



Downtown Bicycle Routes Submission

February 2024

Bike Winnipeg welcomes the opportunity to provide feedback on the conceptual designs for the St Mary-York and Notre Dame-Cumberland bicycle routes.

St. Mary - York Corridor

We strongly recommend that the option of the two one-way cycle tracks be selected for the design of the St. Mary-York bike route. As a main east-west route through the city and downtown, a high volume of people can be expected to ride this route. As such, the limited width of the two-way option along York would quickly become congested. We also do not feel that a two-way cycle track on the south side of York would be as safe as the option of two one way cycle tracks on York and St. Mary (see the section on the Notre Dame - Cumberland design options below for a complete explanation of our safety concerns). Finally, we feel that the time delays associated with two-way travel on York, and the connection to St Mary along Memorial will provide far more delay than the preferred option of two one-way cycle tracks on St. Mary and York.

Protected Intersections

All intersection designs should follow the design principles of protected intersections. Ottawa’s Protected Intersection Design Guidelines (2021), The Ontario Traffic Council’s Protected Intersection Guide (2023), and the MassDOT Separated Bike Lane Planning & Design Manual (2015) all provide excellent guidance on the planning and design of protected intersections, including guidance on how to implement protected intersections in restricted rights of way. We are concerned that many of the designs presented do not seem to match up to the principles of protected intersection design.

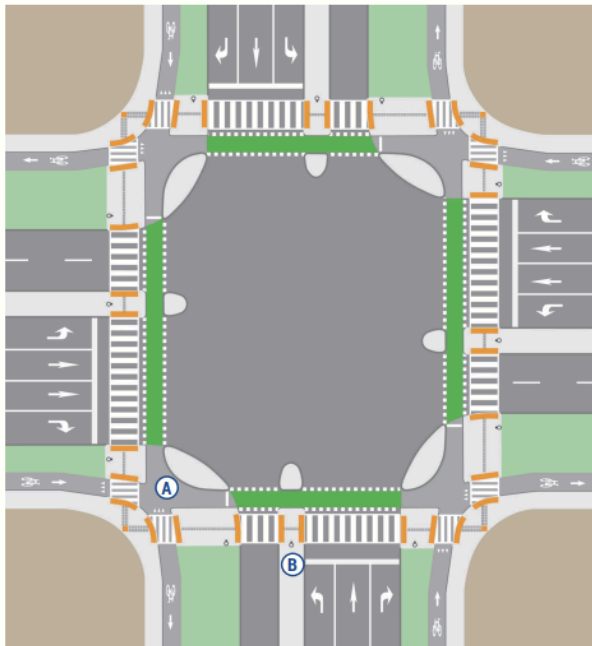


Figure 4.8. Protected intersection with standard protected corners

- Design Features
- A** Standard protected corner
 - B** Median pedestrian refuge

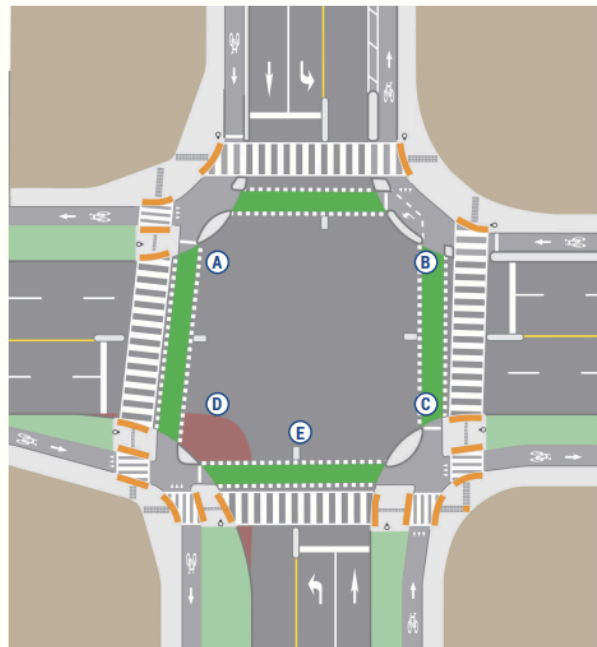


Figure 4.9. Protected intersection with four different types of protected corners

- Design Features
- A** Large radius protected corner with corner apron
 - B** One-stage protected corner
 - C** Standard protected corner
 - D** Hybrid protected corner
 - E** Centreline hardening

Source: Pg. 25, *Protected Intersection Design Guide*, City of Ottawa, 2021

As pointed out in the Ontario Traffic Council guidelines, “Compared to conventional intersection designs, protected intersections offer notable improvements to safety for all road users, particularly for pedestrians and cyclists. There are also notable considerations that arise with this design style.”¹

¹ Pg. 19, *Protected Intersection Guide*, Ontario Traffic Council, 2023

As a reminder, the Ottawa guide presents the following as principles that should be adhered to during the design of protected intersections:

1. Design for Universal Accessibility

- Consider all users and their different needs
- Provide a straight, clear path of travel for pedestrians
- Provide tactile and colour contrasted detectable facilities for people who are blind or have low vision
- Design for navigability for all users

2. Increase Safety for Vulnerable Road Users and Reduce Conflicts Between Users

- Maximize visibility and sightlines
- Reduce the speed of conflicting movements
- Reduce opportunities for conflicts based on typical collision types and users
- Clearly communicate user expectations, reinforce road user laws, and establish who has the right-of way through clear and legible design
- Minimize pedestrian exposure to traffic at motor vehicle roadway crossings
- Provide appropriate illumination and clear lines of sight between users

3. Provide Comfort and Convenience for Vulnerable Road Users

- Provide sufficient space for pedestrians in the corner

- Cater to desire lines and provide intuitive, direct paths of travel for pedestrians
- Provide intuitive path of travel for people on bicycles, with sufficient maneuvering and queuing space for a range of bicycles and users
- Minimize delay for all Vulnerable Road Users
- Provide relatively flat grades and smooth, consistent surfaces

4. Design in Accordance with Context

- Use Multimodal Level of Service (MMLOS) targets to guide road user level of service priorities, and make trade-offs accordingly
- Consider planned function and users
- Accommodate function of intersecting streets, such as truck routes, bus routes, or arterial roads
- Design within the available or planned right-of-way

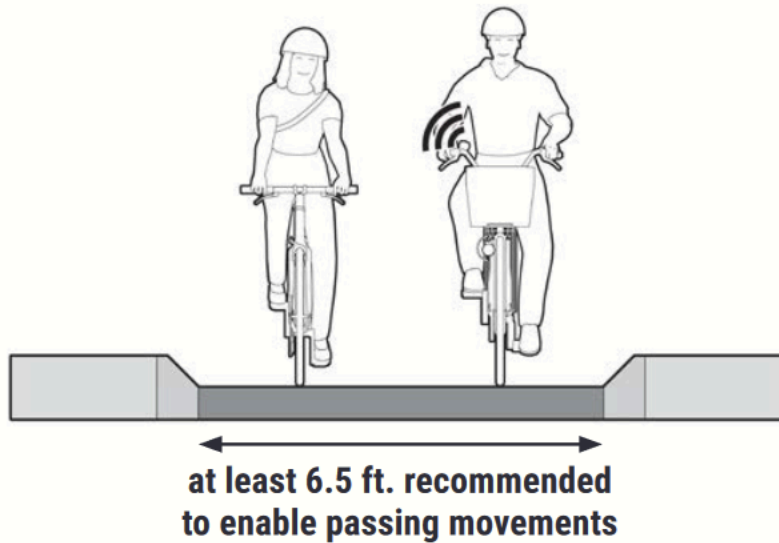
5. Design for the Full Life Cycle

- Accommodate drainage and avoid pooling of water
- Accommodate snow storage and ease of snow clearing
- Design for durability and reduced life cycle cost.

As a general note, it may be wise to locate parking next to the protected bicycle lanes to provide space for setbacks at intersections.

Role in the St. Matthews to Provencher Route

It is worth noting that the proposed protected bike lanes along the St. Mary - York Corridor are central to a major east-west bicycle corridor running from the West Perimeter Highway to the East Perimeter Highway (via Hamilton, Yellow Ribbon Trail, St. Matthews, St. Mary/York, Esplanade Riel, Provencher, Archibald, McCalman, Reenders, Pandora Ave W). As the central part of this key connection, the St. Mary-York protected bike lanes need to be built with enough width to support their central role in providing access to and through the Downtown.



Same Direction Bicyclists/ Peak Hour	Bike Lane Width (ft.)	
	Rec.	Min.*
<150	6.5	5.0
150-750	8.0	6.5
>750	10.0	8.0

* A design exception is required for designs below the minimum width.

EXHIBIT 3H: Bike Lane Widths for One-way Operation

Source: MassDOT Separated Bike Lane Planning & Design Guide; pg. 31

We would expect peak hour bicyclists/hour to exceed 150. As such, the recommended width of the bike lane would be 8.0 ft, equal to the 2.4m being recommended in the preferred option.

St. Mary @ Memorial

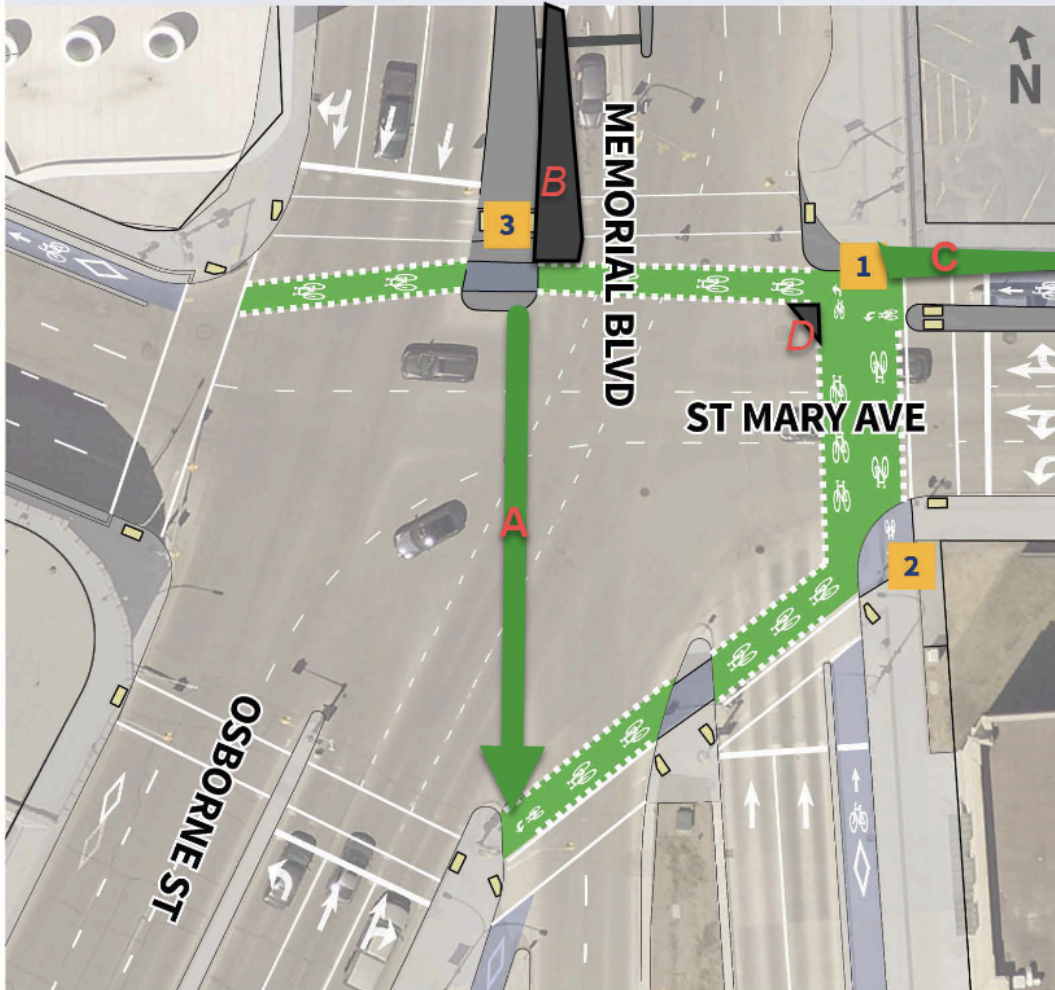
We would like to see a second connection between St. Mary and Memorial, preferably utilizing a bike box protected by the widened median shown as item 3 below. The presence of this second route (shown as A below) to Memorial would ensure that someone cycling westbound on St. Mary trying to make the left onto Memorial could complete their turn with less average delay than via the option presented, which requires the person on bike to cross St. Mary and both legs of Memorial before continuing south. The second option presented here allows someone riding west on a green light to cross Memorial before waiting for the green phase allowing southbound Memorial to cross St. Mary. There does not seem to be any conflict between this route and any allowed movements of traffic through the intersection on the phase allowing southbound traffic along Memorial.

Additional space for a bike box could be provided by reducing the number of lanes for Memorial through traffic from two lanes to one lane (shown as B below). If the extra stacking lane for the connection to Memorial cannot be removed, a bike box in the right most stacking lane needs to be added to provide stacking space for people on bikes to make the two-stage left turn from St. Mary to Memorial. Either way, the bike box enabling this second two-stage turn movement from St. Mary to Memorial should be located in front of the crosswalk,

Whatever decision is made with respect to the above, the bike box shown as item 1 below needs to be widened to prevent people stacking up to turn left blocking the route of those who will continue their route west across Memorial and Osborne St. Stacking space for this turn needs to be added in the leadup to the crossing, This could be done by shifting the through bike lane into the boulevard (shown as C below). Alternatively, space may be available within the proposed bicycle lane and roadway to add the stacking lane without need to widen into the boulevard. Regardless, the stacking space provided for people making the left turn onto Memorial needs to be placed in a space that will feel protected from the traffic on St. Mary. The preferred option of having two one way cycle tracks along both St. Mary and York may make this easier than the two-way option along York.

A corner island should be added to the intersection (Item D below) to reduce right hook risks. With three lanes to turn into, this should not be a problem.

2 St. Mary Avenue at Memorial Boulevard



- 1 Bike box to enable left turn
- 2 Bike signal waiting area
- 3 Widened median to provide pedestrian and cycling refuge

A - Southbound bike lane to decrease average wait times for people on bikes
B - Widen median to provide appropriate amount of cyclist refuge
C - Add stacking lane to facilitate left turns for people on bikes
D - Add corner island to reduce right hood risk

St. Mary @ Kennedy

Design for this intersection should include a bike box to facilitate left turns onto southbound Kennedy. This could likely be put in front of the crosswalk across the space occupied by the St. Mary bike lane and curb.

St. Mary @ Carlton and St. Mary @ Hargrave

Protected intersections should be provided at the corners of St. Mary and Carlton and St. Mary and Hargrave.

York @ Garry

The left turn from York to Garry will be a fairly high volume movement. To help facilitate left turns off of York onto Garry, we would like to see the curb extension offered in the two-way cycle track design along York (item #3) included in the one way cycle track option for York as it will increase comfort levels by reducing the exposure of cyclists waiting to make their turn and prevent them from hindering those who intend to travel straight through the intersection toward The Forks.



- 1 Bike box to enable left turn
- 2 Curb extension to shorten pedestrian crossing



- 1 Bike box to enable left turn
- 2 Curb extension to shorten pedestrian crossing
- 3 Curb extension to provide space for bike turn movements

As well, we would like to see a continuation of the one-way cycle track through to Main St to provide a continuous connection to The Forks. The decision to end the bicycle route at Garry seems arbitrary. It is unimaginable that there will be no future route connecting York to The Forks, and there are existing painted bike lanes along York between Main St and Israel Asper Way. **We would not support any design that arbitrarily cut off direct access to The Forks,**

one of the city's top destinations. Support for a transition to an eastbound through lane of York must be included in any design.

If the Transit Plan will determine how to finish the connection across Main St, why is a curb extension provided at the termination of Garry? **We are concerned that such a design will lead to unpredictable and potentially dangerous behaviour from people intending to continue cycling east along York.** This would be especially true of those transitions from the two way cycle track on York. A design that manages this transition is needed regardless of which design is selected.

Notre Dame - Cumberland Corridor

We believe that the north side option for the two-way bike lane will be the safer option, as it will place the contra flow bike lane in the expected road position for two-way traffic, avoid bus stops, and avoid slip lanes.

While the research report, "Risk of injury for bicycling on cycle tracks versus in the street" (Lusk, 2011)², does not specifically note safety differences between two-way cycle tracks on one way vs two way streets or between two way cycle tracks placed on the left or right hand side of the roadway, as shown in table 1 below, adapted from tables 1 and 3 of the Lusk research report, data from their research does seem to identify a significant safety benefit of two-way cycle tracks placed on the left hand side of one way streets vs two way cycle tracks placed on the right hand side of one way streets. Notably, the only configurations that showed statistically significant comparisons between collisions on roadways with two-way cycle tracks and control streets were on one-way streets, and the only roadways that saw a reduced relative traffic danger were on one-way streets where the two-way cycle track was placed to the left of the roadway so that the contraflow bike lane was against the curb, furthest from traffic and in the same position that oncoming traffic would be located in for a two way street.

Note that the northern configuration of the bike lane is typically going to feel more comfortable and have fewer conflicts than the southern configuration (see Evaluation criteria matrix).

² Lusk, Anne & Furth, Peter & Morency, Patrick & Miranda-Moreno, Luis & Willett, Walter & Dennerlein, Jack. (2011). Risk of injury for bicycling on cycle tracks versus in the street. *Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention*. 17. 131-5. 10.1136/ip.2010.028696.

Table 1 - Relative traffic danger of two-way cycle tracks versus in street cycling along with cycle track alignment

	Configuration	Two-Way Cycle Track Placement	Relative traffic danger of cycle track street (95% CI)
1. Brebeuf	2-Way, 1 side of one-way street, street level	Left	0.09 (0.04 to 0.18)
2. Rachel	2-Way, 1 side of two-way street, street level	Right	1.25 (0.91 to 1.73)
3. Berri	2-Way, 1 side of two-way street, street/sidewalk level	Right	1.09 (0.85 to 1.41)
4. Maisonneuve	2-Way, 1 side of one-way street, street level	Left	0.22 (0.12 to 0.40)
5. Christophe Colomb	2-Way, 1 side of two-way street, sidewalk level	Right	1.69 (1.43 to 2.00)
6. Rene ´ Levesque	2-Way, 1 side of two-way street, street level	Right (street has median)	0.96 (0.79 to 1.16)
All			1.05 (0.95 to 1.16)

*Statistically significant comparisons are shown in **bold**.

Adapted from tables 1 & 3 Lusk, et al, Risk of injury for bicycling on cycle tracks versus in the street.³

³ Lusk, Anne & Furth, Peter & Morency, Patrick & Miranda-Moreno, Luis & Willett, Walter & Dennerlein, Jack. (2011). Risk of injury for bicycling on cycle tracks versus in the street. *Injury prevention : journal of the International Society for Child and Adolescent Injury Prevention*. 17. 131-5. 10.1136/ip.2010.028696.

Table 2 - Cycle Track Crossings

	Major Roads	Local Roads	Slip Lanes	Back Lanes	Driveways	Total Crossings
North Side	5	4	0	4	5*	18
South Side	6	4	4	7**	2	23

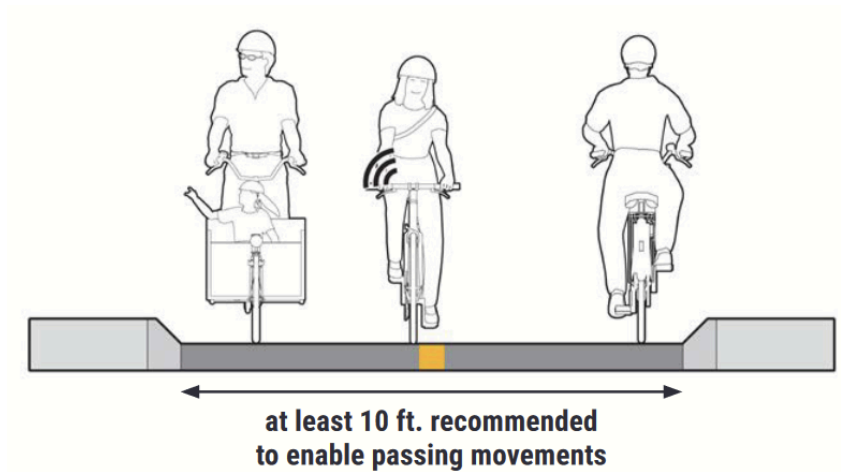
* Two of the driveways on the north side of Cumberland are one way loading entrances/exits for the No Frills Grocery Store at 600 Notre Dame

** Includes McMicken St

As shown in table 2, the north side option has fewer crossings than the south side option.

In addition to the safety advantages of a north side bikeway noted above, we believe that placement of the two-way cycle track on the north side of Cumberland would make it easier to provide a connection across Cumberland at Edmonton to facilitate connection from north bound Edmonton to Gertie as a north side cycle track could make use of an existing pedestrian corridor on the east side of Edmonton at Cumberland to provide a signalized crossing of Cumberland. This crossing would be facilitated via the existing pedestrian corridor on the east side of the intersection.

Bike Lane Widths



Bidirectional Bicyclists/ Peak Hour	Bike Lane Width (ft.)	
	Rec.	Min.*
<150	10.0	8.0
150-400	11.0	10.0
>400	14.0	11.0

* A design exception is required for designs below the minimum width.

EXHIBIT 3I: Bike Lane Widths for Two-way Operation

Source: MassDOT *Separated Bike Lane Planning & Design Guide*; pg. 31

We would like to see all efforts made to maximize the width of the two-way bicycle lanes along Cumberland. On what will be a major downtown route, we suggest that volumes of at least 150-400 bidirectional bicyclists/peak hour should be designed for.

As a reminder, the number of passing occurrences along a two-way bicycle path rises exponentially (n^2) with the number of people biking along the bicycle path. Paths designed too narrow for the projected volume of people biking that route will become congested.

Protected Intersections

As with our recommendations for the St. Mary - York Corridor, we ask that all intersection designs should follow the design principles of protected intersections. Ottawa's Protected Intersection Design Guidelines (2021), The Ontario Traffic Council's Protected Intersection Guide (2023), and the MassDOT Separated Bike Lane Planning & Design Manual (2015) all provide excellent guidance on the planning and design of protected intersections, including guidance on how to implement protected intersections in restricted rights of way.

We are concerned that many of the designs presented do not seem to match up to the principles of protected intersection design. In particular, we are concerned that none of the intersection designs seem to incorporate corner islands, a key feature used to reduce the risk of right hook collisions.

Cumberland @ Hargrave

If the parking lane was flipped over to the right side of Hargrave along with the bike lane between Cumberland and Portage, it would provide space for a corner island at Cumberland and Hargrave, and potentially stacking space for a connection to Qu'Appelle, (a possible connection to the University of Winnipeg campus). Land use south of Cumberland along Hargrave, a parking lot on the left vs housing and office space on the right, favours this change. The turn through Cumberland may also facilitate a transition back to parking on the left hand side of Hargrave north of Cumberland if it proves more desirable to have parking on the west side of Hargrave north of Cumberland.

Stacking space for a bike box can easily be added to the east side of Hargrave @ Cumberland to provide a protected bike box for people biking northward along Hargrave across Cumberland before turning left to continue west along Cumberland.

Carlton @ Notre Dame

With three lanes to turn into on Notre Dame, why can't we have a fully protected intersection here that would provide a protected refuge for those people on bikes making the left turn off westbound Notre Dame onto southbound Carlton?

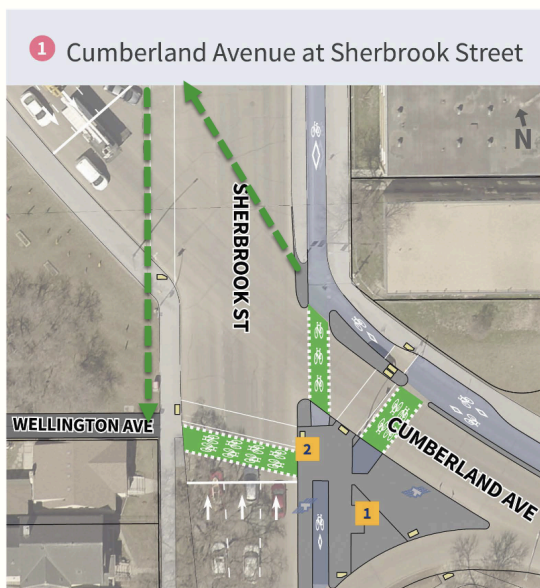
Parking/Loading Zones in Front of Regency Towers

If parking and loading in front of the Regency Towers (411 Cumberland) is an issue, consideration should be given to designs that bend into the boulevard to provide parking bays. The design for the bike lanes along Marion include bends around boulevard trees. A similar design here might allow for a parking bay to the south of the protected bike lanes.

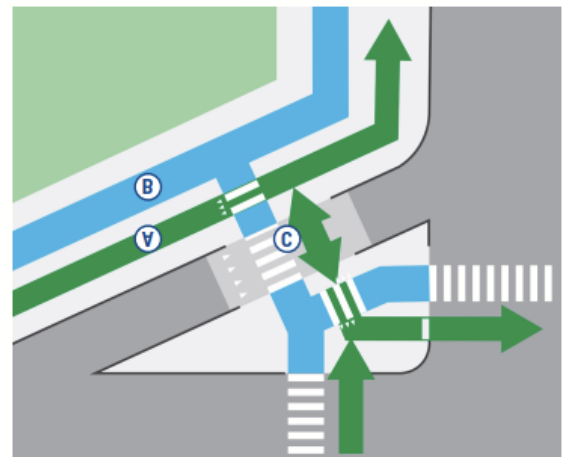
Connections to Maryland

Consideration should be given for an extension of the westbound bike lane across Sherbrook St., and ideally as far west as the Olivia St to Maryland connection where Notre Dame and Cumberland diverge.

Extending the westbound bikeway across Sherbrook would reduce average wait times by allowing people biking west to continue across Sherbrook on a green cycle phase rather than having to wait through separate phases to cross Cumberland and then Sherbrook. To avoid traffic turning left off of Cumberland onto Sherbrook, a smart channel protracted corner could be installed.



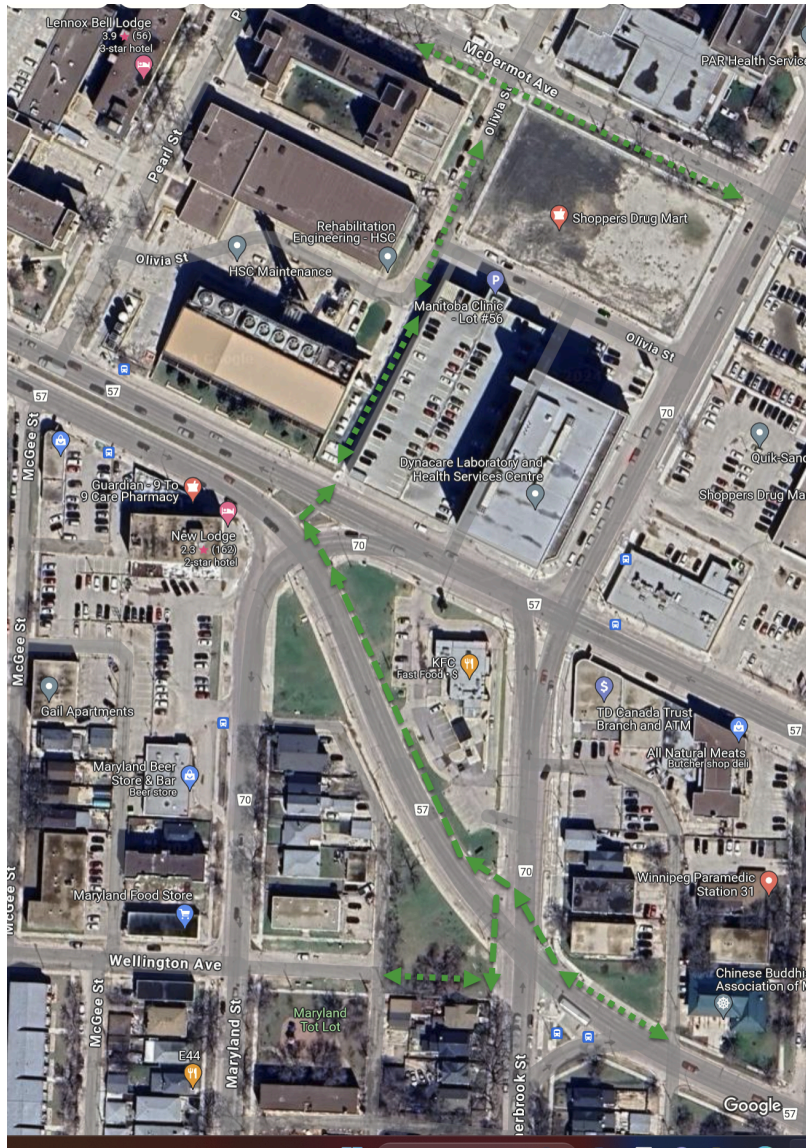
- 1 Redesign of right turn channel to accommodate two-way bike lane and Transit stop
- 2 Additional north-south crossing at Sherbrook Street to connect to Wellington Avenue



An (inverted) example of a Smart Channel Protected Corner from the Ottawa Protected Intersection Guidelines. Such a design may be of benefit if the westbound cycle track along Cumberland were continued west to Maryland and the Olivia St cut through.

We recommend that the west bound bike lane along Cumberland be extended west across Sherbrook to reduce average wait times connecting between Cumberland and Wellington or Olivia St.

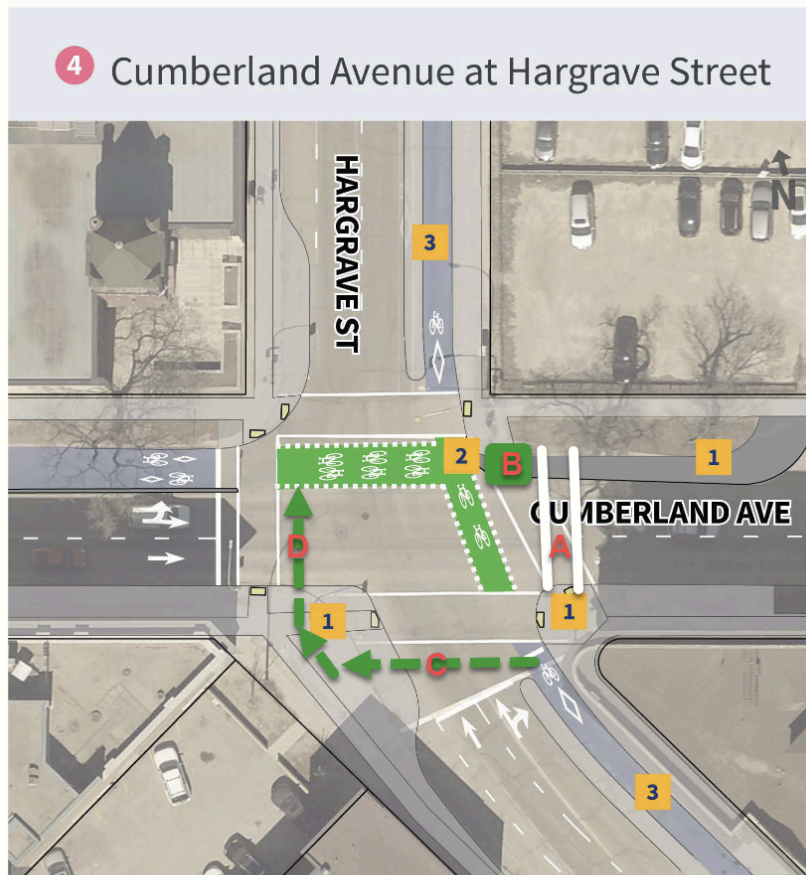
If the westbound cycle track was extended all the way to the signal at Mayland, people on bikes would be able to access the Olivia-Mayland cut-through and gain direct access to the Health Science Centre Complex without having to negotiate travel on and across Sherbrook. There would be no conflict with traffic coming off Notre Dame onto Cumberland, so phasing for this crossing would be simple. The avoidance of stops at Notre Dame and McDermot would provide a sizable time savings.



Continuing the westbound bike lane along Cumberland up to the intersection with Maryland and the Olivia St cut through would improve connections to the Health Sciences Centre Complex.

Cumberland @ Hargrave

If the sidewalk were pushed back to cross Cumberland at a right angle (see item A below), you could actually provide stacking space (see item B) to the right of the northbound Hargrave protected bike lane that would provide a protected stacking space for people making the left turn off Hargrave onto westbound Cumberland.



- 1** Curb extensions to shorten pedestrian crossing
- 2** Bike box to enable left turn
- 3** Future protected bike lane on Hargrave Street

There also seems to be ample space in the southwest corner of the intersection to allow a protected crossing of Hargrave south of Cumberland (item C above), which could be paired with a short contraflow bike lane on the west side of Hargrave (item D above) to allow for a crossing of Cumberland on the Hargrave phase of the traffic cycle.

Direct Connections to Transit

The evaluation criteria list the direct connection to Transit as a benefit to the south side alignment of the two-way bike lane on Cumberland. Note however, that as Notre Dame and Cumberland are one way streets, the direct access to transit will only be true for one direction of a transit trip (eastbound Cumberland). When traveling in the opposite direction, this 'direct access' will require a crossing of Cumberland and Notre Dame. In reality, you will need to cross both Notre Dame and Cumberland on one or the other leg of your journey no matter where the bike lane is placed.

Edmonton-Gertie Corridor

Edmonton Street should be added to the City of Winnipeg's Bike Network, and should be considered as a main north-south cycling connection through the city's central districts. This would be from Assiniboine Ave to Elgin, with Gertie Street continuing the bikeway from Notre Dame to Elgin.

- The proposed Osborne Village to Downtown Walk Bike Bridge would provide a direct connection from Osborne Village (and ultimately from the St. Vital Bridge and the Southwest Rapid Transit Corridor greenway) and the Downtown.
- As Portage Place transitions into a downtown campus with a health-care tower, residential housing and community centres, Edmonton becomes a critical link to this important destination as well as to the [Wehwehneh Bahgahkinahgohn](#) (former Hudson's Bay) building and its planned housing, commercial ventures, and social services.
 - As plans call for the glass-enclosed atrium at Edmonton Street to be dismantled, a new walk/bike connection across Portage Ave to Ellice and ultimately the existing or planned bikeways along Sargent Ave, Cumberland Ave, McDermot Ave, and Bannatyne Ave would be connected to key bicycle corridors to the Southeast (via the St. Vital Bridge) and Southwest (via the Blue Line Greenway) of the city.
 - An Edmonton Street bikeway would connect Central Park and its surrounding community to the downtown.
 - Adds another connection to the Northern Connections Medical Centre at 425 Elgin, an important health and community resource.
 - Adds a connection via Elgin to Red River College Polytechnic - Exchange District Campus and the [Market Lands Creative Hub](#), site of the City's former Public Safety Building.
- There is an existing pedestrian corridor at Edmonton and Cumberland that would facilitate the crossing of Cumberland.
- There is an existing pedestrian crossing at Gertie St and William Ave.

Recommended Design Guidelines

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 Intersection Guidelines

Ottawa

- [Protected Intersection Design Guide](#)

Ontario Traffic Council

- [Protected Intersection Guide](#)