

Winter Maintenance

Transportation & Engineering Services



Sturgeon
C O U N T Y

Policy, Guidelines, and Procedures

Council Policy – Snow & Ice Control

Approved December 13, 2016

- Establishes winter service levels both during and outside of Recognized Snow Events for all open, public roadways the County is responsible for.

Winter Road Maintenance Guidelines & Procedures

Reviewed Annually

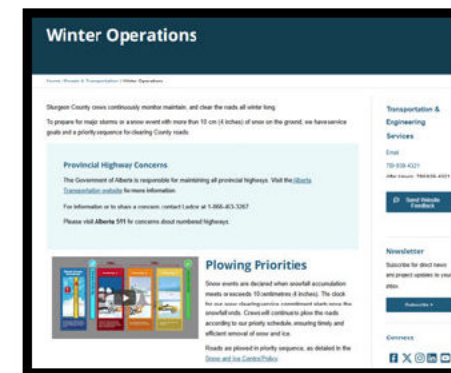
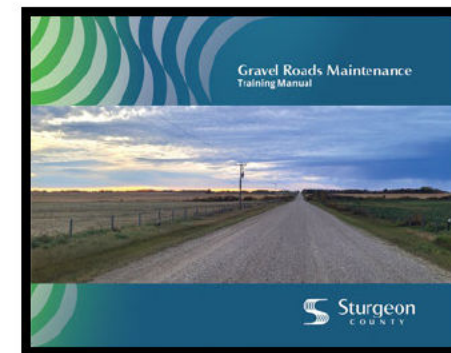
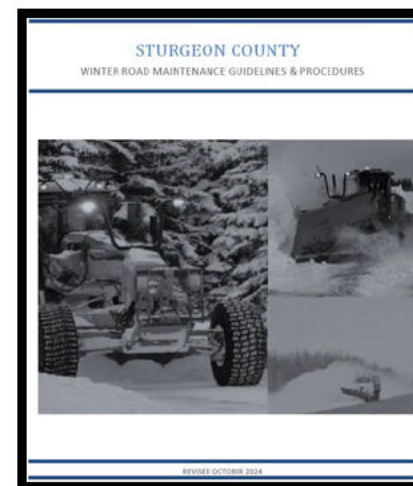
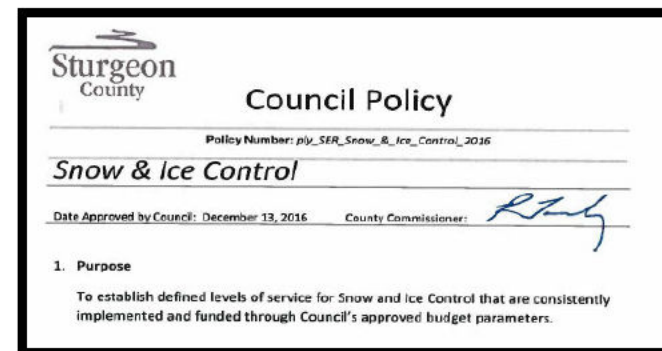
- 27 pg. document that contains various information on required resources, materials, operating parameters, communications, obstructions, maintenance reduction strategies, and maintenance approaches for various road types.
- Applies to both Paved and Gravel roads operations.

Gravel Roads Maintenance – Training Manual **NEW**

- Comprehensive manual that also speaks to the gravel road component of Winter Maintenance.

Sturgeon County Website – Winter Operations

- <https://www.sturgeoncounty.ca/roads-transportation/winter/>
- Provides information on Plowing Priorities, Service Goals, and other information.



Network Size & Available Resources

Paved Roads – 359.4 km

5 Plow Areas

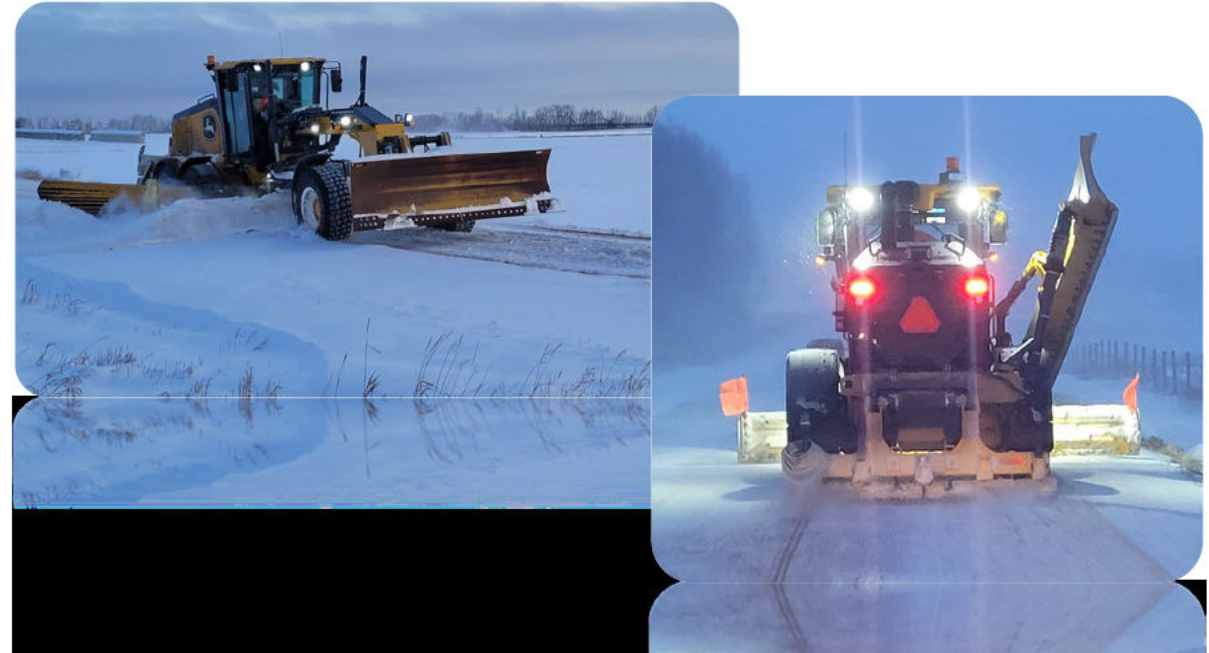
Full Time Operators	15
<ul style="list-style-type: none">• 10 Dayshift – 6am to 230pm• 5 Afternoon Shift – 230pm to 11pm	
Mainline Plows (tandem & larger)	8
Single Axle Plows	2
Graders	3
Loader/Snow Blower	1
Skidsteers	3



Gravel Roads – 1,408.7 km

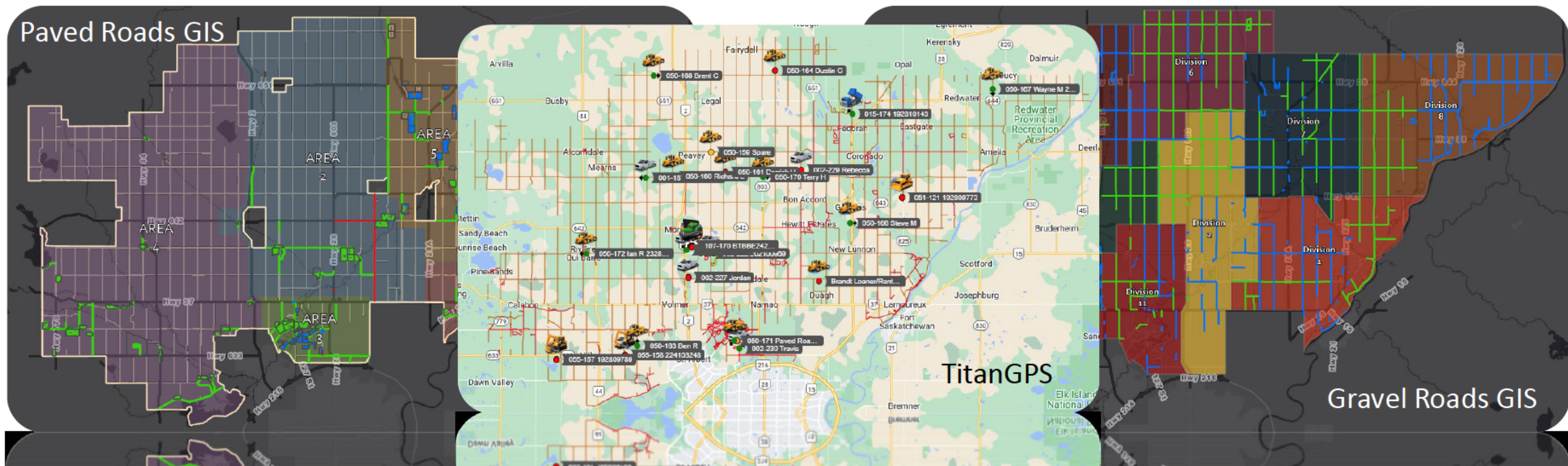
11 Grader Divisions

Full Time Operators	11
<ul style="list-style-type: none">• Dayshift 7am to 330pm	
Graders	12



Operations Tracking & Monitoring

- Automated Vehicle Location (AVL) services provided by TitanGPS.
- Interactive maintenance updates via Geographic Information System (GIS). Primarily used during a Snow Event response, operators through iPad input, update progress in near real time.
- Currently working to integrate both the TitanGPS and GIS systems for easier maintenance analysis and a public facing component.



Paved Roads Division - Overview

PRIMARY TASK – Paved Network Snow and Ice Control

- The Paved Road network is operationally divided into two categories: **Mains** (24hr LOS) and **Subdivisions** (72hr LOS)
 - The aim for **Mains** is to achieve, at minimum, bare wheel paths and minimal center and shoulder snowpack.
 - This is accomplished by mechanical removal (plowing) first, then by the application of sand/salt mix with subsequent plowing/sanding/salting cycles until good winter driving conditions are achieved.
 - The aim for **Subdivisions** are to clear loose snow throughout and place sand/salt mix only on curves, hills and intersections to maintain traction. An exception is made for freezing rain conditions and in Cardiff – Echoes where snow is removed by snow blower with every 30 to 40cm of accumulation to prevent spring flooding.
 - After initial plow cleanup on the network is complete, graders are deployed to scrape/wing as required.

SECONDARY TASKS

- Parking lot snow clearing – includes County Center, Protective Services, and other locations not serviceable by area plow trucks
- UWMS compound snow clearing at various locations
- Sign maintenance
- Garbage/Carcass cleanup
- Contract and internal brushing activities
- Assist Gravel Roads with pickled gravel application
- Equipment washing and maintenance
- Snow dump pile maintenance
- Pothole maintenance
- Roundabout & Bridge Shoulder Snow Removal
- County Center Snow Pile Removal

Paved Roads Division – Equipment/Material Detail

TRUCKS AND EQUIPMENT

MAINLINE PLOW TRUCKS

- Equipped with 12' front plow and right-side wing
- 7 of 8 equipped with prewet capability
- 7 tandem drive & 1 tridem drive units

GRADERS

- 3 different sizes for various scenarios
- 2 of 3 currently wing equipped
- 1 of 3 snow gate equipped

SNOWBLOWER

- RPMTech 220



MATERIALS

- **Sand** - stockpile and pickle **5500t** per season
- **Salt** – store up to 250t in storage shelter, ordering additional as required. Up to **2000t** per season
- **Washed Rock Chip** – used for parking lot maintenance. Up to **250t** per season

Pickling Sand

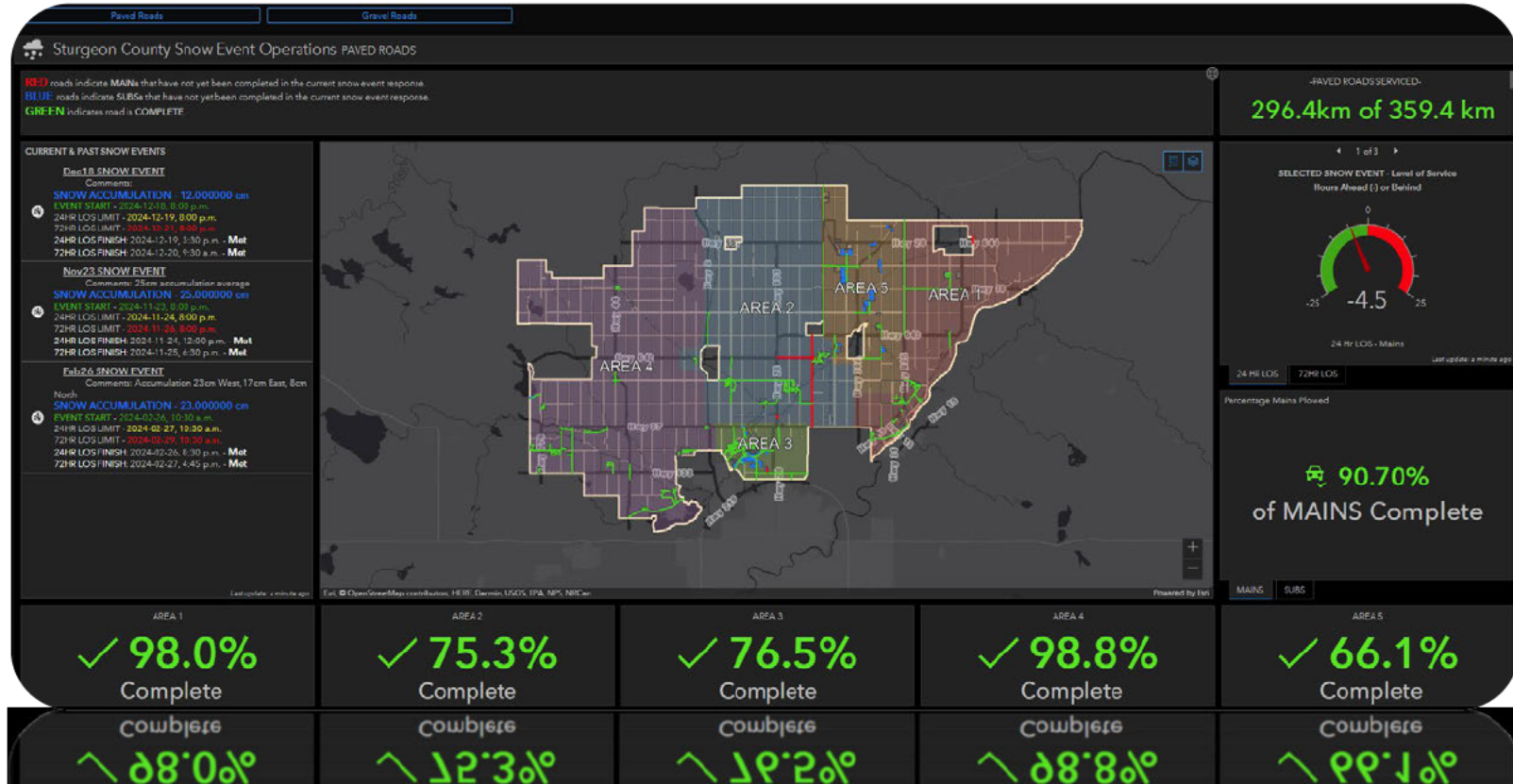


Rock Chip



Paved Roads Division – SNOW EVENT RESPONSE

1. 10cm+ Continuous Snow Accumulation reached
2. Crews and Management Notified
3. Transition to 24hr Operations upon substantial cessation of snowfall
4. Clear network within LOS timeframe – at least 2 lanes all roads
5. Progress tracked via Winter Operations Dashboard – Snow Event map
6. Upon completion, detail cleanup begins for both road network and parking lot route



Paved Roads Division – Enhanced Maintenance Strategies

To continue streamlining the Snow and Ice Control program and provide better overall Paved Road conditions, the following are current and planned strategies undertaken by the department:

Snow Fence

1,050m between 4 locations currently in place with good results. Looking to expand.

Sand Pre-wetting

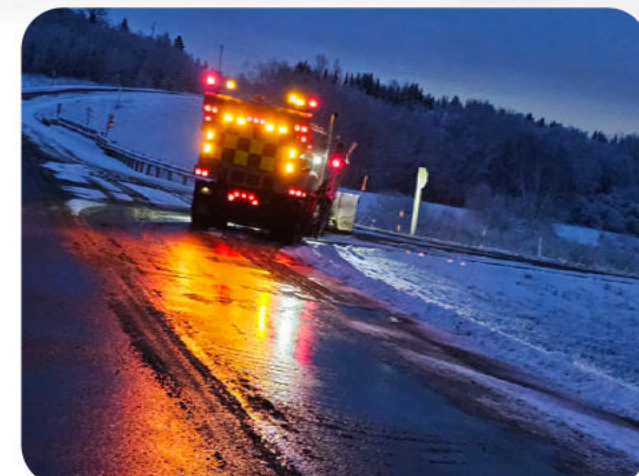
7 of 8 trucks currently utilizing Beet 55 to prewet sand as discharged from sanding chute. Helps sand/salt to stick and reduces salt dilution period.

Tire Chains

Provides required traction during adverse freezing rain events to respond and place sand/salt as required. Chains available for all plow trucks.

Anti-Icing (Planned)

Preventing snow fall from bonding to the road surface significantly reduces the amount of sand/salt required to break the bond. Department is in the early stages of investigating this option using Beet 55.



Gravel Roads Division - Overview

Gravel Network Snow and Ice Control

- The Gravel Road network is patrolled 5 days per week outside of Snow Events or other adverse conditions like freezing rain, regardless of road conditions.
- Focus on
 - Smoothing/ drivability
 - Creating traction (Intersections)
 - Blending snow and gravel to form 'winter roads'



Gravel Roads Division – Equipment/Material Detail

EQUIPMENT

GRADERS

- 11 – 6-wheel drive units with telescoping wings, rear mounted scarifying teeth, and front lift groups to support blade/V-plow attachment
- 1 – spare to maintain full division coverage during preventive maintenance and repair



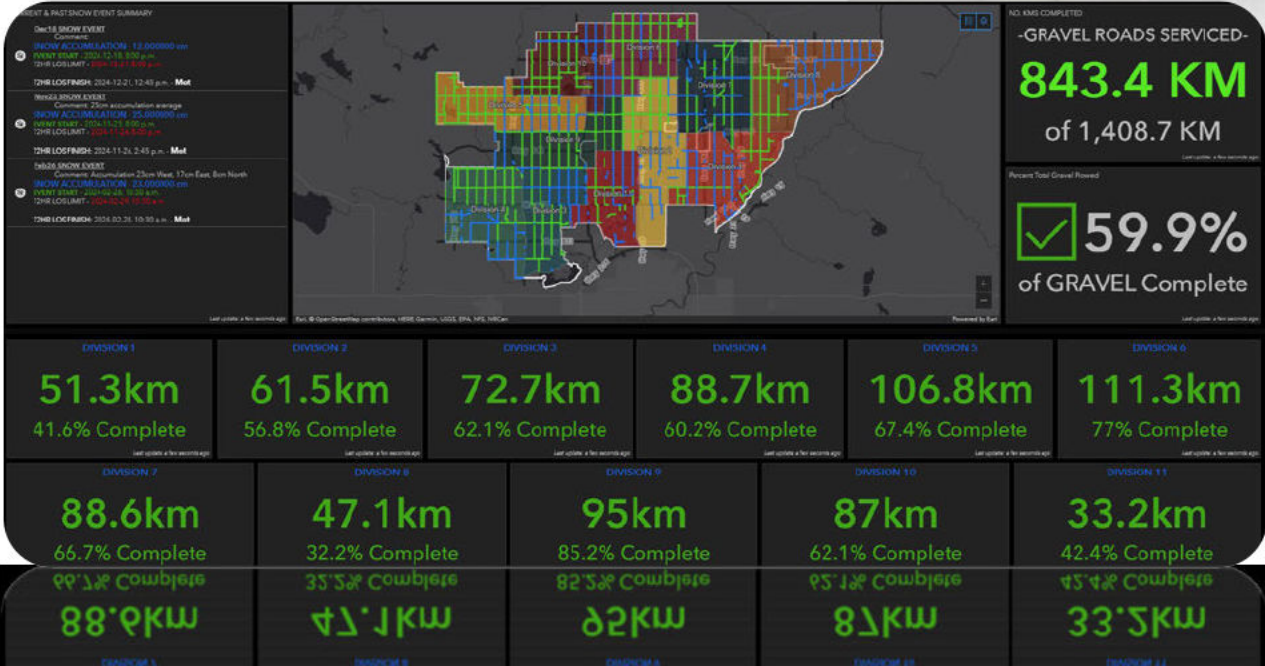
MATERIALS

- **Pickled 20mm** - stockpile and pickle **500t** per season
- Used to support rapid response to icy conditions at intersections, hills, and curves throughout the network due to thaw/freeze or freezing rain conditions
- Applied by sanding trucks via Paved Roads support as requested



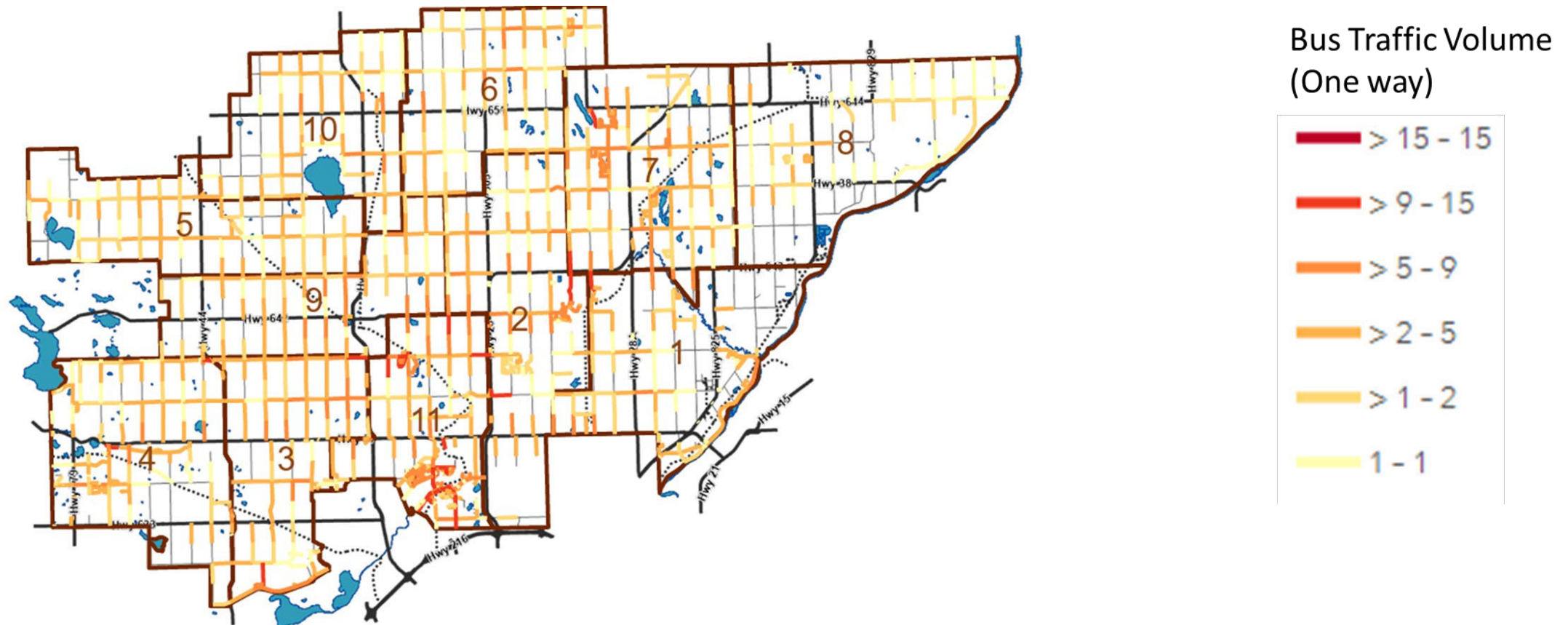
Gravel Roads Division - Snow Event Response

- Full deployment in response of a snow event. Extended hours as necessary to complete work and fatigue management
- On Gravel roads, best practice is to wait until snow has stopped (or almost stopped) before deploying
- Graders will deploy prior to snow stopping if forecasted accumulations are high
- Staff use the Snow Event Map (Tracking completion and accountability)
- Upon LOS completion, detail cleanup begins by benching, winging back, and pushing back high accumulation areas as needed.



Gravel Roads Division - Bus Routes

- A common misconception is that Sturgeon County employs a certain level of service for bus routes—that is not the case. In the last 3 years Sturgeon County has worked with the two primary school divisions to collect and map the bus routes, resulting in an awareness of the activity on certain roads



Gravel Roads Division - Drifting

- Wind events can often happen quickly and without much notice- resulting in several kilometers of roadways plugged overnight
- Like a Snow Event, it takes operators a minimum of 72 hours to pass through all roads (best case scenario - traveling in 6th gear)



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2024/2025 – Snow Event Summary

SNOW EVENT RESPONSES

Two snow events this winter season so far

PAVED ROADS

CURRENT & PAST SNOW EVENTS

Dec18 SNOW EVENT

Comments:

SNOW ACCUMULATION - 12.000000 cm



EVENT START - 2024-12-18, 8:00 p.m.
24HR LOS LIMIT - **2024-12-19, 8:00 p.m.**
72HR LOS LIMIT - **2024-12-21, 8:00 p.m.**
24HR LOS FINISH: 2024-12-19, 3:30 p.m.
- **Met**
72HR LOS FINISH: 2024-12-20, 9:30 a.m. - **Met**

24HR LOS
4.5hrs ahead

72HR LOS
34.5hrs ahead

Nov23 SNOW EVENT

Comments: 25cm accumulation average

SNOW ACCUMULATION - 25.000000 cm



EVENT START - 2024-11-23, 8:00 p.m.
24HR LOS LIMIT - **2024-11-24, 8:00 p.m.**
72HR LOS LIMIT - **2024-11-26, 8:00 p.m.**
24HR LOS FINISH: 2024-11-24, 12:00 p.m. - **Met**
72HR LOS FINISH: 2024-11-25, 6:30 p.m. - **Met**

24HR LOS
8hrs ahead

72HR LOS
25.5hrs ahead

GRAVEL ROADS

CURRENT & PAST SNOW EVENT SUMMARY

Dec18 SNOW EVENT

Comment:

SNOW ACCUMULATION - 12.000000 cm
EVENT START - 2024-12-18, 8:00 p.m.
72HR LOS LIMIT - **2024-12-21, 8:00 p.m.**



72HR LOS FINISH: 2024-12-21, 12:45 p.m. - **Met**

72HR LOS
7.25hrs ahead

Nov23 SNOW EVENT

Comment: 25cm accumulation average

SNOW ACCUMULATION - 25.000000 cm
EVENT START - 2024-11-23, 8:00 p.m.
72HR LOS LIMIT - **2024-11-26, 8:00 p.m.**



72HR LOS FINISH: 2024-11-26, 2:45 p.m. - **Met**

72HR LOS
5.25hrs ahead

Questions?



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