Rationale for Change to Telephone Road

CRAA ANALYSIS OF RISKS AND OPPORTUNITIES

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Telephone Road & Road Wear

- Increased truck traffic from **Proposed Asphalt Plant** will **accelerate road deterioration**.
- Telephone Road is rated as "**local rated"** in Official Plan
  - **not high truck volume** designation.
  - surface-treated; steep hills 40 m elevation @ 10% grade - Chapman, Trottman
  - currently in state of disrepair
  - narrow, minimal shoulders, inconsistent ditch depth
- Extensive Research shows that heavy trucks cause exponential pavement damage.
  - 10 ton axle load causes 17.5 times more damage than a 5 ton axle load. - AASHTO

Tatham Engineering Road Needs Study (2023)

- "*Local Roads (such as Telephone Road) are not designed for high truck volumes and degrade much faster under increased traffic loads*."
- Max Recommended for new road: 400 vehicles/day
  - 1,000 with decreased quality
- Current Average: 425 vehicles/day with low of level truck traffic
- Additional Traffic will severely overload Telephone Road
- "*Increasing truck traffic will cause rapid structural failure*."

Source: Tatham Engineering (2023) - Northumberland County Road Needs Study.

Source: Tatham Engineering (2023) - Cramahe Road Needs Study.

CRAA Truck Traffic Estimates

- Total Truck Trips per km: 82 for 50 mm – 326 max for 200 mm
  - **raw material & asphalt for 2 km/day is 1.5 to 2.7** avg. traffic flow
- Highway 401 Asphalt only Truck Trips, 2 lane, 2 km: 320 loads
  - Night-time operation – In & Outbound
  - **1 truckload every 45 seconds** past rural properties, seasonal.

"*Increasing truck traffic will cause rapid structural failure.*"

- Tatham Engineering -

Other Considerations

- **NO** revenue from depleted gravel pit means local **taxpayers will bear the $M burden** of road maintenance.
- much decreased road safety and increased liability for pedestrian, cyclist, horses, buses, home owners
- massive congestion when 401 is shut down – (e.g. night work)
  - potential for emergency vehicle impact, liability
- significant potential of contaminating of local groundwater in plant area due to soil structure
- debilitating noise for residents 24/7 from trucks and equipment
- light pollution from site illumination and vehicle operation

Summary of Risks

- Telephone Road structure is at Risk.
- Resident's health and safety is at Risk.
- Cramahe Risks fiscal responsibility
  - funding a for-profit corporation at taxpayers expense
- High Cramahe tax burden – Plant will reduce property values
  - Risk of a reduction in personal equity
  - Risk of a reduction of Cramahe tax base (MPAC)

Key Opportunity

Maintain Road Integrity: Permanent Half Load Rating

- 10 ton axle load causes 17.5 times more damage than a 5 ton
- no heavy trucks
- weight restriction for class 7 & 8 trucks exceeding 5T/axle
- exempt farm equipment, emergency vehicles, garbage trucks.
- CRAA supported by > 500 Cramahe residents signatures

Other Opportunities

- Improve safety: Reduce speed limit to 60 kmh for safety, noise redn.
- Township Register a permanent Positive Covenant on the property:
  - Owner responsible for assessing, maintaining, and repairing access roads at their cost.
- Recommend Cramahe undertake a validating traffic & road wear study

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Thank You!

Sources & References

- AASHTO (1993). AASHTO Guide for Design of Pavement Structures.
  - American Association of State Highway and Transportation Officials
- U.S. Department of Transportation, FHWA (1997). Federal Highway Cost Allocation Study.
- Ontario Ministry of Transportation (2013). Pavement Design and Rehabilitation Manual.
- National Research Council of Canada (2018). Effect of Heavy Vehicles on Pavement Damage.
- Tatham Engineering (2023). Northumberland County Road Needs Study.
- Tatham Engineering (2023). Cramahe Road Needs Study.
- Northumberland County Official Plan (2016).
- Canada Topographical Maps, 2025
- CRAA Traffic Assessment Study March 2025

The Fourth Power Law (AASHTO)

- Pavement damage increases with the fourth power of axle load. Not 1:1
  - A 15 ton axle load causes significantly more damage than a 9 ton axle load, even though the difference is only 3 tons.
- Trucks damage roads more than cars when the roads are under-designed for the amount of truck traffic that is using them
- Doubling heavy truck traffic can cause up to 16 times more road wear.
- Sources: AASHTO (1993) - American Association of State Highway and Transportation Officials Guide for Design of Pavement Structures.
- National Academy of Sciences (1979), Transportation Research Board

FHWA Research on Pavement Deterioration

- Studies confirm road wear is exponential, not linear.
- A single fully loaded truck can cause as much wear as 5,000–10,000 passenger vehicles.
- Source: U.S. DOT FHWA (1997) - Federal Highway Cost Allocation Study.

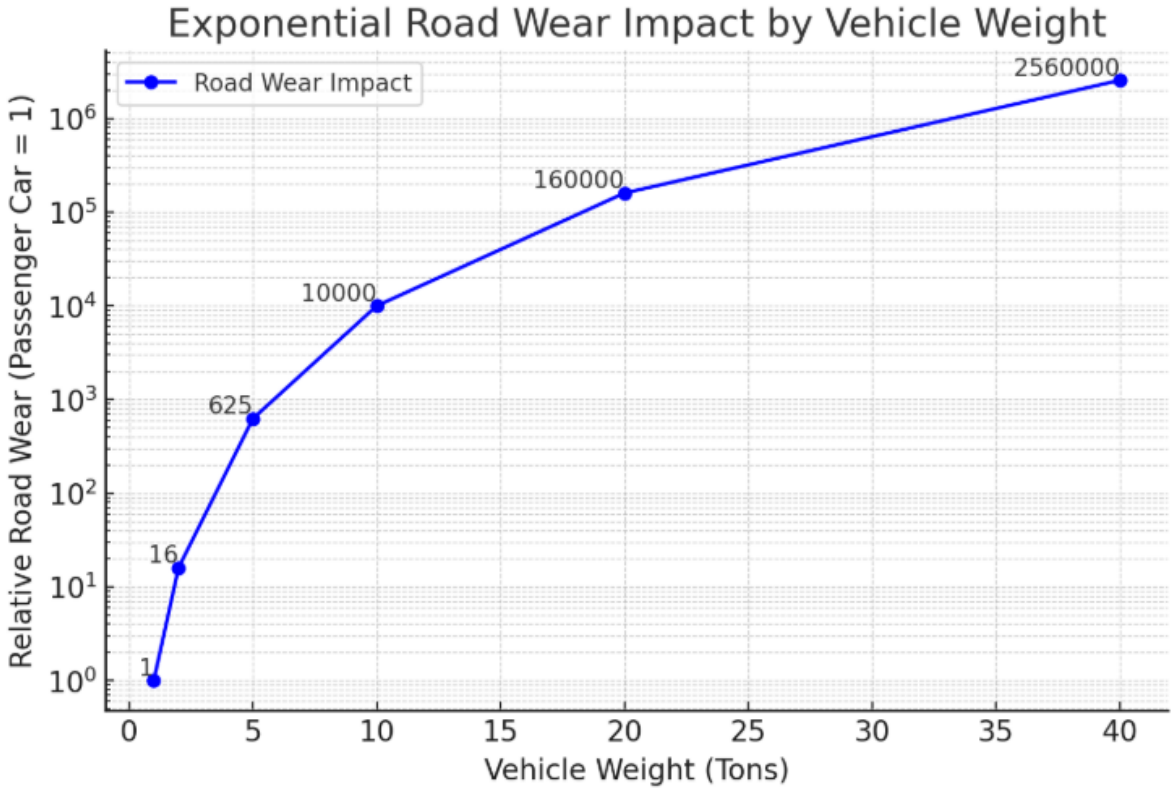
Ontario MTO Pavement Design Guidelines

- Roads are designed for an expected lifespan based on single-axle truck loads.
- Doubling truck volumes drastically shortens road life.
  - Resurfacing or full reconstruction much sooner than planned
- Source: Ontario Ministry of Transportation (2013) - Pavement Design and Rehabilitation Manual.

NRCC Study on Rural Road Deterioration

- Surface-treated roads fail much faster under heavy trucks.
- A road expected to last 20 years may fail in just 5–10 years.
- Source: National Research Council of Canada (2018) - The Effect of Heavy Vehicles on Pavement Damage.

Road Wear Impact



- American Association of State Highway and Transportation Officials (AASHTO)
- Federal Highway Administration (FHWA) Research on Pavement Deterioration