

# **SRIES.25.011- Attachment #4**

## **All-Way Stop Warrant Criteria and Analysis Details**

### **Background**

The proposed conversion of the existing Type 2 D Pedestrian Crossover (PXO) to an All-Way Stop Control (AWSC) at **Okanagan Drive/Stephen Street @ Shaw Boulevard** is being pursued under the City's Traffic Safety Operational Strategy (TSOS) policy on Nearly Warranted All-Way Stop Control, which offers a locally tailored framework for evaluating intersection control needs within the scope of the thresholds outlined in the Ontario Traffic Manual (OTM) Book 5. For this specific location, the standard OTM Book 5 warrant was very close to being warranted but not met. However, the intersection is recommended for conversion to an All-Way Stop Control based on the approved "Nearly Warranted AWSC" Policy.

### **"Nearly Warranted AWSC" Policy**

Some minor-road-stop-controlled (MRSC) intersections in the City are close to meeting the traffic volume requirements for all-way-stop-controlled (AWSC) intersections. While AWSC intersections do provide additional safety features at the cost of traffic delay to the major road approaches, at lower-volume intersections, the safety benefit, particularly for pedestrians, would likely outweigh the impact on traffic operations.

As vehicles from all approaches are required to stop and yield to any pedestrian before proceeding through the intersection, the main safety features of AWSC intersections when compared to MRSC intersections are; AWSC intersections provide a controlled crossing to allow pedestrians to cross the major road and if a collision does occur, it is more likely to happen at a low speed, reducing the risk of injury.

The Nearly Warranted AWSC Policy criteria is outlined below;

- The total vehicle volume on all intersection approaches exceeds 150 vehicles per hour for each of the highest 4 hours of the day; and
- The combined vehicle and pedestrian volume on the minor road exceeds 60 units per hour for each of the same 4 hours as the total volume; and
- A Pedestrian Crossover Level 2 Type D is warranted based on OTM Book 15 criteria, but All-Way Stop Control is considered to better match drivers' expectations.

**OR**

- The total vehicle volume on all intersection approaches exceeds 350 vehicles for the highest hour of the day; and
- Intersection capacity analysis for the AM or PM Peak Hours, under existing conditions, indicates a volume-to-capacity ratio exceeding 0.95, Level of Service

(LOS) E or worse, or 95th percentile queue in excess of 50 metres for any of the minor road approaches;

- Alternatively, field observations indicate an average delay in excess of 35 seconds (i.e., LOS E or worse) or 95th percentile queues in excess of 7

vehicles; and

- Intersection capacity analysis for the AM or PM Peak Hours, under AWSC, indicates that major road approaches are not expected to experience volume-to-capacity ratios greater than 0.85, LOS E or worse, or queues that would interfere with adjacent intersections.

**OR**

- Anticipated traffic growth in the area is expected to meet OTM Book 5 warranting criteria within the next 3 years.

**Table 1 – TSOS Policy, Nealy Warranted All-Way Stop Control Applied**

<b>Warrant Type</b>	<b>Okanagan Drive/Stephen Street @ Shaw Boulevard</b>
<b>Total Volume</b>	The total volume exceeds for all 4 hours
<b>Combined Volume</b>	3 hours met, 4 <sup>th</sup> hour 93% met
<b>Visibility</b>	Level 2 Type D PXO is presently installed at intersection

As depicted in Tabled 1 above, traffic data revealed that the four highest hours at the intersection of Okanagan Drive/Stephen Street and Shaw Boulevard each exceeded 150 vehicles per hour by more than double the minimum threshold. Additionally, three of those hours met the combined vehicle and pedestrian volume requirement, while the fourth fell just under, with 93% of the required volume. The City also retained the consultant expertise of CIMA+ to conduct an intersection assessment, which concluded that although the location does not fully meet the volume or collision warrants for All-Way Stop Control (AWSC), it satisfies key connectivity and priority criteria for a Type D PXO which is presently installed at the intersection.

Given that three of the four peak hours exceed the warrant threshold and the data represent a single-day traffic count, normal fluctuations and anticipated growth in volumes could reasonably result in the location fully satisfying the warrant. Based on these factors, staff exercised engineering judgment to recommend AWSC implementation under the “Nearly Warranted AWSC Policy,” as it would enhance safety for both drivers and pedestrians and provide improved stop compliance for pedestrian crossings compared to the existing Level 2 Type D PXO.