



# SNOW OPERATIONS

*June 28, 2023*



# Agenda

- **Introductions**
- **Review of Current Snow Operations**
- **Summary of 2022-2023 Snow Season**
  - **Snow Operations**
  - **Ticketing & Towing**
  - **Communications & Engagement**
- **Preparing for Future Snow Seasons**
  - **Citywide Vision, Mission, Goals**
  - **Citywide Work Groups**
- **Questions & Discussion**



# Winter Maintenance Service Levels

## Arterial Streets

- Plowed and treated to bare pavement in drive lanes
- Plow compacted snow in parking lanes
- *Plowed and treated during all winter events*



## Residential Streets

- Safe and passable
- Plow compacted snow
- Salt high priority areas: hills & curves
- *Only plowed during snow emergencies*





# What is a Winter Event?

**Winter Event: Any time Public Works responds to winter weather conditions**

- **Small:** Anti-icing or deicing bridge decks overnight for frost (*2-7 trucks*)
- **Medium:** Salting and plowing operations on arterials and problem spots (residential hills, curves, etc.) with 2"-3" of snow (*10-30 plows*)
- **Large:** Snow Emergency declared; plow all arterial and residential streets (*70-80 plows*)
- **Average 20-30 Winter Events per winter season**

2018-2019:

- 27 Winter Events ; 7 Snow Emergencies

2019-2020:

- 19 Winter Events ; 4 Snow Emergencies

2020-2021:

- 17 Winter Events ; 2 Snow Emergencies

2021-2022:

- 20 Winter Events ; 4 Snow Emergencies

2022-2023:

- 44 Winter Events ; 7 Snow Emergencies (including a back-to-back); 1-sided Parking Ban





# City of Saint Paul: Public Works Snow Operations

**1,950 lane miles – Saint Paul to Anaheim, CA**

⑩ County: 246 lane miles *(by reimbursable maintenance agreement)*

⑩ State: 122 lane miles *(by reimbursable maintenance agreement)*

⑩ City (Arterial): 396 lane miles

⑩ City (Residential): 1,186 lane miles

**186 Bridge Sidewalks, City Sidewalks, Medians, and Public Stairs**

**97 Bridges**

**2,225 alleys *(not plowed by City)* which is 330 miles**

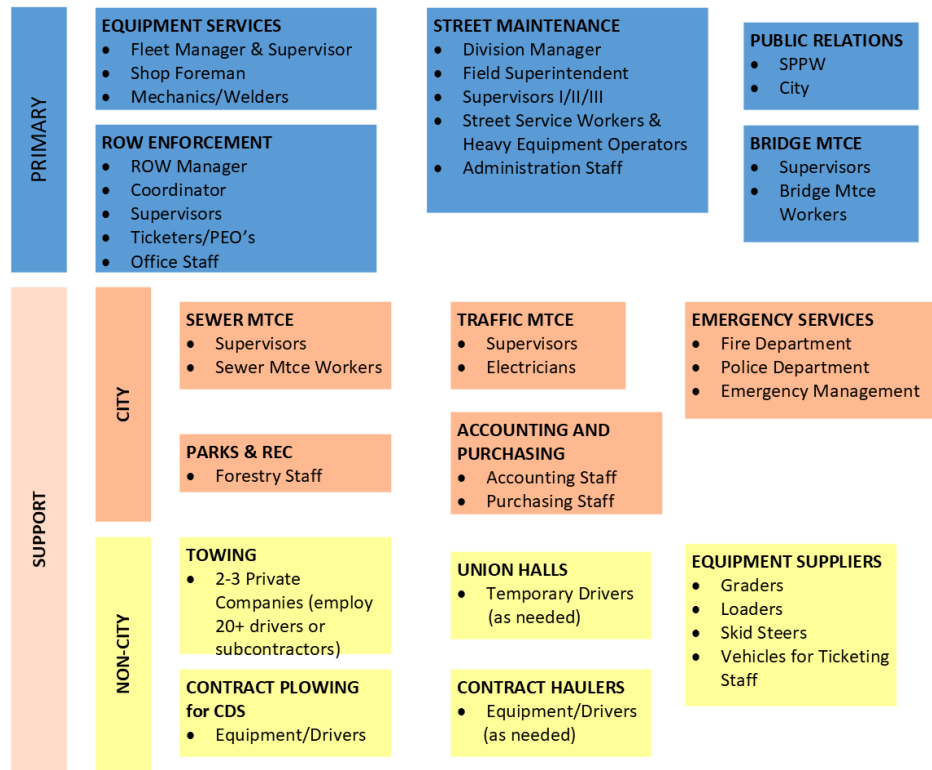
**145 miles of bike lanes and more miles of bike paths and trails**



# Winter Events Organizational Chart

## MAYOR & OFFICE OF THE DIRECTOR

- Mayor & Deputy Mayor
- Director of Public Works
- Operations Manager



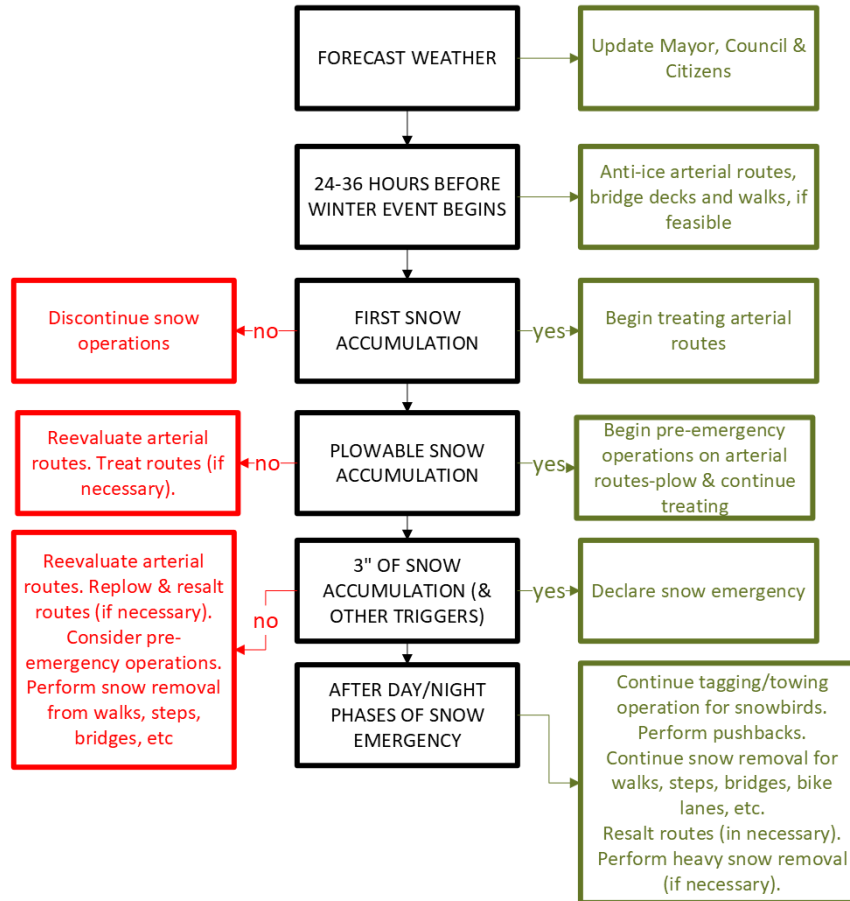


# Snow Emergency Declaration

- **Snow Emergency Declaration decision based on:**
  - **Snow accumulation (3” or more)**
  - **Snow/water ratio**
  - **Existing road conditions**
  - **Future weather**
  - **End of snow event**
  - **Confer with other cities/SPPS/emergency services departments**
- **Snow Emergency Declared by 3 p.m., start at 9 p.m.**
  - **Night phase and day phase (first 20-24 hours)**
  - **Clean up phase (next 72 hours)**
  - **Snow Emergencies last 96 hours**
- **Decision makers:**
  - **Mayor/Deputy Mayor**
  - **Public Works Director**
    - **Public Works Operations Manager**
      - **Street Maintenance Division Manager**
- **Communications: notify public (e.g. web, social, email/text); parking rules/compliance**



# Progression of Winter Operations







# Snow Emergency Phases

## Declared but not in effect (approx. 3 p.m. – 9 p.m.)

Communications: Snow Emergency declared and winter parking rules in effect at 9 p.m.

PW Operations: Preparing plows, staff and ticketing operations

## Night Plow Routes (9 p.m. – 7 a.m.)

Communications: Night Plow has started

PW Operations: Ticketing & towing on Night Plow routes, Plowing Night Plow routes throughout City

## Day Plow Routes (8 a.m. – 5 p.m.)

Communications: Day Plow has started

PW Operations: Ticketing & towing on Day Plow routes, Plowing Day Plow routes throughout City  
Plowing bridge sidewalks and bike lanes

## Clean Up (5 p.m. – remainder of 96 hours)

Communications: Night & Day plow routes complete, park only where fully plowed to the curb, vehicles can still be ticketed & towed

PW Operations: Ticketing & towing of snowbird vehicles, Clean up of Intersections & Pushbacks where vehicles have moved; clearing medians, bike lanes, steps, crosswalks, and city sidewalks





# Anti-Icing & Brine

- Minimizes bonding of ice/snow to road surfaces
- Priority Routes
  - Bridge decks & downtown
  - Arterials by traffic volume
  - Residential hills/curves
- Average 50,000 gallons/event
- Fringe events are difficult – rain/sleet/snow
- Salt products less effective at <15F
  - Prewet for activation and sticking in the drive lanes
- Technology is evolving
  - High capacity brine making equipment
  - New brine materials
  - Direct liquid applications used more than in past years





# Art of City Plowing

72 plow routes for Snow Emergencies (35 Night and 37 Day Routes)

Start throughout the City; staffing can affect start times of some routes

Routes are maximized for efficiency

- Timed to be completed within the phase when fully staffed

Speed of plows to lift snow

- Intersections, driveways, sidewalks, and differing boulevard & street widths

Arterial vs. residential plowing

- Residential streets are not plowed to bare pavement
- Center cuts; pushes snow into parking lanes

Avoid urban obstacles

- Parked cars, trailers; recycling and garbage carts (do not put in street); bump outs; center medians
- Snow pushed into street causes hazards



# Urban City Plowing Operational Challenges

- Lack of off-street parking
  - Colleges, apartments
  - Abandoned cars
- Narrow streets
- Sidewalks and sidewalk corners
- Multiple street and alley intersections
- Limited and variable snow storage space in boulevards
- No routing software; paper route lists
- Residents, businesses, private contractors plowing snow into the street
- Steep hills and curves
- Bike lane maintenance
- Equipment – limited, older
- Staffing – lack of plow operators (CDL) & ticketers
- Bus stop shoveling (Metro Transit, Public Works, Private Property Owners)
- Limited rental equipment availability





# Comparisons

## Minneapolis

- Belly plows on trucks and can go into residential streets more frequently
- More unannounced residential plowing
- More center passes
- Plow alleys (via contractor)
- Complete pass in 36 hours during snow emergencies (20 hours for Saint Paul)
- Use more sand (Saint Paul uses Best Practices of salting at 15F or higher)
- Plows 18 miles of state and county roads (Saint Paul plows 107 miles of state and county roads, which are high priority)
- Staffing – can call in municipal garbage and water employees for larger plowing efforts

## Suburbs

- Seasonal parking bans
- Wider streets
- Predominantly off-street parking
- Don't have sidewalks on both sides of road
- More public boulevard/right of way (e.g. cities don't have trees or items in boulevard areas)
- More snow storage space
  - Benching
  - Piling snow in cul-de-sacs
- State and county roads not plowed by city



# Ticketing & Towing Operations



- **We have parking problems, not plowing problems**
  - Lack of off-street availability
  - Low compliance of cars being moved
- **Tickers: Full-time & temporary City employees, SPPD, parking enforcement**
  - Need 70 ticketers for Night Routes
  - Need 70 ticketers for Day Routes
  - Follow the exact plow routes; eventually get passed by plows, but continue to ticket
- **Tickets: 2,200+ per snow emergency (2022-2023)**
- **Tow: 700+ per snow emergency (2022-2023)**
  - Tow contractors assigned 4 towing zones
- **Cost:**
  - Parking ticket: \$56 (Ramsey County)
    - Public Works doesn't get any proceeds, but pays the expenses
  - Impound fee: \$275.08 plus \$15 storage a day (Tow company & SPPD)



# Communication Tools

- Snow Emergency brochure - mailed to 81,000+ residents (July)
  - Translated versions online: Spanish, Hmong, Somali, Oromo, Karen, Burmese, Lao
- [stpaul.gov/snow](http://stpaul.gov/snow)
- 651-266-PLOW (recorded Snow Emergency message)
- [Snow Emergency Parking Map](#)
- GovDelivery emails & text alerts – opted in 130,000 emails & texts
  - English, Spanish, Hmong, Somali, Oromo (text only)
- Social media
  - [Nextdoor](#) (1 multi-lingual message) 72,000 members
  - [Facebook](#) (1 multi-lingual message) 32,000 followers
  - [Twitter](#) (4 tweets in different languages on PW and City) 84,100 followers
- Paid digital advertising – Pioneer Press & All Over Media (*weekdays only*)
- Media outlets
- City cable channel 18
- TPTs Emergency Response System (multilingual)
- Library and Parks & Rec digital display boards
- All-City employee email
- On street dynamic display boards (new in 2023)



# 2022-2023 Snow Season Summary



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MINNESOTA

[STPAUL.GOV](http://STPAUL.GOV)





# Snow Operations Summary

## SAINT PAUL WINTER OPERATIONS

2022 - 2023

**90.3" of Snow**

3rd snowiest winter on record

**20 Days**

of one-sided parking ban

**11,085+ Hours**

of Snow Emergency plowing

**12,600+ Lane Miles**

plowed during Snow Emergencies

**1,200 Tandem Loads**

removed from city streets

**55,000+ Gallons**

of brine anti-icing initiatives

**18,484 Tons**

of salt applied

**44 Weather Events**

highest precipitation amounts to date

**108 employees**

worked over 16+ hours straight

**7 Snow Emergencies**

one back-to-back event declared



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<https://www.stpaul.gov/>



# Ticketing & Towing Summary

Snow Name	Emergency Dates	Tickets	Tows
ALCOVE	11/29/22 – 12/3/22	2,239	800
BANFIL	12/15/22 – 12/19/22	2,406	830
CAMBRIDGE	12/21/22 – 12/23/22	1,684	403
DUDLEY	1/4/23 – 1/8/23	2,155	430
ENERGY	1/19/23 – 1/23/23	2,389	795
FSK	2/22/23 – 2/27/23	1,624	408
GRACE	2/23/23 – 2/27/23	1,752	687
1-SIDE BAN	3/15/23 – 3/31/23	6,436	638
<b>Totals:</b>		<b>20,685</b>	<b>4,991</b>

CITATION			
State of Minnesota		Citation #: 629600046229	
County Name: Ramsey		Sequential Citations: ___ of ___	
Identification: <input type="checkbox"/> DL <input type="checkbox"/> DVS Web <input type="checkbox"/> Photo ID <input type="checkbox"/> FP <input type="checkbox"/> Other		DL Number: MN <input type="checkbox"/> CDL <input type="checkbox"/> State: _____	
Name: First Middle Last Suffix			
Address – Street, Apt #			
City		State	Zip
DOB (mm/dd/yyyy)	Height	Weight	Eyes Gender
<input type="checkbox"/> Juvenile Court Offense: Circle One: JTY, JPO, DEL	Parent or Guardian's Name:		<input type="checkbox"/> Same address as Juvenile
Address:			
Veh. Lic. No. 301 XVA	Plate Year 2020	State MN	Make HONDA Style 4 DOOR Color BLACK
Date of Offense 02/11/2020	Time of Offense 1757		
<input type="checkbox"/> Endangering Life or Property	<input type="checkbox"/> Commercial Vehicle <input type="checkbox"/> Hazardous Materials (DOT)		
*Court appearance required if checked: _____ Pounds (dry weight): _____			
<input type="checkbox"/> Driver: <input type="checkbox"/> Owner <input type="checkbox"/> Passenger	<input type="checkbox"/> Cities	<input checked="" type="checkbox"/> Parked	<input type="checkbox"/> Booked
Offense Location: IEO 1086 YORK		Circle One: (City) County/Township/Other: St Paul	
Offense: SNOW EMERGENCY	Charge Description: SNOW EMERGENCY	Statute/Ordinance: 161.03.a	<input type="checkbox"/> 3rd violation (PM), M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
Offense:	Charge Description:	Statute/Ordinance:	<input type="checkbox"/> 3rd violation PM, M, GM
<input type="checkbox"/> AC Taken – AC: _____ Test type: <input type="checkbox"/> Breath <input type="checkbox"/> Blood <input type="checkbox"/> Urine <input type="checkbox"/> Other Substance <input type="checkbox"/> Refused			
If this is a payable citation, you must pay the amount owed or schedule an appearance within 30 days from the date the citation was issued. See the back of this citation for more information.			
Officer(s) Name(s) BOSEN		Officer No(s) 712	Prosecutor St Paul
Controlling Agency (CAG) CC0629600	How Issued <input type="checkbox"/> In Person <input type="checkbox"/> Mailed <input checked="" type="checkbox"/> Left at the Scene	Date Issued 2/11/2020	
Agency Name: St Paul Public Works		CNICR 200 23457	

629600046229

SB

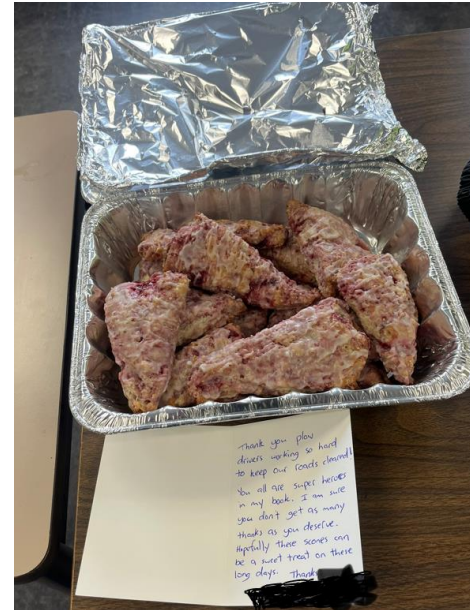
PROSECUTOR

Rev. Version: 2017.1



# Communications & Engagement Summary

- StPaul.gov/snow (snow webpage) and Interactive Snow Emergency Parking Map are the #1 and #4 most frequented pages on the City's website
  - Nearly **500,000 visits** to [st.paul.gov/snow](https://st.paul.gov/snow)
  - **67,000+** visits to [stpaul.gov/snowemergency parkingmap](https://stpaul.gov/snowemergency parkingmap)
- 1+ million emails & texts sent to residents (opt in)
- Social Media
  - Public Works Twitter (*numbers do not include City Twitter*)
    - 98** posts
    - 179** replies from staff
    - 1,742** interactions
  - City of Saint Paul Facebook (*PW & Snow Emergency posts were 67% of total posts from 11/28/22-4/1/23*)
    - 132** posts
    - 697** replies from staff
    - 895,765** viewed posts
    - 33,042** interactions (likes, comments, clicks etc.)
- 180+ media inquiries & interviews
  - 2 press conferences with Mayor

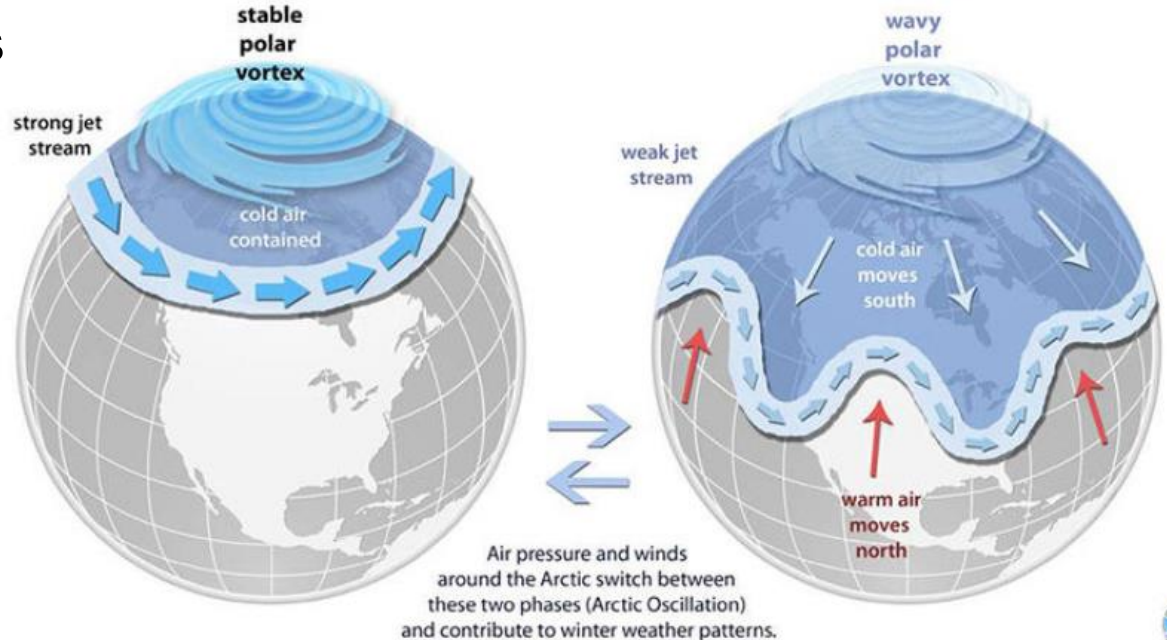




# What's Changed?

- Climate change  
*(graphic from NOAA)*
- On-street parking needs
- Driving behavior, volumes, and patterns
- Modal shifts in transportation
- Resident service expectations
- External work force dynamics

## The Science Behind the Polar Vortex



# Preparing for Future Snow Seasons



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# Citywide Snow Operations - Mission, Vision, Goals

**Vision:** To create and deliver innovative, effective, and sustainable citywide snow operations that makes Saint Paul a city that works for all of us.

**Mission:** Strengthen collaboration to transform Saint Paul's current snow operations into a more cohesive and responsive citywide system to deliver safe and accessible streets, trails, sidewalks, and public facilities that meet residents' expectations of service delivery.

## Goals:

1. To ensure **safety for emergency vehicles** by successfully clearing all 1,800 lanes miles of roadway in the first 20 hours of a snow emergency.
2. To **maintain bike and pedestrian mobility**, clear all 150+ miles of bike, bridge, and pedestrian trails in the first 20 hours of a snow emergency.
3. To **maximize pedestrian accessibility in partnership with community and other agencies**, improve snow clearance of transit, pedestrian, and other prioritized corridors in the full 96 hours of a snow emergency.
4. To **establish plans and protocols for initiating a multi-agency response** to an extreme snowstorm, e.g. greater than 28", or a debilitating wind/snow/ice event.



# Citywide Work Groups

- Snow Operations  
*(Public Works & Parks)*
- Private Operations/Ordinances  
*(Public Works & DSI)*
- Ticketing & Towing  
*(Public Works, CAO & SPPD)*
- Recruiting, Hiring & Retention  
*(Public Works & HR)*
- Communications & Engagement  
*(Public Works & Mayor's Office)*





# Questions and Discussion





# Other Winter Weather Impacts



Sidewalks – shoveled by property owners, within 24 hours of snowfall



Bus stops/shelters & light rail - MetroTransit



Park trails – Parks plows



Alleys – not plowed by City



Recycling & Garbage – do not put carts in street or snowbanks, shovel out a space for your cart



Bike lanes and dedicated bike paths (e.g. Summit Ave and Pelham St)



# Snow Emergency Info & Contacts



[www.stpaul.gov/snow](http://www.stpaul.gov/snow)



651-266-PLOW (7569) Snow Emergency Status (recorded message)



[snowemergency@ci.stpaul.mn.us](mailto:snowemergency@ci.stpaul.mn.us) To report specific locations of icy areas, windrows, pushbacks during the Clean Up Phase



651-266-9800, option 2 Ticket & Towing Office; leave voice mail message



651-266-9700 Street Maintenance; leave voice mail message



# Budget: More than just plowing

PW Winter Operations Budget – plowing, brining, shoveling, pothole patching, garbage/illegal dumping

Winter season spans across 2 budget years

\$400,000 - \$800,000 per snow emergency

Budget 4 snow emergencies per calendar year

- 3 snow emergencies January – April 2022
- 3 snow emergencies November & December 2022
- 4 snow emergencies in January – April 2023 (and 1-side parking ban)

Staffing is 365/24/7, but changed for winter – increase nights and weekends



# How can you help?

- Share Snow Emergency Info and Resources Often (all year long)!
  - Encourage people to sign up for Snow Emergency alerts and texts – [stpaul.gov/snow](http://stpaul.gov/snow) Encourage people to download the Snow Emergency Parking Map – [stpaul.gov/snowemergencyparkingmap](http://stpaul.gov/snowemergencyparkingmap)
  - Share updates and info about the Snow Emergencies through your channels
  - Answer resident questions & inquiries
  - Do not put recycling and garbage carts in the street
- Night & Day Plow Phases
  - Direct residents to 651-266-PLOW (recorded message) or [stpaul.gov/snow](http://stpaul.gov/snow)
  - Use Snow Emergency Parking Map to help residents know when & where to park
- Clean Up Phase
  - General clean up (icy areas, windrows, pushbacks) – [snowemergency@stpaul.gov](mailto:snowemergency@stpaul.gov) (provide detailed location info)
  - Blocked storm drain – Sewers 651-266-9850
  - Sidewalks not shoveled – DSI 651-266-8989
  - Damage caused by plow – Street Maintenance 651-266-9700 or [snowemergency@stpaul.gov](mailto:snowemergency@stpaul.gov)



# How can you help? (Ticketing & Towing)

- During Clean Up Phase – Parked/towed car related questions
  - To request ticketing & towing of parked cars
    - Call 651-266-9800 (option 2) with detailed location information & car description
    - Online form activated after night and day plow phases are done ([stpaul.gov/snowticketing](http://stpaul.gov/snowticketing))
    - After Snow Emergency ends (96 hours) – call Police non-emergency at 651-291-1111 with detailed location information & car description
  - To find towed cars
    - Visit [stpaul.gov/impound](http://stpaul.gov/impound) & enter VIN or license plate number
    - Call Cathlin Street (across from State Fair) at 651-603-6859
    - Call Barge Channel Lot at 651-266-5642



# How can you help? (Recycling & Garbage)

- Do not put recycling and garbage carts in the street!
- Find out about winter weather collection delays [stpaul.gov/wintercollection](http://stpaul.gov/wintercollection)
  
- Recycling
  - Call Eureka at 651-222-7678 or the City at 651-266-6101
  - Visit [EurekaRecycling.org](http://EurekaRecycling.org)
  
- Garbage
  - Find garbage hauler – [stpaul.gov/garbagemap](http://stpaul.gov/garbagemap)
  - Aspen Waste Systems: 612-884-8008
  - Gene's Disposal Service: 651-426-1224
  - Highland Sanitation: 651-458-0043
  - Republic Services: 651-286-4590
  - Waste Management: 763-784-8349