ATMS / ATM Initiatives and Vision at the City of Toronto

December 2, 2016
Congestion Management Plan (CMP)

- Objectives:
  - Improve traffic flow
  - Improve safety
  - Improve management of traffic congestion
CMP Activity To-Date (2013-2016)

- Upgraded Operations Centre
- VMS Installations
- Travel Time Deployments
- Signal Coordination
- Arterial CCTV Cameras
- LED Blank-out Signs
- UPS for Traffic Signals
Operations Centre Upgrade

New Concept of Operations, new video wall, new ATMS, new video management
17 VMS Installed on DVP & Gardiner
Incident, safety & travel time messages
Arterial VMS Pilot
Travel time and expressway incident advisories
148 Arterial CCTV Installed
14 Sites with LED Blank-out Signs
75 UPS Installed for Traffic Signals
Active Work in ATMS/ATM

- Transit Signal Priority Strategy (Dec)
- Traveller Information Strategy (Dec)
- UPS Installations (Dec)
- **Purchase of Commercial Data (Dec)**
- Advanced Traffic Mgt System (Q1)
- Data Warehouse Plan (Q1)
- Coordination Studies (all year)

- Turn Restriction Blank-Out Signs (Q2)
- Smart Work Zones (Q2)
- Arterial CCTV Cameras (Q4)
- UAV readiness (on-going)
- Adaptive Traffic Signal Control (Q4)
- Active Traffic Management Strategy (Q4)
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• Adaptive Traffic Signal Control (Q4)
• **Active Traffic Management Strategy (Q4)**
Active Traffic Management Strategy

• Objectives:
  – Improve safety
  – Alleviate congestion
  – Leverage existing and new technology

• Targeting expressways and arterials

• Moving from passive to active operation

• Dynamically managing infrastructure in response to traffic conditions
Active Traffic Management Strategy

Project Main Tasks

Industry Review
- Publications
- Interviews

ATM Workshop
- Educational Session
- Brainstorming Session

Strategy Development
- Identify Solutions/Applications
- Determine Phases and Timeframe
- Estimate Resources (Money, People, etc.)
Active Traffic Management Strategy

- Active Traffic Management (ATM) is generally regarded as real-time and/or predictive operational strategies for actively and dynamically managing and controlling traffic demand and/or available capacity of the roadway network.
  - Reactive/Proactive
  - Real-time
  - Based on current traffic conditions
Benefit Objectives

- Improve safety
- Improve trip reliability
- Increase network throughput
- Increase directional capacity
- Increase trip reliability
- Balance volume and capacity
Speed Harmonization / Variable Speed Limits

• Purpose/Goals:
  - Create more uniform travel speeds and manage traffic during adverse weather conditions or construction related congestion.
  - Maintain traffic flow and reduce the risk of collisions due to speed differentials at the end of the queue.
Hard Shoulder Running

• Purpose/Goals:
  ➢ Provide additional capacity without the need for full capital expense associated with a full lane expansion.
  ➢ Alleviate congestion when warranted.
Queue End Warning

• Purpose/Goals:

➢ Inform travellers of slow moving traffic and the back of queues that result from recurring and non-recurring (e.g. due to incidents or work zones) congestion.

➢ Advisory information allows motorists to reduce speed and drive with caution and reduce the occurrence of primary and secondary incidents.
Reversible Lanes

- Purpose/Goals:
  - Dynamically change lane configuration and directional use.
  - Maximize available capacity and provide capacity where most warranted.
Dynamic Lanes

• Purpose/Goals:
  ➢ Dynamically change lane configuration and directional use.
  ➢ Maximize available capacity and provide capacity where most warranted.
Dynamic Re-routing

• Purpose/Goals:
  ➢ Actively directing traffic based on traffic conditions to avoid downstream queues and congestion.
  ➢ Dynamically manage demand across available routes and capacity.
Ramp Metering

• Purpose/Goals:

➢ Manage the traffic merging onto controlled access highways, in order to maintain mainline traffic flow.

➢ Smoothing traffic flow and reducing shockwaves and the risk of collisions due to merging traffic.
Active Parking Management

- Purpose/Goals:
  - Affect travel demand by influencing trip timing choices, mode choice, as well as parking facility choice at the end of the trip.
  - Reduce congestion and delays associated with motorists searching for available parking.
Active Gate Management

• Purpose/Goals:
  ➢ Manage access to expressway (e.g. Jameson Gates)
  ➢ Manage ingress to flood-prone areas (e.g. Lower Don)
Upcoming CMP Initiatives (2017-2020)

- Field installations !!
- Traveller Information Deployments
  - Website
  - Social Media
  - Potential mobile application
- Back-up Traffic Operations Centre
- Integrated Corridor Management
- Systems Support for Evacuation Routes
Questions?

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