

Traffic Signal Coordination

Staff develop and optimize timing plans which are designed to progress traffic, reduce overall delays and therefore reduce vehicle emissions through the network of traffic signals. The signal timing plans are optimized using the posted speed limit. In an on-going program of reviewing arterial (high capacity) roads, staff investigate specific concerns brought forward by various sources and identify traffic pattern changes. Adjustments are made to minimize delay and travel time.

The majority of traffic signals within the City of Mississauga operate on what is termed a semi-actuated mode. Semi-actuated mode requires the use of detection equipment to respond to either a vehicle or pedestrian call on the side street. Vehicle presence only on the side street would result in a green time ranging between a minimum and maximum pre-determined green time, depending on traffic volumes. Pedestrian "Walk" and "Flashing Don't Walk" time is used in the event that the pedestrian push button is activated. The pedestrian walk time is dependent on the geometrics at the intersection and can vary at each intersection. Should there be no demand on the side street; the signal would rest in a main street green.

Traffic Signal Progression:

Generally, east-west arterial roads demonstrate a pronounced eastbound flow during the morning peak period and a distinguishable westbound flow during the afternoon peak period. It is easier to provide signal progression for a platoon of vehicles when the subject roadway is at, or below capacity. It is a straight forward exercise to calculate travel time, knowing the speed and distance between intersections, resulting in the next signal turning green in time. Periodically, especially during the off-peak periods when the side street traffic is light, under semi-actuated operation, the intersection may return to the main street early, resulting in motorists arriving at the next upstream or downstream intersection early. To motorists, this may appear that signals are not synchronized. It is possible to guarantee a fixed arrival at the upstream and downstream intersections by operating intersections in a fixed-time mode. In this operation mode, traffic signals continually cycle to the side street, regardless of traffic demand. This type of operation is not as efficient as a semi-actuated operation, often resulting in driver frustration.

Factors that affect Vehicle Progression:

- Lost/damaged communications between the Central Traffic System and the traffic signal.
- Damage to vehicle/pedestrian detection equipment. When this occurs, emergency timings are implemented affecting signal coordination.

- Vehicles travelling above or below the posted speed limit. Staff develop timing plans using the posted speed limit. For example, motorists travelling 70 km/h along a roadway that has coordinated timing plans set at the posted speed limit of 60 km/h will likely be forced to stop at the next intersection due to early arrival.
- Emergency vehicle pre-emption. All signalized intersections within the City of Mississauga are equipped with the Opticom Priority Control System. This allows Emergency Response Vehicles to activate and hold a green indication for their direction of travel, reducing emergency vehicle delay and response time. When this occurs, the affected traffic signals drop from the central system control.

Traffic Signal Coordination Inquiries:

For inquiries involving traffic signal coordination, please contact Mississauga's 3-1-1 (or dial 905-615-4311, if outside of City limits) from Monday to Friday between 7:00 a.m. and 7:00 p.m.