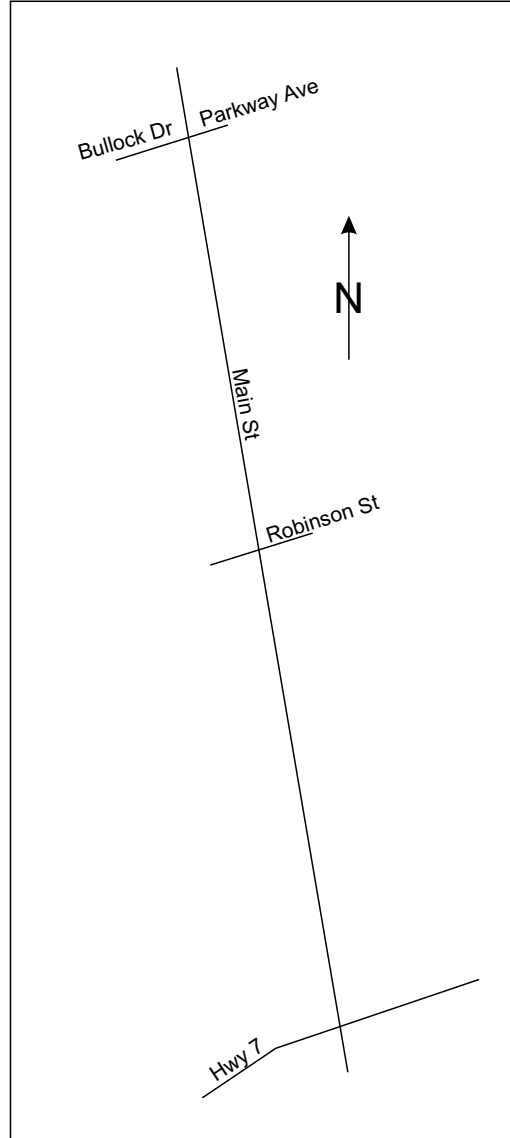


Traffic Control Plan  
Town of Markham  
077-T-12

Watermain Replacement and Sewer Installation  
Main St Markham, Hwy 7 to Bullock Dr

Prepared for:  
KAPP Contracting

Prepared By:  
Direct Traffic Management



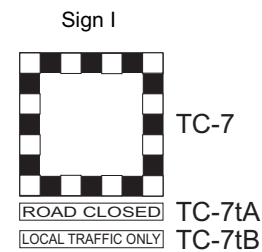
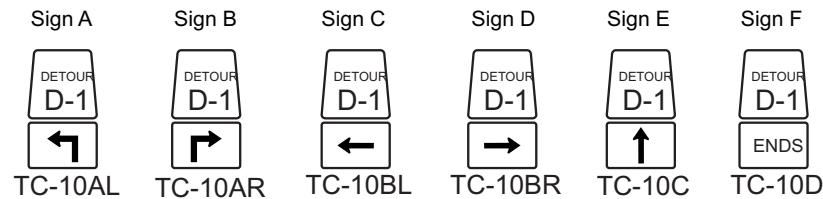
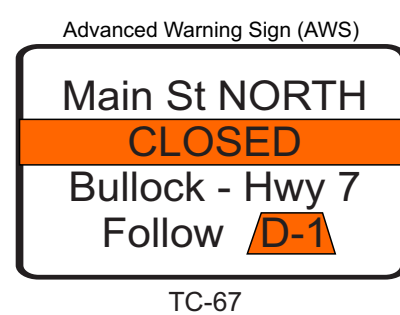
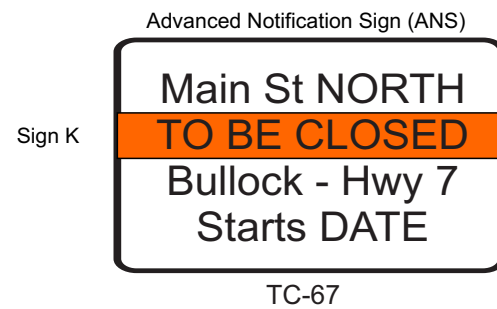
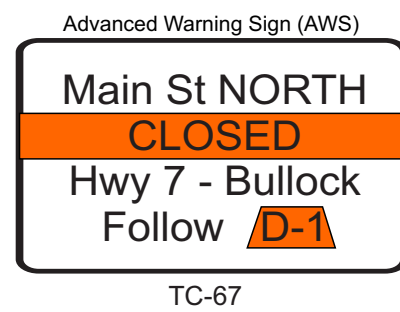
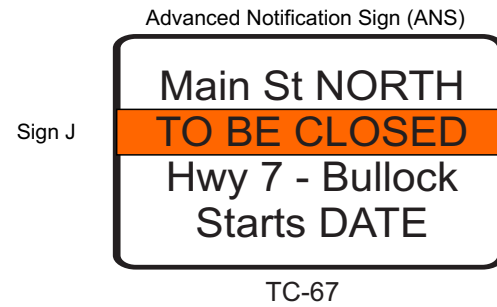
**General Notes:**

1. Traffic control plan for the watermain replacement and sewer installation on Main St between Hwy 7 and Bullock Dr in Markham, ON.
2. Traffic control to be set up as per accompanying and TL drawings. Distance between signs and channelizers as per Ontario Traffic Manual Book 7 (Book 7) Table A. Taper length as per Book 7 Table A. Sign retroreflectivity to meet or exceed minimum guidelines as set out in Book 7.
3. Detour and associated signing to be installed and visible to traffic prior to the closing of NB Main St at Hwy 7.
4. Access to driveways will be accessible from SB Main St at all times.

Legend	
—	Temporary Traffic Sign
•	TC-54

Owner	Town of Markham	
Project Name	Main St Watermain	Project Number 077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor Direct Traffic Management
Phone	Sheet Number 1	Date May 3, 2012
Prepared By	Direct Traffic Management	

# Sign Legend and Detour Notes

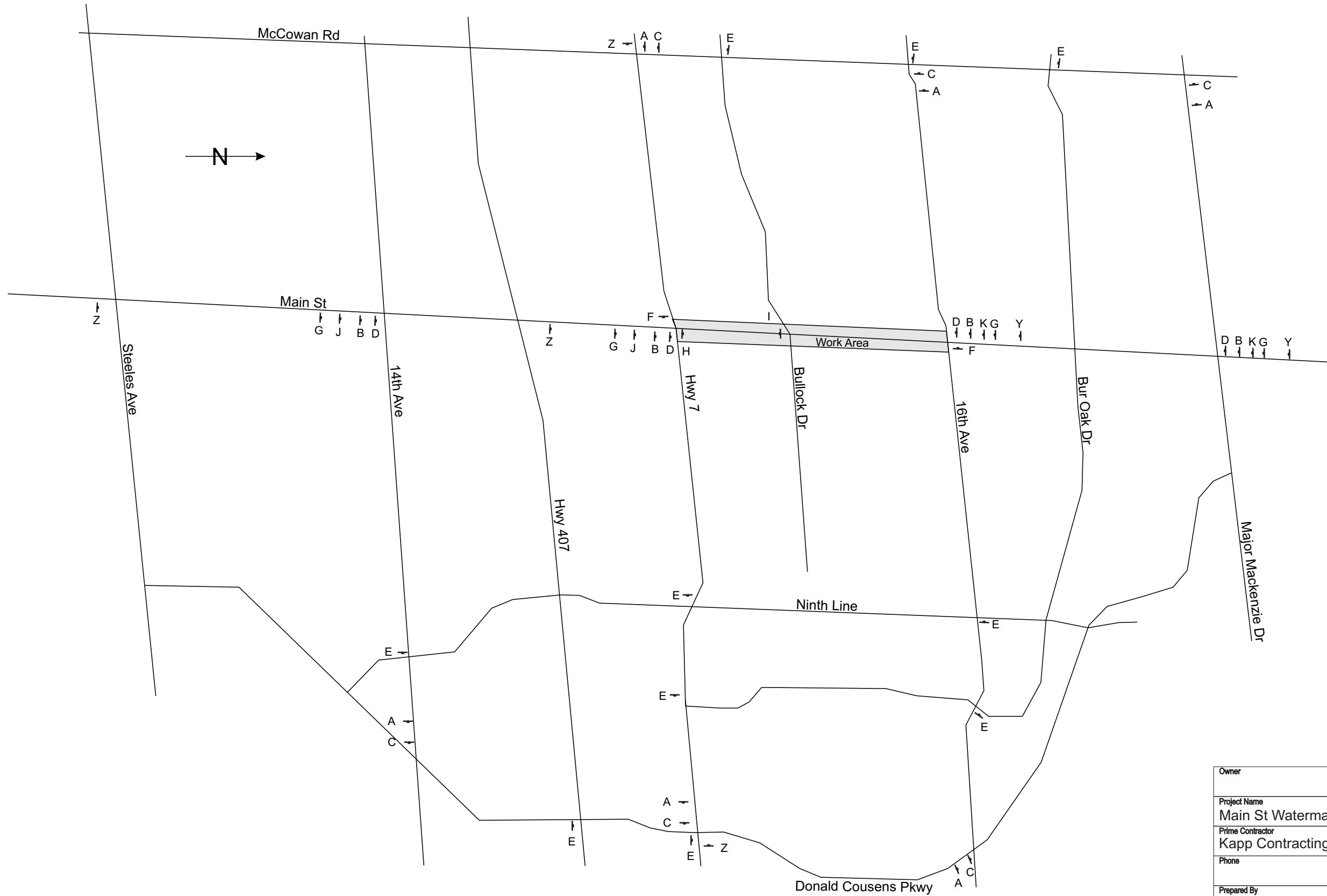


## Detour Notes:

1. ANS will be installed a minimum 7 days in advance of the road closure. ANS will be changed to AWS the day of the closure.
2. The detour and PDMS will be in place and exposed to traffic prior to the closure of the road.
3. Associated temporary traffic control to be set up as per accompanying drawings and TL drawings. Distance between signs and channelizers as per Ontario traffic Manual Book 7 (Book 7) Table A for Short Duration closures and Table B for Long Duration Closures. Taper lengths as per Book 7 Table A for Short Duration and Table B for Long Duration. Sign retroreflectivity to meet or exceed minimum guidelines as set out in Book 7.

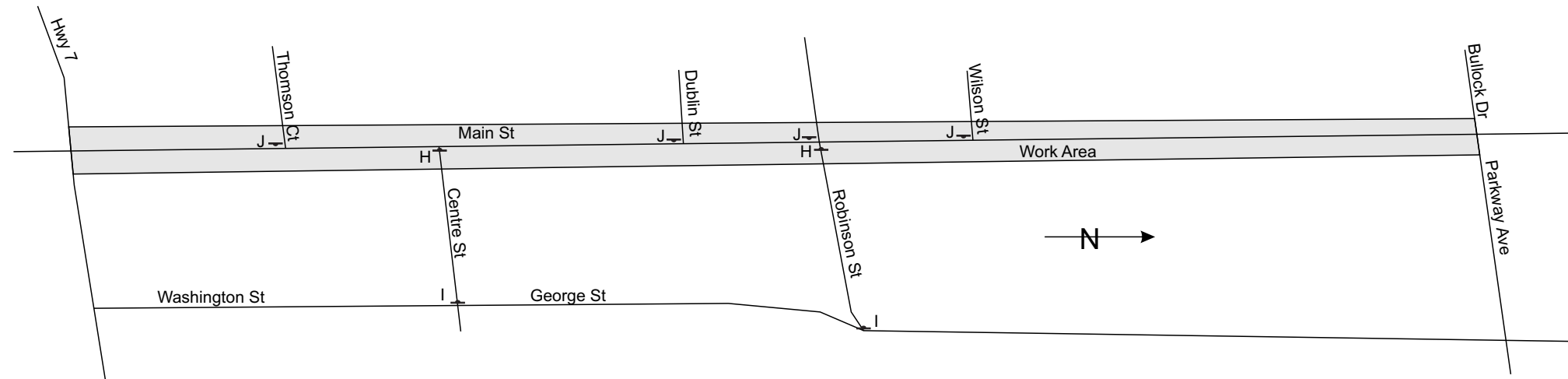
Owner	Town of Markham		
Project Name	Main St Watermain	Project Number	077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor	Direct Traffic Management
Phone	Sheet Number	Date	
	2	May 3, 2012	
Prepared By	Direct Traffic Management		

# Advanced Notification / Warning / Alternate Route Signing



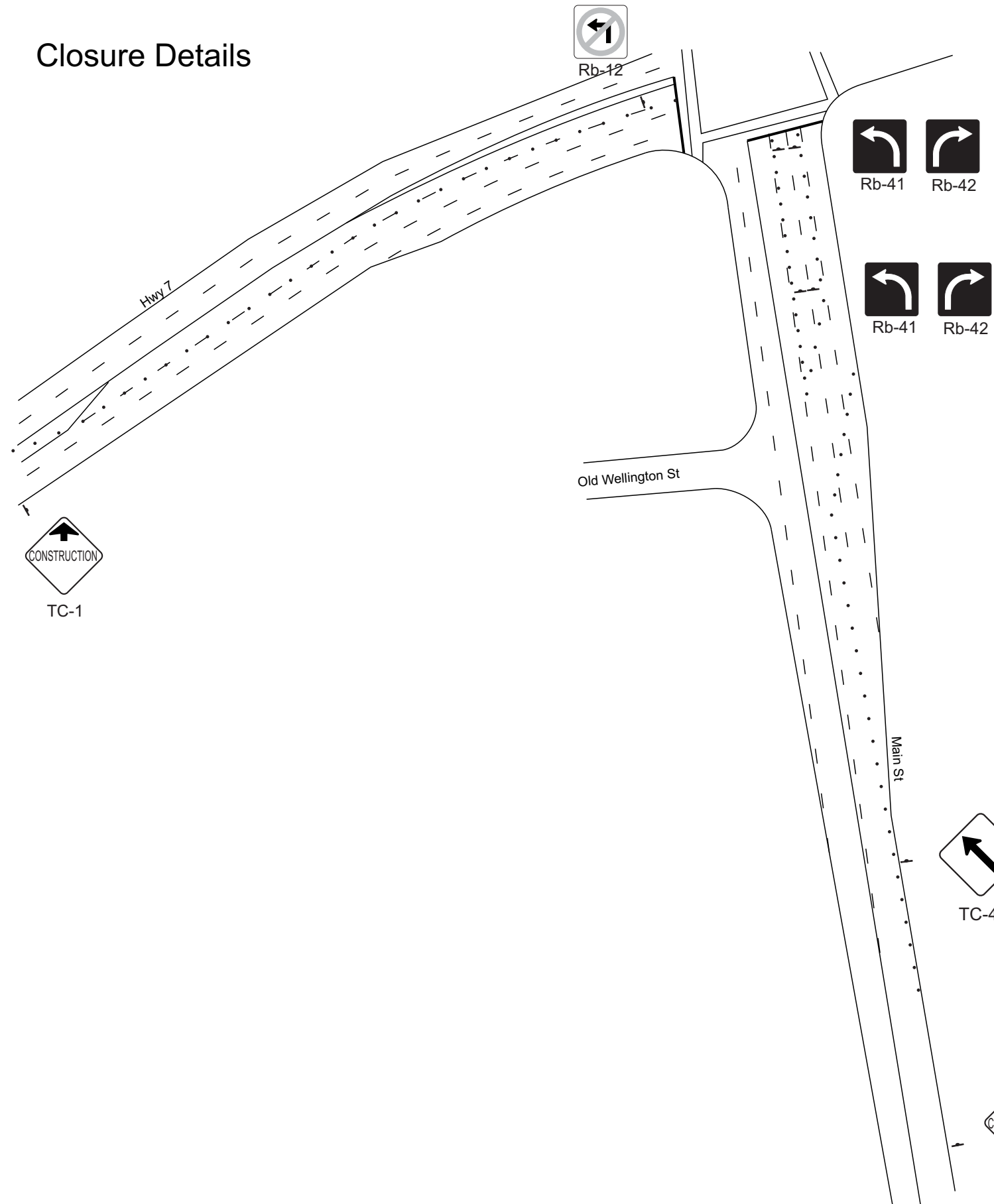
Owner	Town of Markham	
Project Name	Main St Watermain	Project Number 077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor Direct Traffic Management
Phone	Sheet Number 3	Date May 3, 2012
Prepared By	Direct Traffic Management	

# Cross Street Signing



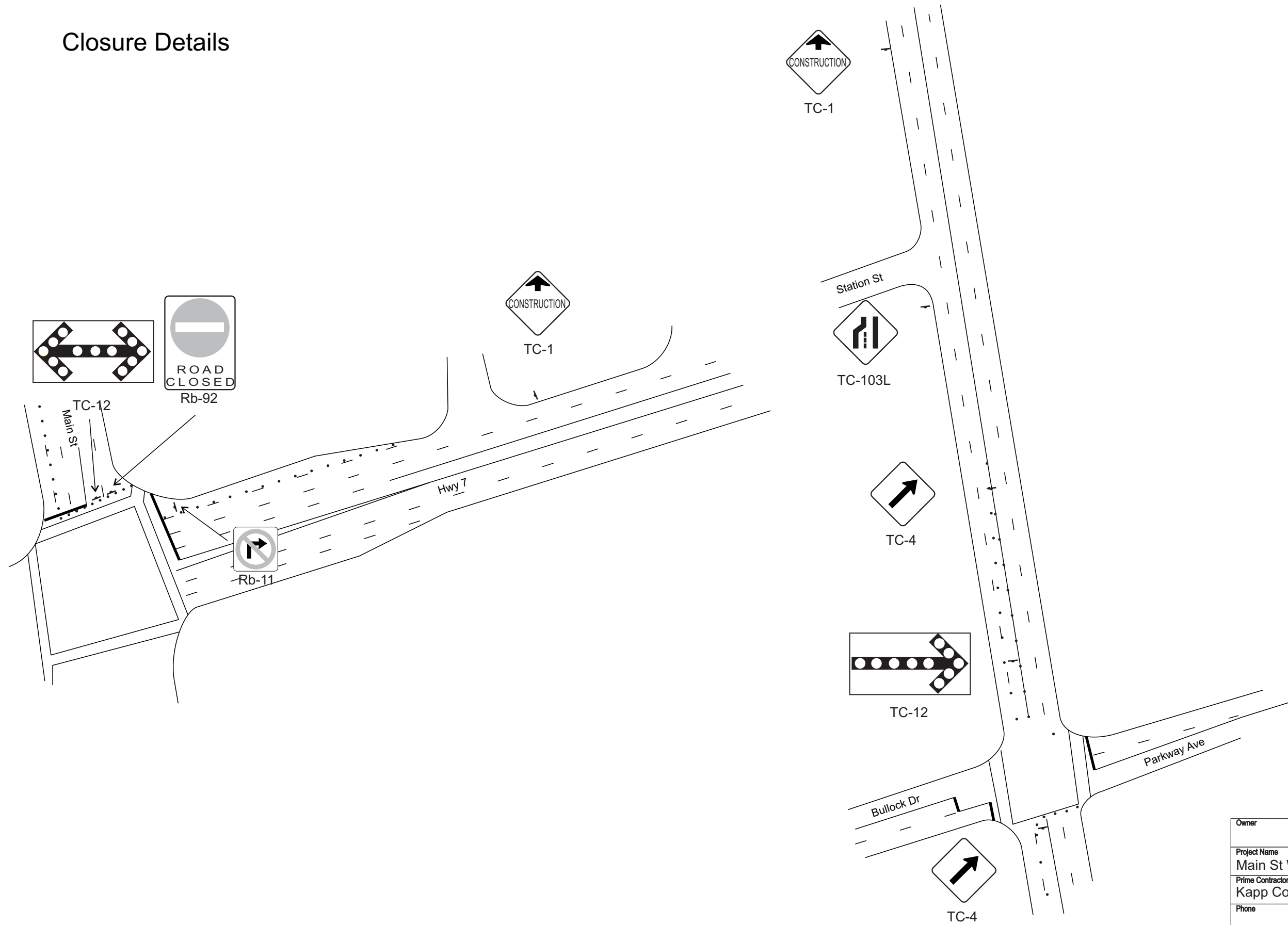
Owner	Town of Markham	
Project Name	Main St Watermain	Project Number 077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor Direct Traffic Management
Phone	Sheet Number 4	Date May 3, 2012
Prepared By	Direct Traffic Management	

# Closure Details



Owner	Town of Markham	
Project Name	Main St Watermain	Project Number 077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor Direct Traffic Management
Phone	Sheet Number 5	Date May 3, 2012
Prepared By	Direct Traffic Management	

# Closure Details



Owner	Town of Markham	
Project Name	Main St Watermain	Project Number 077-T-12
Prime Contractor	Kapp Contracting	Traffic Control Contractor Direct Traffic Management
Phone	Sheet Number 6	Date May 3, 2012
Prepared By	Direct Traffic Management	

Two Lane Road

Very Short Duration  
Short Duration  
Long Duration

Lane Closed (Traffic Control Persons) Figure TL-20A

- See General Notes
- On low volume roads, and short length work areas (less than 150m) Figure TL-19 may be used to replace the TCP.
- When used as prescribed, the Remote Control Device may be used as a supplement to TCP (See TL-20B)
- For high volume, nighttime operations, the traffic control shown in Figure TL-21 should be used when the TCP is not on duty.
- For low volume roads and visibility more than 150m, the TCP and TC-21 may be eliminated for the direction that is not closed.
- For Very Short Duration operations on low volume roads, the cones may not be required.

TC-2B 5\*

Rb-31\*\* 5\*

TC-21 See TCP Table

TC-22

3\*

TC-4\*\*

TC-22

See TCP Table

5\* TC-21

5\* Rb-31\*\*

TC-2B

\*For Very Short or Short Duration: see Table A

\* For Long Duration: see Table B

\*\*Required for Long Duration only.

\*\*For Long Duration, replace TC-2B with TC-1.

Multi-Lane Road (Non-Freeway)

Short Duration

Right Lane Closed Figure TL-23

- See General Notes
- \*For Short Duration: see Table A

WORK AREA

3\*

1a\*

5\*

5\*

TC-12

Can replace the TC-3 and TC-4

TC-4

TC-3R

TC-2B OR TC-2A

Multi-Lane Roads (Non-Freeway)

Short Duration

Left Lane Closed Figure TL-26

- See General Notes
- \*For Short Duration: see TABLE A

Work Area

2\*

1a\*

5\*

5\*

TC-4

TC-103L

TC-102B

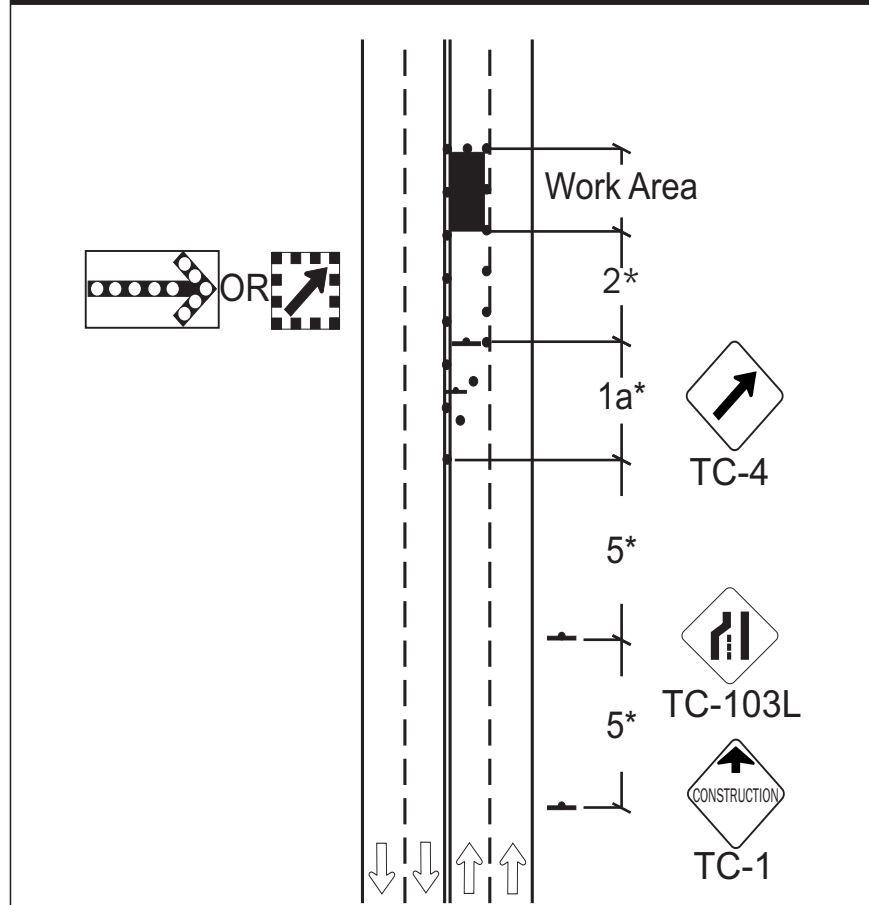
Can replace TC-103L and TC-4.

Owner	Town of Markham	
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Phone	Sheet Number 7	Date May 3, 2012
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Multi-Lane Roads (Non-Freeway) Long Duration

Left Lane Closed Figure TL-27



•See General Notes

\*For Long Duration: see TABLE B

Table A - Work Zone Component Dimensions: Short Duration Work (Non-Freeways)

Normal Regulatory Speed Limit						
*	Dimension	50km/h or lower	60km/h	70km/h	80km/h	90km/h
1a	Taper length for full lane closure (m)	10 - 15	20 - 30	30 - 40	50 - 60	70 - 80
1b	Taper length for roadside work (m)	3 - 5	5 - 7	7 - 10	10 - 12	15 - 20
2	Longitudinal Buffer Area (LBA) (m)	(30)	(40)	50	60	75
3	Maximum Distance between markers (m)***	4 - 6 (use at least 4 markers)	4 - 6 (use at least 4 markers)	8 - 10 (use at least 4 markers)	8 - 10 (use at least 4 markers)	10 - 12 (use at least 4 markers)
4	Minimum Tangent between tapers (m)	30	30	60	60	80
5	Distance between construction signs (m)	20 - 30	20 - 30	50 - 60	50 - 60	70 - 80
6	<b>Condition</b>	<b>TC-2B or TC-2A Required</b>				
	Visibility less than 150m	Yes	Yes	Yes	Yes	Yes
	Visibility 150m or greater	No	No	No, if a TC-12 is used	Yes	Yes

NOTES:  
 \* When the 85th percentile is known, it may be used instead of the normal regulatory speed limit. Table A distances are based on good visibility and should be increased if visibility is poor. Cones require reflective collars for nighttime operations, and for daytime and nighttime after January 1, 2002.  
 Roadside Work includes shoulder work and roadway edge work.  
 \* Buffer Vehicles are not required on non-freeways. For application of LBA on non-freeways, see General Notes to Typical Layouts, Table D and Section 5. LBAs are not a requirement at speeds of 60km/h or lower, but should be considered if safety concerns exist.  
 \*\*\*Markers are channelizing devices. Application guidelines are shown in Table E.2. Cones may be used for daytime or nighttime operations on non-freeways.

Table B - Work Zone Component Dimensions: Long Duration Work (Non-Freeways)

Normal Regulatory Speed Limit						
*	Dimension	50km/h or lower	60km/h	70km/h	80km/h	90km/h
1a	Taper length for full lane closure (m)	LV: 15 - 25 HV: 30 - 50	40 - 60	60 - 80	100 - 120	140 - 160
1b	Taper length for roadside work (m)	LV: 5 - 8 HV: 9 - 15	10 - 14	14 - 20	20 - 24	30 - 40
2	Longitudinal Buffer Area (LBA) (m)	(30)	(40)	50	60	75
3	Maximum Distance between markers (m)***	6 - 8 (use at least 4 markers)	8 - 10 (use at least 4 markers)	8 - 10 (use at least 4 markers)	10 - 12 (use at least 4 markers)	12 - 14 (use at least 4 markers)
4	Minimum Tangent between tapers (m)	55	100	120	140	160
5	Distance between construction signs (m)	40 - 50	90 - 100	110 - 120	130 - 140	150

NOTES:  
 \* When the 85th percentile is known, it may be used instead of the normal regulatory speed limit. Table B distances are based on good visibility and should be increased if visibility is poor.  
 Roadside Work includes shoulder work and roadway edge work.  
 \* Buffer Vehicles are not required on non-freeways. For application of LBA on non-freeways, see General Notes to Typical Layouts, Table D and Section 5. LBAs are not a requirement at speeds of 60km/h or lower, but should be considered if safety concerns exist.  
 \*\*\*Markers are channelizing devices. Application guidelines are shown in Table E.2. Cones may be used for daytime or nighttime operations on non-freeways.

LV = Low Volume  
 HV = High Volume  
 Low Volume is defined as an average annual daily traffic volume less than 3000 vehicles per day (combined traffic for both directions). This figure can be obtained from the local road authority or can be estimated by counting the number of vehicles passing the work site in 3 minutes and multiplying by 300. The count may be taken in off-peak or peak traffic periods, corresponding to the period during which the work operations will be carried out.

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	8	May 3, 2012	
Prepared By	Direct Traffic Management		