



Appendix J.5 Design Criteria



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Project name:
Park Lawn Lake Shore Area TMP

Project ref:
60494141

From:
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Date:
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Memo

SUBJECT: PLLS TMP - Design Criteria FINAL

The purpose of this memorandum is to outline the general principles for road planning and design for the Park Lawn Lake Shore Area TMP study. This memo is an updated Final Design Criteria (DC) based on comments and updates to prior Draft Design Criteria.

This will help define both the minimum typical section needs for the area. Localized reduction of the cross-section will be used in constrained areas in order to minimize impacts. It is also noted that these are minimum design principles; where possible larger or greater design parameters should be considered to enhance operations, provide greater safety, and improve corridor aesthetics.

Lake Shore Boulevard

DESIGN PARAMETER	PROPOSED MINIMUM DESIGN STANDARDS	NOTES
Posted Speed	40 km/h	
Design Speed	40 km/h	<ul style="list-style-type: none"> City of Toronto requirement for urban streets to be designed to posted speed
Minimum Stopping Sight Distance	50 m	
Equivalent Minimum 'K' Factor	4 Crest 4 Sag	<ul style="list-style-type: none"> Assumed sag curves are illuminated.
Grades Maximum	6.0%	<ul style="list-style-type: none"> Where possible, reduced grades to be considered to better accommodate pedestrians and cyclists, especially where there are to be dedicated cycling facilities.
Maximum Super-elevation	Normal Crown	
Minimum Radius	55 m	
Pavement Width* *per City of Toronto and TTC requirements	<p>Streetcar / LRT (where provided)</p> <p>Edge Zone 1.00 m Transit Lanes 3.50 m Platforms 2.4m x 30 m</p> <p>General Lanes**</p> <p>Through Lane 3.00 m Curb Lane 3.30 m Turn Lane 3.00 m</p> <p>Parking Lay-by 2.40 m (mnt. curb and lay-by)</p>	<ul style="list-style-type: none"> To be per TTC design standards. Edge Zone for single overhead cantilevered catenary wire. TTC protecting for bus service on streetcar ROW. Variations may be required on curved segments. To be considered during subsequent preliminary/detailed design. Streetcar stop to be relocated from Brooker's Lane to Street A Lane widths to the curb face (unless specified).
Boulevard	<p>C&G/Buffer 0.50 m Cycle Track 2.00 m Amenity Space 1.80 m Sidewalk 2.10 m</p>	<ul style="list-style-type: none"> Buffer 0.50-1.0m. Buffer (1m) from parked cars will be required if lay-by provided Preferred cycle tracks 2.0m (Bikeway design guide: Cycle track 1.8-3.0m for Major Routes) Preferred amenity width is 2.0m for tree planting zone with soil cells. Amenity for furniture and tree planting, utilities Preferred 3.0m-4.0m sidewalk
ROW Width	Official Plan 36 m Proposed 36-40m	<ul style="list-style-type: none"> Minor variations may be required to accommodate embankment slopes/retaining walls, road infrastructure associated with intersections (traffic signals, medians, turning lanes, and TTC platforms), and reductions at select locations to mitigate property impacts. This is to be considered during subsequent preliminary/detailed design.
Signals & Illumination	<p>Illumination along widened and new roads.</p> <p>New traffic signals where warranted; underground provisions for future traffic signals where long-term needs are warranted.</p>	<ul style="list-style-type: none"> Specific design details for the traffic signals and illumination requirements shall follow applicable City of Toronto and AODA design requirements and will be determined during subsequent preliminary and detail design.

Park Lawn Road

DESIGN PARAMETER	PROPOSED MINIMUM DESIGN STANDARDS	NOTES										
Posted Speed	40 km/h											
Design Speed	40 km/h	<ul style="list-style-type: none"> • City of Toronto requirement for urban streets to be designed to posted speed 										
Minimum Stopping Sight Distance	50 m											
Equivalent Minimum 'K' Factor	4 Crest 4 Sag	<ul style="list-style-type: none"> • Assumed sag curves are illuminated. 										
Grades Maximum	6.0%	<ul style="list-style-type: none"> • Where possible, reduced grades to be considered to better accommodate pedestrians and cyclists, especially where there are to be dedicated cycling facilities. 										
Maximum Super-elevation	Normal Crown											
Minimum Radius	55 m											
Pavement Width* *per City of Toronto and TTC requirements	<p style="text-align: center;">General Lanes**</p> <table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">Through Lane</td> <td style="padding: 2px; text-align: right;">3.00 m</td> </tr> <tr> <td style="padding: 2px;">Curb Lane</td> <td style="padding: 2px; text-align: right;">3.30 m</td> </tr> <tr> <td style="padding: 2px;">Turn Lane</td> <td style="padding: 2px; text-align: right;">3.00 m</td> </tr> <tr> <td colspan="2" style="padding: 2px;"> </td> </tr> <tr> <td style="padding: 2px;">Parking Lay-by <i>(mnt. curb and lay-by)</i></td> <td style="padding: 2px; text-align: right;">2.40 m</td> </tr> </table>	Through Lane	3.00 m	Curb Lane	3.30 m	Turn Lane	3.00 m			Parking Lay-by <i>(mnt. curb and lay-by)</i>	2.40 m	<ul style="list-style-type: none"> • Lane widths to curb face (unless specified).
Through Lane	3.00 m											
Curb Lane	3.30 m											
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Boulevard	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="padding: 2px;">C&G/Buffer</td> <td style="padding: 2px; text-align: right;">0.50 m</td> </tr> <tr> <td style="padding: 2px;">Cycle Track</td> <td style="padding: 2px; text-align: right;">2.00 m</td> </tr> <tr> <td style="padding: 2px;">Amenity Space</td> <td style="padding: 2px; text-align: right;">1.80 m</td> </tr> <tr> <td style="padding: 2px;">Sidewalk</td> <td style="padding: 2px; text-align: right;">2.10 m</td> </tr> </table>	C&G/Buffer	0.50 m	Cycle Track	2.00 m	Amenity Space	1.80 m	Sidewalk	2.10 m	<ul style="list-style-type: none"> • Buffer 0.50-1.0m. Buffer (1m) from parked cars will be required if lay-by provided • Preferred cycle tracks 2.0m (Bikeway design guide: Cycle track 1.8-3.0m for Major Routes) • Preferred amenity width is 2.0m for tree planting zone with soil cells. Amenity for furniture and tree planting, utilities. • Preferred 3.0m-4.0m sidewalk south of rail line 		
C&G/Buffer	0.50 m											
Cycle Track	2.00 m											
Amenity Space	1.80 m											
Sidewalk	2.10 m											
ROW Width	<p>OP: 27 m (N of Gardiner) OP: 36 m (S of Gardiner)</p>	<ul style="list-style-type: none"> • Minor variations may be required to accommodate embankment slopes/retaining walls, road infrastructure associated with intersections (traffic signals, medians, turning lanes, and TTC stops), and reductions at select locations to mitigate property impacts. This is to be considered during subsequent preliminary/detailed design. 										
Signals & Illumination	<p>Illumination along widened and new roads.</p> <p>New traffic signals where warranted; underground provisions for future traffic signals where long-term needs are warranted.</p>	<ul style="list-style-type: none"> • Specific design details for the traffic signals and illumination requirements shall follow applicable City of Toronto and AODA design requirements and will be determined during subsequent preliminary and detail design. 										

New North-South Street

DESIGN PARAMETER	PROPOSED MINIMUM DESIGN STANDARDS	NOTES
Posted Speed	40 km/h	
Design Speed	40 km/h	<ul style="list-style-type: none"> City of Toronto requirement for urban streets to be designed to posted speed
Minimum Stopping Sight Distance	50 m	
Equivalent Minimum 'K' Factor	4 Crest 4 Sag	<ul style="list-style-type: none"> Assumed sag curves are illuminated.
Grades Maximum	6.0%	<ul style="list-style-type: none"> Where possible, reduced grades to be considered to better accommodate pedestrians and cyclists, especially where there are to be dedicated cycling facilities. Assumed UCD with rolling topography
Maximum Super-elevation	Normal Crown	
Minimum Radius	55 m	
Pavement Width* <small>*per City of Toronto and TTC requirements</small>	General Lanes** Through Lane 3.00 m <i>(one lane / direction)</i> Curb Lane 3.30 m Turn Lane 3.00 m	<ul style="list-style-type: none"> Lane widths to curb face (unless specified).
Boulevard	C&G/Buffer 0.50 m Cycle Track 2.00 m Amenity Space 1.80 m Sidewalk 2.10 m	<ul style="list-style-type: none"> Buffer at 0.50-1.0m Preferred cycle tracks 2.0m (Bikeway design guide: Cycle track 1.5-2.6m for Low-Moderate Routes) Preferred amenity width is 2.0m for tree planting zone with soil cells. Amenity for furniture and tree planting, utilities.
ROW Width	Proposed 23-26 m	<ul style="list-style-type: none"> Minor variations may be required to accommodate embankment slopes/retaining walls, road infrastructure associated with intersections (traffic signals, medians, turning lanes), and reductions at select locations to mitigate property impacts. This is to be considered during subsequent preliminary/detailed design.
Signals & Illumination	Illumination along widened and new roads. New traffic signals where warranted; underground provisions for future traffic signals where long-term needs are warranted.	<ul style="list-style-type: none"> Specific design details for the traffic signals and illumination requirements shall follow applicable City of Toronto and AODA design requirements and will be determined during subsequent preliminary and detail design.
Design Notes	<ul style="list-style-type: none"> Maintain service access to OPG and CN lands The configuration of the road alignment should consider the Ontario Food Terminal lands and impacts, as well as potential access improvements for the Ontario Food Terminal Various bridge and tunnel construction approaches are to be explored in subsequent design phases to consider cut and cover construction, bridge construction, sequential excavation methodology 	

New East-West Street (Street A)

DESIGN PARAMETER	PROPOSED MINIMUM DESIGN STANDARDS	NOTES										
Posted Speed	40 km/h											
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Minimum Stopping Sight Distance	50 m											
Equivalent Minimum 'K' Factor	4 Crest 4 Sag	<ul style="list-style-type: none"> Assumed sag curves are illuminated. 										
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Maximum Super-elevation	Normal Crown											
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****References**

2.0 LANE WIDTHS GUIDELINE (Version 2.0.1 , May 2018 / City of Toronto, Transportation Services)

Table 2.4.1.A Lane Width Dimensions

		Minimum (m)	Target (m)	Maximum (m)	TTC			Horizontal Alignment Curves
					TTC Bus Routes	TTC Streetcar Routes	High Truck Volume	
Through Lane	60km/h or more	3.0	3.0	3.5	x	+ ¹	+	+
	50km/h		3.0	3.3				
	40km/h or less		3.0	3.0				
Curb Lane	Shared Curb Lane without Urban Shoulder	3.3	4.3	4.3	+ ²	x	+	+
	Shared Curb Lane with Urban Shoulder or Curb Lane with Dedicated Cycling Facility	60km/h or more	3.5	3.5				
		50km/h	3.3	3.5				
	40km/h or less	3.3	3.5					
Urban Shoulder		1.2	2.3	2.3				
Two-way Left Turn Lane		3.0	3.0	3.3	x	x	+	+
Dedicated Left Turn Lane		3.0	3.0	3.3	x	x	+	+
Dedicated Right Turn Lane		3.0	3.0	3.3	+	x	+	+
Dedicated Parking Lane		2.0	2.4	2.8	x	x	x	+
Dedicated Cycling Facility		Note 1						

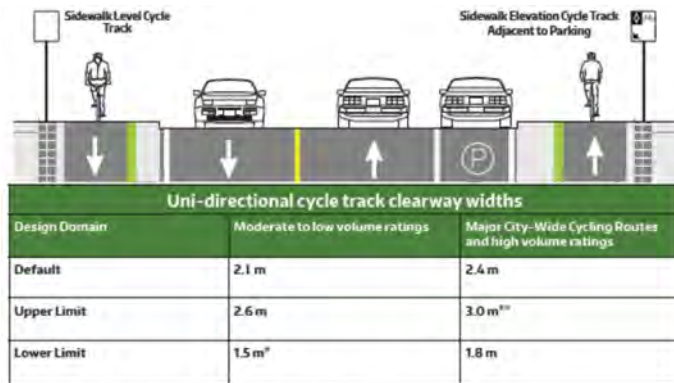
Note 1 – Refer to Ontario Traffic Manual Book 18: Cycling Facilities

¹ Through lanes should be a minimum width of 3.1m on TTC streetcar routes.

² Curb lanes should be a minimum width of 3.3m on TTC bus service routes.

*****References**

Draft City of Toronto On-Street Bikeway Design Guide



^{*}A cycle track with a 1.5m^{*} must have an additional 0.3 m of clearway from the buffer for a total of 1.8 m of clearway for snowplow
^{**}Additional measures may be required to prevent motorists from misusing the cycle track for a travel lane.

