WELCOME TO THE Public Information Centre 2

City of Greater Sudbury
Transportation Study







June 19, 2013







What is this project about?

Purpose

"Produce a Transportation Plan that defines a comprehensive, fully integrated and sustainable transportation network that accommodates projected transportation demands to the year 2031 for the City of Greater Sudbury"



Principles

The three main principles, which are guiding the development of the future transportation network:

Healthy Communities

To create complete streets that are designed, constructed and maintained to support all users and all modes of transportation

Sustainability

To limit the vehicle kilometers travelled per year through integrated transportation and land use planning

Economic Vitality

To ensure that the transportation network supports mobility so that people and freight can access destinations with limited delay





Process Overview

Project Schedule 2011 2012 2013 - Project Kickoff - Review Existing Transportation Data, Phase 1: Project Initiation Reports and Policies - Develop Analysis / Evaluation and Baseline Assessment Framework - Develop Traffic Forecasts for 2031 We are Horizon Year Phase 2: Develop - Define and Assess Network Alternatives - Develop Cycling / Pedestrian Network here Transportation Plan and Design Guidelines - Identify and Recommend **Transportation Improvements** - Develop Supportive Cycling and **Phase 3:** Define Implementation Pedestrian Network Policies & Strategy and Short-Term Initiatives Implementation Strategy - Prepare Draft Transportation Study Report Phase 4: Complete the - Staff Review of Report - Finalize Report Report - Submit Report to Ministry of

Next Steps

Following this Public Information Centre and the completion of the Transportation Study Report, next steps will include:

- Conduct an Environmental Assessment to define a corridor for key road projects, such as the South University Link / Ramsey Lake Road widening and MR80 widening / Barry Downe extension projects
- Conduct a design feasibility study for any active transportation facility type, which is selected for implementation





Environment (MOE)

- Present Report to Council

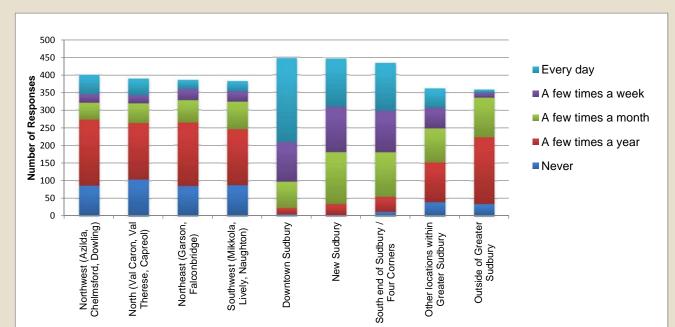
What you told us last time

The first public information center was held on January 11, 2012 from 4pm to 7pm at City Hall on Tom Davies Square. It was estimated that approximately 100 residents attended. Attendees were encouraged to actively participate in the development of the TMP through comment sheets, poster board polls and an online survey. The following is a summary of the input that we have received to this point in the project through the public meeting, an online survey and other comments received from stakeholders and the public.

Online Survey

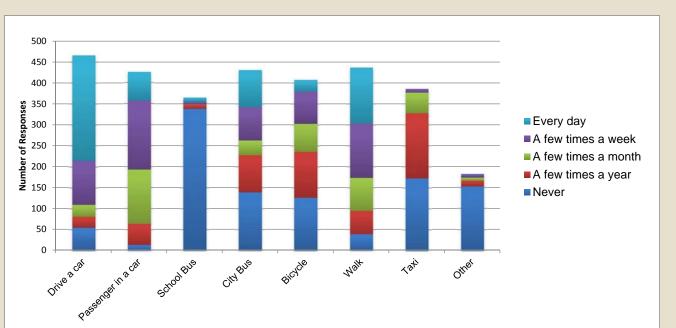
Over 520 online surveys have been received as of May 2013. The survey included five questions where respondents were asked to rank several criteria and three opinion based questions. The following summarized the responses received on the five rank questions.

Q1: Where, and how often, do you travel most?



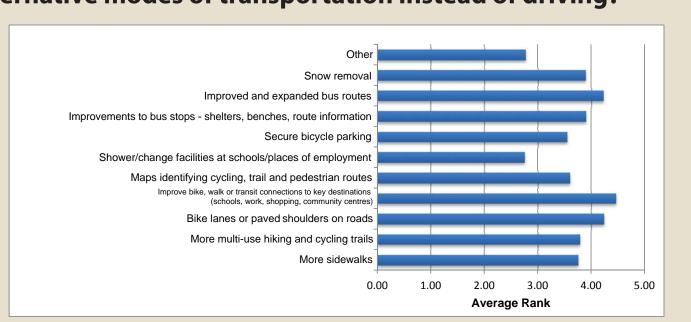
The most traveled destinations are Downtown Sudbury, New Sudbury and the South End (e.g. Four Corners)

Q2: How often do you use the following transportation options to reach your destination?



The majority of trips that are made ever day are in an automobile, followed by walking and city buses

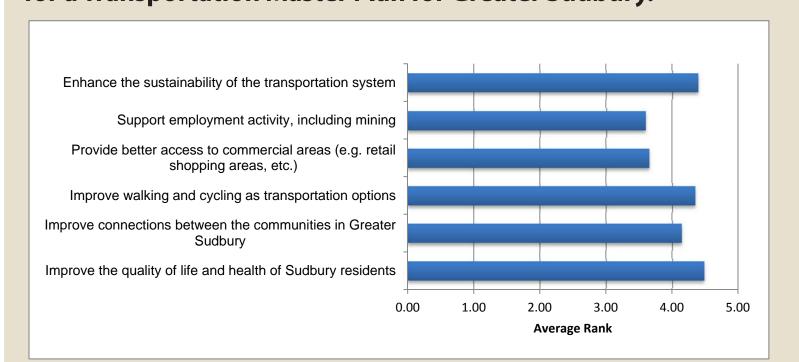
Q3: What level of importance would you assign to each of the following improvements that might encourage you to use alternative modes of transportation instead of driving?



The three improvements which were seen as most important included:

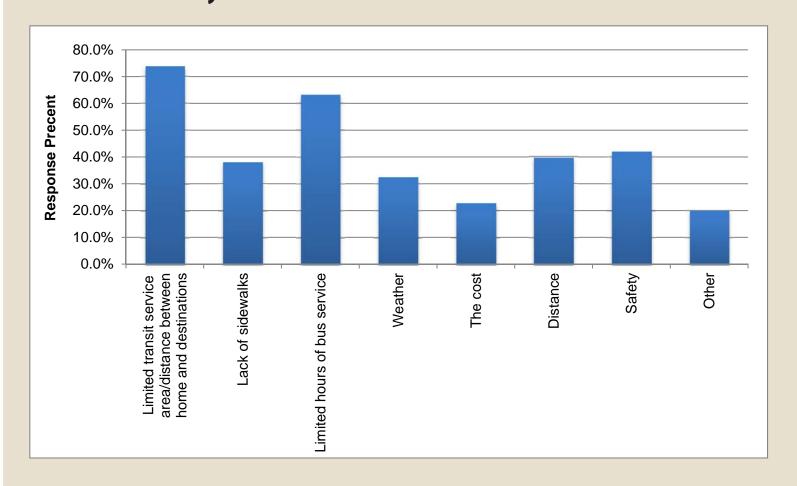
- 1. Improve bike, walk or transit connections to key destinations
- 2. Bike lanes or paved shoulders on roads
- 3. Improve and expand bus routes

Q4: Please rank what you think are the most important objectives for a Transportation Master Plan for Greater Sudbury.



According to the respondents, the most important objective of the Greater Sudbury Transportation Master Plan should be to "Improve the quality of life and health of Sudbury residents"

Q5: What do you think are barriers to use of alternative transportation modes (walking, cycling and transit) in Greater Sudbury?



There were eight options presented to respondents. All eight received a minimum response rate of 20%. However, there were two barriers which received a significantly higher proportion compared to the others. They were:

- 1. Limited transit service area/distance between home and destinations (74%)
- 2. Limited hours of bus service (64%)

Poster Board Polls

The first interactive poster board poll asked attendees to identify what they felt should be focused on in the evaluation of the TMP. Each attendee was given three dots in which they were instructed to choose the three most important considerations in their mind. The following are the three considerations which received the most votes:

- 1. Reduction in the amount of auto travel per person in Sudbury, to increase sustainability and community health 19%
- 2. Enhancements to the bike network 17%
- 3. Transit Service Levels (enhancements to transit frequencies) 13%

The second interactive poster board poll asked attendees to identify which active transportation options they preferred and were most comfortable with. The following table summarizes their responses:

		My Level of Comfort										
	(Most Co	1 omfortable)	(Com	2 fortable)	3 (Least Comfortable)							
	#	%	#	%	#	%						
Bike Lanes and Shoulder Bikeways	10	37%	8	30%	9	33%						
Separated Bike Lanes and Cycle Tracks	30	91%	2	6%	1	3%						
Multi-use Trails (off-road)	21	81%	2	8%	3	12%						
Sidewalks	15	68%	3	14%	4	18%						
Signed Only Bike Route	8	44%	3	17%	7	39%						
Other (Transit)	6	67%	3	33%	0	0%						

Separated facilities provide the greatest level of comfort for cyclists

Comments Received

Below is a list of the major themes and topics that were present in the comments we have received:

- Increase connections between neighbourhoods and downtown
- Improve pedestrian and cyclist safety
- Improve connections between existing trail and cycling facilities
- Consider the needs of the trucking industry
- Improve bicycle access/facilities along La Salle Boulevard, Municipal Road 80
- Implement transit priority along Copper Street and Kelly Lake Road





Policy Initiatives

Road Classifications

Historically, the criteria for road classifications have been based on three main elements; **the function** of the road and its role in facilitating vehicle travel between points of origin and destination (roadway service function), **land access** and **vehicle traffic flow characteristics**.

In line with the vision for complete streets we recommend that these existing classifications be modified and expanded to include the following three criteria:

Transit Provision: Consideration for either a rapid bus service or a local bus service for each class of road.

Cycling Provision: Implementation of one of three categories (Separate Facility or Alternate Routes; Cycling Operating Space; or Shared Roadway) for each road classification.

Pedestrian Provision: All road classifications should include sidewalks. On higher order roads, such as a primary arterial, sidewalks may not be appropriate. However, the specific conditions should be considered in each case and where sidewalks can provide improved links they should be implemented.

Class of Road	Function	Access	Right-of- Way Width	Daily Traffic Volume	Design Speed	Minimum Intersection Spacing	Other Regulations	Transit Provision	Cycling Provision	Pedestrian Provision
Primary Arterial	 Connects the City with other major centres and/or separate communities within the City Facilitate long distance person or goods movement travel through the City or between major activity areas within the City Traffic movement the primary consideration 	 Intersections with other arterial or collector roads Driveways to major regional activity centres 	35m - 45m (urban areas) 45m - 90m (rural areas)	15,000 to 50,000	60 km/hr to 100 km/hr	400m	 No on-street parking Buffers between the roadway and adjacent uses in rural areas 	Bus Service	 Separated Facility or Alternate Routes in urban areas Buffered paved shoulders in rural areas 	Sidewalks on both sides of the road in urban areas
Secondary Arterial	 Connect two or more communities or major activity centres Connect two primary arterial roads Connect a community or activity centre with a primary arterial road Traffic movement primary consideration 	 Intersections with other roads Access from adjacent property strictly regulated and kept to a minimum 	26m - 35m (urban areas) 30m - 45m (rural areas)	5,000 to 20,000	50 km/hr to 80 km/hr	200m	• No on-street parking	Bus Service	 Separated Facility or Alternate Routes for roads with AADT greater than or equal to 15,000 Cycling Operating Space for roads with AADT less than 15,000² 	Sidewalks on both sides of the road in urban areas
Tertiary Arterial	 Connect small / rural communities Connect communities to primary or secondary arterial roads 	 Intersections with other roads Access from adjacent property strictly regulated and kept to a minimum 	26m - 35m (urban areas) 30m - 45m (rural areas)	5,000 to 15,000	50 km/hr to 80 km/hr	200m	• No on-street parking	Bus Service	• Cycling Operating ¹	Sidewalks on both sides of the road in urban areas
Collector	 Connect properties within neighbourhoods Connect a neighbourhood with an arterial road Provide direct access to adjacent lands 	 Intersections with other roads Regulated access from adjacent property 	20m - 35m	1,000 to 12,000	50 km/hr to 70 km/hr	60m	On street parking may be permitted	Bus Service	• Cycling Operating ²	Sidewalks on both sides of the road in urban areas
Local	 Provide direct access to adjacent lands Connect properties within a neighbourhood to collector roads 	 Intersections with other collectors or other local roads Access from adjacent property permitted 	+/-20m	Less than 1,000	30 km/hr to 50 km/hr	60m	 On-street parking is generally permitted Goods movement restricted except for that having origin or destination along the road 	Generally no regularly scheduled transit service	• Shared ³	Sidewalk on at least one side of the road in urban areas

^{1.} Options may include: buffered paved shoulders in rural areas; active transportation paths in rural or urban areas; separated bicycle lanes / cycle track in urban areas; or alternate route 2. Options may include: paved shoulders or buffered paved shoulders in rural areas; exclusive bicycle lanes or separated bicycle lanes / cycle tracks in urban areas

MMM GROUP

Rural to Urban Cross-Sections

To conform to the Official Plan, the conversion of rural to urban cross sections only should be implemented for areas designated as "communities" and should not be implemented for "non-urban settlements" or "rural and waterfront areas".

Criteria Used to Identify High Priority Road Links for Rural to Urban Conversion

To help determine the most appropriated road segments for conversion from rural to urban cross sections, a series of criteria have been established. Applying these criteria will result in a priority ranking of road segments. The criteria for the conversion rural to urban cross section include:

- Designation in the Official Plan as a Community;
- Average annual daily traffic (AADT);
- Link identified in the Active Transportation Master Plan;
- Proximity to land uses that generate pedestrian trips (schools, hospitals, community centres);
- Presence of bus routes;
- Proximity to existing sidewalks;
- Proximity to existing curbed road segment;
- Condition of pavement; and
- Existence of sewer lines.

Process

The City could apply these informally or adopt a formal threshold (e.g. a street must meet two-thirds of the criteria).

Criteria	Description	Threshold for Conversion
Designation in Official Plan as a Community	Communities are fully-serviced by municipal sewer and water. These areas are the primary focus of residential development and also include the majority of the designated employment areas.	Designated as a Community
Average Annual Daily Traffic (AADT)	As traffic volumes increase, the likely hood of pedestrian traffic also increases. The increasing traffic volumes can pose a safety concern for pedestrians, making road segments with high traffic volumes generally a higher priority for conversion from a rural to an urban cross section.	1,000 AADT volume or greater
Link Identified in the Active Transportation Master Plan	The Active Transportation Master Plan (AT Plan) is one component of the Transportation Study. The AT Plan nominates links for cycling and pedestrian improvements. These recommendations should be prioritized in determining road segments for conversion from rural to urban cross sections.	Identified as a recommended improvement in the Active Transportation Plan
Proximity to Land Uses that Generate Pedestrian Trips	Certain land uses are expected to be key generators of pedestrian trips. These include schools, hospitals and community centres. A road segment's proximity to these land uses is a good determinant of the demand for sidewalks and the appropriateness of the conversion from rural to urban cross section.	Within 500 metres of land uses that generate pedestrian trips
Bus Route	Bus routes generate pedestrian activity with riders walking to and from the bus stops. The conversion of rural to urban cross sections would provide greater safety for riders.	Bus route present
Road Segments with Proximity to Existing Sidewalks	A road segment's proximity to existing road segments with sidewalks makes it a candidate for rural to urban conversion. Cross section conversion of road segments near existing sidewalks would help eliminate gaps and provide linkages in the sidewalk network.	Within 500 metres of existing sidewalks
Proximity to Existing Curbed Segment	Existing curbs along portions of a road segment suggest that some work already has been completed to convert from a rural to an urban cross section. Cross section conversion of road segments already with partial curbs would help eliminate gaps in the network.	Curb constructed along a portion of the road segment
Condition of Pavement	A road segment that is scheduled to be re-surfaced or refurbished in the near future could be a candidate for rural to urban conversion as it would be more economical to convert the cross section when scheduled maintenance is being conducted than to initiate road works solely for the purpose of cross section conversion.	Road segment scheduled for re-surfacing / refurbishment in the next five years
Existence of Sanitary Sewer Lines	The existence of sanitary sewer lines in a road segment is an essential precursor to conversion from a rural to urban cross section.	Sewer lines present





^{3.} Options may include: paved shoulders or buffered paved shoulders in rural areas; exclusive bicycle lanes or separate 3. Options may include: shared lane markings (rural or urban areas); standard or wide curb lanes (rural or urban areas)

Policy Initiatives

What are Complete Streets?

Roadways that are planned, designed, constructed, operated, and maintained to safely and comfortably provide for the needs of all users, including, but not limited to motorists, cyclists, pedestrians, transit and school bus riders, movers of freight, persons with disabilities, seniors, the young and emergency users.

What are the benefits of Complete Streets?

Although the benefits of a complete street vary by travel mode and user, generally the overall benefits are see as:

- Provide appropriate facilities for cars, trucks, transit, cyclists and pedestrians
- Can be safer for all users
- Support liveable communities
- Positive impacts on public health
- Economic benefits people want to be there

Goals of Sudbury's Complete Street Policy

When developing a complete street policy for Sudbury, the following goals should be kept in mind:

- Ensure that the needs of all transportation users are balanced throughout the surface transportation network to the greatest reasonable measure
- Create a balanced, comprehensive, integrated fully interconnected, functional and visually attractive surface transportation network
- Support the use of the appropriate complete streets design standards, principles, policies and guidelines within the context of the community

Sidewalk Priority Policy

This sidewalk priority policy has been adapted from the City of Victoria's "Pedestrian Master Plan" and the City of Peterborough's "Sidewalk Strategic Plan"

The policy awards points based on specific criteria for each area. The highest priority is given to those areas with the highest total score

Criteria	Description	Threshold for Conversion
Road Type	Arterial	10
	Collector Local	5 1
Pedestrian Generators	Within 500 m of a hospital, library, place of work arena, etc.	7
Commercial Land Use	Downtown	10
	Commercial Area	7
Transit	Along Transit Route	5
School Proximity	< 0.5km	6
	0.5km to 1.4km 1.5km to 2.0km	3 1
Road Width	Number of lane	1 - 6
Existing Pathways	None	10
	Informal Path Trial (within 500m)	7 5
Public Concerns	Number of formal requests received	1 - 7







Active Transportation Facility Options: What kind of facilities are possible?

least separation				more separation						most separation							
		ON-ROAD BICYCLE FACILITIES									OFF-ROAD BICYCLE FACILITIES						
Shared R Signed Bi	Roadway/ ¬	Signed B with Wide	Roadway/ — ike Route Travelled ne	Rou	ed Bike te with Shoulder	Bicycle Lane	Sep	arated Bicycle	Lane —	Cycle	e Track		——— Act	rive Transportation (AT) Path	on	Off-Road — Multi-Use Trail	
Signed Bike Route	Narrow Travel Lane: SLM	Wide Travelled Lane: Signed	Wide Travelled Lane: SLM	Paved Shoulder	Buffered Paved Shoulder	Conventional Bicycle Lane	Buffered Bicycle Lane	Buffered Bicycle Lane with Flex Delineators	Buffered Bicycle Lane with parking	Cycle Track: raised and curb separated Typically Rolled Curb Separation - may include	Two Way Cycle Track	One Way AT Path with sidewalk	Two Way AT Path with sidewalk	Shared Use AT Path	Two Way In-Boulevard AT Path	Off-Road Multi-Use Trail	
ROUTE	Ø [‡] © ROUTE	STO ROUTE	Placed 1.0m from curb	ROUTE	ROUTE		550		P	optional flex bollards	separation Separation	550					
			0.75 - 1.0 m														
Travel Lane 3.0 - 4.0 m	Travel Lane 3.0 - 4.0 m	Travel Lane Blvd 4.0 - 4.5 m Varies	Travel Lane Blvd 4.0 - 4.5 m Varies	Travel Lane Paved Shoulder Shoulder Shoulder 3.0 - 3.75 m 1.2 - 2.0 m 0.5 m	Travel Lane Buffer Shoulder Sh	Travel Lane 1.8 m Blvd 3.0 - 3.75 m includes Varies	Travel Lane 0.5 - 1.0 m 1.5 m Blvd Varies	Travel Lane 0.5 - 1.5 -	Parking Lane 0.5 - 1.0 m 1.5 - 1.8 m Blvd Varies		Lane Blvd 3.0 - 4.0 m Blvd Varies Varies	Travel Lane Blvd 1.8 - 2.5 m 3.0 - 3.75 m Varies	Travel Curb & Lane Blvd 3.0 - 4.0 m	Travel Lane Blvd Shared Use Path Varies 3.0 - 4.0 m	Verge with Drainage Ditch 3.0 - 4.0 m Varies Varies Varies	Blvd 3.0 - 4.0 m	
ROUTE	50					O.S. Higher				000						Minimum Design Consideration	
inimum Design Specifications ravel lane widths (TAC standards):	Travel lane widths (TAC Standards):	Travel lane widths:	m from face of curb (or		Minimum width: 1.2 m (shoulder); 0.5 m (buffer)	Recommended width: 1.5 m	Guidelines for buffer width varies:	Guidelines for buffer width varies:	1.5 m minimum width to allow for passing	1.8 m minimum width to allow for passing	3.0 m minimum width to allow for passing	1.8 m minimum width to allow for passing	3.0 m is the minimum desired standard in most situations.	3.0 m is the minimum desired standard in most situations.	3.0 m is the minimum desired standard in most situations.	Minimum Design Specificatio 3.0 m is the minimum desired standard for bi-directional travel	
Minor arterial: 3.5 m Collector (residential): 3.0 m Collector (industrial/ commercial): 3.7 m.	Where travel lane less than 4.0 m and the posted speed limit is 50 km/h or less, the stencils should be placed in the centre of the travel lane to allow single file bicycle and vehicle operations.	o 4.0 m o greater than 3,000 ADT/lane o less than 60km/h o 6-12% trucks	shoulder edge) on streets without on-street parking.	For partially paved shoulders, the gravel portion should not be less than 0.5 m wide. If the gravel portion is less than 0.5 m wide then the entire shoulder should be paved.	For partially paved shoulders, the gravel portion should not be less than 0.5 m wide. If the gravel portion is less than 0.5 m wide then the entire shoulder should be paved.		o 80 cm (London and Brussels) o 50-75 cm (CROW Guide) o 183 cm (Portland, OR)	o 80 cm (London and Brussels) o 50-75 cm (CROW Guide) o 183 cm (Portland, OR)	0.5-1.0 m buffer zone width	0.5-1.0 m buffer zone	Striped centre line to separate traffic	Shy distance of 5.0 cm suggested between cycle track and sidewalk	Should be separated from the roadway with a 1.5 m buffer or a physical barrier	Should be separated from the roadway with a 1.5 m buffer or a physical barrier		Should be separated from the roadway with a 1.5 m buffer or a physical barrier	
referred Design Specifications Travel lane widths (TAC Standards): D Minor arterial: 3.7 m. D Collector (residential): 3.7 m. D Collector (industrial/ commercial): 3.7 m.	Should not be placed on roadways with a speed limit over 50 km/h for single file applications. "Shared Use Lane Single File" sign may be used in conjunction with Bike Route Sign when the travel lane is less than 4.0 m.	Travel lane widths: o 4.5 m o less than 3,000 ADT/lane o less than 60km/h o less than 6% trucks	Should not be placed on roadways with a speed limit over 60 km/h for side-by-side applications. "Share The Road" signs should be provided.	The preferred minimum width is 2.0 m wide. "Share The Road" signs should be provided. Increase width based on speed and vehicle composition: o 2.0 m for a posted speed > 70 km/h and 5,000 ADT	The preferred minimum width is 2.0 m wide (shoulder); 0.5 m (buffer) "Share The Road" signs should be provided. Increase width based on speed and vehicle composition: o 2.0 m for a posted speed > 70 km/h and 5,000 ADT	Increase width based on speed and vehicle composition: o Over 6,000 ADT, or if trucks > 10% of traffic volumes: 2.5 m o Speeds > 100 km/h: 2.5 m	Guidelines for buffer width varies: o 80 cm (London and Brussels) o 50-75 cm (CROW Guide) o 183 cm (Portland, OR)	Guidelines for buffer width varies: o 80 cm (London and Brussels) o 50-75 cm (CROW Guide) o 183 cm (Portland, OR)	1.8 m width	2.5 m width Innovative bicycle-friendly design needed at intersections to reduce conflicts between turning motorists and cyclists.	4.3 m recommended width (New York City) Innovative bicycle-friendly design needed at intersections to reduce conflicts between turning motorists and cyclists. Pavement markings should indicate direction	Innovative bicycle-friendly design needed at intersections	4.0 m or greater - recommended for heavy use situations with high concentrations of users.	4.0 m or greater - recommended for heavy use situations with high concentrations of multiple users.	4.0 m or greater is the preferred design specifications.	Preferred Design Specification 4.0 m or greater- recommended for heavy use situations with hig concentrations of multiple users	
ypical Criteria Travel lane minimum width: 3.0 m for low volume streets	These markings are often used on streets where dedicated		on streets where dedicated	Shoulder bikeways are appropriate bicycle facilities on rural roads with a	Shoulder bikeways are appropriate bicycle facilities on rural roads with a	Most appropriate on urban arterial and collector streets	Designed to increase the space between the bicycle	Designed to increase the space between the bicycle	Use along roadways with high motor vehicle volumes and/or	motor vehicle volumes and/or	Desirable when there are more destinations on one side of a	motor vehicle volumes and/or	Recommended for areas with high volumes of pedestrian	Ideal for families and recreational users.	Ideal for families and recreational users.	Typical Criter Ideal for families and recreationa users.	
(less than 3,000 ADT) with little or no truck or bus traffic. "Share the Lane" signs are recommended	bicycle lanes are desirable but are not possible due to physical or other constraints.	Lanes should be sufficiently wide to allow motor vehicles to pass cyclists without encroaching on an adjacent travel lane.	bicycle lanes are desirable but are not possible due to physical or other constraints.	large shoulder and where there is no curb and gutter. Facilities are typically used by experienced commuters rather than inexperienced riders.	large shoulder and where there is no curb and gutter. Inclusion of the buffer makes these facilities more accessible for less experienced and new riders.	where higher traffic volumes and speeds warrant user separation.	lanes and the travel lane or parked cars. Appropriate where bike lanes are located on streets with high speeds (>50 km/h).	lanes and the travel lane or parked cars. Appropriate where bike lanes are located on streets with high speeds (>50 km/h).	speeds (>50 km/h). Best on streets with parking lanes with a high occupancy rate	speeds (>50 km/h). Where cyclists may enter/leave , or where motorists cross at a driveway, the curb should be rolled with a small 45 degree	street or if the cycle track will connect to a shared-use path or bicycle facility on one side of the street.	where cyclists may enter/leave, or where motorists cross at a driveway, the curb should be mountable with a small 45	and bicycle traffic to reduce conflict.	Suggested when on-road improvements are not feasible along roadways, and when ample ROW is available.	Suggested when on-road improvements are not feasible along roadways, and when ample ROW is available.	Suggested when on-road improvements are not feasible along roadways, and when ampl ROW is available.	
eferences OTM Book 18: Bicycle Facilities	OTM Book 18: Bicvcle Facilities	OTM Book 18: Bicvcle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicvcle Facilities	OTM Book 18: Bicvcle Facilities	OTM Book 18: Bicvcle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicycle Facilities	degree ramp OTM Book 18: Bicycle Facilities	OTM Book 18: Bicycle Facilities	OTM Book 18: Bicvcle Facilities		Reference OTM Book 18: Bicycle Facilities	
TAC Geometric Design Guide for Canadian Roads Chapter 3: Bicycles; Section 3.4.3.1. Widths are discussed in section 3.4.6.2.	TAC Geometric Design Guide for the Design and Application of Bikeway Pavement Markings AASHTO Guide for the Development of Bicycle	TAC Geometric Design Guide for Canadian Roads Chapter 3: Bicycles; Section 3.4.3.1. Widths are discussed in section 3.4.6.2. York Region Pedestrian and Cycling Master Plan Planning	TAC Geometric Design Guide for the Design and Application of Bikeway Pavement Markings AASHTO Guide for the Development of Bicycle	TAC Geometric Design Guide for the Design and Application of Bikeway Pavement Markings AASHTO Guide for the Development of Bicycle Facilities	TAC Geometric Design Guide for the Design and Application of Bikeway Pavement Markings AASHTO Guide for the Development of Bicycle Facilities	TAC Geometric Design Guide for the Design and Application of Bikeway Pavement Markings York Region Pedestrian and Cycling Master Plan Planning	City of Portland, OR. (2010). Bicycle Master Plan for 2030 Bikeway Design Best Practices.	City of Portland, OR. (2010). Bicycle Master Plan for 2030	CROW Design Manual for Bicycle Traffic Alta Planning + Design. Cycle Tracks: Lessons Learned.	CROW Design Manual for Bicycle Traffic Alta Planning + Design. Cycle Tracks: Lessons Learned. Velo Quebec. (2003). Technical	CROW Design Manual for Bicycle Traffic Alta Planning + Design. Cycle Tracks: Lessons Learned. Velo Quebec. (2003). Technical	London Cycling Design Standards Alta Planning + Design. Cycle Tracks: Lessons Learned. Velo Quebec. (2003). Technical	FHWA. Designing Sidewalks and Trails for Access. AASHTO Guide for the Development of Bicycle Facilities	FHWA. Designing Sidewalks and Trails for Access. York Region Pedestrian and Cycling Master Plan Planning and Design Guidelines Version 1.3		York Region Pedestrian and Cycling Master Plan Planning and Design Guidelines Version 1.3	
Constrained Corridors	Facilities	and Design Guidelines version 1.3	Facilities			and Design Guidelines version 1.3				Handbook of Bikeway Design.	Handbook of Bikeway Design.	Handbook of Bikeway Design.		AASHTO Guide for the Development of Bicycle Facilities		In Constrained Corrido	
Alert motorists to the presence of cyclists.	Encourage bicyclists to ride an appropriate distance away from the "door zone" on streets with parking.	added to increase driver		If available width is less than 50% of the desirable bicycle lane width AASHTO allows striping the shoulder in lieu of bike lanes.	In constrained corridor, see Option 5.	1.2 m acceptable where road width is limited; not suitable for roads with high ADT's and commercial vehicles.	1.2 m bike lane is acceptable.	1.2 m bike lane is acceptable.	1.5 m bike lane is acceptable.	Change in level clearly demarcates space for different users and reduces conflicts between bicyclists and pedestrians.	Parking should be banned on the side of the street with the cycle track to ensure adequate site distances for motorists crossing the path.			3.0 m is the minimum allowed for a two-way shared-use facility and is only recommended for low traffic situations.	3.0 m is the minimum allowed for a two-way shared-use facility and is only recommended for low traffic situations.	Typically incorporated into parkland and valley land. Cyclists may choose to remain in the roadway.	





THANK YOU FOR ATTENDING

Please take a moment to fill out the online survey and provide us with your feedback

More information on the project can be found on the City's website:

www.greatersudbury.ca > Inside City Hall > Official Plan > Background Studies > Transportation Study





If you have any other questions please contact:

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