

Appendix “D”



POLICY MANUAL

POLICY NUMBER: PUBLIC WORKS-011

**SUBJECT: TRAFFIC SIGNALS – MINIMUM WARRANTS FOR
INSTALLATION**

**POLICY STATEMENT:
(Purpose/Objective)**

To provide warrants to assist in determining the justification for the installation of traffic control signals in the municipality.

RELATED POLICY PROCEDURES/GUIDELINES:

Ontario Traffic Manual Book 12 – Traffic Signals, published by the Ministry of Transportation of Ontario.

Warrant 1 - Minimum Vehicle Volume

- Total vehicular volume entering the intersection from all approaches must be at least 720 vehicles per hour for each of the heaviest eight hours of an average day, and
- Total vehicular volume entering the intersection from the minor street be at least 170 vehicles per hour for each of the same eight hours.

Warrant 2 - Delay to Cross Traffic

- At an intersection operating under restricted flow conditions, the vehicular volume entering the intersection from the major street

approaches must be at least 720 vehicles per hour for each of the heaviest eight hours of an average day, and

- The combined vehicle (cross volume only) and pedestrian volume crossing the major street must be at 75 units per hour for each of the same hours.

Warrant 3 – Volume/Delay Combination

- If both, Warrant 1 and Warrant 2 are 80% satisfied, Warrant 3 – Volume/Delay can be utilized
- Volume/Delay Combination warrant should only be used after adequate trial of other remedial measures designed to reduce delay and inconvenience to traffic has failed
- Volume/Delay Combination warrant should only be used in specific situations, such as;
 - Commuter-Dominated Roadways
 - Commercial Areas
 - Manufacturing/Office Areas

Warrant 4 – Minimum Four-Hour Vehicle Volume

- Using the peak four (4) hour volumes, if all 4 points lie above the applicable curve, Warrant 4 is met
- Use Figure 20 and 21 in OTM Book 12 – Traffic Signals for charts to reference (Pages 84-85)

Warrant 5 – Collision Experience

While a collision situation alone seldom justifies signal control, the installation of traffic control signals may be warranted when every one of the following conditions are satisfied:

- Fifteen or more reported collisions of types preventable by traffic control signals have occurred over a 36 month period, each collision involving personal injury or property damage which appears to be serious enough to be reported by the Police.
- Adequate trial of less restrictive remedies with satisfactory observance and enforcement have failed to reduce collision frequency.
- There exists a volume of vehicular and pedestrian traffic not less than 80% of the requirements specified in the Minimum Vehicular Volume Warrant, or the Delay to Cross Traffic Warrant.

Warrant 6 – Pedestrian Volume and Delay

- Total eight-hour pedestrian volume crossing the main road during the highest eight hours of pedestrian traffic fulfils Figure 22 in OTM Book 12

– Traffic Signals (Page 87), and

- The total eight-hour volume of pedestrians experiencing delays of ten or more seconds in crossing the road during the highest eight hours of pedestrian traffic fulfils Figure 23 in OTM Book 12 – Traffic Signals (Page 88)

Warrant 7 – Projected Volume

- Projection of future volume data, based on knowledge of growth in roadway usage, growth of local traffic generators, obtained from Traffic Impact Studies, Transportation Planning Studies, Environmental Assessments or other similar evaluations, can be evaluated against Warrants 1, 2 and 3.

Combination of Warrants – Other Factors

Signals may be justified where no one warrant is satisfied, but two or more are satisfied to the extent of 80% or more of the stated values, particularly if other important factors are present such as:

- Sudden change from rural conditions to those of an urban business district
- Extreme width of roadway which pedestrians must cross
- Predominance of small children, seniors, persons with disabilities who need to cross the roadway

Progressive Signal System Warrant

The installation of traffic control signals which would not otherwise be warranted may be considered if the installation will encourage or improve progressive movement of traffic along a major street. The signalization should establish or maintain the platooning of vehicles proceeding at a predetermined desirable rate of speed.

No signal should be considered under this warrant unless the adjacent signals, both up and downstream are warranted one or more of the above warrants.

Any installation that would result in signal spacing greater than 1 km for speeds up to 70 km/h or 1.5 km for speeds over 70 km/h or less than 300m should not be considered.

Traffic control signs installed on this basis should operate on a fixed time basis to maintain platooning since one of their most important functions will be to provide sufficient gaps in the main street flow to allow safe crossing at non-signalized locations in the controlled area. A traffic control signal installed under this warrant must be interconnected with the other signals in the system.

General

- The minimum warrant values for the volume on the major street are for two lane, two-way roadways. Vehicle volume warrants for multi-lane roadways having four or more travel lanes on the major street should be 25% higher. Two lane, two-way roadways with exclusive left turn lanes are not classified as multi-lane roadways
- Warrant values are based on Annual Average Daily Traffic (AADT) which approximates May and October traffic. Counts taken other than in the months mentioned above should be factored to bring the values to AADT levels.
- The lowest sectional percentage governs the warrants and should be shown in the “Entire %” column for that particular warrant.

Delegation of Authority to the General Manager of Public Works

When a traffic control signal is warranted, the General Manager of Public Works or their designate is delegated to approve Traffic Control Signals and present the by-law to amend Traffic by-law 37-83 Schedule “3” pertaining to “Traffic Control Signals” to City Council for approval.

<p>Date of Enactment: November 25, 1986</p>	<p>Related By-law Number/Staff Report Number: 70-2010 (consolidation) 246-2021 / 2021-403</p>
<p>Review and Amendment Dates: May 8, 1990 2009 (Review) June 2010 (consolidation) December 21, 2021</p>	<p>Department Responsible for Review: Public Works</p>
<p>Date of Next Review:</p>	<p>Applicable Legislation/Legislative Authority: Ministry of Transportation of Ontario</p>