



TRANSPORTATION TECHNOLOGY ADVANCEMENTS

IN YORK REGION

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PREPARED FOR TRANSFORMATIVE TRANSPORTATION '19 – iCITY CATTs SYMPOSIUM


York Region

OUTLINE

1. York Region Context
2. Emerging Trends and Technology Advancements
3. Adapting to Technological Change
4. Update on York Region Initiatives
5. Questions / Discussion

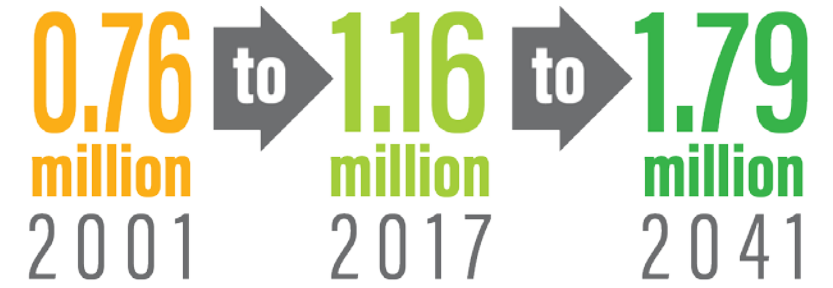


YORK REGION CONTEXT

YORK REGION



York Region's **population** growth




York Region's **employment** growth



60,000
IT PROFESSIONALS
EMPLOYED



MORE THAN
50% RESIDENTS
HAVE A UNIVERSITY
EDUCATION



UPTO 25,000
NEW RESIDENTS
A YEAR



MORE THAN
120 LANGUAGES
SPOKEN

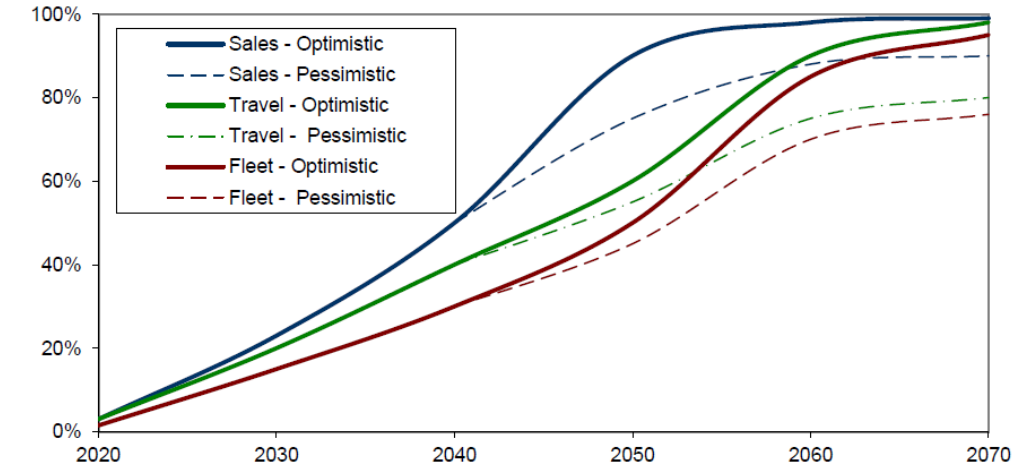


EMERGING TRENDS AND TECHNOLOGY ADVANCEMENTS

TRANSPORTATION TECHNOLOGY IS ADVANCING AT A RAPID PACE

- **AV timelines are still evolving**
- **Technology advancements led by market forces and industry**
- **“We Don’t Know What We Don’t Know” Challenges**
 - 5G cellular vs. DSRC debate
 - Disruption of installing communication equipment within Regional ROW
 - Funding Resources for CAV Implementation
- **MTO legislation allows fully autonomous vehicles (SAE L5) on all roads**

Exhibit 14 Autonomous Vehicle Sales, Fleet and Travel Projections (Based on Exhibit 13)

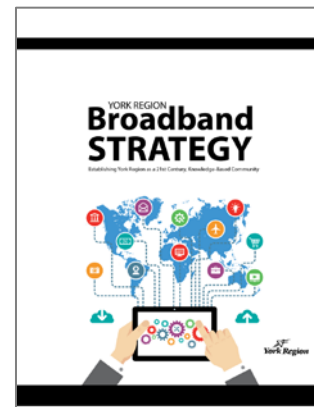


Source: Victoria Transport Policy Institute – Autonomous Vehicle implementation Predictions (Implications for Transport Planning) March 18, 2019

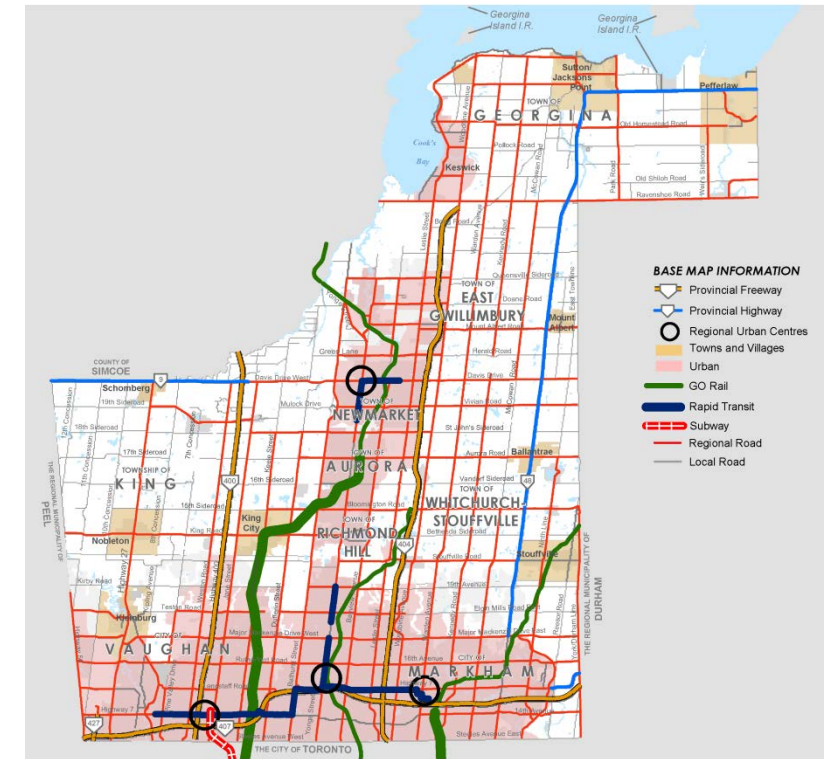


YORK REGION IS WELL POSITIONED TO PARTNER ON CAV TECHNOLOGY

- Interconnected and well maintained Regional road network
- A comprehensive transit system that includes dedicated bus rapid transit and already utilizes ITS communication and infrastructure
- One of highest educated residential community in Canada with talented work force and innovative industrial hubs
- Significant investment to expand YorkNet fibre communications infrastructure



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ADAPTING TO TECHNOLOGICAL CHANGE

PARTNERSHIP AND COLLABORATION TO ADVANCE NEW TRANSPORTATION TECHNOLOGIES



iCity-CATTS



GTHA and K-W
Corridor CAV
Readiness



MACAVO



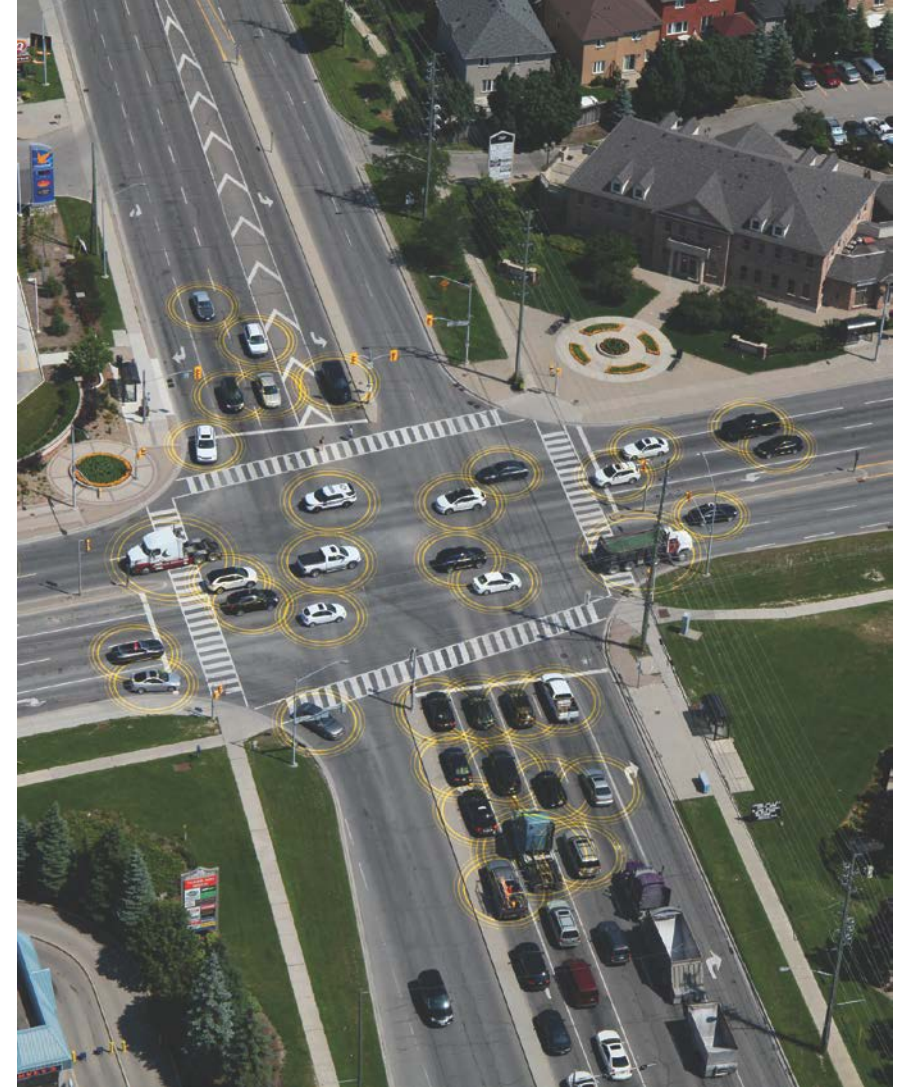
York Region
with Metrolinx, MTO,
407ETR, CUTRIC

RESEARCH BASED

PRACTICAL APPLICATIONS

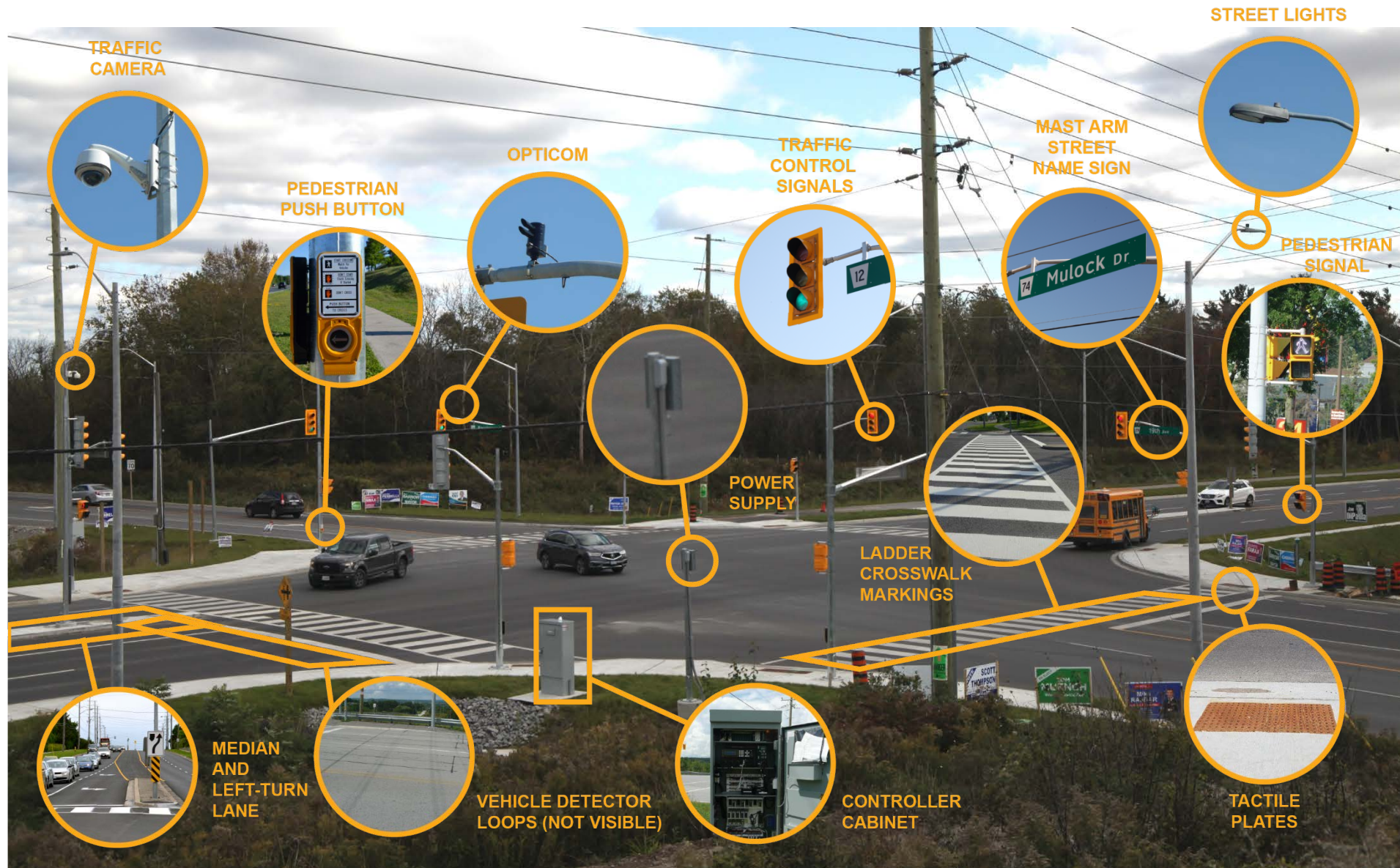
PARTNERSHIP AND COLLABORATION TO ADVANCE NEW TRANSPORTATION TECHNOLOGIES

- The Region is working with MTO, Metrolinx and 407ETR to test compatibility of different devices/manufacturers for connected vehicle technology e.g. Dedicated Short Range Communication (DSRC)
- YRT is in a partnership with CUTRIC on Autonomous Bus Shuttle Project
- RTO is working with Vaughan Fire Department to implement GPS radio preemption adjacent to fire stations in order to improve response times for emergency services



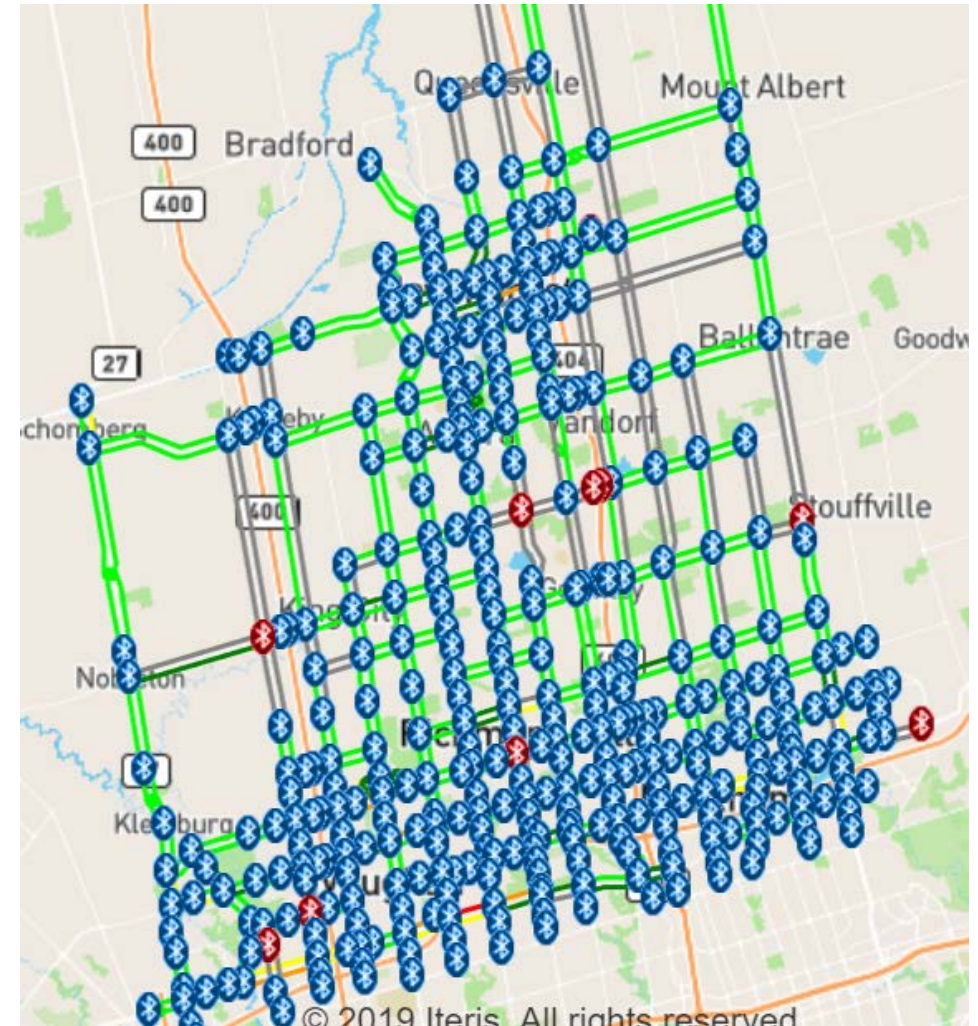
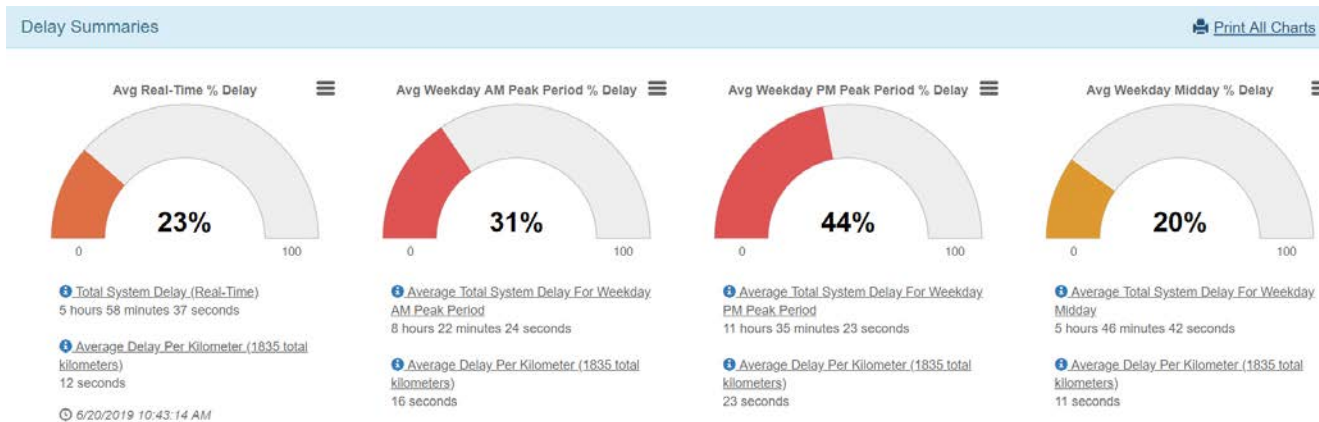
UPDATE ON YORK REGION INITIATIVES

INTERSECTION MODERNIZATION



COLLECT REAL-TIME TRAFFIC DATA TO MONITOR TRAFFIC CONDITIONS AND ENHANCE OPERATIONS

- 400 Bluetooth sensors have been installed inside the traffic cabinets across the Region and 20 more to come
- In addition to Bluetooth, Wi-Fi devices will be installed in rural areas to provide better coverage and improve traffic data quality



TESTING CONNECTED VEHICLE TECHNOLOGY THAT FOCUSES ON SAFETY AND ENHANCED OPERATIONS

- Expansion of Jane Street TSP Pilot to include GO bus on 407 ETR
- The Region purchased Dedicated Short Range Communications (DSRC) equipment to test information transfer between on-board device and roadside systems
- Laboratory test was concluded with positive results which provide a baseline for performing further operational tests



EXPANSION OF YRT MOBILE APP

YRT Real-time app (iOS and Android)

- Improved user interface/navigation
- Improved Trip Planner feature
- Improved Vehicle Position display
- New option to see departed buses



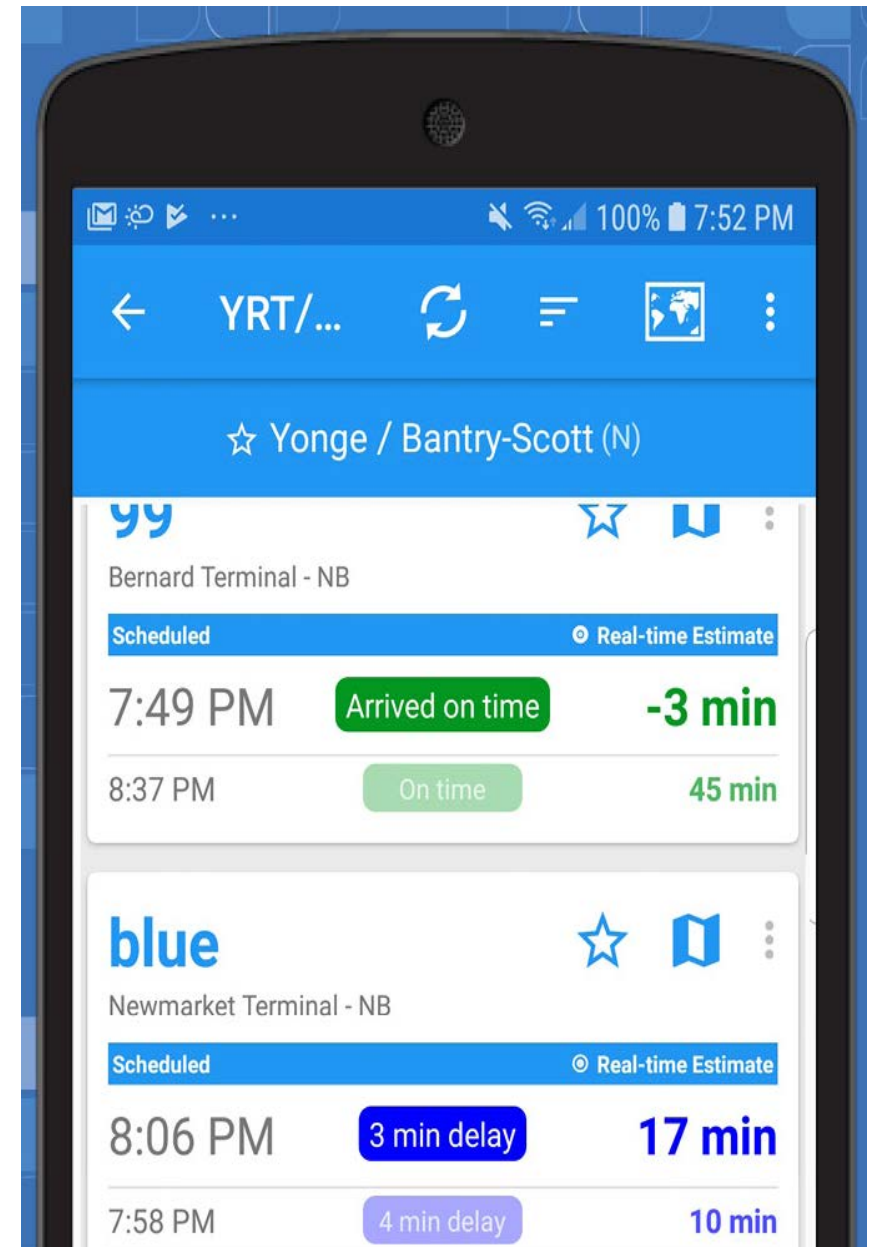
YRT Pay app (iOS and Android)

- Purchase and activate mobile fare for individual and group on smart phone



YRT On-Demand app (iOS and Android)

- Book a ride with YRT to/from Aurora GO Station



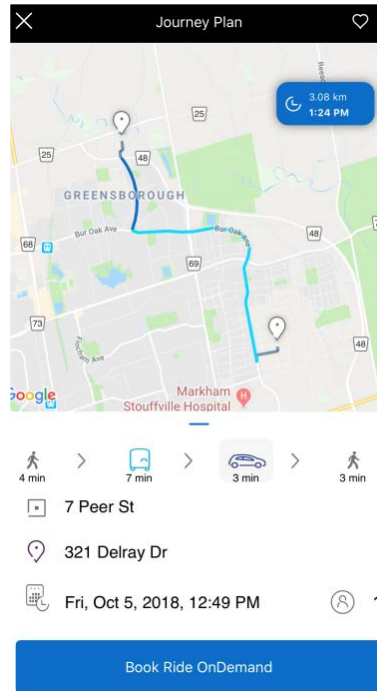
AURORA GO STATION ON-DEMAND PILOT

- YRT has launched the On-Demand services pilot during peak hours to and from the Aurora GO Station
- Performance metrics include:
 - # number of trips booked through the app
 - Origin/destination via license plate trace and GO ridership survey
 - # passengers/trip
 - Trip travel time



Julie

- 42 Years
- Lives in Aurora
- Works in Toronto Downtown
- 35% Drives
- 65% Public Transit



ELECTRIC BUS PILOT

- Purchased six 40-foot battery electric buses and associated infrastructure for \$7.7 million
- Operations in early Q2 2020
- Allows the Region to continue to participate in CUTRIC's Electric Bus Demonstration and Integration Trial
- Trial to validate electric bus performance in Southern Ontario climate and develop transition plan for greenhouse gas-free fleet



TRANSPORTATION DATA WAREHOUSE

York Region Data

Governance

Standards for Data, Security, Privacy



Transportation Services

Environmental Services

Community and Health Services

Other Departments

Spatial Data Warehouse

Fleet Management

311 Contact Centre Express

Scheduling

RWIS Weather Data

PANA Project Online

ATMS Traffic Disruptions

Presto Smart Cards

INIT Vehicle Tracking

Corporate Fleet AVL

Fleet Management

Cityworks

Transportation Tomorrow Survey

Third Party Weather, Traffic, etc.

KEY MESSAGES

- Change is inevitable and there are many unknowns, however York Region is well positioned to partner on CAVs
- Today's research, planning and pilot testing is necessary to ensure CAVs are integrated into the transportation network in a way that they will:
 - Reduce collisions and enhance road safety
 - Provide travellers with options to make informed choices that better use transportation capacity
 - Improved data collection to assist operations and planning
 - Reduce GHG emissions for a cleaner environment
- Industry, academia and all levels of government need to work together, leverage expertise, exchange information and findings to build upon each others' successes

QUESTIONS / DISCUSSION

For more information

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