



# Memorandum

TO: Kevin J. Jackson, Village Manager 

FROM: Rob Sproule, Public Works Director 

FOR: Village President and Board of Trustees

DATE: November 10, 2022

SUBJECT: Public Works Salt Brine Maker

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The purpose of this memo is to provide the Village Board with further detail on the benefits of salt brine and an estimated Return on Investment for the purchase and installation of a Salt Brine Maker at the Public Works Center as requested by the Board during the budget review process.

## Background

The Public Works Department has requested \$175,000.00 for the purchase and installation of a salt brine maker and associated equipment for 2023 as part of the 2023 - 2027 Capital Improvement Plan: Building Improvement Fund. As part of the budget review process, staff were requested to provide more detail on the benefits and estimated timeline for the return on the initial investment.

There are two major benefits to the use of salt brine as part of the Village's Snow Mitigation Program: An increase in public safety by making roads safer and more traversable during winter weather events and a reduction in overall rock salt usage.

Salt brine, as a tool, is used in two primary ways related to snow mitigation. It is used as a proactive strategy to prevent snow and ice from bonding to pavement at the beginning of an event and is effective in temperatures as low as -6 degrees Fahrenheit. Application can begin up to 48 hours prior to the arrival of a storm, making it easier for crews to maintain safe roadways during winter weather events. Because the brine adheres to the pavement, it is more efficient than salt alone which can bounce or migrate off the road into the curb and catch basins. Salt brine can also be used during an event in conjunction with rock salt. In this case, the brine would be used as a pre-treatment before the rock salt is spread. This pre-treatment helps activate the salt and initiate the melting process once the salt hits the road surface. This treated salt is also much less likely to scatter when it hits the road surface, remaining in the drive-lanes rather than migrating to the curb. Both situations mean less salt is needed to treat the same area.

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Historically, Public Works has not significantly used salt brine as a snow mitigation tool. With the department's limited facilities and property, there isn't room to house the necessary tanks to support a brine program based on deliveries from an outside vendor. The purchase and installation of the Village's own equipment would allow the department to make brine on demand and expand and normalize its use. Also, there is a significant price difference in the cost of making brine versus the purchase of brine from a vendor that deters its expanded use with delivery. The cost for purchase and delivery of brine from a vendor can be up to \$1.00 a gallon whereas the cost to make a gallon of brine is approximately \$0.15.

Communities throughout North America have reported that the use of brine for anti-icing prior to an event along with its use as a pre-treatment addition has reduced their overall use of rock salt during snow mitigation activities. Communities have reported reductions in the range of 15% to 30% over the course of a season. A reduction of that size can have significant environmental impacts to our community and region. Reducing the amount of salt added to our soil and groundwater can have positive, direct local impacts to our community's foliage and fauna. Reducing the amount of salt added to our sewer system can have positive regional impacts to waterways and water resources. In addition to these environmental impacts, there are direct financial impacts to reducing our rock salt usage. The cost of rock salt fluctuates each season, but has displayed an overall pattern of increased cost per ton over time. Just this year, the cost per ton from 2022 (\$55.97) to 2023 (\$72.55) has increased almost 30%. When taking into consideration these increased costs per ton, even with a conservative estimate of a 15% reduction in use, the Village could save over \$27,000 a year by expanding its use of salt brine as a snow mitigation tool. With an estimated cost of purchase and installation of a salt brine maker and equipment at \$175,000, the Village would expect to recoup its cost in approximately seven years.

Please contact Rob Sproule, Public Works Director, with any questions at [rsroule@oak-park.us](mailto:rsroule@oak-park.us) or 708-358-5704.

### Attachments

cc: Lisa Shelley, Deputy Village Manager  
Ahmad Zayyad, Deputy Village Manager  
All Department Directors  
Christina M. Waters, Village Clerk