Say hello to ORIE!
Seamless road data exchange across Ontario

Ontario Road Information Exchange Exchange (ORIE)

Powered by

OGRA Workshop
OGRA ORIE Governance Committee Members
February 25 2020
Agenda

• ORIE Committee Member Presentations
  • Fahad Shuja
    – OGRA Member Services
  • Deputy Chief Stephen Edwards
    – Oxford County Paramedic Services
  • Jody MacEachern
    – Grey County, Senior Manager, Information Technology
  • Doug Allport
    – Transnomis Solutions, ORIE, Municipal511

• Q&A
Ontario Road Information Exchange (ORIE)  
Vision

Owners, managers and travellers of Ontario public roads, be they human or machines (e.g., connected / autonomous vehicles), may quickly, efficiently, and effectively view and use Authoritative Road Information for all Ontario public roads.
Ontario Road Information Exchange (ORIE) Mission

... facilitate the efficient electronic distribution of Authoritative Road Information, in near real-time,

from and between the electronic systems of authoritative sources of such information, with the electronic systems of distributors and redistributors of such information,

to the direct benefit of Ontario’s municipalities, and all travellers of Ontario Public Roads.
Ontario Road Information Exchange (ORIE) Desired outcomes

1. Reduced road information communication costs for municipalities
2. Reduced road infrastructure damage for municipalities, railways and others
3. Reduced emergency response call times for emergency responders
4. Reduced delivery times for industry
5. Reduced vehicle damage for all travellers
6. The advancement of connected and autonomous vehicles
OGRA ORIE Governance Committee

Members

- County public works
- County IT/GIS
- Town public works
- Regional traffic
- Regional transportation
- Emergency response associations
- 407 ETR
- New! Ontario Trucking Association

Activities

- Vision, mission, goals, objectives
- Distribution policy
- Terms of use
- Issue/event types
- Location types
- Traffic impact types
- User stories to shape scope
Stephen Edwards

Deputy Chief, Logistics and Standards

Oxford County Paramedic Services

Let’s connect:

@The_Stevester

/linkedin/?stephentedwards/
Why do we need reliable road information?

- Response - reduce time to patient and hospital
- Safety - Paramedics, patients, and public
- Efficiency - less fuel consumed, reduced ambulance utilization times (opportunity cost)
- Customer Service – public and media, timely info.
- Improve situational awareness – CEMCs, EOCs, First Responders
Challenges for First Responders

• Regional level service providers use all roads in a region/county/district everyday
  • e.g. county, town, township, city, highway, private

• Emergency calls don't respect governmental jurisdictions
  • Paramedics use municipal, provincial, and federal roads
  • Paramedics frequently do calls in neighbouring jurisdictions, so road information needs to be seamless and consistent across the province

• Seconds can count - reducing time to the patient and time to the hospital is vital to ensuring the best possible outcomes
WHERE ARE WE NOW, AND WHERE ARE WE HEADED?
Current State

• Sources of road information:
  – Planned / Advanced Notice
    • Construction projects
    • Infrastructure repairs (sewer/water pipelines, road maintenance)
    • Public (special community events, parades, etc.)
  – Unplanned / Short Notice
    • Municipal employees (potholes, seasonal floods, bridge outages, railroad crossing outages)
    • First Responders / CEMCs (collisions, fires, emergencies, etc.)
    • Dangerous weather (driving conditions, tree or powerline blockages)
Current State:

• Transmission by fax/email only
• Each municipality has its own unique rules and workflows
  – Different:
    • Forms (content and presentation)
    • Approval processes
    • Distribution (recipient lists, fax/email, timeliness)
Current State:

- **Right:**
  - Information

- **Wrong:**
  - Time, place, context, volume, and medium
  - Cannot be indexed and properly consumed/used in the field
Current State: (Our Process)

- Paramedic crews are paged out on call over the radio
- Call information is relayed verbally
- Manual entry of address information into mapping tool
- Routing information is determined manually, but road information is incomplete!
- The mapping tools we currently use have limited information
Future State:

- Roads information integrated into the mapping tools
- Routing information is assisted by software
- Paramedic response time is decreased
- Patients arrive at destination quicker and safer
- Creates the opportunity for better patient outcomes
The Future is Here!

• Pilot projects are currently underway in several Ontario municipalities that use real-time roads information
• Paramedic teams arrive in their vehicles and the call details and the most appropriate route to the patient are automatically displayed
• Route determination is automatically determined based on real-time road information and conditions
• Precious seconds are saved on emergency calls where seconds matter
Next Steps: Common Operating Picture

- Common shared collection tool
- Common methodology for storage and sharing of road information
- Platform agnostic – I want to use the data my way!
- Common operating picture for allied services
  - EOCs/ECGs can use whatever tools they wish to view the common data
  - Information can flow across municipal boundaries for increased knowledge sharing and improved accuracy of response
Jody MacEachern

- Senior Manager, Information Technology
- Grey County

Main Points:
1. Data Access and Distribution
2. Data Types
3. Low Effort / High Reward
Typical road information communications
With Municipal511

Each Agency

Transit
Public Works
EMS Apps
Fire Apps

TomTom

School Boards
Police Apps
HERE

Google

M511
With ORIE
Ontario Road Information Exchange (ORIE)

Q&A

Public Works Applications  Key Stakeholders’ Applications
Responder Applications   Road Info Distributors
ORIE Data Types

• Road Issue Types
  • Construction, special events, emergency closure, ...
  • Load restriction, truck route, ...
  • Winter road conditions
  • MACAVO

• Location Types
  • Issue location
  • Detour route, truck detour, one-way detour

• Traffic Impact / Road Closure Types
  • Lane closed, alternating traffic, ...
  • Road closed – Local traffic only, no emergency access, ...
Ease of Use:
ESRI ArcGIS to / from ORIE

- Tools available for free:
  - Pull Municipal511 Road Issues.
  - Push local road conditions to Municipal511.
  - Update Twitter feed with road changes.
- Developed and used by Grey County IT
- Available on GitHub
Doug Allport – ORIE FAQ

• Transnomis Solutions
  – ORIE and Municipal511 Manager
<table>
<thead>
<tr>
<th>FEATURES</th>
<th>ORIE</th>
<th>Municipal511</th>
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<td>1. Push data into exchange from other applications</td>
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<td>2. Poll data out of exchange into other applications</td>
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<td>3. Data distribution per ORIE data distribution policy</td>
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<td>4. Waze technical integration</td>
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<td>5. Municipal511 public website presence</td>
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<td>6. Map centric user interface</td>
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<td>7. Tools to create, edit and end issues</td>
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<td>8. Email notifications</td>
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<td>9. Non-ORIE information sources</td>
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<td>10. Public safety map layers</td>
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<td>11. List and report views</td>
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<td>12. Optional private map layers, integrations, ...</td>
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Municipal511 and ORIE users may embed public map in their websites

www.Municipal511.ca
Ontario Road Information Exchange (ORIE) Data Distribution Policy

1. Authoritative Road Information shared by ORIE clients through ORIE is available to ORIE clients (includes Municipal511 clients).

2. Authoritative Road Information shared by ORIE clients through ORIE may be presented on the Municipal511 public web site at www.Municipal511.ca.

3. Authoritative Road Information shared by ORIE clients may be shared with emergency responder application vendors that serve ORIE and Municipal511 clients (including MOHLTC, OPP, ...).

4. Authoritative Road Information shared by ORIE clients may be shared with Governing Committee approved road information distributors, including Waze, TomTom and HERE.
Ontario Road Information Exchange (ORIE) Funding / Pricing Model

• ORIE is a fee for service offering
• ORIE is “currently” owned and funded by Transnomis
• Pricing is $0.045 per population per year
  • Discounts for population >250,000
Consumer navigation application issues

e.g. damage to secondary roads and streets, showing new streets sooner than later
Ontario Road Network (ORN)

- Maintained by the Ministry of Natural Resources and Forestry
  - “The ORN is the authoritative source of roads data for the Government of Ontario.”
  - “The ORN is a province wide geographic database of over 250,000 kilometres of municipal roads, provincial highways, and resource and recreational roads”
Navigation base map inconsistencies

**Challenge:**
- Municipalities (and citizens) are struggling to get navigation companies to stay current with their roads

**ORN:**
- Can be the Ontario reference map for all municipalities

**Solution:**
- Ontario municipalities keep ORN current
- OGRA ORIE educates navigation companies about ORN, and encourages them to stay in sync with ORN updates
Navigation routing issues

- **Challenge:**
  - Navigation companies are routing traffic onto roads that are not suitable as through routes

- **ORN:**
  - Includes road segment type identification

- **Solution:**
  - Navigation algorithms could keep “through traffic” on/off specific road types
    - E.g. Freeway, Expressway/Highway, Collector, Ramp, Arterial, Service, Local/Street, Local/Strata, Local/Unknown, Winter, Rapid Transit, Resource/Recreation, Alleyway/Laneway
One-window load permits

• **Challenge:**
  – Eastern Ontario Leadership Council (EOLC) one-window permitting initiative requires road segment ownership

• **ORN:**
  – Includes road segment jurisdiction data
    • However, only 30% appear to be accurate

• **Solution:**
  – Municipalities update their ORN data
Fahad Shuja

• OGRA Member Services
• Interim ORIE Governance Committee Chair
Municipal Alliance for Connected and Autonomous Vehicles in Ontario

- Preferred (paved)
- Preferred (unpaved)
- Avoid
- Maybe
Q&A

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