



# Public Works: Roads Operations

# Who we are

Roads Operations division includes:

- Area Manager (3)
  - Supervisor (9)
  - Roads Crew Leader (12)
  - Road Patrol (3)
  - Heavy Equipment Operator (18) (Graders, backhoes)
  - Equipment Operator (48)
  - Damage Prevention Technician (2)
  - Utility Operator (1)
  - Senior Engineering Technician (1)
  - Seasonal Sidewalk Labourers (6)
  - Summer Students
- Indirectly:
- Administrative Assistant (5)
  - Service Information Specialist (2)

# Depots and Locations

## East Operating Area

- Manvers
- Emily
- Bobcaygeon
- Burnt River
- Sturgeon Point (*Satellite Depot*)
- OPS (*Winter Operations*)

## West Operating Area

- Oakwood
- Fenelon Township
- Eldon
- Coboconk
- Lindsay
- Carden (*Satellite Depot*)

# What we do

Road, Bridge, Building Maintenance

Winter Control

Traffic and Streetlight Maintenance

City Wide Operational Programs

Utility Locates (City Infrastructure)

Customer Service

Unplanned Work (Flood, Dumping)



# Municipal Highways

## Minimum Maintenance Standards

- Minimum Maintenance Standards (MMS) are identified under the Municipal Act, Regulation 239/02, as amended by O Reg 366/18.
- Minimum maintenance standards were developed to provide municipalities with a defense against liability from actions arising with regard to levels of care on roads and bridges.
- Regulation 239/02 came into force on November 1, 2002. Most recent amendment was filed May 3, 2018.
- The Regulation is a living document and has received several updates.

# Municipal Highways

## Minimum Maintenance Standards

MMS Standards are based on the classification of highways.

The regulation applied to Class 1-5 roads. Regulation does not apply to Class 6 roads.

Based on Road Classification Minimum Standards are established for:

- Road Patrol (Summer & Winter)
- Winter Operations
- Pot Holes On Paved and Non-Paved Surfaces
- Shoulder Drop-Offs
- Regulatory & Warning Signs

# Roads Core Service Review

## Review Commenced in 2015

- Started as review of “Limited Service Agreements” for Unassumed and Private Roads
- Expanded into Roads Inventory project to evaluate and understand potential impact of decisions
- Multiple public meetings, presentations and reports to Council
- Project is ongoing and will be for several years

# Roads Core Service Review

## Assumed Roads

- Prior to 2003 roads could be “assumed by service”
- Post 2003 all roads are assumed via By-Law either by Engineering or Public Works
- CKL is required to provide full and complete municipal service as defined in the Municipal Act.
- Services include but limited to winter control, road drainage, brushing, pot hole repair, etc.
- Roads are contained within the Capital plan for improvements.



# Roads Core Service Review

## Unassumed and Private Roads

- **Unassumed Road:** Right of Way property owned by the municipality where the City is not legally required to provide maintenance services.
- **Private Road:** A right of way owned by a private owner or group of owners where the City has no ownership.

“The City is not legally obligated to provide maintenance on either category of road (private or unassumed) and not doing so limits both the maintenance costs and exposure to liability for the City.”

# Roads Core Service Review

## Unassumed Roads

- Core Services review of Limited Service Agreement process
- Council adopted a new policy “Seasonal Level of Service Policy” (SLOS) for unassumed roads
- Roads must meet minimum standards to qualify
- Identifies seasonal (spring, summer and/or fall) grading service and annual gravel application
- Policy clarifies no winter service is provided
- Recent Resolution to review fee for service for 2019

# Roads Core Service Review

- **Private Roads Limited Service Agreements**
  - 2017 Staff Recommended ceasing activity on Private Roads per legal recommendation and obligations
  - Prior Council has directed no additional roads, but status quo on existing agreements and services
  - Staff to conduct further review with associations
- **Staff have met with Associations as directed**
  - Residents enjoy the service offered by the City
  - Concern over consistent and equal Level of Service
  - Impact of Roads Inventory

# Roads Inventory Review

CKL is responsible for the maintenance of:

- **approximately 2,700\* centre line** kilometers of roads (or ~5400\* lane kilometers)
- approximately 900\* km of Asphalt Roads
- approximately 900\* km of Surface Treated Roads
- approximately 900\* km of Gravel Roads

\* Actual values are still being verified

# Roads Inventory Review

- Database of 4428 road segments (growing)
- Continuing to confirm road status – assumed, unassumed, private, forced
- Confirming current maintenance activities provided – summer, winter or fully maintained
  - 1683 segments assumed by by-law (need to be confirmed)
  - 2160 require confirmation of ownership because service was provided prior to 2003

# Roads Inventory Challenges

## Confirming Roads Maintenance Database

- Establishing current maintenance practices
- Review ownership
- Review assumption by-laws
- 3-4 years potential timing
- Resource availability
- Cost management

# City-Wide Projects

## Division supported by

- Senior Engineering Technician (1)
- Technical Student (1)
- Programs consist of:
  - Depot Upgrades
  - Sand Dome and Salt Shed Upgrades, Replacements
  - City-Wide Operations Projects



# City-Wide Projects

- Line Painting and Symbol Painting
- Ditching
- Guide Rail Replacement
- Dust Control
- Roadside Grass Cutting
- Sweeping
- Bridge Maintenance
- Storm Sewer Flushing

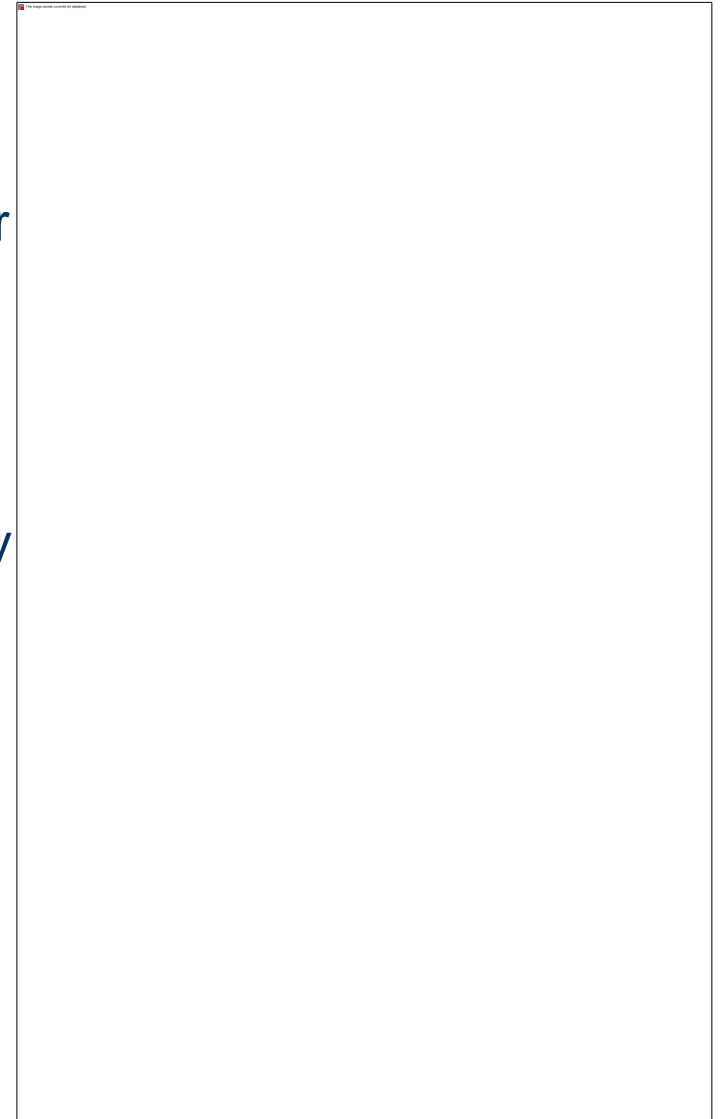


# Roads - Spring/Summer/Fall

- Grade roads and shoulders
- Clean and maintain bridges
- Patch potholes
- Repair ditching and drainage issues
- Repair and replace
  - Culverts
  - Guideposts
  - Signs
  - Streetlights
  - Traffic signals
- Grass cutting (Contracted Service)
- Noxious Weed Control Program
- Road Patrol (year round)
- Dust control (Contracted Service)
- Brushing/ditching (Combination of In-House & Contracted Service)
- Line painting (Contracted Service)
- Sidewalk repairs
- Gravel placement
- Entrance permits
- Catch basin repairs and cleaning (Combination of In-House & Contracted Service)
- Street Sweeping - spring and fall (Combination of In-House & Contracted Service)
- Emergency support services (accidents, flooding, illegal dumping)
- Customer Service

# Pot Hole Patching

- A pot hole is a type of failure in to a road surface, caused by the presence of water in the underlying soil structure and the presence of traffic passing over the affected area.
- The water weakens the supporting soil, traffic then fatigues and breaks the poorly supported road surface.
- Continued traffic will then eject the surface material and underlying soil to create a pot hole.
- Climate Change: Increased freeze-thaw cycles and extreme weather events accelerates the deterioration process.



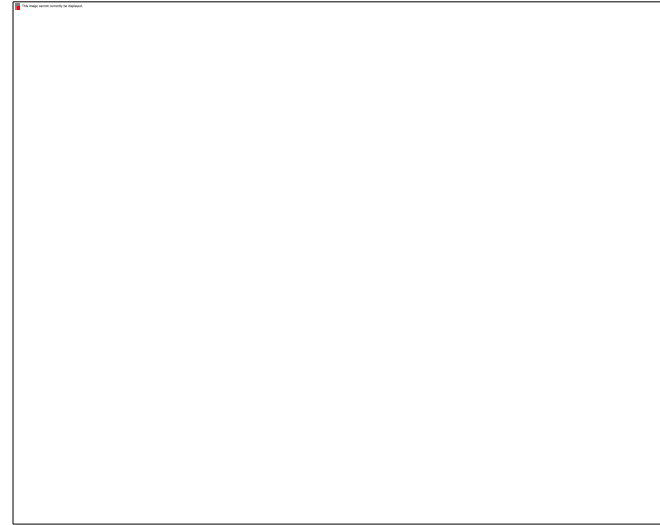
# Pot Hole Patching

## Prevention

- Drainage improvements
- Preventative maintenance (Lifecycle Extension)
- Utility cut management

## Repairs

- Temporary cold patching
- Semi-permanent repair
  - Hot patching (Asphalt)
  - Da-Lee - Instarmac (Pilot)



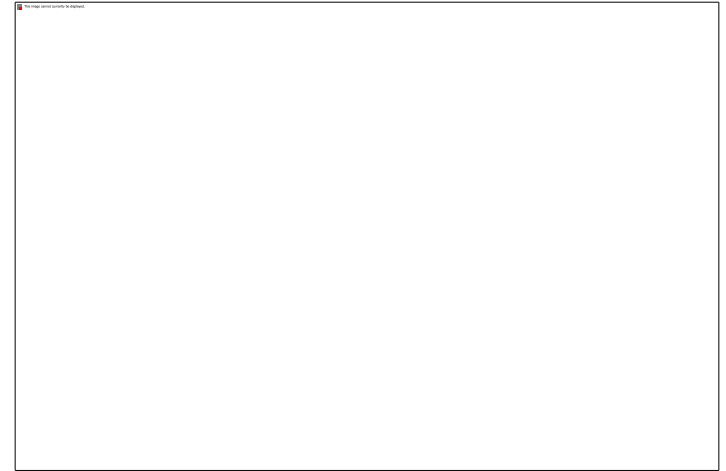
## Replacement

- Localized Resurfacing program
- Urban and Arterial Resurfacing Program
- Rural Resurfacing Program

# Pot Hole Patching

**Potholes on paved surface of roadway**

O. Reg. 239/02, s. 6, Table 1.



Class of Highway	Surface Area	Depth	Time
1	1500 cm <sup>2</sup>	8 cm	7 days
2	1500 cm <sup>2</sup>	8 cm	7 days
3	1500 cm <sup>2</sup>	8 cm	14 days
4	1500 cm <sup>2</sup>	10 cm	30 days
5	1500 cm <sup>2</sup>	12 cm	60 days

# Pot Hole Patching

**Potholes on non-paved  
surface of roadway**

O. Reg. 239/02, s. 6, Table 2.



Class of Highway	Surface Area	Depth	Time
3	1500 cm <sup>2</sup>	8 cm	7 days
4	1500 cm <sup>2</sup>	10 cm	14 days
5	1500 cm <sup>2</sup>	12 cm	30 days

# Road and Shoulder Grading

- ✓ Loose top road grading 3-5+ times annually
- ✓ Shoulder grading 3-4 times annually

## Cause and Effect

- Pot holes form based on the same principles as hard-topped roads
- Precipitation and weather are contributing causes and affect the grading schedule
- Good road/shoulder grades: road 4-6 %; shoulders are 6%
- Calcium Chloride prevents dust and helps gravel bind together



# Roadside Brushing

Roadside Mechanical Brushing is a necessary activity.

- Completed to remove vegetation within the City owned right-of-way:
  - Winter Operations allows road to receive sun therefore helps with winter operations
  - Improves sight lines and intersections and driveways
  - Improves road drainage
  - Reduces damage to city owned equipment
  - Reduces insurance claims for vehicle damage

Completed by both city equipment & staff along with contracted services.

# Drainage – the reason behind a road's success

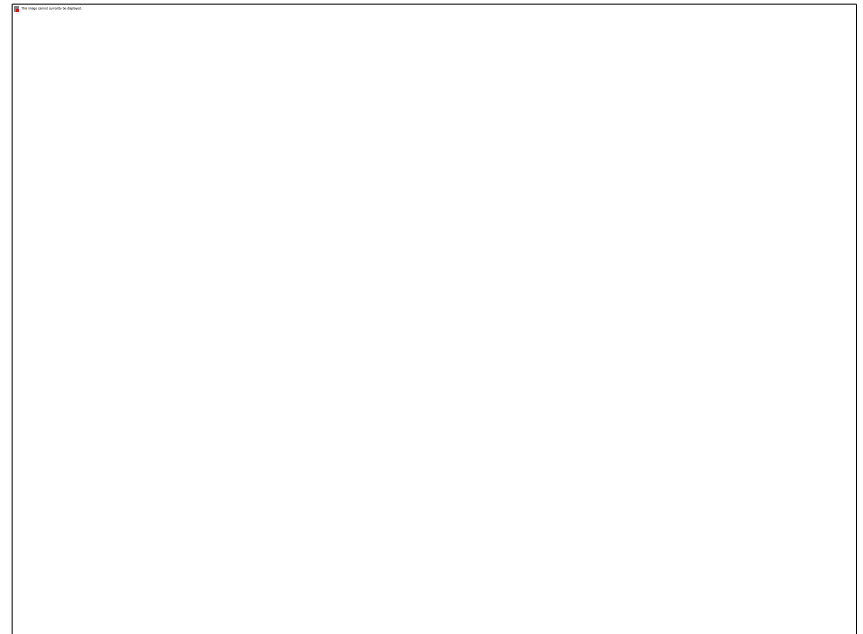




# Winter Maintenance

The City of Kawartha Lakes Winter Maintenance Activities are governed by:

- Minimum Maintenance Standards
- City Of Kawartha Lakes Level of Service Policy
- City of Kawartha Lakes Winter Maintenance Operating Guidelines



# Winter Maintenance

- From November 1 to April 15 roads employees patrol, plow, sand and salt roads, sidewalks and parking lots.
- Roads are usually cleared within six to eight hours after a storm (depending on the severity of the storm).

## Winter Maintenance Operating Guidelines

- Equipment Readiness/house keeping/best practices/response to events
- City of Kawartha Lakes Salt Management Plan

“Somebody always has to be first and somebody always has to be last!”

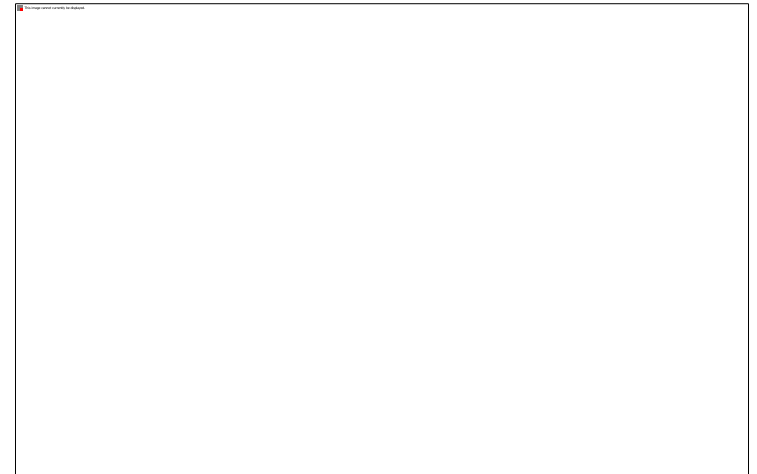
# Winter Maintenance

## Patrol

- 24hr / 7day coverage (12 patrollers – Roads Crew Leads)
- 3 patrol areas north, east and west

## Responsible for

- Monitoring road conditions
- Weather monitoring
- Dispatch of resources
- MMS Compliance



# Winter Maintenance

**Total Plow Routes = 71**

West Operating Area = 31 (Including Lindsay)

East Operating Area = 30

Arterial Contracted Routes = 10

\*CKL also has six contracted Secondary Routes where smaller or specialized equipment is necessary.

\*Every employee is assigned to a route. There is no redundancy built into the operational model.

# Winter Maintenance

## Materials:

**Salt** (130 kg/km of two-lane highway)

### **Used only on asphalt roads**

Temperatures - 12° C and rising (traffic and sun assist)

Aide in making the roads surface bare

Applied in down the centre of the road

Rock Salt doesn't melt the snow the brine does

**Sand** (570 kg/km of two-lane highway)

Used on Arterial roads -12°C and colder night time

Secondary roads & gravel roads

Sand acts as an abrasive and provides immediate traction

# Winter Maintenance

## Winter Events:

- Staff record events for maintenance tracking
- Average full call winter event is \$125,000
- Budget allows for approximately 50 average events
- Events can range from \$50,000 to \$500,000+
- Single event April 2018 cost approximately \$420,000 (response only)

Factors: Some factors include duration of event, type of precipitation, temperature, forecast, volume of precipitation, event time of day, weekends, wind

# Winter Control Costs

Municipality	Lane (km)	Population (2016 data)	Winter Budget	Cost Per KM	Cost per Capita
Kawartha Lakes	5400	75,423	\$8,162,145	\$ 1,512	\$ 108.22
Clarington	1700	92,013	\$2,478,000	\$ 1,458	\$ 26.93
Peterborough City	960	81035	\$2,700,000	\$ 2,813	\$ 33.32
Durham Region	2377	645,862	\$10,015,000	\$ 4,213	\$ 46.85
Muskoka District	1477	60,599	\$4,312,263	\$ 2,919	\$ 71.16
Peterborough County	1460	55,800	\$4,647,000	\$ 3,183	\$ 83.28
Brant County	2232	36,707	\$3,452,160	\$ 1,547	\$ 94.05
Greater Sudbury	6018	161,530	\$18,500,000	\$ 3,074	\$ 114.53

# Roads Case Management

- Dedicated staff to monitor roads concerns and reported issues
- Cases come direct from residents via **Report It** on municipal website or via 705-324-9411, Option 2
- Actively work with Supervisors on emergency requests
- Work to communicate with public and close cases
- 5117 Roads Cases in 2018





Questions?