

# **PART 1: BOOK 7 INTERIM CLARIFICATION**

## **Temporary Conditions Traffic Control on Low-Volume Roads**

During the course of 2005, a Low-Volume Roads Working Group (LVRWG), chaired by Ewan MacDonald, was set up under the auspices of OGRA, at the request of the Municipal Public Works Safety Steering Committee (MPWSSC), to address a number of low-volume roads issues that had been brought forward by the Association of Ontario Road Supervisors (AORS):

1. Definition of a Low-Volume Road, and the need for a distinction between “low-volume roads” and “very low-volume roads”, as it was felt by some that less traffic control was required for operations on “very low-volume roads.”
2. Confusion between the need for Traffic Protection Plans (TPPs) for specific work operations and the typical layouts provided in Book 7 (many of which do not address specific work operations, but rather the location of the work activity on the roadway and the extent to which lanes or shoulders are closed or occupied).
3. Unfamiliar terminology (for example, Book 7 uses the term “closed” to mean “closed or occupied”).
4. Need for confirmation that a given Book 7 typical layout is appropriate for a specific work operation.
5. The possible need for additional typical layouts to be included in Book 7.
6. Suggested extension of Short Duration work on “very low-volume roads” to more than 30 minutes.
7. Uncertainty on how to deal with some specific work operations, e.g., snow removal.

The LVRWG addressed each of the issues raised, and agreed on the following:

1. The definition of a low-volume road should remain as in Book 7 (less than 3000 vehicles per day), as it covers all traffic volumes between 1 – 3000 AADT. The Book 7 traffic control requirements for low-volume roads are already so minimal that it is difficult to see how less traffic control could be provided without jeopardizing worker and/or motorist safety.
2. Possibly due to lack of familiarization with Book 7 and training in its use, some work crews, recognizing the need for TPPs under the Occupational Health and Safety Act (OHSA) and its regulations, expected to find such TPPs in Book 7. Book 7 was never intended to provide such detailed TPPs, and such provision of generic TPPs in Book 7 which could have been inappropriately applied over a wide range of conditions, without due attention to the specific site requirements, would not be advisable. See also the **Notes** below on Traffic Protection Plans.
3. It was recognized that some workers may not think in terms of a “lane closure” when the lane is occupied by a mobile work vehicle. Book 7 calls this a “lane closure” on a number of typical layouts which cover both mobile and very short duration operations. This can be remedied in the next Book 7 revision, and is addressed in this interim clarification in the **Definitions** below. Book 7 contains

an extensive Definitions section, and the next Book 7 revision will afford an opportunity for modifying or adding to the definitions found therein.

4. To help identify which typical layout(s) is/are appropriate for a given work operation, the matrix below was developed by the LVRWG. Note that work crews still need to verify that the typical layout suggested in the matrix is appropriate and fits their work operation. Surveying is not included in the matrix as it is already specifically covered in Book 7 in Typical Layouts 73A to 76.
5. Regarding the need for possible additional typical layouts for inclusion in Book 7, the LVRWG, based on its work on the matrix below, did not identify the need for additional typical layouts at this time. However, further to issue 3, it was agreed that the terminology on the title block of four typical layouts which cover both mobile and very short duration operations (TL-18, 22, 25, and 28) should be revised to read "Lane Closed or Occupied". See **Definitions** below.
6. The current definition of Very Short Duration should be maintained at 30 minutes, including set-up and take-down. The concern was raised that any extension would become more and more elastic, and would soon result in very minimal traffic control for significant Short Duration time periods.
7. Snow removal – This may involve one or more of several operations, and appropriate traffic control depends on the nature of the operation, lane and shoulder width, encroachment (occupancy) on the traveled lane, and visibility. As noted in the matrix below, if visibility is a concern, a TC-2A or TC-2B should be used at each end of the road section. TL-18 is one of the typical layouts referenced in the matrix. Note that TL-18 refers users to TL-19 or TL-20A (TCP operation) if a full lane is occupied, traffic volumes or speeds are high, and visibility is a concern.

Matrix of Traffic Control Book 7 Typical Layouts Applicable to Selected Maintenance Activities on Low-Volume Roads									
Maintenance Activity	Two lane road				Intersection				Comments
	mobile	very short	short	long	mobile	very short	short	long	
Grading (Surface)	TL 18				TL 18				Where visibility is a concern or <150m, place a TC-2A or 2B at each end of the work zone; need to ensure windrow is not too high.
Grading (Shoulder)	TL 7 or 18				TL 7 or 18				Use TL 18 where 3m lane width cannot be maintained throughout the length of the work
Dust Control (Surface)	TL 18				TL 18				

Matrix of Traffic Control Book 7 Typical Layouts Applicable to Selected Maintenance Activities on Low-Volume Roads									
Maintenance Activity	Two lane road				Intersection				Comments
	mobile	very short	short	long	mobile	very short	short	long	
Dust Control (Shoulder)	TL 7 or 18				TL 7 or 18				
Crack Sealing		TL 18 or 20A				TL 18 46 or 48			
Debris Pickup		TL 5 or 18				TL 5 or 18			If intermittent or momentary entry onto the roadway is required, the individual will ensure this can be performed safely by allowing sufficient time and distance to perform activity and return to shoulder. If activity cannot be performed safely in this manner TL 20A should be used.
Tree Cutting		TL 5 7 or 9	TL 6 8 or 9			TL 46 48 or 50	TL 46 48 or 50		
Ditching	TL 7 or 18		TL 6 8, 9 or 19	TL 6 8, 9 19 or 20A					This activity is considered mobile when a one-man mechanical operation is used that complies with the definition.
Patching	TL 18	TL 18 or 20A	TL 19 or 20A		TL 18	TL 18 46 48 or 50	TL 18 46 48 or 50		Patching includes: hot, cold and spray patching.  This activity is considered mobile when a one-man mechanical operation is used that complies with the definition.
Grass Cutting	TL 5 or 7				TL 5 or 7				
Emergency Response/ Road Closure			TL 42A or 42B	TL 42A or 42B					Municipality should develop policy dealing with emergency responses and with TPPs for emergencies.
Leaf Pickup	TL 18	TL 5 or 7				TL 20A			This activity is considered mobile when a one-man mechanical operation is used that complies with the definition.
Snow Removal		TL 7, 18 or 20A	TL 6, 8, 19 or 20A			TL 46 48 or 50			For very short duration work where visibility is a concern or <150m, place a TC 2A or 2B at the start and end of the work zone.

Shaded box = not applicable

## Definitions

**Mobile operations:** (Modification of current definition in Book 7, with additions underlined): Work that is done while moving continuously (no feet on the ground), usually at low speeds, or intermittently, with periodic, brief stops related to the mobile operation, which do not exceed a few minutes in duration (with possible feet on the ground) (e.g., centreline or edgeline zone painting operations with the need to stop periodically to blow out the paint guns, or a grader operator stopping to remove a large stone from a windrow).

**Lane closure for mobile operations:** The occupying or obstruction of a lane for the length of the work vehicle/equipment occupying the lane. In typical layouts TL-18, 22, 25, and 28, the title “Lane Closed” has the meaning “Lane Occupied” for mobile operations, and “Lane Closed” for very short duration work. (Example – for a motor grader grading an unpaved road surface, the lane closure is for the length of the grader, provided the windrow is low enough to permit safe passing).

**Snow Removal:** An operation including all loading, trucking and disposal of snow, but excluding snow ploughing or snowblowing.

## Notes

1. Each local road authority should develop policy for developing Traffic Protection Plans for each maintenance activity and for any enhancements to Book 7 that may be used by the local road authority to protect workers.
2. For emergency responses (such as a tree fallen across the road) the local road authority's primary response is to the emergency and to utilize the best traffic protection available for the initial response. A Traffic Protection Plan should be completed as soon as practicable. It is recommended that the local road authority develop policy for dealing with emergency response and for developing Traffic Protection Plans for emergency responses.
3. Traffic Protection Plans must include and identify the specific hazards to workers and the measures used to protect them. Templates may be used, but the local road authority must review the activity being undertaken, all potential hazards and develop a Traffic Protection Plan specific to the situation at hand, that protects the worker.
4. Some mobile activities may either (1) require more than one Traffic Protection Plan should the hazard at an intersection change; or (2) require a single Traffic Protection Plan which is reviewed periodically and modified, if necessary, to deal with hazards that may not have been recognized when the TPP was first developed. An example of the first situation might be on a road where the activity is crossing a through road and the mobile activity is faced with a stop condition; a second Traffic Protection Plan may be required (depending on the activity) to control traffic on the through road. If the activity is on the through road and public traffic is faced with the stop condition a second Traffic Protection Plan may not be required.

## **PART 2: FUTURE BOOK 7 REVISION**

### **Temporary Conditions Traffic Control on Low-Volume Roads**

The timing and the scope of the next revision to OTM Book 7 (Temporary Conditions) are not known at this time. There will probably be various options at that time for the treatment of temporary conditions traffic control on low-volume roads. If the methodology for dealing with Book 7 issues in the future revision is similar to that used in the past, MTO together with a Stakeholder Advisory Committee (SAC) will consider and decide on how such issues are to be addressed in the new Book 7. The original SAC had representation from several associations and municipalities with responsibilities for low-volume roads, including OGRA, and the 2001 Book 7 does address low-volume roads, though not in the same manner as they have been addressed by the LVRWG. MTO may wish to include representatives of OGRA and AORS on the SAC.

The following addresses one possible approach for including the gist of the Part 1 material above in the future Book 7.

#### **1. Addressing the issues raised in Part 1.**

- 1.1 The definition of a low-volume road would remain at “less than 3000 vehicles per day” as at present.
- 1.2. Book 7 would not provide detailed Traffic Protection Plans (TPPs), but would include more information on the preparation of TPPs, similar to that provided in the Notes. In terms of the current structure of Book 7, this would be included in Section 2.1 “Preparation before Beginning Work”, with an abbreviated treatment in the “General Notes”, so that it would be included in both the Office Edition and the Field Edition.
- 1.3. Regarding “lane closed” and “lane occupied”, Book 7 would be revised as follows:
  - a. Where appropriate, the title on a number of typical layouts in Book 7 for mobile and very short duration operations would be changed from, for example, “Right Lane Closed” to “Right Lane Closed or Occupied.”
  - b. A definition for “Lane Closed or Occupied” or “Lane Closure for Mobile Operations” would be added to the **Definitions** section of Book 7, along the lines of the interim clarification in the **Definitions** in Part 1.
- 1.4. Treatment of matrix of low-volume road operations: See Point 2 below.
- 1.5. Need for additional typical layouts for low-volume roads operations. The LVRWG did not identify the need for additional typical layouts, but this could be revisited in the updating of Book 7.
- 1.6. The current definition of Very Short Duration would be maintained at 30 minutes, including set-up and take-down.

- 1.7. Snow removal – See write-up for issue 7 in Part 1.
- 1.8 The definition of “Mobile Operations” would be modified as outlined in Part 1, and the definition of “Snow Removal” would be added to the Book 7 Definitions.

## **2. Treatment of the Matrix of Typical Layouts for Low-Volume Roads Maintenance Activities**

The material in the matrix in Part 1 lends itself well to inclusion in Book 7, as described in the following approaches.

The new Book 7 SAC will need to review and decide on just how the information is to be presented.

One approach would be to add a note to the General Notes in Book 7, dealing with low-volume roads maintenance activities. The added General Note would include not only the Comments information in the matrix in Part 1, but would list the typical layouts to be used for each of the various maintenance activities. This would be quite an efficient and useful approach, since many of the typical layouts, as shown in the matrix, are common to several maintenance activities. Those working on low-volume roads would be able to quickly refer to the General Note on low-volume roads, and find the typical layouts they need for the various maintenance activities. This approach would also reduce the likelihood of other groups of users coming forward with requests for special treatment of their specific activities.

A second approach would be to insert into Table F in Book 7 the matrix information shown for the individual specific activities. This is somewhat more detailed, with regard to specific activities, than has been the practice in Book 7. It is true that Book 7 does treat some specific activities on their own, namely, surveying and zone painting. However, these are activities for which already included typical layouts are not really suitable. The low-volume road maintenance activities, on the other hand, as shown in the matrix, can all be addressed by typical layouts already in Book 7. However, if the new Book 7 SAC decided to insert the LVR maintenance activities into Table F, based on the argument that it would be more user-friendly for low-volume roads maintenance personnel, this could be done. An argument that might be raised against this approach is that it might open the door to a much larger number of requests from other groups (e.g., utilities, traffic signal maintainers, pavers) for similar treatment, resulting in a much more bulky, less convenient manual than at present.

A third approach would be to insert the matrix in Part 1 directly into Book 7 in the format shown above. One advantage of this approach is familiarity; users would find in Book 7 the matrix they'd been using for some time. A disadvantage is that it would not appear to fit into the Book 7 structure in an integrated manner as well as the other approaches.

As noted, discussion at the new Book 7 SAC will be needed to arrive at the most satisfactory solution.

### **3. Training**

The OHSA and Regulations for Construction Projects require competent persons (supervisors) and competent workers to be used on road projects. Both competent persons and competent workers need to be qualified, by knowledge, training and experience. More emphasis needs to be placed on training supervisors and workers in work zone traffic control and safety, and the application of the OHSA and Regulations for Construction Projects and Book 7 as a whole. The benefits of work zone training are clear: worker safety, motorist safety, motorist mobility, and minimization of liability risk in case of collision, injury or death.

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