

Chloride Pollutant Minimization Plan for The City of Crest Hill

11/9/22

Prepared by City of Crest Hill



The City of Crest Hill is a member of the
Lower Des Plaines Watershed Group



1.0 Introduction to Chloride Issue in LDPR

This Pollutant Minimization Plan (PMP) has been prepared by The City of Crest Hill to reduce the environmental impacts from the organization’s chloride related operations. The City of Crest Hill is a discharger covered under the Time Limited Water Quality Standard for Chloride for the Lower Des Plaines River watersheds. This PMP has been prepared to meet the requirements laid out in the Time Limited Water Quality Standard (TLWQS) for Chloride. The term of this PMP covers the first 5-years of the TLWQS period and will be updated following the re-evaluations at Years 4 ½, 9 ½, and 14 ½.

Chloride is a permanent pollutant. It does not degrade over time and continues to accumulate in the environment. Proactive measures to reduce the amount of chloride discharged can help reduce the impacts from chloride on receiving waterways and the environment. Chloride impacts aquatic life, vegetation, and infrastructure. As the chloride concentrations increase and our waters become saltier, aquatic and plant biodiversity decreases and native species are overtaken by salt tolerant invasive species.

Chlorides are commonly found in road salt, fertilizers, water softeners, dust suppressants, and certain industrial processes. Chloride-based deicers, like rock salt, are used on parking lots, sidewalks, and roads to provide safe surfaces to the public during the winter months. These deicers are one of most common sources of chloride in the Chicago region.

The water quality standard for chloride for the Chicago Area Waterway System (CAWS) was updated as part of the rulemaking process related to changing the designated use of the CAWS. The chloride standard was updated from 1,500 mg/L during the winter and 500 mg/L during the summer to 500 mg/L all year round. The change in the chloride water quality standard took effect in 2018. Because portions of the CAWS were not going to meet this new standard due to the need to maintain public safety on roads, highways, sidewalks and parking lots during the winter months, a joint submittal and supporting individual petitions were submitted between 2015 and 2018 to the Illinois Pollution Control Board for a variance from the chloride standard. The joint petition laid out best management practices that can be achieved by the petitioners to reduce their chloride use while maintaining public safety during winter storms. In addition to the CAWS, portions of the Lower Des Plaines River watershed were included as it receives water from the CAWS.

On November 4, 2021, the IPCB issued an Opinion and Order for a Time Limited Water Quality Standard (TLWQS) for Chloride for portions of the CAWS and Lower Des Plaines River watersheds. The TLWQS for Chloride watersheds are defined in the Opinion and Order as the Des Plaines River watershed from the Kankakee River to the Will County Line (except for the DuPage River watershed) and the CAWS watershed (except the North Branch Chicago River watershed upstream of the North Shore Channel and those portions of the watershed located in Indiana). This is a watershed-based approach to reduce the chloride concentrations in the CAWS and Lower Des Plaines River. The TLWQS for Chloride requires all dischargers covered under the TLWQS for Chloride to create PMPs and implement specific best management practices based on their operations to reduce their chloride discharges.

2.0 Organization Info, Facilities’ Specific Info

2.1 Facility overviews/descriptions

Agency Name: City of Crest Hill		
Facility Name: Public Works		Permit Number: ILG103
Facility Address:2090 Oakland Ave		
City: Crest Hill	State: Illinois	Zip Code:60435

It is the mission of the Department of Public Works to provide safe streets through efficient and timely snow and ice control. This is accomplished by being appropriately equipped with the latest advancements in snow fighting equipment, technology, and materials, utilizing a well-trained, professional staff, following best management practices, and being well-organized and prepared for any winter storm event.

The City of Crest Hill is situated within the moderate snowfall band, receiving an annual average snowfall of approximately 40 inches, although snowfall totals in excess of 90 inches and less than 14 inches per year have occurred. The task of keeping Crest Hill's 83 centerline miles of streets safe for vehicular traffic during and following winter storms is the responsibility of the Department of Public Works. The Department takes this charge seriously and has no single program that utilizes all of the resources available as completely as the snow and ice control program does. This plan outlines the procedures and resources utilized to achieve the goal of keeping the streets as safe as possible during snow events.

For the purpose of coverage under the plan, the City is divided into six (6) zones consisting of five (5) residential routes and one (1) arterial route. One plow truck and driver is assigned to each route to maximize familiarity and provide a consistent level of service. An additional truck assists in the arterial route if necessary. These routes are utilized for all plowing and salting applications. Plow trucks will commence plowing operations as necessary. Drivers will shift to full-width plowing at the end of a storm should conditions warrant.

The City of Crest Hill uses a newly constructed salt barn to safely store all salt used by the City as part of the snow removal process. This structure was constructed in 2020 and hold 1800 tons of salt. It is enclosed on 3 sides with a front-loading opening. It also has a conveyor belt for salt loading.

2.2 Chloride Sources

The City of Crest Hill chloride sources are winter road maintenance and salt storage.

The City of Crest Hill provides winter maintenance for roads, parking lots, and sidewalks on all City streets and owned properties. All winter storm maintenance is done per the winter operations manual.

The City of Crest Hill uses a newly constructed salt barn to safely store all salt used by the City as part of the snow removal process. This structure was constructed in 2020 and hold 1800 tons of salt. It is enclosed on 3 sides with a front-loading opening. It also has a conveyor belt for salt loading.

2.3 Level of Service for Winter Maintenance Activities

The winter operations manual details all steps taken during any winter event and how we respond as a department. We have plans in place for any type of winter event and a response that is appropriate for that event. All events are different, and we determine the appropriate plan of action based on up to date forecasts and predictions from reputable weather sources.

3.0 Chloride Monitoring Data

Chloride monitoring data will be collected for the CAWS and Lower Des Plaines River watersheds per the IPCB order. The data will be maintained by the workgroups. Chloride data for the CAWS will be collected by MWRD for the CAWS watershed and provided to the workgroups as part of the annual reporting as required by the IPCB order. The Lower Des Plaines Watershed Group also maintains a USGS monitoring station in the Des Plaines River at Channahon, IL that collects continuous conductivity data to estimate chloride concentrations.

The City of Crest Hill uses precise fleet management to monitor asset usage during winter storm events. Each storm is monitored, and the data is tabulated per event into a spreadsheet per vehicle used. We monitor salt usage per truck as well as anti-icing done before a storm event.

4.0 Chloride Reduction BMPs for POTWs, MS4s, CSOs, Industrial Sources, IDOT/Tollway

As part of the Chloride TLWQS, specific BMPs were identified for POTWs, MS4s, CSOs, Industrial Sources, and IDOT/Tollway to reduce the chloride impact on the watershed. These BMPs will be implemented over the 15-year term and additional BMPs evaluated at 5-year intervals during the 15-year term. Further details about winter maintenance practices currently being implemented by The City of Crest Hill are included in The City of Crest Hill’s Winter Operations Manual for Snow and Ice Removal, which is included as Appendix A. The BMPs identified are outlined below:

Workgroup BMP

BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
The permittee must participate in a Chlorides workgroup for the LDPR, depending on the watershed within which the facility’s discharge is located.	X		The City of Crest Hill has been a member of the Lower Des Plaines Watershed Group since 2017. Staff attends meetings, workshops, and trainings provided by Lower Des Plaines Watershed Group.

Salt Storage and Handling BMPs

BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
Store all salt on an impermeable pad that must be constructed to ensure that minimal stormwater is coming into contact with salt unless the salt is stored in a container that ensures stormwater does not come into contact with the salt.	X		All salt is stored on site in a covered building. Building has three sides and a front opening for loading. Storm flaps hang from opening to block wind, rain, and snow from entering. Concrete blocks secure front of building when not in use.
Cover salt piles at all times except when in active use, unless stored indoors.	X		Salt is covered by salt building, trucks with salt are parked indoors.
For working areas, provide berms and or sufficient slope to allow snow melt and stormwater to drain away from the area. If snow melt and stormwater cannot be drained away from the working area, channeling water to a collection point such as a sump, holding tank or lined basin for	X		Lined catch basin is used at nearest point to salt building to catch runoff. Future construction plans to implement capture of snow melt/stormwater has been discussed and will be budgeted in the near future as of now.

collection, discharge at a later time, use for prewetting, and use for make-up water for brine must be considered.			
MS4/CSO Only - Use deicing material storage structures for all communities covered under General Permit ILR40 for MS4 communities.	X		All liquid materials are stored properly in containers.
<p>Good housekeeping practices must be implemented at the site, including:</p> <ul style="list-style-type: none"> • cleanup of salt at the end of each day or conclusion of a storm event; • tarping of trucks for transportation of bulk chloride; • maintaining the pad and equipment; • good practices during loading and unloading; • cleanup of loading and spreading equipment after each snow/ice event; • a written inspection program for storage facility, structures and work area; • removing surplus materials from the site when winter activity finished where applicable; • annual inspection and repairs completed when practical; • evaluate the opportunity to reduce or reuse the wash water. 	X		<p>Staff practices good housekeeping during and after each event. Staff works to contain as much salt as possible during loading and uses the sweeper to contain salt after and event, preventing as little runoff as possible. Hand containment is also done in smaller areas where large equipment won't fit.</p> <p>Staff will document all loading amounts per event per truck. Staff enacts closing procedures at end of winter season and makes any necessary improvements or repairs as needed.</p>

Winter Maintenance Operations BMPs

BMP	Currently Implementing	Will Implement (Target Year)	Agency Description of Current Implementation
Calibrate all salt spreading equipment at least annually before November 30th. Records of the calibration results must be maintained for each piece of spreading equipment.	X		Fleet team calibrates all salt spreading by the end of November and logs all maintenance done.

Pre-wet road salt before use, either by applying liquids to the salt stockpile, or by applying liquids by way of the spreading equipment as the salt is deposited on the road.	X		Staff has tanks on trucks to apply pre wet to salt during storm events.
Use equipment to measure the pavement temperature unless such equipment has already been installed on road salt spreading vehicles.	X		Staff uses handheld Fluke IR Thermometers to measure pavement temperatures.
Develop and implement a protocol to vary the salt application rate based on pavement temperature, existing weather conditions, and forecasted weather conditions.	X		Staff has material usage guidelines on the manual to follow based on type and rate of precipitation.
Track and record salt quantity used and storm conditions from each call-out.	X		Staff uses fleet management software to track this.
Develop a written plan for implementation of anti-icing, with milestones. The plan should consider increased use of liquids (e.g., carbohydrate products) beginning with critical locations such as bridges over streams.	X		Staff has plans for anti-icing before all applicable storm events in the winter manual.
Provide employees involved in winter maintenance operations with annual training before November 30th on best management practices in the use of road salt in operations, including the practice of plowing first and applying salt only after snow has been cleared.	X		Staff uses both in person and online annual training to provide them with the most up to date winter operations training. Staff tracks all training attendance annually.
Be responsible for complying with all applicable BMPs even when deicing practices are contracted out and ensure that contractors are properly trained and comply with all applicable BMPs.	X		The City of Crest Hill does not currently contract any deicing services.
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.		X	Will implement in 2023
Obtain and put into place equipment necessary to implement all salt			Staff currently has up to date equipment to meet this BMP. Staff will continue to

spreading/deicing measure specified in this BMP, such as any new or retrofitted salt spreading equipment necessary to allow for pre-wetting and proper rates of application.	X		follow up on the newest technologies and budget annually for improvements.
MS4/CSO/IDOT/TOLLWAY Only - Install equipment to measure the pavement temperature on the winter maintenance fleet for a sufficient number of vehicles to provide sufficient information to adjust application rates for the most efficient levels. Develop and complete a plan to equip the winter maintenance fleet before the first re-evaluation.	X		Plow trucks have pavement temperature devices.
MS4/CSO/IDOT/TOLLWAY Only - Before the first re-evaluation, develop a method for conducting a post-winter review to identify areas of success and areas in need of improvement. Items to be completed as part of the review must include, but are not limited to, an evaluation of each salt spreader's application rate, variations in application rates, and discussion of the variation compared to the recommended rates. Once developed, the review should occur annually in the spring/early summer following each winter season.	X		Staff watches application rate per truck/driver for discrepancies per storm and at the end of the season. Staff checks equipment regularly for proper application rate and meets with drivers as needed if application rates do not match storm intensity.

Additional BMPs Identified for Agency/Facility

If your agency currently does any other BMPs for chlorides specific to your operations (for industrial members – this may include any BMPs related to chlorides in your processes), list them out in the table below and provide details about how you are currently implementing those BMPs. If you don't use any additional BMPs, feel free to delete this section.

BMP	Currently Implementing	Agency Description of Current Implementation
Street Sweeping	X	Staff uses street sweeper as much as possible to collect excess materials after events throughout town.

5.0 Plan to Implement BMPs

BMP	Plan to Implement BMP	Schedule for Implementation
Complete an annual report, as required by paragraph 3(B) of this order, which is standardized in an electronic format and submitted to the IEPA's website and to the watershed group.	The City of Crest Hill will submit an annual report to the workgroup and IEPA gathering all the data from each snow event during the year. Using our management software we will compile the data for the year and provide annual reports and update/amend as needed year to year.	2023

5.0 Other Chloride TLWQS Required Milestones

The City of Crest Hill will implement these specific milestones (not included in the above BMPs) as outlined by the Chloride TLWQS.

Milestone	Agency Completion Date	Agency Completion Details
6 MONTHS AFTER EFFECTIVE DATE: Petitioner establishes a mechanism for tracking of de-icing salt usage for each facility.	January 2016	The City of Crest Hill uses precise fleet management to monitor asset usage during winter storm events. Each storm is monitored, and the data is tabulated per event into a spreadsheet per vehicle used. We monitor salt usage per truck as well as anti-icing done before a storm event.
July 1st OF EVERY YEAR (BEGINNING WITH YEAR 2): Discharger must submit an Annual Report for the previous year beginning on May 1 and ending on April 30 of the following year to the Agency and the chlorides workgroup on. The report shall be on salt usage for deicing and steps taken to minimize salt use and makes the report publicly available.	By July 1 of each year, beginning in Year 2.	The City of Crest Hill will submit an annual report to the workgroup and IEPA.
July 1st of YEAR 3, YEAR 8 and YEAR 13: The chlorides workgroup submits a Status Report to the IEPA which includes an analysis on the following: chlorides monitoring data; report on the chloride workgroup's outreach strategy, which includes outreach efforts to expand coverage of the TLWQS, and outreach and training for nonpoint sources; identification of any new BMPs, treatment technology or salt alternatives; identification of the impediments and potential solutions of those impediments	By July 1 of year 3, the workgroups will submit a Status Report to the IEPA.	

<p>faced by dischargers and those granted coverage under the TLWQS that prevent them from completing the training and making all capital purchases necessary to implement the required BMPs; and identification and description of any assistance (financial, technical, or otherwise) that the chloride workgroup may be able to provide.</p>		
<p>July 1st OF YEAR 4 ½: Chlorides workgroup submits to the Board its first proposed re-evaluation pleading consistent with the Board’s order granting the TLWQS.</p>	<p>By November 12, 2026, the workgroups will submit a re-evaluation to the IEPA and IPCB.</p>	



Winter Operations
Manual
Snow and Ice Removal

2022-2023

Purpose

The purpose of this manual is to provide general guidelines and service level expectations with regard to snow and ice removal within the City of Crest Hill, Illinois. This document will outline various procedures involved in plowing, salting, and anti-icing (an activity intended to prevent the bond of snow and ice to a roadway). The manual also provides material application recommendations over various conditions. The reader should note that the procedures outlined herein do not seek to maintain bare pavement conditions during a storm but seek to attain that goal at its conclusion when possible. Several factors, such as pavement temperature, air temperature, sunlight, and traffic volume affect the ability to completely removed bonded snow from a roadway. Staff seeks to meet this goal with an awareness of the detrimental and cumulative effect of chlorides to area waterways and potable drinking water sources.

Disclaimer

Procedures listed in this manual are considered best practices only and are intended to provide general guidelines for ice and snow removal. As weather conditions vary, ice and snow control treatment plans may be implemented that deviate from the specifications listed in this manual.

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I. General Procedures

CITY OF CREST HILL

2022 SNOW AND ICE CONTROL PLAN

GOALS and OBJECTIVES

MISSION STATEMENT

It is the mission of the Department of Public Works to provide safe streets through efficient and timely snow and ice control. This is accomplished by being appropriately equipped with the latest advancements in snow fighting equipment, technology and materials, utilizing a well-trained, professional staff, following best management practices, and being well-organized and prepared for any winter storm event.

INTRODUCTION

The City of Crest Hill is situated within the moderate snowfall band, receiving an annual average snowfall of approximately 40 inches, although snowfall totals in excess of 90 inches and less than 14 inches per year have occurred. The task of keeping Crest Hill's 83 plus centerline miles of streets safe for vehicular traffic during and following winter storms is the responsibility of the Department of Public Works. The Department takes this charge seriously and has no single program that utilizes all of the resources available as completely as the snow and ice control program does. This plan outlines the procedures and resources utilized to achieve the goal of keeping the streets as safe as possible during snow events.

For the purpose of coverage under the plan, the City is divided into six (6) zones consisting of five (5) residential routes and one (1) arterial route. One plow truck and driver is assigned to each route to maximize familiarity and provide a consistent level of service. An additional truck assists in the arterial route if necessary. These routes are utilized for all plowing and salting applications. Plow trucks will commence plowing operations as necessary. Drivers will shift to full-width plowing at the end of a storm should conditions warrant.

PLANNING THE STORM RESPONSE

Snow and Ice Events

The task of monitoring the weather and establishing a response plan for each event falls to the Director of Public Works and Assistant Director of Public Works. The Streets Crew Leader will provide assistance in support of those efforts. It should be noted in the case of a severe snow event, it may be necessary to have more than one supervisor on duty. However, during an average snowfall, one supervisor will direct operations.

Weather forecast information is monitored and received through various online sources via the Internet and broadcast television. The Director of Public Works and Assistant Director of Public Works are primarily responsible for monitoring information and advising the rest of the staff in the department of any potential storm or forecast that would require the need for snow and ice

intervention. The Public Works Management staff will decide what immediate and/or standby action is needed and take the necessary steps to see that the action is taken. In certain cases, the Police Department Shift Supervisor will notify Police Communications of any icing problems on the commencement of any unanticipated icing conditions. The Police Communications Operator will immediately notify the Director of City Services as to the extent of the icing problems. The Director of Public Works and Assistant Director of Public Works will assign drivers and plow trucks as necessary to apply material to address slippery conditions when warranted during short-duration events. The Director of Public Works and Assistant Director of Public Works will then assess conditions and various forecasting sources and determine an updated projection of storm intensity and duration. Based on the information received, further plans may be formulated.

After-hours weather forecast information is also monitored by Public Works management staff outside of normal operating hours. Should an unanticipated storm develop, they will develop an appropriate response and inform the City Administrator or his/her designee.

LEVEL OF RESPONSE

Based on the weather forecast, the appropriate level of response to any given storm will be chosen by the Duty Director. To the extent possible, the number of drivers and trucks utilized during the storm and the timing of their shifts will be established in advance. Utilizing this approach maximizes the chance that the needed resources will be available for the initial response and throughout the storm event. This level of response can, in general, be built around several different scenarios:

II. Forecast for snow or when temperatures may cause a frost.

During normal working hours, anti-icing chemicals are applied to bridge decks, streets with hills or curves, and streets within school zones as a preventative measure. Typically, this material is also applied prior to weekends during the heart of the winter season as necessary

III. Forecast for 4" or less of snow.

Up to six (6) plow trucks may be dispatched throughout the City when the Duty Director is notified that the streets have started icing or that streets are getting slippery. Trucks are dispatched and may begin salting primary streets, snow routes, and spot salting secondary streets and residential streets as necessary with the objective being to keep passable the streets that are traveled throughout the City. Drivers in residential routes are instructed to spot salt all streets as necessary to include intersections in conjunction with hills, bridges, and snow routes.

The weather forecast and radar information will continue to be reviewed throughout the storm. If the storm is near the end, plow trucks will continue to patrol, salting only as necessary.

It is the goal of the Department of Public Works to have this type of snowfall completely cleared within six hours after the snowfall ceases.

IV. Forecast for 4” to 8” of snow

Projected staffing for the event may require the use of two shifts of up to sixteen-hour increments if necessary, taking into consideration the need to appropriately man water and wastewater operations, to deploy plow trucks for the initial call out based upon the judgment of the Public Works Management staff. This set up may include, if necessary, sending a group of drivers home to rest so they can work safely throughout their shift. The initial response may include up to six (6) plow trucks that can be dispatched throughout the City when the Duty Director is notified that the streets have started icing or are getting slippery. Trucks are dispatched and will begin salting primary streets, snow routes, and spot salting secondary streets and residential streets as necessary with the objective being to keep streets passable throughout the City. Drivers in residential routes may spot salt all streets as necessary to include intersections in conjunction with hills, bridges, and snow routes.

If accumulation of snow is less than one (1) inch when the call out begins and the accumulation rate is slow, plow trucks will apply salt to hills, bridges, and intersections as necessary until the accumulation increases.

Until such time that conditions warrant and an additional driver is called in to plow cul-de-sacs, Plow Drivers will make a pass through cul-de-sacs located within their route to keep them open and passable. In most cases, the additional driver will be called in once accumulation exceeds 2” depending on conditions.

It is the goal of the Department of Public Works to have this type of snowfall completely cleared within 12 hours after the snowfall ceases.

V. Forecast for 8” or more, with storm lasting more than 24 hours

Projected staffing for the event may require the use of two shifts of up to sixteen-hour increments if necessary, taking into consideration the need to appropriately man water and wastewater operations, to deploy plow trucks for the initial call out based upon the judgment of the Public Works Management staff. This set up may include, if necessary, sending a group of drivers home to rest so they can work safely throughout their shift. The initial response may include up to six (6) plow trucks that can be dispatched throughout the City when the Duty Supervisor is notified that the streets have started icing or are getting slippery. Trucks are dispatched and will begin salting primary streets, snow routes, and spot salting secondary streets and residential streets as necessary with the objective being to keep streets passable throughout the City.

Drivers in residential routes will spot salt all streets as necessary to include intersections in conjunction with hills, bridges, and snow routes.

If accumulation of snow is less than one (1) inch when the call out begins and the accumulation rate is slow, plow trucks will apply salt to hills, bridges, and intersections as necessary until the accumulation increases.

Until such time that conditions warrant and an additional driver is called in to plow cul-de-sacs, Plow Drivers will make a pass through cul-de-sacs located within their route to keep them open and passable. In most cases, the additional driver will be called in once accumulation exceeds 2” depending on conditions.

These types of snowfalls are infrequent; however, when they do occur they are planned for with thought that multiple split shifts will be required in order that the ice and snow is removed from city streets. It is the goal of the Department of Public Works to have this type of snowfall completely cleared within 24 hours after the snowfall ceases.

PUBLIC SIDEWALKS

Clearing sidewalks around City Hall will start as soon as practical following commencement of an event. Utilities staff will address shoveling/plowing needs at the various wells and plants as necessary and when possible.

PARKING LOTS

Public Works is ultimately responsible for the clearing of the City Hall parking lots and lots at city-owned facilities. This operation shall include salting and plowing. Snow is to be deposited in parking lots in a manner that is the least disruptive to parking as possible. No snow shall be placed in crosswalks or pedestrian areas. Staff will haul excessive accumulations of snow when necessary and within the ability of available staff.

SUMMARY OF RESPONSIBILITIES

The task of keeping vehicular traffic moving on Crest Hill's 83 miles of streets during and following winter storms is the responsibility of the Public Works Department as more specifically detailed in this manual.

FLEET SERVICES: This Division has the key responsibility of insuring that all designated snow control equipment is properly outfitted and ready for use during snow operations. They may also be used in emergencies situations for salting and plowing as deemed necessary.

WASTEWATER and WATER TREATMENT DIVISION: Personnel from this Division are integrated with the Street Division for winter storm operations.

STREETS DIVISION: This Division has the responsibility for the receipt and analysis of storm warnings; the determination as to the type, amount, and timing of operations; the altering of personnel assignments; control of operations and direction of snow control strategies; and salting and plowing within the Plow Routes.

Duty Director Responsibilities:

- Review weather forecasts daily.
- Verify status of equipment and staff availability.
- Determine if drivers should be sent home early for evening coverage.
- Determine if drivers should be kept after normal quitting times.
- Advise Police Communications of proposed response plan and update them as necessary
- If a full call-out of plow trucks is needed, the Duty Director should come in for the call out of the plow drivers to assist with deployment and startup.
- Inform Police Communications when crews are no longer working, or when a crew is left on for isolated slippery spots.
- Maintain status board during snow operations.
- Fill out call-out log and snow command checklist.
- Keep Public Works Management staff advised of status / plans.

Crew Leader Snow Responsibilities

- Coordinate with other Divisions to make sure the garage is clean and organized at the end of each day to insure easy and accident free deployment of snow equipment.
- Work with On Call Supervisor to coordinate staffing needs and implementation.
- During salting/plowing operations:
 - Assist salt truck drivers to clear trucks blocking the exit doors.
 - Field calls for service and dispatch to the appropriate driver if determined to be an emergency.
 - Coordinate with the Fleet Division staff for any truck repairs and call the on call Mechanic, if necessary.
 - Do periodic street inspections for salt effectiveness.
 - Inform on call supervisor of any changes/ problems including street conditions and weather updates.

SNOW AND ICE CONTROL PROCEDURES

The initial response is the spreading of rock salt (sodium chloride) treated with a liquid pre-wetting solution of an organic sugar byproduct, calcium chloride, and salt brine on routes that include arterial roadways, emergency locations and known trouble spots. The plow routes will continue to receive salt applications as required in an effort to maintain safe vehicular traffic. Salt operations will not necessarily result in bare pavement conditions during snowfall periods. Plow vehicles are equipped with front-end plows and will plow and salt simultaneously as appropriate.

For the majority of salting events, after the snowfall has stopped, primary roads and trouble spots will receive salt with the intent of reaching bare pavement. Low volume residential roads and cul-de-sacs will receive spot salting at critical locations such as intersections, long straight sections, curves, or inclines. Although salt is not normally applied constantly along the entire length of minor volume streets, staff may alter this standard to allow for consistent salting if pending weather conditions are not conducive to attaining near bare pavement conditions within a reasonable time after the event ceases. Salt may be applied along the entire length of residential streets during an ice storm. To maximize its effectiveness, salt is applied to the center of the roadway as the resulting salt brine generally flows to the edges allowing for maximum coverage. Salt placed outside the roadway crown has the potential to bounce into the gutter where it loses its operational effectiveness.

With favorable temperatures, rock salt will melt up to one inch of snow and reduce the bonding of compacted snow to pavement, thus ensuring a more efficient plowing operation when plowing becomes necessary. Rock salt is effective only above 15 degrees Fahrenheit. The pre-wet solution lowers the effective temperature of rock salt to melt ice and snow to temperatures as low as minus 30 degrees Fahrenheit.

ANTI-ICING

Anti-icing is a road maintenance strategy that tries to keep the bond between ice and the pavement surface from forming. It involves applying ice control chemicals before or at the very beginning of the storm. Using this strategy often reduces total chemical use and allows a higher level of service to the traveling public. Anti-icing chemicals will be applied to outer roadways, hills, significant curves, and school zones if there is a chance of ice or frost forming and weather conditions permit.

SALT APPLICATIONS

All salt spreaders are calibrated in late October and rated in terms of pounds per lane mile. The calibration settings are pre-set prior to each winter season. Application rates can be adjusted by the operator of each truck if necessary. When rock salt is treated with the pre-wet solution, ten gallons of the solution is applied to every one ton of rock salt at the set application rate. The Fleet Division is responsible for ensuring that each salt spreader is calibrated and that the following application rates are followed. These are a useful guideline and may not represent actual application.

MATERIAL APPLICATION RATE GUIDELINES

<u>Type of Storm</u>	<u>Guidelines</u>
<p><u>CONDITION 1</u> Temperature - at or above 30 degrees. Precipitation - snow, sleet or freezing rain. Pavement condition - wet, ice or snow.</p>	<p>On arterial and residential routes, if freezing rain, apply salt at 500-700 lbs. lane mile. Residential routes are spot salted. Enough salt is used to clear intersections to bare pavement at 500 lbs. per lane mile.</p>
<p><u>CONDITION 2</u> Temperature - below 30 degrees or falling to above 15 degrees. Precipitation - snow, sleet or freezing rain. Pavement Condition-ice or snow.</p>	<p>On arterial and residential routes, apply salt at 400-600 lbs. per lane mile and pre-wet. If snowfall continues and accumulates, plow and repeat salt at 500 lbs. per lane mile. For residential routes, plows apply salt after snow abates and salt to clear intersections to bare pavement at 300 lbs. per lane mile with pre-wetting solution.</p>
<p><u>CONDITION 3</u> Temperature - below 10 degrees and falling. Precipitation - snow. Pavement Condition - ice or snow.</p>	<p>On primary and snow routes, apply pre-wet at a rate of 400-600 lbs. per lane mile. When snow becomes slushy, remove by plowing and repeat application at 200-400 lbs. per lane mile. Residential routes, apply a salt and pre-wet mixture and use enough to clear intersections at a rate of 200-400 lbs. per lane mile.</p>

SALT STORAGE

It is anticipated, with planned salting, in an average winter, the City will use up to 1,500 tons of rock salt. Even minor winter storms will require about 150 tons of salt. The City's stored inventory is 1,800 tons (estimated). The salt usage in the 2022 season is estimated at about 1,500 tons. We have a contractual obligation to purchase 1,800 tons during the 2022-2023 winter season, and can purchase as much as 1,800 tons if needed.

Salt is loaded by the truck operator with a front-end loader located at the salt storage site. The Assistant Director of Public Works will initiate the replenishment of salt stock as necessary.

RECORDS AND REPORTING

For the purpose of performance evaluation, as well as the necessity to document ice control operations, accurate information on the work accomplished must be kept. After each storm, staff will gather and compile data on storm type, duration, miles driven, fuel, and material used.

EMERGENCIES AND COMPLAINTS

The established snow plowing routes will result in the quickest and most efficient removal of snow from City streets. Deviations from these routes will result in a less timely overall removal of snow. Consequently, no plow operator will deviate from his route unless so directed. If a police, fire or medical emergency requires an interruption of a normal route plowing operation, the request must be made through the Duty Director who will then assign a particular vehicle to the emergency request.

Plowing snow onto driveways and sidewalks is unavoidable. The amount of snow plowed onto driveways and sidewalks will vary depending on several factors:

- a. Rate of speed of plow truck.
- b. Type of snow (light/fluffy vs. heavy/wet).
- c. Type of plow blade (steel or rubber, Crest Hill currently uses steel blades).
- d. Distance between sidewalk and edge of street.
- e. Type of street (collector, arterial, residential, dead-end) relative to depth of snow.

Cul-de-sacs are plowed in a counter-clockwise fashion starting in the center working to the curb (as compared with (a) plowing to the center, (b) plowing only the outer ring at the curb, or plowing each individually in an attempt to avoid all driveways, hydrants, mailboxes, trees, signs, street lights, etc.) so as to complete the clearing operation as quickly as possible. This recognized procedure may result in more snow in a cul-de-sac driveway as compared with a driveway along a straight length of street. Snow is not plowed to the center of the cul-de-sac because:

1. Cannot plow in a clockwise direction due to turning radius and angle of the plow.
2. Over a period of time, no storage space in center after a few consecutive snow falls.
3. Piles of snow in center leads to kids tunneling and playing -- an unsafe condition.
4. Piled snow in center covers manholes which must remain accessible (water valves and sewer mains).
5. Snow melting from these piles will create icing in the travel lanes since cul-de-sacs are designed to drain to the outside curb.

Time permitting or during periods when snow is wet and heavy, plow drivers may attempt to plow snow to open areas.

Snow plow drivers make every effort to plow as close to mailboxes as possible so that mail delivery is not interrupted. During heavy snowfalls, especially on cul-de-sacs, it is very

difficult for the plows to completely clear snow away from mailboxes without risking damage to the post or the mailbox itself. It is the responsibility of the resident to remove snow from around the mailbox to assure uninterrupted delivery of mail.

Properly installed and maintained mailboxes will be reimbursed by the City if the damage was caused by City equipment making direct contact with the mailbox. Temporary repairs may be made upon notification as time permits.

Snow which is plowed, shoveled or blown from private property onto City Streets (public right-of-way) creates a hazard for vehicular movements and can adversely impact snow removal operations. This action is in violation of the Crest Hill Municipal Code, Section 12.16.090 which states:

DEPOSIT OF SNOW AND ICE PROHIBITED

No owner or occupant of a residence or business shall cause or allow the shoveling, blowing, hauling or otherwise depositing snow or ice onto any city street or upon any private street where members of the general public may be reasonably expected to travel. This prohibition shall not be construed to require residents to remove snow or ice from streets which has fallen there naturally. (Ord. 1336, passed 12-20-04)

Individuals should shovel or blow snow from sidewalks or driveways onto the treebank (parkway), not into the roadway.

Specific rectifiable complaints will be handled as soon as practicable but shall not interfere with the expeditious completion of the plowing operations underway. Normal complaints will be handled only after operations have been completed.

PARKING LOTS

GENERAL

Public Works is responsible for clearing the City Hall and Police Department parking lot and parking areas at City facilities. The standards for snow plowing of City operated parking lots are:

1. All City lots should be plowed by 7:30 A.M. the morning after the storm per the parking lot priority list. Plowing will start when snowfall exceeds two inches in depth.
2. All snow will be plowed to in such a manner that it does not negatively impact parking spaces.

STORM COMMAND CENTER

The vast majority of snowstorms in the Crest Hill area are less than eight inches (8") in depth and can normally be managed without the necessity of establishing special communications procedures. The City will activate the SCC when it is determined the type and extent of a storm warrants a centralized location for coordination.

The purpose of the SCC is:

1. Central location for the monitoring and control of on-going storm operations for operational decision making.
2. To provide a central contact point to the public for the issuance of status information.
3. To provide an up-to-date single contact point to news media for the issuance of accurate status information.
4. To provide a central location from which accurate information can be provided to City Administration and City Officials.

The SCC will be located at the Public Works Department, 2090 Oakland Ave.

TELEPHONE: The SCC is equipped with the following telephone line:

Public Access Number 815-741-5108. This telephone number rolls over to other extensions providing expanded access should call volume deem it necessary.

RADIO: The SCC is radio-equipped for contact with Public Work snow removal personnel.

STATUS MAPS: The SCC has a large scale City map for the on-going recording of snow removal status against which snow plowing and salting routes have been marked. The SCC also has numerous television monitors to track storm updates in real time.

STATUS REPORTING

The City has 6 Plow District routes and the drivers will call in to the SCC at the start of plowing, at various points (as designated) and at the completion of the route so as to provide a constantly updated status report of the clearing operation.

The SCC operation will be terminated only after all routes have been plowed and the conditions giving rise to the emergency have abated. Termination will be initiated by the Duty Director.

TOWING FROM SNOW ROUTES

The task of removing parked vehicles from posted snow routes is handled cooperatively by Public Works and CHPD. After it has been determined by the Duty Director that 2" or more of snow has fallen, CHPD is notified and they may begin to remove illegally parked vehicles. As they have an area cleared of vehicles, CHPD notifies Public Works and a truck is dispatched to plow the street. The number of vehicles that can be towed is limited by the lack of secured storage space. Tickets are issued by CHPD and towing is implemented if unusual problems are created by the parked vehicles.

II. Employee/Equipment List

Siefert	Mark	Public Works Director	815-723-8671	815-954-5284	msiefert@cityofcr
Kline	Blaine	Asst. Public Works Dir.	815-741-5108	815-641-2578	bkline@cityofcr
Martino	Ada	Admin. Assist.	815-723-8671	815-278-0490	amartino@cityofcr
Bushong	Eric	Crew Leader		815-641-5966	ebushong@cityofcr
Cialoni	Robert	Laborer		815-370-4955	rcialoni@cityofcr
Clemens	Edwards	Laborer		1-779-267-1624	eclemens@cityofcr
Daletski	Matt	Asst. Mechanic		815-278-0495	mdaletski@cityofcr
Dyar	Dane	Laborer			ddyar@cityofcr
Guzman	Juan	Laborer		815-216-2196	jguzman@cityofcr
Hietscholds	Nick	Laborer		815-207-0562	
Kuban	Dan	Laborer		1-779-702-0004	dkuban@cityofcr
Martino	Paul	Laborer		1-815-954-7458	pmartino@cityofcr
Peceniak	Richie	P.T. Laborer		815-351-2070	
Semplinski	Brian	Mechanic		815-735-2326	bsemlinski@cityofcr
Sternal	Jennifer	Receptionist Clerk	815-741-5108		jsternal@cityofcr

SEWAGE TREATMENT PLANT

Halaska	Tony	Building Maintenance		815-582-1993	thalaska@cityofcr
Brown	Matt	Crew Leader		815-278-0493	mbrown@cityofcr
Brown	Joe	Laborer		815-922-4174	jbrown@cityofcr
Garriott	Erik	W/S Operator		815-278-0402	egarriott@cityofcr
Harbut	Nick	Laborer		815-641-2525	nharbut@cityofcr
Kemp	John	Laborer		779-435-9069	jkemp@cityofcr
Marsh	Jeremy	Laborer		331-215-2318	jmarsh@cityofcr
Vogrin	Jim	Laborer		815-351-5954	jvogrin@cityofcr

		Snow and Ice Equipment					
Unit	Model	Plow	Salt	Liquid			
2	F350	9'6" V-plow	N/A	N/A			
14	F350	9'6" V-plow	N/A	N/A			
17	F350	9'6" V-Plow	N/A	N/A			
32	F350	9'6" V-Plow	N/A	N/A			
33	F350	9'6" V-plow	N/A	N/A			
40	F350	8' Straight Blade	N/A	N/A			
42	F350	9'6" V-plow	N/A		500 Gallon Anti-ice Tank		
44	F350	8' Straight Blade	N/A	N/A			
46	F550	9' V-Plow	Spreader Box				
31	Single Axle	11' Straight Blade	Spreader Box	N/A			
100	Tandem Axle	11' Straight Blade	Spreader Box	N/A			
101	Single Axle	11' Straight Blade	Spreader Box	N/A			
102	Single Axle	11' Straight Blade	Spreader Box	Yes			
103	Single Axle	11' Straight Blade	Spreader Box	Yes			
104	Single Axle	11' Straight Blade	Spreader Box	Yes			
105	Single Axle	11' Straight Blade	Spreader Box	Yes			
106	Single Axle	11' Straight Blade	Spreader Box	Yes			
118	Tandem Axle	12' Straight Blade	V-Body Spreader	Yes			
216	Gehl Skid Steer	8' V-Plow	N/A	N/A			
311	John Deere Gator	4' Plow	N/A`	N/A			

III. Plow/Salt/Anti-Icing Routes

Plow and Salt Routes

City of
CREST HILL
Illinois

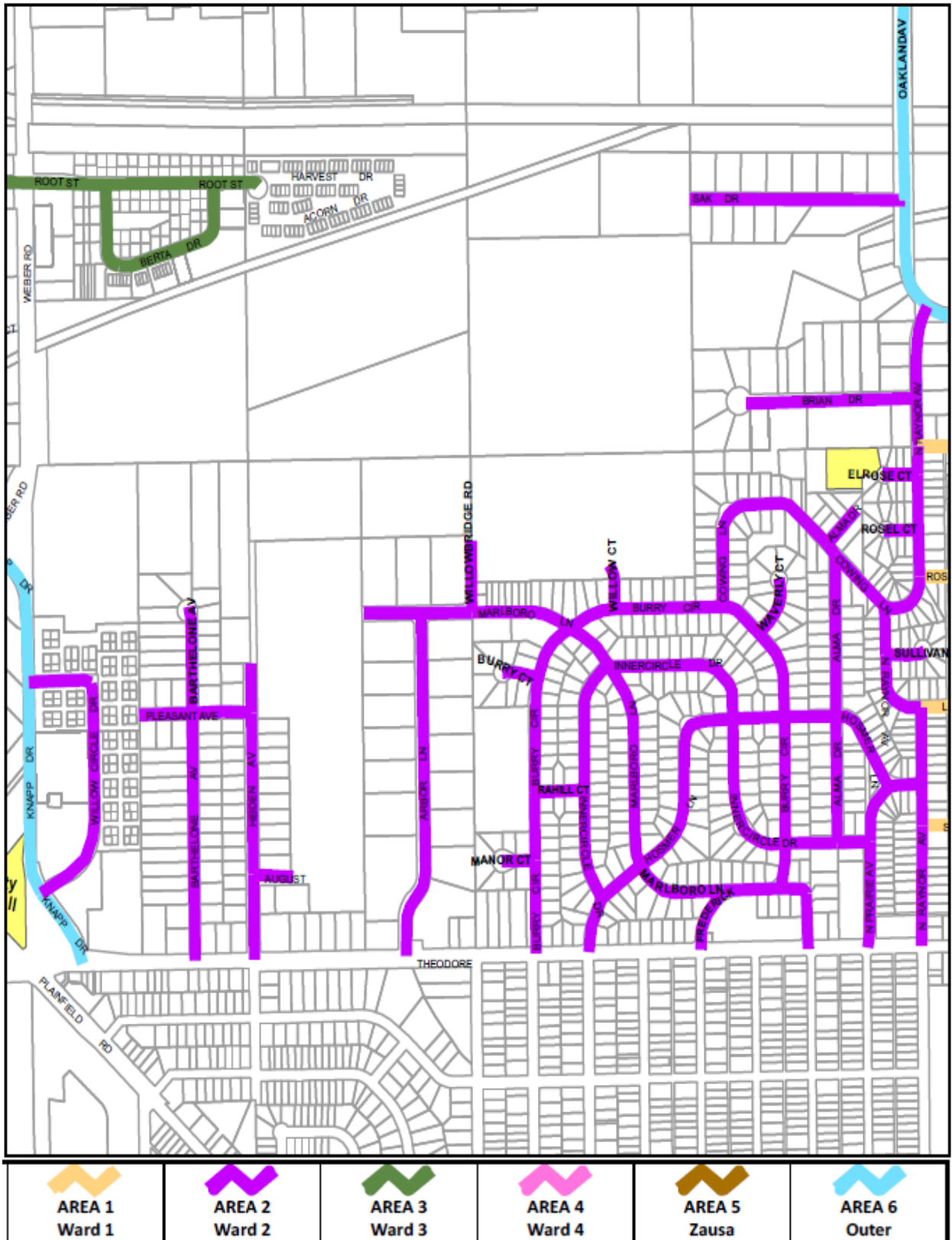
City of Crest Hill

Snow Routes - Area 1



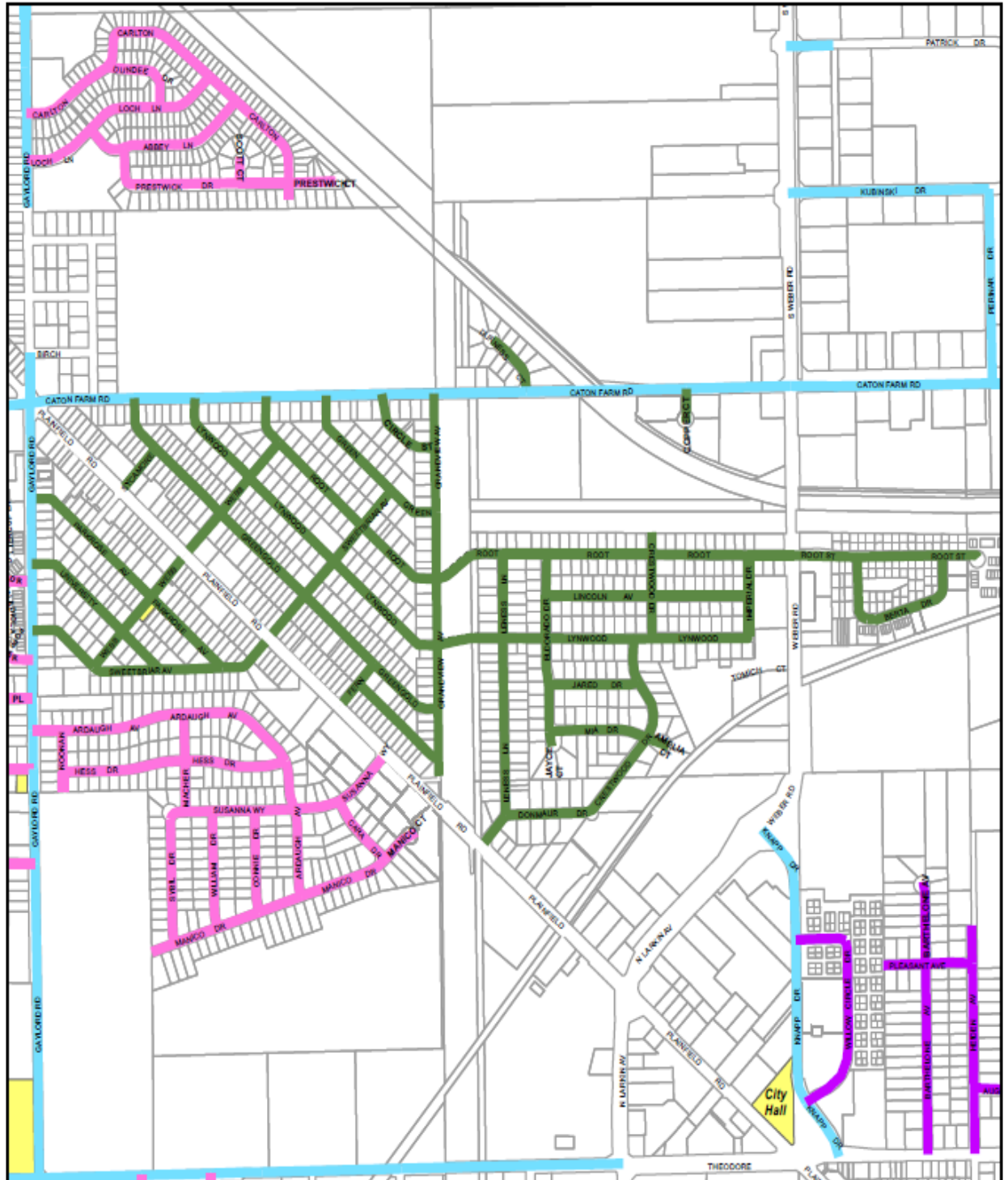
City of Crest Hill







Snow Routes - Area 2



City of Crest Hill

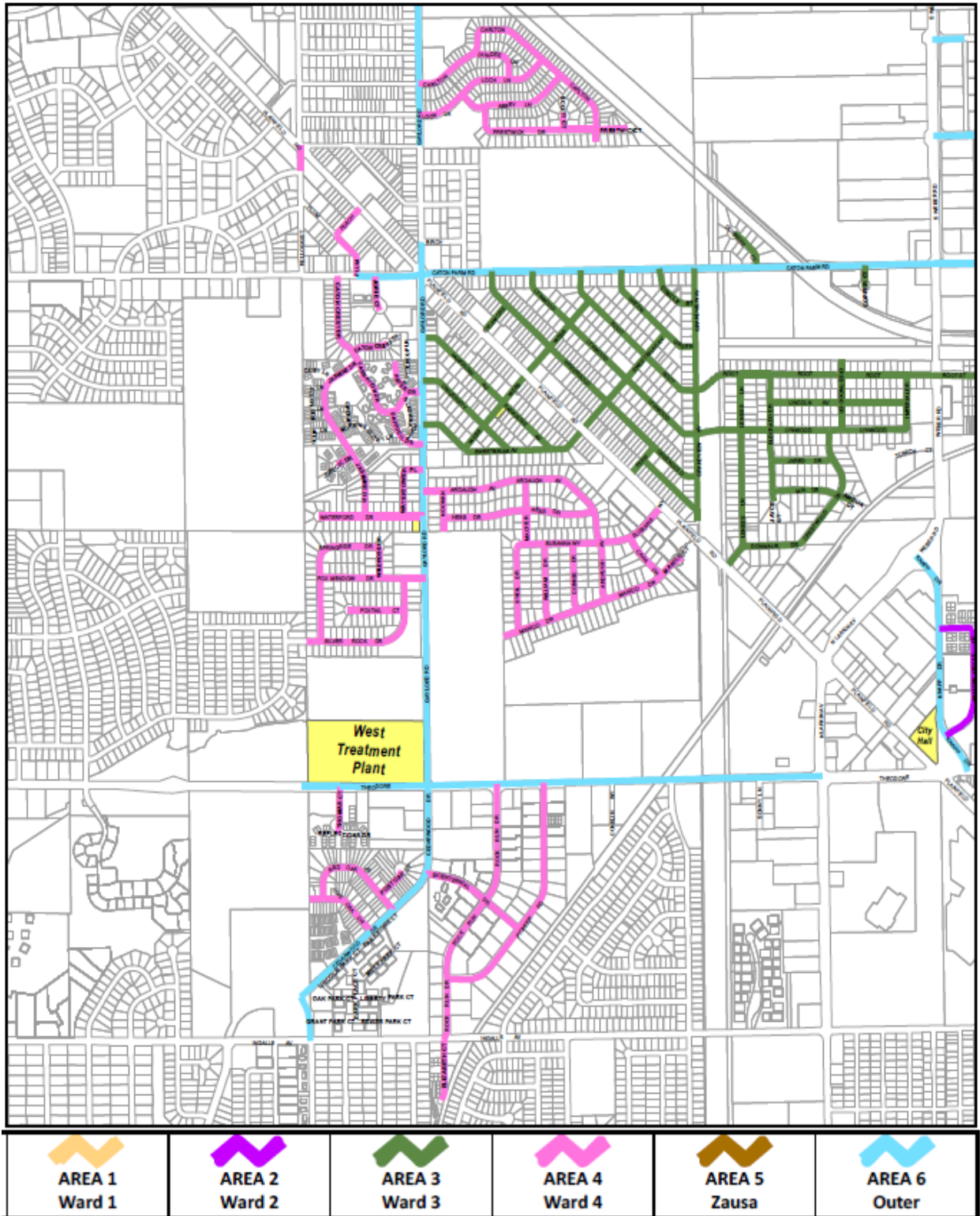
Snow Routes - Area 3



 AREA 1 Ward 1	 AREA 2 Ward 2	 AREA 3 Ward 3	 AREA 4 Ward 4	 AREA 5 Zausa	 AREA 6 Outer
----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

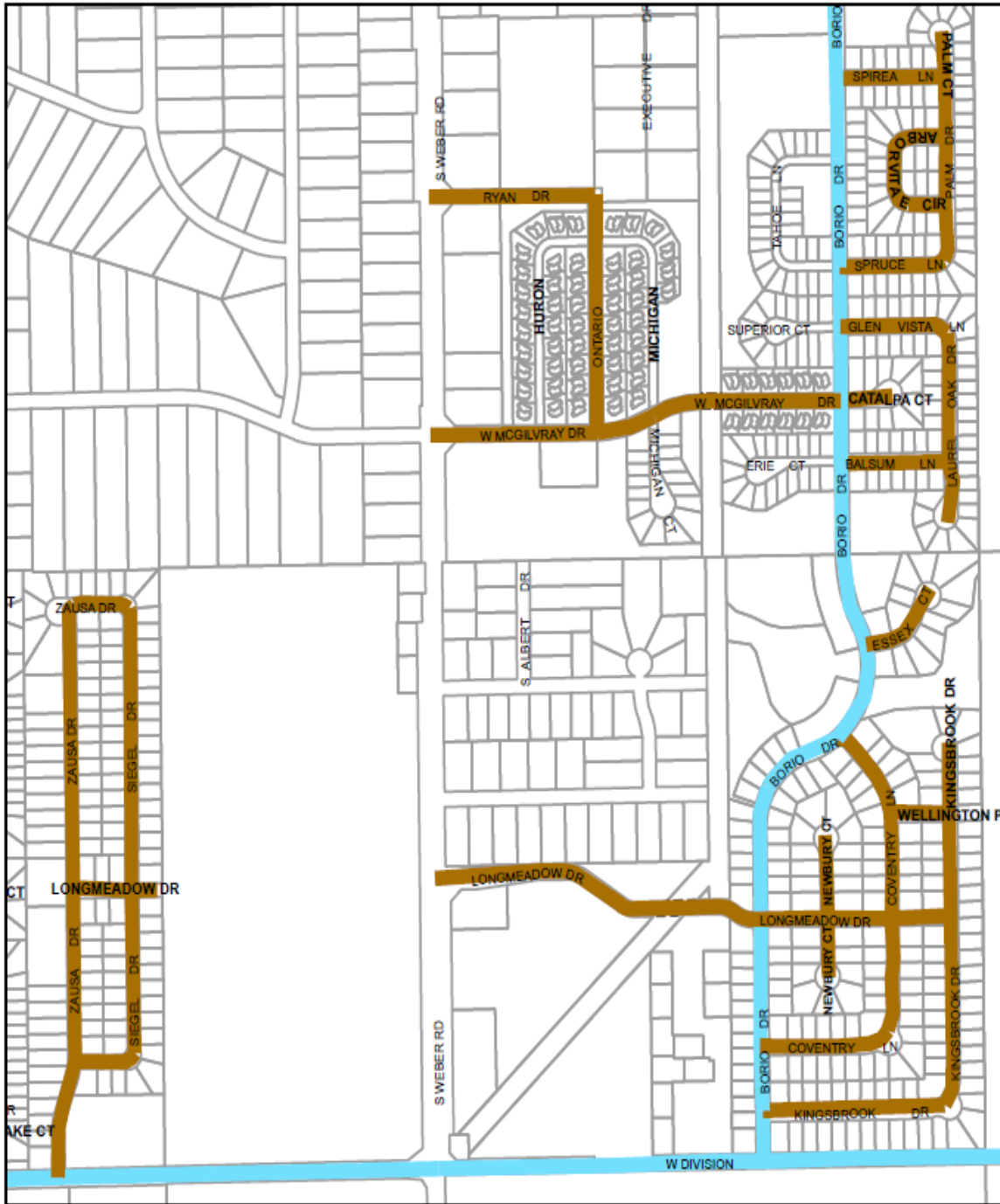
City of Crest Hill

Snow Routes - Area 4

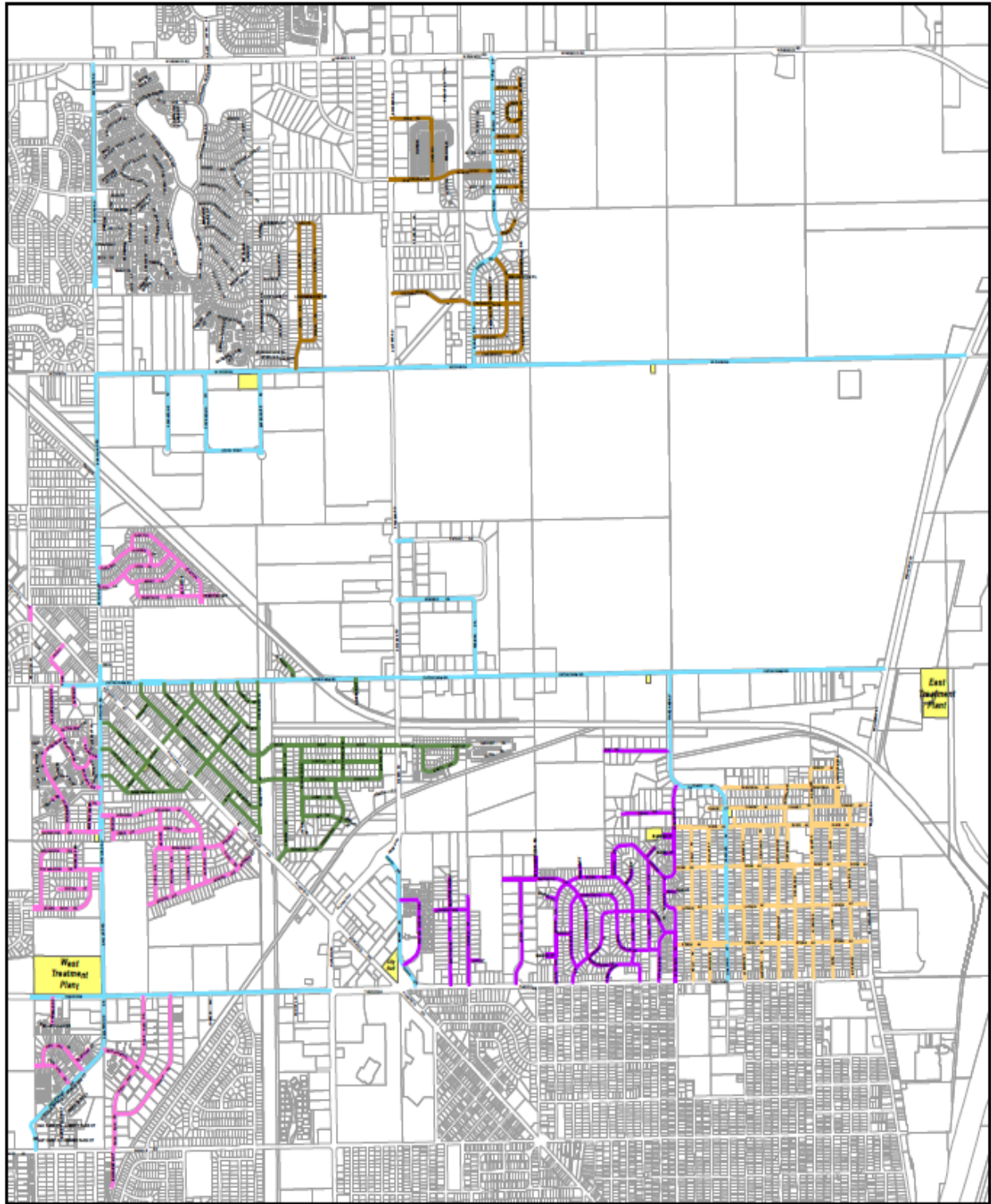


City of Crest Hill

Snow Routes - Area 5



 AREA 1 Ward 1	 AREA 2 Ward 2	 AREA 3 Ward 3	 AREA 4 Ward 4	 AREA 5 Zausa	 AREA 6 Outer
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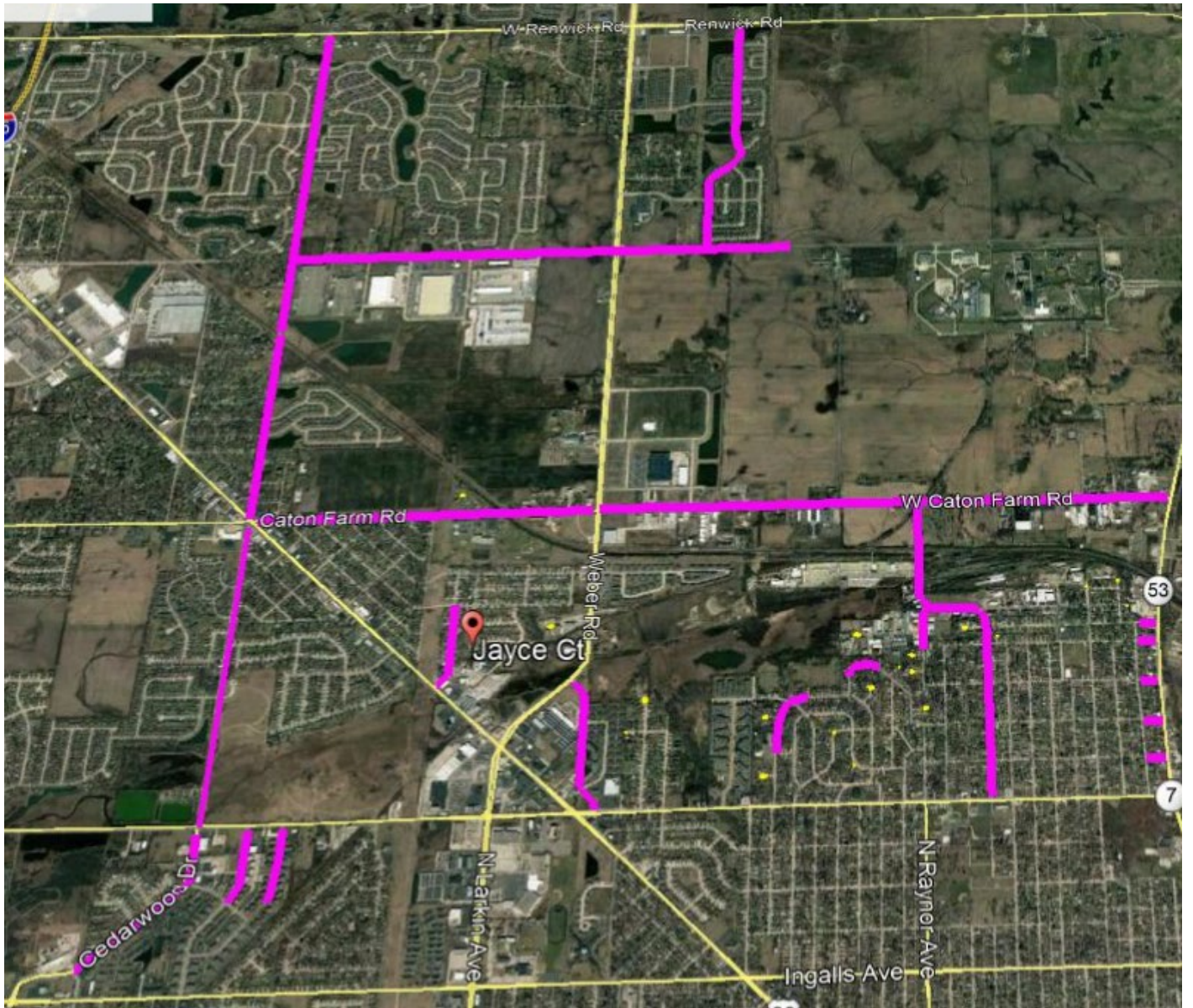


 AREA 1 Ward 1	 AREA 2 Ward 2	 AREA 3 Ward 3	 AREA 4 Ward 4	 AREA 5 Zausa	 AREA 6 Outer
----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------	-----------------------------------------------------------------------------------------------------------------

Anti-Icing Route

ANTI-ICING LIST OF STREETS

Gaylord Road	Theodore to Renwick
Cedarwood	Theodore to Gael Drive
Caton Farm Road	Gaylord to Broadway
Division	Gaylord to a point just past Borio
Knapp	Theodore to Weber
Leness Ln	Lynwood to Plainfield
Rock Run Drive	Theodore to Bicentennial
Pioneer	Theodore to Bicentennial
Burry Cir. Hill	Rahill Ct. to Dead End Street
Raynor Ave. Hill	Elsie to Oakland
Cowing Ln	Around curve
Oakland	Caton Farm Road to Theodore
Chaney Hill	Hickory to Broadway
Elsie Hill	Hickory to Broadway
Rose Ave. Hill	Hickory to Broadway
Ludwig Ave. Hill	Hickory to Broadway
Stern Ave. Hill	Hickory to Broadway



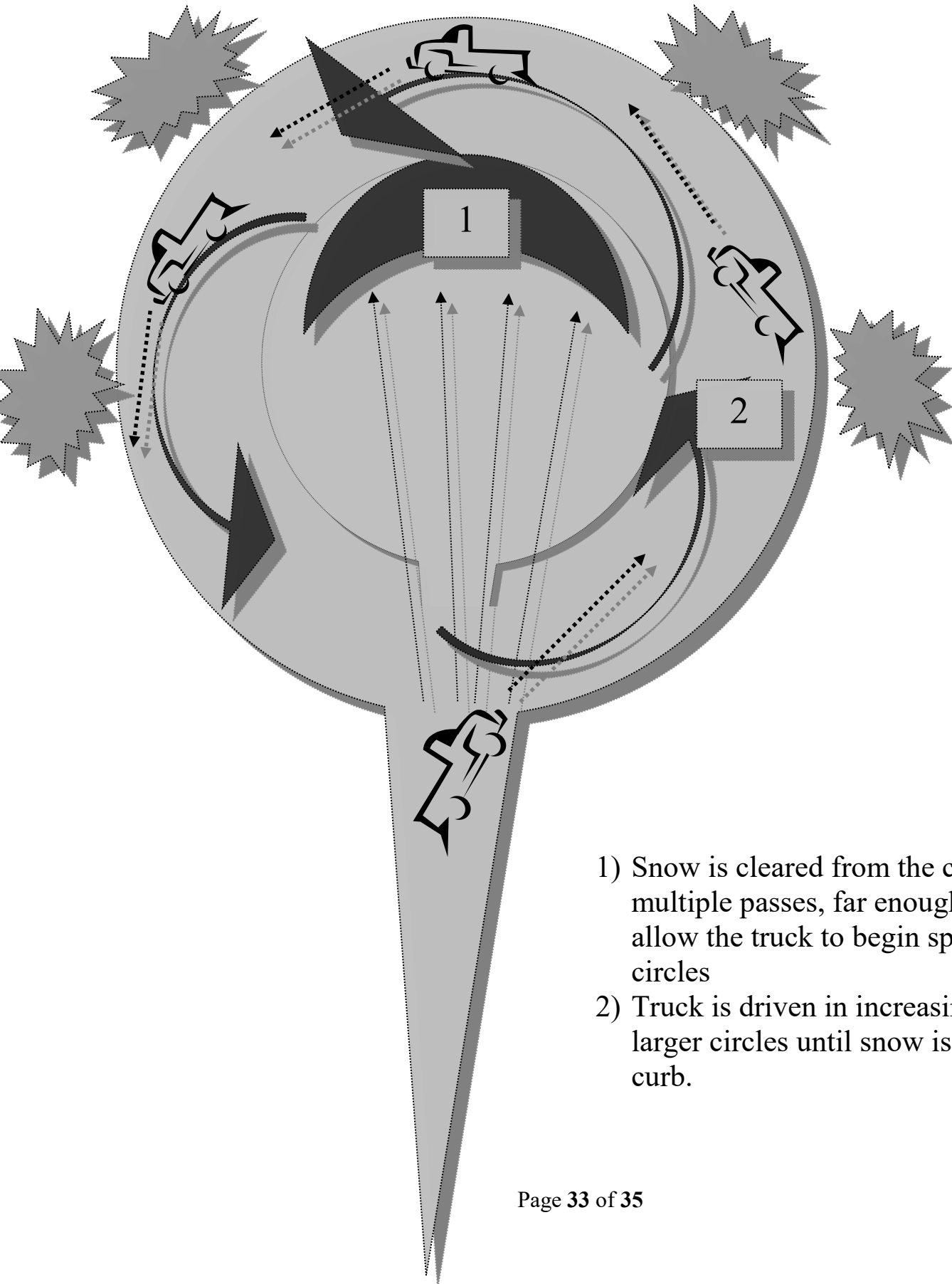
Anti-Icing Application Decision Flowchart/Supermix



IV. Cul-de-sacs/Alleys/Dead Ends

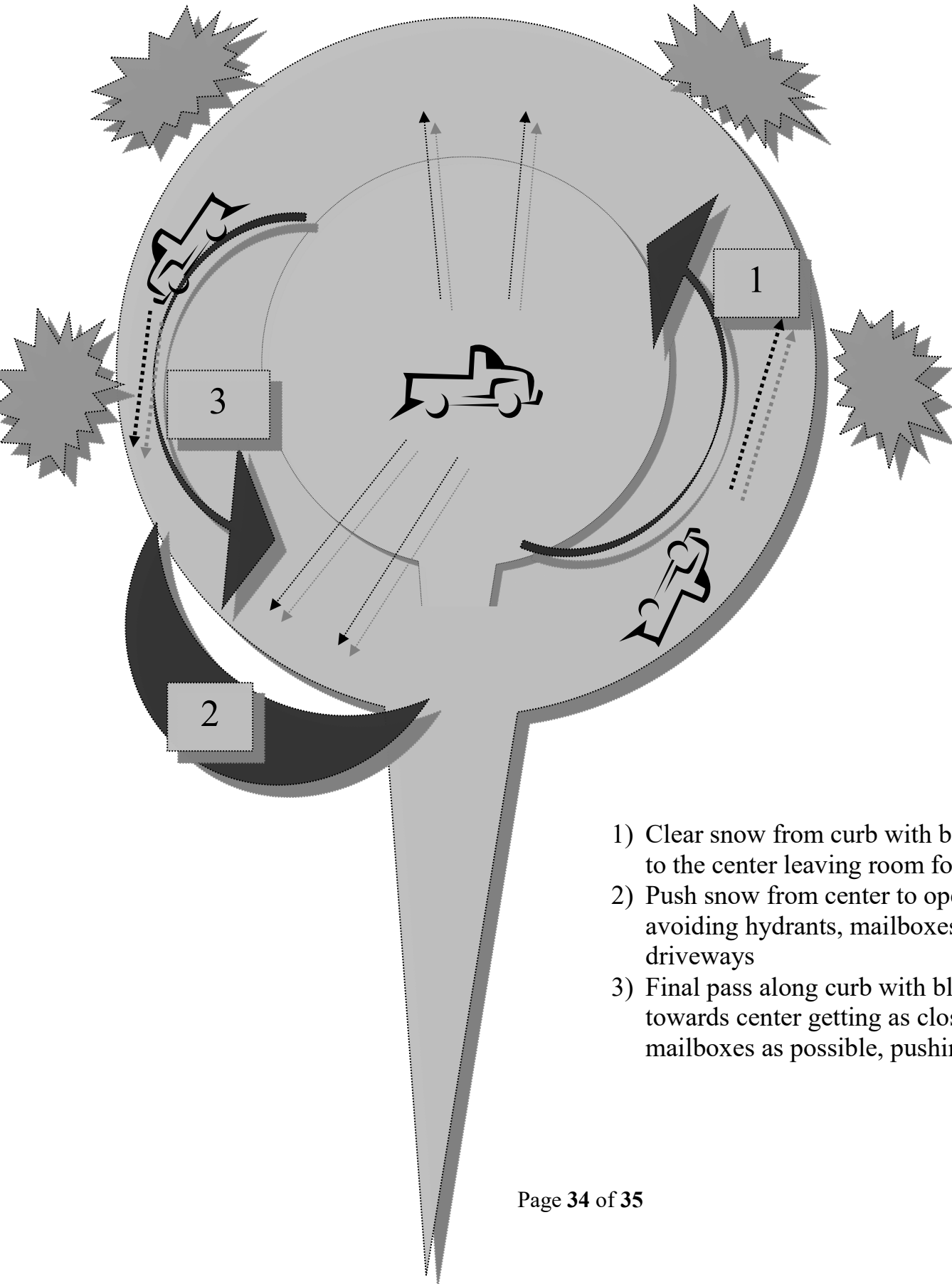
Area 1	Area 2	Area 3	Area 4	Area 5
Chaney Ct	Barthelone Ave	Amelia Ct	Jorie Ct	Zausa Dr
Hawthorne Ave (DE)	Manor Ct	Root St	Caton Crest Ct	Catalpa Ct
Pasadena Ave (DE)	Burry Ct	Copper Ct	Juricic Drive	Palm Ct
Hoffman	Waverly Ct	Durness Ct	Waterford Dr	Laurel Oak Dr
Center	Brian Dr.	Crestwood Dr (DE)	Foxtail Ct	Kingsbrook Dr (south)
Elseie (BTWN Clement and Oakland)	Elrose Ct	Jayce CT	Wildrose Dr	Kingsbrook Dr (north)
	Rosel Ct	Alley (BTWN Fern and Grandview)	Thomas Ct	Newburry Ct (north)
	Sullivan Ct		Post Oak Ct	Newburry Ct (south)
	Willow Ct		Prestwick Ct	Coventry Lane
	August St (DE)		Scott Ct	Essex Ct
	Marlboro (DE)		Manico Ct	Siegel
	Alma Drive (DE)		Manico Dr (DE)	
	Pleasant Ave (DE)		Noonan Dr (DE)	
	Heiden Ave (DE)		Susanna	
			Sybil	
		Carlton (DE)		

Light Snow Cul-de-Sac Circular Plowing Method



- 1) Snow is cleared from the center in multiple passes, far enough to allow the truck to begin spinning in circles
- 2) Truck is driven in increasingly larger circles until snow is to the curb.

Heavy Snow Cul-de-Sac Open Area Plowing Method



- 1) Clear snow from curb with blade angled to the center leaving room for step 2
- 2) Push snow from center to open areas avoiding hydrants, mailboxes and driveways
- 3) Final pass along curb with blade towards center getting as close to mailboxes as possible, pushing to pile.

Material Supplies

Salt Purchase Agreement is attached.

Anti-Ice and Pre-Wetting Liquids

Although several companies produce a commercial product for anti-icing and pre-wetting of rock salt, Crest Hill's current provider for this material is:

Industrial Systems Ltd.
112 West Route 120
Lakemoor, IL 60051

(815-344-5566)