

Appendix B: Comparison Summary of Design Criteria Best Practices

Page 1 of 1

DESIGN CRITERIA BEST PRACTICES

PROJECT NO. 4449 Mississauga Cycling Network Master Plan TYPE OF PROJECT: Master Plan MUNICIPALITY: City of Mississauga

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NOTE: MEASUREMENTS ARE IN	TAC	AASHTO (Guidelines to	Ontario Bikeways	Waterfront	Town of Richmond Hill	City of Windsor	City of Hamilton	Recommendation
METRES	(Geometric Design Guidelines ¹)	Develop Bicycle Facilities)	Planning and Design Guidelines	Trail Guidelines (1997)	(2007)	(2001)	Design for Bikeways	
		TACHUCA)	(1996)				A Total Section 1	
BICYCLE OPERATING SPACE / ENVELOPE AND CLEARANCES		· · · · · · · · · · · · · · · · · · ·						
Minimum Clearance to edge of traffic lane								0.5 - 1.0
■ 60km/hr	0.5	-	-	-	-	_	-	0.3 - 1.0
■ 80km/hr	1.0	-	-	2.5 1 2.0	3.0m	2.5m min.		
Vertical Clearance for Structures overhanging bikeways	2.5 - 3.6	2.5 - 3.0	2.5m min. (3.6m desirable)	2.5m to 3.0m	3.0m		2.5 - 3.5	2.5 - 3.6
Clearance to barrier or other fixed object	0.2 - 0.5	0.6 - 1.1	0.25m min. (0.5m desirable)	0.3m to 0.5m	-	0.6m	0.5 - 1.0	0.2 - 1.0
Clearance to unfenced drop-off e.g. river	1.0	0.6 - 1.1		-	-	-	0.5 - 1.0	1.0
General horizontal clearance	0.6	-	1.0m min.	-	1.0m	0.6m	0.5 - 1.0	0.6 – 1.0
BIKEWAYS								
Other Design Criteria (off-road)								
Pathway Materials	-	Asphalt or concrete desirable; crushed aggregate may be used in some situations	Asphalt, concrete, or limestone screenings (only when grades are < 5.0%)	Asphalt desirable for high-use trails; compacted stonedust for lower-use trails	Asphalt or porous pavement for main trails; asphalt or limestone screenings for supporting connections;	Granular 'A', stonedust or asphalt	Asphalt, concrete, limestone screenings or aggregate lift with surface treatment binder	Asphalt
Cross-Slope	-	Min. 2.0 – 3.0% max.	2%	Min. 2.0%	2.0 – 2.5%	2.0 -4.0% (for asphalt, gravel, crushed stone and earth trails)	Max. 4.0%	Min. 2.0% Max. 4.0%
Longitudinal Slope		< 5.0% desirable; 8.0% for up to 90m; 11+% for up to 15m	< 5.0% desirable	< 5.0% desirable	< 5% desirable (May increase to max. 8.3% for short sections of trail)	-	Max. 5% on paved surfaces; Max. 3.0% on granular surfaces	< 5.0% desirable; 8.0% for up to 90m; 11+% for up to 15m (barrier-free considerations may supersede these requirements in certain cases)
Minimum distance to access points	-	-	-	-	250 – 500m	-	-	250 metres preferred 500m maximum spacing
Minimum turning radius	-	Based on lean angle and path design speed; min. 10m radius for 20km/h design speed and 20° lean angle	15m for 25km/h design speed	Min. 10.5m		-	-	Based on lean angle and path design speed; min. 10m radius for 20km/h design speed and 20° lean angle
Minimum distance between off-road facility and roadway	-	-	-	-	-	-	-	1.5m min.

Page 1 of 2

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NOTE: MEASUREMENTS ARE IN METRES	TAC (Geometric Design Guidelines ¹)	AASHTO (Guidelines to Develop Bicycle Facilities)	City of Mississauga (Briefing for Cycling Facilities)	City of Vaughan (Pedestrian & Bicycle Master Plan)	Region of Waterloo (Cycling Design Guidelines)	City of Ottawa (Cycling Planning & Design Guidelines)	City of Hamilton (Design for Bikeways)	City of Chicago (Bike Lane Design Guide)	San Francisco (Bikeway Design Guidelines)	Portland (Bicycle Master Plan)	London, UK (Cycling Design Standards)	Various Sources ² (For Information Purposes Only)	Recommendation
BICYCLE OPERATING SPACE / ENVELOPE AND CLEARANCES													
Minimum Clearance to edge of traffic lane 60km/hr 80km/hr	0.5 1.0	-	-	0.5 1.0	-	0.5 1.0			-	1.5	-		0.5 - 1.0
Vertical Clearance for Structures overhanging bikeways	2.5 - 3.6	2.5 - 3.0	-	2.5 - 3.6	-	2.4 - 3.6	2.5 - 3.5	-	-	2.4 - 3.0	-		2.5 - 3.6
Clearance to barrier or other fixed object	0.2 - 0.5	0.6 - 1.1	•	0.2 - 0.5	-	0.5 - 1.0	0.5 - 1.0	-	-	-	0.5		0.2 - 1.0
Clearance to unfenced drop-off e.g. river	1.0	0.6 - 1.1	•	1.0	-	1.0	0.5 - 1.0	-	-	-	0.5		1.0
General horizontal clearance	0.6	-	-	0.6	-	0.6	0.5 - 1.0	-	-	0.6	0.5		0.6
BIKEWAYS													
Shared Roadway Right Lane Width		4.2 - 4.5	4.0 - 4.5	3.75 - 4.25	4.0 - 4.90	3.75 - 4.25	4.0 - 4.5	-	3.05 - 4.3	4.2 - 4.8	2.8 - 4.3		4.0 - 4.6
AADT* 0-1000	4.0	-	-	-	-	-	4.0 - 4.5	-	-	-	-		-
AADT* 1000-3000	4.3	-	-	-	4.35	-	4.0 - 4.5	-	-	-	-		-
AADT* 3000-6000	4.0 - 4.5	-	-	-	4.35 - 4.85	-	4.0 - 4.5	-	-	-	-		-
AADT*>6000	4.3 - 4.8	-	-	-	4.85	-	-	-	-	-	-		-
Bike Lane Width	2.0 - 2.5	1.2 - 1.5	-	-	1.25 - 1.5	-	-	-	-	-	-		-
One-way exclusive	1.5* - 2.0*	-	1.2 - 1.8	1.2 - 2.8	1.25 - 1.5	1.2 - 2.0	1.2 - 1.8	1.5 - 1.8	1.5 - 1.8	-	1.3 - 1.8		1.2 - 1.8
Bike Lane Adjacent to Parking Lane	-	-	-	1.3 - 1.5	1.2 - 1.6	1.3 - 1.5	1.6 - 2.1	1.5	1.5 - 1.8	1.2 -1.8	1.3 - 1.8		1.2 - 1.8
Combined Bicycle Lane/ Parking Lane Width	-	3.9 - 4.5	4.2	3.9 - 4.6	4.0	3.7 - 3.9	4.0 - 4.5	3.6 - 4.2	3.9 - 4.5	3.6 - 4.2	3.6		4.0 - 4.2
Separated Bicycle Lane (one-direction)	-	-	-	-	-	-	-	-	-	-	-	1.7 - 2.0	1.7 - 2.0
Separated Bicycle Lane (bi-direction)	-	-	-	-	-	-	-	-	-	-	-	2.0 - 4.0	2.7 - 3.4
Separated Bicycle Lane Island / Buffer	-	-	-	-	-	-	-	-	-	-	-	0.4 - 2.0	1.0 - 2.0
Bike Lane within Constrained ROW ³	-	-	-	1.0 - 1.3	-	1.0 - 1.3	-	-	-	-	-		1.2
Bike Multi-Use / Path Width (off-road)													
Two-way exclusive	2.5 - 3.5	2.4 - 3.0	3.0 - 4.2	3.0	-	-	2.5 - 4.0	-	-	2.4 - 3.0	2.0 - 3.0		3.0 - 3.6
Two-way, shared with pedestrians	3.0 - 4.0	2.4 - 4.2	2.4 - 4.0	3.0 - 4.0	3.0 - 4.0	3.0 - 4.5	2.5 - 4.0	-	-	3.6	-		3.0 - 5.0
One-way exclusive	1.5 - 2.0	1.8	•	-	-	-	-	-	-	1.5 - 1.8	-		Not recommended
One-way, shared with pedestrians	2.0 - 3.0	1.8		-	-	-	-	-	-	1.5 - 1.8	-		Not recommended

¹TAC Geometric Design Guide for Canadian Roads – Bikeways Chapter, September 1999
² Sources include guidelines from the New York City, Montreal, New South Wales, Copenhagen and Australia. The information provided is for information purposed as detailed design guidelines for separated bicycle route facilities is limited.

³Bike lanes in constrained R.O.W are not recommended for speed >50km/hr with heavy commercial vehicle or truck percentages >12%, and / or AADT's (>3000).

Part and in ADT of shared lane exceeds 6000 or if trucks exceed 10%
Design Criteria only considers roadways with design speeds of 80km/hr or less

Page 2 of 2

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TRAVEL LANES													
Urban through Lane Width	3.0 - 3.7	-	3.35 - 3.75	3.3 - 4.0	3.35 - 3.75	3.3 - 3.7	3.0 - 4.0	3.0 - 3.6	3.05 - 3.66	3.0 - 3.3	2.5 - 4.3		3.0 - 3.7
TURNING LANES													
Right turn Lane Width	3.3 - 3.5	-	3.0 - 3.25	-	3.25	-	-	3.0	-	-	-		3.0
Left-turn Lane Width	3.0 - 3.5	-	3.0 - 3.25	-	3.0	-	-	3.0	-	1	-		3.0
Dual and triple left-turn lanes	3.5	-	-	-	3.5	-	-	-	-	3.3	-		3.0 - 3.5
PARKING LANES													
Parking Lane Width	2.4 - 3.5	2.4 - 3.0	2.4 - 2.6	2.4 - 3.5	2.4 - 2.8	2.2 - 2.4	2.4	2.1 - 2.7	2.1 - 2.7	2.1 - 2.4	1.8		2.2 - 2.8
TRANSIT													
Transit Lane Widths	3.7 - 4.0	-	3.35	-	-	-	4.3 - 4.5	-	4.3 - 5.2	-	4.5		3.35
Bus Bay	3.0	-	-	-	-	-		-	-	-	-		3.0
DRIVEWAY FREQUENCY				-				-				-	
per kilometre / direction	-	-	-	More than 4 crossings (intersections / driveways per kilometre) — consider on- road facility versus a boulevard trail	More than 4 crossings (intersections / driveways per kilometre) — consider on-road facility versus a boulevard trail	(a) 0 to 3 crossings -Bicycle Path (b) 4 to 10 crossings –shared- use / bicycle lanes (c) greater than 10 crossings – shared- use / bicycle lanes	-	-	-	-	-		More than 4 crossings (intersections / driveways per kilometre) — consider on-road facility versus a boulevard trail

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