



## Staff Report

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**Report To:** Council Meeting

**From:** Lee Gosnell, Manager of Operations & Community Services

**Date:** 2022-06-09

**Subject:** Dust Suppressant Procedures

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### **Recommendation:**

That West Elgin Council hereby receives the report from Lee Gosnell, Manager of Operations & Community Services re: Dust Suppressant Procedures for information purposes.

### **Purpose:**

The purpose of this report is to provide Council with a brief outline of West Elgin's dust control program and an update on this years' application to date.

### **Background:**

As is the case every year, staff and Council members have started to receive dust complaints from certain residents living along rural roads in West Elgin. While some spring seasons are worse than others, these concerns are unavoidable and expected. While we can't snap our fingers and make the dust go away, understanding the municipal program can help provide accurate information when responding to these concerns.

Every year, when winter is over and the ground begins to thaw, operators begin work on the gravel road network. As the frost comes out, roads are soft and highly susceptible to damage from heavy loads, which is why there are half load restrictions (March 1 – April 30). During this period, tractors pulling a large drag scrape the road as weather permits. These drags open the gravel surface to promote drying and help level rough areas and potholes caused by months of snow removal operations. Although ideal for this time of year, they do not cut deep enough to remove the potholes and cannot restore 'crown' in the road.

As we move closer to spring, the frost is entirely gone, and roads begin to firm up. Graders are now utilized to begin cutting and shaping, which eliminates the holes, pulls gravel in from the edges, and restores crown in the road to promote water runoff. This operation takes time, as it is the first thorough grading to be completed since fall of the previous year. Early spring moisture provides good compaction and typically minimizes the amount of dust generated. Depending on weather variables such as frost depth, spring temperatures and rainfall, these operations will usually take place between mid-March and early May.

This brings us to dust suppressant season. There are different theories surrounding the best time for this operation to occur. Some municipalities start the beginning of May once the half load restriction ends, while others hold off until late May or early June to start. Early application takes advantage of spring moisture to help control dust during the process but can lose some of its

effectiveness later in the season. Alternately, delaying the application will typically provide better control during the hot, dry days of July and August, but may lead to dust concerns early in the year. Here at West Elgin, we have consistently tried to start application of dust suppressant around May 10 each year. This may fluctuate by one week either way, depending on weather conditions, but it has always been in this range.

The Municipality of West Elgin currently maintains approx. 200kms of gravel road. When it comes time to apply dust suppressant, each road must be graded one final time to shape and loosen the gravel so the liquid can soak in. Grading needs to be coordinated with the dust suppressant company so application can happen on the same day or, at most, one day later. All standard width roads receive two passes using an approx. rate of 2.5 flake ton/mile. This provides one coat along the edges which helps bind the aggregate and provide some dust control, while the main driving lanes receive a double coat (due to overlap) for maximum effectiveness. At this rate, one trailer load of dust suppressant will cover approx. 6.5 single lane kms, which equates to 3.25 kms when spraying a double pass. The municipal dust control tender specifies that bidders must be able to supply four loads of product per day. Therefore, it would take 15 days (3 weeks) of perfect weather and no disruptions to cover all roads.

Understanding that some roads will be done first, and some roads will be done last, the public works department tries their best to alternate where dust control measures start each year. Also, roads that have been selected to receive maintenance gravel will be passed over during initial operations. Applying dust suppressant to roads which will soon be covered with fresh gravel would be a waste of valuable time and taxpayer dollars. Once most roads have been brined and graders are available, new gravel application will begin, and this will be covered with dust suppressant as each road is completed.

West Elgin currently uses natural brine for dust control on gravel roads. This is the most cost-effective form of dust suppressant and is sourced locally. Brine used for dust control has approx. 20% effective chloride composites in the solution (such as calcium and magnesium). The other 80% liquid is a carrier and only provides dust control until it dries (usually within hours). Chloride composites draw available moisture from the air and surrounding gravel to help bind the particles, which in turn reduces dust. Even simple things such as dew, fog or high humidity can provide enough available moisture to keep brine working. This explains why the road can look darker in the early morning vs. during the mid-afternoon heat/sun. When we experience extended periods of hot, dry conditions, the ability of the brine to control dust will be diminished, however, this should come back once additional moisture has been received.

This year, dust suppressant application began during the week of May 16. Unfavorable grading conditions early in May, coupled with staffing commitments, delayed the normal start by approx. one week. Grading and brine application has continued since this time, as weather permitted. Operators are careful not to disturb more road than can be promptly treated, which help minimize the dusty conditions. Also of note, rain events are a double-edged sword during this time. Rainfall will eliminate the dust for a brief period, but it will also delay grading operations, therefore extending the time required to cover all roads. For Council's reference, the attached map has been provided to show what areas have been completed as of this report. Graders started in the south and are working their way towards the river, as most maintenance gravel will be spread in the north this year. Weather permitting, most roads should be graded and brined by mid-June.

**Report Approval Details**

Document Title:	Dust Suppressant Procedures - 2022-53-Operations Community Services.docx
Attachments:	- 2022 Brine Map - June 7 2022.pdf
Final Approval Date:	Jun 7, 2022

This report and all of its attachments were approved and signed as outlined below:

Jana Nethercott