

MEMORANDUM



TO: JEFFREY HERCZEG, DIRECTOR OF PUBLIC WORKS
FROM: MATT WIKTOROWSKI, FIELD OPERATIONS MANAGER
SUBJECT: FY 2023-2024 WINTER ROAD MAINTENANCE REVIEW
DATE: MAY 10, 2024

This memorandum reports winter maintenance performance data for the 2023/2024 winter season. The data is compared to previous seasons and supported by factors that posed challenges or, conversely, enhanced service, such as abnormal weather and equipment advancements, respectively.

Background and Winter Road Maintenance Results

Southeast Michigan experienced a mild 2023-2024 winter season, responding to only 19 events at an average temperature of 36 degrees, with approximately 18" of total snow accumulation (the historical 16-year average is 33 events, 31 degrees, and 47" of snow). The mild conditions contributed to another effective winter road maintenance season.

The exact total of measurable snow received of 18.16 inches was much less than the previous three-year average of 33.39 inches. This season, neighborhoods were cleared more often to remove hardpack snow/ice, which is often associated with wet snow and warmer temperatures indicative of the recent winter weather patterns.

The attached table shows this season's data compared to records obtained from the previous 16 winter seasons. Each of these performance measures is discussed in detail below.

Citizen Feedback

DPW received a total of 210 concerns from citizens relating to winter maintenance compared to the previous 16-year average of 190. This season's concerns are as follows:

- 19 Driveway Plowed In
- 72 Lawn Damage
- 14 Mailbox Hit
- 14 Not Close Enough to Curb
- 23 Not Close Enough to Mailbox
- 23 Road Missed
- 1 Sidewalk Plowed In
- 40 General Concern

Many of the complaints registered were lawn damage (72). This higher-than-normal number of sod repairs is a direct result of warm winter dotted with a couple of large snow events that prohibited drivers from easily seeing the edge of the roadway. Corrective action was immediately taken to address complaints relating to the few cases in which plowing was not totally completed. In addition, all lawn repairs reported before May 1, have been completed. Overall, in 2023-2024, the department averaged 11 citizen concerns per event.

Traffic Crashes

The Novi Police Department provided data that officers responded to 19 crashes this past winter, where snow and ice were listed as being on the road surface. Although there is no data to support if the roadway condition was the sole contributing factor to any accident, tracking roadway condition provides a benchmark for service and safety. Historically, Public Safety crews have responded to an average of 89 events over the past 16 seasons.

Salt Use and Liquids Use

DPW is continually looking for new ways to reduce the amount of salt used for melting snow and ice from City-maintained roadways and parking lots. Limiting the amount of salt not only saves on operating expenditures but also reduces the number of chlorides entering our watersheds and infrastructure. Over the 2023-2024 winter season, DPW crews applied approximately 4,718 tons of salt, or \$249,629 of material, at an average of 248 tons, or \$13,122 per event, compared to the 16-year average of 181 tons per event.

This season, the Department activated its new automated brine maker to supply both pre-wetting and anti-icing liquids to roadways. Because the equipment can make several thousand gallons of solution each day without oversight it allowed our team to apply materials more effectively. In two events this season, the Department was able to apply liquids to high-traffic roadways throughout the night with only two operators. This allowed the remainder of our team to rest longer and report closer to rush hour to clear remaining roads for motorists closer to rush hour. The Department applied 59,564 gallons of liquid, or an average of 3,135 gallons per event. In future seasons, DPW plans to increase the amount of liquids used per event to proactively address slippery conditions and limit environmental impacts from the rock salt use traditionally applied.

Labor Costs

Labor costs can vary significantly from season to season given the time and frequency of events. If most storms occur in the middle of the night, or on weekends, the labor cost will be high. Conversely, if most storms happen close to a regularly scheduled shift, the cost will be lower because less overtime is needed. Since several of this season's events occurred on holidays or weekends, the total labor cost for the 2023-2024 season was \$145,961, or \$7,682 per event, compared to overall seasonal averages of \$224,403 and \$6,938 respectively.

Conclusion

Each season DPW evaluates materials, labor, and equipment used in winter road maintenance to enhance operations. In recent years, the Department has added computers in the trucks' cabs to calibrate material dispersion and wing plow attachments to truck chassis, which quickly clears more snow from roadways. In addition, AVL services best track winter maintenance activity and allow teams to estimate completion times. This season, the Novi City Council approved a new salt dome that replaces a structure over 30 years old. This building will allow us to load salt more efficiently and safely through an external conveyor. The dome will also store approximately 33% more material, minimizing the amount of times delivery trucks visit the site.