



S B I C

SMALL BUSINESS INNOVATION CHALLENGE PARTNERING FORUM

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Ontario Centres of
Excellence
Where Next Happens



Vehicle Occupancy Detection



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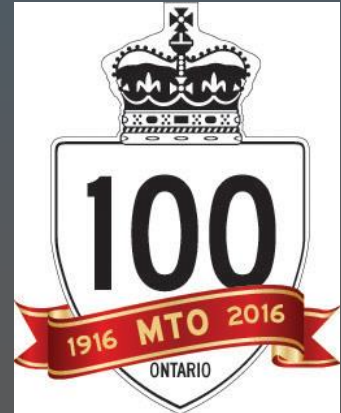
Ontario Ministry of Transportation

Overview

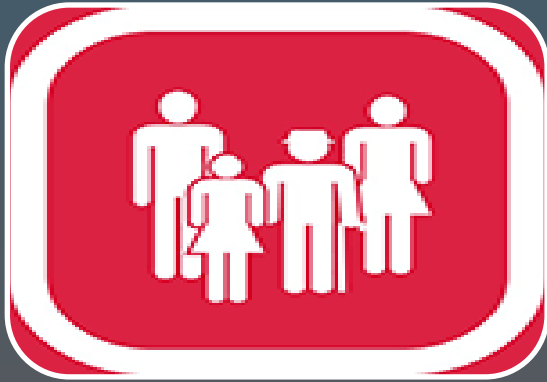
- About the Ministry of Transportation
- Introduce the Challenge Area and Ideal State
- Background Context and Current State
- Problem Statement
- Ideal Outcomes and Benefits
- Constraints

MTO – 100 Years of Transportation

- Established on January 17, 1916, as the Department of Public Highways of Ontario, with 35 employees (3,575 today).
- In addition to our policy, planning and regulatory responsibilities, MTO manages and/or operates (not including Metrolinx, an agency of the Government of Ontario):
 - over 16,900 kilometres of provincial highway
 - 2,800 bridges
 - 9 ferry services
 - 29 remote airports
 - 23 highway service centres under private lease
 - 1 toll freeway under private lease
 - 2 toll freeways under provincial management
 - 1 High Occupancy Toll Lane



Times are Changing...



Demographic
Shifts



Disruptive
Technologies



Sharing Economy
& Shared Mobility

New Ways of Managing Congestion are Needed

- Traffic demand in inter-urban roads is constantly increasing
- Socio-economic costs are increasing due to lost productivity from congestion
- Ontario needs to manage network demand and continue supporting the efficient movement of people and goods.

High Occupancy Toll (HOT) Lanes

- High occupancy toll lanes aim to reduce traffic congestion by maximizing highway capacity while continuing to provide a carpooling incentive.
- Successive Ontario Budgets have committed to:
 - assessing the feasibility of building new and converting select HOV lanes into HOT lanes;
 - launching the HOT Lanes pilot project in summer 2016; and
 - implementing an all electronic HOT lane on Highway 427 by 2021.



QEW HOT Lane Pilot

- Launched Sept. 15, 2016
- Pilot will be 2-4 years
- Permits valid for three months and cost \$180.



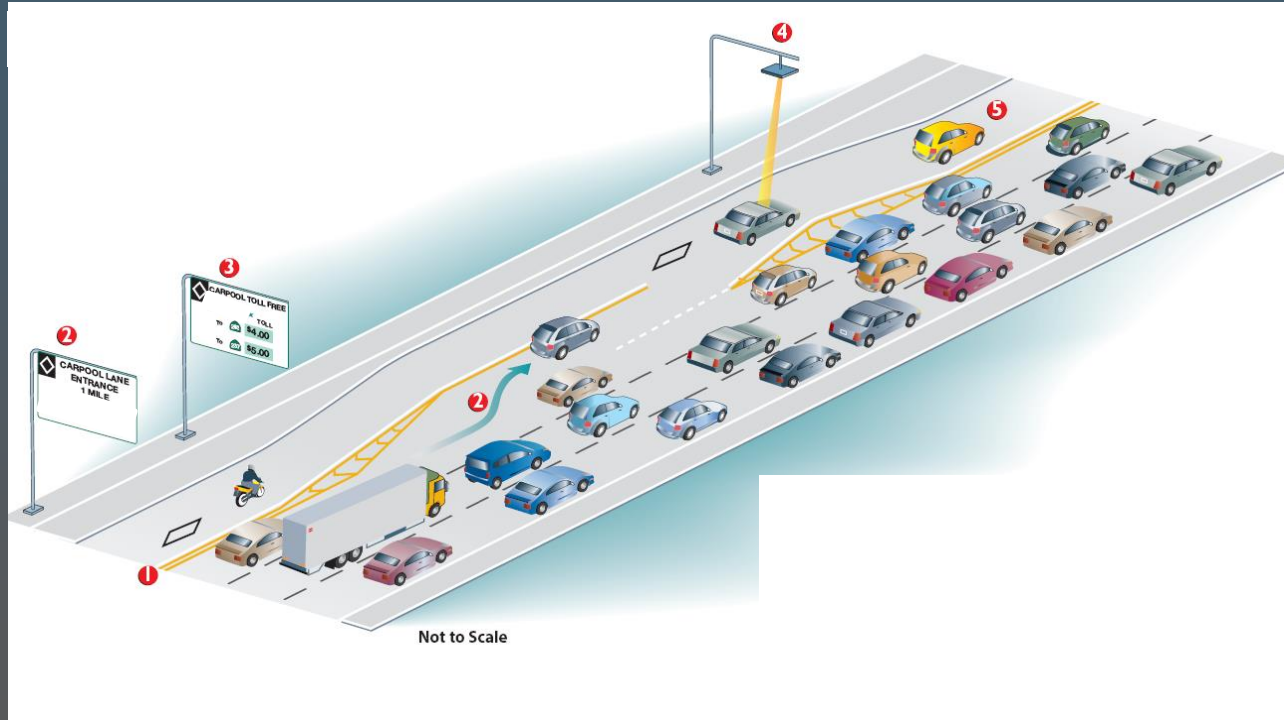
QEW HOT Lane Pilot – Technology

- As part of the pilot, MTO is testing innovative technologies to support tolling, compliance and performance monitoring of HOT lanes.
- Participating in SBIC is part of the Pilot's efforts to look for technology solutions to deliver HOT lanes

Typical All Electronic Tolling Highway Systems



Typical HOT Lane Systems



Problem Statement

- As high-occupancy toll (HOT) lanes are implemented in Ontario and abroad, there is a growing need for the development of an enforceable means to determine if a vehicle in a specific lane should be billed and/or fined based on the number of individuals in the vehicle.

Current Challenges

- Solutions that exist today are reliant on:
 - visual/manual enforcement
 - significant infrastructure requirements
 - self-declaration of occupancy

How Many Occupants?



Ideal Outcomes

- A solution that is:
 - Enforceable and secure
 - Automated
 - Interoperable with other tolling technologies
 - Safe and convenient
 - Robust

What it means for...

HOT Lane Users

- Ease of use
- Privacy is protected

Enforcement Agencies

- Less resource intensive
- Minimizes occupancy-based violations

Operating Agencies

- Reduced revenue loss due to intentional or unintentional misuse
- Operational efficiencies in billing verification

Public

- Increased confidence in the integrity and fairness of the system

Potential Ideas for Future Application of Technology

- Other managed lanes
- Highway performance monitoring
- Security/border installations

ANY
QUESTIONS?

