Route Optimization
Pre-Season Exercise

Pre-season planning before the winter season can pay off in much needed gained efficiencies, while mitigating your deficiencies.

- Reference your Roads Needs Study
- Route Optimization begins with planning your spread routes first!
- Plowing ops can coincide and compliment with spreading operations, its all about making an efficient winter program
  - Utilize your equipment
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“Why Do It” tangibles:

i. Manage your materials better, costs keep rising

ii. Manage staff’s time and O/t, in compliance with the HOS O.Reg 555/06

iii. Cut down fuel costs, by not “deadheading” to yard for materials to finish the route

iv. Decrease equipment wear and tear and units service needs & Life Cycle
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“Why Do It” tangibles:

v. Keep operation from over / re spreading materials

vi. Know your in a Best Practice operation, achieve an Environmental Stewardship & meet your Levels of Service - expectations

vii. Do you need to “right size / configuration” of your fleet?

viii. Place the right equipment and the right staff in the right environment to succeed
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Your Knowns:

i. Total road network, identified as L/Km & translated into 2L/Km (measurement units for spreading operations, from the RNS)

ii. Capacity of each trucks carrying ability - GVW. (w/ front and side plow blades on & filled brine tanks weight)

This does not mean FILL MORE MATERIALS
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Method:

i. Divide total of 2L/Km by number of trucks = est. of 2L/Km on each trucks route, does this work with your available fleet numbers?

ii. And/or Capacity on the unit divided by the spread rate

iii. ? Spread Rates of materials, *Sand will be different than Salt

iv. Number of Trucks, and make up of types?

v. Boundaries/Limits – Arterials, Natural, Transit Routes. Boundary roads…

vi. Route Mapping?
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Your Routes:
Refer to your agencies Levels of Service.
Arterials – Collectors – Residential
### Route Optimization

**Pre-Season Exercise**

### Tracking the Asset – Productivity - Accomplishments

<table>
<thead>
<tr>
<th>Route 1</th>
<th>Priority/Class</th>
<th>Street</th>
<th>From</th>
<th>To</th>
<th>Length</th>
<th># Lanes</th>
<th>L/Km</th>
<th>P/Km</th>
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| Totals  |                 |              |              |               | 15.6   | 26.0   | 48.0 | 17.4 | Totals  |
Route Optimization
Pre-Season Exercise

Case Study:

Town of Great Roads has 1,200 L/km of road or 600 2L/km

Resources include: Single axle combo units. Capacity approx. 6 tonnes (6,000 kgs.)

Salt Spreading Rate of 150 kg/2L/km......(6,000kgs / 150kg 2Lkm)

= Max out at 40 2L/km per truck, per route. (or 600x150=90,000/6,000=15 units)

Total of 600 2L/km divide by 40 2L/km = 15 Single axles are required.
Case Study:

Town of Great Roads has 1,200 L/km of road or 600 2L/km

Resources include: Tandem axle combo units. Capacity approx.

11 tonnes (11,000 kgs.)

Salt Spreading Rate of 150 kg/2L/km

= Max out at 73 2L/km per truck, per route. (or 600x150=90,000/11,000=8 units)

Total of 600 2L/km divide by 73 2L/km = 8 Tandem axles are required.
Case Study

Town of Great Roads has 1,200 L/km of road or 600 2L/km – Urban / Rural

Resources include:

- 8 Tandem axle combo units, capacity tandem 11t (11,000kgs.)
- **Sand** (11,000t / 550kg = 20 2L/km x 8 tandems = 160km of routing)
- 11 Single axle combo units, capacity single 6t (6,000kg)
- **Salt** (6,000t / 150kg = 40 2L/km x 11 singles = 440km of routing)

Salt rate of 150 kg/2L/km – Sand rate of 550 kg/2L/km……..616km
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Case Study

Town of Great Roads has 160 2L/km – Rural Roads

Capacity tandem 11t (11,000kgs.)

**Sand** (11,000t / 550kg = 20 2L/km x 8 tandems = 160km of routing)

(or 160x550=88,000/11,000=8 units Req’d.)
Route Optimization
Pre-Season Exercise

Why?
Specific Savings and Best Management Practices!

• Manage “Hours of Service” (Overtime hours)
• Minimize Deadheading (to complete routing with one operation!)
• Fuel consumption

• We can’t Measure what we don’t Manage!
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Pre-Season Exercise

Efficient Routing...Why?

Time Management
& Mitigating Municipal Risk
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Pre-Season Exercise
Why?
Specific Savings and Best Management Practices!

- Savings on Materials used & Environmental Stewardship
- Equipment Usage and Life Cycles,
- Levels of Service Compliance
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Pre-Season Exercise

Efficient Routing….Why?

Equipment Management &
“Striving to do more with less”…
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Thank you

Questions?

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