



a series by the WV LTAP to help POAs, HOAs, and small communities better understand roadway issues

KNOW YOUR ROADS

April 2023

Gravel Road Maintenance

Why should I care?

Many small local agencies and home/property owner's associations (HOAs/POAs) have gravel roads. Gravel has long been considered good roadway surface material for low volume roads, as the initial investment is less and, if well-constructed, can hold up well to lighter vehicles and lower speeds. Gravel roads require more maintenance on a more frequent schedule to be kept in good condition. Within a short period of time (such as a year or even a season) gravel can be pushed off the road, deformations like rutting and potholes can appear, and the roads can lose their shape. Each of these things are not only an eye-sore and cause a less comfortable ride, but they can each contribute to shortening the road's life.

Can maintenance wait?

Road maintenance is not cheap. However, the cost of maintaining a gravel road will be more affordable than rebuilding a road from the soil up should it become too deteriorated. Rebuilding a road also creates an inconvenience to motorists and others as the road may need to be closed.

Gravel prices have also continued to rise. Once you add in the costs of transporting the material, renting expensive equipment such as a motor grader, and finding a skilled operator, repair costs to a significantly damaged road can be beyond the financial capabilities of many small agencies or HOAs/POAs.

If you address the issues early before the work becomes extensive, a knowledgeable operator with a tractor and much cheaper rake attachment





can return lost stone from the shoulders and reshape the cross section at significantly less cost.

What should we watch for?

Water is one of the greatest threats to the life of a gravel road. A good gravel road should be free of deformations and have a slope or slopes across the roadway width (including the shoulders), which encourage water to flow away from it. Depressions such as ruts and potholes and improper cross-slope can prevent water from leaving the road. Any water that doesn't quickly leave the road may be reabsorbed into the soil below. Saturated soils have lower strength and ability to support traffic loads. In addition, the water can act as a lubricant, which can cause the stones above to slide or sink into the mud creating worse potholes and ruts and possibly a slick driving surface. Water in the soils under the road will also freeze and expand in the colder months causing potholes and a less stable driving surface.

It is also common to find that some of the stones on your road have moved to the shoulders or ditches due to water or traffic passing over. Losing stones reduces the amount of weight of traffic your road can adequately handle. Additionally, if these stones end up in ditches, pipes or other drainage features, they can trap water that can damage the drainage features and be absorbed under the road.

Finally, consider the type of traffic using your roads. Many roads were designed predominantly for passenger vehicles and have a surface with only a couple inches of stone. Heavier vehicles damage roads much faster. For instance, garbage

trucks have become larger and heavier; they also may make more frequent trips in some areas to collect recycling. Construction equipment and supplies for new structures along your roads can cause significant stress. Studded tires are known to dislodge stones on a gravel road.

What can be done?

- Communicate with your road users the importance of gravel road maintenance and the downsides of not addressing issues in a timely fashion.
- Monitor your gravel roads for signs of problems.
- Plan to address them quickly before the cost to fix the problem skyrockets.
- Identify resources such as quarries and local contractors with the appropriate gravel, operators and equipment.
- Reshape your roads as necessary to eliminate depressions and rebuild the cross-section shape.
- Consider a schedule for road maintenance to make the costs easier to budget.
- Work with road users to try to reduce the frequency of larger vehicles (especially during the spring thaw period) and other vehicle actions such as quick acceleration/braking and high speeds, which can damage the roads.

The WV LTAP can provide additional technical resources on gravel roads as well as in-person technical assistance. Contact Andrew at Andrew.Morgan@mail.wvu.edu.