



**MORE PEOPLE BIKING
MORE OFTEN**

Moving on Marion 2020 Recommendations

Key Recommendations

- Target bicycle facilities to the “Interested but Concerned” user profile
- Provide one-way parking protected bike lanes along the Marion\Goulet Couplet from St. Mary’s to Youville.
 - Investigate both left hand and right hand protected bike lanes;
 - Evaluate each option based on conflict with transit, east and west transitions, side road intersections, and driveway intersections;
 - Provide protected intersections with setbacks of 4-6m.
 - Provide bike lanes wide enough to support passing within the lane and side-by-side conversational riding.
 - E-bikes make this even more important.
 - Design for substantial growth in bicycle traffic.
 - Coordinate bike lane plans with design of St. Mary’s @ Marion Transit Hub.
 - Consider walking connections between transit and St. Boniface Hospital
 - Provide direct easy access across St. Mary’s for people on bike or foot
- Provide two-way protected bike lanes on both sides of St. Mary’s between Marion and the Norwood Bridge to ensure connectivity across the Red River..
- Choose Kenny over Traverse as a North/South neighbourhood greenway, but ensure all north/south residential roadways remain bicycle friendly.
- Install signals to facilitate crossings of Marion and Goulet at Enfield Crescent.
- Extend the Egerton/Youville neighbourhood greenway north to Rue Desautels or Avenue de la Cathedrale.
- Upgrade Marion/Youville Intersection to a split half signal
 - One half signal to stop eastbound traffic on Marion just west of Youville
 - One half signal to stop westbound traffic on Marion just east of Youville
 - Provide two-way bike access across Marion @ Youville
 - Provide stop control for the left turn lane off of of Marion onto Youville
 - Provide stop control for the Youville @ Goulet St (the residential part of Goulet, not the arterial segment).
- Investigate options for a two-way protected bike lane between Youville and Dufresne
 - Requires widening of Seine River crossing;
 - Requires land acquisition between Youville and Seine River;
- Investigate option for a walk/bike tunnel under the CPR Emerson rail line on the Tremblay right of way.
 - Added importance if bicycle facilities cannot be provided along Marion between Youville and Dufresne.
- Provide a two-way protected bike lane between Archibald and Lagimodiere

- Include a two-way protected bike lane or multi-use pathway between Prosper and Marion to provide connectivity between the Archibald Pathway and Marion if Tremblay walk/bike tunnel is not provided.
 - Extend the Evans neighbourhood greenway north to Prosper
- Include planning for the Lagimodiere Pathway between Maginot and Concordia (at least to Dugald) so that a consistent design can be maintained as future sections of this pathway are built.

Recommended Design

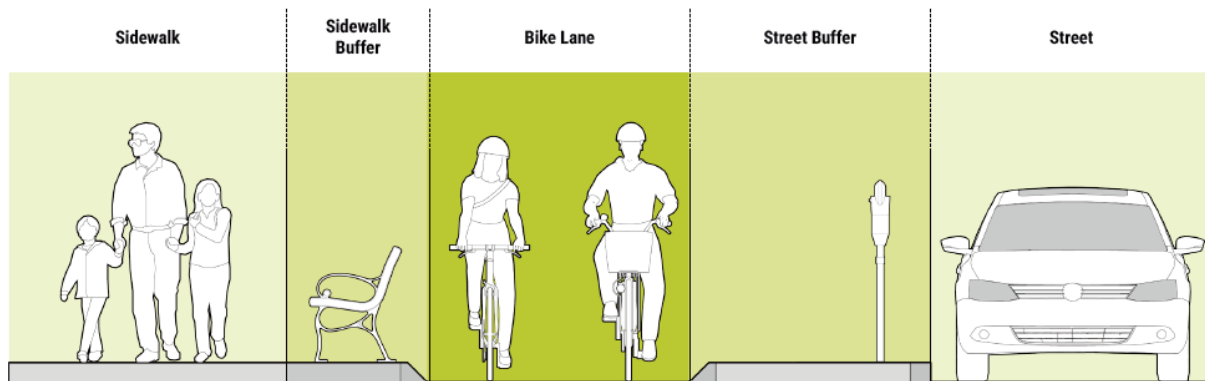
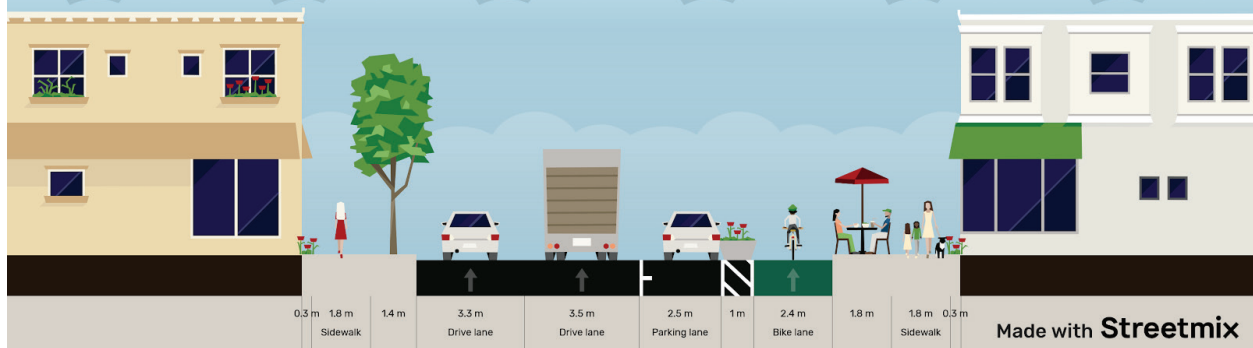


EXHIBIT 3A: Separated Bike Lane Zones

Bike Winnipeg recommends the installation of one-way protected bike lanes on both Marion and Goulet along the Marion/Goulet Couplet through the removal of one off-peak parking lane. One-way protected bike lanes provide the best balance between transit, pedestrian environment, bikeway design, accessibility, parking, freight, and traffic movements by providing increased space for placemaking, widened sidewalks, two travel lanes, a parking lane, and a protected bike lane within each right of way. This arrangement provides for safe interactions between people on foot and bike with vehicles turning across bike lanes and sidewalks, provides good options to mitigate conflict between people on bike and those boarding/alighting from transit, and greatly improves capacity for those on bike.

- Bike lanes should be wide enough to accommodate side by side cycling, as an all ages and abilities facility needs to accommodate passing.
 - The increasing popularity of e-bikes makes this even more important.
- Protection needs to extend into the intersections.

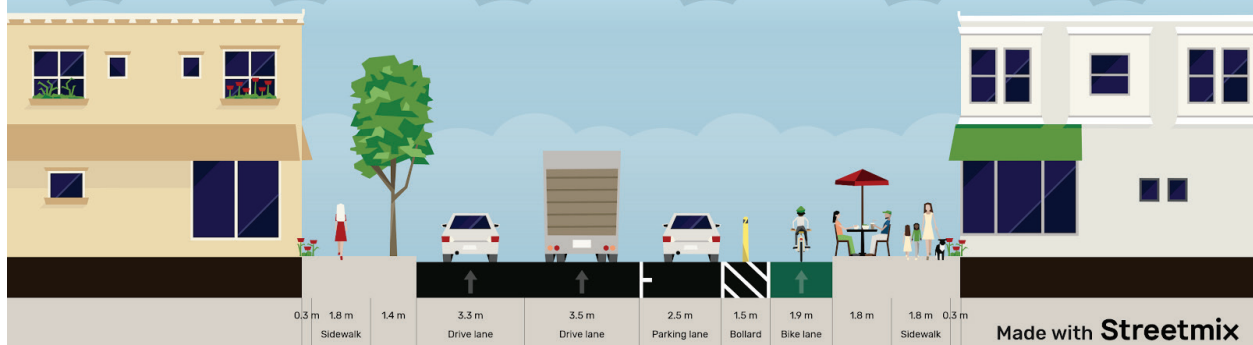
Marion - Right Hand Parking Protected Bike Lane



Having the protected bike lane on the same side of the road as the protected bike lane allows for a sufficient setback at intersections to allow vehicles to exit the travel lane before crossing the bike lane perpendicular to its direction of travel, improving safety for people on foot or bike at these intersections by maximizing visibility of people on bike to those in vehicles.

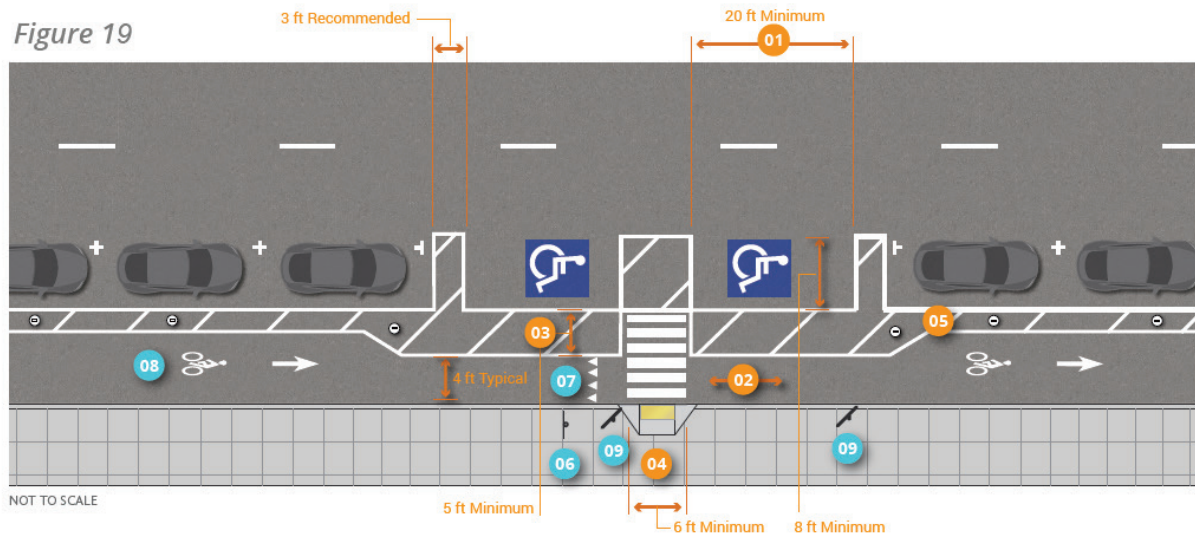
A 1m buffer between the parking lane and the protected bike lane provides clearance between opening doors and the bike lane, but can also be dropped to the same level as the bike lane in areas where accessible parking is desired. In this configuration, a 2.2m clear space would be provided for loading/unloading passengers next to the parking lane while still leaving a 1.2m of space in the bike lane for maneuvering.

Marion - Right Hand PPBL - Accessible Parking



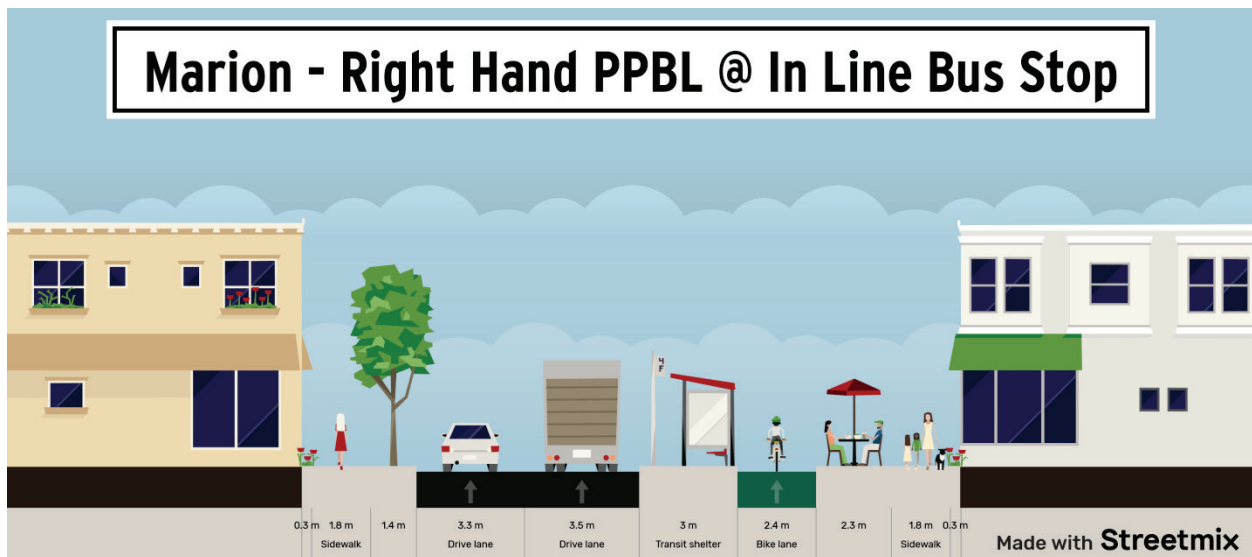
A sidewalk buffer of at least enough width to allow for a curb ramp would allow for the provision of ramps in close proximity to storefronts and other destinations. An intermediate height bike lane would help minimize the width required for the sidewalk buffer to accommodate any mid block curb ramp used to provide access between the sidewalk and bike lane. This configuration allows most (if not all) parking spaces to be accessible.

Figure 19



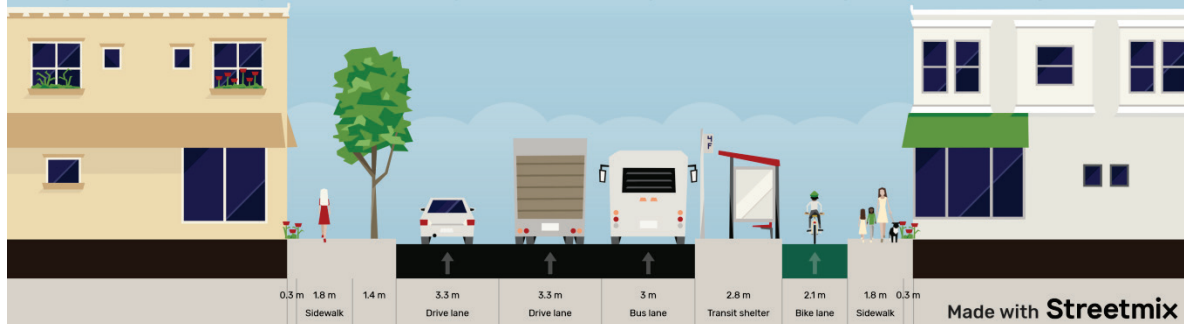
Source: FHWA Separated Bike Lane Planning and Design Guide

A second benefit of placing the protected bike lane on the same side of the road as the parking lane is that both in-lane and pull-out bus stops are practicable, although in-lane bus stops remain preferable as they provide more space to set the bike lane back at intersections.



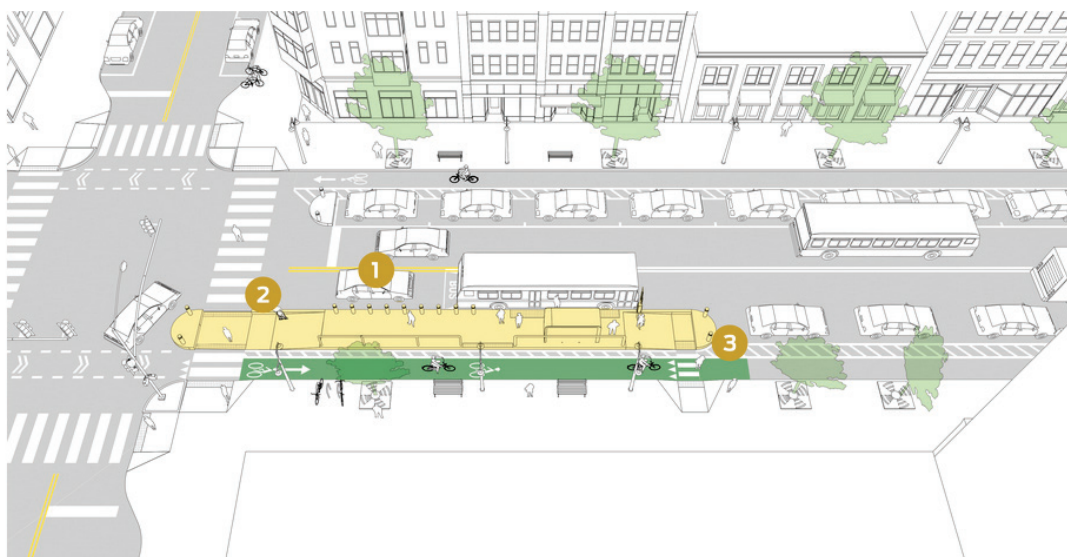
Curb bump outs should be installed at minor intersections (Kenny, Traverse, ...) with raised sidewalks and bike lanes along Marion/Goulet to reinforce priority and improve yield behaviour at these intersections.

Marion - Right Hand PPBL @ Pull-out Bus Stop



Where pull-out bus stops are used, they should be paired with transit priority signals.

FAR-SIDE STOP WITH BIKE CHANNEL AT STREET LEVEL



1 If high turn volumes are present, include a rear storage area so cars are less likely to queue into the intersection while the bus dwells. More storage space may be necessary on streets with only one lane per direction.

2 Accessible ramps should be paired with crosswalks to direct users to safe crossings. If the bike channel stays at street grade, ensure that ramps, landings, and detectable warnings are provided whenever pedestrians cross into another "modal zone" (i.e. bikeway or travel lane).

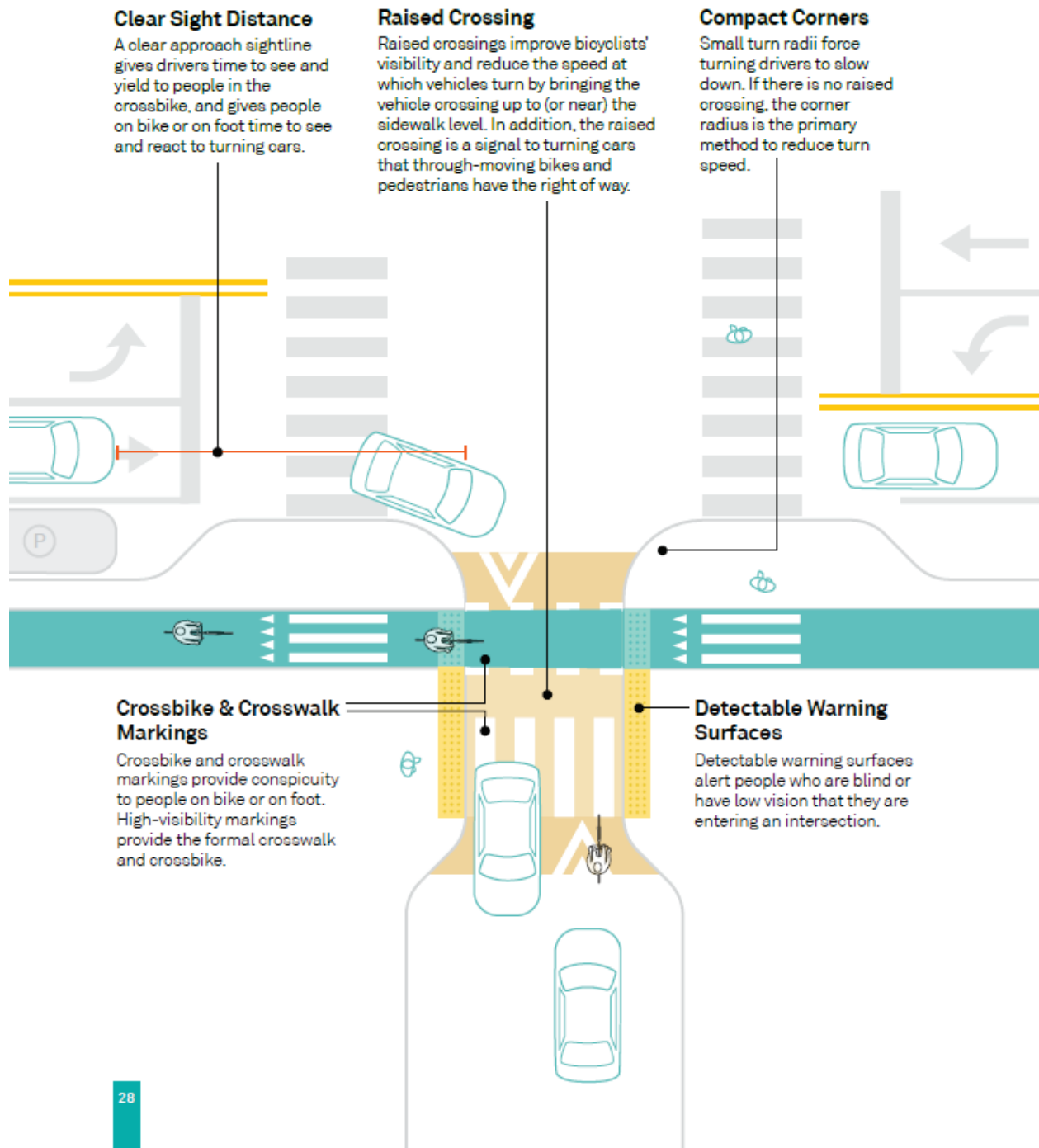
2 At high passenger volumes, channelize pedestrian movements on and off the platform to reduce conflicts.

If a lean bar or railing is installed continuously along the back of the platform, the island must be at least 9 feet wide to accommodate the 8-foot deep accessible landing. If the accessible landing opens directly to an accessible crossing (either flush or raised), the island may be 8 feet wide.

A crossing over the bike channel may be raised to provide a flush path to the sidewalk. Install yield teeth and "YIELD TO PEDESTRIANS" signs. Bicycle ramps should not exceed a 1:8 slope.

Source: NACTO [Transit Street Design Guide](#)

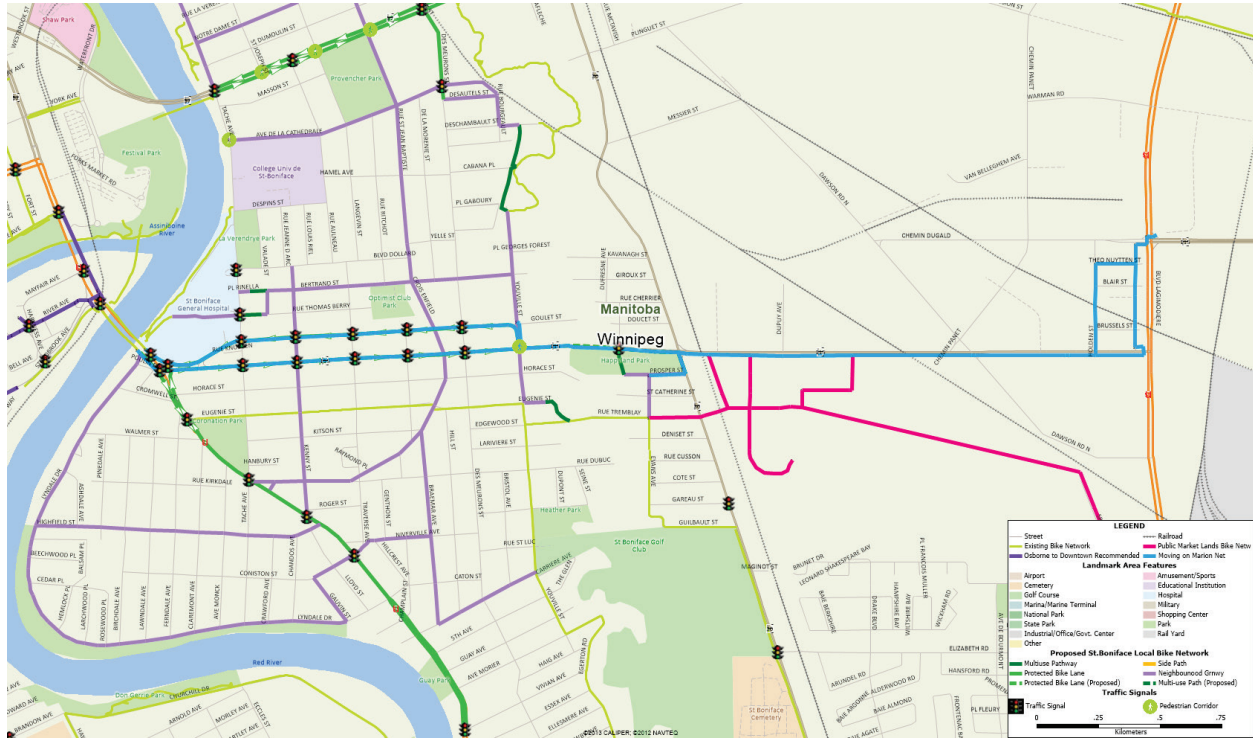
Minor Street Crossings



Source: NACTO: Don't Give Up at the Intersection: Designing All Ages and Abilities Bicycle Crossings

Recommended Local Bike Network

The success of any cycling facilities on Marion/Goulet will ultimately be tied to their ability to provide safe, convenient, and direct connections to local and regional destinations and through the corridor. Below is a recommended local bike network for the area north and south of the Marion Corridor.



While this local bike network plan indicates a number of planned or potential neighbourhood greenways where we would like to see resources prioritized to improve bikeability, all streets should accommodate pedestrian and bicycle traffic.

Critical Connections

St. Boniface Hospital Connections

With over 10,000 staff and volunteers, the St. Boniface Hospital Complex is one of the most visited destinations in Winnipeg. Improving walking and cycling connections to the hospital complex must be priorities for the design process.

Two critical access points will be:

- The existing pathway along the Red River. Note that this pathway is flood prone and in poor condition. Upgrades should be considered.
- A potential neighbourhood greenway along Kenny, which could stretch across St. Mary's to Nelson McIntyre Collegiate and the intersection of Highfield @ St. Mary's to provide connections into the Norwood Flats Neighbourhood.
 - Highfield is identified as a potential neighbourhood greenway in the Pedestrian and Cycling Strategies.
 - Tache @ St. Mary's is identified as a rapid transit stop in the draft Transit Master Plan. Access to this stop via Kenny and Enfield would be advantageous.

Eugenie/Norwood Bridge/Red River Pathway Connections

- Make use of driveways coming in and out of Dominion Centre
- Can we get rid of the slip lane coming off from southbound St. Mary's onto WB Lyndale?
- Norwood Bridge 2 hour Bike Counts
 - June 8, 2016 AM - 332 - good
 - May 11, 2016 AM - 174 - good
 - May 11, 2016 PM - 211 - good
 - May 13, 2015 AM - 185 - fair
 - May 13, 2015 PM - 198 - poor
 - June 10, 2015 AM - 335 - good
 - June 10, 2015 PM - 413 - Excellent
- Expected Bicycle Volumes
 - Peak traffic across the Norwood Bridge now is likely 2,000-3,000 bikes/day
 - We should plan for at least double or triple these volumes over the next 10 years.
 - Forthcoming Bicycle Network improvements
 - Northeast Pioneers Greenway to Notre Dame/Enfield
 - Egerton/Youville Open Street/Neighbourhood Greenway
 - Fermor Tunnel
 - St. Mary's Rapid Transit
 - Transcona Trails Extension
 - Osborne Village to Downtown Walk/Bike Project
 - Wolseley to Downtown Walk/Bike Project
 - Downtown Bike Lanes
 - North Winnipeg Parkway
 - Churchill Parkway
 - Southwest Rapid Transit Pathways

Critical Crossings

- **St. Mary's**
 - There is a need to connect to both of the two-way bike paths on the Norwood Bridge. Both of these connections need to be two-way.
 - There needs to be direct access across St. Mary's to the Norwood Flats neighbourhood.
 - The planned transit hub will be an important destination in and of itself.
 - Existing traffic signals and crossings into Dominion Centre should provide options for access across St. Mary's.
 - Access to and across this intersection should be a key consideration for placement of protected bike lanes on the Goulet/Marion Corridor.
- **Kenny**
 - Protected intersection
 - Kenny is a potential neighbourhood greenway (we recommend Kenny over Traverse for this purpose as it provides better access to St. Boniface Hospital and Nelson McInTyre Collegiate).
- **Traverse**
 - Protected intersection
- **Enfield**
 - Traffic signals need to be installed as per the Southeast Corridor Study recommendations.
 - Channelized right turn lane off of southbound Enfield onto Goulet creates right hook risk. If it can be removed or at least tightened up, that would be beneficial.
 - Provides connection to Braemar, which in turn provides a connection to Carrière, which in turn provides a connection across St. Mary's to Riverview via the Walk/Bike Bridge proposed as part of the Transit Master Plan draft.
 - Protected intersection
- **Des Meurons**
 - Protected intersection
 - Consideration for a proposed two-way protected bike lane on Des Meurons may also need to be considered.
- **Youville -**
 - The Youville crossing would be facilitated through a split half signal with a two stage crossing.
 - Traffic on Marion west of Youville would be stopped by one signal, along with a stop for the left turn lane off of Marion onto Youville/Goulet.
 - Westbound traffic on Marion would need to be stopped before the northward turn onto Youville.
 - A two-way pathway would be added to the east side of Youville between Marion and Goulet.
 - Likely requires a move for the transit stop, but it seems like a bad spot for a bus stop anyway.
 - A stop sign would be added to Youville at Goulet.
 - A stop sign would be added to the left turn off of Marion onto Youville
 - A crosswalk could be added on Marion on the west side of Youville

- **Seine River**
 - The Seine River crossing would need to be widened to fit any protected cycling facilities on Marion east of Youville.
 - The existing Tremblay walk/bike bridge provides an alternative, but requires a substantial detour.
 - Any provision of protected cycling facilities along the section of Marion between Youville and Dufrense would seem to require land acquisition.
 - Is a cantilevered widening of the crossing possible?
 - Is there potential for a walk/bike bridge north of Marion?
 - Might be used in place of a westbound cycle lane between Dufrense and Youville, but land acquisition is likely needed even if only one one way protected bike lane was to be provided within the Marion right of way between Youville and the Seine River.
- **CPR Emerson Rail Line**
 - The options seem to be an at grade crossing on the Marion right of way, or a tunnel crossing on the Tremblay right of way, as suggested in the Public Market Lands planning.
 - A crossing at Marion would require a pathway extension at least between Prosper and Marion, including an improved crossing of Happyland Creek.
 - Any widening of Archibald for turn lanes would seem to require changes at Happyland Creek anyway.
 - A tunnel on Tremblay would definitely provide safer access across the Marion/Archibald intersection, may potentially serve as an emergency entrance into the Public Market Lands neighbourhood, and definitely provides more direct access between the Public Market Lands and areas south of Tremblay..
- **CNR Sprague Rail Line**
 - For people on bikes, the detour distance between Archibald and Lagimodiere becomes overwhelming without an at grade crossing of the CNR Sprague line. If not at Marion then at least in line with Tremblay and the east/west route through the Public Market Lands neighbourhood.
 - A second at grade crossing of the Sprague Line could be advantageous, especially if it could be lined up with the Tremblay right of way.
 - There is a definite desire line for a Speers/Dawson Road N crossing, and these roads are both part of the proposed cycling network.
- **Dufrense**
 - There is a need for cyclist activated push buttons at this crossing.
 - May be a good spot to transition between cycling treatments along Marion.
 - There is an existing pathway between Prosper and the Dufresne @ Archibald intersection.
- **Archibald**
 - Any crossing of Archibald will need to be signalized.
- **Dawson Rd North/Panet Rd**
 - Dawson Rd N and Panet Rd are both identified as part of the proposed bike network.
 - Moving on Marion Plans need to match with future plans for cycling infrastructure along these roadways.
- **Holden**
 - A traffic signal is recommended at Holden to provide safe access to the Holden neighbourhood.

- A traffic signal would be required if a decision is made to detour off of Lagimodiere to Holden.
- **Lagimodiere**
 - As a north/south bicycle route is planned along Lagimodiere, connections to this pathway need to be planned for.
 - To ensure plans for the Moving on Marion Plan will match future development of the Lagimodiere Pathway, planning should include a preliminary design for the Lagimodiere Pathway between Maginot and Dugald Rd (preferably all the way to Concordia)
 - Plans for Lagimodiere Pathway should align with plans brought forward in the Transcona Trail Extension Study.

Options for Protected Bike Lanes on Marion/Goulet Couplet

Current Configuration

- Right of way is 20.1m on both Marion and Goulet
- Marion is 4 lanes
 - 20,600 AADT
 - 14m curb to curb roadway
 - 3m paved sidewalk & boulevard on north side
 - 3m paved sidewalk & boulevard on south side
 - Plus setbacks
- Goulet is 3 lanes
 - 17,300 AADT
 - 10.5m curb to curb roadway
 - 2.8m sidewalk/buffer concrete on north side
 - 4.2m boulevard on south side
 - 1.5m sidewalk on south side
 - Plus setbacks

Key Bike Lane Elements

- Bike lanes should be wide enough to accommodate side by side cycling, as an all ages and abilities facility needs to accommodate passing.
- Protection needs to extend into the intersections
 - Parking protected bike lanes provide needed space for protected intersections
- Any required transitions need to be intelligible and as convenient as possible.

Potential Configurations along Marion/Goulet Couplet

One Way Right Hand Protected Bike Lanes

- More intuitive than a left hand bike lane
- Will need to design around transit
 - Bus platforms combined with parking overcome this.
 - Buses could stop in traffic lane, or use a pull-out stop design
- If you place the transition points of the one-way protected bike lane segments at Youville and at the westernmost entrance to Dominion Centre on Marion/Goulet, you get past a lot of the conflicts at the ends and get fairly good connections across St. Mary's and across Youville.
- The Youville intersection is less complicated with right hand protected bike lanes.
 - With right hand protected bike lanes, there is no need for a protected bike lane on the west side of Youville, just a two way protected bike lane on the east side of Youville, so space requirements are reduced.
 - The need to cross Marion/Goulet at Youville exists regardless of whether or not a bike route exists along Youville.
- The one-way protected bike lane segments would transition into two-way protected lanes at the St. Mary's end that would connect into existing facilities on the Norwood Bridge
- Channelized right turn at Enfield & Goulet presents conflict issues with right hand bike lanes
- Have to deal with large turning radii at Tache & Goulet with right hand turn lanes
- Have to deal with entrances and exits to Dominion Centre with right hand turn lanes
- You can provide right past red for people on bikes at intersections, which is nice.

One Way Left Hand Protected Bike Lanes

- Less intuitive than a right hand bike lane
- Left hand bike lanes avoid conflict with transit along a Quality Transit Corridor
 - Buses would stop in traffic lane
 - Allows for more parking to be retained as you don't need parking spaces for bus platforms.
- If you place the transition points of the one-way protected bike lane segments at Youville and at the westernmost entrance to Dominion Centre on Marion/Goulet, you get past a lot of the conflicts at the ends and get fairly good connections across St. Mary's and across Youville.
- Gets rid of the conflict with the channelized right turn at Goulet & Enfield Cr. and the wide turning radii at Goulet & Tache.
- The left hand segments would transition into two-way protected lanes at the St. Mary's end that would connect into existing facilities on the Norwood Bridge
- The left turn lanes off of Marion/Goulet just west of 101 Marion are an issue.
 - Are they both needed?
 - Could these cut throughs/turn lanes be reconfigured to provide better safety for pedestrians and people on bikes?
- At Youville, left hand segments would transition to either a neighbourhood greenway and detour south to the Tremblay or onto a two way protected bike lane on the south side of Marion.

- The pedestrian corridor would be replaced by a split half signal.
 - One for Eastbound Marion to the west of Youville
 - Allows for installation of a crosswalk on Marion west of Youville.
 - One for Westbound Marion that would stop traffic prior to the turn onto Youville.
 - These could operate independently.
 - An redesigned (and possibly expanded) separator island at Youville & Marion
- Requires a stop control for traffic turning off of eastbound Marion onto Youville (preferably raised).
- Requires a stop control for traffic coming off westbound Marion onto northbound Youville.
- You need a two-way cycle track on the east side of Youville to provide a north/south connection across Marion/Goulet along Youville.
 - It would be best to move the bus stop currently located on Youville between Marion and Goulet.
 - Is this location desirable for a bus stop anyway?
 - The transition between the two-way bike lane on Youville and a neighbourhood greenway on Youville would be facilitated by the stop.
- As all intersections between St. Mary's and Youville are signalized, use of left hand bike lanes does not cause problems of access across multiple lanes that would exist without the traffic signals (for instance on Pembina).

Two Way Protected Bike Lane

- Having two way bike traffic on a one way street complicates signal timing.
- The width required for two-way protected bike lanes limits space available on the boulevard and for sidewalks.
- Less space is available for bike lane setbacks at intersections
- Space restrictions require transit service to use n lane transit stops
- We do not recommend this option because of the space restrictions

Options along Youville to Archibald Segment

- 2 x One Way Protected Bike Lanes on Marion
 - Impractical on a 20.1m right of way
 - 1.8m sidewalk + 1.8m bike lane + 0.6m buffer + 4 x 3.5m travel lane + 0.6m buffer + 1.8m bike lane + 1.8m sidewalk = 22.4m > ROW
 - 1.8m sidewalk + 1.8m bike lane + 0.6m buffer + 4 x 3.35m travel lane + 0.6m buffer + 1.8m bike lane + 1.8m sidewalk = 21.8 > ROW
 - Marion is a Quality Transit Corridor
 - You may need to move some stops and acquire some property to manage bypasses around the bus stops.
 - Carrying the bike lanes over the Seine River Crossing may require a widening of the crossing.
 - It might be easier to accommodate 2 one way bike lanes rather than one two-way bike lane over the Seine River Crossing as you would only have one direction of travel for people on bikes on a shared sidewalk.
 - Complicates Archibald intersection
- 2 Way Protected Bike Lane on Marion
 - Impractical on a 20.1m Right of Way
 - 1.8m sidewalk + 0.3m buffer + 3.0m protected bike lane + 0.6m buffer + 4 x 3.35m travel lane + 1.2m boulevard + 1.8m sidewalk = 22.1m > ROW
 - Would be practical if 2m of right of way could be acquired and the pathway could be extended over the Seine River.
 - Marion is a Quality Transit Corridor
 - You may need to move some stops and acquire some property to manage bypasses around the bus stops.
 - Carrying the bike lanes over the Seine River Crossing may require a widening of the crossing.
 - Complicates Archibald intersection
- Eastbound/Westbound One way protected bike lane plus Southern Detour
 - Impractical on a 20.1m Right of Way
 - 1.8m sidewalk + 1.8m bike lane + 0.6m buffer + 4 x 3.5m travel lane 1.2m boulevard + 1.8m sidewalk = 21.2m > ROW
 - Complicates Archibald intersection
- Detour all bicycle traffic south across Tremblay Bridge and through Tremblay Rail Underpass
 - Adds about 20% to the distance between Youville and Lagimodiere.
 - You will get people riding on the Marion sidewalks
 - While a bit shorter, the addition of the Tremblay rail underpass does not cut out much distance.
 - It does avoid a creek crossing as well as a number of roadway and driveway crossings.
 - Rail underpass option is expensive and requires land acquisition
 - Could provide an extra emergency exit into the Public Market Lands when intersections are tied up by trains.
 - Clearance and pumping requirements would be issues
 - Geotechnical work could be approximated from work done on the previous Marion Study.
 - Requires half signal at Tremblay & Archibald

- Greatly improves walking/cycling connectivity of the Public Market Lands neighbourhood.
- Detour all bicycle traffic south across Tremblay Bridge & Route back to Marion @ Archibald
 - Adds about 20% to the distance between Youville and Lagimodiere.
 - You will get people riding on the Marion sidewalks
 - Requires widening of Archibald Happyland Creek Crossing
 - People will not double back to the Happyland Park Bridge and will choose the Archibald sidewalk regardless of any official route.
 - If any lanes are added to Archibald, this crossing would need to be upgraded anyway.
 - Complicates Archibald intersection

Options along Archibald to Lagimodiere Segment

- Sidewalk and Bike Path on South side of Marion
 - The only practical option
 - Should go all the way to Lagimodiere, but at least to Holden
 - If it ends @ Holden, a half signal would be required at Holden
- Detour all bicycle traffic south across Tremblay Bridge & onward to Maginot @ Lagimodiere
 - Impractical
 - Without a crossing of the CNR Sprague line detouring down to Maginot adds far too much distance (about a 60% detour factor - 4.1km vs 2.6km) to be practical;

Options along Lagimodiere - Marion to Dugald

- The study needs to consider how the bike network will connect along the Lagimodiere corridor between Maginot and Regent (or even Almey or Concordia) as decisions about how to connect Marion to this corridor as well as how to provide a bikeway long this corridor between Marion and Dugald need to be considered in a wider context than just Marion to Dugald to ensure that facilities planned as part of this study fit into an overall plan for the corridor and connections to and from the corridor.
 - A rail crossing between Speers and Dawson Road would provide significant improvements for connectivity along the corridor as well as into/out of the Public Market Lands/Stockyards site.
- Walk/Bike improvements along Lagimodiere between Maginot and Dugald Rd should be included within the scope of the project.
 - Without improvements, we are asking people to connect between Dawson Rd N and Speers Rd across an open rail line where there is no official crossing (see the well defined desire line).
- Walk/Bike improvements along Dawson Road North between Lagimodiere and Marion should be included within the project.
- Lambert or Holden may be an alternative to a pathway along Lagimodiere between Marion and Dugald, but
 - Rerouting to Lambert causes minimal detour
 - A rail crossing would be required if Lambert were selected over Holden
 - Rerouting off of the Lagimodiere right of way to Holden produces a substantial detour factor (40% if a rail with trail can be accommodated west of Maple Leaf, 80% if riders

are detoured all the way out to Dawson Rd N @ Marion) between Maginot and Dugald Rd.

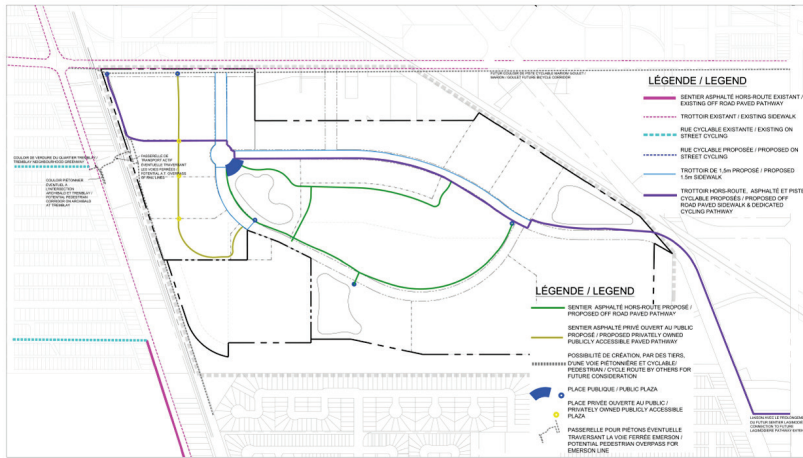
- A half signal will need to be installed at Marion @ Holden
- A rail with trail pathway to the west of the Maple Leaf Plant might be needed to keep the detour factor reasonable.
- This route bypasses any potential connection to the recreation complex across Lagimodiere from the Maple Leaf Plant.

Public Markets Redevelopment & Tremblay Underpass Option

The proposed Public Markets – Major Redevelopment Site ‘D’ secondary plan raised an interesting option for a walk/bike underpass of the CPR Emerson line on the Tremblay right of way. This would provide an obvious advantage for the community being planned to the east of the rail line, but could also prove to be beneficial as part of the city’s bike network between Youville and Lagimodiere.

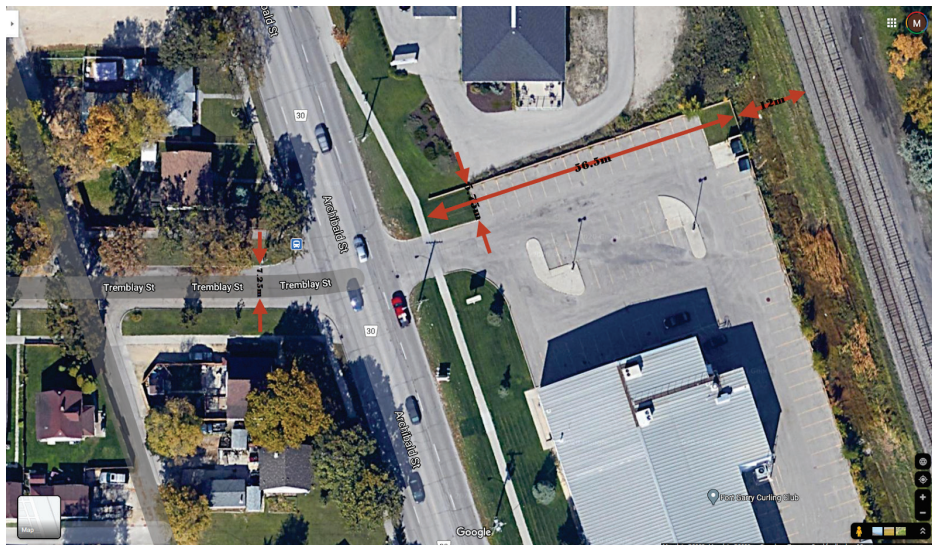
Secondary Plan Pedestrian and Cycling Network

Carte des voies Piétonnières et Cyclables – Existantes et proposées /
Pedestrian and Cycling Map - Existing and Proposed



Tremblay Underpass

- Would require a half signal at Archibald @ Tremblay
- Takes out at least 17 parking spots from Fort Rouge Curling Club parking lot.



Recommended Design Guidance

Design Guides

MassDOT

- [Separated Bike Lane Planning & Design Guide](#)

MNDot

- [Bicycle Facility Design Manual](#)

City of Vancouver

- [All Ages and Abilities Cycling Routes](#)

CROW

- [Design Manual for Bicycle Traffic](#) (2016)

TAC

- [Geometric Design Guide for Canadian Roads](#) (2017)

FHWA

- [Separated Bike Lane Planning & Design Guide](#)
- [Bikeway Selection Guide](#)

NACTO

- [Don't Give Up at the Intersection](#)
- [Designing for All Ages and Abilities](#)
- [Transit Street Design Guide](#)

Protected Bicycle Lane Widths

One-Way Protected Bike Lane

Crow

Rush Hour Traffic (bikes/hr)	0-150	150-750	>750
Width	2.00 m	2.50-3.00 m	3.50-4.00 m

TAC

Recommended Lower Limit	1.8 m
Recommended Upper Limit	2.5 m

MassDOT

Rush Hour Traffic (bikes/hr)	0-150	150-750	>750
Recommended Width	2.00 m	2.50 m	3.00 m

FHWA

Preferred Width	2.13 m
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MNDOT

Rush Hour Traffic (bikes/hr)	0-150	150-750	>750
Preferred Width	2.00 m	2.50 m	3.00 m

Two-way Protected Bike Lane

Crow

Rush Hour Bike Traffic	0-50	50-150	150-350	>350
Width	2.50 m	2.50-3.00 m	3.50-4.00 m	4.50 m

TAC

Recommended Lower Limit	3.0 m
Recommended Upper Limit	3.6 m

MassDOT

Rush Hour Traffic (bikes/hr)	0-150	150-400	>400
Recommended Width	3.00 m	3.35 m	4.25 m

FHWA

Preferred Width	3.66 m
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MNDOT

Rush Hour Traffic (bikes/hr)	0-150	150-350	>350
Preferred Width	3.35 m	3.66 m	4.88 m

Protected Intersections

TAC

Setback Distance: 6m (one car length)

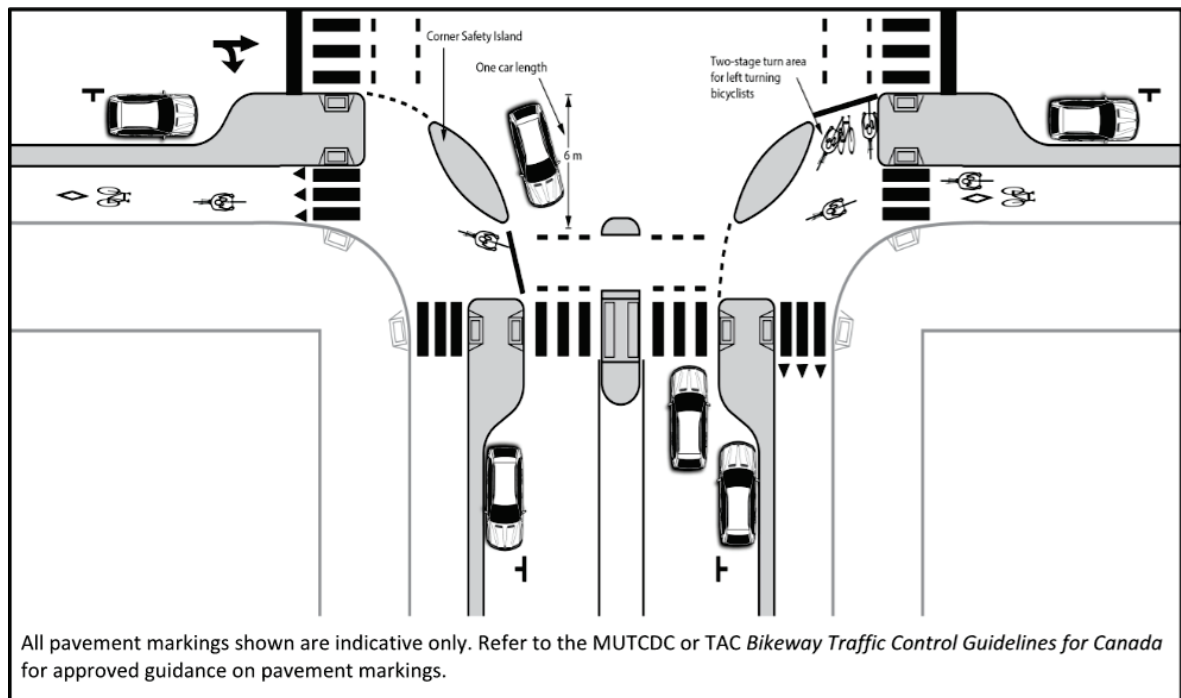
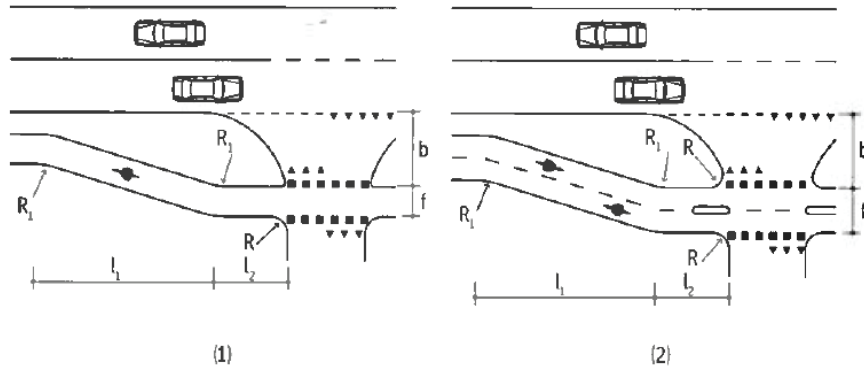


Figure 5.6.9 Protected Intersection

Source: TAC [Geometric Design Guide for Canadian Roads](#) (2017)

CROW

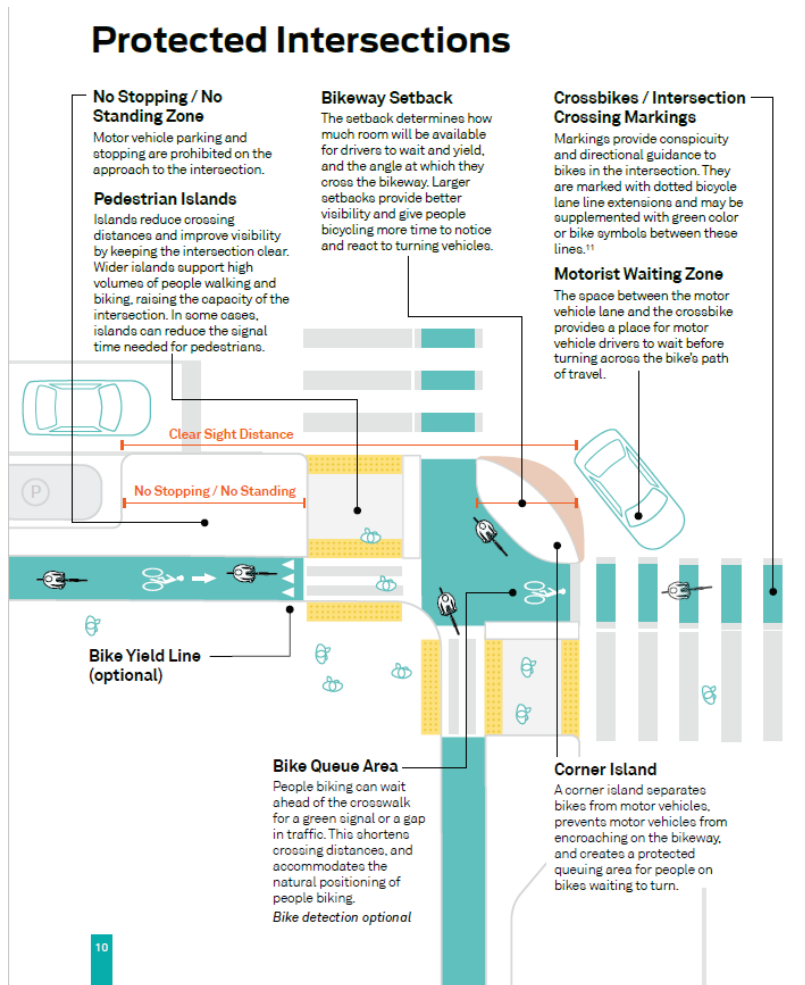
Setback Distance: 5m



Source: CROW Design Manual for Bicycle Traffic

NACTO

Setback Distance: 4.25m → 6.1m



Source: NACTO Don't Give Up at the Intersection