

# Road Maintenance – 101

The question was asked the other day “How does the road crew improve the roadways in Green Mountain Falls (GMF) and are their methods both effective and environmentally conscious?”

This is a very good question and can be answered knowledgeably.

During the winter months (October through May) GMF can experience total snowfall in excess of 12 feet, so road safety is primarily challenged by snow and ice. The Department of Public Works (DPW) has a snow removal policy that dictates a 3 inch “call out” for snow mitigation. However, the roadway slopes (up to 27%) and pitches (as high as 12%) make it important to clear away the snow prior to traffic compressing the snow into “pack” which has a tendency to develop a very hard, slick surface. Bobsledding can be fun, but not with a Buick. In such slick conditions, the need will increase for additional sand/salt to provide a safer roadway surface. This will mean more salt residual in the spring for the local plant life to endure.

DPW responded to this issue by evaluating the need. The result is a proactive attitude to providing safe passage for emergency response vehicles, with the residents in GMF as the residual beneficiaries. The snow mitigation process is conducted such that whenever reasonably possible, the roads are cleared of snow prior to high traffic times and always with emergency vehicle response in mind. It is not uncommon to hear plow trucks out as early as 2am in an effort to clear the roads prior to high compaction periods. The result is safer roads and a reduced requirement for sand/salt, improving the environment.

During the short summer season, DPW is challenged with two issues: torrential rain (water erosion) and high volume two-wheel drive traffic (spinning tires create and magnify washboard surfaces) from tourists and seasonal residents (wind erosion). GMF can experience total rainfall in excess of 17 inches between June and September, and is one of the few places you will find signs reminding folks to use their 4x4 function (if they have it). The aggregate roadways also can become very dusty between storms, as the road base is primarily decomposed granite. In late spring, DPW will groom the roads (sometimes starting at 7am) and prepare for a Dust Guard application to include watering the roads appropriately (Town staff trusts that residents will stay alert for road maintenance equipment in motion, and give the right-of-way to support roadway improvement tasks). The Dust Guard is then applied, followed by several passes of vibratory compaction (residents may experience a slight shaking sensation as the equipment treks by). The torrential rain/tourist season lasts through July and August, and with its conclusion the Dust Guard application process is repeated in early fall. The DPW budget does not allow for all roads to experience this application annually, as it is not funded by local property taxes but rather by sales tax revenues collected by the State of Colorado and distributed by the Pikes Peak Rural Transportation Authority (PPRTA). The Ute Pass Avenue Widening Project was another PPRTA funded undertaking that resolved a dramatic problem with the main artery through GMF. It is with hope that future funding will be made available for similar projects in town.

Another question that gets asked often is **“What is Dust Guard?”** There exists a host of names associated with the active ingredient MgCl<sub>2</sub> or Magnesium Chloride (roughly 70% water and a 30% sea salt/corn syrup cocktail) including Dust Guard, Road Saver and Earth Bind. Magnesium Chloride (Mag) is used in many applications besides dust suppression, including textiles, paper products, cement, medical applications, culinary use, and marine aquarium chemical stabilization. The primary ingredient in Mag (besides water) is bischofite or sea salt, containing potassium, sodium, bromine, boron, calcium, silicon, silver, zinc, iron and copper. Although it does not taste great, it can be consumed right out of the truck tank and will typically do no harm (although consumption is not recommended). It is used as a dust control agent in many industries including mining, agriculture, military operations and road maintenance. Mag is less toxic than baking soda and almost three times less toxic than table salt. It is non-hazardous, non-flammable, non-carcinogenic and is not considered harmful to aquatic or mammal life. When applied properly, it is not harmful to plant life either.

**“How does it work”** you might ask? Once applied, it attracts moisture from the air to help create a compact, smooth roadway providing stability and control for months. As a dust palliative and soil stabilizer, Mag works by binding loose aggregate particles together, thus strengthening the soil matrix and preventing even the smallest particles from becoming airborne – nearly eliminating wind erosion of the roadway. Mag will also dramatically reduce water erosion of the roadway by providing water resistance to the treated soil particles, (reducing its solubility in rainwater) further defying the tendency to wash off the road after curing. This adds to the return on investment associated with the Road Rehabilitation Project, a perpetual venture also funded through PPRTA. Shaping the roadways in an effort to competently move run-off water to the ditch keeps the aggregate roadway binding agent in the road where it belongs, further assisting in yet another continual PPRTA funded endeavor – The Erosion Control Project.

The benefits to the residents of GMF are easy to recognize - offering identifiable relief from soil allergy problems, impaired vision due to roadway dust, broken windshields, clogged filters and bearings, automotive costs associated with “wash-board” roadway surfaces, and noise from heavy equipment in a reduced maintenance cycle. The methods used by Public Works in GMF are efficient and effective, facilitating the needs of the community in a fiscally responsible and environmentally conscientious fashion. DPW contracts primarily with local businesses in an effort to support the local economy.

It is with hope that the community will continue to support the Town of Green Mountain Falls in its effort to provide a safe and friendly environment in which to live.