

Magnesium Chloride for Glastonbury

Pros and Cons

The GLA Road Committee would like to treat 10,000 feet of heavily traveled gravel roads in Glastonbury with magnesium chloride. In North, magnesium chloride will be applied to 5,000 feet on Capricorn, Taurus and Gemini; in South, on Arcturus and Hercules. The cost is approximately \$1.22 per foot, or \$12,200.00 per year.

The pros and cons follow:

- Mag chloride (MC) is widely and successfully used as a dust suppressant in Montana and Park County. It is applied with a water truck and several contractors offer mag chloride application services.
- Alternative dust suppressants and binding enhancers exist, but they are yet to be accepted by local contractors.
- Rock Creek Road in Tom Miner Basin, the road to Jardine and the old road from Livingston to Boulder, are all successfully treated on a yearly basis with mag chloride, and they all experience heavy traffic flows.
- MC greatly reduces dust and fine particulates which can cause long-term health problems, like emphysema and lung cancer.
- MC binds the fine particles in road mix by drawing moisture from the air.
- MC, like road salt, can be corrosive to steel for the same reasons; it pulls moisture from the air. It should be washed from bare steel ASAP.
- MC is a chemical salt. If it gets into gardens it competes with plants for moisture, and can stress or kill them. Thus, roads with MC must be well-drained and isolated from gardens or crops.
- Pure MC is widely sold as a biodegradable and animal-friendly de-icer for both residential and commercial use. Dogs and cats should have their paws wiped after walking over fresh MC. It is not recognized as harmful or a carcinogen by any state.
- MC is mixed with water and sprayed onto the road. It must be allowed to soak in and dry before the road can be used. Usually, two passes with a water truck are

completed in 8 hours, for a one-lane stretch. Thus, traffic will be slowed and/or diverted for 8 hours, once a year.

- Basalt chips work well with MC and should be graded into the road mix before MC is applied. Since basalt chips are black they could be an excellent indicator of what portions of our road network are treated with MC.
- The basalt road mix is \$10 a ton on at the pit. This does not include hauling, but it is a lot closer to here than Pine Creek. It should not cost more onsite than we paid Adkins.
- MC reduces dust so humans, pets and plants can breathe more easily, and drivers have much better visibility.
- MC application requires careful preparation of the road. The road mix must be permeable and have lots of fines. The road must also be well-drained, dry and properly crowned. Good ditches and clean culverts are essential.
- MC must be renewed every year; it requires a long-term funding commitment. It has a cumulative effect. With each new application, it will last longer, and the road surface will be better preserved.
- Water cannot be allowed to stand on a road that has been treated with MC. Potholes must be filled immediately, so they do not hold water.
- MC treated roads require less grading and fresh gravel, because the existing road mix tends to stay in place. Road mix costs about \$1.50 a foot, and MC costs about \$1.22 a foot. Heavily traveled gravel roads currently require fresh road mix every year or two. MC will reduce annual road mix requirements for treated roads.
- MC makes snow plowing easier and less frequent. It “warms” the road surface and can reduce sanding and plowing costs. MC melts ice and compressed snow, like calcium chloride and sodium chloride (common rock salt).
- MC reduces frost damage along with overall wear of the road surface because of its strengthening effect. The roads become more stable, and along with its de-icing quality, driving safety potentially improves and accident rates are likely reduced.
- For more info on MC, go to www.nomoredustyroads.com

The Road Committee requests that the GLA Board revisit the Mag Chloride issue, in light of the above-mentioned data. Funding for fall grading was approved on September 11, 2017 by the Board, but the “*Mag Chloride Application*” was *not*. Therefore, we request that the Road Committee be allowed to include Mag Chloride treatment for 10,000 feet of roads — 5,000 ft. in NG and 5,000 ft. in SG, with 2017 Fall Grading.

Magnesium Chloride Application

North Glastonbury Gravel Roads

The GLA Road Committee suggests that the following NG gravel receive treatment with Magnesium Chloride:

1. The Lower Gemini Hill, beginning at Capricorn Drive and extending uphill one-tenth (1/10) of a mile, ending by the dirt driveway on the left and between the Muto’s and Dawson’s driveways, on the right.
2. On Capricorn Drive, beginning at Bezotsky’s and Sandoval’s driveways, (south side of the latter), and continuing two-tenths (2/10) of a mile to the junction with Lower Venus Hill.
3. The junction of Taurus Road Hill and Sirius Drive. Starting point is from the small platted strip of Sirius Drive, where the three reflectors and speed limit sign are located, one-tenth of a mile (1/10), extending up Taurus Road five-tenths (5/10) of a mile, to end of the platted road at the intersection of Bluebird Trail and Bradford Way.

Total distance: Nine tenths (9/10) of a mile or 4752 feet.

South Glastonbury Roads

1. On Arcturus Road - 2,500 feet, from Dry Creek Road to the top of Arcturus Hill.
2. On Hercules Road - 2,500 feet, from Dry Creek Road to the turn just before the ascent to Suicide Curve.

Total distance: 5,000 feet.

- The Road Committee also requests that the Board add an extra two line items to the 2018 Budget for NG and SG Mag Chloride gravel Road Treatment.

Financial Comparison of Mag Chloride and Fresh Road Mix

Arcturus Drive experiences heavy and fast traffic like other well used gravel roads in Glastonbury. It requires fresh road mix every year. In 2017 we spent \$11,022.60 (Line item 1036b P & L) on fresh road mix, grading and ditching for all of Arcturus Drive. The cost of just road mix that was placed from Dry Creek Road to the top of Arcturus Hill was \$3,853.00 (Adkin's Invoice of 8/14/2017)

If Arcturus Drive was treated with MC from Dry Creek to the top of Arcturus Hill the current Road Mix will stay in place much longer. The MC cost will be approximately \$3,050.00 per year. Based on 2017 Arcturus road expenses that will leave \$ 7,972.60 for the rest of Arcturus Drive road maintenance for 2018 spring grading.