



Staff Report

Report Title: Gravel Road Maintenance

Prepared By: John Yungblut, C.E.T., Director of Public Works

Department: Public Works

Date: Mar. 6, 2023

Report Number: PW-2023-03-14

File Number: C11 PW23

Attachments: Ratepayer Email, Road Repair Map, Draft Response Letter, 2019-2023 Gravel Resurfacing Map

Recommendation:

THAT the Township of Huron-Kinloss Committee of the Whole hereby receives for information, Report Number PW-2023-03-14, prepared by John Yungblut, Director of Public Works;

AND FURTHER directs staff to send the attached draft response letter.

Background:

Gravel Road Maintenance

During the Feb. 17, 2023 Budget meeting, Council passed the following resolution:

Council requested Staff review the operational strategies for ensuring that gravel roads are crowned and graded. Council added \$20,000 to gravel resurfacing and direct Staff to bring back a report on how improvements will be made to gravel road maintenance. Staff to share the schedule of roadwork anticipated for 2023.

Ratepayer Email

On Feb. 16, 2023, Township staff received an email addressed to staff and Council regarding improvements to Grey Ox Ave.

Discussion:

Public Works currently maintains 308 lane km of gravel roads. 181 lane km are maintained in the winter.

Our strategy for gravel road maintenance is to grade all the roads in the spring when the road surface has had an opportunity to dry, which re-establishes proper cross-fall. A liquid dust control product is applied once the spring road grading is complete, typically in June. Dust control is important to reduce airborne dust, it also reduces the loss of aggregate and extends the life of a gravel surface.

Township staff will monitor the condition of the roads through the summer months and will lightly grade any roads that develop potholes or washouts. It is important that the gravel treated with liquid dust control is not mixed with untreated gravel because the effectiveness of the dust control product will be significantly reduced.

During the summer months traffic will gradually erode the gravel on the surface of the road and flatten the crown that was established in the spring. Township staff will once again re-establish road cross-fall in the fall before freezing temperature arrive. While this is the ideal scenario, it should be noted that it is nearly impossible to ensure that all 308 lane km of gravel roads are in good condition prior to freezing temperatures because the weather does not generally co-operate in the fall and early winter.

Every spring, Township staff will resurface approximately 80 lane km of gravel roads by spreading 15,000-20,000 tonnes of maintenance gravel. In the past, the gravel has been a combination of purchased gravel and gravel produced from the Township gravel pit. Currently, we do not have a source of gravel on Township



property, so staff are planning to purchase all the gravel that will be required in the 2023 gravel resurfacing program. A map showing the gravel roads that have been resurfaced since 2019 and the roads that are proposed in 2023 is attached to this report.

In addition to gravel resurfacing, Township staff intend to repair gravel roads that have deteriorated in past years to the point that they became unsafe to travel on. These areas include a 400m section of South Kinloss Ave, located east of Whitechurch St. and a 100m section of Paradise Lake St. located south of South Kinloss Ave (see attached map). The method of repair will be similar to the work that was done on South Kinloss Ave in 2023 as shown in the photo on the left. The application of a continuous geotextile layer has proven to be very effective so far. This material prevents the soft material

below the road base from mixing with the clean road gravel. This significantly decreases the rutting that occurred in the spring of 2020 and 2022.

The amount of road repair that the budget will allow in 2023, will depend on the actual cost of purchased road maintenance gravel.

Another maintenance project that Township staff undertake on gravel roads is shoulder reclaiming and removing soil that has built up on the shoulders, which prevents surface runoff from draining off the road surface in a process staff refer to as "berming". Shoulder reclaiming is a process that prevents the build up of soil on the road shoulder by extracting the gravel that has migrated to the edge of the road and bringing it back to the road surface.

Berming involves the separation of the gravel that has built up along the edge of the road from the topsoil with a rake attachment and the disposal of the excess topsoil that prevent surface drainage. These tasks are becoming more of a priority for Township staff as a way of reducing the thickness of gravel resurfacing that is required each year. Gravel is a non-renewable resource that is becoming depleted, and staff are trying to preserve the gravel that we use as much as possible.

There are a few options that could be implemented to further improve gravel road maintenance:

1. Increase the quantity of gravel we apply in our annual resurfacing program. This will improve the surface and would help form a better crown, however, staff believe this an unsustainable approach that will quickly deplete the aggregate resources that we will have. It will also require an additional expenditure of \$50,000-\$100,000 to our Operating Budget to see a tangible improvement without implementing other measures. Also, this won't necessarily prevent roads from becoming soft during mild periods in the winter and early spring, especially in areas that have poor drainage.
2. Purchasing a second shoulder reclaimer would allow staff to expand the shoulder reclaiming operations and eventually not have a need for berming if all roads are included in a constant reclaiming cycle. This approach will take many years to see a tangible benefit, but it is a piece of equipment that staff are considering recommending in the next few years. Our current shoulder reclaimer was purchased for \$14,000 in 2020.
3. Accelerating the paving of gravel roads will reduce the inventory of gravel roads that require maintenance and allow staff to allocate more resources to improving the remaining gravel roads we have. This is a long term strategy that is included in our Strategic Plan, however, it is not recommended to allocate capital funds to upgrading gravel roads to pavement at the expense of our existing paved roads. The only realistic way of accelerating the paving schedule would be to find a new funding source.
4. Drainage improvements in areas with drainage problems will help improve the condition of the road and reduce the time required for it to dry out in the spring.

These projects typically involve increasing the gravel base thickness and deepening ditches to provide an opportunity for the road base to drain into the ditch. Another alternative is to install perforated subsurface drains to collect excess moisture in the road base and direct it to a watercourse. These projects are generally only practical in short sections of roads with serious issues because of the costs involved. There is also very little that can be done to improve drainage on roads through wetland areas beyond installing a geotextile layer under the road base.

Ratepayer Email

In 2022, the Township launched a new campaign titled "Mud Season". The purpose of this campaign is to inform residents that gravel roads will become soft during the spring thaw and that they may need to slow down while driving on these road. We also recommended that drivers avoid using gravel roads if they can, so the damage inflicted to the roads is reduced for those that need to travel on them.

The frequent freeze/thaw cycles that occur throughout the winter over the past several years has a negative impact on the condition of all our roads by weakening the surface. The mild periods also increases the amount of gravel that migrates off the centre of the road as a result of snow plowing and traffic.

The details of the campaign can be found on the Township [website](#).

Financial Impacts

We had proposed in the 2023 draft budget \$284,400 for gravel resurfacing.

Strategic Alignment / Link:

We are an accessible community by being open and transparent.

We are a prosperous community that continues to grow in a sustainable manner by investing in infrastructure.

Respectfully Submitted By:

John Yungblut, Director of Public Works

Approved By:

Mary Rose Walden, Chief Administrative Officer