREYBIRCH ROAD
GREENBRIAR CIRCLE
COBBLESTONE LANE
WINCHESTER DRIVE
NOLLET DRIVE
JILLIAN WAY
FURNARI FARM LANE
INWOOD LANE
FOSSEN WAY
LAUNCHING ROAD
GEMINI CIRCLE
MERCURY CIRCLE
APOLLO CIRCLE
FOREST HILL DRIVE
BITTERSWEET LANE
ASPEN CIRCLE
WINTERGREEN CIRCLE
BRIERWOOD CIRCLE
DEERBERRY LANE
MULBERRY CIRCLE
SANDALWOOD LANE
PEPPERIDGE CIRCLE
ALPINE DRIVE
SUGARBUSH LANE
MONAHAN LANE
CROSS STREET
BRADY LOOP
HIGH PLAIN ROAD
PENNI LANE
GOLDEN OAKS LANE
DEERFIELD WAY
RIDGE HILL WAY
BLACK BIRCH WAY
CHERRYWOOD CIRCLE
PENDANT COURT
AVELLA CIRCLE
ZAMBOM TERRACE
HAGGETTS POND ROAD
GAVIN CIRCLE
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
BRUNDRETT AVENUE
1776 DRIVE
MINUTEMAN ROAD
LAUREL LANE
OLD RIVER ROAD
NEW ENGLAND BUSINESS CENTER DRIVE
CAMPANELLI DRIVE
93
SHATTUCK ROAD
TECH DRIVE
CORPORATE DRIVE
BELLE ISLE WAY
CHANDLER ROAD
DONALD CIRCLE
CLOVERFIELD DRIVE
INTERSTATE 93
FEDERAL STREET
BROOKSIDE DRIVE
NORTH STREET
SOMERSET DRIVE
CIRCLE SUFFOLK
CHONGRIS CIRCLE
WEEPING WILLOW

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 01

2,400
Feet

N W E S

Street Name
RIVER ROAD

METHUEN
DRACUT
LAWRENCE

WHEELER STREET
LOWELL STREET
LOWELL BOULEVARD
METHUEN STREET
MERRIMAC AVENUE

1776 DRIVE
BRUNDRETT AVENUE
MINUTEMAN ROAD
LAUREL LANE
OLD RIVER ROAD
93
CAMPANELLI DRIVE
SHATTUCK ROAD
TECH DRIVE
CORPORATE DRIVE
FEDERAL STREET
RIVERSIDE DRIVE
BULFINCH DRIVE
BROOKSIDE DRIVE
NORTH STREET
OFF WEBSTER STREET
WEBSTER STREET
ST JAMES DRIVE
ATLANTIC AVENUE BOARDWALK DRIVE
SOMERSET DRIVE
SUFFOLK CIRCLE
INTERSTATE 93
CHANDLER ROAD
BELLE ISLE WAY
DONALD CIRCLE
CLOVERFIELD DRIVE
APOLLO LAUNCHING ROAD
GEMINI CIRCLE
CIRCLE
FOSSEN WAY
INWOOD LANE
FURNARI FARM LANE
JILLIAN WAY
COBBLESTONE LANE
GREYBIRCH ROAD
CROSS STREET
ASPEN CIRCLE
FOREST HILL DRIVE
ALPINE DRIVE
SUGARBUSH LANE
GREENBRIAR CIRCLE
NOLLET DRIVE
RIVER ROAD
RAVENS BLUFF
FRASER DRIVE
BOUTWELL ROAD
KNOLLCREST DRIVE
MONAHAN LANE
BRADY LOOP
HIGH PLAIN ROAD
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
HACIENDA WAY
PENNI LANE
OAKS LANE GOLDEN
DEERFIELD WAY
PENDANT COURT
AVELLA CIRCLE
RIDGE HILL WAY
BIRCH WAY
BLACK CHERRYWOOD CIRCLE
ZAMBOM TERRACE
GAVIN CIRCLE
HAGGETTS POND ROAD
STONEYBROOK CIRCLE
AVERY LANE
ASHFORD LANE
PLEASANT STREET
SEVILLA ROAD
OLD SCHOOL HOUSE ROAD
BAILEY ROAD
OVERLOOK DRIVE
FRANCIS DRIVE
HOOD DRIVE
PHEASANT RUN
CHRISTIAN WAY
FISKE STREET
RUN QUAIL
CHONGRIS CIRCLE
WEEPING WILLOW CIRCLE
WEST FIRE STATION
LEDGE ROAD
TRINITY COURT
495
PETTINGELL AVENUE
SAMOS LANE
BLUE STAR MEMORIAL HIGHWAY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 02

2,400
Feet

N W E S

LAWRENCE

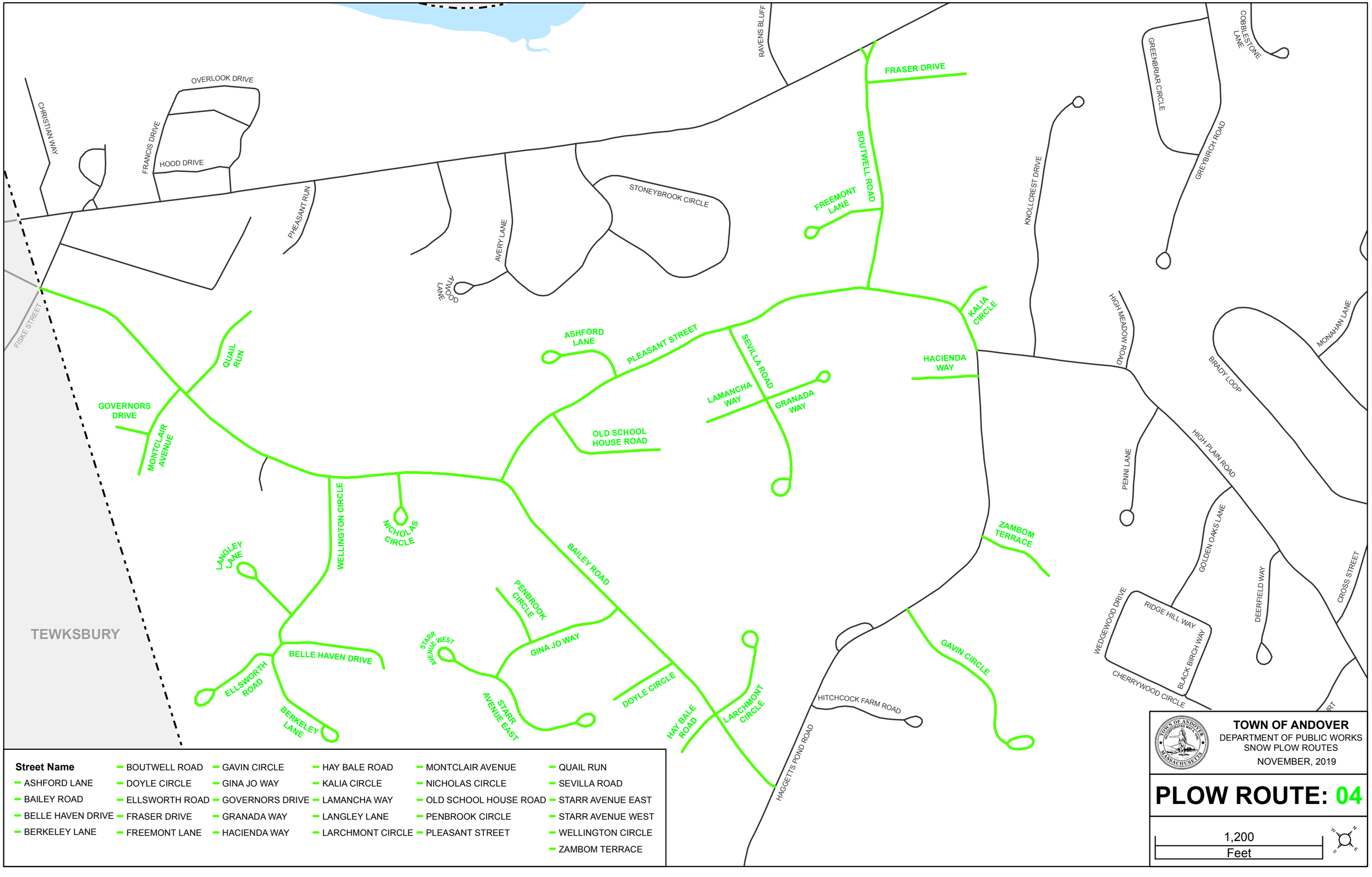
ANDOVER STREET
GLENN STREET
MOUNT VERNON STREET
BULFINCH DRIVE
WEBSTER STREET
OFF WEBSTER STREET
ATLANTIC AVENUE
BOARDWALK DRIVE
ST JAMES DRIVE
JOSEPH STREET
NORTH STREET
NORTH STREET EXTENSION
BROOKSIDE DRIVE
SOMERSET DRIVE
SUFFOLK CIRCLE
CAMPANELLI DRIVE
OLD RIVER ROAD
FEDERAL STREET
SUTTON WAY
PAULINE DRIVE
IRON GATE DRIVE
SOUTHRIDGE CIRCLE
WEEPING WILLOW CIRCLE
GREEN MEADOW LANE
TRINITY COURT
LEDGE ROAD
CHONGRIS CIRCLE
CHANDLER ROAD
PAU LORNETTE CIRCLE
CIRCLE MONETTE
HAWTHORNE CIRCLE
BOBBY JONES DRIVE
BEACON STREET
ROBERT DRIVE
WEST ELEMENTARY SCHOOL
VIRGINIA ROAD
WEST PARISH DRIVE
WEST PARISH CEMETERY
CUTLER ROAD
BATESON DRIVE
THRESHER ROAD
BIRCH ROAD
ARGILLA ROAD
LOWELL STREET
WILD ROSE DRIVE
ROLLING RIDGE ROAD
SPENCER COURT
SERENITY LANE
JUNIPER ROAD
SAMOS LANE
WOODHAVEN DRIVE
DAIRY LANE
GLEASON STREET
PETTINGELL AVENUE
MURRAY HILL LANE
STARWOOD CROSSING
DEAN CIRCLE
GREENWOOD ROAD
CANDLEWOOD DRIVE
LANCASTER PLACE
EXETER WAY
CRICKET CIRCLE
DAWN CIRCLE
WINDEMERE DRIVE
TIFFANY LANE
LOVEJOY ROAD
133
495
93
INTERSTATE 93
RIVER ROAD
TECH DRIVE
CORPORATE DRIVE
SHATTUCK ROAD
RICHARD CIRCLE
CLOVERFIELD DRIVE
DANDELION DRIVE
DONALD CIRCLE
POSSUM HOLLOW ROAD
BRUNDRETT AVENUE
BELLE ISLE WAY
1776 DRIVE
BRUNDRETT AVENUE
LAUNCHING ROAD
ALPINE DRIVE
SUGARBUSH LANE
WOOD HILL MIDDLE SCHOOL
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
BLUE STAR MEMORIAL HIGHWAY
HIGH PLAIN ROAD
OLD HIGH PLAIN ROAD
EVERGREEN LANE
DPW ADMINISTRATION

Street Name		
BELLE ISLE WAY	GREEN MEADOW LANE	PAULINE DRIVE
BRUNDRETT AVENUE	GREENWOOD ROAD	POSSUM HOLLOW ROAD
CHANDLER ROAD	IRON GATE DRIVE	RICHARD CIRCLE
CHONGRIS CIRCLE	LEDGE ROAD	SOUTHRIDGE CIRCLE
CLOVERFIELD DRIVE	NORTH STREET	SUTTON WAY
DANDELION DRIVE	NORTH STREET EXTENSION	TRINITY COURT
DONALD CIRCLE	OFF WEBSTER STREET	WEBSTER STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 03

2,100
Feet



Street Name

- ASHFORD LANE
- BAILEY ROAD
- BELLE HAVEN DRIVE
- BERKELEY LANE
- BOUTWELL ROAD
- DOYLE CIRCLE
- ELLSWORTH ROAD
- FRASER DRIVE
- FREEMONT LANE
- GAVIN CIRCLE
- GINA JO WAY
- GOVERNORS DRIVE
- GRANADA WAY
- HACIENDA WAY
- HAY BALE ROAD
- KALIA CIRCLE
- LAMANCHA WAY
- LANGLEY LANE
- LARCHMONT CIRCLE
- MONTCLAIR AVENUE
- NICHOLAS CIRCLE
- OLD SCHOOL HOUSE ROAD
- PENBROOK CIRCLE
- PLEASANT STREET
- QUAIL RUN
- SEVILLA ROAD
- STARR AVENUE EAST
- STARR AVENUE WEST
- WELLINGTON CIRCLE
- ZAMBOM TERRACE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 04

1,200
Feet

Street Name

- APPLE BLOSSOM ROAD
- BARRON COURT
- BELLEVUE ROAD
- BLANCHARD STREET
- BROWN STREET
- CRYSTAL CIRCLE
- DECA CIRCLE
- DEVONSHIRE PLACE
- FRONTAGE ROAD
- GRANLI DRIVE
- HAGGETTS POND ROAD
- HARMONY LANE
- HEARTHSTONE PLACE
- KEYSTONE WAY
- LENOX CIRCLE
- MARIGOLD LANE
- NEWPORT CIRCLE
- OSGOOD STREET
- OSGOOD STREET EXTENSION
- PATRICIA CIRCLE
- PRESTON CIRCLE
- RASMUSSEN CIRCLE
- REGIS ROAD
- STOUFFER CIRCLE
- TESSIER DRIVE

133

EVERGREEN LANE

GENEVA ROAD

DPW ADMINISTRATION OFFICES

RASMUSSEN CIRCLE

MARIGOLD LANE

TESSIER DRIVE

PATRICIA CIRCLE

HARMONY LANE

OSGOOD STREET EXTENSION

PRESTON CIRCLE

STOUFFER CIRCLE

HAGGETTS POND ROAD

BELLEVUE ROAD

GRANLI DRIVE

BARRON COURT

LOWELL STREET

WOODHILL ROAD

LAKESIDE CIRCLE

HAGGETTS POND ROAD

ITHICA PLACE

133

NEWPORT CIRCLE

REGIS ROAD

BROWN STREET

DECA CIRCLE

RINDGE ROAD

HAMPTON LANE

RUTGERS ROAD

SHEFFIELD CIRCLE

JORDYN LANE

FRONTAGE ROAD

INTERSTATE 93

93

RESEARCH PARK

OSGOOD STREET

DEVONSHIRE PLACE

LENOX CIRCLE

BLANCHARD STREET

CRYSTAL CIRCLE

APPLE BLOSSOM ROAD

HEARTHSTONE PLACE

KEYSTONE WAY

FRONTAGE ROAD

OSGOOD STREET

HILL ROAD

SURREY LANE

PARTRIDGE HILL ROAD

CARDINAL LANE

DASCOMB ROAD

SMITH WAY

SHAWSHEEN STREET

CARTER STREET

EAST STREET

TEWKSBURY

KENDALL ROAD

WILLIAM G DRIVE

CARDIGAN ROAD

PINNACLE STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 05

1,500
Feet

Street Name

- HAGGETTS POND ROAD
- HAMPTON LANE
- HITCHCOCK FARM ROAD
- HOLMES ROAD
- ITHICA PLACE
- JORDYN LANE
- LAKESIDE CIRCLE
- RINDGE ROAD
- RUTGERS ROAD
- SHEFFIELD CIRCLE
- WOODHILL ROAD

HIGH PLAIN ELEMENTARY SCHOOL
WOOD HILL MIDDLE SCHOOL
AVELLA CIRCLE
HIGH PLAIN ROAD
PENDANT COURT
CROSS STREET
BRADY LOOP
DEERFIELD WAY
BLACK BIRCH WAY
RIDGE HILL WAY
WEDGEWOOD DRIVE
CHERRYWOOD CIRCLE
GOLDEN OAKS LANE
PENNI LANE
ZAMBOM TERRACE
GAVIN CIRCLE
KNOLLCREST DRIVE
KALIA CIRCLE
PLEASANT STREET
HACIENDA WAY
SEVILLA ROAD
LARCHMONT CIRCLE
BAILEY ROAD
HAY BALE ROAD
DOYLE CIRCLE
BLUE STAR MEMORIAL HIGHWAY
495
WOODHILL ROAD
LAKESIDE CIRCLE
ITHICA PLACE
HAGGETTS POND ROAD
HOLMES ROAD
HITCHCOCK FARM ROAD
RUTGERS ROAD
RINDGE ROAD
HAMPTON LANE
SHEFFIELD CIRCLE
JORDYN LANE
HAGGETTS POND ROAD
GRANLI DRIVE
BARRON COURT
BELLEVUE ROAD
REGIS ROAD
NEWPORT CIRCLE
DECA CIRCLE
CARDIGAN ROAD
LOWELL STREET
BROWN STREET
133
TEWKSBURY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 06

1,400
Feet

SAMOS LANE
SPENCER COURT
ROLLING RIDGE ROAD
BIRCH ROAD
ARGILLA ROAD
SERENITY LANE
JUNIPER ROAD
TRINITY COURT
WOODHAVEN DRIVE
EXETER WAY
LANSBURY LANE
LANCASTER PLACE
CRICKET CIRCLE
WINDEMERE DRIVE
ROBINSWOOD WAY
133
LOWELL STREET
WILD ROSE DRIVE
DAWN CIRCLE
GLEASON STREET
DAIRY LANE
HIGH PLAIN ROAD
CANDLEWOOD DRIVE
TIFFANY LANE
NOB HILL CIRCLE
PETTINGELL AVENUE
495
BLUE STAR MEMORIAL HIGHWAY
MURRAY HILL LANE
STARWOOD CROSSING
GREENWOOD ROAD
COTTONWOOD CIRCLE
LOVEJOY ROAD
DEAN CIRCLE
WOODMAN RIDGE ROAD
93
INTERSTATE 93

Street Name

- CANDLEWOOD DRIVE
- COTTONWOOD CIRCLE
- DAIRY LANE
- DEAN CIRCLE
- EXETER WAY
- LANCASTER PLACE
- LANSBURY LANE
- MURRAY HILL LANE
- PETTINGELL AVENUE
- STARWOOD CROSSING
- TIFFANY LANE

TOWN OF ANDOVER

DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 07

1,000
Feet

WEST FIRE STATION
GREEN MEADOW LANE
LEDGE ROAD
TRINITY COURT
BLUE STAR MEMORIAL HIGHWAY
PETTINGELL AVENUE
GREENWOOD ROAD
DAIRY LANE
MURRAY HILL LANE
STARWOOD CROSSING
INTERSTATE 93
HIGH PLAIN ROAD
DEAN CIRCLE
GLEASON STREET
SAMOS LANE
CHANDLER ROAD
HAWTHORNE CIRCLE
MONETTE CIRCLE
PAULORNETTE CIRCLE
JUNIPER ROAD
WOODHAVEN DRIVE
SERENITY LANE
SPENCER COURT
HIGH PLAIN ROAD
ROLLING RIDGE ROAD
TURNER CIRCLE
CANDLEWOOD DRIVE
LANE LANSBURY
LANCASTER PLACE
EXETER WAY
ROBERT DRIVE
BOBBY JONES DRIVE
TREVINO CIRCLE
CORMIERS WAY
ANDOVER COUNTRY CLUB LANE
BEACON STREET
WEST ELEMENTARY SCHOOL
MUIRFIELD CIRCLE
CRENSHAW LANE
WESCOTT ROAD
WESTMINSTER ROADWAY
CHANDLER CIRCLE
FARNHAM CIRCLE
KIRKLAND DRIVE
SHAWSHEEN ROAD
RESERVATION ROAD
LOWELL STREET
VIRGINIA ROAD
SHIRLEY ROAD
WEST PARISH DRIVE
THRESHER ROAD
BIRCH ROAD

Street Name

- GLEASON STREET
- HIGH PLAIN ROAD
- JUNIPER ROAD
- ROLLING RIDGE ROAD
- SERENITY LANE
- SHIRLEY ROAD
- SPENCER COURT
- TURNER CIRCLE
- VIRGINIA ROAD
- WOODHAVEN DRIVE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 08

1,000
Feet

Street Name

- BIRCH ROAD
- CRICKET CIRCLE
- DAWN CIRCLE
- NOB HILL CIRCLE
- ROBINSWOOD WAY
- THRESHER ROAD
- WEST PARISH DRIVE
- WINDEMERE DRIVE

DEAN CIRCLE
CANDLEWOOD DRIVE
LANSBURY LANE
LANCASTER PLACE
EXETER WAY
COTTONWOOD CIRCLE
GREENWOOD ROAD
DAWN CIRCLE
ROBINSWOOD WAY
WINDEMERE DRIVE
CRICKET CIRCLE
TIFFANY LANE
NOB HILL CIRCLE
LOWELL STREET
LOVEJOY ROAD
WILD ROSE DRIVE
ROLLING RIDGE ROAD
TURNER CIRCLE
WEST ELEMENTARY SCHOOL
HIGH PLAIN ROAD
BEACON STREET
BIRCH ROAD
THRESHER ROAD
WEST PARISH DRIVE
VIRGINIA ROAD
SHIRLEY ROAD
133
SHAWSHEEN ROAD
WEST PARISH CEMETERY
RESERVATION ROAD
CUTLER ROAD
ARGILLA ROAD
BATESON DRIVE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 09

800
Feet

Street Name

- AVELLA CIRCLE
- BLACK BIRCH WAY
- BRADY LOOP
- CHERRYWOOD CIRCLE
- CROSS STREET
- DEERFIELD WAY
- GOLDEN OAKS LANE
- HIGH MEADOW ROAD
- HIGH PLAIN ROAD
- KNOLLCREST DRIVE
- MONAHAN LANE
- OLD HIGH PLAIN ROAD
- PENDANT COURT
- PENNI LANE
- RIDGE HILL WAY
- WEDGEWOOD DRIVE
- WOODMAN RIDGE ROAD

CHANDLER ROAD
BELLE ISLE WAY
LAUNCHING ROAD
FOSSEN WAY
ASPEN CIRCLE
DEERBERRY LANE
MULBERRY CIRCLE
BRIERWOOD CIRCLE
SANDALWOOD LANE
ALPINE DRIVE
FOREST HILL DRIVE
SUGARBUSH LANE
INWOOD LANE
FURNARI FARM LANE
RIVER ROAD
JILLIAN WAY
COBBLESTONE LANE
GREYBIRCH ROAD
PETEROF CIRCLE
GREENBRIAR CIRCLE
NOLLET DRIVE
FRASER DRIVE
BOUTWELL ROAD
FREEMONT LANE
PLEASANT STREET
KALIA CIRCLE
HAGGETTS POND ROAD
HACIENDA WAY
ZAMBOM TERRACE
GAVIN CIRCLE
HOLMES ROAD
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
CROSS STREET
MONAHAN LANE
BRADY LOOP
HIGH PLAIN ROAD
AVELLA CIRCLE
PENDANT COURT
DEERFIELD WAY
GOLDEN OAKS LANE
BLACK BIRCH WAY
RIDGE HILL WAY
CHERRYWOOD CIRCLE
WEDGEWOOD DRIVE
HIGH MEADOW ROAD
PENNI LANE
KNOLLCREST DRIVE
BLUE STAR MEMORIAL HIGHWAY
495
MURRAY HILL LANE
STARWOOD CROSSING
GREENWOOD ROAD
HIGH PLAIN ROAD
CANDLEWOOD DRIVE
DEAN CIRCLE
WOODMAN RIDGE ROAD
INTERSTATE 93
93
OLD HIGH PLAIN ROAD
WOODHILL ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 10

1,500
Feet

LAWRENCE

Street Name

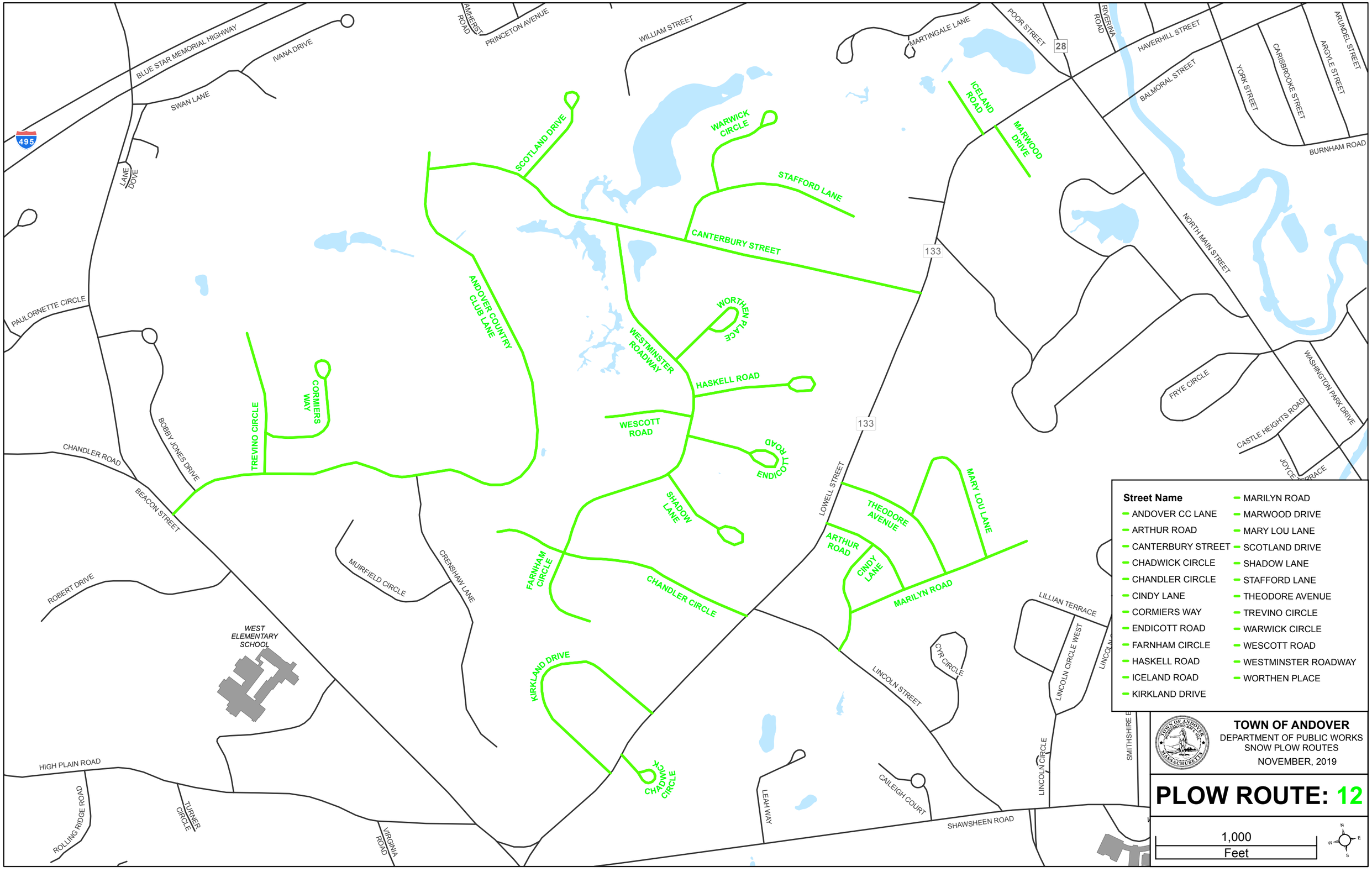
- ASHBURY LANE
- BEACON STREET
- BEDFORD PLACE
- FUN FLIGHT CIRCLE
- HAWTHORNE CIRCLE
- JOSEPH STREET
- MATTHEW STREET
- MONETTE CIRCLE
- NOEL ROAD
- NORWICH PLACE
- PAULORNETTE CIRCLE
- SAMOS LANE
- SOMERSET DRIVE
- SUFFOLK CIRCLE

SOUTH BOWDOIN STREET
BEACON STREET
ADAMS STREET
ANDOVER STREET
GLENN STREET
MOUNT VERNON STREET
NOEL ROAD
AMHERST ROAD
SCOTLAND DRIVE
WORTHEN PLACE
HASKELL ROAD
ENDICOTT ROAD
ARTHUR ROAD
CINDY LANE
MARILYN ROAD
CIR CIRCLE
CANTERBURY STREET
WESTMINSTER ROADWAY
WESCOTT ROAD
SHADOW LANE
LINCOLN STREET
IVANA DRIVE
ANDOVER COUNTRY CLUB LANE
CHANDLER CIRCLE
LOWELL STREET
LEAH WAY
SWAN LANE
DOVE LANE
FARNHAM CIRCLE
CRENSHAW LANE
KIRKLAND DRIVE
CORMIER WAY
TREVINO CIRCLE
MUIRFIELD CIRCLE
133
SHAWSHEEN ROAD
RESERVATION ROAD
BOBBY JONES DRIVE
PAULORNETTE CIRCLE
BEACON STREET
MONETTE CIRCLE
HAWTHORNE CIRCLE
WEST ELEMENTARY SCHOOL
SHIRLEY ROAD
VIRGINIA ROAD
WEST PARISH DRIVE
BIRCH ROAD
THRESHER ROAD
TURNER CIRCLE
ROLLING RIDGE ROAD
SPENCER COURT
ROBERT DRIVE
SAMOS LANE
JUNIPER ROAD
SERENITY LANE
HIGH PLAIN ROAD
EXETER WAY
CRICKET CIRCLE
BULFINCH DRIVE
RIVER ROAD
WEBSTER STREET
OFF WEBSTER STREET
ATLANTIC AVENUE
ST JAMES DRIVE
BOARDWALK DRIVE
NORTH STREET
FUN FLIGHT CIRCLE
ASHBURY LANE
JOSEPH STREET
MATTHEW STREET
SOMERSET DRIVE
NORWICH PLACE
SUFFOLK CIRCLE
BEDFORD PLACE
BROOKSIDE DRIVE
WEEPING WILLOW CIRCLE
WEST FIRE STATION
GREEN MEADOW LANE
LEDGE ROAD
CHONGRIS CIRCLE
FEDERAL STREET
CHANDLER ROAD
INTERSTATE 93
93
495
PAULINE DRIVE
SOUTHRIDGE CIRCLE
SUTTON WAY
IRON GATE DRIVE
BLUE STAR MEMORIAL HIGHWAY
TRINITY COURT
PETTINGELL AVENUE
DAIRY LANE
MURRAY HILL LANE
WOODHAVEN DRIVE
GLEASON STREET
GREENWOOD ROAD
CANDLEWOOD DRIVE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 11

1,500
Feet



Street Name

- ANDOVER CC LANE
- ARTHUR ROAD
- CANTERBURY STREET
- CHADWICK CIRCLE
- CHANDLER CIRCLE
- CINDY LANE
- CORMIERS WAY
- ENDICOTT ROAD
- FARNHAM CIRCLE
- HASKELL ROAD
- ICELAND ROAD
- KIRKLAND DRIVE
- MARILYN ROAD
- MARWOOD DRIVE
- MARY LOU LANE
- SCOTLAND DRIVE
- SHADOW LANE
- STAFFORD LANE
- THEODORE AVENUE
- TREVINO CIRCLE
- WARWICK CIRCLE
- WESCOTT ROAD
- WESTMINSTER ROADWAY
- WORTHEN PLACE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 12

1,000
Feet

LAWRENCE

WALKER AVENUE
MCKENNEY CIRCLE
SHEPLEY STREET
INTERSTATE 495
INTERSTATE 495
BINNEY STREET
SACRED HEART CEMETERY
SYRIAN CEMETERY
JULIETTE STREET
CORBETT STREET
CELIA STREET
TOPPING ROAD
495
BLUE STAR MEMORIAL HIGHWAY
28
UNION STREET
CORNELL ROAD
AMHERST ROAD
BOWDOIN ROAD
HARVARD ROAD
YALE ROAD
GEORGE STREET
DARTMOUTH ROAD
PRINCETON AVENUE
FRANKLIN AVENUE
MIDDLE STREET
ALLEN STREET
SHAWSHEEN SCHOOL
SHERBOURNE STREET
MAGNOLIA AVENUE
FERNDALE AVENUE
AYER STREET
ANNS LANE
KRAFTON WAY
WHITTEMORE TERRACE
FILTER BED ROAD
KENILWORTH STREET
KENILWORTH STREET
WILLIAM STREET
POOR STREET
KENSINGTON STREET
WINDSOR STREET
NORTH MAIN STREET
TANTALLON ROAD
BRICKSTONE SQUARE
SUTHERLAND STREET
SCOTLAND DRIVE
MARTINGALE LANE
RIVERINA ROAD
YORK STREET
WARWICK CIRCLE
CANTERBURY STREET
WESTMINSTER ROADWAY
STAFFORD LANE
ICELAND ROAD
LOWELL STREET
MARWOOD DRIVE
HAVERHILL STREET
133
BALMORAL STREET
CARISBROOKE STREET
ARGYLE STREET

Street Name	
ALLEN STREET	JULIETTE STREET
AMHERST ROAD	KENILWORTH STREET
ANNS LANE	KENSINGTON STREET
AYER STREET	MAGNOLIA AVENUE
BOWDOIN ROAD	MCKENNEY CIRCLE
CELIA STREET	MIDDLE STREET
CORBETT STREET	POOR STREET
CORNELL ROAD	PRINCETON AVENUE
DARTMOUTH ROAD	SHERBOURNE STREET
FERNDALE AVENUE	TOPPING ROAD
FRANKLIN AVENUE	WALKER AVENUE
GEORGE STREET	WILLIAM STREET
HARVARD ROAD	WINDSOR STREET
	YALE ROAD

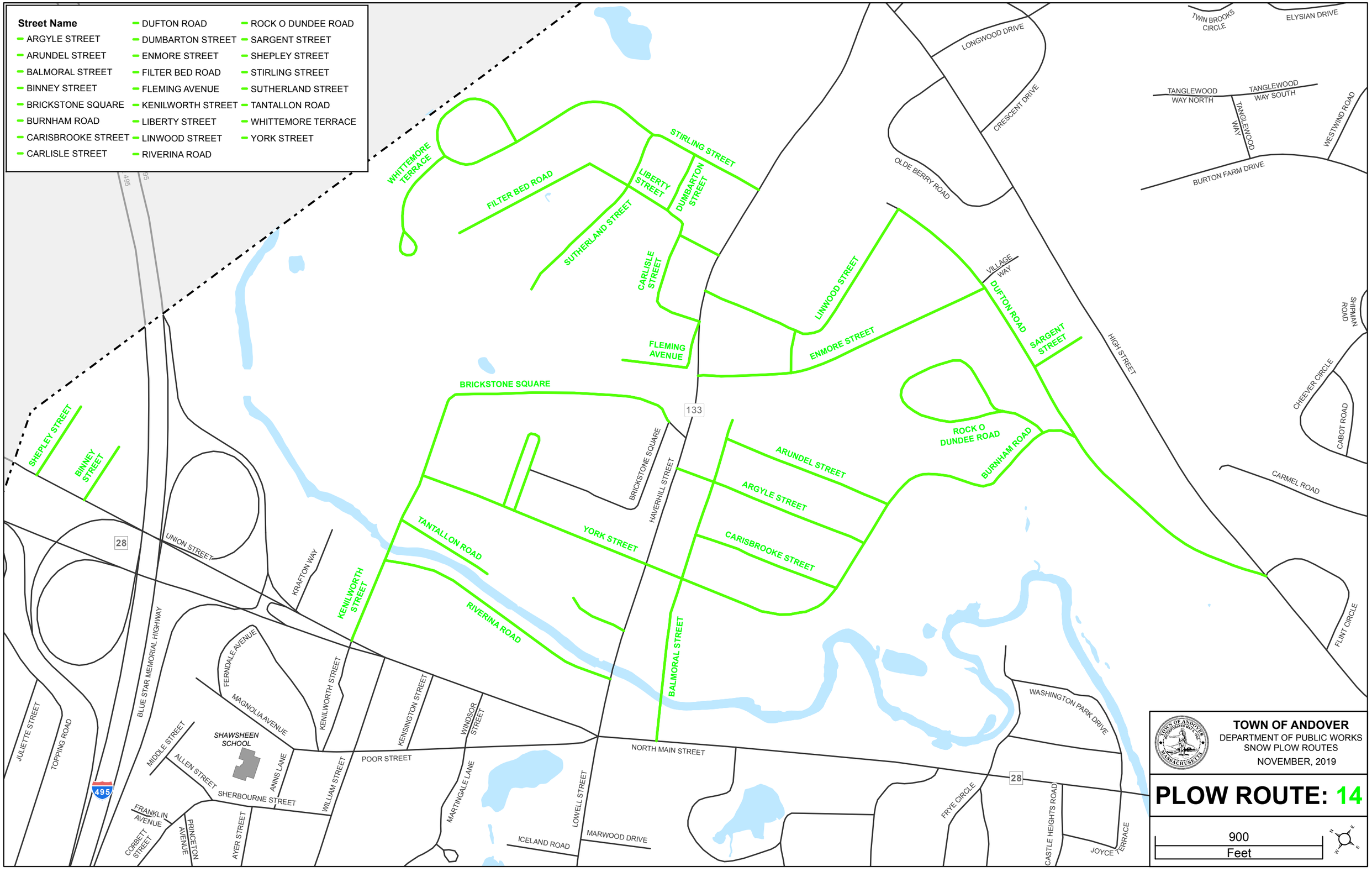
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 13

750
Feet

Street Name

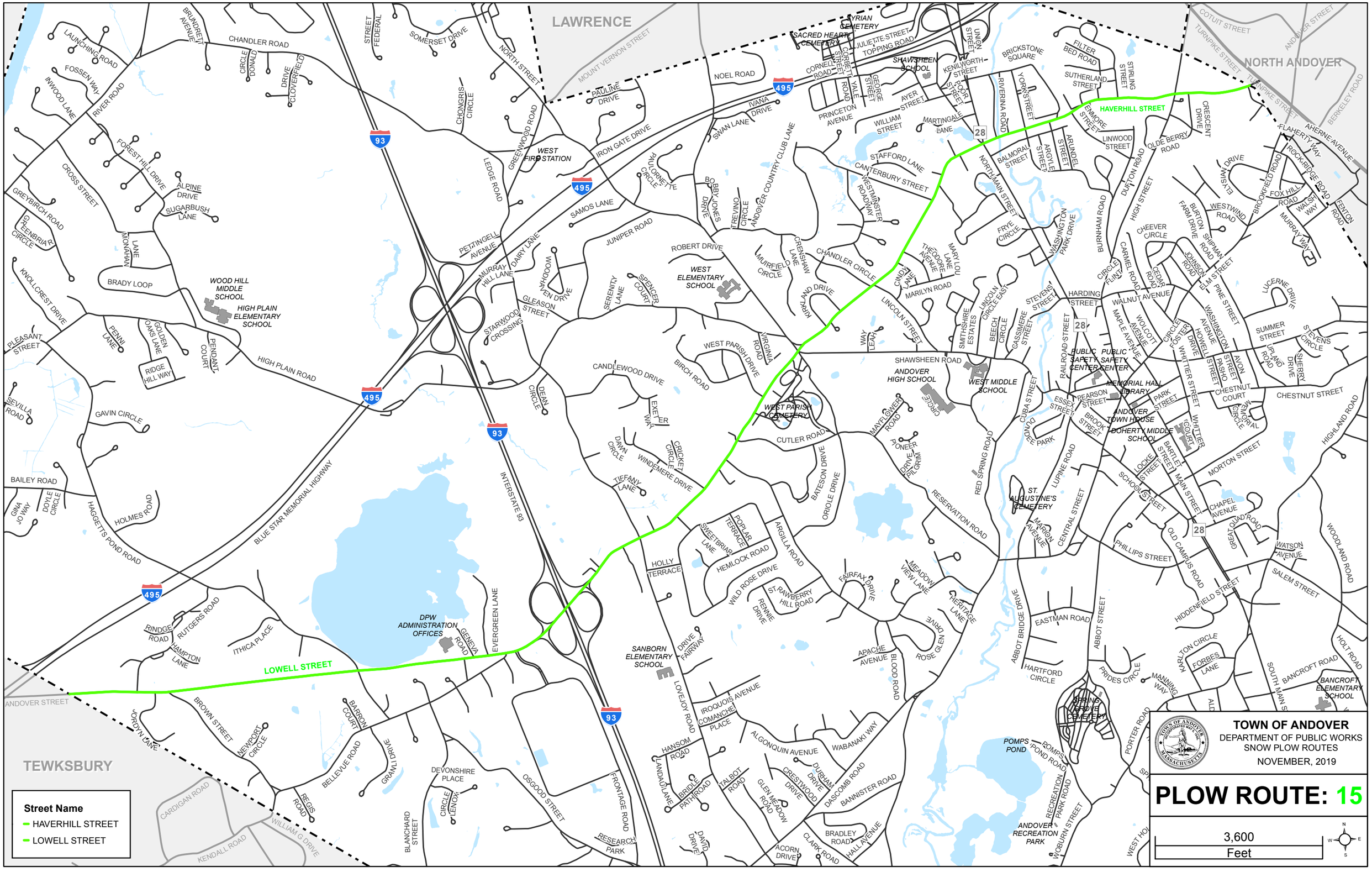
- ARGYLE STREET
- ARUNDEL STREET
- BALMORAL STREET
- BINNEY STREET
- BRICKSTONE SQUARE
- BURNHAM ROAD
- CARISBROOKE STREET
- CARLISLE STREET
- DUFTON ROAD
- DUMBARTON STREET
- ENMORE STREET
- FILTER BED ROAD
- FLEMING AVENUE
- KENILWORTH STREET
- LIBERTY STREET
- LINWOOD STREET
- RIVERINA ROAD
- ROCK O DUNDEE ROAD
- SARGENT STREET
- SHEPLEY STREET
- STIRLING STREET
- SUTHERLAND STREET
- TANTALLON ROAD
- WHITTEMORE TERRACE
- YORK STREET



TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 14

900
Feet


LAWRENCE
NORTH ANDOVER
TEWKSBURY
MOUNT VERNON STREET
COTUIT STREET
TURNPIKE STREET
ANDOVER STREET
BERKELEY ROAD
SYRIAN CEMETERY
SACRED HEART CEMETERY
JULIETTE STREET
TOPPING ROAD
CORNELL STREET
CORBETT ROAD
YALE STREET
PRINCETON AVENUE
GEORGE STREET
AYER STREET
SHAWSHEEN SCHOOL
KENILWORTH STREET
UNION STREET
FOSTER STREET
WILLIAM STREET
MARTINGALE LANE
BRICKSTONE SQUARE
FILTER BED ROAD
SUTHERLAND STREET
STIRLING STREET
YORK STREET
RIVERINA ROAD
HAVERHILL STREET
ENMORE STREET
LINWOOD STREET
CRESCENT DRIVE
OLDE BERRY ROAD
DUTTON ROAD
HIGH STREET
BALMORAL STREET
ARGYLE STREET
ARUNDEL STREET
NORTH MAIN STREET
STAFFORD LANE
CANTERBURY STREET
WESTMINSTER ROADWAY
ANDOVER COUNTRY CLUB LANE
PAULORNETTE CIRCLE
BOBBY JONES DRIVE
TREVINO CIRCLE
NOEL ROAD
IVANA DRIVE
SWAN LANE
PAULINE DRIVE
IRON GATE DRIVE
WEST FIRE STATION
GREENWOOD ROAD
CHONGRIS CIRCLE
NORTH STREET
SOMERSET DRIVE
FEDERAL STREET
BRUNDRETT AVENUE
CHANDLER ROAD
CIRCLE DONALD
DRIVE CLOVERFIELD
LAUNCHING ROAD
FOSSEN WAY
INWOOD LANE
RIVER ROAD
FOREST HILL DRIVE
ALPINE DRIVE
SUGARBUSH LANE
CROSS STREET
GREYBIRCH ROAD
GLENBRIAR CIRCLE
LANE MONAHAN
BRADY LOOP
KNOLLCREST DRIVE
PLEASANT STREET
PENNI LANE
GOLDEN OAKS LANE
RIDGE HILL WAY
PENDANT COURT
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
HIGH PLAIN ROAD
SEVILLA ROAD
GAVIN CIRCLE
BAILEY ROAD
GINA JO WAY
DOYLE CIRCLE
HAGGETTS POND ROAD
HOLMES ROAD
BLUE STAR MEMORIAL HIGHWAY
INTERSTATE 93
LEDGE ROAD
SAMOS LANE
PETTINGELL AVENUE
MURRAY HILL LANE
DAIRY LANE
WOODHAVEN DRIVE
GLEASON STREET
STARWOOD CROSSING
JUNIPER ROAD
SERENITY LANE
SPENCER COURT
ROBERT DRIVE
WEST ELEMENTARY SCHOOL
MUIRFIELD CIRCLE
CRENSHAW LANE
CHANDLER CIRCLE
MIRTLAND DRIVE
WEST PARISH DRIVE
VIRGINIA ROAD
BIRCH ROAD
CANDLEWOOD DRIVE
DEAN CIRCLE
EXETER WAY
DAWN CIRCLE
CRICKET CIRCLE
WINDEMERE DRIVE
TIFFANY LANE
WEST PARISH CEMETERY
CUTLER ROAD
BATESON DRIVE
ORIOLE DRIVE
MAYFLOWER ROAD
PIONEER DRIVE
PILGRIM DRIVE
RESERVATION ROAD
RED SPRING ROAD
SHAWSHEEN ROAD
ANDOVER HIGH SCHOOL
WEST MIDDLE SCHOOL
CIRCLE
LINCOLN STREET
WAY LEAH
MARILYN ROAD
CINDY LANE
THEODORE AVENUE
MARY LOU LANE
FRYE CIRCLE
WASHINGTON PARK DRIVE
BURNHAM ROAD
CIRCLE FLINT
CARMEL ROAD
CHEEVER CIRCLE
CEDAR ROAD
JOHNSON ROAD
BURTON FARM DRIVE
SHIRMAN ROAD
WESTWIND ROAD
ELSWICK DRIVE
BROOKFIELD ROAD
FOX HILL ROAD
WALSH WAY
ROCKRIDGE ROAD
FENTON ROAD
MURRAY WAY
AHERNE AVENUE
FLAHERTY WAY
ELM STREET
PINE STREET
LUCERNE DRIVE
SUMMER STREET
STEVENS CIRCLE
SHERRY DRIVE
UPLAND ROAD
WASHINGTON AVENUE
HOWELL STREET
PASHO STREET
AVON STREET
CHESTNUT COURT
CHESTNUT STREET
HIGHLAND ROAD
WOODLAND ROAD
WHITTIER COURT
WHITTIER STREET
MEMORIAL CIRCLE
MEMORIAL HALL LIBRARY
ANDOVER TOWN HOUSE
DOHERTY MIDDLE SCHOOL
PUBLIC SAFETY CENTER
PUBLIC SAFETY CENTER
WOLCOTT AVENUE
MAPLE AVENUE
WALNUT AVENUE
HARDING STREET
STEVENS STREET
LINCOLN CIRCLE EAST
BEECH CIRCLE
CASSIMERE STREET
SMITHSHIRE ESTATES
RAILROAD STREET
PEARSON STREET
PARK STREET
ESSEX STREET
BROOK STREET
CUBA STREET
DUNDEE PARK
LUPINE ROAD
CENTRAL STREET
MARION AVENUE
ST. AUGUSTINE'S CEMETERY
PHILLIPS STREET
SCHOOL STREET
LOCKE STREET
BARTLET STREET
MAIN STREET
CHAPEL AVENUE
GREAT POND ROAD
OLD CAMPUS ROAD
MORTON STREET
WATSON AVENUE
SALEM STREET
HIDDENFIELD STREET
KARLTON CIRCLE
FORBES LANE
HOLT ROAD
BANCROFT ROAD
BANCROFT ELEMENTARY SCHOOL
SOUTH MAIN STREET
MANNING WAY
PRIDES CIRCLE
HARTFORD CIRCLE
EASTMAN ROAD
ABBOT STREET
ABBOT BRIDGE DRIVE
SPRING GROVE CEMETERY
POMPS POND
POMPS POND ROAD
RECREATION PARK ROAD
ANDOVER RECREATION PARK
WOBURN STREET
PORTER ROAD
WEST HOLLOW
HOLLY TERRACE
HEMLOCK ROAD
POPLAR TERRACE
SWEETBRIAR LANE
ARGILLA ROAD
WILD ROSE DRIVE
STRAWBERRY HILL ROAD
RENNIE DRIVE
FAIRFAX DRIVE
MEADOW VIEW LANE
HERITAGE LANE
ROSE GLEN DRIVE
APACHE AVENUE
BLOOD ROAD
SANBORN ELEMENTARY SCHOOL
DRIVE FAIRWAY
LOVEJOY ROAD
IROQUOIS AVENUE
COMANCHE PLACE
HANSOM ROAD
LANDAU LANE
BRIDLE PATH ROAD
ALGONQUIN AVENUE
WABANAKI WAY
TALBOT ROAD
GLEN MEADOW ROAD
CRESTWOOD DRIVE
DURHAM DRIVE
DASCOMB ROAD
BANNISTER ROAD
BRADLEY ROAD
HALL AVENUE
ACORN DRIVE
CLARK ROAD
DAVID DRIVE
RESEARCH PARK
FRONTAGE ROAD
OSGOOD STREET
DEVONSHIRE PLACE
CIRCLE LENOX
BLANCHARD STREET
BELLEVUE ROAD
GRANT DRIVE
BARRON COURT
REGIS ROAD
NEWPORT CIRCLE
BROWN STREET
JORDYN LANE
RINGE ROAD
RUTGERS ROAD
HAMPTON LANE
ITHICA PLACE
DPW ADMINISTRATION OFFICES
GENEVA ROAD
EVERGREEN LANE
LOWELL STREET
HAVERHILL STREET
CARDIGAN ROAD
KENDALL ROAD
WILLIAM G DRIVE
Street Name
HAVERHILL STREET
LOWELL STREET
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 15
3,600
Feet
N
S
E
W

Street Name

- BROOKFIELD ROAD
- BURTON FARM DRIVE
- DALLON ROAD
- ELYSIAN DRIVE
- FARNSWORTH ROAD
- FOX HILL ROAD
- NAPIER ROAD
- PARNASSUS PLACE
- ROCK RIDGE ROAD
- TANGLEWOOD WAY
- TANGLEWOOD WAY NORTH
- TANGLEWOOD WAY SOUTH
- TWIN BROOKS CIRCLE
- WESTWIND ROAD
- WOODCLIFF ROAD

NORTH ANDOVER

DUFTON ROAD
VILLAGE WAY
SARGENT STREET
HIGH STREET
ANDOVER STREET
BERKELEY ROAD
TURNPIKE STREET
TURNPIKE STREET
NAPIER ROAD
BURKE ROAD
MEDINA DRIVE
AHERNE AVENUE
FLAHERTY WAY
ROCK RIDGE ROAD
TANGLEWOOD WAY
TANGLEWOOD WAY NORTH
TANGLEWOOD WAY SOUTH
TWIN BROOKS CIRCLE
ELYSIAN DRIVE
DALLON ROAD
WOODCLIFF ROAD
FOX HILL ROAD
BURTON FARM DRIVE
PARNASSUS PLACE
WESTWIND ROAD
ELM STREET
BROOKFIELD ROAD
FARNSWORTH ROAD
TOWNHOUSE LANE
ROCK RIDGE ROAD
MURRAY WAY
WALSH WAY
CABOT ROAD
COOLIDGE ROAD
CHEEVER CIRCLE
SHIPMAN ROAD
CEDAR ROAD
JOHNSON ROAD
WALNUT AVENUE
LOCKWAY ROAD
DEARBORN LANE
PINE STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 16

600
Feet

CASTLE HEIGHTS ROAD
WASHINGTON PARK DRIVE
JOYCE TERRACE
DUFTON ROAD
SARGENT STREET
BURNHAM ROAD
CRESCENT DRIVE
LONGWOOD DRIVE
TURNPIKE STREET
TURNPIKE STREET
ANDOVER STREET
TANGLEWOOD WAY NORTH
TANGLEWOOD WAY
TANGLEWOOD WAY SOUTH
TWIN BROOKS CIRCLE
ELYSIAN DRIVE
NAPIER ROAD
BURKE ROAD
AHERNE AVENUE
FLAHERTY WAY
MEDINA DRIVE
POWDER MILL SQUARE
28
STEVENS STREET
HARDING STREET
HIGH STREET
FLINT CIRCLE
CHEEVER CIRCLE
CABOT ROAD
COOLIDGE ROAD
CARMEL ROAD
CEDAR ROAD
JOHNSON ROAD
SHIPMAN ROAD
BURTON FARM DRIVE
PARNASSUS PLACE
WESTWIND ROAD
FOX HILL ROAD
WOODCLIFF ROAD
ROCK RIDGE ROAD
NORTH ANDOVER
NORTH MAIN STREET
HARTIGAN COURT
WALNUT AVENUE
BROOKFIELD ROAD
TOWNHOUSE LANE
RAILROAD STREET
SWEENEY COURT
TEMPLE PLACE
MAPLE AVENUE
WOLCOTT AVENUE
LOCKWAY ROAD
ELM STREET
FARNSWORTH ROAD
DEARBORN LANE
BUXTON COURT
LEWIS STREET
MAPLE COURT
MURRAY WAY
WALSH WAY
FENTON ROAD
PUBLIC SAFETY CENTER
PUBLIC SAFETY CENTER
ELM COURT
CHICKERING COURT
FOSTER CIRCLE
WASHINGTON AVENUE
PINE STREET
PEARSON STREET
MEMORIAL HALL LIBRARY
ESSEX STREET
CENTRAL STREET
POST OFFICE AVENUE
MAIN STREET
FLORENCE STREET
WHITTIER STREET
SUMMER STREET
HOWELL DRIVE
LUCERNE DRIVE
ANDOVER TOWN HOUSE
PARK STREET

Street Name

- CABOT ROAD
- CARMEL ROAD
- CEDAR ROAD
- CHEEVER CIRCLE
- COOLIDGE ROAD
- ELM STREET
- JOHNSON ROAD
- LOCKWAY ROAD
- MAPLE AVENUE
- SHIPMAN ROAD
- WALNUT AVENUE
- WOLCOTT AVENUE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 17

840
Feet

Street Name

- BUXTON COURT
- CASTLE HEIGHTS ROAD
- FLINT CIRCLE
- FRYE CIRCLE
- HARDING STREET
- HIGH STREET
- JOYCE TERRACE
- LEWIS STREET
- MAIN STREET
- NORTH MAIN STREET
- OLDE BERRY ROAD
- PEARSON STREET

ANDOVER HIGH SCHOOL
WEST MIDDLE SCHOOL
LINCOLN CIRCLE
LINCOLN CIRCLE WEST
LILLIAN TERRACE
LINCOLN CIRCLE EAST
SMITHSHIRE ESTATES
SHAWSHEEN ROAD
BEECH CIRCLE
MORAINE STREET
RED SPRING ROAD
CASSIMERE STREET
STEVENS STREET
CUBA STREET
BRECHIN TERRACE
FRYE CIRCLE
CASTLE HEIGHTS ROAD
JOYCE TERRACE
NORTH MAIN STREET
WASHINGTON PARK DRIVE
POWDER MILL SQUARE
ST. AUGUSTINE'S CEMETERY
AUSTIN AVENUE
GRADALL LANE
BAKER LANE
DUNDEE PARK
AMICI WAY
RAILROAD STREET
LUPINE ROAD
MARION AVENUE
ESSEX STREET
HARDING STREET
LEWIS STREET
PEARSON STREET
BUXTON COURT
NORTH MAIN STREET
HARTIGAN COURT
FLINT CIRCLE
WALNUT AVENUE
RIDGE STREET
BROOK STREET
OLD SOUTH LANE
MEMORIAL HALL LIBRARY
PHILLIPS STREET
CENTRAL STREET
CENTRAL LANE
ABBOT STREET
POST OFFICE AVENUE
BARNARD STREET
ANDOVER TOWN HOUSE
ELM COURT
MAPLE COURT
MAPLE AVENUE
WOLCOTT AVENUE
CARMEL ROAD
CABOT ROAD
COOLIDGE ROAD
CEDAR ROAD
JOHNSON ROAD
LOCKWAY ROAD
CHEEVER CIRCLE
SHIPMAN ROAD
FLORENCE STREET
PARK STREET
FOSTER CIRCLE
HOWELL DRIVE
WASHINGTON AVENUE
DEARBORN LANE
CAMPUS CIRCLE
ABBOT CAMPUS ROAD
SCHOOL STREET
LOCKE STREET
PUNCHARD AVENUE
CHESTNUT STREET
WHITTIER STREET
MAIN STREET
CHAPMAN AVENUE
BARTLET STREET
DOHERTY MIDDLE SCHOOL
WHITTIER COURT
OLD CAMPUS ROAD
WHEELER STREET
JUDSON ROAD
MORTON STREET
PASHO STREET
AVON STREET
STRATFORD ROAD
UPLAND ROAD
IVANHOE LANE
GUDRUN DRIVE
SUMMER STREET
PINE STREET
LUCERNE DRIVE
STOWE COURT
CHESTNUT COURT
MEMORIAL CIRCLE
MAIN STREET
SALEM STREET
GREAT QUAD ROAD
CHAPEL AVENUE
28
TANTALLON ROAD
YORK STREET
BALMORAL STREET
HAVERHILL STREET
BRICKSTONE SQUARE
CARISBROOKE STREET
ARGYLE STREET
ARUNDEL STREET
FLEMING AVENUE
CARLISLE STREET
SUTHERLAND STREET
FILTER BED ROAD
WHITTEMORE TERRACE
LIBERTY STREET
STIRLING STREET
133
ROCK O DUNDEE ROAD
ENMORE STREET
LINWOOD STREET
BURNHAM ROAD
DUFTON ROAD
HIGH STREET
SARGENT STREET
VILLAGE WAY
OLDE BERRY ROAD
LONGWOOD DRIVE
CRESCENT DRIVE
WAVERLEY ROAD
LAWRENCE
BURTON FARM DRIVE
PARNASSUS PLACE
WESTWIND ROAD
TANGLEWOOD WAY NORTH
TANGLEWOOD WAY SOUTH
TWIN BROOKS CIRCLE
ELYSIAN DRIVE
ELM STREET
BROOKFIELD ROAD
NAPIER ROAD
BURKE ROAD
WOODCLIFF ROAD
FOX HILL ROAD
TOWNHOUSE LANE
FLAHERTY WAY
MEDINA DRIVE
AHERNE AVENUE
ROCK RIDGE ROAD
MURRAY WAY
WALSH WAY
PETERS STREET
TURNPIKE STREET
NORTH ANDOVER

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 18

1,400
Feet

NORTH ANDOVER

FENTON ROAD

ROCK RIDGE ROAD

WALSH WAY

TOWNHOUSE LANE

FOX HILL ROAD

MURRAY WAY

BROOKFIELD ROAD

WESTWIND ROAD

DOWNING STREET

ROGERS BROOK EAST

KATHLEEN DRIVE

MARIE DRIVE

APPLECREST ROAD

ROGERS BROOK WEST

BARRINGTON DRIVE

HIGHLAND AVENUE

HEATHER DRIVE

HIGHLAND ROAD

BYPASS ROAD

125

LUCERNE DRIVE

STEVENS CIRCLE

SHERRY DRIVE

SELLERS FARM ROAD

BUCHAN ROAD

PROSPECT ROAD

BURTON FARM DRIVE

SHIPMAN ROAD

PINE STREET

SUMMER STREET

IVANHOE LANE

UPLAND ROAD

CHEEVER CIRCLE

DEARBORN LANE

STRATFORD ROAD

GUDRUN DRIVE

JOHNSON ROAD

WASHINGTON AVENUE

AVON STREET

CEDAR ROAD

LOCKWAY ROAD

ELM STREET

HOWELL DRIVE

FOSTER CIRCLE

PASHO STREET

CHESTNUT STREET

MEMORIAL CIRCLE

CHESTNUT COURT

STOWE COURT

CARMEL ROAD

WOLCOTT AVENUE

WALNUT AVENUE

MORTON STREET

WHITTIER STREET

WHITTIER COURT

MAPLE AVENUE

MAPLE COURT

FLORENCE STREET

PARK STREET

DOHERTY MIDDLE SCHOOL

HARTIGAN COURT

TEMPLE PLACE

HIGH STREET

ELM COURT

POST OFFICE AVENUE

BARNARD STREET

ANDOVER TOWN HOUSE

PUNCHARD AVENUE

BARTLET STREET

CHAPMAN AVENUE

JUDSON ROAD

CHAPEL AVENUE

WHEELER STREET

GREAT QUAD ROAD

GRUB STREET

HIGHLAND ROAD

FIELD HOUSE ROAD

DWIGHT STREET

RAILROAD STREET

NORTH MAIN STREET

MEMORIAL HALL LIBRARY

28

MAIN STREET

WOODLAND ROAD

ROBANDY ROAD

WATSON AVENUE

HIGHLAND WAYSIDE

STONEHEDGE ROAD

SALEM STREET

APPLETREE LANE

HOLT ROAD

Street Name

- APPLECREST ROAD
- DOWNING STREET
- FOSTER CIRCLE
- HIGHLAND ROAD
- HOWELL DRIVE
- KATHLEEN DRIVE
- LUCERNE DRIVE
- MARIE DRIVE
- PINE STREET
- ROBANDY ROAD
- ROGERS BROOK EAST
- ROGERS BROOK WEST
- SUMMER STREET
- WASHINGTON AVENUE
- WHITTIER STREET
- WOODLAND ROAD

TOWN OF ANDOVER

DEPARTMENT OF PUBLIC WORKS

SNOW PLOW ROUTES

NOVEMBER, 2019

PLOW ROUTE: 19

1,200 Feet

NORTH ANDOVER

ANDOVER BY PASS

ROGERS BROOK WEST

ROGERS BROOK EAST

CARMEL ROAD

WOLCOTT AVENUE

MAPLE AVENUE

FOSTER CIRCLE

HOWELL DRIVE

WASHINGTON AVENUE

GUDRUN DRIVE

PINE STREET

SUMMER STREET

STEVENS CIRCLE

BARRINGTON DRIVE

IVANHOE LANE

UPLAND ROAD

SHERRY DRIVE

STRATFORD ROAD

AVON STREET

PASHO STREET

MAPLE COURT

ELM STREET

HIGH STREET

CHICKERING COURT

ELM COURT

FLORENCE STREET

WHITTIER STREET

KATHLEEN DRIVE

MARIE DRIVE

NORTH MAIN STREET

PEARSON STREET

MEMORIAL HALL LIBRARY

POST OFFICE AVENUE

PARK STREET

CHESTNUT STREET

CHESTNUT COURT

STOWE COURT

MEMORIAL CIRCLE

GRANDVIEW TERRACE

ESSEX STREET

ANDOVER TOWN HOUSE

BARNARD STREET

WHITTIER STREET

HIGHLAND AVENUE

HIGHLAND ROAD

BROOK STREET

CENTRAL STREET

CHESTNUT STREET

PUNCHARD AVENUE

WHITTIER COURT

HEATHER DRIVE

SAINT AUGUSTINE DRIVE

BARTLET STREET

MORTON STREET

SELLERS FARM ROAD

125

BYPASS ROAD

28

LOCKE STREET

MAIN STREET

CHAPMAN AVENUE

CENTRAL LANE

SCHOOL STREET

JUDSON ROAD

WOODLAND ROAD

ABBOTT CAMPUS CIRCLE

ABBOT STREET

ABBOT CAMPUS ROAD

WHEELER STREET

CHAPEL AVENUE

GREAT QUAD ROAD

OLD CAMPUS ROAD

Street Name

- AVON STREET
- BARNARD STREET
- BARRINGTON DRIVE
- BARTLET STREET
- CHESTNUT COURT
- CHESTNUT STREET
- FLORENCE STREET
- GRANDVIEW TERRACE
- IVANHOE LANE
- JUDSON ROAD
- MEMORIAL CIRCLE
- MORTON STREET
- PARK STREET
- PASHO STREET
- PUNCHARD AVENUE
- SHERRY DRIVE
- STEVENS CIRCLE
- STOWE COURT
- STRATFORD ROAD
- UPLAND ROAD
- WHEELER STREET
- WHITTIER COURT
- WHITTIER STREET

TOWN OF ANDOVER

DEPARTMENT OF PUBLIC WORKS

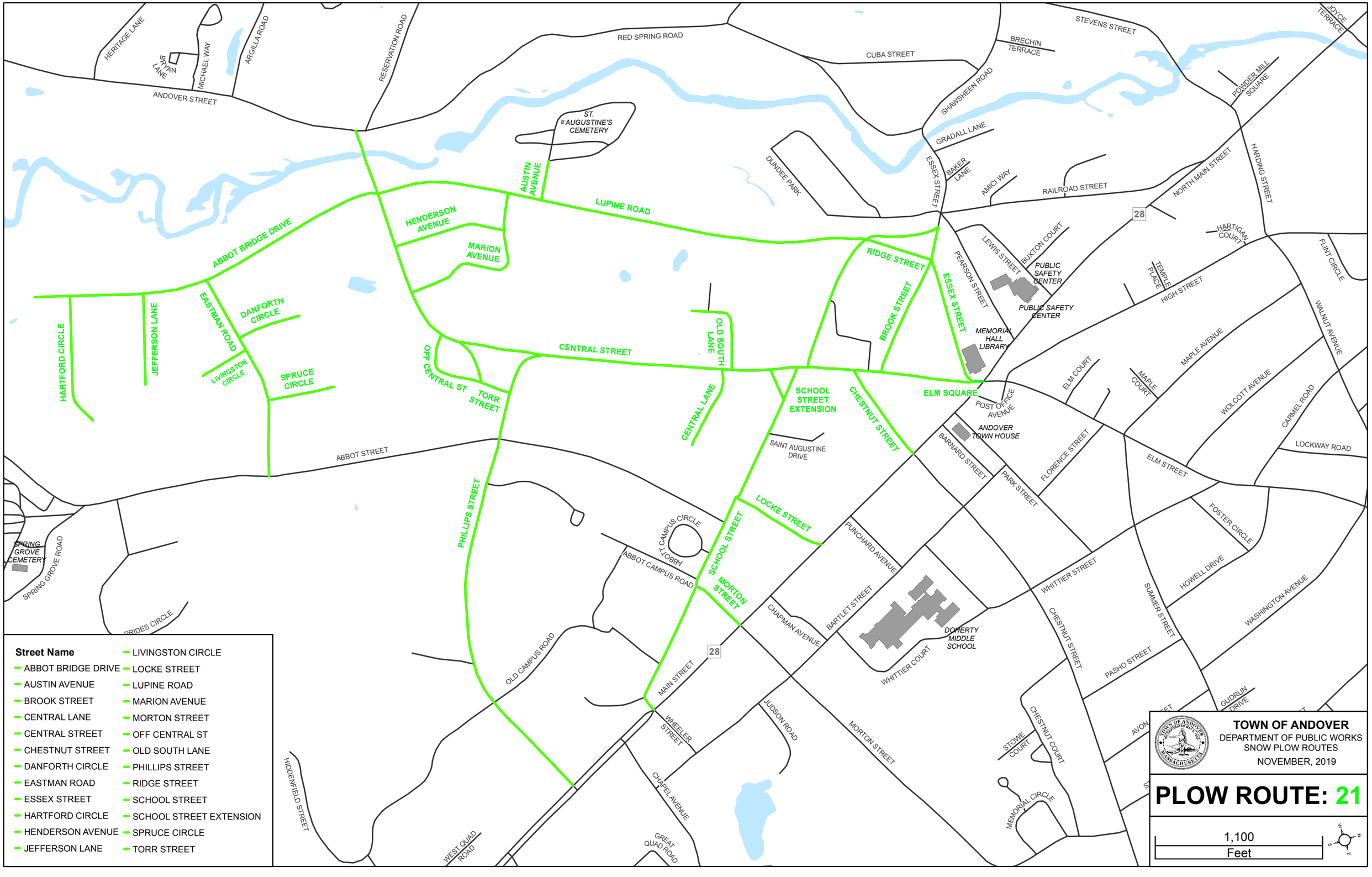
SNOW PLOW ROUTES

NOVEMBER, 2019

PLOW ROUTE: 20

900 Feet

N W E S



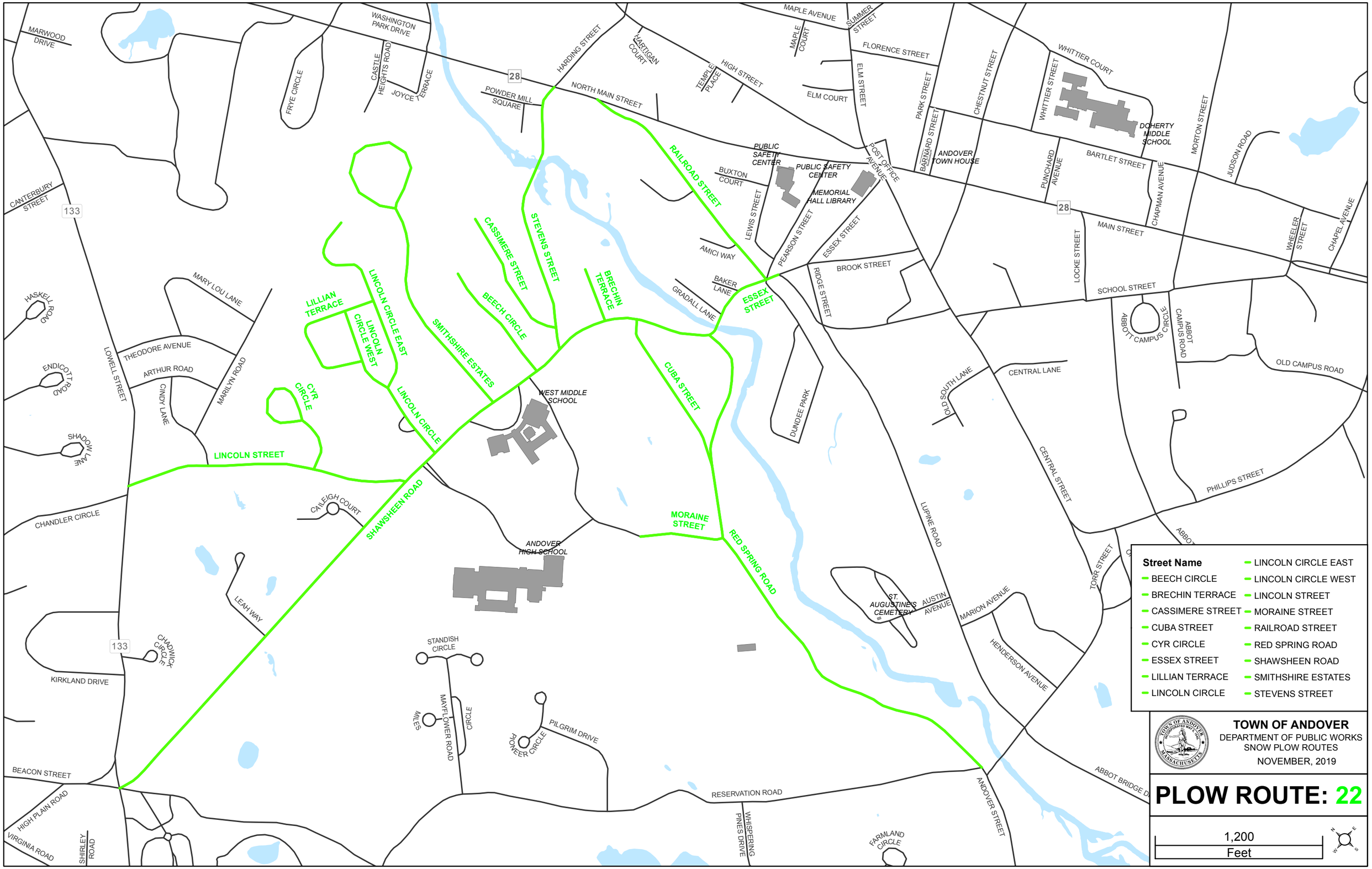
Street Name

- ABBOT BRIDGE DRIVE
- AUSTIN AVENUE
- BROOK STREET
- CENTRAL LANE
- CENTRAL STREET
- CHESTNUT STREET
- DANFORTH CIRCLE
- EASTMAN ROAD
- ESSEX STREET
- HARTFORD CIRCLE
- HENDERSON AVENUE
- JEFFERSON LANE
- LIVINGSTON CIRCLE
- LOCKE STREET
- LUPINE ROAD
- MARION AVENUE
- MORTON STREET
- OFF CENTRAL ST
- OLD SOUTH LANE
- PHILLIPS STREET
- RIDGE STREET
- SCHOOL STREET
- SCHOOL STREET EXTENSION
- SPRUCE CIRCLE
- TORR STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 21

1,100
Feet


MARWOOD DRIVE
WASHINGTON PARK DRIVE
FRYE CIRCLE
CASTLE HEIGHTS ROAD
JOYCE TERRACE
28
POWDER MILL SQUARE
HARDING STREET
NORTH MAIN STREET
MAPLE AVENUE
SUMMER STREET
MAPLE COURT
HARTIGAN COURT
TEMPLE PLACE
HIGH STREET
ELM COURT
ELM STREET
FLORENCE STREET
PARK STREET
CHESTNUT STREET
WHITTIER COURT
WHITTIER STREET
DOHERTY MIDDLE SCHOOL
MORTON STREET
JUDSON ROAD
CHAPEL AVENUE
WHEELER STREET
BARTLET STREET
PUNCHARD AVENUE
CHAPMAN AVENUE
ANDOVER TOWN HOUSE
BARNARD STREET
POST OFFICE AVENUE
PUBLIC SAFETY CENTER
PUBLIC SAFETY CENTER
MEMORIAL HALL LIBRARY
BUXTON COURT
LEWIS STREET
PEARSON STREET
ESSEX STREET
RAILROAD STREET
AMICI WAY
BAKER LANE
GRADALL LANE
ESSEX STREET
BROOK STREET
RIDGE STREET
MAIN STREET
LOCKE STREET
SCHOOL STREET
ABBOTT CAMPUS CIRCLE
ABBOT CAMPUS ROAD
OLD CAMPUS ROAD
CENTRAL LANE
OLD SOUTH LANE
CENTRAL STREET
PHILLIPS STREET
DUNDEE PARK
CANTERBURY STREET
133
HASKELL ROAD
MARY LOU LANE
LILLIAN TERRACE
LINCOLN CIRCLE EAST
LINCOLN CIRCLE WEST
CASSIMERE STREET
STEVENS STREET
BEECH CIRCLE
SMITHSHIRE ESTATES
BRECHIN TERRACE
CUBA STREET
CYR CIRCLE
LINCOLN CIRCLE
WEST MIDDLE SCHOOL
THEODORE AVENUE
ARTHUR ROAD
ENDICOTT ROAD
LOWELL STREET
CINDY LANE
MARILYN ROAD
SHADOW LANE
LINCOLN STREET
CHANDLER CIRCLE
CALEIGH COURT
SHAWSHEEN ROAD
MORAINE STREET
RED SPRING ROAD
ANDOVER HIGH SCHOOL
LEAH WAY
133
CHADWICK CIRCLE
KIRKLAND DRIVE
STANDISH CIRCLE
MAYFLOWER ROAD
CIRCLE
MILES
PILGRIM DRIVE
PIONEER CIRCLE
BEACON STREET
HIGH PLAIN ROAD
VIRGINIA ROAD
SHIRLEY ROAD
RESERVATION ROAD
WHISPERING PINES DRIVE
FARMLAND CIRCLE
ST. AUGUSTINES CEMETERY
AUSTIN AVENUE
MARION AVENUE
HENDERSON AVENUE
LUPINE ROAD
TORR STREET
ANDOVER STREET
ABBOT BRIDGE D
Street Name
BEECH CIRCLE
BRECHIN TERRACE
CASSIMERE STREET
CUBA STREET
CYR CIRCLE
ESSEX STREET
LILLIAN TERRACE
LINCOLN CIRCLE
LINCOLN CIRCLE EAST
LINCOLN CIRCLE WEST
LINCOLN STREET
MORAINE STREET
RAILROAD STREET
RED SPRING ROAD
SHAWSHEEN ROAD
SMITHSHIRE ESTATES
STEVENS STREET
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 22
1,200
Feet

Street Name

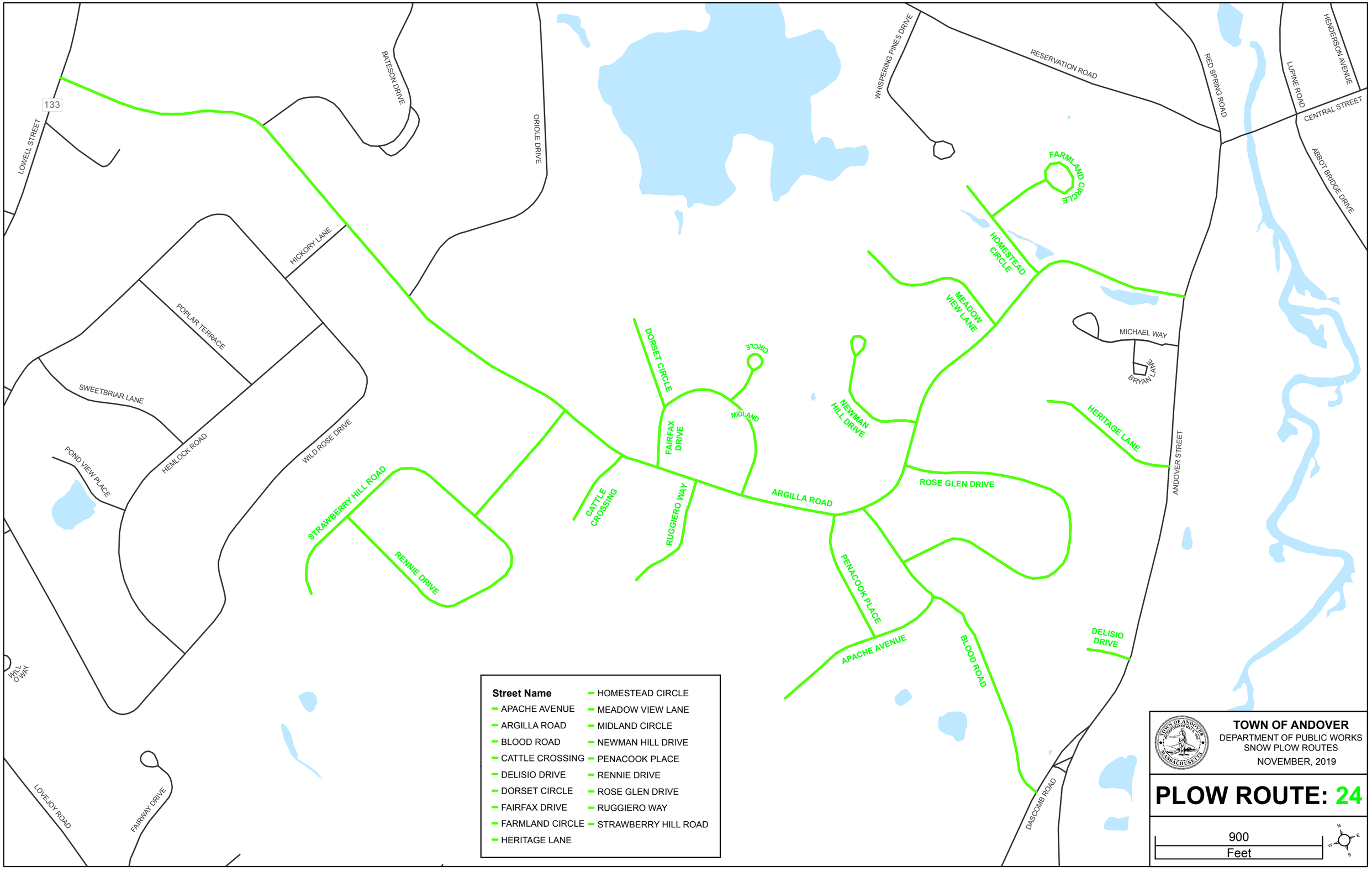
- BARBARA LANE
- BATESON DRIVE
- CARDINAL LANE
- CARRIAGE HILL ROAD
- CUTLER ROAD
- DASCOMB ROAD
- DAVID DRIVE
- GERMANO WAY
- MAYFLOWER ROAD
- MILES CIRCLE
- ORIOLE DRIVE
- OSGOOD STREET
- PARTRIDGE HILL ROAD
- PILGRIM DRIVE
- PIONEER CIRCLE
- RESERVATION ROAD
- STANDISH CIRCLE
- SURREY LANE
- WHISPERING PINES DRIVE

PATRICIA CIRCLE
BELLEVUE ROAD
MARIGOLD LANE
RASMUSSEN CIRCLE
133
93
GREENWOOD ROAD
NOB HILL CIRCLE
WINDEMERE DRIVE
CRICKET CIRCLE
LOWELL STREET
BIRCH ROAD
WEST PARISH DRIVE
VIRGINIA ROAD
SHIRLEY ROAD
BEACON STREET
KIRKLAND DRIVE
SHAWSHEEN ROAD
LEAH WAY
WEST PARISH CEMETERY
HOLLY TERRACE
WILD ROSE DRIVE
PLACE POND VIEW
SWEETBRIAR LANE
POPLAR TERRACE
HEMLOCK ROAD
HICKORY LANE
ARGILLA ROAD
CUTLER ROAD
BATESON DRIVE
ORIOLE DRIVE
MILES CIRCLE
MAYFLOWER ROAD
STANDISH CIRCLE
PIONEER CIRCLE
PILGRIM DRIVE
ANDOVER HIGH SCHOOL
ANDOVER HIGH SCHOOL
WHISPERING PINES DRIVE
RESERVATION ROAD
RED SPRING ROAD
ST. AUGUSTINE'S CEMETERY
LUPINE ROAD
HENDERSON AVENUE
MARION AVENUE
CENTRAL
ANDOVER STREET
HARTFORD CIRCLE
SANBORN ELEMENTARY SCHOOL
FAIRWAY DRIVE
ALONESOS WAY
LOVEJOY ROAD
CHAISE
HANSOM ROAD
LANDAU LANE
CIRCLE
CIRCLE
TALLYHO
BRIDLE PATH ROAD
PHAETON LANE
COMANCHE PLACE
IROQUOIS AVENUE
SEMINOLE CIRCLE
TALBOT ROAD
GLEN MEADOW ROAD
FULTON ROAD
RUSSETT LANE
CRESTWOOD DRIVE
DURHAM DRIVE
SIOUX CIRCLE
ALGONQUIN AVENUE
WABANAKI WAY
RENNIE DRIVE
STRAWBERRY HILL ROAD
CATTLE CROSSING
DORSET CIRCLE
RUGGIERO WAY
FAIRFAX DRIVE
PENACOOK PLACE
APACHE AVENUE
BLOOD ROAD
NEWMAN HILL DRIVE
MEADOW VIEW LANE
HOMESTEAD CIRCLE
ROSE GLEN DRIVE
HERITAGE LANE
MICHAEL WAY
BRYAN
APPLE BLOSSOM ROAD
OSGOOD STREET
HEARTHSTONE PLACE
KEYSTONE WAY
RESEARCH PARK
INTERSTATE 93
FRONTAGE ROAD
GERMANO WAY
DAVID DRIVE
OSGOOD STREET
BARBARA LANE
CARRIAGE HILL ROAD
STEEPLE COURT
SURREY LANE
DASCOMB ROAD
CARDINAL LANE
PARTRIDGE HILL ROAD
TEWKSBURY
SMITH WAY
BUTTONWOOD DRIVE
BASSWOOD LANE
ACORN DRIVE
ARBOR LANE
CLARK ROAD
BRADLEY ROAD
BANNISTER ROAD
HALL AVENUE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 23

1,750
Feet


133
LOWELL STREET
BATESON DRIVE
ORIOLE DRIVE
HICKORY LANE
POPLAR TERRACE
SWEETBRIAR LANE
POND VIEW PLACE
HEMLOCK ROAD
WILD ROSE DRIVE
WILLOW WAY
LOVEJOY ROAD
FAIRWAY DRIVE
STRAWBERRY HILL ROAD
RENNIE DRIVE
CATTLE CROSSING
RUGGIERO WAY
DORSET CIRCLE
FAIRFAX DRIVE
MIDLAND CIRCLE
ARGILLA ROAD
WHISPERING PINES DRIVE
RESERVATION ROAD
RED SPRING ROAD
LUPINE ROAD
HENDERSON AVENUE
CENTRAL STREET
ABBOT BRIDGE DRIVE
FARMLAND CIRCLE
HOMESTEAD CIRCLE
MEADOW VIEW LANE
NEWMAN HILL DRIVE
MICHAEL WAY
BRYAN LANE
HERITAGE LANE
ANDOVER STREET
ROSE GLEN DRIVE
PENACOOK PLACE
APACHE AVENUE
BLOOD ROAD
DELISIO DRIVE
DASCOMB ROAD
Street Name
APACHE AVENUE
ARGILLA ROAD
BLOOD ROAD
CATTLE CROSSING
DELISIO DRIVE
DORSET CIRCLE
FAIRFAX DRIVE
FARMLAND CIRCLE
HERITAGE LANE
HOMESTEAD CIRCLE
MEADOW VIEW LANE
MIDLAND CIRCLE
NEWMAN HILL DRIVE
PENACOOK PLACE
RENNIE DRIVE
ROSE GLEN DRIVE
RUGGIERO WAY
STRAWBERRY HILL ROAD
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 24
900
Feet
N
E
S
W

Street Name

- ACORN DRIVE
- BASSWOOD LANE
- BRIDLE PATH ROAD
- BUTTONWOOD DRIVE
- CHAISE CIRCLE
- FULTON ROAD
- GLEN MEADOW ROAD
- HACKNEY CIRCLE
- HANSOM ROAD
- HAZELWOOD CIRCLE
- HEMLOCK ROAD
- HICKORY LANE
- HOLLY TERRACE
- LANDAU LANE
- LOVEJOY ROAD
- PHAETON CIRCLE
- POND VIEW PLACE
- POPLAR TERRACE
- STEEPLE COURT
- SWEETBRIAR LANE
- TALBOT ROAD
- TALLYHO LANE
- WHIFFLETREE CIRCLE
- WILD ROSE DRIVE
- WILL O WAY

BATESON DRIVE
ORIOLE DRIVE
ARGILLA ROAD
CATTLE CROSSING
HICKORY LANE
POPLAR TERRACE
WILD ROSE DRIVE
HEMLOCK ROAD
SWEETBRIAR LANE
POND VIEW PLACE
STRAWBERRY HILL ROAD
RENNIE DRIVE
HOLLY TERRACE
NOB HILL CIRCLE
133
GREENWOOD ROAD
LOWELL STREET
WILL O WAY
FAIRWAY DRIVE
ALONESOS WAY
SANBORN ELEMENTARY SCHOOL
LOVEJOY ROAD
IROQUOIS AVENUE
CHEROKEE CIRCLE
COMANCHE PLACE
SEMINOLE CIRCLE
CHEYENNE CIRCLE
WABANAKI WAY
SIOUX CIRCLE
ALGONQUIN AVENUE
RUSSETT LANE
CRESTWOOD DRIVE
DURHAM DRIVE
WHIFFLETREE CIRCLE
TALBOT ROAD
FULTON ROAD
GLEN MEADOW ROAD
HANSOM ROAD
CHAISE CIRCLE
PHAETON CIRCLE
HACKNEY CIRCLE
TALLYHO LANE
BRIDLE PATH ROAD
LANDAU LANE
DASCOMB ROAD
STEEPLE COURT
BANNISTER ROAD
BRADLEY ROAD
HALL AVENUE
CLARK ROAD
CHESTER STREET
MOODY STREET
MITTON CIRCLE
ARBOR LANE
HAZELWOOD CIRCLE
ACORN DRIVE
BASSWOOD LANE
BUTTONWOOD DRIVE
PARTRIDGE HILL ROAD
DAVID DRIVE
BARBARA LANE
GERMANO WAY
CARRIAGE HILL ROAD
SURREY LANE
CARDINAL LANE
INTERSTATE 93
93
FRONTAGE ROAD
RESEARCH PARK
OSGOOD STREET
KEYSTONE WAY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 25

1,200
Feet

POND VIEW PLACE
HEMLOCK ROAD
WILD ROSE DRIVE
STRAWBERRY HILL ROAD
RENNIE DRIVE
BLOOD ROAD
ANDOVER STREET
SHAWNEE CIRCLE
WABANAKI WAY
CHEYENNE CIRCLE
FAIRWAY DRIVE
ALONESOS WAY
IROQUOIS AVENUE
CHEROKEE CIRCLE
SIOUX CIRCLE
ALGONQUIN AVENUE
DASCOMB ROAD
DURHAM DRIVE
BANNISTER ROAD
SANBORN ELEMENTARY SCHOOL
LOVEJOY ROAD
COMANCHE PLACE
SEMINOLE CIRCLE
RUSSETT LANE
CRESTWOOD DRIVE
BRADLEY ROAD
WHIFFLETREE CIRCLE
HANSOM ROAD
CHAISE CIRCLE
TALBOT ROAD
FULTON ROAD
GLEN MEADOW ROAD
PHAETON CIRCLE
BRIDLE PATH ROAD
LANDAU LANE
INTERSTATE 93
93

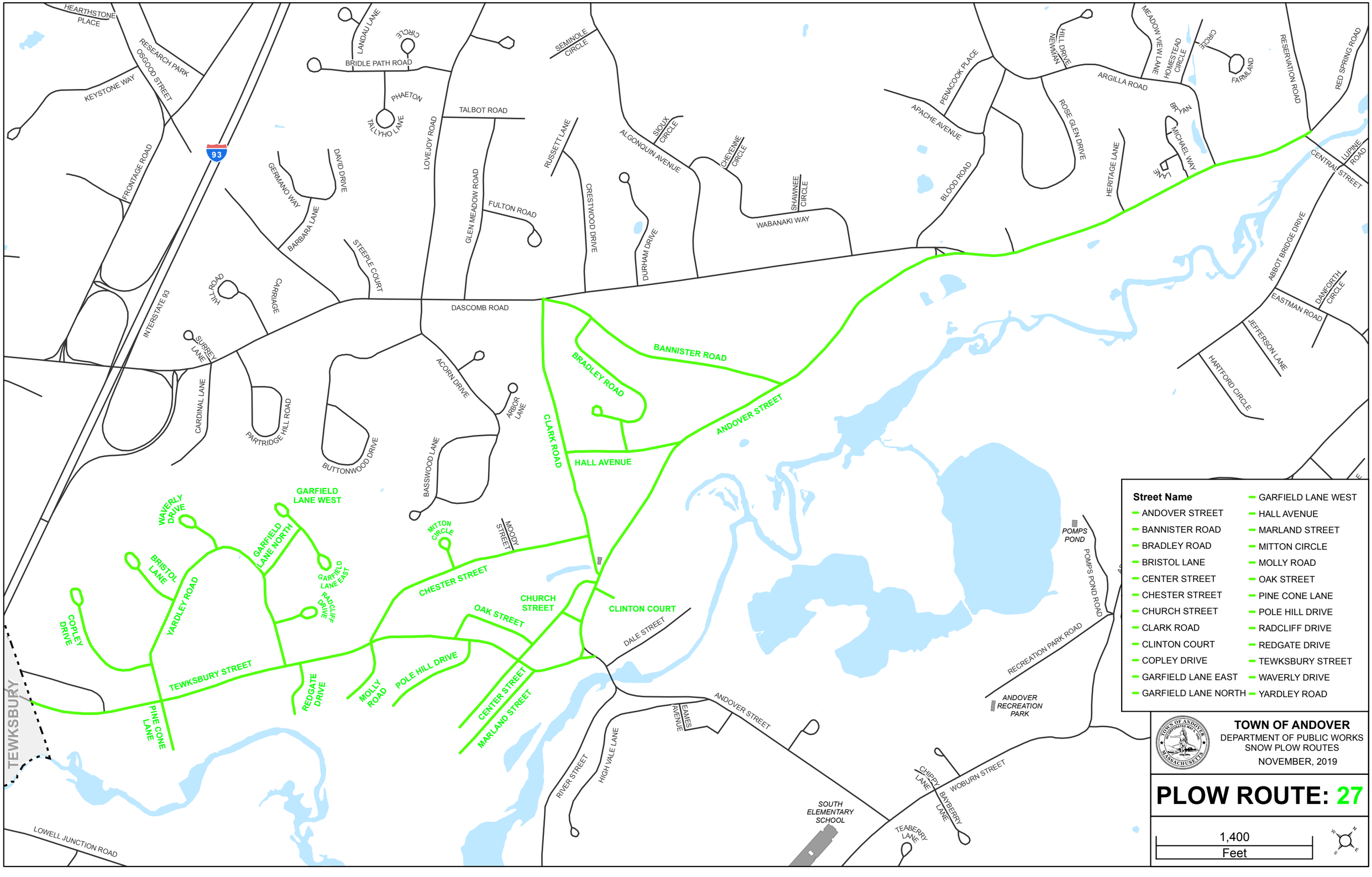
Street Name

- ALGONQUIN AVENUE
- ALONESOS WAY
- CHEROKEE CIRCLE
- CHEYENNE CIRCLE
- COMANCHE PLACE
- CRESTWOOD DRIVE
- DURHAM DRIVE
- FAIRWAY DRIVE
- IROQUOIS AVENUE
- RUSSETT LANE
- SEMINOLE CIRCLE
- SHAWNEE CIRCLE
- SIOUX CIRCLE
- WABANAKI WAY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 26

800
Feet



Street Name

- ANDOVER STREET
- BANNISTER ROAD
- BRADLEY ROAD
- BRISTOL LANE
- CENTER STREET
- CHESTER STREET
- CHURCH STREET
- CLARK ROAD
- CLINTON COURT
- COPLEY DRIVE
- GARFIELD LANE EAST
- GARFIELD LANE NORTH
- GARFIELD LANE WEST
- HALL AVENUE
- MARLAND STREET
- MITTON CIRCLE
- MOLLY ROAD
- OAK STREET
- PINE CONE LANE
- POLE HILL DRIVE
- RADCLIFF DRIVE
- REDGATE DRIVE
- TEWKSBURY STREET
- WAVERLY DRIVE
- YARDLEY ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 27

1,400
Feet

Street Name

- ANDOVER STREET
- CONNECTOR ROAD
- DALE STREET
- GREGORY CIRCLE
- HIGH VALE LANE
- HILLCREST ROAD
- LACONIA DRIVE
- LOWELL JUNCTION ROAD
- MESSINIA DRIVE
- ODYSSEY WAY
- RIVER STREET
- SPARTA WAY

TEWKSBURY

WILMINGTON

VALE STREET

SHAWSHEEN AVENUE

INTERSTATE 93

93

BRISTOL LANE

COPLEY DRIVE

YARDLEY ROAD

RADCLIFF DRIVE

MITTON CIRCLE

CHESTER STREET

CLARK ROAD

BALLARDVALE FIRE STATION

ANDOVER STREET

OAK STREET

PINE CONE LANE

REDGATE DRIVE

MOLLY ROAD

POLE HILL DRIVE

CENTER STREET

MARLAND STREET

DALE STREET

ANDOVER STREET

HIGH VALE LANE

EAMES AVENUE

ANDERSON AVENUE

ANDOVER RECREATION PARK

SOUTH ELEMENTARY SCHOOL

CHIPPY LANE

BAYBERRY LANE

TEABERRY LANE

BLACKBERRY LANE

TILTON LANE

BALLARDVALE ROAD

BURTT ROAD

BIOTECHNOLOGY DRIVE

GILLETTE WAY

LOWELL JUNCTION ROAD

GREGORY CIRCLE

CONNECTOR ROAD

HILLCREST ROAD

TAYLOR COVE DRIVE

SPARTA WAY

LACONIA DRIVE

MESSINIA DRIVE

ODYSSEY WAY

RIVER STREET

EXECUTIVE PLACE

BALLARDVALE STREET

CHARLOTTE DRIVE

TROMBLY COURT

CULLEN CIRCLE

MONARCH LANE

ISLAND WAY

WOBURN STREET

ENFIELD DRIVE

MILLSTONE CIRCLE

WYNCREST CIRCLE

PARTHENON CIRCLE

POWERS ROAD

NICOLL DRIVE

DORIC WAY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 28

1,400
Feet

Street Name

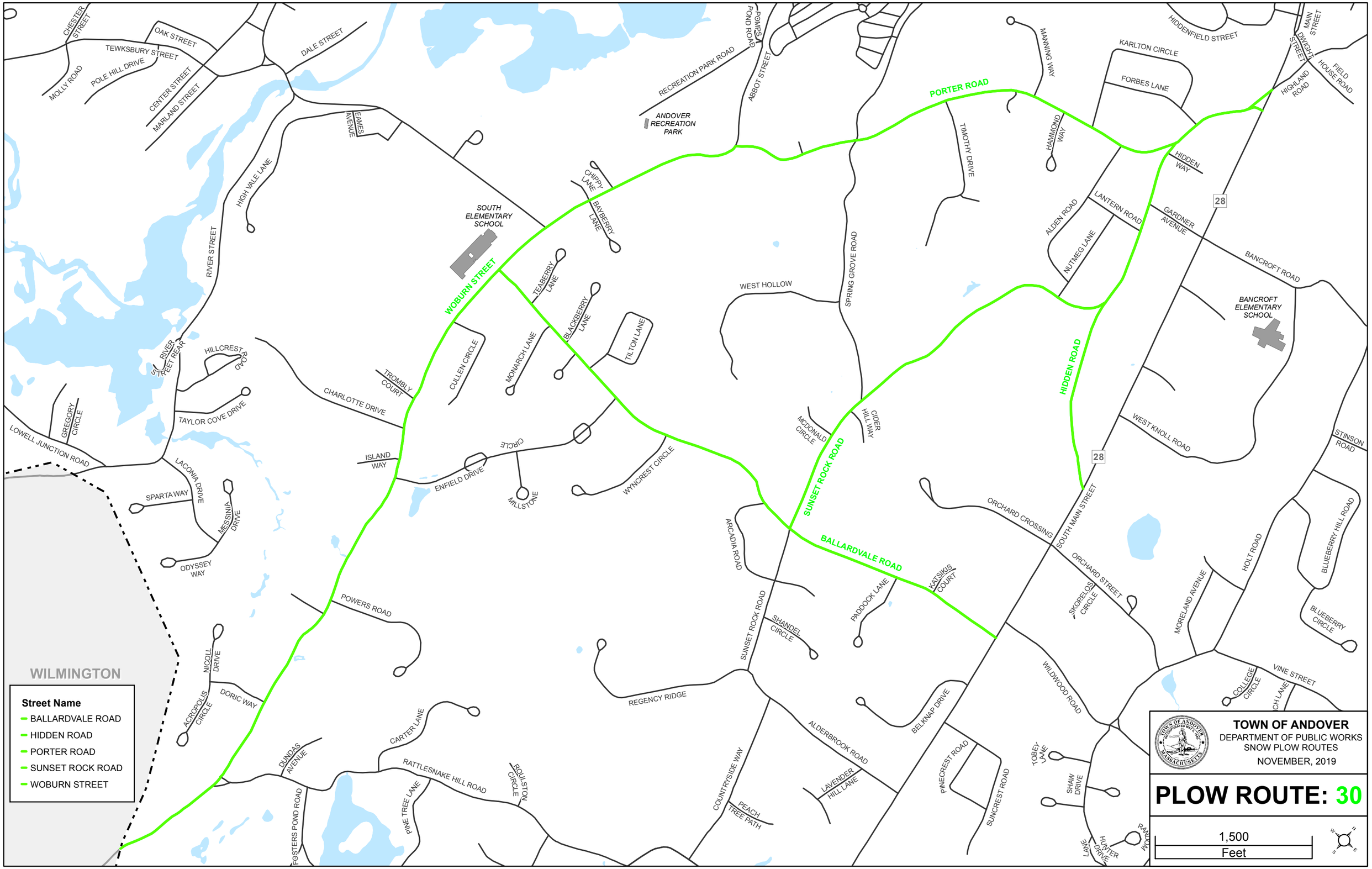
- ABBOT STREET
- ACROPOLIS CIRCLE
- ANDERSON CIRCLE
- BAYBERRY LANE
- BLACKBERRY LANE
- CHARLOTTE DRIVE
- CHIPPY LANE
- CULLEN CIRCLE
- DORIC WAY
- ENFIELD DRIVE
- ISLAND WAY
- MILLSTONE CIRCLE
- MONARCH LANE
- NICOLL DRIVE
- PARTHENON CIRCLE
- POMPS POND ROAD
- POWERS ROAD
- PRIDES CIRCLE
- RECREATION PARK ROAD
- TEABERRY LANE
- TILTON LANE
- WILLOUGHBY LANE
- WINTERBERRY LANE
- WYNCREST CIRCLE

BASSWOOD LANE
ACORN DRIVE
BRADLEY ROAD
BANNISTER ROAD
HALL AVENUE
CLARK ROAD
CIRCLE
MOODY STREET
CHESTER STREET
BALLARDVALE FIRE STATION
OAK STREET
CENTER STREET
MARLAND STREET
DALE STREET
HIGH VALE LANE
ANDOVER STREET
RIVER STREET
POMPS POND
POMPS POND ROAD
SPRING GROVE CEMETERY
RECREATION PARK ROAD
ANDOVER RECREATION PARK
SOUTH ELEMENTARY SCHOOL
CHIPPY LANE
BAYBERRY LANE
WINTERBERRY LANE
WOBURN STREET
PORTER ROAD
MANNING WAY
ABBOT BRIDGE DRIVE
HENDERSON AVENUE
MARION AVENUE
CENTRAL STREET
OLD SOUTH LANE
CHESTNUT STREET
TORR STREET
OFF CENTRAL ST
CENTRAL LANE
SCHOOL STREET
LOCKE STREET
HARTFORD CIRCLE
JEFFERSON LANE
DANFORTH CIRCLE
SPRUCE CIRCLE
EASTMAN ROAD
ABBOT CAMPUS ROAD
PHILLIPS STREET
CHAPMAN AVENUE
MORTON STREET
BARTLET STREET
JUDSON ROAD
WHEELER STREET
CHAPEL AVENUE
OLD CAMPUS ROAD
MAIN STREET
WEST QUAD ROAD
GREAT QUAD ROAD
HIDDENFIELD STREET
KARLTON CIRCLE
FORBES LANE
DWIGHT STREET
FIELD HOUSE ROAD
HIGHLAND ROAD
WATSON AVENUE
STONEHEDGE ROAD
HAMMOND WAY
TIMOTHY DRIVE
SPRING GROVE ROAD
WEST HOLLOW
ALDEN ROAD
LANTERN ROAD
HIDDEN WAY
NUTMEG LANE
HIDDEN ROAD
GARDNER AVENUE
SALEM STREET
WOODLAND ROAD
ROBANDY ROAD
BANCROFT ROAD
APPLETREE LANE
BANCROFT ELEMENTARY SCHOOL
SOUTH MAIN STREET
WEST KNOLL ROAD
BLUEBERRY HILL ROAD
HILL WAY CIDER
SUNSET ROCK ROAD
ARCADIA ROAD
ORCHARD CROSSING
ORCHARD STREET
KATSIKIS COURT
PADDOCK LANE
SHANDEL CIRCLE
REGENCY RIDGE
RIVER STREET REAR
HILLCREST ROAD
GREGORY CIRCLE
TAYLOR COVE DRIVE
LOWELL JUNCTION ROAD
LACONIA DRIVE
SPARTA WAY
MESSINIA DRIVE
ODYSSEY WAY
TROMBLY COURT
CARTER LANE
RATTLESNAKE HILL ROAD
DUNDAS AVENUE
CHARLOTTE DRIVE
CULLEN CIRCLE
MONARCH LANE
TEABERRY LANE
BLACKBERRY LANE
TILTON LANE
ANDERSON CIRCLE
ISLAND WAY
ENFIELD DRIVE
MILLSTONE CIRCLE
WYNCREST CIRCLE
PARTHENON CIRCLE
POWERS ROAD
NICOLL DRIVE
ACROPOLIS CIRCLE
DORIC WAY
BALLARDVALE ROAD
WILMINGTON
28

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 29

1,750
Feet


CHESTER STREET
OAK STREET
TEWKSBURY STREET
DALE STREET
MOLLY ROAD
POLE HILL DRIVE
CENTER STREET
MARLAND STREET
EAMES AVENUE
HIGH VALE LANE
RIVER STREET
RECREATION PARK ROAD
POND ROAD
ABBOT STREET
ANDOVER RECREATION PARK
SOUTH ELEMENTARY SCHOOL
CHIPPY LANE
BAYBERRY LANE
WOBURN STREET
TEABERRY LANE
BLACKBERRY LANE
MONARCH LANE
TILTON LANE
CULLEN CIRCLE
TROMBLY COURT
CHARLOTTE DRIVE
ISLAND WAY
ENFIELD DRIVE
CIRCLE
MILLSTONE
WYNCREST CIRCLE
WEST HOLLOW
SPRING GROVE ROAD
PORTER ROAD
TIMOTHY DRIVE
MANNING WAY
HAMMOND WAY
KARLTON CIRCLE
FORBES LANE
HIDDENFIELD STREET
MAIN STREET
DWIGHT STREET
HIGHLAND ROAD
FIELD HOUSE ROAD
HIDDEN WAY
ALDEN ROAD
LANTERN ROAD
NUTMEG LANE
GARDNER AVENUE
28
BANCROFT ROAD
BANCROFT ELEMENTARY SCHOOL
HIDDEN ROAD
WEST KNOLL ROAD
STINSON ROAD
RIVER STREET REAR
HILLCREST ROAD
TAYLOR COVE DRIVE
GREGORY CIRCLE
LOWELL JUNCTION ROAD
LACONIA DRIVE
SPARTA WAY
MESSINA DRIVE
ODYSSEY WAY
MCDONALD CIRCLE
CIDER HILL WAY
SUNSET ROCK ROAD
ORCHARD CROSSING
SOUTH MAIN STREET
BALLARDVALE ROAD
KATSIKIS COURT
ARCADIA ROAD
PADDOCK LANE
SKOREELOS CIRCLE
ORCHARD STREET
HOLT ROAD
MORELAND AVENUE
BLUEBERRY HILL ROAD
BLUEBERRY CIRCLE
SUNSET ROCK ROAD
SHANDEL CIRCLE
POWERS ROAD
NICOLL DRIVE
DORIC WAY
ACROPOLIS CIRCLE
REGENCY RIDGE
BELKNAP DRIVE
WILDWOOD ROAD
COLLEGE CIRCLE
VINE STREET
CARTER LANE
DUNDAS AVENUE
RATTLESNAKE HILL ROAD
ROULSTON CIRCLE
FOSTERS POND ROAD
PINE TREE LANE
COUNTRYSIDE WAY
PEACH TREE PATH
ALDERBROOK ROAD
LAVENDER HILL LANE
PINECREST ROAD
SUNCREST ROAD
TOBEY LANE
SHAW DRIVE
HUNTER DRIVE
WILMINGTON
Street Name
BALLARDVALE ROAD
HIDDEN ROAD
PORTER ROAD
SUNSET ROCK ROAD
WOBURN STREET
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 30
1,500
Feet

Street Name

- ALDEN ROAD
- ALDERBROOK ROAD
- ARCADIA ROAD
- FORBES LANE
- GARDNER AVENUE
- HAMMOND WAY
- KARLTON CIRCLE
- LANTERN ROAD
- MANNING WAY
- MCDONALD CIRCLE
- NUTMEG LANE
- PADDOCK LANE
- PEPPERCORN LANE
- REGENCY RIDGE
- SHANDEL CIRCLE
- SPRING GROVE ROAD
- SUNSET ROCK ROAD
- TIMOTHY DRIVE
- WEST HOLLOW

NORTHERN CIRCLE
BLACKBERRY LANE
ENFIELD DRIVE
TILTON LANE
WYNCREST CIRCLE
BALLARDVALE ROAD
WOBURN STREET
ABBOT STREET
SPRING GROVE CEMETERY
SPRING GROVE ROAD
PRIDES CIRCLE
WILLOUGHBY LANE
PORTER ROAD
WEST HOLLOW
TIMOTHY DRIVE
MACKENZIE COURT
MANNING WAY
HAMMOND WAY
KARLTON CIRCLE
FORBES LANE
HIDDENFIELD STREET
MCDONALD CIRCLE
ARCADIA ROAD
REGENCY RIDGE
SUNSET ROCK ROAD
CIDER HILL WAY
SUNSET ROCK ROAD
PEPPERCORN LANE
SHANDEL CIRCLE
ALDEN ROAD
NUTMEG LANE
LANTERN ROAD
HIDDEN ROAD
HIDDEN WAY
GARDNER AVENUE
PADDOCK LANE
COUNTRYSIDE WAY
PEACH TREE PATH
ALDERBROOK ROAD
KATSIKIS COURT
ORCHARD CROSSING
LAVENDER HILL LANE
BELKNAP DRIVE
SOUTH MAIN STREET
28
RATTLESNAKE HILL ROAD
PINECREST ROAD
SUNCREST ROAD
WILDWOOD ROAD
SKOPELOS CIRCLE
ORCHARD STREET
BANCROFT ELEMENTARY SCHOOL
WEST KNOLL ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 31

1,000
Feet

Street Name

- BANCROFT ROAD
- CODERRE WAY
- HOLT ROAD
- ORCHARD STREET
- STINSON ROAD
- VINE STREET
- WILDWOOD ROAD

SHANDEL CIRCLE
PADDOCK LANE
BALLARDVALE ROAD
KATSIKIS COURT
ORCHARD CROSSING
BELKNAP DRIVE
28
SOUTH MAIN STREET
HIDDEN ROAD
SUNSET ROCK ROAD
NUTMEG LANE
LANTERN ROAD
GARDNER AVENUE
HIDDEN WAY
DWIGHT STREET
MAIN STREET
GRUB STREET
FIELD HOUSE ROAD
HIGHLAND ROAD
HIGHLAND WAYSIDE
WATSON AVENUE
STONEHEDGE ROAD
BANCROFT ROAD
BANCROFT ELEMENTARY SCHOOL
WEST KNOLL ROAD
PINECREST ROAD
SUNCREST ROAD
SKOPELOS CIRCLE
GREAT HERON PLACE
ORCHARD STREET
WILDWOOD ROAD
TOREY LANE
MEADOWBROOK DRIVE
SHAW DRIVE
SANDY BROOK CIRCLE
HUNTER DRIVE
RANDOM LANE
CHATHAM ROAD
GLENN COVE
HAVEN DRIVE
MORELAND AVENUE
IVY LANE
COLLEGE CIRCLE
HARWICH LANE
VINE STREET
BLUEBERRY CIRCLE
BLUEBERRY HILL ROAD
HOLT ROAD
STINSON ROAD
CODERRE WAY
BYPASS ROAD
125
SAGAMORE DRIVE
SEQUOIA LANE
SHERIDAN ROAD
WILDWOOD ROAD
VINE STREET
APPLETREE LANE
SALEM STREET
WOODLAND ROAD
ROBANDY ROAD
PROSPECT ROAD
BUCHAN ROAD
WARD HILL LANE
STONE POST ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 32

1,000
Feet

ARCADIA ROAD
SUNSET ROCK ROAD
PEPPERCORN LANE
SHANDEL CIRCLE
PADDOCK LANE
BALLARDVALE ROAD
KATSIKIS COURT
ORCHARD CROSSING
HIDDEN ROAD
BANCROFT ELEMENTARY SCHOOL
WEST KNOLL ROAD
BANCROFT ROAD
WOODLAND ROAD
APPLETREE LANE
ROBANDY ROAD
SOUTH MAIN STREET
SKOPELOS CIRCLE
ORCHARD STREET
GREAT HERON PLACE
HOLT ROAD
SALEM STREET
BELKNAP DRIVE
ALDERBROOK ROAD
LAVENDER HILL LANE
28
MORELAND AVENUE
BLUEBERRY HILL ROAD
STINSON ROAD
BUCHAN ROAD
125
PINECREST ROAD
SUNCREST ROAD
PROSPECT ROAD
STONE POST ROAD
WARD HILL LANE
TOBEY LANE
SHAW DRIVE
MEADOWBROOK DRIVE
SANDY BROOK CIRCLE
WILDWOOD ROAD
COLLEGE CIRCLE
VINE STREET
BLUEBERRY CIRCLE
CODERRE WAY
HARWICH LANE
BYPASS ROAD
HUNTER DRIVE
RANDOM LANE
IVY LANE
CHATHAM ROAD
ARCHER LANE
HAVEN DRIVE
GLENN COVE
EMBASSY LANE
FREDERICK DRIVE
SAGAMORE DRIVE

Street Name

- APPLETREE LANE
- ARCHER LANE
- BLUEBERRY CIRCLE
- BLUEBERRY HILL ROAD
- CHATHAM ROAD
- COLLEGE CIRCLE
- EMBASSY LANE
- GLENN COVE
- GREAT HERON PLACE
- HARWICH LANE
- HAVEN DRIVE
- HUNTER DRIVE
- IVY LANE
- MEADOWBROOK DRIVE
- MORELAND AVENUE
- ORCHARD CROSSING
- RANDOM LANE
- SANDY BROOK CIRCLE
- SHAW DRIVE
- SKOPELOS CIRCLE
- TOBEY LANE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 33

1,100
Feet

KATHLEEN DRIVE
125
MARIE DRIVE
HIGHLAND AVENUE
HEATHER DRIVE
SELLERS FARM ROAD
STONE POST ROAD
WARD HILL LANE
PROSPECT ROAD
BUCHAN ROAD
BYPASS ROAD
125
CODERRE WAY
ROBANDY ROAD
STINSON ROAD
BLUEBERRY HILL ROAD
WOODLAND ROAD
SALEM STREET
APPLETREE LANE
HIGHLAND ROAD
HOLT ROAD
MORTON STREET
CHAPEL AVENUE
WATSON AVENUE
HIGHLAND WAYSIDE
STONEHEDGE ROAD
WEST KNOLL ROAD
BANCROFT ROAD
BANCROFT ELEMENTARY SCHOOL
WHITTIER COURT
DOHERTY MIDDLE SCHOOL
JUDSON ROAD
GREAT QUAD ROAD
GRUB STREET
FIELD HOUSE ROAD

Street Name	
BUCHAN ROAD	HIGHLAND AVENUE
HEATHER DRIVE	PROSPECT ROAD
	STONE POST ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 34

1,000
Feet

28
125
125
GREAT HERON PLACE
ORCHARD STREET
SKORELOS CIRCLE
MORELAND AVENUE
BLUEBERRY CIRCLE
HOLT ROAD
VINE STREET
COLLEGE CIRCLE
HARWICH LANE
VINE STREET
WILDWOOD ROAD
IVY LANE
TOBEY LANE
SHAW DRIVE
SANDY BROOK CIRCLE
RANDOM LANE
HUNTER DRIVE
HAVEN DRIVE
SUNCREST ROAD
BYPASS ROAD
GLENN COVE
CHATHAM ROAD
ARCHER LANE
EMBASSY LANE
SAGAMORE DRIVE
SEQUOIA LANE
SHERIDAN ROAD
BRENTWOOD CIRCLE
WILDWOOD ROAD
WETHERSFIELD DRIVE
CAMERON ROAD
TAMYS LANE
COVENTRY LANE
SETEN CIRCLE
SALEM STREET
HARPER CIRCLE
TUCKER ROAD
GRAY ROAD
DELPHI CIRCLE
KORINTHIAN WAY
OLYMPIA WAY
ATHENA CIRCLE
STILES STREET
GRAY STREET
NORTH ANDOVER
BOSTON STREET
RACHEL ROAD
ALISON WAY
JENKINS ROAD
WAGON WHEEL ROAD
FREDERICK DRIVE
ROCKY HILL ROAD
BLACK HORSE LANE

Street Name

- ATHENA CIRCLE
- BRENTWOOD CIRCLE
- CAMERON ROAD
- COVENTRY LANE
- DELPHI CIRCLE
- GRAY ROAD
- HARPER CIRCLE
- KORINTHIAN WAY
- OLYMPIA WAY
- SAGAMORE DRIVE
- SEQUOIA LANE
- SETEN CIRCLE
- SHERIDAN ROAD
- TAMYS LANE
- TUCKER ROAD
- VINE STREET
- WAGON WHEEL ROAD
- WETHERSFIELD DRIVE
- WILDWOOD ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 35

1,200
Feet

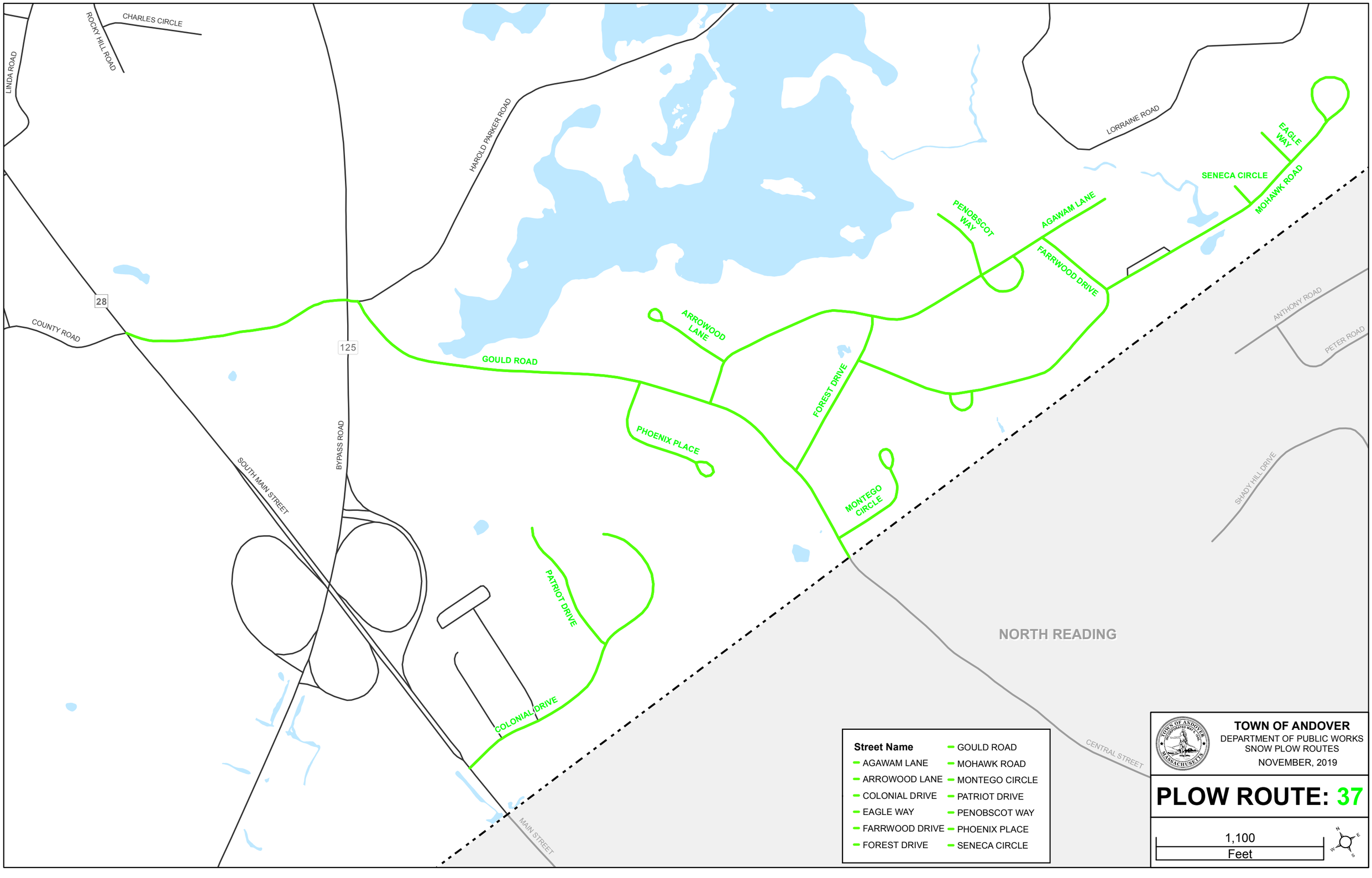
MAIN STREET
125
28
COUNTY ROAD
BOSTON ROAD
COTTAGE ROAD
SOUTH MAIN STREET
RATTLESNAKE HILL ROAD
LAVENDER HILL LANE
ALDERBROOK ROAD
PADDOCK LANE
BELKNAP DRIVE
BALLARDVALE ROAD
ORCHARD CROSSING
SUNSET ROCK ROAD
NUTMEG LANE
LANTERN ROAD
PORTER ROAD
HIDDEN WAY
FORBES LANE
KARLTON CIRCLE
HIDDENFIELD STREET
PHILLIPS STREET
CHAPEL AVENUE
HIDDEN ROAD
GARDNER AVENUE
GREAT QUAD ROAD
GRUB STREET
COLONIAL DRIVE
PATRIOT DRIVE
LINDA ROAD
NANCY CIRCLE
ROCKY HILL ROAD
PINECREST ROAD
SUNCREST ROAD
WEST KNOLL ROAD
BANCROFT ELEMENTARY SCHOOL
BANCROFT ROAD
WATSON AVENUE
HIGHLAND ROAD
CHARLES CIRCLE
FREDERICK DRIVE
BLACK HORSE LANE
LANE
TOBEY LANE
SHAW DRIVE
WILDWOOD ROAD
ORCHARD STREET
MORELAND AVENUE
WOODLAND ROAD
APPLETREE LANE
PHOENIX PLACE
GOULD ROAD
HAROLD PARKER ROAD
HUNTER DRIVE
RANDON
CHATHAM ROAD
HOLT ROAD
STINSON ROAD
ROBANDY ROAD
GLENN COVE
HAVEN DRIVE
IVY LANE
HARWICH LANE
VINE STREET
CIRCLE
BLUEBERRY
BLUEBERRY HILL ROAD
CIRCLE MONTEGO
FOREST DRIVE
FARRWOOD DRIVE
SAGAMORE DRIVE
SHERIDAN ROAD
SEQUOIA LANE
BYPASS ROAD
CODERRE WAY
BUCHAN ROAD
NORTH READING
CAMERON ROAD
TAMYS LANE
WETHERSFIELD DRIVE
COVENTRY LANE
PROSPECT ROAD
AGAWAM LANE
ANTHONY ROAD
MOHAWK ROAD
LORRAINE ROAD
SALEM STREET
SETEN CIRCLE
HARPER CIRCLE
GRAY ROAD
TUCKER ROAD
DELPHI CIRCLE
ATHENA CIRCLE
KORINTHIAN WAY
OLYMPIA WAY
NORTH ANDOVER
STILES STREET
JENKINS WAY
MORTIMER DRIVE
DOUGLASS LANE
JENKINS ROAD
RACHEL ROAD
ALISON WAY
PIPERS GLEN
SAWYERS LANE
BERRY POND ROAD
MIDDLETON STREET
BOSTON STREET
GRAY STREET

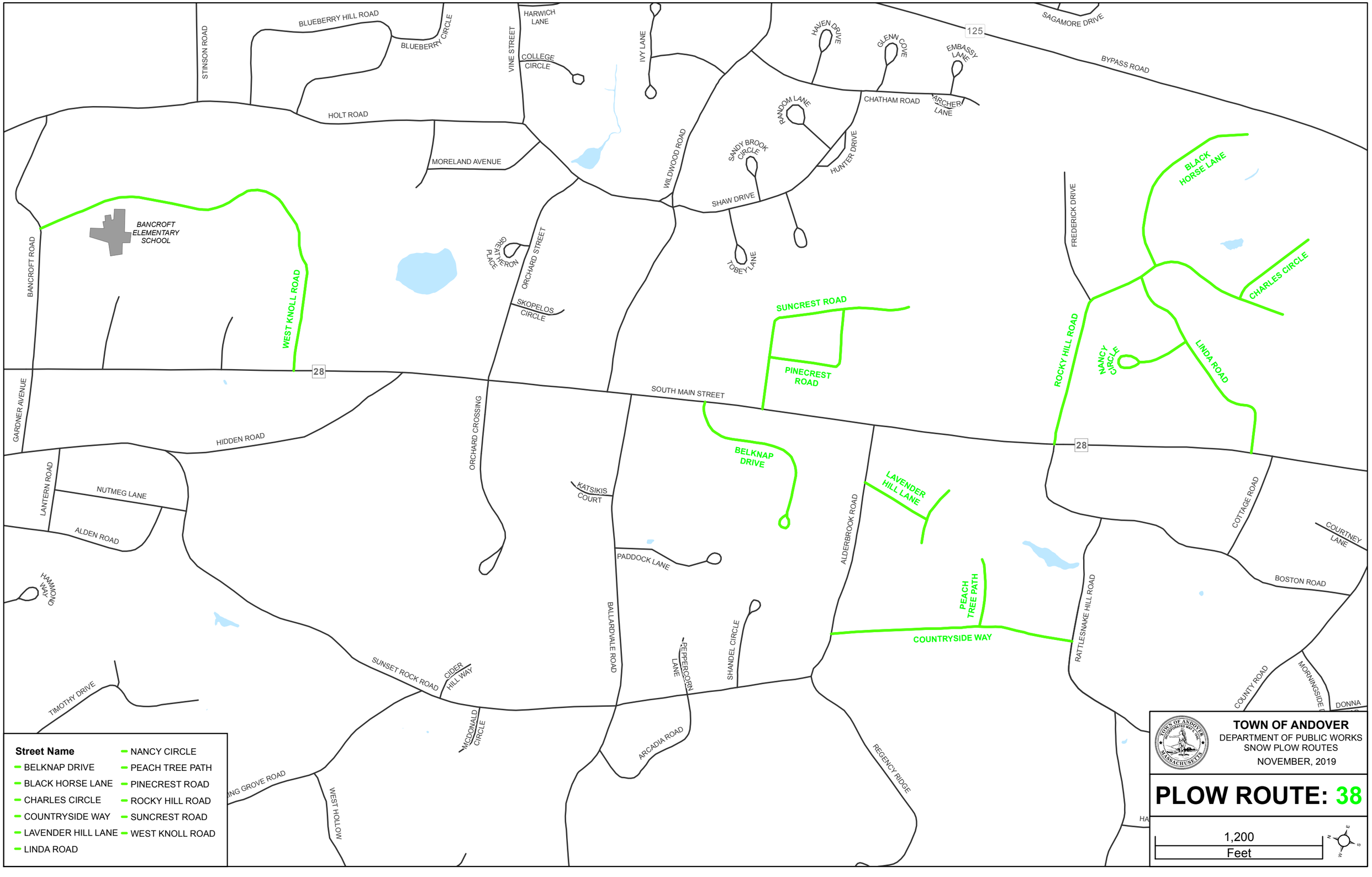
Street Name
- ALISON WAY
- DOUGLASS LANE
- GRUB STREET
- HAROLD PARKER ROAD
- JENKINS ROAD
- JENKINS WAY
- MORTIMER DRIVE
- PIPERS GLEN
- RACHEL ROAD
- SALEM STREET
- SAWYERS LANE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 36

2,400
Feet


CHARLES CIRCLE
ROCKY HILL ROAD
LINDA ROAD
HAROLD PARKER ROAD
LORRAINE ROAD
EAGLE WAY
SENECA CIRCLE
MOHAWK ROAD
PENOBSCOT WAY
AGAWAM LANE
FARRWOOD DRIVE
ARROWOOD LANE
FOREST DRIVE
GOULD ROAD
PHOENIX PLACE
MONTEGO CIRCLE
28
COUNTY ROAD
125
BYPASS ROAD
SOUTH MAIN STREET
PATRIOT DRIVE
COLONIAL DRIVE
MAIN STREET
ANTHONY ROAD
PETER ROAD
SHADY HILL DRIVE
NORTH READING
CENTRAL STREET
Street Name
AGAWAM LANE
ARROWOOD LANE
COLONIAL DRIVE
EAGLE WAY
FARRWOOD DRIVE
FOREST DRIVE
GOULD ROAD
MOHAWK ROAD
MONTEGO CIRCLE
PATRIOT DRIVE
PENOBSCOT WAY
PHOENIX PLACE
SENECA CIRCLE
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 37
1,100
Feet



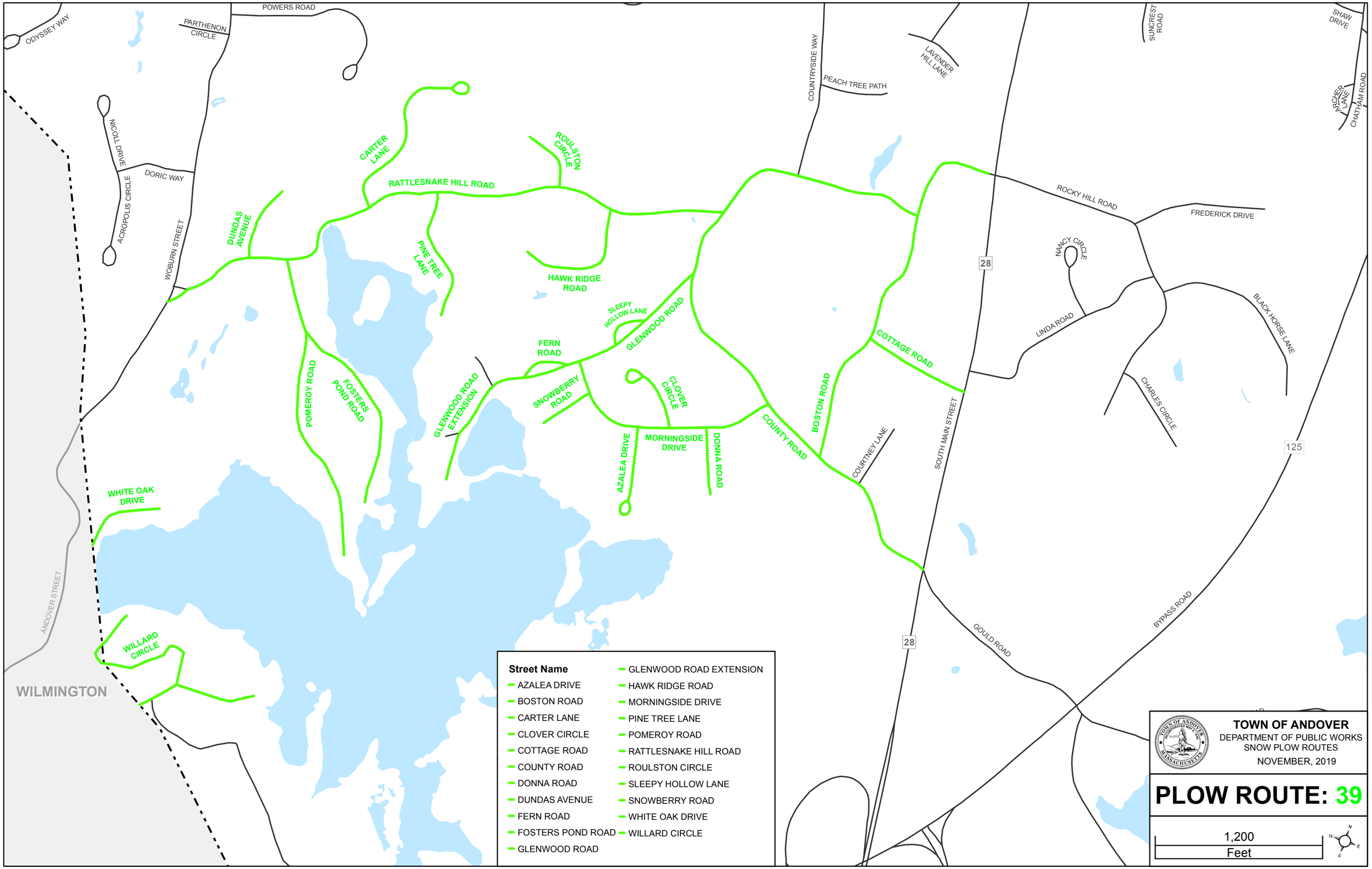
Street Name

- BELKNAP DRIVE
- BLACK HORSE LANE
- CHARLES CIRCLE
- COUNTRYSIDE WAY
- LAVENDER HILL LANE
- LINDA ROAD
- NANCY CIRCLE
- PEACH TREE PATH
- PINECREST ROAD
- ROCKY HILL ROAD
- SUNCREST ROAD
- WEST KNOLL ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 38

1,200
Feet



Street Name

- AZALEA DRIVE
- BOSTON ROAD
- CARTER LANE
- CLOVER CIRCLE
- COTTAGE ROAD
- COUNTY ROAD
- DONNA ROAD
- DUNDAS AVENUE
- FERN ROAD
- FOSTERS POND ROAD
- GLENWOOD ROAD
- GLENWOOD ROAD EXTENSION
- HAWK RIDGE ROAD
- MORNINGSIDE DRIVE
- PINE TREE LANE
- POMEROY ROAD
- RATTLESNAKE HILL ROAD
- ROULSTON CIRCLE
- SLEEPY HOLLOW LANE
- SNOWBERRY ROAD
- WHITE OAK DRIVE
- WILLARD CIRCLE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 39

1,200
Feet

Street Name

- BAKER LANE
- CHAPMAN AVENUE
- CHICKERING COURT
- DUNDEE PARK
- ELM COURT
- HARTIGAN COURT
- MAPLE COURT
- SWEENEY COURT
- TEMPLE PLACE

CABOT ROAD
COOLIDGE ROAD
CEDAR ROAD
CHEEVER CIRCLE
LOCKWAY ROAD
HOWELL DRIVE
FOSTER CIRCLE
PASHO STREET
SUMMER STREET
CHESTNUT COURT
STOWE COURT
GRANDVIEW TERRACE
MEMORIAL CIRCLE
CARMEL ROAD
WALNUT AVENUE
WOLCOTT AVENUE
ELM STREET
WHITTIER STREET
CHAPEL AVENUE
BURNHAM ROAD
FLINT CIRCLE
MAPLE AVENUE
MAPLE COURT
CHICKERING COURT
FLORENCE STREET
PARK STREET
CHESTNUT STREET
WHITTIER COURT
MORTON STREET
JUDSON ROAD
HIGH STREET
HARDING STREET
HARTIGAN COURT
TEMPLE PLACE
ELM COURT
DOHERTY MIDDLE SCHOOL
BARTLET STREET
CHAPMAN AVENUE
BARNARD STREET
PUNCHARD AVENUE
WHEELER STREET
POST OFFICE AVENUE
ANDOVER TOWN HOUSE
SWEENEY COURT
MAIN STREET
28
POWDER MILL SQUARE
NORTH MAIN STREET
PUBLIC SAFETY CENTER
PUBLIC SAFETY CENTER
MEMORIAL HALL LIBRARY
BUXTON COURT
RAILROAD STREET
LEWIS STREET
PEARSON STREET
ESSEX STREET
BROOK STREET
AMICI WAY
LOCKE STREET
SCHOOL STREET
SAINT AUGUSTINE DRIVE
ABBOTT CAMPUS CIRCLE
ABBOTT CAMPUS ROAD
OLD CAMPUS ROAD
BAKER LANE
DUNDEE PARK
RIDGE STREET
CENTRAL STREET
CENTRAL LANE
OLD SOUTH LANE
ABBOTT STREET
LUPINE ROAD
GRADALL LANE
DUNDEE PARK
STEVENS STREET
CASSIMERE STREET
BEECH CIRCLE
BRECHIN TERRACE
SHAWSHEEN ROAD
CUBA STREET
RED SPRING ROAD
SMITHSHIRE ESTATES

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 40

800
Feet

MAPLE AVENUE
MAPLE COURT
CHICKERING COURT
ELM COURT
SUMMER STREET
FLORENCE STREET
PARK STREET
Park Street Lot
CENTER AT PUNCHARD
WHITTIER COURT
WHITTIER STREET
ANDOVER TOWN OFFICES
BARTLET STREET
Old Town Hall
OLD TOWN HALL
BARNARD STREET
PUNCHARD AVENUE
HIGH STREET
POST OFFICE AVENUE
ELM STREET
28
MAIN STREET
NORTH MAIN STREET
ELM SQUARE
CENTRAL STREET
Public Safety
PUBLIC SAFETY CENTER
POLICE STATION
MEMORIAL HALL LIBRARY
Main Street Lot
LEWIS STREET
BUXTON COURT
PEARSON STREET
ESSEX STREET
CHESTNUT STREET
SAINT AUGUSTINE
BROOK STREET

Plowing

- Main Street Lot
- Old Town Hall
- Park Street Lot
- Public Safety

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 41

320
Feet

DOHERTY MIDDLE / TOWN OFFICES / SENIOR CENTER / CORMIER YOUTH CENTER

WHITTIER STREET
CHESTNUT STREET
CORMIER YOUTH CENTER
CENTER AT PUNCHARD
WHITTIER COURT
DOHERTY MIDDLE SCHOOL
ANDOVER TOWN OFFICES
BARTLET STREET
PUNCHARD AVENUE
CHAPMAN AVENUE

SHAWSHEEN SCHOOL

FRANKLIN AVENUE
CORBETT STREET
ALLEN STREET
SHERBOURNE STREET
PRINCETON AVENUE
SHAWSHEEN SCHOOL
MAGNOLIA AVENUE
AYER STREET
ANNS LANE
POOR STREET
KENILWORTH STREET

HIGH PLAIN - WOOD HILL

BRADY LOOP
CROSS STREET
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
HIGH PLAIN ROAD
PENDANT COURT

SMITHSHIRE ESTATES
LINCOLN CIRCLE
SHAWSHEEN ROAD
WEST MIDDLE SCHOOL
ANDOVER HIGH SCHOOL

ANDOVER HIGH / WEST MIDDLE

RED SPRING ROAD MAINTENANCE FACILITY

RED SPRING ROAD

SANBORN SCHOOL

FAIRWAY DRIVE
SANBORN ELEMENTARY SCHOOL
LOVEJOY ROAD
ALONESOS WAY

BALLARDVALE ROAD
WOBURN STREET
ANDOVER STREET
SOUTH ELEMENTARY SCHOOL

SOUTH SCHOOL

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019

PLOW ROUTE: 42

500
Feet

HIGH STREET
POST OFFICE AVENUE
ELM STREET
PARK STREET
OLD TOWN HALL
BARNARD STREET
MAIN STREET
ELM SQUARE
CENTRAL STREET
28
NORTH MAIN STREET
Memorial Hall Library
MEMORIAL HALL LIBRARY
PUBLIC SAFETY CENTER
BUXTON COURT
LEWIS STREET
PEARSON STREET
ESSEX STREET
BROOK ST

Plowing

Memorial Hall Library

TOWN OF ANDOVER

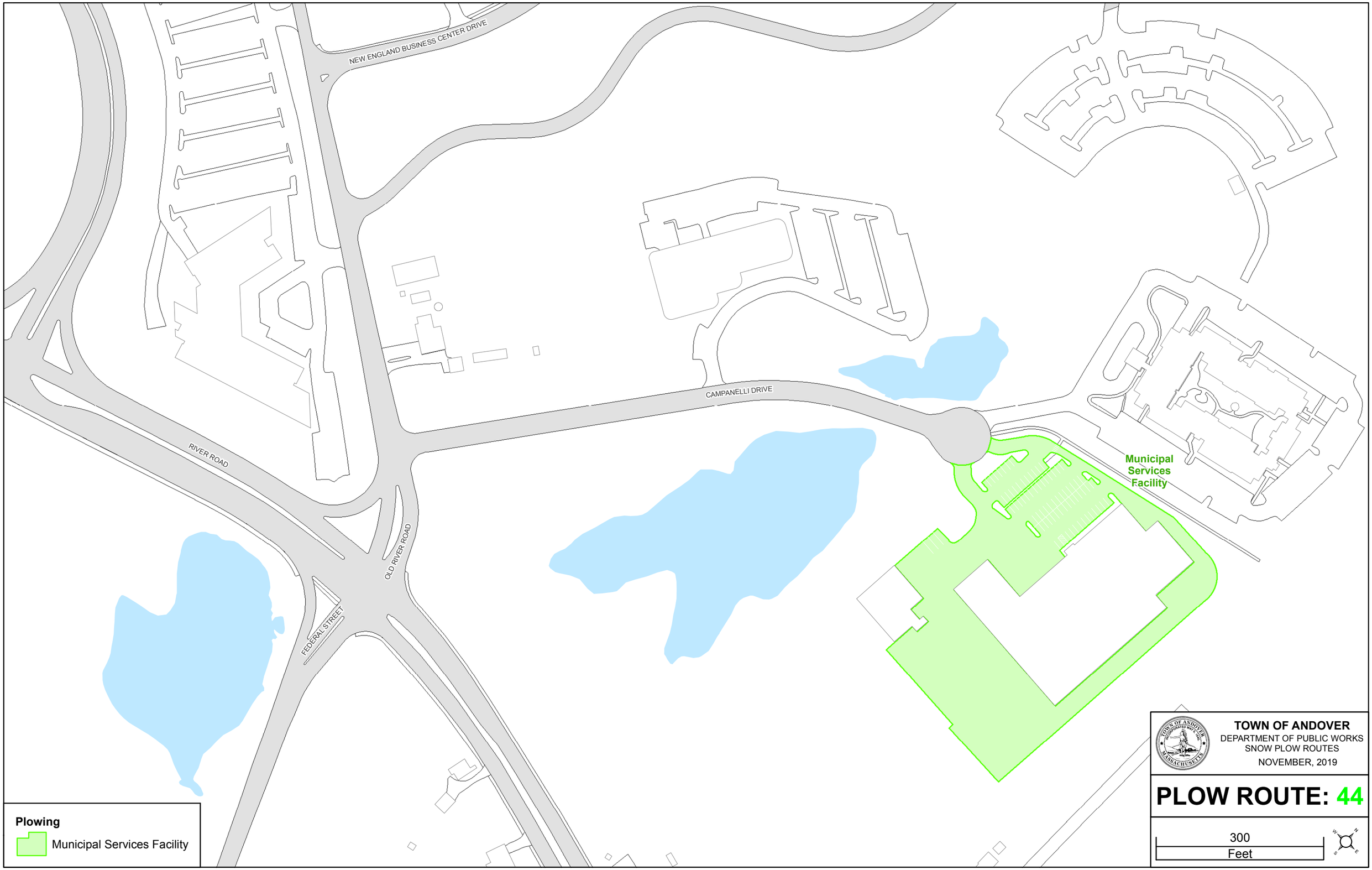
DEPARTMENT OF PUBLIC WORKS

SNOW PLOW ROUTES

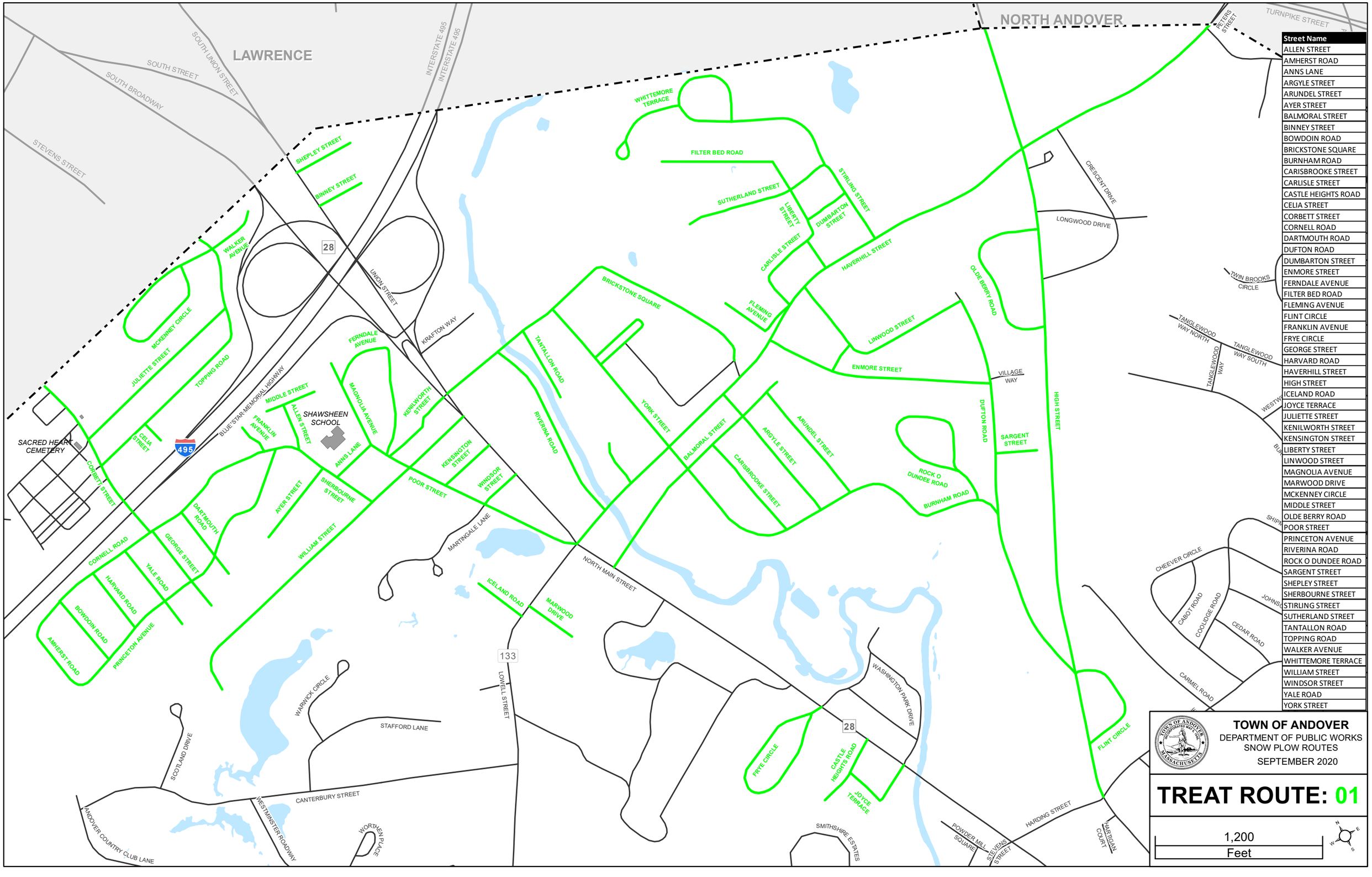
SEPTEMBER 2020

PLOW ROUTE: 43

200 Feet


NEW ENGLAND BUSINESS CENTER DRIVE
CAMPANELLI DRIVE
RIVER ROAD
OLD RIVER ROAD
FEDERAL STREET
Municipal
Services
Facility
Plowing
Municipal Services Facility
TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
NOVEMBER, 2019
PLOW ROUTE: 44
300
Feet

Attachment 2:
Treatment Routes

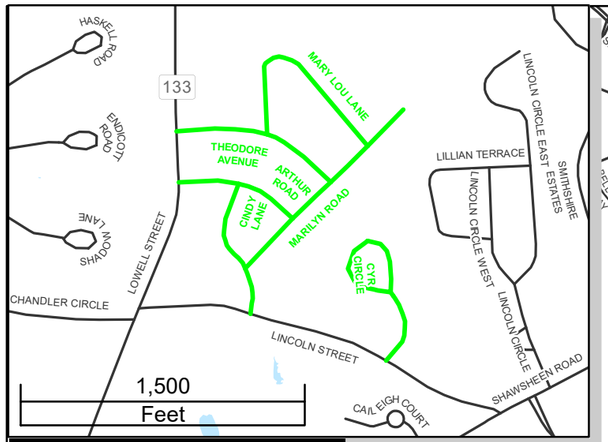


Street Name
ALLEN STREET
AMHERST ROAD
ANNS LANE
ARGYLE STREET
ARUNDEL STREET
AYER STREET
BALMORAL STREET
BINNEY STREET
BOWDOIN ROAD
BRICKSTONE SQUARE
BURNHAM ROAD
CARISBROOKE STREET
CARLISLE STREET
CASTLE HEIGHTS ROAD
CELIA STREET
CORBETT STREET
CORNELL ROAD
DARTMOUTH ROAD
DUFTON ROAD
DUMBARTON STREET
ENMORE STREET
FERNDALE AVENUE
FILTER BED ROAD
FLEMING AVENUE
FLINT CIRCLE
FRANKLIN AVENUE
FRYE CIRCLE
GEORGE STREET
HARVARD ROAD
HAVERHILL STREET
HIGH STREET
ICELAND ROAD
JOYCE TERRACE
JULIETTE STREET
KENILWORTH STREET
KENSINGTON STREET
LIBERTY STREET
LINWOOD STREET
MAGNOLIA AVENUE
MARWOOD DRIVE
MCKENNEY CIRCLE
MIDDLE STREET
OLDE BERRY ROAD
POOR STREET
PRINCETON AVENUE
RIVERINA ROAD
ROCK O DUNDEE ROAD
SARGENT STREET
SHEPLEY STREET
SHERBOURNE STREET
STIRLING STREET
SUTHERLAND STREET
TANTALLON ROAD
TOPPING ROAD
WALKER AVENUE
WHITTEMORE TERRACE
WILLIAM STREET
WINDSOR STREET
YALE ROAD
YORK STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 01

1,200
Feet

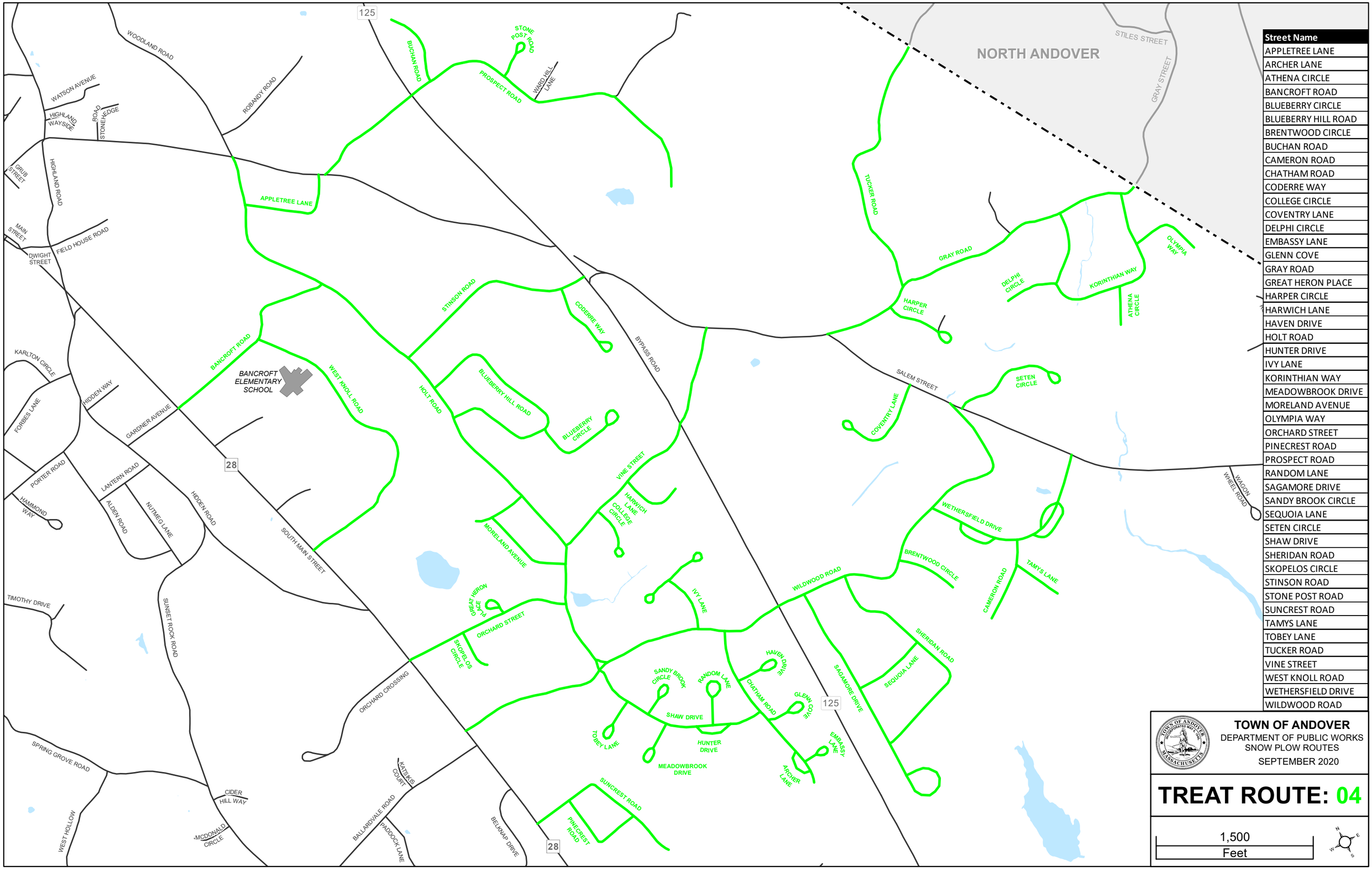


Street Name	Street Name
ARTHUR ROAD	KNOLLCREST DRIVE
ASHFORD LANE	LAKESIDE CIRCLE
AVELLA CIRCLE	LAMANCHA WAY
BAILEY ROAD	LANGLEY LANE
BARRON COURT	LARCHMONT CIRCLE
BELLE HAVEN DR	MARILYN ROAD
BERKELEY LANE	MARY LOU LANE
BLACK BIRCH WAY	MONAHAN LANE
BRADY LOOP	MONTCLAIR AVENUE
CHERRYWOOD CIR	NICHOLAS CIRCLE
CINDY LANE	OLD HIGH PLAIN ROAD
CROSS STREET	OLD SCHOOL HOUSE RD
CYR CIRCLE	PENBROOK CIRCLE
DEERFIELD WAY	PENDANT COURT
DOYLE CIRCLE	PENNI LANE
ELLSWORTH ROAD	PLEASANT STREET
FISKE STREET	QUAIL RUN
GAVIN CIRCLE	RIDGE HILL WAY
GINA JO WAY	ROLLING RIDGE ROAD
GOLDEN OAKS LANE	SEVILLA ROAD
GOVERNORS DRIVE	SHIRLEY ROAD
GRANADA WAY	STARR AVENUE EAST
HACIENDA WAY	STARR AVENUE WEST
HAGGETTS POND RD	THEODORE AVENUE
HAY BALE ROAD	TURNER CIRCLE
HIGH MEADOW RD	VIRGINIA ROAD
HIGH PLAIN ROAD	WEDGEWOOD DRIVE
HITCHCOCK FARM RD	WELLINGTON CIRCLE
HOLMES ROAD	WOODHILL ROAD
ITHICA PLACE	WOODMAN RIDGE RD
KALIA CIRCLE	ZAMBOM TERRACE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 03

3,000
Feet



Street Name
APPLETREE LANE
ARCHER LANE
ATHENA CIRCLE
BANCROFT ROAD
BLUEBERRY CIRCLE
BLUEBERRY HILL ROAD
BRENTWOOD CIRCLE
BUCHAN ROAD
CAMERON ROAD
CHATHAM ROAD
CODERRE WAY
COLLEGE CIRCLE
COVENTRY LANE
DELPHI CIRCLE
EMBASSY LANE
GLENN COVE
GRAY ROAD
GREAT HERON PLACE
HARPER CIRCLE
HARWICH LANE
HAVEN DRIVE
HOLT ROAD
HUNTER DRIVE
IVY LANE
KORINTHIAN WAY
MEADOWBROOK DRIVE
MORELAND AVENUE
OLYMPIA WAY
ORCHARD STREET
PINECREST ROAD
PROSPECT ROAD
RANDOM LANE
SAGAMORE DRIVE
SANDY BROOK CIRCLE
SEQUOIA LANE
SETEN CIRCLE
SHAW DRIVE
SHERIDAN ROAD
SKOPELOS CIRCLE
STINSON ROAD
STONE POST ROAD
SUNCREST ROAD
TAMYS LANE
TOBEY LANE
TUCKER ROAD
VINE STREET
WEST KNOLL ROAD
WETHERSFIELD DRIVE
WILDWOOD ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 04

1,500
Feet

Street Name
APACHE AVENUE
ARGILLA ROAD
AUSTIN AVENUE
BAKER LANE
BATESON DRIVE
BEECH CIRCLE
BLOOD ROAD
BRECHIN TERRACE
BROOK STREET
CASSIMERE STREET
CATTLE CROSSING
CENTRAL LANE
CENTRAL STREET
CUBA STREET
CUTLER ROAD
DORSET CIRCLE
ELM SQUARE
ESSEX STREET
FAIRFAX DRIVE
FARMLAND CIRCLE
HENDERSON AVENUE
HERITAGE LANE
HOMESTEAD CIRCLE
LEWIS STREET
LILLIAN TERRACE
LINCOLN CIRCLE
LINCOLN CIRCLE EAST
LINCOLN CIRCLE WEST
LUPINE ROAD
MARION AVENUE
MAYFLOWER ROAD
MEADOW VIEW LANE
MIDLAND CIRCLE
MILES CIRCLE
MORAINE STREET
NEWMAN HILL DRIVE
OLD SOUTH LANE
ORIOLE DRIVE
PEARSON STREET
PENACOOK PLACE
PILGRIM DRIVE
PIONEER CIRCLE
RAILROAD STREET
RED SPRING ROAD
RENNIE DRIVE
RESERVATION ROAD
RIDGE STREET
ROSE GLEN DRIVE
RUGGIERO WAY
SCHOOL STREET
SHAWSHEEN ROAD
SMITHSHIRE ESTATES
STANDISH CIRCLE
STEVENS STREET
STRAWBERRY HILL ROAD
WHISPERING PINES DRIVE

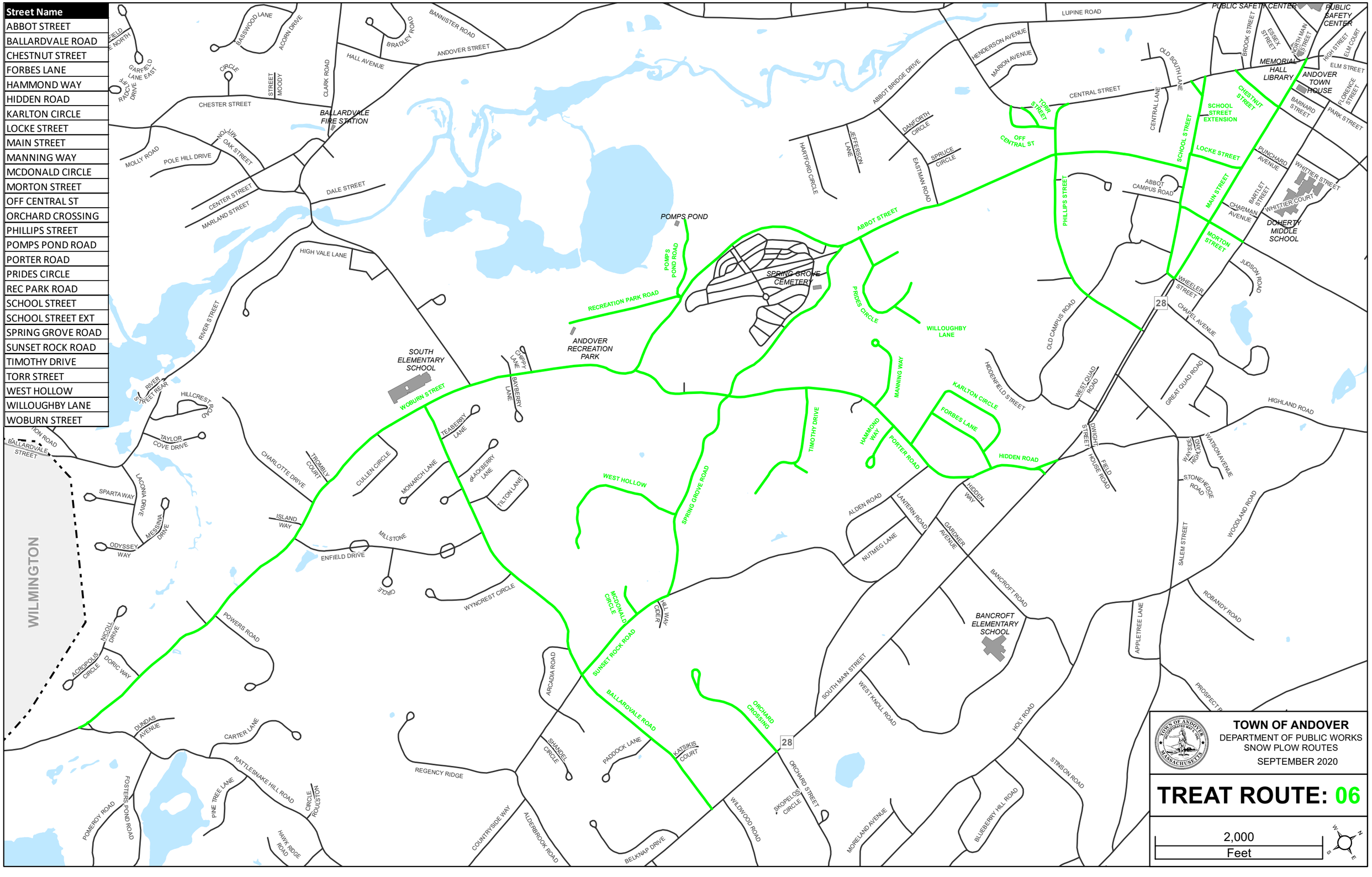
ANDOVER HIGH SCHOOL
WEST MIDDLE SCHOOL
WEST PARISH CEMETERY
ST. AUGUSTINE'S CEMETERY
DUNDEE PARK
PUBLIC SAFETY CENTER
PUBLIC SAFETY CENTER
MEMORIAL HALL LIBRARY
ANDOVER TOWN HOUSE
DOHERTY MIDDLE SCHOOL

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 05

1,400
Feet

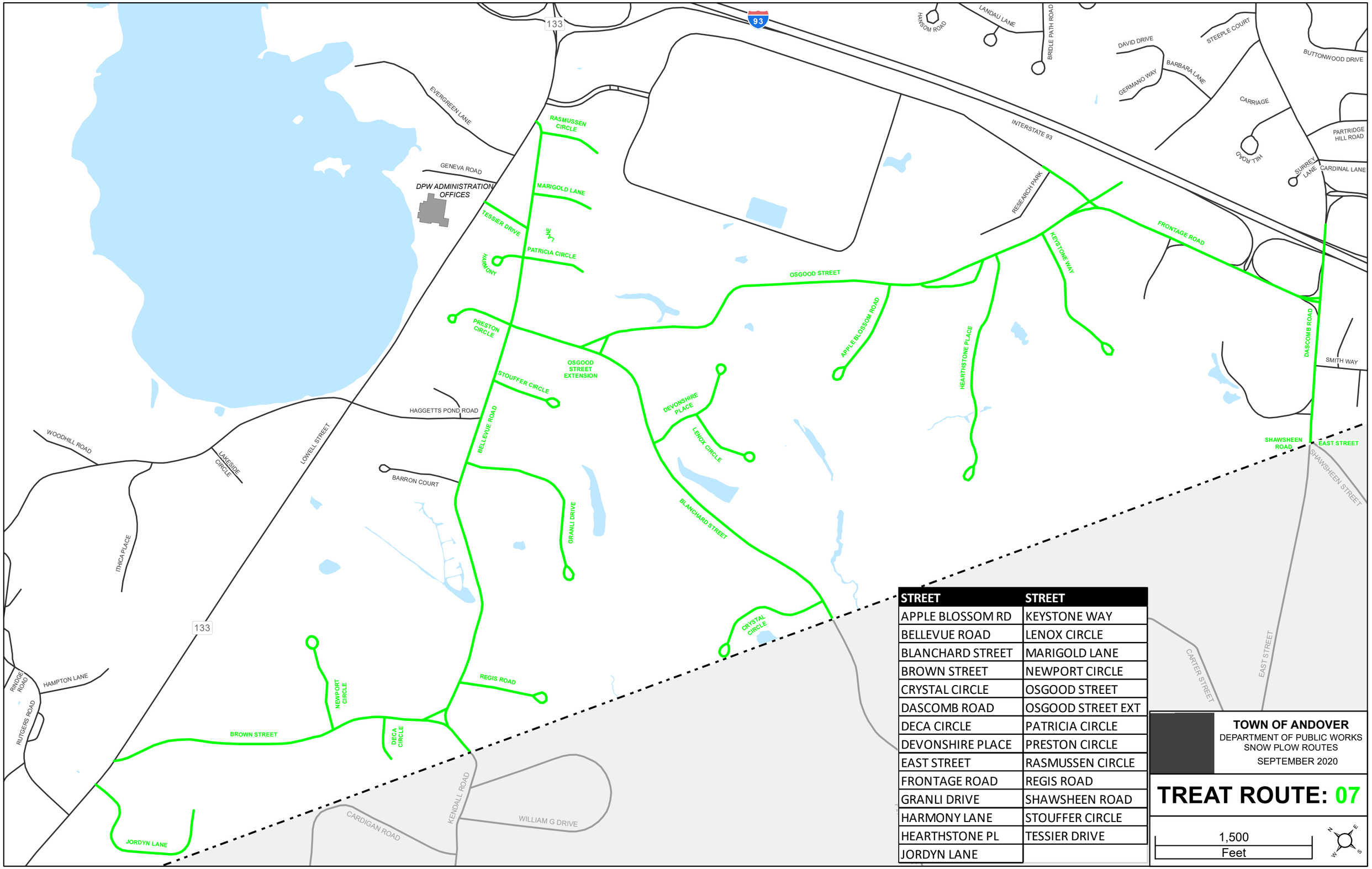
Street Name
ABBOT STREET
BALLARDVALE ROAD
CHESTNUT STREET
FORBES LANE
HAMMOND WAY
HIDDEN ROAD
KARLTON CIRCLE
LOCKE STREET
MAIN STREET
MANNING WAY
MCDONALD CIRCLE
MORTON STREET
OFF CENTRAL ST
ORCHARD CROSSING
PHILLIPS STREET
POMPS POND ROAD
PORTER ROAD
PRIDES CIRCLE
REC PARK ROAD
SCHOOL STREET
SCHOOL STREET EXT
SPRING GROVE ROAD
SUNSET ROCK ROAD
TIMOTHY DRIVE
TORR STREET
WEST HOLLOW
WILLOUGHBY LANE
WOBURN STREET



TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 06

2,000
Feet

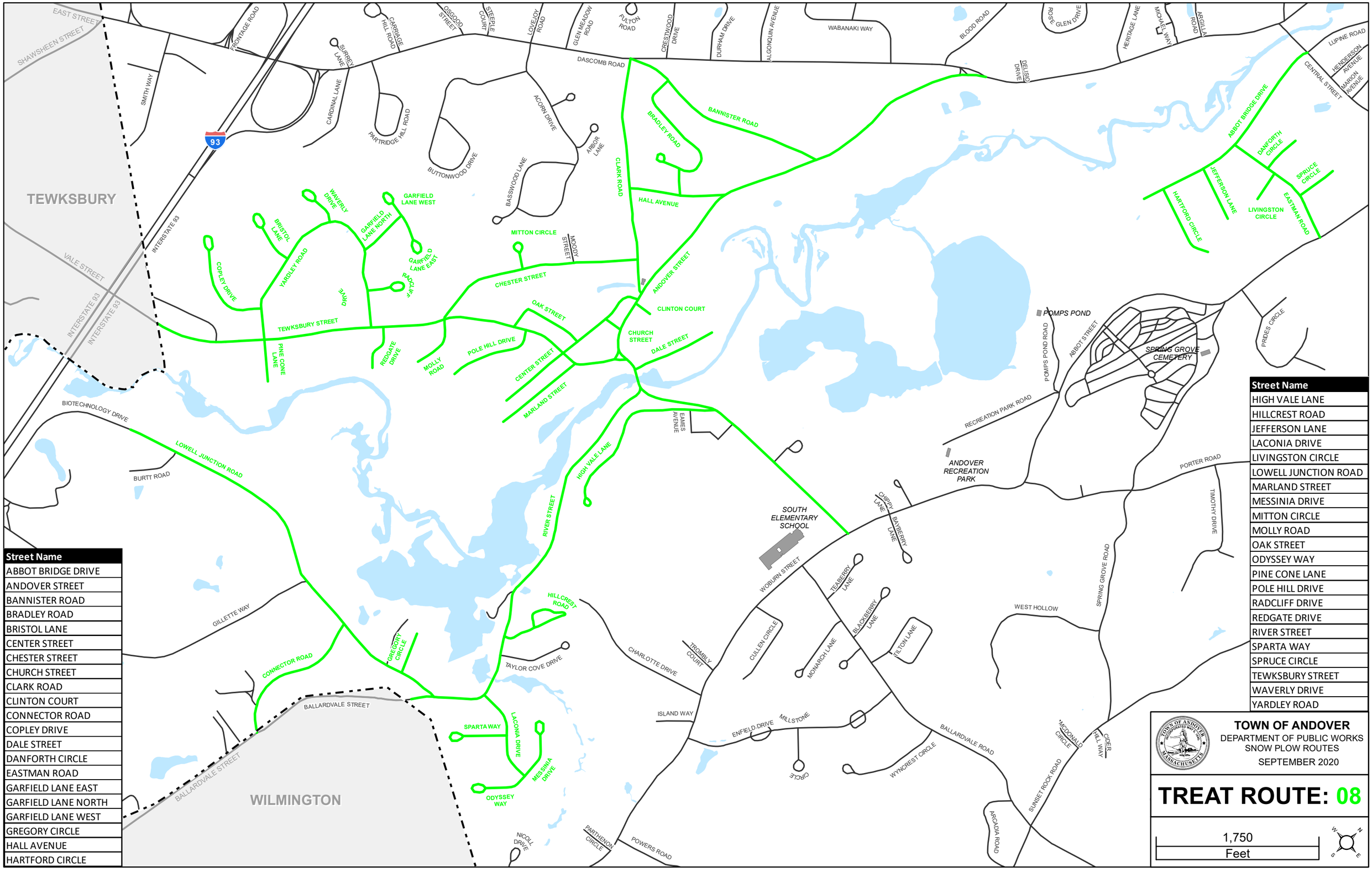


STREET	STREET
APPLE BLOSSOM RD	KEYSTONE WAY
BELLEVUE ROAD	LENOX CIRCLE
BLANCHARD STREET	MARIGOLD LANE
BROWN STREET	NEWPORT CIRCLE
CRYSTAL CIRCLE	OSGOOD STREET
DASCOMB ROAD	OSGOOD STREET EXT
DECA CIRCLE	PATRICIA CIRCLE
DEVONSHIRE PLACE	PRESTON CIRCLE
EAST STREET	RASMUSSEN CIRCLE
FRONTAGE ROAD	REGIS ROAD
GRANLI DRIVE	SHAWSHEEN ROAD
HARMONY LANE	STOUFFER CIRCLE
HEARTHSTONE PL	TESSIER DRIVE
JORDYN LANE	

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 07

1,500
Feet



Street Name
ABBOT BRIDGE DRIVE
ANDOVER STREET
BANNISTER ROAD
BRADLEY ROAD
BRISTOL LANE
CENTER STREET
CHESTER STREET
CHURCH STREET
CLARK ROAD
CLINTON COURT
CONNECTOR ROAD
COPLEY DRIVE
DALE STREET
DANFORTH CIRCLE
EASTMAN ROAD
GARFIELD LANE EAST
GARFIELD LANE NORTH
GARFIELD LANE WEST
GREGORY CIRCLE
HALL AVENUE
HARTFORD CIRCLE

Street Name
HIGH VALE LANE
HILLCREST ROAD
JEFFERSON LANE
LACONIA DRIVE
LIVINGSTON CIRCLE
LOWELL JUNCTION ROAD
MARLAND STREET
MESSINIA DRIVE
MITTON CIRCLE
MOLLY ROAD
OAK STREET
ODYSSEY WAY
PINE CONE LANE
POLE HILL DRIVE
RADCLIFF DRIVE
REDGATE DRIVE
RIVER STREET
SPARTA WAY
SPRUCE CIRCLE
TEWKSBURY STREET
WAVERLY DRIVE
YARDLEY ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 08

1,750
Feet

STREET	STREET	STREET
AGAWAM LANE	EAGLE WAY	PEACH TREE PATH
ALDERBROOK ROAD	FARRWOOD DRIVE	PENOBSCOT WAY
ARCADIA ROAD	FERN ROAD	PEPPERCORN LANE
ARROWOOD LANE	FOREST DRIVE	PHOENIX PLACE
AZALEA DRIVE	FOSTERS POND ROAD	PINE TREE LANE
BELKNAP DRIVE	GLENWOOD ROAD	POMEROY ROAD
BLACK HORSE LANE	GLENWOOD ROAD EXT	RATTLESNAKE HILL RD
BOSTON ROAD	GOULD ROAD	REGENCY RIDGE
CARTER LANE	HAWK RIDGE ROAD	ROCKY HILL ROAD
CHARLES CIRCLE	LAVENDER HILL LANE	ROULSTON CIRCLE
CLOVER CIRCLE	LINDA ROAD	SENECA CIRCLE
COLONIAL DRIVE	MOHAWK ROAD	SHANDEL CIRCLE
COTTAGE ROAD	MONTEGO CIRCLE	SLEEPY HOLLOW LANE
COUNTRYSIDE WAY	MORNINGSIDE DRIVE	SNOWBERRY ROAD
COUNTY ROAD	NANCY CIRCLE	SUNSET ROCK ROAD
DONNA ROAD	PADDOCK LANE	WHITE OAK DRIVE
DUNDAS AVENUE	PATRIOT DRIVE	WILLARD CIRCLE
		WOBURN STREET

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 09

1,750
Feet

Street Name
APPLECREST ROAD
AVON STREET
BARNARD STREET
BARRINGTON DRIVE
BARTLET STREET
BROOKFIELD ROAD
BURTON FARM DRIVE
BUXTON COURT
CHESTNUT COURT
CHESTNUT STREET
CHICKERING COURT
DALLON ROAD
DOWNING STREET
ELM COURT
ELM STREET
ELYSIAN DRIVE
FARNSWORTH ROAD
FLORENCE STREET
FOSTER CIRCLE
FOX HILL ROAD

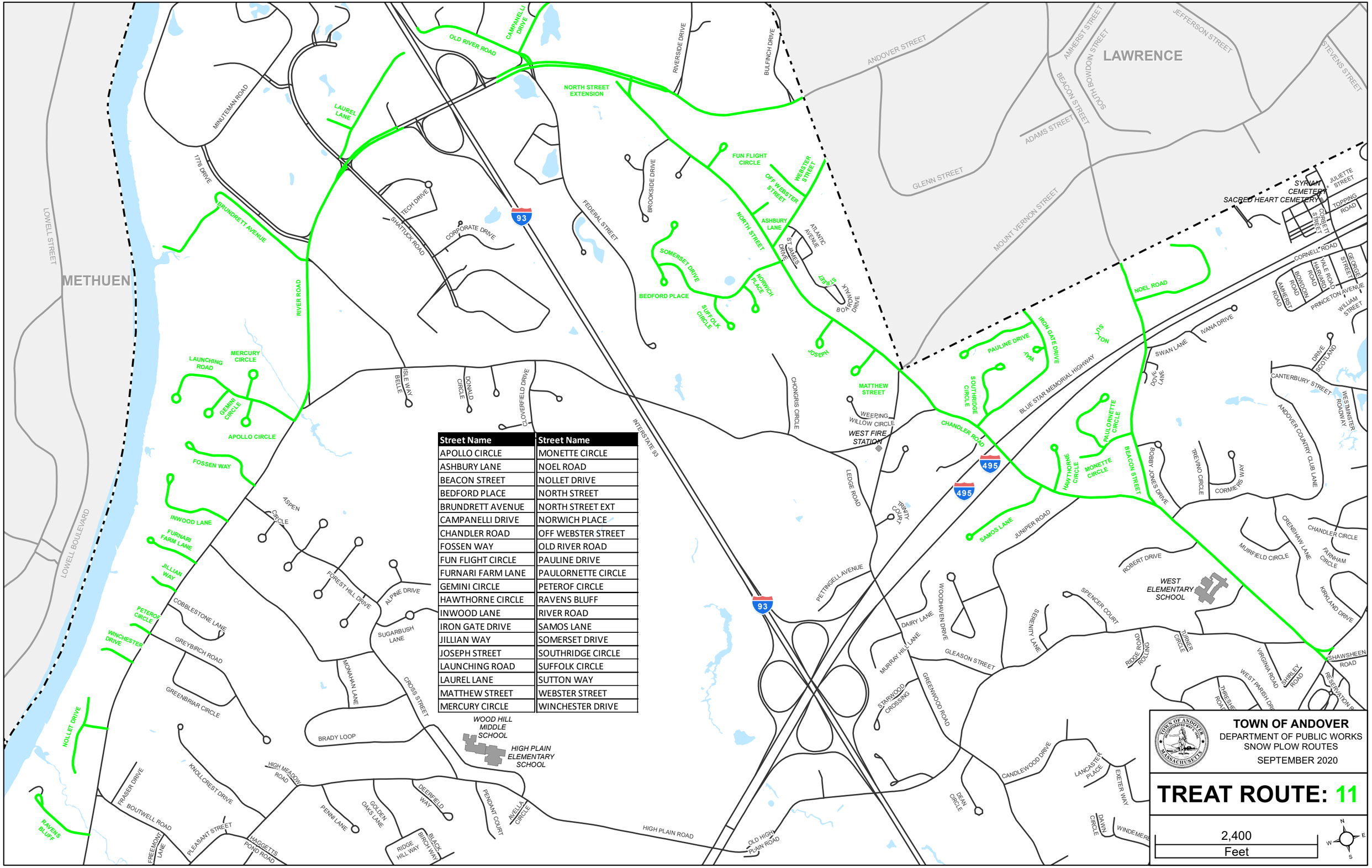
Street Name
GRANDVIEW TERR
HEATHER DRIVE
HIGHLAND AVENUE
HIGHLAND ROAD
HOWELL DRIVE
IVANHOE LANE
JUDSON ROAD
KATHLEEN DRIVE
LEWIS STREET
LUCERNE DRIVE
MARIE DRIVE
MEMORIAL CIRCLE
MORTON STREET
NAPIER ROAD
PARK STREET
PARNASSUS PLACE
PASHO STREET
PINE STREET
PUNCHARD AVE

Street Name	Street Name
PARK STREET	SUMMER STREET
PARNASSUS PLACE	TANGLEWOOD WAY
PASHO STREET	TANGLEWOOD WAY NORTH
PINE STREET	TANGLEWOOD WAY SOUTH
PUNCHARD AVE	TWIN BROOKS CIRCLE
ROBANDY ROAD	UPLAND ROAD
ROCK RIDGE ROAD	WASHINGTON AVENUE
ROGERS BROOK EAST	WESTWIND ROAD
ROGERS BROOK WEST	WHEELER STREET
SHERRY DRIVE	WHITTIER COURT
STEVENS CIRCLE	WHITTIER STREET
STOWE COURT	WOODCLIFF ROAD
STRATFORD ROAD	WOODLAND ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 10

1,400
Feet



Street Name	Street Name
APOLLO CIRCLE	MONETTE CIRCLE
ASHBURY LANE	NOEL ROAD
BEACON STREET	NOLLET DRIVE
BEDFORD PLACE	NORTH STREET
BRUNDRETT AVENUE	NORTH STREET EXT
CAMPANELLI DRIVE	NORWICH PLACE
CHANDLER ROAD	OFF WEBSTER STREET
FOSSEN WAY	OLD RIVER ROAD
FUN FLIGHT CIRCLE	PAULINE DRIVE
FURNARI FARM LANE	PAULORNETTE CIRCLE
GEMINI CIRCLE	PETEROF CIRCLE
HAWTHORNE CIRCLE	RAVENS BLUFF
INWOOD LANE	RIVER ROAD
IRON GATE DRIVE	SAMOS LANE
JILLIAN WAY	SOMERSET DRIVE
JOSEPH STREET	SOUTHRIDGE CIRCLE
LAUNCHING ROAD	SUFFOLK CIRCLE
LAUREL LANE	SUTTON WAY
MATTHEW STREET	WEBSTER STREET
MERCURY CIRCLE	WINCHESTER DRIVE

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 11

2,400
Feet

N
W
E
S

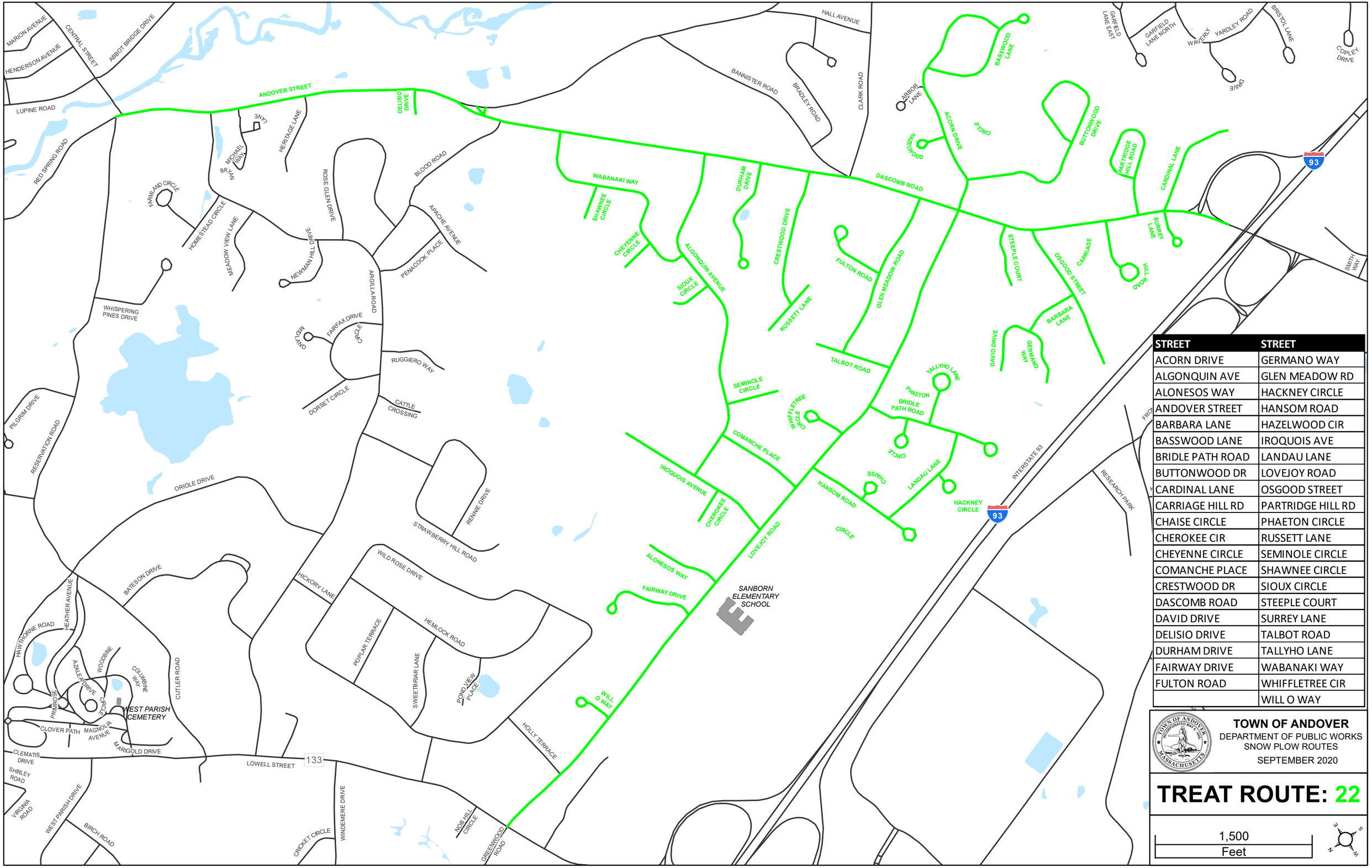
STREET	STREET
ALPINE DRIVE	FREEMONT LANE
ASPEN CIRCLE	GREENBRIAR CIRCLE
ATWOOD LANE	GREYBIRCH ROAD
AVERY LANE	HEMLOCK ROAD
BELLE ISLE WAY	HICKORY LANE
BITTERSWEET LANE	HOLLY TERRACE
BOUTWELL ROAD	MULBERRY CIRCLE
BRIERWOOD CIRCLE	PEPPERIDGE CIRCLE
BRUNDRETT AVENUE	PHEASANT RUN
CHANDLER ROAD	POND VIEW PLACE
CHONGRIS CIRCLE	POPLAR TERRACE
CHRISTIAN WAY	POSSUM HOLLOW ROAD
CLOVERFIELD DRIVE	RICHARD CIRCLE
COBBLESTONE LANE	RIVER ROAD
CROSS STREET	SANDALWOOD LANE
DANDELION DRIVE	STONEYBROOK CIRCLE
DEERBERRY LANE	SUGARBUSH LANE
DONALD CIRCLE	SWEETBRIAR LANE
FOREST HILL DRIVE	WILD ROSE DRIVE
FRASER DRIVE	WINTERGREEN CIRCLE

METHUEN
LOWELL STREET
WHEELER STREET
LOWELL BOULEVARD
METHUEN STREET
MERRIMAC AVENUE
TEWKSBURY
RIVER ROAD
LAWRENCE
ANDOVER STREET
GLENN STREET
MOUNT VERNON STREET
1778 DRIVE
TECH DRIVE
SHATTUCK ROAD
CORPORATE DRIVE
FEDERAL STREET
BROOKSIDE DRIVE
OFF WEBSTER STREET
WEBSTER STREET
ST JAMES DRIVE
ATLANTIC AVENUE
BOARDWALK DRIVE
SOMERSET DRIVE
SUFFOLK CIRCLE
ST JOSEPH STREET
NORTH STREET
ST MATTHEW STREET
WEEPING WILLOW CIRCLE
SOUTHRIDGE CIRCLE
WESTFIRE STATION
LEDGE ROAD
TRINITY COURT
SAMOS LANE
PETTINGELL AVENUE
DAIRY LANE
WOODHAVEN DRIVE
MURRAY HILL LANE
JUNIPER ROAD
SERENITY LANE
GLEASON STREET
STARWOOD CROSSING
GREENWOOD ROAD
BLUE STAR MEMORIAL HIGHWAY
INTERSTATE 93
93
495
BRUNDRETT AVENUE
LAUNCHING ROAD
GEMINI CIRCLE
APOLLO
MERCURY CIRCLE
FOSSEN WAY
INWOOD LANE
EURNARI FARM LANE
JILLIAN WAY
FOREST HILL DRIVE
ASPEN CIRCLE
BITTERSWEET LANE
WINTERGREEN CIRCLE
CROSS STREET
DEERBERRY LANE
BRIERWOOD CIRCLE
MULBERRY CIRCLE
PEPPERIDGE CIRCLE
SANDALWOOD LANE
ALPINE DRIVE
SUGARBUSH LANE
MONAHAN LANE
COBBLESTONE LANE
GREYBIRCH ROAD
GREENBRIAR CIRCLE
NOLLET DRIVE
RAVENS BLUFF
RIVER ROAD
FRASER DRIVE
BOUTWELL ROAD
FREEMONT LANE
KNOLLCREST DRIVE
KAUA CIRCLE
HIGH MEADOW ROAD
BRADY LOOP
WOOD HILL MIDDLE SCHOOL
HIGH PLAIN ELEMENTARY SCHOOL
PENNI LANE
GOLDEN OAKS LANE
DEERFIELD WAY
PENDANT COURT
AVELLA CIRCLE
HACIENDA WAY
RIDGE HILL WAY
BLACK BIRCH WAY
CHERRYWOOD CIRCLE
ZAMBOM TERRACE
GAVIN CIRCLE
HIGH PLAIN ROAD
OLD HIGH PLAIN ROAD
HAGGETTS POND ROAD
HITCHCOCK FARM ROAD
LARCHMONT CIRCLE
BAILEY ROAD
OLD SCHOOL HOUSE ROAD
PLEASANT STREET
ASHFORD LANE
SEVILLA ROAD
LAMANCHA WAY
GRANADA WAY
STONEYBROOK CIRCLE
AVERY LANE
ATWOOD LANE
PHEASANT RUN
CHRISTIAN WAY
OVERLOOK DRIVE
HOOD DRIVE
FRANCIS DRIVE
FISKE STREET
QUAIL RUN
PENBROOK CIRCLE
GINA JO WAY
DOYLE CIRCLE
ROAD
HOLMES
CHONGRIS CIRCLE
DONALD CIRCLE
RICHARD CIRCLE
CLOVERFIELD DRIVE
DANDELION DRIVE
POSSUM HOLLOW ROAD
BELLE ISLE WAY
CHANDLER ROAD

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 21

2,400
Feet
N
W
E
S

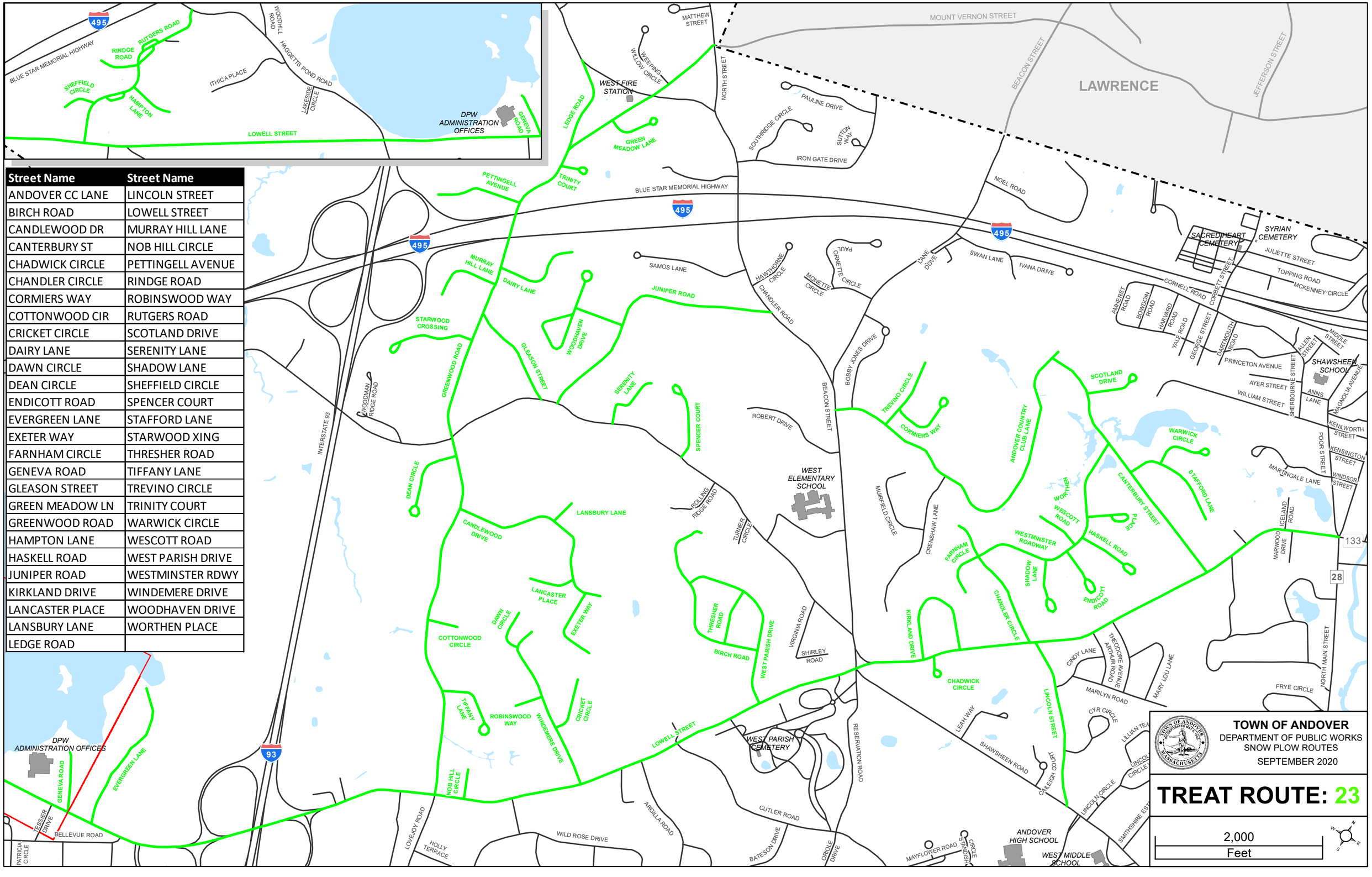


STREET	STREET
ACORN DRIVE	GERMANO WAY
ALGONQUIN AVE	GLEN MEADOW RD
ALONESOS WAY	HACKNEY CIRCLE
ANDOVER STREET	HANSOM ROAD
BARBARA LANE	HAZELWOOD CIR
BASSWOOD LANE	IROQUOIS AVE
BRIDLE PATH ROAD	LANDAU LANE
BUTTONWOOD DR	LOVEJOY ROAD
CARDINAL LANE	OSGOOD STREET
CARRIAGE HILL RD	PARTRIDGE HILL RD
CHAISE CIRCLE	PHAETON CIRCLE
CHEROKEE CIR	RUSSETT LANE
CHEYENNE CIRCLE	SEMINOLE CIRCLE
COMANCHE PLACE	SHAWNEE CIRCLE
CRESTWOOD DR	SIOUX CIRCLE
DASCOMB ROAD	STEEPLE COURT
DAVID DRIVE	SURREY LANE
DELISIO DRIVE	TALBOT ROAD
DURHAM DRIVE	TALLYHO LANE
FAIRWAY DRIVE	WABANAKI WAY
FULTON ROAD	WHIFFLETREE CIR
	WILL O WAY

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 22

1,500
Feet

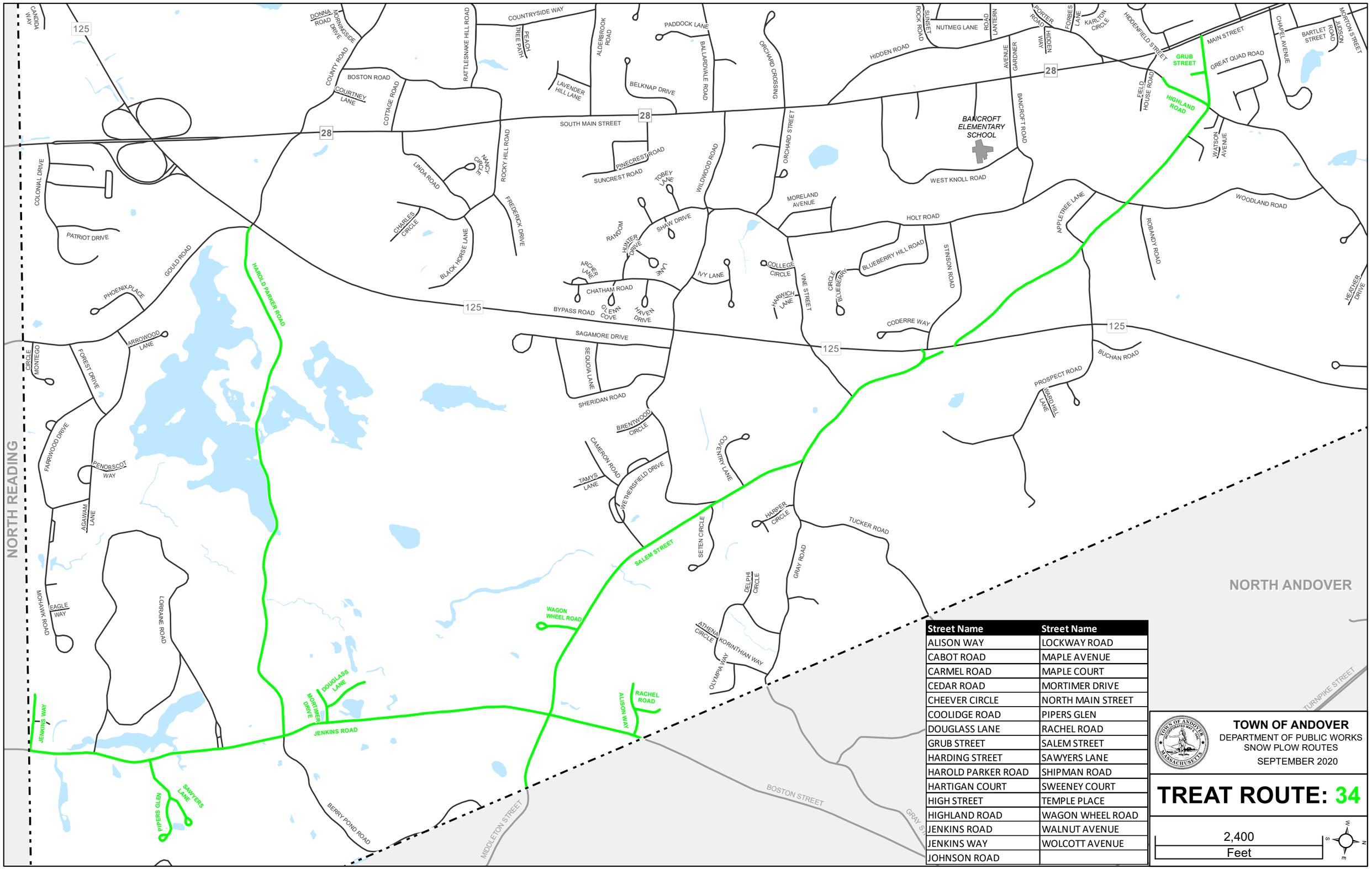


Street Name	Street Name
ANDOVER CC LANE	LINCOLN STREET
BIRCH ROAD	LOWELL STREET
CANDLEWOOD DR	MURRAY HILL LANE
CANTERBURY ST	NOB HILL CIRCLE
CHADWICK CIRCLE	PETTINGELL AVENUE
CHANDLER CIRCLE	RINDGE ROAD
CORMIERS WAY	ROBINSWOOD WAY
COTTONWOOD CIR	RUTGERS ROAD
CRICKET CIRCLE	SCOTLAND DRIVE
DAIRY LANE	SERENITY LANE
DAWN CIRCLE	SHADOW LANE
DEAN CIRCLE	SHEFFIELD CIRCLE
ENDICOTT ROAD	SPENCER COURT
EVERGREEN LANE	STAFFORD LANE
EXETER WAY	STARWOOD XING
FARNHAM CIRCLE	THRESHER ROAD
GENEVA ROAD	TIFFANY LANE
GLEASON STREET	TREVINO CIRCLE
GREEN MEADOW LN	TRINITY COURT
GREENWOOD ROAD	WARWICK CIRCLE
HAMPTON LANE	WESCOTT ROAD
HASKELL ROAD	WEST PARISH DRIVE
JUNIPER ROAD	WESTMINSTER RDWY
KIRKLAND DRIVE	WINDEMERE DRIVE
LANCASTER PLACE	WOODHAVEN DRIVE
LANSBURY LANE	WORTHEN PLACE
LEDGE ROAD	

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 23

2,000
Feet

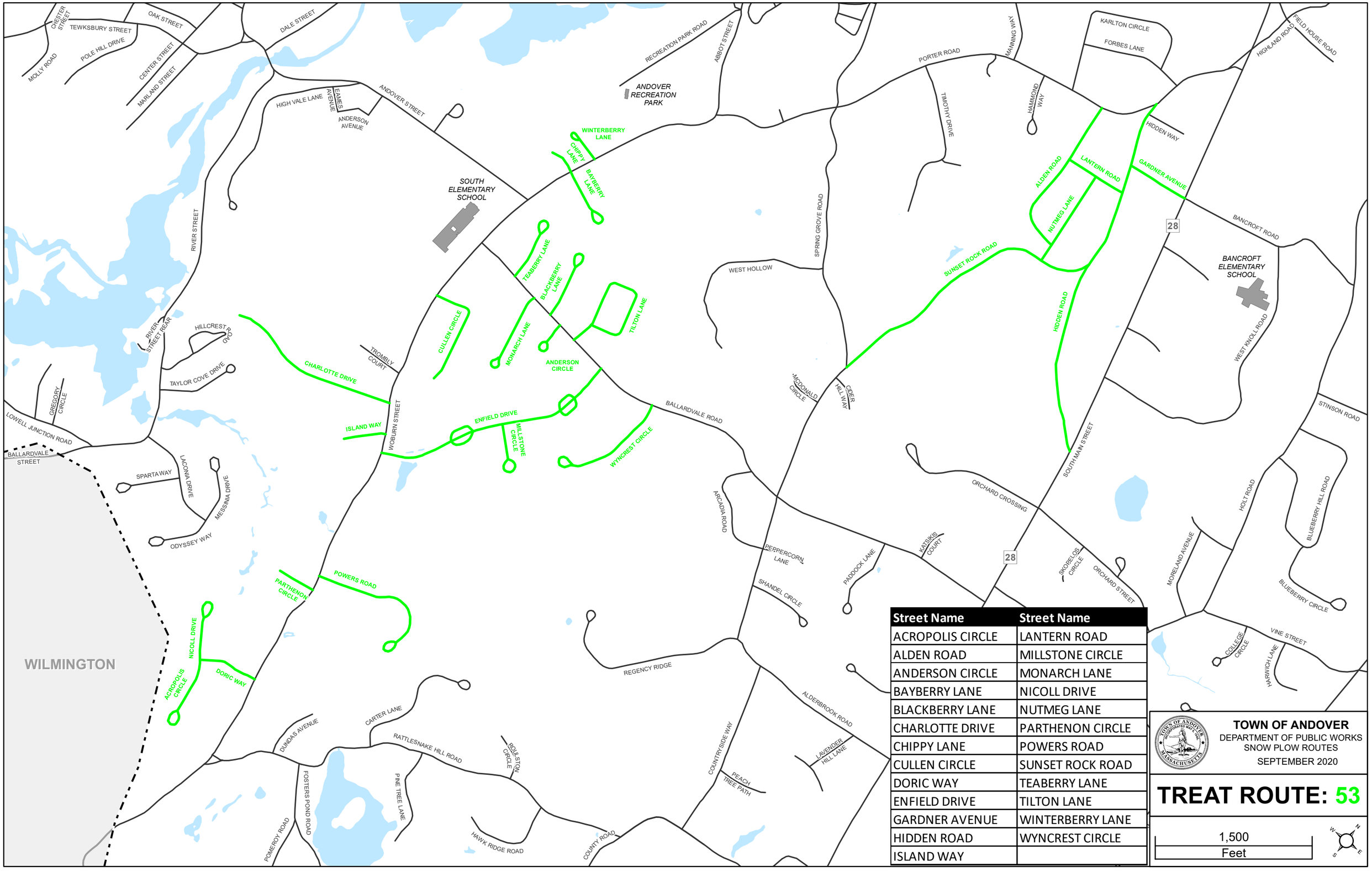


Street Name	Street Name
ALISON WAY	LOCKWAY ROAD
CABOT ROAD	MAPLE AVENUE
CARMEL ROAD	MAPLE COURT
CEDAR ROAD	MORTIMER DRIVE
CHEEVER CIRCLE	NORTH MAIN STREET
COOLIDGE ROAD	PIPERS GLEN
DOUGLASS LANE	RACHEL ROAD
GRUB STREET	SALEM STREET
HARDING STREET	SAWYERS LANE
HAROLD PARKER ROAD	SHIPMAN ROAD
HARTIGAN COURT	SWEENEY COURT
HIGH STREET	TEMPLE PLACE
HIGHLAND ROAD	WAGON WHEEL ROAD
JENKINS ROAD	WALNUT AVENUE
JENKINS WAY	WOLCOTT AVENUE
JOHNSON ROAD	

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 34

2,400
Feet



Street Name	Street Name
ACROPOLIS CIRCLE	LANTERN ROAD
ALDEN ROAD	MILLSTONE CIRCLE
ANDERSON CIRCLE	MONARCH LANE
BAYBERRY LANE	NICOLL DRIVE
BLACKBERRY LANE	NUTMEG LANE
CHARLOTTE DRIVE	PARTHENON CIRCLE
CHIPPY LANE	POWERS ROAD
CULLEN CIRCLE	SUNSET ROCK ROAD
DORIC WAY	TEABERRY LANE
ENFIELD DRIVE	TILTON LANE
GARDNER AVENUE	WINTERBERRY LANE
HIDDEN ROAD	WYNCREST CIRCLE
ISLAND WAY	

TOWN OF ANDOVER
DEPARTMENT OF PUBLIC WORKS
SNOW PLOW ROUTES
SEPTEMBER 2020

TREAT ROUTE: 53

1,500
Feet

Attachment 3:
Sidewalk Routes

SIDEWALK PLOW ROUTE 1

January, 2020

800 400 0 800 1,600

Feet

1,000 500 0

Feet

\\apps-gis\gis\Andover_GIS\Municipal Services\Highway Dept\mxd\sidewalk plowing\2020 Maps\Sidewalk Plowing Route 1_11x17.mxd

SIDEWALK PLOW ROUTE 2

January, 2020

1,000 500 0 1,000 2,000

Feet

SANBORN ELEMENTARY SCHOOL

BANCROFT ELEMENTARY SCHOOL

SOUTH ELEMENTARY SCHOOL

ANDOVER

BALLARDVALE

BALLARDVALE FIRE STATION

ANDOVER TOWN OFFICES

ANDOVER TOWN HOUSE

PUBLIC SAFETY CENTER

MEMORIAL HALL LIBRARY

SENIOR CENTER

PARK

INTERSTATE ROUTE 93

ROUTE 125

\\apps-gis\gis\Andover_GIS\Municipal Services\Highway Dept\mxd\sidewalk plowing\2020 Maps\Sidewalk Plowing Route 2 11x17.mxd

\\apps-gis\gis\Andover_GIS\Municipal Services\Highway Dept\mxd\sidewalk plowing\2020 Maps\Sidewalk Plowing Route 3 11x17.mxd

SIDEWALK PLOW ROUTE 3

January, 2020

750 375 0 750 1,500

Feet

BAKERS MEADOW

ANDOVER HIGH SCHOOL

WEST MIDDLE SCHOOL

SHAWSHEEN RIVER

ANDOVER

PUBLIC SAFETY CENTER

ANDOVER TOWN HOUSE

SENIOR CENTER

ANDOVER TOWN OFFICES

DOHERTY MIDDLE SCHOOL

RABBIT POND

SANCTUARY POND

SPRING GROVE CEMETERY

ROUTE 125 (NORTH ANDOVER)

ORIOLE DRIVE, MAYFLOWER ROAD, STANDISH CIRCLE, LINCOLN CIRCLE, SHAWSHEEN ROAD, SMITHSHIRE ESTATES, JOYCE TERRACE, WASHINGTON PARK DRIVE, BURNHAM ROAD, DUTTON ROAD, SARGENT STREET, VILLAGE WAY, RESERVATION ROAD, PIONEER CIRCLE, PILGRIM DRIVE, BEECH CIRCLE, CASSIMERE STREET, STEVENS STREET, BRECHIN TERRACE, MORAINE STREET, CUBA STREET, WHISPERING PINES DRIVE, RED SPRING ROAD, GRADALL LANE, BAKER LANE, RAILROAD STREET, SWEENEY COURT, NORTH MAIN STREET, TEMPLE PLACE, HARDING STREET, HARTIGAN COURT, WALNUT AVENUE, FLINT CIRCLE, CARMEL ROAD, CHEEVER CIRCLE, CABOT ROAD CIRCLE, COOLIDGE ROAD, SHIPMAN ROAD, MAPLE AVENUE, WOLCOTT AVENUE, CEDAR ROAD, JOHNSON ROAD, LOCKWAY ROAD, BURTON FARM DRIVE, WESTWIND ROAD, TANGLEWOOD WAY, TANGLEWOOD WAY SOUTH, TANGLEWOOD WAY NORTH, TWIN BROOKS CIRCLE, ELYSIAN DRIVE, DALLON ROAD, NAPIER ROAD, BUXTON COURT, LEWIS STREET, PEARSON STREET, HIGH STREET, RIDGE STREET, ESSEX STREET, MEMORIAL HALL LIBRARY, BROOK STREET, ELM COURT, CHURCH COURT, MAPLE COURT, ELM STREET, FLORENCE STREET, WHITTIER STREET, FOSTER CIRCLE, HOWELL DRIVE, DEARBORN LANE, FARNSWORTH ROAD, BROOKFIELD ROAD, WOODCLIFF ROAD, ROCKRIDGE ROAD, FOX HILL ROAD, FARMLAND CIRCLE, HOMESTEAD CIRCLE, ARGILLA ROAD, MICHAEL WAY, ANDOVER STREET, AUSTIN AVENUE, LUPINE ROAD, HENDERSON AVENUE, MARION AVENUE, CENTRAL STREET, TORR STREET, OFF CENTRAL ST, CENTRAL LANE, OLD SOUTH LANE, PARK STREET, BARNARD STREET, CHESTNUT STREET, PUNCHARD AVENUE, BARTLETT STREET, WHITTIER COURT, LOCKE STREET, CHAPMAN AVENUE, MORTON STREET, SCHOOL STREET, OLD CAMPUS ROAD, JUDSON ROAD, WHEELER STREET, CHAPEL AVENUE, MAIN STREET, ABBOT STREET, ABBOT BRIDGE DRIVE, DANFORTH CIRCLE, LIVINGSTON CIRCLE, EASTMAN ROAD, SPRUCE CIRCLE, JEFFERSON LANE, HARTFORD CIRCLE, PHILLIPS STREET, SPRING GROVE ROAD, PRIDES CIRCLE, WILLOUGHBY LANE, HIGHLAND ROAD, WOODLAND ROAD, HEATHER DRIVE, HIGHLAND AVENUE, KATHLEEN DRIVE, MARIE DRIVE, WASHINGTON AVENUE, GUDRUN DRIVE, PINE STREET, LUCERNE DRIVE, SUMMER STREET, PASHO STREET, AVON STREET, STRATFORD ROAD, UPLAND ROAD, IVANHOE LANE, CHESTNUT COURT, STOWE COURT, MCMO CIRCLE, SHERRY DRIVE, STEVENS CIRCLE, BARRINGTON DRIVE, ROGERS BROOK WEST, ROGERS BROOK EAST, APPLECREST ROAD, DOWNING STREET

28 28 125

Attachment 4:
ASTM D 632

Designation: D 632 – 01

Standard Specification for Sodium Chloride[1]

This standard is issued under the fixed designation D 632; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers sodium chloride intended for use as a deicer and for road construction or maintenance purposes.

1.2 The values stated as SI units are to be regarded as the standard.

1.3 For purposes of determining conformance to this specification, values for chemical analysis shall be rounded to the nearest 0.1 %, and values for grading shall be rounded to the nearest 1 %, in accordance with the rounding method in Practice E 29.

1.4 The text of this specification references notes and footnotes that provide explanatory material. These notes and footnotes shall not be considered as requirements of the specification.

1.5 The following precautionary caveat pertains only to the test method in Annex A1, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 *ASTM Standards:*

C 136 Test Method for Sieve Analysis of Fine and Coarse Aggregates[2]

C 670 Practice for Preparing Precision and Bias Statements for Test Methods for Construction Materials[2]

D 1193 Specification for Reagent Water[3]

E 29 Practice for Using Significant Digits in Test Data to Determine Conformance with Specifications[4]

E 287 Specification for Laboratory Glass Graduated Burets[5]

E 288 Specification for Laboratory Glass Volumetric Flasks[5]

E 534 Test Methods for Chemical Analysis of Sodium Chloride[6]

3. Classification

3.1 This specification covers sodium chloride obtained from natural deposits (rock salt) or produced by man (evaporated, solar, other) and recognizes two types and two grades as follows:

3.1.1 *Type I*—Used primarily as a pavement deicer or in aggregate stabilization.

3.1.1.1 *Grade 1*—Standard grading (Note 1).

3.1.1.2 *Grade 2*—Special grading (Note 1).

3.1.2 *Type II*—Used in aggregate stabilization or for purposes other than deicing.

NOTE 1—Grade 1 provides a particle grading for general application, and has been found by latest research to be most effective for ice control and skid resistance under most conditions. Grade 2 is the grading typical of salt produced in the Western United States and is available in states of the Rocky Mountains Region and west, which may be preferred by purchasers in that area.

4. Chemical Requirements

4.1 The sodium chloride shall conform to the following requirement for chemical composition, except for the tolerance stated in 6.1 and 6.2:

Sodium chloride (NaCl), min, %	95.0

5. Physical Requirements

5.1 *Grading*:

5.1.1 *Type I*—The grading of Type I sodium chloride, when tested by means of laboratory sieves conforming to Specification E 11, shall conform to the following requirements for particle size distribution, except for the tolerance stated in 6.1 and 6.1.1:

	Mass % Passing	
Sieve Size	Grade 1	Grade 2
19.0 mm (¾ in.)	...	100
12.5 mm (½ in.)	100	...
9.5 mm (⅜ in.)	95 to 100	...
4.75 mm (No. 4)	20 to 90	20 to 100
2.36 mm (No. 8)	10 to 60	10 to 60
600 µm (No. 30)	0 to 15	0 to 15

5.1.2 *Type II*—The grading of Type II sodium chloride shall conform to the grading requirements imposed or permitted by the purchaser under conditions of the intended use.

[1] This specification is under the jurisdiction of ASTM Committee D04 on Road and Paving Materials and is the direct responsibility of Subcommittee D04.31 on Calcium and Sodium Chlorides and Other Deicing Materials.

Current edition approved June 10, 2001. Published August 2001. Originally published as D 632 – 41. Last previous edition D 632 – 00.

[2] *Annual Book of ASTM Standards*, Vol 04.02.

[3] *Annual Book of ASTM Standards*, Vol 11.01.

[4] *Annual Book of ASTM Standards*, Vol 14.02.

[5] *Annual Book of ASTM Standards*, Vol 14.04.

[6] *Annual Book of ASTM Standards*, Vol 15.05.

6. Permissible Variations

6.1 In the case of sodium chloride sampled after delivery to the purchaser, tolerances from the foregoing specified values shall be allowed as follows:

6.1.1 *Grading*—5 percentage points on the maximum value for the range for each sieve size, except the 12.5 mm (½ in.) and 9.5 mm (⅜ in.) for Grade 1 and 19.0 mm (¾ in.) for Grade 2.

6.1.2 *Chemical Composition*—0.5 percentage point.

7. Condition

7.1 The sodium chloride shall arrive at the purchaser's delivery point in a free-flowing and usable condition.

8. Sampling

8.1 Not less than three sample increments shall be selected at random from the lot (Note 2). Each increment shall be obtained by scraping aside the top layer of material to a depth of at least 25 mm (1 in.) and taking a 500-g (approximately 1-lb) quantity of sodium chloride to a depth of at least 150 mm (6 in.). Sampling shall be done by means of a sampling thief or other method that will ensure a representative cross section of the material. The sample increments shall be thoroughly mixed to constitute a composite sample representative of the lot.

NOTE 2—A lot may be an amount agreed upon between purchaser and supplier at the time of purchase.

9. Test Methods

9.1 *Chemical Analysis*—Test for compliance with the requirements for chemical composition in accordance with the following methods:

9.1.1 *Routine Control*—Use of the "Rapid Method" in Annex A1 is permitted for routine control and approval.

9.1.2 *Referee Testing*—In case of controversy, determine the chemical composition of the sample, using the current version of Test Method E 534.

9.2 Grading shall be determined by Test Method C 136.

10. Inspection

10.1 The purchaser or his representative shall be provided free entry and necessary facilities at the production plant or storage area if he elects to sample sodium chloride at the source.

11. Rejection and Rehearing

11.1 The sodium chloride shall be subject to rejection if it fails to conform to any of the requirements of this specification.

11.2 In the case of failure to meet the requirements on the basis of an initial sample of a lot represented, two additional samples shall be taken from the lot and tested. If both additional samples meet the requirements, the lot shall be accepted.

12. Packaging and Marking

12.1 The sodium chloride shall be delivered in bags or other containers acceptable to the purchaser, or in bulk lots. The name of the producer and the net weight shall be legibly marked on each bag or container, or in the case of bulk lots, on the shipping or delivery report.

13. Keywords

13.1 salt; snow and ice removal; sodium chloride; stabilization; winter maintenance

ANNEX

(Mandatory Information)

A1. RAPID METHOD OF ANALYSIS FOR SODIUM CHLORIDE

A1.1 Scope

A1.1.1 This annex covers a rapid method for chemical analysis of sodium chloride.

A1.2 Significance and Use

A1.2.1 The procedure for chemical analysis in this annex determines the total amount of chlorides present in the sample and expresses that value as sodium chloride.

A1.2.2 This rapid method of analysis does not distinguish between sodium chloride and other evaporite chloride compounds with ice-melting capabilities. Typical rock salt and solar salt sometimes contains small amounts of $CaCl_2$, $MgCl_2$, and KCl, depending on the source of the material. When this rapid method is used on continuing shipments from a known source, it will provide a fast, essentially accurate determination of the sodium chloride content of the material furnished. Thus, the need for testing by the referee method, Test Method E 534, is reduced.

A1.3 Apparatus

A1.3.1 *Glassware*—Standard weighing bottles, volumetric flasks (conforming to Specification E 288, Class B, or better), and burets (conforming to Specification E 287, Class B, or better).

A1.3.2 *Balance*, having a capacity of at least 20 g, accurate and readable to 0.01 g.

A1.4 Reagents

A1.4.1 *Purity of Reagents*—Reagent grade chemicals shall be used in all tests. Unless otherwise indicated, it is intended that all reagents conform to the specifications of the Committee on Analytical Reagents of the American Chemical Society

where such specifications are available.[7] Other grades may be used, provided it is first ascertained that the reagent is of sufficiently high purity to permit its use without lessening the accuracy of the determination.

A1.4.2 *Purity of Water*—Unless otherwise indicated, references to water shall be understood to mean reagent water as defined by Types I-IV of Specification D 1193.

A1.4.3 *Calcium Carbonate ($CaCO_3$)*—low chloride, powder.

A1.4.4 *Nitric Acid (HNO_3)*, dilute (HNO_3:H_2O, 1:4 by volume).

A1.4.5 *Potassium Chromate (K_2CrO_4) Solution*—(50 g K_2CrO_4/L).

A1.4.6 *Silver Nitrate Solution*—0.05 N $AgNO_3$.

A1.4.7 *Sodium Chloride (NaCl)*

A1.5 Procedure

A1.5.1 Thoroughly mix the composite sample obtained under 8.1, and reduce by quartering or by means of a sample splitter to approximately 500 g. Pulverize the reduced sample to pass a 300-µm (No. 50) sieve.

A1.5.2 *Standardization*—Standardize the silver nitrate ($AgNO_3$) solution daily, using 10 g of reagent grade sodium chloride (NaCl) following the applicable procedure in A1.5.3.

A1.5.3 From the pulverized sodium chloride, obtain a test sample with a mass of 10.00 ± 0.01 g and place in a beaker with 250-mL distilled water. Add 10 mL of the diluted nitric acid solution (HNO_3, 1 + 4 by volume) and stir for 20 min at room temperature to put the salt in solution. Transfer the solution, including any insoluble material, to a 2-L volumetric flask, dilute to the mark with distilled water, and mix. With a pipet, draw off 25 mL of the solution and place in a white porcelain casserole. Add 0.5 g of calcium carbonate ($CaCO_3$) to neutralize the excess HNO_3, and adjust the pH to approximately 7. Add 3 mL of the potassium chromate (K_2CrO_4) solution as an indicator and titrate dropwise with the silver nitrate ($AgNO_3$) solution until a faint but distinct change in color occurs—a persistent yellowish brown endpoint (see Note A1.1), comparable to standardization. Estimate the titer from the buret to the second decimal place.

NOTE A1.1—The stirred sample solution, after addition of potassium chromate (K_2CrO_4) and calcium carbonate ($CaCO_3$), is a creamy lemon-yellow color. Addition of the silver nitrate ($AgNO_3$) solution produces silver chloride, which begins to agglomerate as the titration progresses, and the lemon-yellow color will begin to have whitish, opaque swirls of silver chloride. As the titration proceeds, the red color formed by addition of each drop begins to disappear more slowly. Continue the addition dropwise until a faint but distinct change in color occurs and the yellow-brown to faint reddish-brown color persists. The first stable presence of red silver chromate is the endpoint. If the endpoint is overstepped, a deep reddish-brown color occurs

A1.6 *Calculate*—Calculate the total chlorides expressed as percent NaCl as follows:

$$P = [(A/B) \times (C/D)] \times 100 \quad \text{(A1.1)}$$

where:

A = reagent grade NaCl used, g,
B = 0.05 N $AgNO_3$ solution required to titrate the reagent grade NaCl, mL,
C = 0.05 N $AgNO_3$ solution required to titrate the sample being tested, mL,
D = test sampling mass, g, and
P = total chlorides, expressed as sodium chloride, in the sample being tested, %.

A1.6.1 If moisture is apparent in the sample, dry a duplicate 10-g sample of the pulverized salt at 105°C and correct the mass of the sample accordingly.

A1.7 Precision and Bias

A1.7.1 *Precision*[8]—An interlaboratory study was conducted and an analysis was made that included three materials ranging from approximately 92 to 99 % NaCl. Ten laboratories were included in the study.

A1.7.2 *Single-Operator Precision* (NaCl composition 95.0 % and greater)—The single-operator standard deviation of a single test result for average NaCl composition 95.0 % and greater has been found to be 0.248.[9] Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 0.70 %.[9]

A1.7.3 *Multilaboratory Precision* (NaCl composition 95.0 % and greater)—The multilaboratory standard deviation of a single test result for average NaCl composition greater than 95.0 % has been found to be 0.633 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 1.79 %.[9]

A1.7.4 *Single Operator Precision* (NaCl composition less than 95.0 % and greater than 90.0 %)—The single-operator coefficient of variation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.427 %.[9] Therefore, results of two properly conducted tests by the same operator on the same material with the same equipment and under the same conditions should not differ by more than 1.21 %.[9]

A1.7.5 *Multilaboratory Precision* (NaCl composition less than 95.0 % and greater than 90.0 %)—The multilaboratory standard deviation of a single test result for average NaCl composition less than 95.0 % and greater than 90.0 % has been found to be 0.711 %.[9] Therefore, results of two properly conducted tests in different laboratories on the same material should not differ by more than 2.00 %.[9]

A1.7.6 *Bias*—No justifiable statement can be made on the bias of this test method because the data are not available.

[7] *Reagent Chemicals, American Chemical Society Specifications*, American Chemical Society, Washington, DC. For suggestions on the testing of reagents not listed by the American Chemical Society, see *Analar Standards for Laboratory Chemicals*, BDH Ltd., Poole, Dorset, U.K., and the *United States Pharmacopeia and National Formulary*, U.S. Pharmacopeial Convention, Inc., (USPC), Rockville, MD.

[8] Supporting data have been filed at ASTM Headquarters. Request RR:D04-1016.

[9] These numbers represent, respectively, the (1s %) and (d2s %) limits, as described in Practice C 670.

Attachment 5:
Calibration Procedures

CALIBRATION CHART (US)

Agency: _____

Location: _____

Truck No: _____ Spreader No: _____

Date: _____ By: _____

Gate Opening _____ (inches) (Hopper Type Spreaders)				**DISCHARGE RATE** (pounds discharged per mile)								
	A	**B**	**C**	**TRAVEL SPEED AND COMPUTATION MULTIPLIER ( )**								
Control Setting	Shaft RPM (Loaded)	Discharge per Revolution (pounds)	Discharge per Minute (lb) (A x B)	5 mph (x 12.00)	10 mph (x 6.00)	15 mph (x 4.00)	20 mph (x 3.00)	25 mph (x 2.40)	30 mph (x 2.00)	35 mph (x 1.71)	40 mph (x 1.50)	45 mph (x 1.33)
1			-	-	-	-	-	-	-	-	-	-
2			-	-	-	-	-	-	-	-	-	-
3			-	-	-	-	-	-	-	-	-	-
4			-	-	-	-	-	-	-	-	-	-
5			-	-	-	-	-	-	-	-	-	-
6			-	-	-	-	-	-	-	-	-	-
7			-	-	-	-	-	-	-	-	-	-
8			-	-	-	-	-	-	-	-	-	-
9			-	-	-	-	-	-	-	-	-	-
10			-	-	-	-	-	-	-	-	-	-
11			-	-	-	-	-	-	-	-	-	-

THE ACTUAL APPLICATION RATE (POUNDS PER LANE MILE) **ON THE HIGHWAY IS THE DISCHARGE RATE DIVIDED BY THE NUMBER OF LANES BEING TREATED**

SPREADER CALIBRATION PROCEDURE

Calibration is simply calculating the pounds per mile discharged for each control setting at various travel speeds by first counting the number of auger or conveyor shaft revolutions per minute, measuring the weight of salt discharged in one revolution, then multiply the two to obtain discharge per minute, and finally multiplying the discharge per minute by the time it takes to travel 1 mile. Most spreaders have multiple gate openings; so you must calibrate for specific gate openings.

Equipment needed:

1. Scale to weigh salt
2. Salt collection device
3. Marking device
4. Watch with second hand

Calibration steps:

1. Remove, by-pass or turn off spinner.
2. Warm truck's hydraulic oil to normal operating temperature with spreader system running.
3. Put partial load of salt on truck.
4. Mark shaft end of auger or conveyor.
5. Dump salt on auger.
6. Rev truck engine to operating RPM.
7. Count number of shaft revolutions per minute at each spreader control setting, record.
8. Collect salt discharged for one revolution, weigh it and deduct the weight of the container. (For greater accuracy, collect salt for several revolutions and divide by that number of revolutions to get the weight for one revolution.)
9. Multiply Column A by Column B to get Column C; then multiply Column C by the number of minutes to travel one mile ( ) at various truck speeds to get pounds Discharged per mile.*

*example : at Control Setting 2, w/ a shaft RPM of 3, a discharge of 18 lbs. per revolution and a speed of 20 mi/hr, the computation is: 3 x 18 x 3.00 = 162 lb/mi. NC

CALIBRATION OF AUTOMATIC CONTROLS

Automatic controls may be calibrated using the following steps:

1. Remove, by-pass or turn of spinner.
2. Set control on given number.
3. Tie sack or heavy canvas under spreader discharge area.
4. Mark specific distance on a highway or other paved area, such as 1000 ft. .
5. Drive that distance with spreader operating.
6. Weigh salt collected.
7. Multiply weight of salt by 5.28 (in case of 1000 ft.).

Answer will be salt discharged per mile which remains constant regardless of speed, but calibration must be done for each control setting. Some automatic control manufacturers have "simulators" which eliminate need for on-road operation for calibration.

Attachment 6:
Snow Removal Equipment Inventory

Attachment 7: Treatment Application Rates

Table 8. Weather event: light snow storm.

PAVEMENT TEMPERATURE RANGE, AND TREND	INITIAL OPERATION				SUBSEQUENT OPERATIONS			COMMENTS
	pavement surface at time of initial operation	maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		
			liquid	solid or prewetted solid		liquid	solid or prewetted solid	
Above 0°C (32°F), steady or rising	Dry, wet, slush, or light snow cover	None, see comments			None, see comments			1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below 2) Treat icy patches if needed with chemical at 28 kg/lane-km (100 lb/lane-mi); plow if needed
Above 0°C (32°F), 0°C (32°F) or below is imminent; *ALSO* **-7 to 0°C (20 to 32°F)**, remaining in range	Dry	Apply liquid or prewetted solid chemical	28 (100)	28 (100)	Plow as needed; reapply liquid or solid chemical when needed	28 (100)	28 (100)	1) Applications will need to be more frequent at lower temperatures and higher snowfall rates 2) It is not advisable to apply a liquid chemical at the indicated spread rate when the pavement temperature drops below -5°C (23°F) 3) Do not apply liquid chemical onto heavy snow accumulation or packed snow
	Wet, slush, or light snow cover	Apply liquid or solid chemical	28 (100)	28 (100)				
-10 to -7°C (15 to 20°F), remaining in range	Dry, wet, slush, or light snow cover	Apply prewetted solid chemical		55 (200)	Plow as needed; reapply prewetted solid chemical when needed		55 (200)	If sufficient moisture is present, solid chemical without prewetting can be applied
Below -10°C (15°F), steady or falling	Dry or light snow cover	Plow as needed			Plow as needed			1) It is not recommended that chemicals be applied in this temperature range 2) Abrasives can be applied to enhance traction

Notes

CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to *prevent* deteriorating conditions or development of packed and bonded snow. (2) Apply chemical ahead of traffic rush periods occurring during storm.

PLOWING. If needed, *plow before chemical applications* so that excess snow, slush, or ice is removed and pavement is wet, slushy, or lightly snow covered when treated.

Table 9. Weather event: light snow storm with period(s) of moderate or heavy snow.

PAVEMENT TEMPERATURE RANGE, AND TREND	INITIAL OPERATION				SUBSEQUENT OPERATIONS					COMMENTS
	pavement surface at time of initial operation	maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)				
			liquid	solid or prewetted solid		liquid		solid or prewetted solid		
						light snow	heavier snow	light snow	heavier snow	
Above 0°C (32°F), steady or rising	Dry, wet, slush, or light snow cover	None, see comments			None, see comments					1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below 2) Treat icy patches if needed with chemical at 28 kg/lane-km (100 lb/lane-mi); plow if needed
Above 0°C (32°F), 0°C (32°F) or below is imminent; *ALSO* **-4 to 0°C (25 to 32°F)**, remaining in range	Dry	Apply liquid or prewetted solid chemical	28 (100)	28 (100)	Plow as needed; reapply liquid or solid chemical when needed	28 (100)	55 (200)	28 (100)	55 (200)	1) Applications will need to be more frequent at lower temperatures and higher snowfall rates 2) Do not apply liquid chemical onto heavy snow accumulation or packed snow 3) After heavier snow periods and during light snow fall, reduce chemical rate to 28 kg/lane-km (100 lb/lane-mi); continue to plow and apply chemicals as needed
	Wet, slush, or light snow cover	Apply liquid or solid chemical	28 (100)	28 (100)						
-10 to -4°C (15 to 25°F), remaining in range	Dry, wet, slush, or light snow cover	Apply prewetted solid chemical		55 (200)	Plow as needed; reapply prewetted solid chemical when needed			55 (200)	70 (250)	1) If sufficient moisture is present, solid chemical without prewetting can be applied 2) Reduce chemical rate to 55 kg/lane-km (200 lb/lane-mi) after heavier snow periods and during light snow fall; continue to plow and apply chemicals as needed
Below -10°C (15°F), steady or falling	Dry or light snow cover	Plow as needed			Plow as needed					1) It is not recommended that chemicals be applied in this temperature range 2) Abrasives can be applied to enhance traction

Notes

CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to *prevent* deteriorating conditions or development of packed and bonded snow. (2) *Anticipate increases in snowfall intensity. Apply higher rate treatments prior to or at the beginning of heavier snowfall periods to prevent development of packed and bonded snow*. (3) Apply chemical ahead of traffic rush periods occurring during storm.

PLOWING. If needed, *plow before chemical applications* so that excess snow, slush, or ice is removed and pavement is wet, slushy, or lightly snow covered when treated.

Table 10. Weather event: moderate or heavy snow storm.

PAVEMENT TEMPERATURE RANGE, AND TREND	INITIAL OPERATION				SUBSEQUENT OPERATIONS			COMMENTS
	pavement surface at time of initial operation	maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		
			liquid	solid or prewetted solid		liquid	solid or prewetted solid	
Above 0°C (32°F), steady or rising	Dry, wet, slush, or light snow cover	None, see comments			None, see comments			1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below 2) Treat icy patches if needed with chemical at 28 kg/lane-km (100 lb/lane-mi); plow if needed
Above 0°C (32°F), 0°C (32°F) or below is imminent; *ALSO* **-1 to 0°C (30 to 32°F)**, remaining in range	Dry	Apply liquid or prewetted solid chemical	28 (100)	28 (100)	Plow accumulation and reapply liquid or solid chemical as needed	28 (100)	28 (100)	1) If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 55 kg/lane-km (200 lb/lane-mi) to accommodate longer operational cycles 2) Do not apply liquid chemical onto heavy snow accumulation or packed snow
	Wet, slush, or light snow cover	Apply liquid or solid chemical	28 (100)	28 (100)				
-4 to -1°C (25 to 30°F), remaining in range	Dry	Apply liquid or prewetted solid chemical	55 (200)	42-55 (150-200)	Plow accumulation and reapply liquid or solid chemical as needed	55 (200)	55 (200)	1) If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 110 kg/lane-km (400 lb/lane-mi) to accommodate longer operational cycles 2) Do not apply liquid chemical onto heavy snow accumulation or packed snow
	Wet, slush, or light snow cover	Apply liquid or solid chemical	55 (200)	42-55 (150-200)				
-10 to -4°C (15 to 25°F), remaining in range	Dry, wet, slush, or light snow cover	Apply prewetted solid chemical		55 (200)	Plow accumulation and reapply prewetted solid chemical as needed		70 (250)	1) If the desired plowing/treatment frequency cannot be maintained, the spread rate can be increased to 140 kg/lane-km (500 lb/lane-mi) to accommodate longer operational cycles 2) If sufficient moisture is present, solid chemical without prewetting can be applied
Below -10°C (15°F), steady or falling	Dry or light snow cover	Plow as needed			Plow accumulation as needed			1) It is not recommended that chemicals be applied in this temperature range 2) Abrasives can be applied to enhance traction

Notes

CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to *prevent* deteriorating conditions or development of packed and bonded snow -- *timing and frequency of subsequent applications will be determined primarily by plowing requirements.* (2) Apply chemical ahead of traffic rush periods occurring during storm.

PLOWING. *Plow before chemical applications* so that excess snow, slush, or ice is removed and pavement is wet, slushy, or lightly snow covered when treated.

Table 11. Weather event: frost or black ice.

PAVEMENT TEMPERATURE RANGE, TREND, AND RELATION TO DEW POINT	TRAFFIC CONDITION	INITIAL OPERATION			SUBSEQUENT OPERATIONS			COMMENTS
		maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		maintenance action	dry chemical spread rate, kg/lane-km (lb/lane-mi)		
			liquid	solid or prewetted solid		liquid	solid or prewetted solid	
Above 0°C (32°F), steady or rising	Any level	None, see comments			None, see comments			Monitor pavement temperature closely; begin treatment if temperature starts to fall to 0°C (32°F) or below and is at or below dew point
-2 to 2°C (28 to 35°F), remaining in range or falling to 0°C (32°F) or below, *and* equal to or below dew point	Traffic rate less than 100 vehicles per h	Apply prewetted solid chemical		7-18 (25-65)	Reapply prewetted solid chemical as needed		7-18 (25-65)	1) Monitor pavement closely; if pavement becomes wet or if thin ice forms, reapply chemical at higher indicated rate 2) Do not apply liquid chemical on ice so thick that the pavement can not be seen
	Traffic rate greater than 100 vehicles per h	Apply liquid or prewetted solid chemical	7-18 (25-65)	7-18 (25-65)	Reapply liquid or prewetted solid chemical as needed	11-32 (40-115)	7-18 (25-65)	
-7 to -2°C (20 to 28°F), remaining in range, *and* equal to or below dew point	Any level	Apply liquid or prewetted solid chemical	18-36 (65-130)	18-36 (65-130)	Reapply liquid or prewetted solid chemical when needed	18-36 (65-130)	18-36 (65-130)	1) Monitor pavement closely; if thin ice forms, reapply chemical at higher indicated rate 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency 3) It is not advisable to apply a liquid chemical at the indicated spread rate when the pavement temperature drops below -5°C (23°F)
-10 to -7°C (15 to 20°F), remaining in range, *and* equal to or below dew point	Any level	Apply prewetted solid chemical		36-55 (130-200)	Reapply prewetted solid chemical when needed		36-55 (130-200)	1) Monitor pavement closely; if thin ice forms, reapply chemical at higher indicated rate 2) Applications will need to be more frequent at higher levels of condensation; if traffic volumes are not enough to disperse condensation, it may be necessary to increase frequency
Below -10°C (15°F), steady or falling	Any level	Apply abrasives			Apply abrasives as needed			It is not recommended that chemicals be applied in this temperature range

Notes

TIMING. (1) Conduct initial operation in advance of freezing. Apply liquid chemical up to 3 h in advance. Use longer advance times in this range to effect drying when traffic volume is low. Apply prewetted solid 1 to 2 h in advance. (2) In the absence of precipitation, liquid chemical at 21 kg/lane-km (75 lb/lane-

mi) has been successful in preventing bridge deck icing when placed up to 4 days before freezing on higher volume roads and 7 days before on lower volume roads.

Table 12. Weather event: freezing rain storm.

PAVEMENT TEMPERATURE RANGE, AND TREND	INITIAL OPERATION		SUBSEQUENT OPERATIONS		COMMENTS
	maintenance action	chemical spread rate, kg/lane-km (lb/lane-mi)	maintenance action	chemical spread rate, kg/lane-km (lb/lane-mi)	
Above 0°C (32°F), steady or rising	None, see comments		None, see comments		1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below 2) Treat icy patches if needed with prewetted solid chemical at 21-28 kg/lane-km (75-100 lb/lane-mi)
Above 0°C (32°F), 0°C (32°F) or below is imminent	Apply prewetted solid chemical	21-28 (75-100)	Reapply prewetted solid chemical as needed	21-28 (75-100)	Monitor pavement temperature and precipitation closely
-7 to 0°C (20 to 32°F), remaining in range	Apply prewetted solid chemical	21-70 (75-250)	Reapply prewetted solid chemical as needed	21-70 (75-250)	1) Monitor pavement temperature and precipitation closely 2) Increase spread rate toward *higher indicated rate* with decrease in pavement temperature or increase in intensity of freezing rainfall 3) Decrease spread rate toward *lower indicated rate* with increase in pavement temperature or decrease in intensity of freezing rainfall
-10 to -7°C (15 to 20°F), remaining in range	Apply prewetted solid chemical	70-110 (250-400)	Reapply prewetted solid chemical as needed	70-110 (250-400)	1) Monitor precipitation closely 2) Increase spread rate toward *higher indicated rate* with increase in intensity of freezing rainfall 3) Decrease spread rate toward *lower indicated rate* with decrease in intensity of freezing rainfall
Below -10°C (15°F), steady or falling	Apply abrasives		Apply abrasives as needed		It is not recommended that chemicals be applied in this temperature range

Notes

CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to *prevent* glaze ice conditions. (2) Apply chemical ahead of traffic rush periods occurring during storm.

Table 13. Weather event: sleet storm.

PAVEMENT TEMPERATURE RANGE, AND TREND	INITIAL OPERATION		SUBSEQUENT OPERATIONS		COMMENTS
	maintenance action	chemical spread rate, kg/lane-km (lb/lane-mi)	maintenance action	chemical spread rate, kg/lane-km (lb/lane-mi)	
Above 0°C (32°F), steady or rising	None, see comments		None, see comments		1) Monitor pavement temperature closely for drops toward 0°C (32°F) and below 2) Treat icy patches if needed with prewetted solid chemical at 35 kg/lane-km (125 lb/lane-mi)
Above 0°C (32°F), 0°C (32°F) or below is imminent	Apply prewetted solid chemical	35 (125)	Plow as needed, reapply prewetted solid chemical when needed	35 (125)	Monitor pavement temperature and precipitation closely
-2 to 0°C (28 to 32°F), remaining in range	Apply prewetted solid chemical	35-90 (125-325)	Plow as needed, reapply prewetted solid chemical when needed	35-90 (125-325)	1) Monitor pavement temperature and precipitation closely 2) Increase spread rate toward *higher indicated rate* with increase in sleet intensity 3) Decrease spread rate toward *lower indicated rate* with decrease in sleet intensity
-10 to -2°C (15 to 28°F), remaining in range	Apply prewetted solid chemical	70-110 (250-400)	Plow as needed, reapply prewetted solid chemical when needed	70-110 (250-400)	1) Monitor precipitation closely 2) Increase spread rate toward *higher indicated rate* with decrease in pavement temperature or increase in sleet intensity 3) Decrease spread rate toward *lower indicated rate* with increase in pavement temperature or decrease in sleet intensity
Below -10°C (15°F), steady or falling	Plow as needed		Plow as needed		1) It is not recommended that chemicals be applied in this temperature range 2) Abrasives can be applied to enhance traction

Notes

CHEMICAL APPLICATIONS. (1) Time initial and subsequent chemical applications to *prevent* the sleet from bonding to the pavement. (2) Apply chemical ahead of traffic rush periods occurring during storm.

Attachment 8:
Sample Operations Report

TOWN OF ANDOVER - PUBLIC WORKS DEPARTMENT
Snow and Ice Report

Haffner's; (978) 794-1785, (978) 683-6934 Haffners Diesel ____________ /gallon

Start Date: ____________
End Date: ____________
Snow Accumulation: ____________
____
Police Call: ____________

Weather: ____

REPORT TIMES	**NAME**	**TIME IN**
HW Supt		
Gen Foreman		
Working Foreman #1		
Working Foreman #2		
Dispatcher		

	TIME
HW Crew Called In	
Scheduled Report Time	
Hired Plows Called In Time	
Hired Plows Release Time	

	TIMES		**AREAS TREATED**				
	From	To	Main Roads	Intersections	Secondary Roads	Hills	Schools
1st Run							
2nd Run							
3rd Run							

CaCl (gals) ____________ **Salt (tons)** ____________ **Sand (tons)** 0 (estimated only)

Salt (END OF STORM) ____________

TOWN VEHICLES PLOWING

from ____________ to ____________
from ____________ to ____________

Vehicle #	Employee 1	Employee 2	Vehicle #	Employee 1	Employee 2

ROAD RANGERS	TRUCK #	MECHANICS ON DUTY	ADDITIONAL HELP

HIRED EQUIPMENT THAT DID NOT REPORT	EMPLOYEES THAT DID NOT REPORT

Comments:

Appendix B
Draft Miscellaneous Bylaws: Regulations Governing Salt Storage at Commercial and Industrial Properties

Part II: By-Laws, Article XII Miscellaneous Bylaws

§XX **Regulations governing salt storage at commercial and industrial properties.**

(1) Salt includes solids such as sodium chloride (NaCl), potassium chloride (KCl), calcium chloride (CaCl2), and magnesium chloride (MgCl2). It also includes mixtures of the same substances with abrasives such as sand, cinder, slag, etc.
(2) Salt shall be stored on an impermeable surface.
(3) Salt shall be covered at all times to prevent dispersion by runoff and to control wind dispersal.
(4) When not using a permanent roof, a waterproof impermeable, flexible cover must be placed over all storage piles to protect against precipitation and surface water runoff. The cover must prevent runoff and leachate from being generated by the outdoor storage piles. The cover must be secured to prevent removal by wind or other storm events.
(5) Any roof leaks, tears or damage should be temporarily repaired during winter to reduce the entrance of precipitation. Permanent repairs shall be completed prior to the next winter season.
(6) Storage areas shall be graded to direct surface drainage away from the storage area. In no case shall the surface drainage be allowed to flow through the base of the storage piles.