Salt Damage to Street Trees

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This tree is a Norway maple (*Acer platanoides*) located directly in front of the county courthouse just off of Sixth Street. Although it is difficult to see in this photograph, the problems with this maple are stunted growth, disfiguration of leaves, stems, and trunk, drought stress (burned leaf tips), and premature defoliation. The overall health of the tree was quite poor. In mid-summer it appeared almost dead, having lost most of it's leaves already. If the tree does live much longer I would be very surprised, because it has not produced many leaves for photosynthesis.

I first came across this tree during a routine hazard tree inspection. It appeared to be drought damage, so I asked Roger Blanchard (Moscow's community forester) what he thought the problem was. He explained how the salt could cause drought-like symptoms. The symptoms are largely caused by the salts used on the sidewalk and roads to prevent ice formation. The City and County salt both the road and sidewalk with Calcium Chloride. It has a small area of overlap right where this particular tree and the sidewalk come together, concentrating the salt in that spot. However, the salt was not the sole cause of the symptoms. A tree lawn of <3 square feet restricts root growth and aeration, adding stress to the tree. Also the tree suffers from a lack of water in the hot summer months, partially due to the breakdown of soil structure from the salts. One additional factor that could contribute to the tree's poor health is pollution from automobiles and urban development.

Unfortunately it is not very reasonable to try to help this tree, because of the other poor site conditions. This tree should be removed and the soil as well. The best solution is to replace it with a more salt-tolerant species, such as ginkgo (*Ginkgo biloba 'Fastigiata'*), or Ohio buckeye (*Aesculus glabra).* The cost of alternative salts such as Calcium Magnesium acetate can be up to 20-30 times that of traditional NaCl or CaCl. Since people will not likely give up their non-icy sidewalks and streets, the most realistic alternative is planting species that are tolerant of high salt concentrations. In mild salt-damage cases, leeching of salts or addition of gypsum to help restore structure can be helpful.