TECHNICAL GUIDELINES & PRACTICES

SUBJECT:	ADVANCE WARNING FLASHERS	A-19
CATEGORY:	Traffic Signing	REVISION DATE: December 2011

PURPOSE:

Advance warning flashers are devices placed in advance of a signalized intersection approach to warn motorists that the signal phase is red or is about to turn red.

REFERENCE:

- TAC Final Report (Oct. 2005) "Advance Warning Flashers: Guidelines for Application and Installation"
- MUTCDC, Section A3.6.5

GUIDELINES/PROCEDURES:

Advance warning flashers (WB-5) in advance of a traffic control signal may be considered when one or more of the following conditions exist on the approach to a signalized intersection:

1. Sight distance to the primary signal is less than stopping sight distance.
2. Posted approach speed is higher than 60 km/h.
3. This is the first signalized intersection along a roadway transitioning from a rural environment to an urbanized environment as motorists enter the City of Winnipeg.
4. A significant downhill grade.
5. Intersection approaches with a significant proportion of the traffic being heavy trucks.
6. Retrofit safety countermeasure at locations where there is an over-representation of correctable collision types, including those that occur during the amber and all-red phases of the signal, and those that involve entry-on-red due to relatively inconspicuous signal.
7. When minor road volumes have an average annual daily traffic (AADT) of 13,000 vehicles or greater.

Generally, a location where two or more of the above noted conditions exist would strongly suggest that advance warning flashers be considered. Posted approach speed, truck traffic and minor road traffic volume should be considered supporting conditions, and by themselves would not typically require an advance warning flasher. An engineering study should be conducted and engineering judgment applied to confirm whether or not advance warning flashers are appropriate. The above noted TAC guidelines should be referred to for guidance for installation.

The 'Prepare to Stop' (WB-5S) supplementary tab sign may be used to supplement the Advance Warning Flashers (WB-5).

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Professional responsibility for the technical guidelines and practices falls under the direction of the current City of Winnipeg Manager of Transportation or equivalent

Transportation Association of Canada

Advance Warning Flashers: Guidelines for Application and Installation

October 2005

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A3.6.5 Prepare to Stop Sign (WB-5)

The Prepare to Stop sign with an advance warning flasher (AWF) indicates to drivers in advance of a traffic control signal that there is a high probability of having to stop for a red signal indication.

Engineering studies should be conducted and engineering judgement applied to confirm that an advance warning flasher represents the optimal solution for the treatment site under consideration.

The conditions that may prompt consideration for an advance warning flasher are:

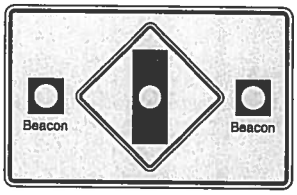
(a) Limited sight distance - where the sight distance of the first primary signal is less than the stopping sight distance.
(b) Minimum Speed - intersections with approaches having a posted speed limit greater than or equal to 70 km/h.
(c) Gateway - the first signalized intersection along a road transitioning from a predominantly rural environment to an urbanized environment.
(d) Approach grade - at 60 km/h posted speed intersection approaches where the downhill grade is 7 percent or more, and at 50 km/h posted speed approaches where the downhill grade is 12 percent or more. At speeds of 70 km/h or more, the presence of a downhill grade should emphasize the need for an AWF.
(e) Truck traffic - intersection approaches with a significant proportion of the traffic being heavy trucks.
(f) Collision history - retrofit safety countermeasure at locations where there is an over-representation of correctable collision types, including those that occur during the amber and all-red phases of the signal, and those that involve entry-on-red due to a relatively inconspicuous signal.
(g) Minor road traffic volume - when minor road volumes have an average annual daily traffic (AADT) of 13,000 vehicles or greater.

Although the presence of one of these conditions may justify the provision of an AWF, the combination of two or more of these conditions would more strongly indicate the justification for an AWF. Minimum speed, truck traffic and minor road traffic volume should be considered supporting conditions, and by themselves would not typically require the provision of an AWF. Further information is available in the *Advance Warning Flashers: Guidelines for Application and Installation (TAC 2005)*.

The sign should be installed in a conspicuous position adjacent to the travelled lanes or above the travelled lanes at a distance from the intersection that takes into account road geometry, vehicle types, and speed limit.



WB-5
900 mm x 900 mm



WB-5 (OPTIONAL)
2400 mm x 1500 mm



WB-5S
2400 mm x 300 mm



WB-5SF
2400 mm x 300 mm

WB-6 – WB-6 (OPT)

A yellow backboard (WB-5 Optional) may be used in conjunction with the basic sign. The sign with the backboard is the preferred design for an overhead sign.

Two alternating flashing amber beacons interconnected with the signal controller are used with the sign. The flash rate for beacons is prescribed in Table B3-2.

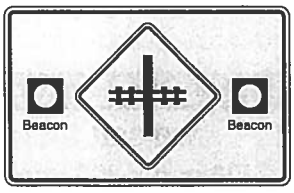
The time to commence flashing operation should be selected after consideration of geometry, speed limit and local driver behaviour. The flashing of these beacons must commence prior to the end of the green indication and must continue for the duration of the red indication on that approach to the intersection. Early or late flasher activation will negate the basic warning function of the sign.

The supplementary tab sign (WB-5S) may be used to supplement the sign.

A3.6.6 Prepare To Stop At Railway Crossing Sign (WB-6)



WB-6
900 mm x 900 mm



WB-6 (OPTIONAL)
2400 mm x 1500 mm

The Prepare to Stop at Railway Crossing sign indicates to drivers in advance of a railway crossing that there is a high probability of having to stop for the railway crossing signals ahead. The primary function of this is to reduce dilemma zone incidents.

This sign should only be used where traffic engineering studies have indicated that this sign is warranted. Factors which should be considered include:

(a) train and vehicle speeds;
(b) train volumes;
(c) traffic volumes, particularly heavy trucks;
(d) visibility;
(e) highway grades; and
(f) collision experience.

Without restricting the intended usage, the Prepare to Stop at Railway Crossing sign may be warranted at signalized crossings where one or more of the following conditions exist:

(i) on roads with a speed limit of 90 km/h or greater;
(ii) where sight restrictions are present;
(iii) at the bottom of a hill or downgrade of considerable length; or
(iv) where environmental conditions frequently restrict visibility.

The traffic engineering study should consider each direction of vehicular traffic separately since this sign may not be necessary on each side of the railway crossing.

The sign should be installed in a conspicuous position adjacent to the travelled lanes or above the travelled lanes at a distance from the crossing that takes into account road geometry, vehicle types, and speed limit.