

2017 Cycling Infrastructure Update

The City's Roads and Transportation Services Division is responsible for providing a transportation network that is safe and efficient for all road users. In 2016, Council adopted the Transportation Master Plan (TMP) which lays out a recommended network of cycling infrastructure and suggests phasing for implementation of this network. Following the recommendations in the TMP, cycling infrastructure has been incorporated into a number of capital projects delivered in 2017.

Cycling Facility Types:

The TMP recommends a variety of cycling facility types intended to provide staff with a toolbox of options to suit the different contexts throughout the community. These facility types generally include:

Paved Shoulders

A paved shoulder is a portion of a roadway which is contiguous with the travelled way, and is used to accommodate stopped vehicles, emergency use, pedestrians and cyclists as well as for lateral support of the pavement structure. A paved shoulder on a designated bike route provides separation between motorists and cyclists travelling in the same direction on roads with a rural cross section.

Signed Bike Route with Edgelines ('edgelines')

Signed-only bike routes in urban areas may be supplemented with edgelines to create urban paved shoulders (Figure 1). These provide cyclists with operating space outside the motor vehicle travelled portion of the roadway without restricting on-street parking. The perceived reduction in width available to the motorist may also have a traffic calming effect, and to date edgelines have been implemented as part of traffic calming efforts in Greater Sudbury.

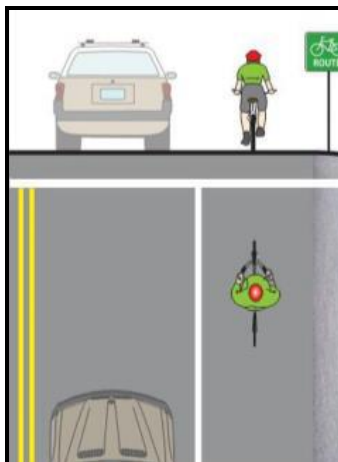


Figure 1. Signed Bicycle Route with Paved Shoulders

Conventional Bike Lane ('bike lane')

A bike lane is a portion of a roadway which has been designated by pavement markings and signage for the preferential or exclusive use of cyclists (Figure 2). A bike lane is typically located on urban arterial or collector roadways that have higher traffic volumes, operating speeds and proportion of commercial vehicles compared to local roads. Bike lanes are typically provided on both sides of two-way streets. In areas where additional separation is desired but implementing a raised cycle track is not possible, various types of buffers may be used to provide additional separation for cyclists from motor vehicle traffic.

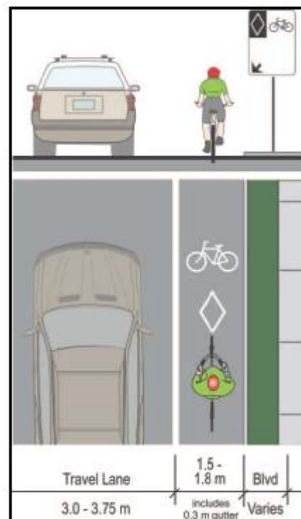


Figure 2. Conventional Bike Lane

Raised Cycle Track ('cycle tracks')

A cycle track is a cycling facility adjacent to but vertically separated from motor vehicle travel lanes, typically by a mountable or barrier curb (Figure 3). A cycle track is designated for exclusive use by cyclists, and is distinct from the sidewalk. A cycle track is typically implemented on high volume urban arterial or collector roadways with high bicycle traffic volumes. Cycle tracks are typically raised and curb separated to the level of the adjacent sidewalk or an intermediate level between that and the roadway. This facility type may be designed for one-way or two-way travel and are typically used by both experienced and casual cyclists for utilitarian purposes.

In July 2017, the Traffic and Parking By-law 2010-1 was amended to enable certain appropriately retrofitted boulevards to be designated as cycle tracks in Greater Sudbury.

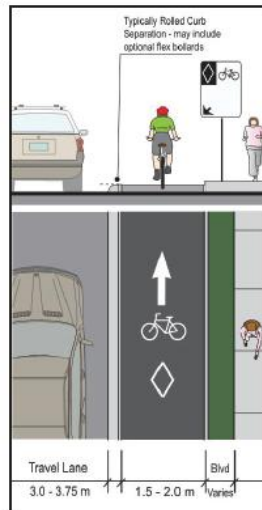


Figure 3. Raised Cycle Track

Multi-use Path

Multi-use paths are shared facilities that may be used in instances where it is not practical or feasible to provide dedicated, separate cycling and pedestrian facilities. In some circumstances, multi-use paths may be implemented in areas where sufficient right-of-way width exists to situate the path behind the drainage ditches, thereby creating even greater separation from motor vehicles.

New Infrastructure for Cycling:

Crossride

Under the *Highway Traffic Act*, at a crosswalk, cyclists are required to dismount and cross as a pedestrian by walking their bicycle. Ontario Traffic Manual Book 18 – Cycling Facilities introduced new infrastructure to provide safe, dedicated roadway crossings for cyclists. A crossride is dedicated space, identified by unique pavement markings, for cyclists to ride their bicycle through an intersection without dismounting or riding within the crosswalk (Figure 4). A crossride may appear alongside a pedestrian crosswalk as a separate facility or may be combined with a crosswalk to save space in some areas. Crossrides will be installed where dedicated cycling infrastructure, such as cycle tracks, intersects with another street, such as where Paris Street intersects with Ramsey Lake Road.

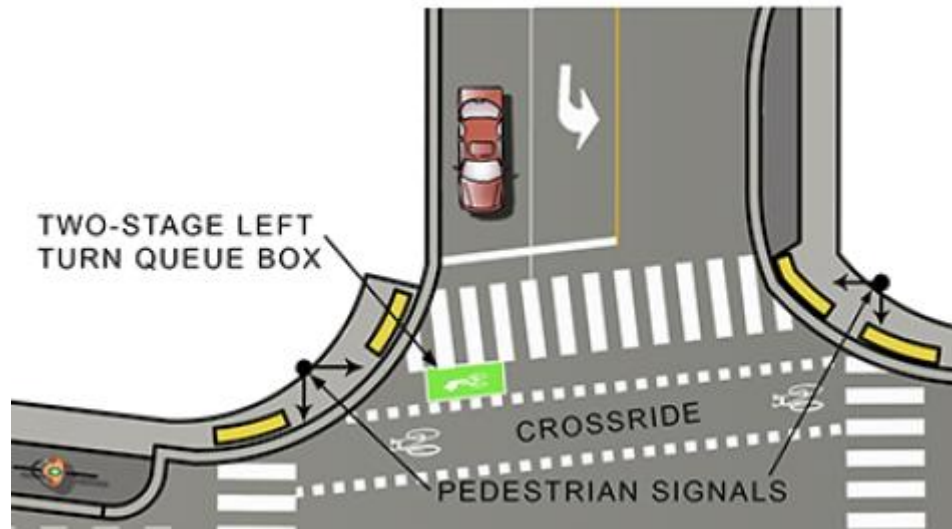


Figure 4. Illustration of a Crossride and Two-Stage Left Turn Queue Box

Two-Stage Left Turn Queue Box ('Bike Box')

Since cyclists are expected to stay within a separated cycling facility on the approach to an intersection, cyclists intending to make a left turn need to complete this movement in two stages (Figure 4). The two-stage left turn queue box is a designated area within the signalized intersection, which is aligned with the cross street. Cyclists waiting in the left turn queue box are situated in front of the stop bar of the cross street to improve safety and visibility. The queue box may also be marked by green surface treatment to further enhance the visibility of cyclists.

Intersection Curb Modifications

Curbs at intersections where raised cycle tracks have been implemented are being modified to provide better separation between cyclists travelling straight through an intersection within the cycle track and pedestrians waiting to cross the street (Figure 5). The modified curb design ensures that pedestrians waiting to cross the road remain on the sidewalk, behind the tactile warning surface indicators, and not within the potential path of a cyclist. This configuration also helps to improve visibility of cyclists travelling through the intersection for motorists making a right turn across their path.

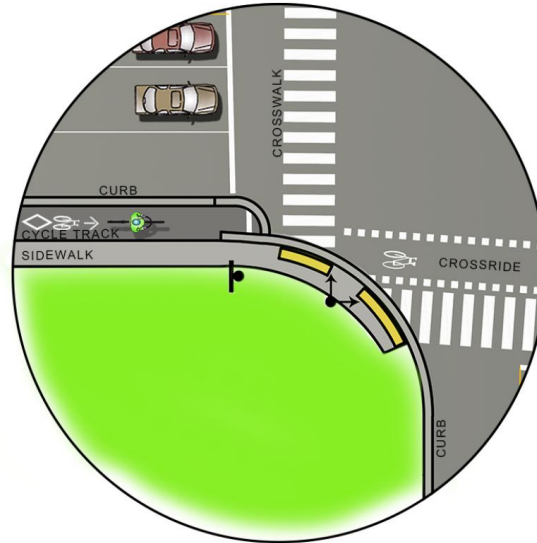


Figure 5. Illustration of Curb Modifications for Paris Street and Second Avenue

Bicycle Signals

Bicycle-specific traffic signals may be used to give direction to designated bicycle lanes, cycle tracks, or multi-use trails. Unlike traffic signals, bicycle signals do not have the yellow backboard (Figure 6).



Figure 6. Illustration of a typical Bicycle Signal

2017 Capital Projects:

Municipal Road 15 (1.8 km west of Martin Road to Whitson River Bridge)

Greater Sudbury's first 'road diet' is being implemented on a segment of Municipal Road 15 (M.R. 15) from 1.8 km west of Martin Road to the Whitson River Bridge. This urbanized section of M.R. 15 is being converted from four general purpose travel lanes to two general purpose travel lanes, bike lanes and left-turn

lanes at the intersection of Martin Road. Bike lanes are being provided through this segment to tie into paved shoulders to both the east and west of both the urbanized segment and the project limits, thereby creating a continuous bike route along the M.R. 15 corridor.

Municipal Road 55 (McCharles Lake Road to Vermilion River Bridge)

During the rehabilitation of Municipal Road 55 (M.R. 55), 2.0 m paved shoulders were installed to improve safety and to provide dedicated space for cyclists travelling between communities in this corridor. Paved shoulders on this segment of M.R. 55 will connect with previously installed paved shoulders on this road. M.R. 55 forms part of the provincially significant tourism cycling route, the [Lake Huron North Channel Waterfront Trail](#), and paved shoulders help support growing demand for cycle tourism in the North.

Municipal Road 84 (Suez Drive to Capreol Lake Road)

Municipal Road 84 is being rehabilitated to include 2.0 m paved shoulders from Suez Drive to Capreol Lake Road. These paved shoulders provide cyclists and pedestrians with safe space to travel between the communities of Capreol and Hanmer.

Paris Street (York Street to Walford Road)

In 2016, a feasibility study was undertaken for the Paris Street / Notre Dame Avenue corridor to retrofit existing asphalt boulevards to provide a barrier curb separated cycle track for cyclists. This 8.3 km bikeway, recommended as a short-term priority in the TMP will form a north-south spine of the City's growing commuter cycling network once complete. This project is being designed and completed in sections, as funds become available. The first 1.4 km section was completed this year between York Street and Walford Road connecting with existing cycling routes to key destinations and employment areas. Cycling improvements completed for the Paris Street cycle tracks include:

- Raised cycle track along the west side of Paris Street from York Street to Ramsey Lake Road and from Centennial Drive to Walford Road.
- Multi-use path along the west side of Paris Street from Ramsey Lake Road to Centennial Drive (Figure 7).
- Raised cycle track along the east side of Paris Street from Ramsey Lake Road to Walford Road.
- Crossrides at the intersections of Paris Street and Ramsey Lake Road and Paris Street and Centennial Drive (Figure 4).

- Curb modifications at the intersections of Paris Street and Ramsey Lake Road and Paris Street and Centennial Drive (Figure 5).
- Tactile warning surface indicators in the raised cycle track in advance of transit stops to alert cyclists to potential conflicts with transit users.
- Directional signage for cyclists on the southbound approach to the Paris Street and Ramsey Lake Road intersection to inform cyclists of which turning movements to make to continue on down Ramsey Lake Road or southbound on Paris Street (Figure 7).

Paris Street cycling improvements have been made possible through the Canada-Ontario Public Transit Infrastructure Fund (PTIF). The Government of Canada, in partnership with the Government of Ontario, is cost-matching a municipal investment of \$367,500.

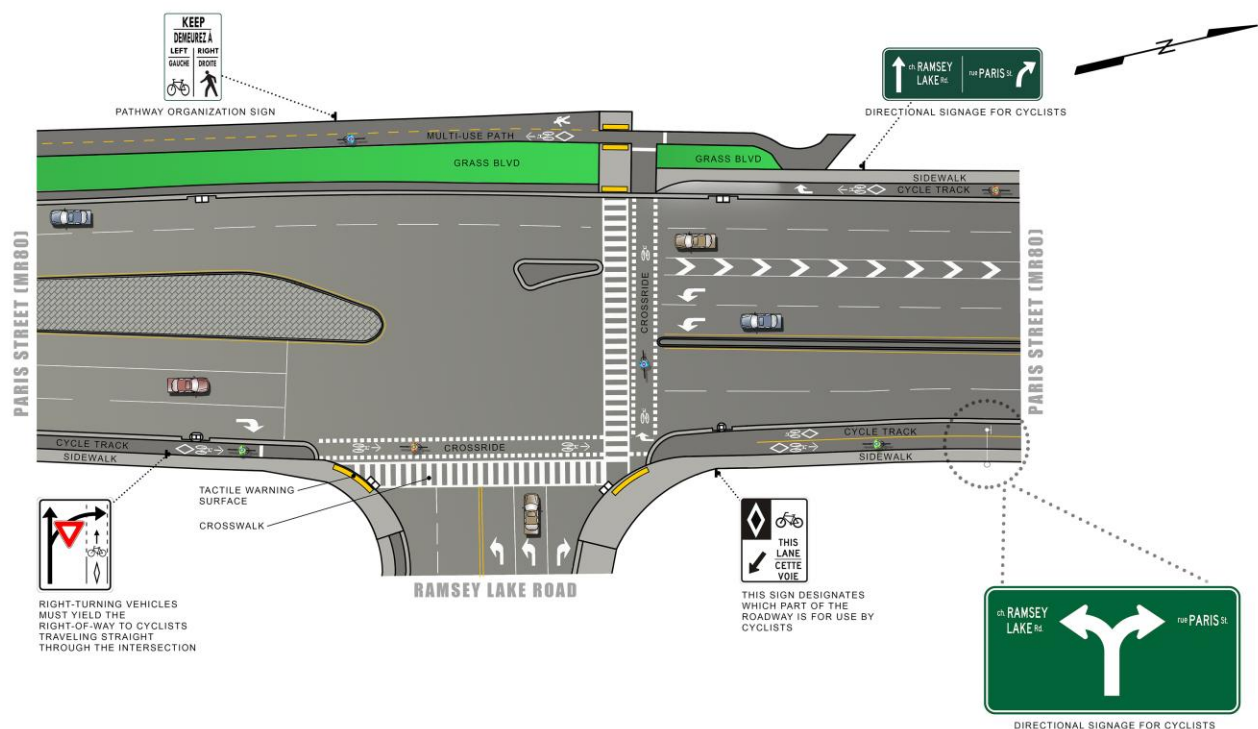


Figure 7. Illustration of new cycling infrastructure at Paris Street and Ramsey Lake Road Intersection

Second Avenue (Sudbury, Donna Drive to First Avenue)

The reconstruction of Second Avenue addresses the existing and forecast capacity constraints, while enabling improvements to be made to promote cycling, walking and transit use, and providing an opportunity for the City to construct and showcase a complete street. The most vulnerable road users, pedestrians and cyclists, have been considered in the design of improvements to

Second Avenue. Many improvements for cyclist safety have been implemented as part of the reconstruction of Second Avenue, including:

- Raised cycle track along the east and west side of Second Avenue from Donna Drive to Kenwood Drive.
- Multiuse path along the east side of Second Avenue from Kenwood Dr to 20 m south of First Avenue.
- Designation of on-road bicycle lane along the west side of Second Avenue from Kenwood Drive to First Avenue.
- Two-stage left turn queue box for southbound cyclists on Second Avenue to make a left turn eastbound onto Scarlett Road (Figure 4).
- Crossrides at each intersection of a minor road with Second Avenue (Figure 4).
- Tactile warning surface indicators in the raised cycle track in advance of transit stops to alert cyclists to potential conflicts with transit users.
- Curb modifications at Second Avenue and Scarlett Road will reduce conflicts between cyclists travelling through the intersection and pedestrians waiting to cross Second Avenue (Figure 5).

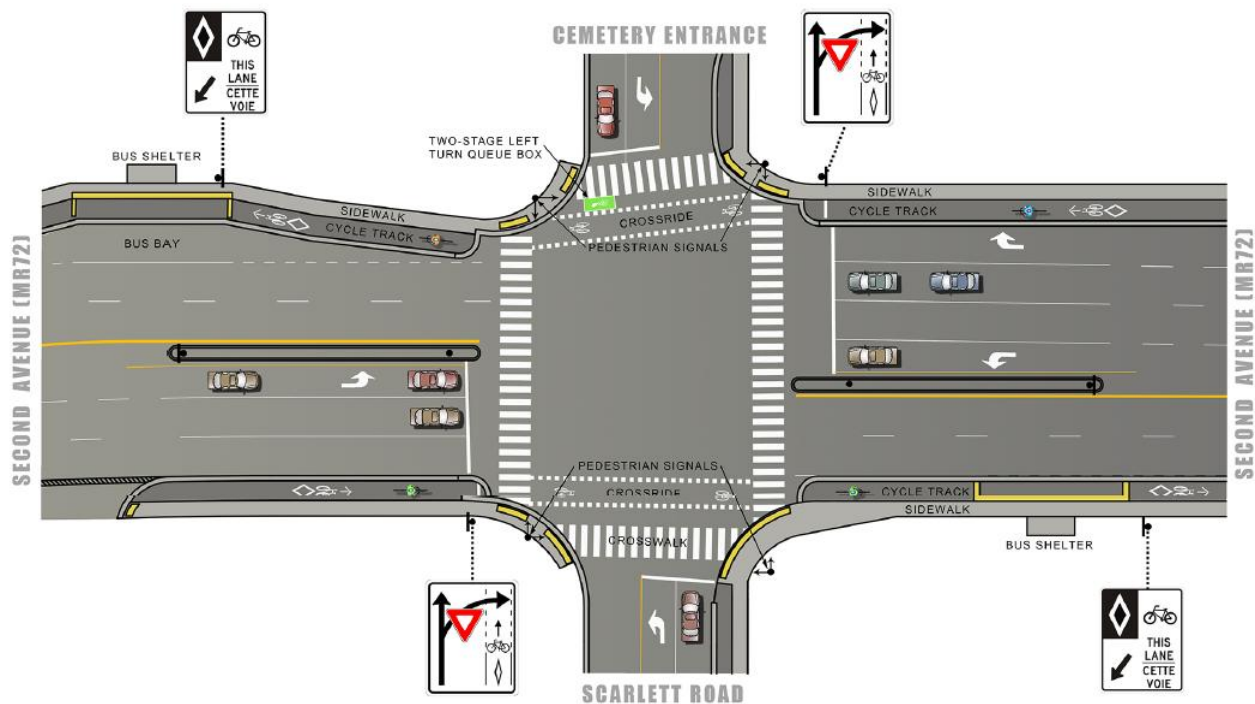


Figure 8. Illustration of new cycling infrastructure at Second Avenue and Scarlett Road Intersection

Westmount Avenue (Attlee Avenue to Barry Downe Road)

Westmount Avenue between Attlee Avenue and Barry Downe Road is being rehabilitated and a bike route with edgelines is being installed to connect with the existing bike route on Attlee Avenue. At the intersection of Westmount Avenue and Barry Downe Road, the eastbound bike lane is designed to position cyclists appropriately to travel straight through the intersection and connect with planned cycling infrastructure improvements for Westmount Avenue on the east side of Barry Downe Road, as well as on Barry Downe Road.

Westmount Avenue cycling improvements have been made possible through the Canada-Ontario Public Transit Infrastructure Fund (PTIF). The Government of Canada, in partnership with the Government of Ontario, is cost-matching a municipal investment of \$127,500.

Additional Operational Cycling Improvements:

Bouchard Street and Southview Drive (Regent Street to Kelly Lake Road)

As part of the ongoing traffic calming efforts on Southview Drive, edgelines have been installed on Bouchard Street from Edgehill Drive to Southview Drive and on Southview Drive from Bouchard Street to Janmar Court. Sharrows will be installed to guide cyclists from the end of the edgelines to the proper positioning at the intersection of Regent Street and Bouchard Street. This facility also provides a connection with previously installed sharrows on Regent Street between Walford Road and Caswell Drive.

Moonlight Avenue (Kingsway to Bancroft Drive)

Edgelines have been installed on Moonlight Avenue between the Kingsway and Bancroft Drive, providing a connection with the existing bike lanes on Bancroft Drive.

Second Avenue (Coniston, Highway 17 to Government Road)

In 2017, improvements made to Second Avenue in Coniston included edgelines to provide cyclists with an opportunity to travel through the community by bike, between the commercial area near Highway 17 and recreational facilities near Government Road.

Amendments to Traffic and Parking By-law 2010-1:

When new cycling facilities are installed as part of a roads capital projects or as part of operational improvements, an amending by-law to the Traffic and

Operations Committee Report - 2017 Cycling Infrastructure Update

Parking By-law 2010-1 must be passed to appropriately designate facilities and devices for use by residents.

Summary of Cycling Facilities Installed in 2017:

In 2017, the City of Greater Sudbury installed approximately 12.4 centreline kilometers of cycling infrastructure.

Road	Side	From	To	Facility Type	Segment Length
Second Ave (Sudbury)	Both	Donna Dr	Kenwood St	Cycle Track	960 m
	East	Kenwood St	First Ave	Multi-use Path	150 m
	West	Kenwood St	First Ave	Bicycle Lane	150 m
Municipal Road 15	Both	425 m west of Martin Rd	Martin Rd	Bicycle Lane	425 m
		1800 m west of Martin Rd	425 m west of Martin Rd	Paved Shoulders	1375 m
Westmount Ave	Both	Attlee Ave	Barry Downe Rd	Edgelines	370 m
Paris St	East	Ramsey Lake Rd	Walford Rd	Cycle Track	660 m
	West	York St	Ramsey Lake Rd	Cycle Track	780 m
	West	Ramsey Lake Rd	Centennial Dr	Multi-use Path	320 m
	West	Centennial Dr	Walford Rd	Cycle Track	360m
Moonlight Ave	Both	Kingsway	Bancroft Dr	Edgelines	950 m
Bouchard St	Both	Edgehill Rd	Southview Dr	Edgelines	240 m
Southview Dr	Both	Bouchard St	Janmar Ct	Edgelines	1350 m
Second Ave (Coniston)	Both	Hwy 17	Government Rd	Edgelines	775 m
Municipal Road 84	Both	Suez Dr	Capreol Lake Rd	Paved Shoulders	3000 m
Municipal Road 55	Both	McCharles Lake Rd	Vermilion River Bridge	Paved Shoulders	2700 m
TOTAL					13 km