IOWA COUNTY ENGINEERS ASSOCIATION

NEWS RELEASE

Iowa granular surfaced county roads

Posted on: January 9, 2017

Rural Iowa is laced with thousands of miles of granular surfaced roads, laid out in a square mile grid. Out of the 89,000 miles of county roads, around 66,000 miles are rock or gravel surfaced. These routes typically carry 25 to 100 vehicles per day.

The primary purpose of the granular roads is to provide access to land. They enable farmers to move between fields to plant in the spring and harvest in the fall. They support the daily in and out traffic at livestock operations. They carry loads of grain and livestock from farm to market. And they're available for use year round. This facilitates the efficient operation of the state's agricultural economy.

Unlike pavements, which cost $250,000 to $500,000 per mile to build but then serve with minimal upkeep for 25 to 35 years, granular roads are a low investment, high maintenance enterprise. The rock surfacing averages around 600 tons per mile. This provides a one inch thick crust. At an in-place cost of around $12 per ton, that's an investment of $7200 per mile in the driving surface. On average, the action of weathering and traffic erodes the rock at a rate of 133 tons per mile per year, so many counties replenish their roads with 400 tons of new rock every three years.

In addition to being surfaced, granular roads require frequent maintenance. This work is performed by motor graders, which re-crown the roadway, cut out bumps and potholes, spread the surfacing evenly and prevent encroachment of vegetation. Graders are expensive machines, retailing for around $300,000 apiece. They generally service a territory of 70 road miles and spend 10 – 12 hours per year maintaining each mile.

The graders are employed to remove snow in the winter, taking care not to blade too much rock off of the road surface in the process. Most of the time this can be accomplished with regular blade plus a wing blade, but heavier snowfalls can require use of v-plows mounted on

the front of the vehicle. Although counties have made great progress in eliminating 'snow traps', wind driven drifts can still block roads for several hundred feet.

A challenge for counties and road users alike is the spring thaw. When the winter frozen grade begins to warm, it thaws from the top down. The still impermeable ice below prevents the melt water from escaping, which results in highly saturated, easily displaced foundation soils. Since the crust is only an inch or two thick, heavy vehicles can break through, dig deep ruts, and even leave the road impassible.

Counties constantly explore more economic, efficient and effective ways to maintain their granular roads. Research projects explore ways to reduce dust generation and increase surfacing lifetimes, strengthen the base under the crust and investigate the economics of thicker crusts.

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