



Ministry of  
Transportation  
and Infrastructure

TRAFFIC CONTROLLER DESIGN MANUAL

**Section 500**

**TRAFFIC OPERATION GUIDELINES**

Transportation Systems and Road Safety Engineering

July 2024

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# 501 IMPLEMENTING SIGNAL TIMING PLANS

## 501.1 GENERAL

- .1 The Ministry will create and distribute traffic signal timing plans in the form of Signal Timing Sheets (STS) for the following circumstances:
  - .1 New traffic signal installation.
  - .2 Modification to existing signal operation.
  - .3 Observed or reported signal operational issues(s).
  - .4 Scheduled roadway maintenance or construction impacting signal operation.
  - .5 Signal coordination required.
- .2 The traffic controllers shall be programmed to perform the operational requirements (i.e. signal sequencing, timing, etc.) detailed in the issued STS.
- .3 A Traffic Signal Record (TSR, see Appendix 500A) shall be completed by the EMC and sent to Ministry Traffic Engineering and ITS Operations within two weeks of completing any of the following:
  - .1 All timing plan changes.
  - .2 All new signal installations.
  - .3 All modifications to existing signals.
  - .4 All replacements due to Motor Vehicle Accidents (MVI).

## 501.2 TIMING PLAN / CONTROLLER DESIGN INCONSISTENCIES

- .1 Ministry ITS Operations shall provide record copies for traffic controller documentation when requested by project representatives.

If there are discrepancies or errors regarding the requested documentation compared to the field conditions, a written Request-for-Clarification (RFC) shall be submitted to the applicable Ministry representatives/departments along with the following supporting documentation, describing the error or discrepancy for resolution.

- .1 Electrical Design and/or Traffic Controller Drawings – marked-up in red ink, clearly identifying the error(s) sent to the Ministry Electrical Service

## IMPLEMENTING SIGNAL TIMING PLANS

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- Coordinator and ITS Operations.
- .2 Loop Assignment Sheets – corrected and sent to the Ministry Electrical Service Coordinator, ITS Operations and Traffic Engineering.
  - .3 Signal Timing Sheets – marked-up in red ink and sent to Ministry Traffic Engineering and ITS Operations.

# 502 TEMPORARY TIMING PLAN MODIFICATIONS

## 502.1 GENERAL

- .1 The Ministry recognizes that certain field conditions are conducive to modifying timing plans in a temporary and/or immediate manner. Typical situations would include failed loops causing traffic disruptions, or adjacent construction related work affecting intersection traffic flows.
- .2 To allow flexibility in accommodating these types of events, the following timing parameters may be adjusted by maintenance coordinator without a Ministry Traffic Engineer issuing a new timing plan:
  - .1 **Maximum Green** times from a range of 50% to 200% of permanent values.
  - .2 **Recall** from *Off / Extendible* to *Maximum* or *Pedestrian Recall*.
  - .3 **Minimum Green** increased up to *Maximum Green* time (not to be used for signals that do not have alternate *Minimum Green Entry* timings programmed during pre-emption phasing).
  - .4 Coordination may be removed where adjacent construction activities have disrupted progression reducing the benefits of coordination.
- .3 All temporary timing plan installations and removals shall be thoroughly documented, and copies forwarded to the Electrical Services Coordinator and ITS Operations for record keeping. The temporary timing plans shall be monitored, and removed the temporary timing plan as soon as possible.

# 503 CONTROLLER VOLUME LOGS AND MOES

## 503.1 GENERAL

- .1 Some Ministry traffic controller cabinets can provide volume logs and measures of effectiveness (MOEs). The logs shall be downloaded to a laptop at the controller cabinet and submitted to the Ministry Electrical Service Coordinator.
- .1 The log submitted to Ministry shall be converted into an Excel file format, with time-of-day volumes recorded in 15 minutes intervals and include appropriate labelling but not limited to street name, phasing, and movement/lane group (for shared lanes). See Figure 1 for example.

STREET NAME >																									
PHASING >																									
DATE & TIME	MOVEMENT >	NBL	NBL	NBT	NBT	NBT	NBR	SBL	SBL	SBT	SBT	SBT	SBR	EBL	EBL	EBT	EBT	EBT	EBR	WBL	WBL	WBT	WBT	WBT	WBR
08/01/2017	7:30:00 PM	6		24	33			6		34	27		6	19		58				8		65			
08/01/2017	7:45:00 PM	2		38	39			7		37	37		7	14		70				13		75			
08/01/2017	8:00:00 PM	4		42	38			8		31	28		8	15		65				8		45			
08/01/2017	8:15:00 PM	2		31	33			6		31	34		6	7		51				10		47			
08/01/2017	8:30:00 PM	3		35	44			6		29	28		6	19		52				10		55			
08/01/2017	8:45:00 PM	0		45	32			4		23	28		4	13		46				13		44			
08/01/2017	9:00:00 PM	1		57	39			5		15	20		5	17		47				3		42			
08/01/2017	9:15:00 PM	0		31	33			3		19	16		3	9		43				7		48			

Figure 1. Volume Log Example

- .2 The volume collection capabilities of the controllers must be fully functional to collect the necessary data. If submitted volume logs indicate loop malfunctions, the field problem must be corrected, and new volume or MOE information must be resubmitted (i.e., volume log and MOE submissions are considered complete only when accurate data is submitted).



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**Appendix 500A**

**TRAFFIC SIGNAL RECORD**

Transportation Systems and Road Safety Engineering

July 2024



## Traffic Signal Record

To: \_\_\_\_\_  
Issuing Traffic Engineer

CC: Senior Traffic Control System Technologist  
Electrical Services Coordinator  
\_\_\_\_\_

Date: \_\_\_\_\_

### **Traffic Signal Information**

Description: \_\_\_\_\_ @ \_\_\_\_\_  
Major Street Cross Street Municipality

Drawing No. & Rev: TE - \_\_\_\_\_

Type of Record:  Timing Revision/Signal Modification  New Signal Installation  
 MVI replacement

New Timing Sheet Issued Date: \_\_\_\_\_  
Date

### **For Timing Revisions/Signal Modifications**

Timing/Modification Implemented: \_\_\_\_\_  
Date Time

Previous Timing Sheet Issued: \_\_\_\_\_  
Date

### **For New Installations**

Signal in Flash: \_\_\_\_\_  
Date Time

Signal 3 Color Operation Activated: \_\_\_\_\_  
Date Time

### **Remarks**

\_\_\_\_\_  
Electrical Maintenance Contractor Representative

\_\_\_\_\_