



Department Source: Public Works

To: City Council

From: City Manager & Staff

Council Meeting Date: February 17, 2025

Re: Report regarding the 01-04-25 and 01-09-25 winter weather events

Executive Summary

Council requested follow-up information regarding the two winter weather events 01/04/2025 and 01/09/2025.

Discussion

As indicated at the January 21, 2025 Council meeting, a worksession regarding winter weather response is recommended each year in late summer or early fall.

Attached is information regarding the Public Works Department's current winter weather response policy.

Since no winter weather event is exactly the same, actual operational decisions are centered in the policy but based on available resources, forecasted conditions, and projections thereafter. While there were two distinct winter weather events in January 2025 (one beginning 01/04/2025 and one beginning 01/09/2025), some overlap of both actual response and citizen perceived response are likely.

Regarding the specifics of the first event, forecasts heading into the event indicated a high likelihood of freezing rain and sleet mix followed by significant snow. Preparations for the first event began 01/02/2025 and continued into 01/04/2025 with pretreatment of roadways based on this forecast. A 28-person crew was in place the day of 01/04/2025 in preparation for the beginning of the event. Precipitation began around 4 PM on 01/04/2025. The beginning of the first event was freezing rain and approximately 2 inches of sleet that was then followed by approximately 3 inches of snow (total just over 5 inches in most locations). Snow ended at approximately 2 AM 01/06/2025. Continuous response operation was kept in place until all roads within the City were plowed and treated to passable condition, which occurred at just after midnight the morning of 01/08/2025, approximately 46 hours after end of precipitation (policy is to have all roads treated and plowed within 88 hours). While extreme overnight lows limited salt effectiveness for overnight hours, near normal conditions were achieved on first, most second, and some third priority routes through the day Wednesday with some lingering snow pack remaining in spot locations, most generally to the east parts of the City. School was cancelled Monday through Wednesday, but school was back in session for the day Thursday 01/09/2025 with all streets in passable condition. Downtown snow removal was triggered the evening of 01/06/2025 due to the volume, projected extreme cold limiting significant melting action, and potential for additional snow later in the week. Per policy, crews entered neighborhood streets generally from the outside of the city to the inside for this event and attempted to plow curb to curb where feasible.



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Some daytime thaw and freeze conditions occurred through the day Wednesday and prior to the start of the second event, Thursday 01/09/25. While daytime pavement temperature highs were just above freezing for a brief period, extreme cold temperatures overnight in the single digits limited both effectiveness of salt treatment and led to some refreeze issues. While sleet from the first event often is somewhat similar to snow if sustained temperatures around freezing occur, freeze thaw cycles with significant sleet may lead to a relatively thick layer of ice formation rather than just snow pack.

The second event began with snow starting at 11:30 PM Thursday 01/09/25 and continued through approximately 11 AM Friday 01/10/25, with just over an additional 5 inches and isolated 7 inches throughout parts of the community. Per policy, crews focused on first, second, and third priority routes keeping passable conditions through active precipitation with the focus to get priority routes to near normal conditions as soon as possible. Some crew resources were shifted to address neighborhood streets beginning on Friday mid-day since priority routes were in a passable condition and in order to give time for the sun to continue to allow salt to work. While some resources were shifted back to priority routes, crews continued to work to plow and treat all neighborhood streets, continuing through 4:15 PM 01/11/25 when all streets were plowed to passable conditions (approximately 28 hours after end of the event with policy at 88 hours). Per policy, crews treated and plowed streets generally from the inside of the City to the outside which is opposite of the previous event. During this event streets were plowed with one pass in and out of the subdivision.

Overnight lows in the single digits again limited salt effectiveness overnight and while all routes were passable, some routes held snow or icepack from the previous event. Residual icepack from the first event was particularly difficult to address along isolated streets and while first, second, and third priority routes returned to near normal bare pavement conditions by early Sunday, lingering icepack remained a concern on more than 10% of streets, mostly to the southwest of the community but also at some other locations on the more perimeter of the City. While generally passable or bare pavement conditions were present across most streets, staff utilized backhoes and additional treatments through the remainder of the next week to address the lingering icepack at tough locations that generally occurred due to melting and refreeze of the sleet from the first event and residual snowpack.

Overall, continuous operation along streets is the best way to minimize formation of snowpack from vehicles traveling along routes while snow is present. A plow generally operates at an average of about 15 miles per hour during active precipitation within the City (inclusive of time to refill salt and return to routes). When fully staffed the Street Division is staffed with 45 Full Time Equivalent (FTE) personnel (20 to 21 plow operators per shift along with 2 to 3 supervisors that plan activities and address specific concerns such as breakdowns or other issues). Some personnel from other departments also share in response when possible, typically 6 to 10 people per shift, but targeted additional resources during the day may be used from Parks & Recreation and City Utilities. Fleet Division also provides typically 4 people per shift in order to repair trucks and equipment during the shifts.



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The policy has been to achieve passable conditions; defined as a single 8' drive lane passable by a front wheel drive vehicle operating at lower than normal speeds utilizing prudent winter weather driving tactics for all routes within the timelines outlined in the policy.

While policy timelines were met for the event, several potential options exist to improve operational response. The primary way to decrease snowpack or icepack potential concerns is to increase the number of lane miles for continuous response. While the number of continuous response lane miles is different for any agency based on resources, the average for most agencies is between 22 and 35 lane miles per truck responding. This allows for a truck to respond to the same location a minimum of once every two hours on average at the recommended operating conditions. This also allows for reapplication of salt at desired rates and plowing action that minimizes snow-pack formation. Public Works currently operates at 36.4 lane miles per operator which is reduced to 27 lane miles per operator when you take into account the borrowed operators from other departments (typically 6 to 8 per shift). The City currently has one salt storage facility off of Big Bear Boulevard near the center north of the City. Additional future improvements with respect to response should be achieved with the completion of the south salt facility, anticipated in summer 2026. The additional salt facility will both decrease time to get to locations (both north and south) and provide a mechanism to store an additional amount of magnesium chloride or other chemical application material that works at temperatures lower than sodium chloride alone. Sodium Chloride is the most cost effective and best solution for most winter weather events in Missouri, but it loses effectiveness at temperatures below 18 degrees. While long time lines of extreme cold weather are not common, they do occur. Pursuing additional chemical products that operate at lower temperatures would be recommended once storage facilities are in place.

Public Works also believes, if we contemplate changes to existing policy based on recent events, it is important we consider the unusual nature of these two events. As of January 24, 2025 the Columbia Regional Airport had snow on the ground for 19 consecutive days which is the longest stretch since 1985 and the 6th longest stretch since 1969. This was an anomaly.

Fiscal Impact

Short-Term Impact: None.
Long-Term Impact: None.

Strategic & Comprehensive Plan Impact

[Strategic Plan Impacts:](#)

Primary Impact: Not Applicable, Secondary Impact: Not Applicable, Tertiary Impact: Not Applicable



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Comprehensive Plan Impacts:

Primary Impact: Not Applicable, Secondary Impact: Not applicable, Tertiary Impact: Not Applicable

Legislative History

Date	Action
N/A	N/A

Suggested Council Action

Acceptance of the report.