

6.3 KEY NETWORK ELEMENTS

The design of active transportation facilities is not a one size fits all approach. Facilities should be planned and designed to reflect the context specific characteristics of the location where it is being built and the intended user groups that are anticipated to use the facility.

The following sections provide an overview of current design resources and considerations that are recommended to be addressed when planning, designing and implementing the CWATS network and supportive infrastructure. The information contained in these sections is only meant to represent a sample of the guidelines that are found in current design resources and standards. It is recommended that the County and its partners refer to the following guidelines and standards to ensure the CWATS network and any supportive infrastructure designed and implemented is consistent with the most current guidelines and widely-accepted resources.

Provincial Sources

- Ontario Traffic Manual (OTM) Book 18: Cycling Facilities
- Ontario Traffic Manual (OTM) Book 15: Pedestrian Crossing Treatments
- Ministry of Transportation Ontario (MTO) Bikeways Design Guidelines
- Accessibility for Ontarians with Disabilities Act (AODA)

National Sources

- Transportation Association of Canada (TAC) Geometric Design Guide for Canadian Roads
- Transportation Association of Canada (TAC) Bikeway Traffic Control Guideline for Canada

International Sources

- American Association of State Highway and Transportation Officials (AASHTO) Guide for the Development of Bicycle Facilities
- National Association of City Transportation Officials (NACTO) Urban Bikeways Design Guide and Urban Street Design Guide

Of the resources listed above, it is recommended that OTM Book 18 (and the forth-coming update) be used as the primary resource for design guidance of active transportation and the CWATS network.

Understanding the Facility Types

There are a number of facility types that already exists or proposed to be included in the updated CWATS network. The following section provides an overview of these facility types. For additional design guidance and information regarding application and design of each facility type including typical signage and pavement markings, the County and its partners should refer to OTM Book 18: Cycling Facilities (2021 edition).

Signed route

<p>Description:</p>	<p>A signed route is a shared facility that is formally marked by a CWATS Network sign and sometimes painted line markings. Signed routes should only be implemented on roads that have low motor vehicle operating speeds, traffic volumes and truck volumes. Bicycle Route Marker signs are typically placed once every 2.0 km on a rural roadway, and once every 400 to 800 metres on an urban road in a built-up area.</p> <p>Supplementary signage and pavement markings can be used such as the Share the Road sign and supplementary tab sign (Wc-19 and Wc-19t, OTM). Within Essex County, a signed bike route is typically marked with the CWATS branded signage.</p>
<p>Location:</p>	<p>Rural and Urban / Suburban</p>
<p>Road Volume:</p>	<p>Low</p>
<p>Road Speed:</p>	<p>Low</p>
<p>Minimum width:</p>	<p>Not applicable – cyclists shared the same space with motor vehicles</p>

Example(s):



Figure 65: Existing signed route on County Road 50, Amherstburg
Source: WSP Canada



Figure 66: Existing signed route on County Road 21, Lakeshore
Source: WSP Canada

Paved shoulder including buffers

<p>Description:</p>	<p>Paved shoulders provide a designated space along the edge of the road for stopped and emergency vehicles, pedestrians and cyclists. Paved shoulders are typically found on rural roads and used by cyclists and pedestrians as it provides users with an area that is adjacent to but separate from the motor vehicular travel portion of the roadway. The route should be signed as a bike route with supplementary markings and signage to denote other users such as pedestrians may use the paved shoulder.</p> <p>On roads that have higher traffic volumes and operating speeds, a buffer can be implemented to provide greater separation between the shoulder and the adjacent motor vehicle traffic lane. A buffer consists of two edge lines with or without diagonal hatching or with a rumble strip.</p> <p>As per the Highway Traffic Act, cyclists must travel in the same direction as the motor vehicle traffic immediately adjacent to the paved shoulder and pedestrians must travel facing the direction of travel adjacent to the paved shoulder. Paved shoulders should be applied on roads with medium motor vehicle operating speed and traffic volumes. Paved shoulders are not ideal on roads with high volumes of truck traffic.</p>
<p>Location:</p>	<p>Rural</p>
<p>Road Volume:</p>	<p>Moderate to High</p>
<p>Road Speed:</p>	<p>Moderate to High</p>
<p>Minimum width:</p>	<p>1.5 metres + 0.5 metre buffer area</p>

Example(s):



Figure 67: Existing paved shoulder on County Road 34, Kingsville
Source: WSP Canada



Figure 68: Existing paved shoulder on County Road 50, Essex
Source: WSP Canada

Bike lane

Description:

A bike lane is the portion of a roadway that is designated by pavement markings and signage for exclusive use by cyclists. Motor vehicles are typically not permitted to enter the bike lane except if a dashed line is used, such as a driveway entrance. In addition, motor vehicles are not permitted to park in bike lanes.

Bike lanes are typically implemented on roads where motor vehicle traffic volume and speeds are higher than the threshold values for shared space routes. In some cases, additional consideration may be given to incorporating green pavement markings at key intersections or at high volume conflict points such as overpasses.

A Reserved Bicycle Lane sign must be used to designate a bike lane. Practitioners can use OTM signs or signs found in the TAC Bikeway Traffic Control Guidelines for Canada.

Context:

Urban / Suburban

Road Volume:

Moderate

Road Speed:

Moderate

Minimum width:

1.5 metres

Example(s):



Figure 69: Existing bike lanes on Erie Street North, Leamington
Source: WSP Canada



Figure 70: Existing bike lanes on Lesperance Road, Tecumseh
Source: WSP Canada

Separated bike lane

Description:

A separated bike lane provides additional space between the cyclist and motor vehicles and can include different separation alternatives ranging from a spatial separation all the way to a physical separation. Separation techniques will vary depending on the context of the roadway and the width that is available. **Table 10** outlines the various physical separation techniques and advantages / disadvantages for each. The different physical separation techniques are placed within the buffer (painted) area that is between the motor vehicle lane and the bike lane.

A separated bike lane is typically implemented along urban roadways including arterial and collectors with high motor vehicle volumes and / or speeds where increased separation is required. This facility could also be implemented on roadways with on-street parking and high parking turnover where double parking is an issue or major corridors that provide direct and convenient access to key destination points (i.e., corridors with heavy cycle traffic) or in front of schools.

Context:

Urban / Suburban

Road Volume:

Moderate to High

Road Speed:

Moderate to High

Minimum width:

1.5 metres + 0.3 metres to 0.9 metres for buffer zone

Example(s):



Figure 71: Example of existing separated bike lanes with flex bollards in London, ON
Source: WSP Canada



Figure 72: Example of existing separated bike lanes with pre-cast concrete curbs on Laurier Avenue, Ottawa
Source: WSP Canada

Table 10: Overview of Separation Types for Separated Bike Lanes

<p>Roll Curb / Mountable Curb</p> <p>+: bicycle movement and turning movement, durability, greater flexibility for maintenance and minimal collision</p> <p>-: may be less effective at deterring motor vehicle parking, may be expensive to install</p>	<p>Rubber Delineator</p> <p>+: may be used in conjunction with bollards to add extra separation in specific locations</p> <p>-: less durable than concrete requiring more maintenance and may have greater exposure to damage from snow clearing</p>	<p>Flex Bollards</p> <p>+: high visibility, bollards spacing may accommodate bicycle movement, waste collection, driveways, etc. comparatively easy to install, minimal safety risk</p> <p>-: not as durable, may not always discourage encroachment if there is a lot of separation, minimal aesthetic appeal</p>
<p>Concrete Barrier</p> <p>+: very effective at preventing encroachment, low cost to maintain, high visibility, mounted planters increase aesthetics</p> <p>-: may have a negative impact on drainage, may reduce visibility of cyclists</p>	<p>Small Scale Concrete Barrier</p> <p>+: very effective at preventing encroachment, low cost to maintain, does not reduce cyclist visibility</p> <p>-: may have negative impacts on drainage, bicycle maneuverability, waste collection and transit</p>	<p>Conventional Bollards (Flex)</p> <p>+: high visibility through seasons, bollard spacing may accommodate bicycle maneuverability, waste collection, driveways, etc.</p> <p>-: potential safety risk to cyclists, may not always discourage parking</p>
<p>Planters</p> <p>+: aesthetic appeal, flexible spacing, high visibility</p> <p>-: may reduce visibility, may need to be removed and stored in winter</p>	<p>Buffer Zone</p> <p>+: inexpensive to implement, can be combined with strategic planters and / or flex bollards</p> <p>-: need to update markings, no physical separation</p>	

One-Way Cycle Track

Description:

A one-way cycle track is a physically separated bikeway that is horizontally and vertically separated from the travelled portion of the roadway by a curb. Cycle tracks are often located parallel to a sidewalk but are designated exclusively for use by people riding bicycles. One-way raised cycle tracks should be provided for cyclists travelling in each direction to ensure continuity and connectivity. If it is not possible to implement a one-way cycle track on both sides of the road, then an alternate bicycle facility should be provided on a parallel street instead.

Within the County of Essex, there are locations where there is an existing cycle track and no sidewalk. In these locations, pedestrians are typically permitted to use the cycle track. These one-way cycle tracks are supplemented with signage and pavement markings to clearly denote the intended user and users.

Context:	Rural (select locations) and Urban / Suburban
Road Volume:	Moderate to High
Road Speed:	Moderate to High
Minimum width:	1.5 to 2.0 metres

Example(s):



Figure 73: Existing one-way cycle track on County Road 20, Leamington / Kingsville
Source: WSP Canada



Figure 74: Existing one-way cycle track on County Road 20, Leamington / Kingsville
Source: WSP Canada

Two-Way Multi-Use Path

<p>Description:</p>	<p>A two-way multi-use path is horizontally and vertically separated from motor vehicle traffic by a curb and could have a strip of grass (often referred to as a “boulevard” or “verge”) or paved ‘splash strip’ between the facility and the motor vehicle travel lane. This facility is shared by pedestrians, cyclists and other active transportation users.</p> <p>An in-boulevard path is typically 3.0 to 4.0 metres wide. If there are significant constraints such as utilities or major natural features, a two-way shared path may be narrowed down to 2.4 metres. To increase the sense of safety and comfort for path users, a wide separation can be provided between the path and the roadway. The minimum recommended space is 1.5 metres measured from the face of the curb or the edge of the travelled portion of the road. This space can also be used for landscaping, snow storage, and the installation of fixed objects such as signs and signal poles.</p>
<p>Context:</p>	<p>Rural (select locations) and Urban / Suburban</p>
<p>Road Volume:</p>	<p>Moderate to High</p>
<p>Road Speed:</p>	<p>Moderate to High</p>
<p>Minimum width:</p>	<p>3.0 to 4.0 metres</p>

Example(s):



Figure 75: Existing two-way cycle multi-use path on Fairview Avenue, Essex
Source: County of Essex



Figure 76: Existing two-way multi-use path on County Road 21, Lakeshore
Source: WSP Canada

Off-Road Multi-Use Trail

<p>Description:</p>	<p>Off-road multi-use trails are located outside of a road right-of-way and typically found within hydro corridors, rail corridors, forest tracts and parks. These connections function as recreational facilities or convenient connections between core active transportation routes. Similar to a two-way cycle track (and in some locations a one-way cycle track) an off-road trail is intended to be used by pedestrians, cyclists, and other non-motorized users.</p> <p>Natural surfaces or crushed limestone are typically considered appropriate surface types in rural areas. If the demand for trail usage is high or if the trail forms part of a larger trail system, consideration could be given to pave the trail. In the planning and design of off-road trails, due diligence should be completed to ensure AODA compliance and environmental impacts are analyzed and mitigated.</p>
<p>Context:</p>	<p>Rural and Urban / Suburban</p>
<p>Road Volume:</p>	<p>Not applicable</p>
<p>Road Speed:</p>	<p>Not applicable</p>
<p>Minimum width:</p>	<p>3.0 to 4.0 metres</p>
<p>Example(s):</p>	<div style="display: flex; justify-content: space-around;"> <div data-bbox="478 800 1163 1182">  <p><i>Figure 77: Existing Chrysler Canada Greenway, Harrow</i> Source: WSP Canada</p> </div> <div data-bbox="1209 800 1902 1182">  <p><i>Figure 78: Existing Chrysler Canada Greenway at County Road 18, Essex</i> Source: WSP Canada</p> </div> </div>

Crossings and Transitions

The CWATS network includes routes that cross challenging land-use and transportation features including railways, highway underpasses, overpasses, and watercourses. In addition, the design of routes may be challenging at some crossings and intersections due to the right-of-way width, traffic volume, vehicle operating speeds, roadway function, culverts and grade / elevation change, environmental features, etc.

Additional design treatments can facilitate a safe crossing for pedestrians, cyclists and other road users moving from one side of the road to another or crossing over driveways. This type of treatment enhances connectivity and reduces the stress some users may experience when crossing these barriers. All CWATS facilities that cross through an intersection or driveway should be continuous (e.g. using pavement markings, signage, etc.) to minimize conflicts and provide a clear path to cross safely.



Figure 79: Photo of a controlled intersection within Amherstburg ON, which features a CWATS network facility
Source: WSP Canada

Based on guidance provided in OTM Book 18, the design of crossings and intersections should also consider the following:

- The crossings / intersection treatments should be implemented at the time of route construction;
- Existing intersections should be reviewed and immediate priorities selected based on available budget;
- Points of transition should be considered when implementing a facility. At the beginning and end of a new route, there should be consideration for the connection that is being made and whether additional design treatments (i.e. pavement marking) are required; and
- When designing mid-block or grade separated crossings, there should be clear and documented consideration for the requirements under the Accessibility for Ontarians with Disabilities Act (AODA) as it relates to the application of tactile plates. The AODA requirements for the application of tactile plates for exterior paths of travel applies to sidewalks and do not include off-road trails.

The following pages provide an overview of the various design treatments available to improve overall network continuity and their application within the design of intersection crossings, pedestrian crossings, midblock crossings and roundabouts. Key treatments described include pavement markings, cross-rides and left turn treatments. This list, however, is not exhaustive, but provides a high-level toolkit to enhance overall continuity and safety in designing the CWATS network.

Cyclist Left Turn Treatments

Left turns remain a common challenge in navigating a cycling network. Although cyclists are permitted to move into the left turn lanes like motor vehicles, their speed and weight difference makes the maneuver often dangerous and intimidating. As an alternative, cyclists may complete a left-turn indirectly in two stages, passing through the intersection and then queuing on the far side. Depending on the design of the intersection though, there may not be an appropriate space for cyclists to queue. To support either form of left-turn, there are a variety of design treatments which can be applied to enhance user safety and convenience. The appropriateness of each is a factor of roadway traffic volumes, cyclist demand and the intersections geometric design. Additional guidance can also be found within OTM Book 18.

Two-stage Queue Box

A designated space is provided for people cycling to queue while completing a direct left turn. This includes in-boulevard two-stage queue box, on-road two-stage queue box; and pocket at “T” intersection. In offering the greatest degree of separation, queue boxes are recommended within higher risk traffic environments, either due to higher speeds (> 40 km/h), higher volumes (> 1,00 vehicles / day), or multi-lane roads.

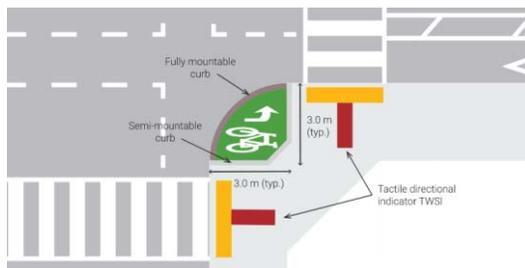


Figure 82: Two-Stage Queue Box Detail
Source: OTM Book 18

Bike Boxes

A designated queueing space in front of motor vehicle stop line which allows cyclists to complete a direct left turn. As the treatment exposes people cycling to more conflicts compared to the two-stage queueing box, it is only recommended on lower speed and low volume roadways with a single through lane.

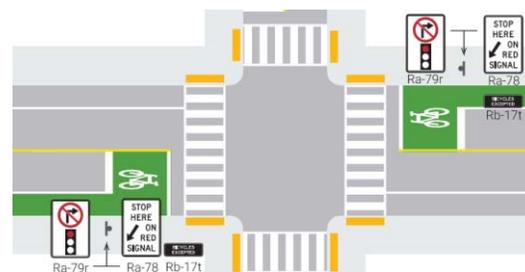


Figure 80: Bike Box Typical Detail
Source: OTM Book 18

Protected Signal Phase

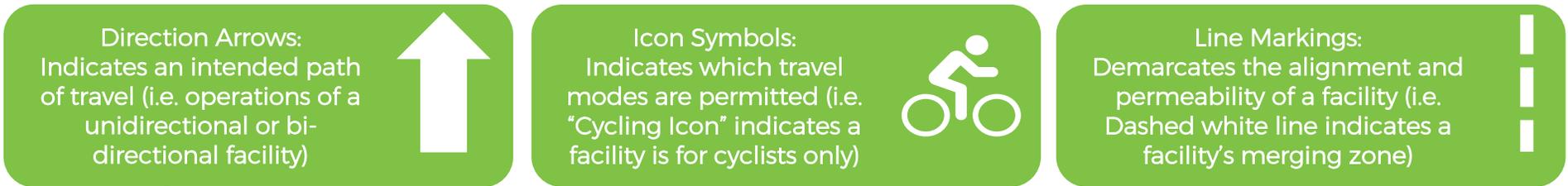
Protected traffic signal phases minimize exposure to motor vehicle conflicts by operating cycling movements and motor vehicle movements on different traffic signal phases. This can include activating a bicycle signal in advance of the main traffic signal phase, to allow cyclists to get out ahead and be more visible to traffic when crossing an intersection.



Figure 81: Bicycle Detection Indicator
Source: Darren Krause, Livewire Calgary, adapted from OTM Book 18

Pavement Markings / Cross Rides

The safety of cyclists and active transportation users when crossing roadways can be enhanced using pavement markings. This can include line markings, painted symbols as well as directional arrows which help to guide and visually reinforce the designated movement of different traffic users. While these elements can be applied in a variety of design options, most commonly, they are used to create cross-ride. These facilities provide a designated space where cyclists are permitted to cross a road, rather than dismount based on the legal requirements of the Highway Traffic Act (HTA). The three types of cross rides and their associated pavement marking features, are described below:



Separated Cross-Ride

Separate spaces for cyclists and pedestrians and is generally used when users approach the crossing in separate facilities i.e. a cycle track adjacent to a sidewalk.

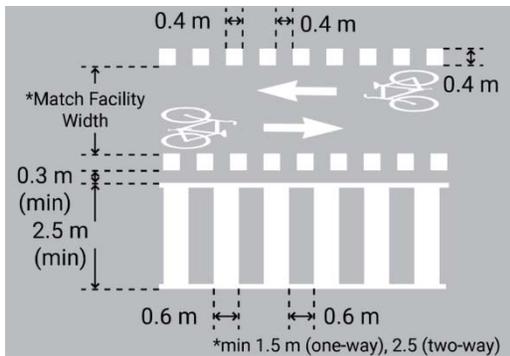


Figure 83: Separate Cross-ride
Source: OTM Book 18

Combined Cross-Ride

Crossings provided on both sides of a pedestrian crosswalk, typically used when pedestrians and cyclists approach from a shared facility.

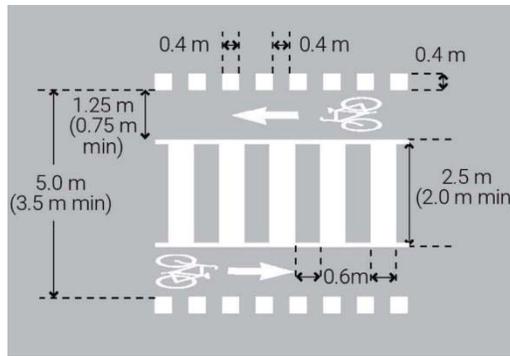


Figure 84: Combined Cross-ride
Source: OTM Book 18

Mixed Cross-Ride

Intended at low volume un-signalized crossings and driveways, where pedestrians and cyclists approach from a shared facility.

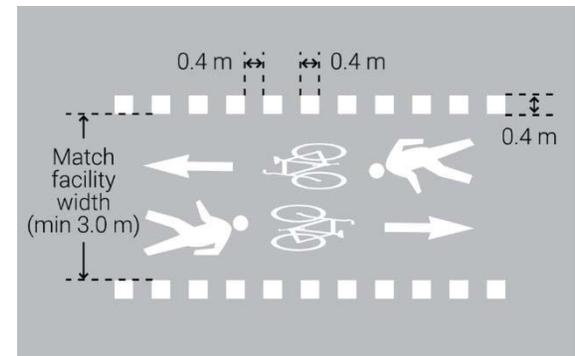


Figure 85: Mixed Cross-ride
Source: OTM Book 18

Intersection Crossings

As one of the most conflict prone parts of a transportation network, intersections remain a crucial consideration within the design of a complete, safe and interconnected cycling network. Within the CWATS network alone, there are over 400 points of intersections just between different cycling facilities, which excludes those between cycling facilities and roadways. These intersections each warrant unique design solutions tailored to their geometric properties, observed traffic volumes and function within the broader transportation system. While ideal to provide complete grade separation at all junctions, the constraint of limited financial resources and fixed rights-of-way makes this unfeasible. There are, however, a range of affordable intersection designs proven to considerably improve cyclist safety and comfort.

These options can be classified as: fully separated (off-road) intersections, fully separated (on-road) intersections, cyclist demarcated intersections and mixed intersections. Like segments of the CWATS network, each intersection design selected must be appropriately tailored to the surrounding context and the facility's anticipated usage. Listed below is a complete overview of these 4 design approaches which can be applied to minimize the barrier imposed by intersections to the CWATS overall connectivity and safety. Given the unique properties and challenges of each intersection, the following four approaches to intersection crossings are not intended as an exhaustive list. This is intended to be a framework from which possible solutions can be adapted from. A complete map of all CWATS network intersections within primary settlement areas in the County, where these treatments may be applied, is also provided in **Figure 86**.

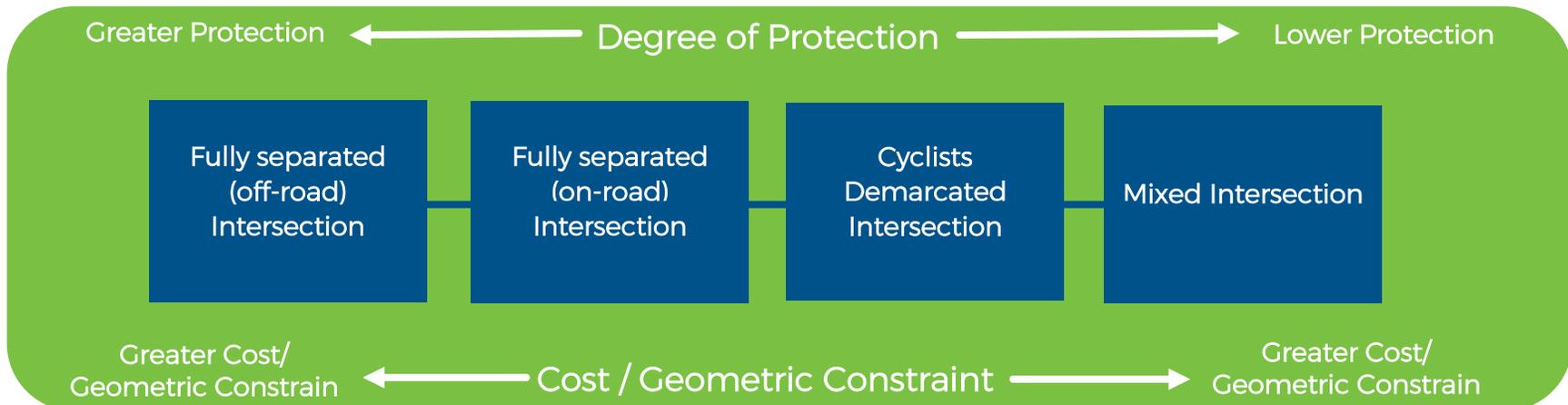


Figure 86: Diagram the different cycling intersection design approaches which can be taken and their respective trade offs

Fully Separated (off-road) Intersection

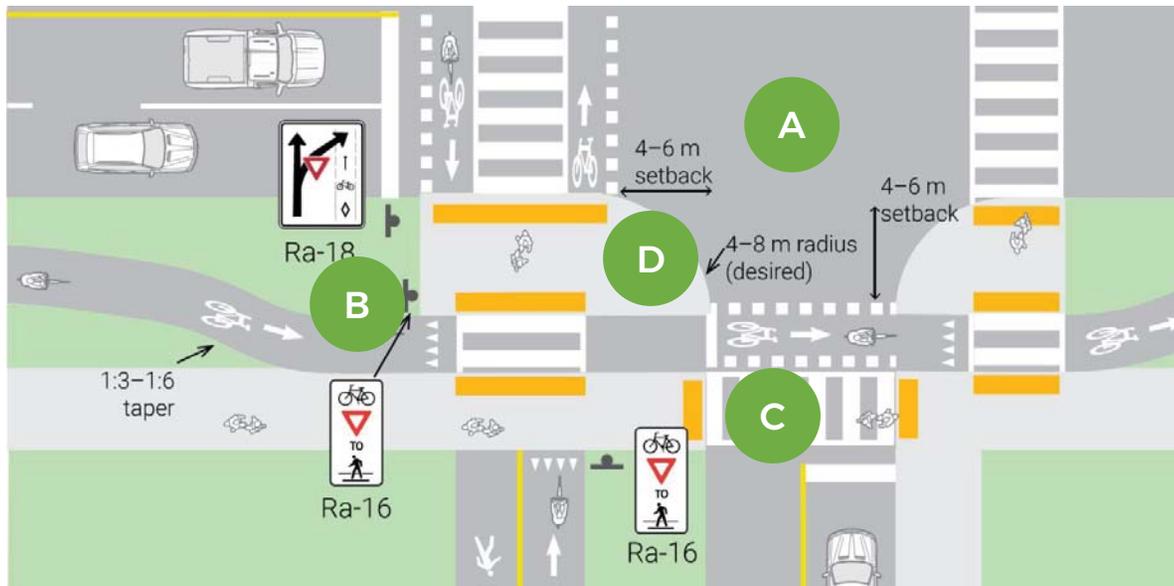


Figure 87: Components of a possible fully separated (off-road) intersection [Source: OTM Book 18]

Recommended Cycling Facilities: Cycle Track, MUPs, MUTs Suggested Location:

- × Additional design features, such as tighter turning radii and raised crossings should be considered within the intersection design to reduce vehicular turn speeds and enhance cyclist safety
- × Setback crossings can be used for one and two-way cycling facilities at signalized or un-signalized intersections
- × A minimum clear sight distance is required at all points to prevent the risk of a collision when a vehicle crosses over the cycling facility during a left-turn
- × A right turn restriction on red lights should be considered to minimize collision risks between cyclists and turning vehicles
- × In advance of where a pedestrian crosswalk crosses the road (and cycling facility, on two-stage crossings) Tactile Walking Surface Indicators (TWSIs) should be used in compliance with AODA
- × Queuing spaces for two-stage left turns should be 2.4 to 3.0m deep

A-Degree of Separation: Cyclists remain fully separated from adjacent traffic by a 4.0 to 6.0m offset. On the approach, this involves some form of physical delineator or boulevard space and a marked cross ride over the intersection.

B-Signage: “Yield to cyclists” signs are required at the adjacent vehicular stop line to remind motorists to yield to through cyclist traffic when turning. “Yield to pedestrians” signs are also required at the cyclist stop bar to remind cyclists to yield to crossing pedestrians ahead.

C-Pavement Markings: Either a combined or separate cross ride facility is used to demarcate cyclist travel across the intersection. Facility may additionally be painted green and be bordered by white yield line markings “shark’s teeth”, to reinforce cyclist path of travel and a motorist’s requirement to yield when turning.

D-Left Turn Treatments: Facility typically features designated queuing spaces at the intersection corners, where cyclists may safely complete two-stage left turns. These features can be painted onto the street directly or built into the curb.

Fully Separated (on-road) Intersection

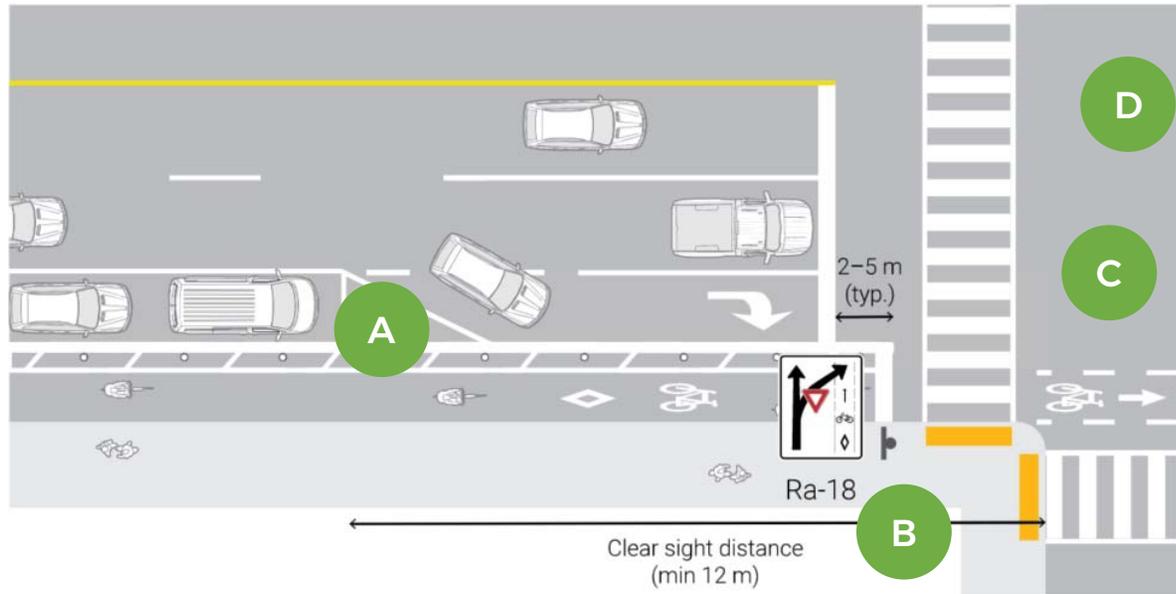


Figure 88: Components of a possible fully separated (on-road) intersection [Source: OTM Book 18]

Cycling Facilities: Cycle Track, MUPs, Buffered Bike Lanes / Paved Shoulders Suggested Location:

- × Adjacent crossings implemented along high volume roadways should feature a protected traffic signal phase for cyclists, to mitigate collision risks between cyclists and turning vehicles. This can be facilitated through the installation of dedicated bicycle signals
- × On-street parking should terminate 12.0 to 18.0m before the crossing to provide maintain adequate sight lines
- × Additional design features, such as tighter turning radii and raised crossings should be considered within the intersection design to reduce vehicular turn speeds and enhance cyclist safety
- × A “right turn on red” restriction should be considered to mitigate collisions between cyclists and turning vehicles
- × Motorist stop bar should be positioned 2.0 to 5.0m back from the cyclist stop bar, with the pedestrian crosswalk positioned slightly ahead

A- Degree of Separation: Cyclists remain fully separated from motor traffic, either directly adjacent or at a setback of no more than 2 meters. On the approach, this is achieved using some form of physical delineator while a marked cross ride or painted treatment is used over the intersection.

B-Signage: “Yield to cyclists” signs are required at the adjacent vehicular stop line to remind motorists to yield to through cyclist traffic when turning. “Yield to pedestrians” signs are also required at the cyclist stop bar to remind cyclists to yield to crossing pedestrians ahead.

C-Pavement Markings: Either a combined or separate cross ride facility is used to demarcate cyclist travel across the intersection. Facility may additionally be painted green and be bordered by yield line markings “shark’s teeth”, to reinforce cyclist path of travel and motorist requirement to yield when turning.

D-Left Turn Treatments: Facility typically features designated queuing spaces at the intersection corners, where cyclists may safely complete two-stage left turns. These features can be painted onto the street directly or built into the curb.

Cyclist Demarcated Intersection

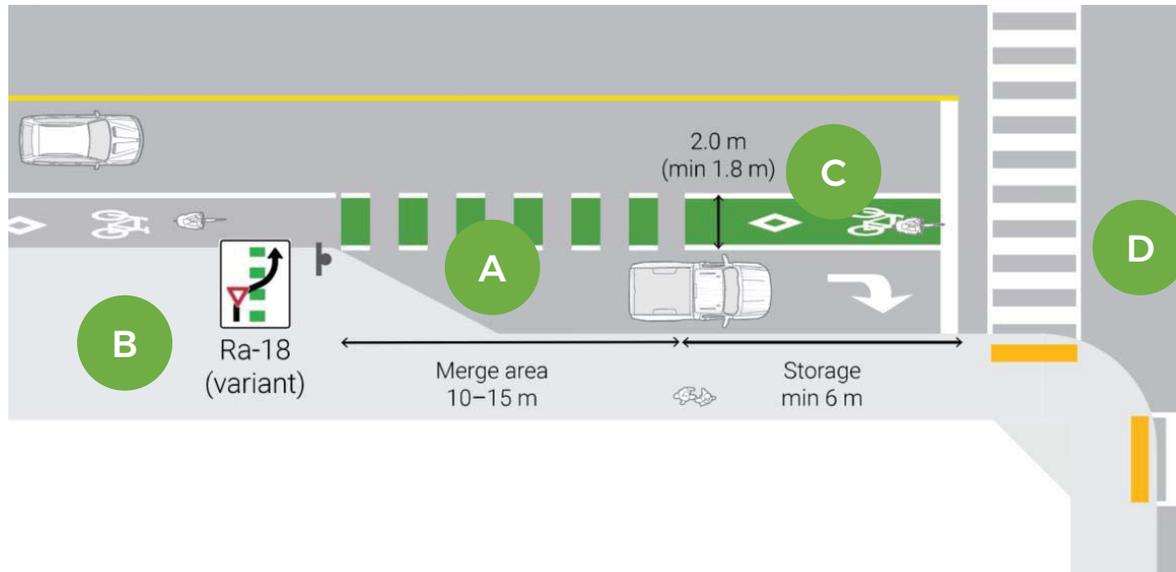


Figure 89: Cyclist Demarcated intersection featuring a conventional bike lane [Source: OTM Book 18]

A-Degree of Separation: Facility converts into a permeable operating space on the intersection approach where the vehicular through and dedicated right turn lanes form. This merge area should remain 10.0 to 15.0m in length and end at least 6.0m in advance of the stop bar.

B-Signage: “Yield to cyclists” (variant) signs should be placed in advance of the merging area, reminding motorists to yield to cyclists when crossing over into the dedicated right-turn lane. restriction placed on motorists. exempt from the right-turn only restriction placed on motorists.

C-Pavement Markings: Merging area should be designated using either a solid or dashed green paint treatment. The treatment can be bordered either by a solid or dashed white line.

D-Left Turn Treatments: Facility can feature designated queue spaces to facilitate two-stage turns. Can alternatively feature conventional bike boxes which provide a designated space for cyclists turning between the stop bar and crosswalk. Bike boxes however, are only recommended on low volume roadways with posted speed limits below 50km/hr.

Cycling Facilities: Buffered/ Conventional Bike Lanes / Paved Shoulders Suggested Location:

- × Not suitable at intersections with high volumes of heavy truck turning, which creates a collision risk for cyclists who may try to maneuver around
- × If the required storage length exceeds 25.0 to 30.0m an alternative design such as a protected or adjacent crossing should be adopted
- × The cycling facility should shift laterally in advance of merging area, to preserve sight lines and to enhance the safety of cyclists
- × On-street parking should be discontinued at least 6.0m in advance of the merging area to improve visibility
- × Physical delineators may be considered along certain segments of the merge area to minimize vehicular encroachment
- × Dashed lines may be placed within the intersection to guide cyclists travel
- × Cycling facility should be bordered by solid white lanes in just behind the intersection stop bars

Mixed Intersection

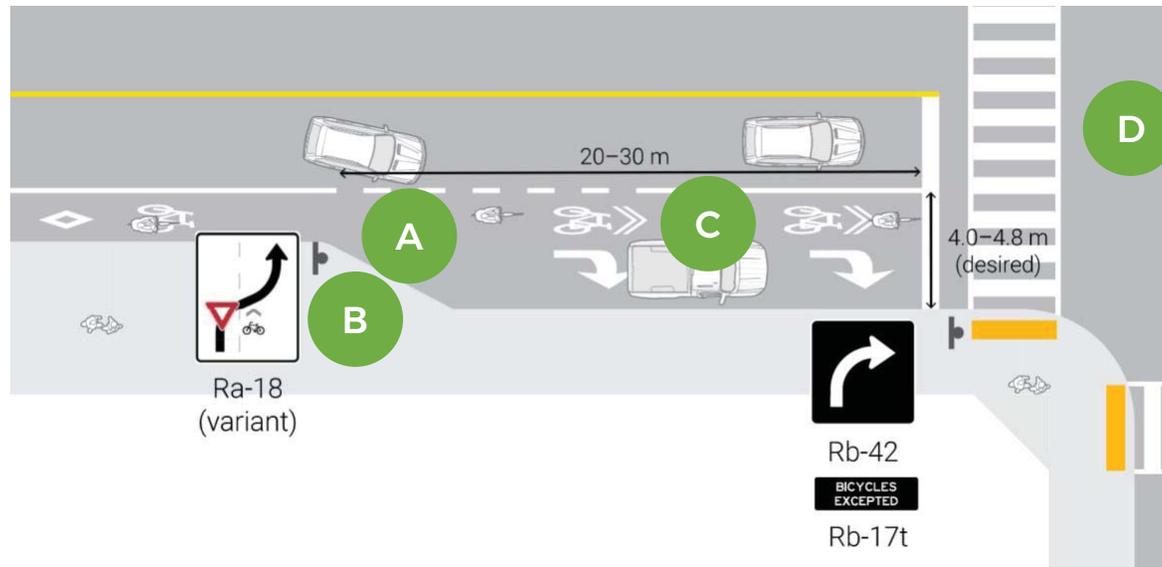


Figure 90: Cyclist Demarcated intersection featuring a conventional bike lane [Source: OTM Book 18]

A- Degree of Separation: Converts to a designated shared space on intersection approach where the vehicular through and dedicated right turn lanes form. This transition typically occurs 20 to 30m in advance of the intersection

B-Signage: “Yield to cyclists” (variant) signs should be placed in advance of the shared lane, reminding motorists to yield to cyclists when crossing over into the dedicated right-turn lane. “Cyclists exempt” tabs should also be placed before the lane to indicate that cyclists are exempt from the right-turn only restriction placed on motorists.

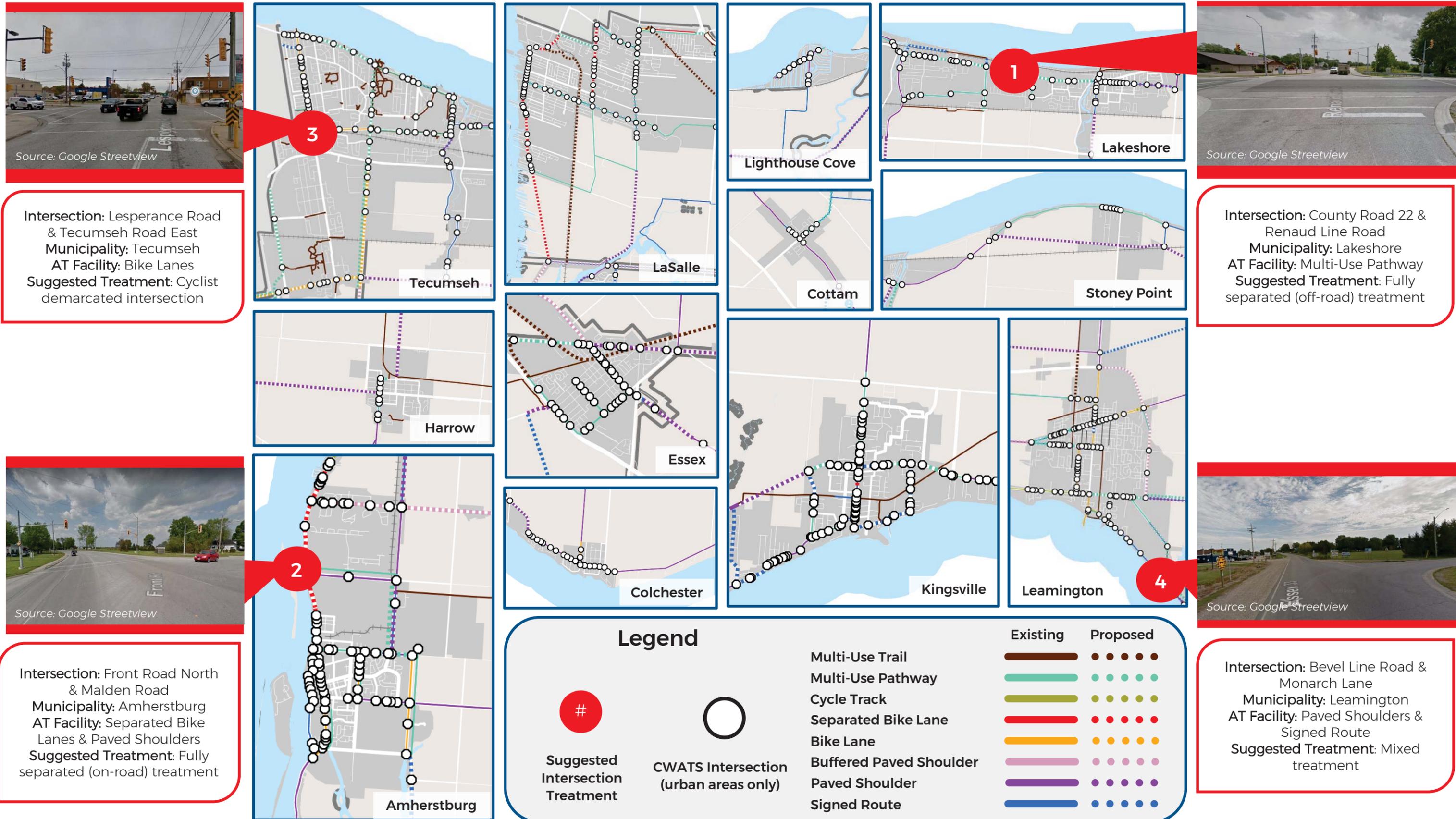
C-Pavement Markings: Sharrows are often placed in the shared lane to position cyclists left of right-turning vehicles. Shared lane features a broken white lane, to warn users of potential merging.

D-Left Turn Treatments: can feature conventional bike boxes; a designated space for cyclists turning between the stop bar and crosswalk – though such is only recommended on low volume roadways with posted speed limits below 50km/hr. Cyclists may also be expected to merge into the adjacent vehicular lane and preform a left turn like motorists.

Recommended Cycling Facilities: Bike Lanes, Paved Shoulders, Signed Routes Suggested Location:

- × May be applied among protected cycling facilities but physical separation must discontinue along the intersection approach
- × Shared travel lane should be between 4.0 to 4.8m wide to safely accommodate adjacent motorist and cyclist travel
- × The shared lane should be located within a dedicated turn-only lane where vehicular traffic tends to travel at lower speeds
- × Cyclists should be encouraged to move into the through lane on their intersection approach, if there is no proper cycling facility on the other side

Figure 91: Map showing the location of all CWATS network intersections within primary settlement areas, including sample intersections where each of the four previously described design treatments could be applied



Pedestrian Crossings

Pedestrian crossings are an essential feature of all active transportation networks and are effective at improving user safety and network connectivity. They can include pedestrian refuge islands, pavement markings, signage or signals to help users cross the roadway. Importantly, formal pedestrian crossings do not apply to cyclists who must instead, dismount and cross as a pedestrian. Related guidance from *Ontario Traffic Manual Book 15 – Pedestrian Crossing Facilities* (or adapted municipal policy) should be followed. Listed below is some high-level guidance related to the planning and design of pedestrian crossing facilities, as provided within OTM Book 15:

Design Guidance

- Curb cuts should be provided at all pedestrian and multi-use crossing locations;
- Audible Pedestrian Signals (APS) and pushbuttons should be installed when replacing or constructing new pedestrian crossing devices at signalized intersections, as required by the Ontario Accessibility Standards for the Built Environment Standard;
- Pedestrian refuge islands should be considered at signalized intersections crossings on wide roadways where pedestrians may need two signal phases to cross the full length of the road; and
- Tactile Walking Surface Indicators (TWSIs) should be implemented at all pedestrian crossing locations.

Planning Guidance

- The selection of a particular facility type should reflect sound engineering judgment made off a comprehensive understanding of a location’s traffic and physical characteristics;
- Underlying considerations include: safety, equity (socio-economic characteristics of users), connectivity, pragmatism, consistency (spacing from other traffic control devices), expectancy and delay (related traffic impacts); and
- Listed below is a hierarchy (based on the degree of separation and cost) of the different types of pedestrian crossings and their associated design references:

School Crossing Guard:

Crossings permitted at specified hours under the supervision of a designated crossing guard (most often to accommodate students crossing)

Reference: Municipal Policies

Stop or Yield Controlled Intersections

Crossings permitted at intersections controlled by stop or yield signs

Reference: OTM Book 5

Pedestrian Crossings (PXO)

Pedestrian crossing with signalized control activated by an actuating button

Reference: OTM Book 15

Traffic Signals

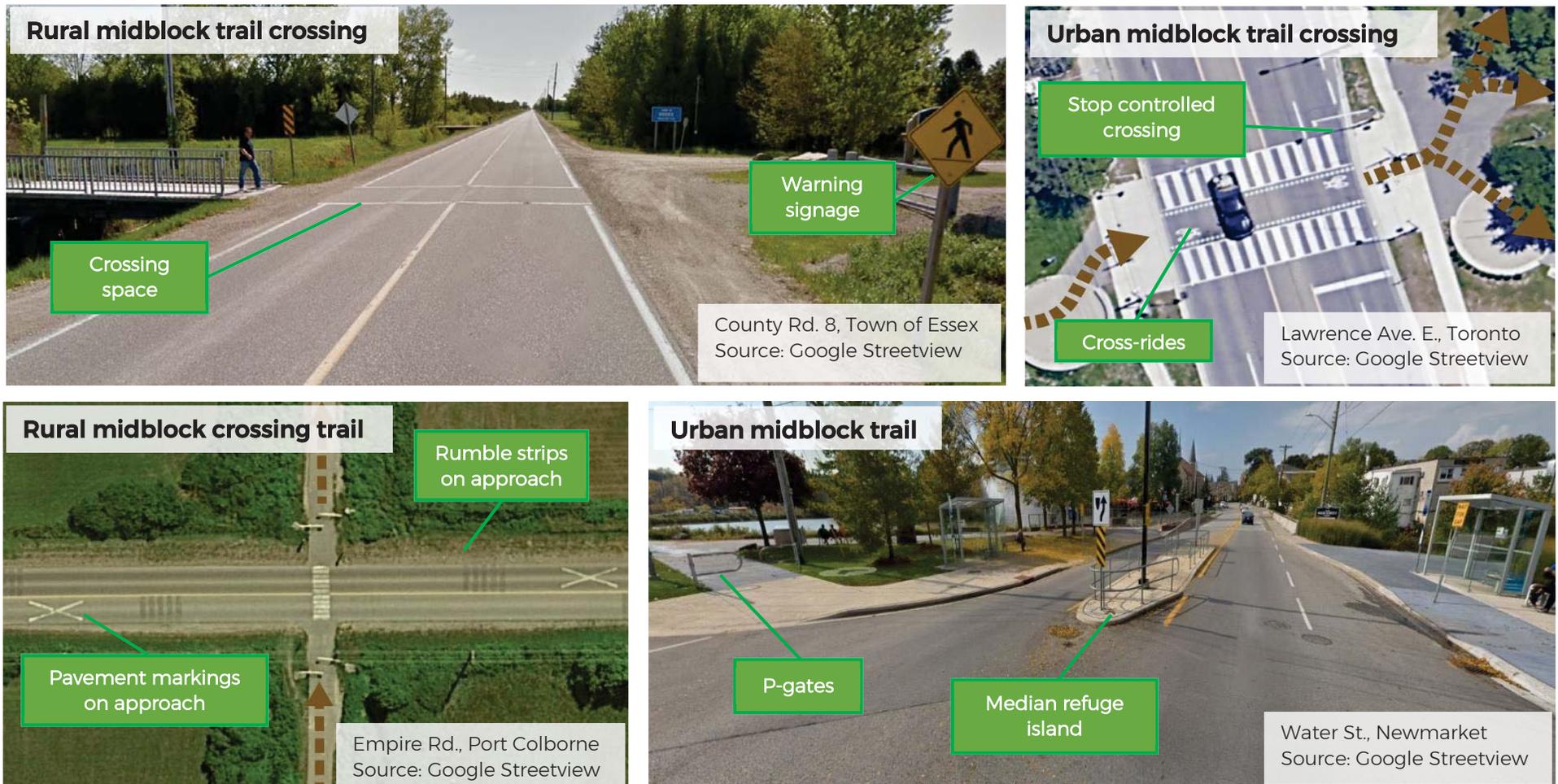
Pedestrian crossing phase provided within a roadway traffic signal system

Reference: OTM Book 12

Midblock Crossings

In addition to intersection crossings and pedestrian crossings, a connected and integrated active transportation system should also consider mid-block crossings at key locations. These facilities support the safe crossing of cyclists, pedestrians and other active transportation users, at sites where otherwise not supported by existing infrastructure. Common applications can include at the road crossings of trail systems or along road segments that feature high volumes of active transportation crossings, yet are far away from a signalized crossing. Potential design considerations for mid-block crossings could include:

Figure 92: Examples of mid-block crossing treatments



Integrating Active Transportation through Roundabouts

Roundabouts are circular intersection treatments that permit vehicle traffic to flow in one direction around a central island. Typically, roundabouts do not have traffic signals so entering vehicles must yield to traffic already in the roundabout. Active transportation routes and facilities should be planned and designed to guide pedestrians, cyclists and other active transportation users through the roundabout in a manner that is considered comfortable, safe and intuitive. Roundabouts can be organized into two categories: single-lane roundabouts and multi-lane roundabouts.

Building upon best practices for other south-western municipalities in Ontario, the following table outlines various design considerations when planning, designing and implementing a roundabout as it relates to the different users that are expected to travel through a roundabout.

Table 11: Roundabout Considerations for Various User Groups

User Type	Considerations
<p>Pedestrians</p> 	<ul style="list-style-type: none"> - A Level 2 Type B (OTM Book 15) pedestrian crossing can be used which includes push button activated rapid flashing rectangular beacons, roadside and cantilevered pedestrian crossing signs, a raised crossing, zebra stripes and sharks teeth. - A splitter island can be used on all legs of the intersection which allows pedestrians to cross in two stages. Pedestrian connections between the legs of the intersection have a straight alignment, accommodating the pedestrian desire line.
<p>Cyclists</p> 	<ul style="list-style-type: none"> - Sharks teeth and a "Cyclists Yield to Pedestrians" sign should be included at all pedestrian crossings of the cycling facility. - Cyclists cross the roundabout as pedestrians and activate the PXO through a pushbutton. "Cyclists Dismount" signs are required at all crossings. A short connecting link between the PXO and the AT route requires cyclists to make a 90 degree turn, reinforcing the need for cyclists to reduce their speed, stop and dismount. This link also improves the predictability of pedestrian and cyclists' movements for motorists, as only pedestrians and cyclists who are crossing the roadway traverse the connecting link.
<p>Transit users</p>  <p>Motor vehicles</p> 	<ul style="list-style-type: none"> - Transit stops should be positioned on the far side of the roundabout, beyond the pedestrian crossing in order to maintain clear sightlines between pedestrians at the crossing and approaching motorists (in a near side stop, a stopped bus would obstruct this sightline). - Motorists would typically not expect a vehicle to stop in the lane on the far side of the roundabout, downstream of pedestrian crossing. Therefore, transit stops should include a bus bay to avoid rear end collisions with the bus. - The design of roundabouts encourages motorists to reduce their speed as they enter the roundabout and provides motorists with a better sightline to the exit lane pedestrian crossing. - Sightlines between the motor vehicle travel lanes and the pedestrian and cycling facilities should be clear on the roundabout approach and through the roundabout.

The information contained in this table has been adapted from the City of London Complete Streets Design Manual (2018). Since the completion of the original 2012 CWATS Master Plan, many jurisdictions in Ontario have been moving towards integrating all travel modes through roundabouts and specifically introducing PXOs at multi-lane roundabouts to facilitate crossings for pedestrians, cyclists and other active transportation users. **Figure 93** provides a graphic example of an active transportation facility through a multi-lane roundabout.

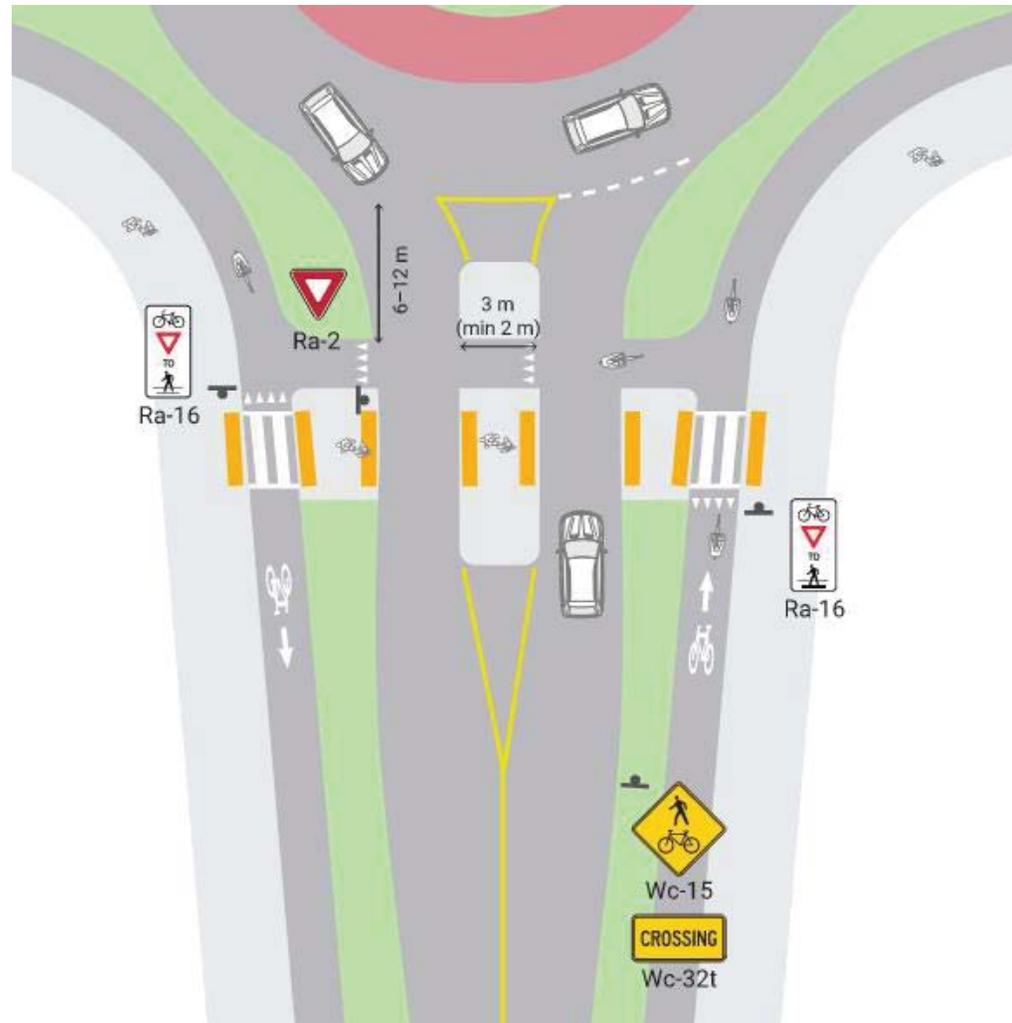


Figure 93: Example of a multi-lane roundabout with separated AT facilities incorporated
Source: OTM Book 18

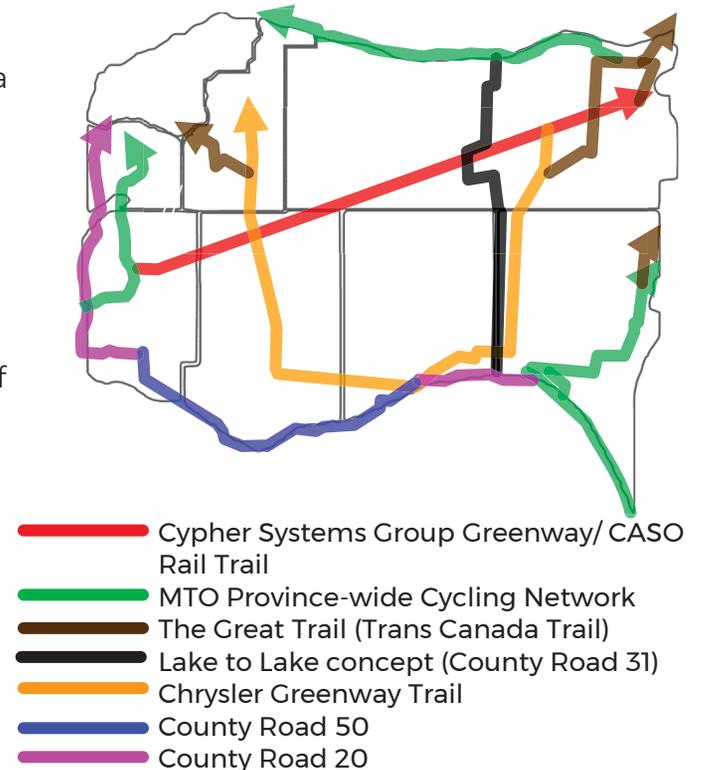
Major County-wide Touring Connections

Additional enhancements should be considered as part of the eventual planning, design and implementation of segments that constitute major county-wide touring connections. These routes possess a distinguishable benefit to the CWATS network’s overall connectivity, access to key travel destinations and alignment with existing cycling trends, particularly, among tourists to the County. Many of these routes are not only essential to cyclists but pedestrians and motorists alike. These additional design enhancements not only improve the safety and comfort of cyclist travel along these routes but, affirms them as vital multi-modal transportation corridors.

Suggesting the following additional enhancements does not imply that the facility types and associated design guidance already assigned to each major county-wide touring connection is insufficient. These enhancements should instead be viewed as ideal enhancements to optimize the safety, visibility and comfort of the CWATS network. They should only be implemented if feasible, based on their prioritization relative to other CWATS funding priorities, geometric feasibility and opportunities to coordinate with other applicable works. Common enhancements that may be considered, however, are listed below:

- **Greater forms of physical separation** wherever feasible. This can include adding protection to a facility that was otherwise unprotected or using a more durable and restrictive form of protection, such as concrete curbs and bollards as opposed to just hatched markings.
- **Additional wayfinding amenities** should be incorporated along the route to offer improved navigation guidance to facility users. This can be achieved through a more frequent and consistent inclusion of wayfinding features or by applying higher quality designs and materials to improve their visibility and efficacy. Wayfinding features can consist of instructional signage, informational kiosks (trailheads) or directional pavement markings.
- **Enhanced maintenance protocols** should be considered to uphold a higher quality operating environment for all facility users. This is particularly essential within the winter, where snow and ice accumulations after periods of inclement weather can render a facility hazardous if left untreated.

Figure 94: Map of Major County-Wide Touring Connections



Signed Routes through Main Street Areas

The CWATS Master Plan isn't intended to simply improve cyclist safety and comfort, but redesign key travel corridors as part of a complete multi-modal transportation system. This underscores the importance in designing all on-road cycling facilities, cognizant of the variety of roles and functions that streets serve. Many of the County's key travel corridors for instance, dual as commercial main streets, where there is a demand for on-street parking and wider sidewalks. This constraint is exacerbated by a narrow existing right of way, making it geometrically unfeasible to design the streets in support of all activities.

Resultantly, many commercial main streets located across the County only feature signed cycling routes, including Main Street in Kingsville and Talbot Street in Essex. Recognizing that this facility type provides minimal protection to cyclists however, a variety of supplementary treatments and enhancements are suggested to mitigate these concerns. These items are by no means exhaustive and do not preclude the initiation of a separate functional assessment to determine whether a more substantive spatial reconfiguration of the street to better accommodate cycling, is warranted.



Figure 95: Sample of Main Street Design Considerations for South Talbot St, Essex, ON Source: Adapted from Google Streetview

Major trails and corridor opportunities

There are several regionally significant trail systems located within Essex County that connect to all seven municipalities and surrounding areas including the City of Windsor and Municipality of Chatham-Kent. These trail systems are generally used for recreational activities but may also be appropriate to provide a direct commuter cycling route in areas that are not served directly by on-road facilities. The surface of these trails may vary but they are generally a natural surface / granular in rural areas and asphalt in urban areas to accommodate a wider range of users.

There are six major trail systems in the County of Essex. A summary of each trail system is provided below:

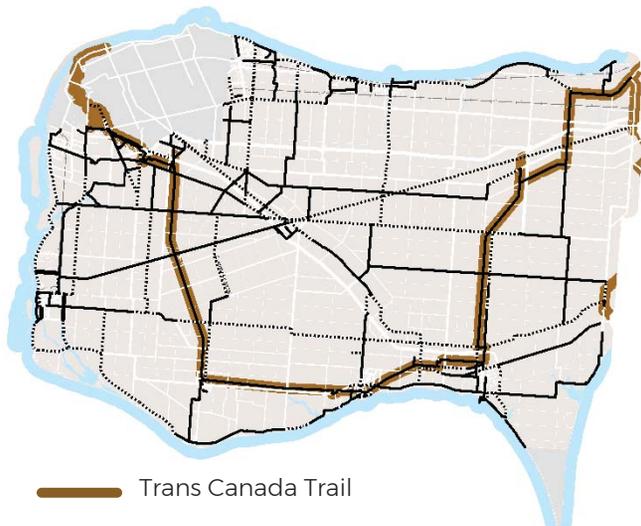


Figure 96: Map of Trans Canada Trail

The Trans Canada Trail

Formerly known as The Great Trail and then in 2021 returning to its original Trans Canada Trail name, is a collection of on and off-road routes that connect all of Canada. The Great Trail is referred to as the longest recreational trail in the world and it offers a wide range of activities through all the different landscapes of Canada. Currently, the trail is not fully complete as there are sections that currently do not have an existing pedestrian or cycling facility.

The segment of the Great Trail that is located in the Essex County shares the same alignment with the Chrysler Canada Greenway. The Great Trail terminates at the border of the United States and Canada in Windsor, Ontario and extends into Chatham-Kent.



Figure 97: Map of Great Lakes Waterfront Trail



Figure 98: Map of Province-Wide Cycling Network

The Great Lakes Waterfront Trail

The Great Lakes Waterfront Trail stretches over 3000 kilometres, and connects 140 communities and First Nations along the Canadian shores of the Great Lakes region. The Trail consists of both on-road and off-road facilities. In its current state, the route is primarily paved, with sections of unpaved path and gravel roads.

Within the County of Essex, the Great Lakes Waterfront Trail is primarily located on County roads and provides a cycling route that closely follows the shoreline of Lake Erie and Lake St. Clair. The trail connects all seven municipalities in the County as well as the City of Windsor, the Municipality of Chatham-Kent and Point Pelee National Park.

The Province-wide Cycling Network (PWN)

The Province-wide cycling network is the outcome of the #CycleON Ontario's Cycling Strategy, a guide to enhance cycling as a viable mode of transportation over the next 20 years in Ontario. The recommended network includes existing and proposed routes on provincial roads, municipal roads and major off-road trails through parks and former rail corridors. The PWN incorporates existing routes and trails in the province as well as previously completed work to provide a wide-range of facilities to accommodate different types of cyclists and trip types.

Within the County of Essex, the PWN primarily follows the Waterfront Trail, the Cypher Systems Group Greenway, and the CASO Trail corridor (existing and proposed sections) and supports both commuter and recreational types of cycling.

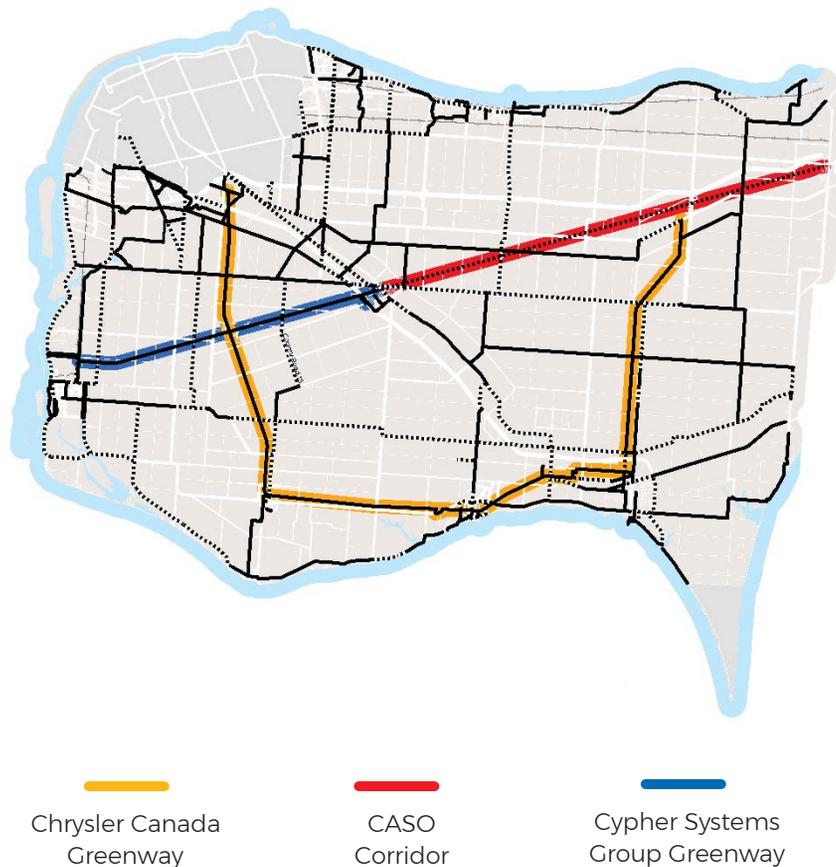


Figure 99: Map of Chrysler Canada Greenway, CASO Corridor and Cypher Systems Group Greenway

Chrysler Canada Greenway

The Chrysler Canada Greenway is approximately 42 kilometres in length and consists of an off-road trail that located within an inactive rail corridor. It is owned and maintained by the Essex Regional Conservation Authority (ERCA). The trail stretches from Oldcastle Road near Windsor to Leamington and then north towards Comber. The trail is almost completely off-road and intersects with the CWATS network at multiple points. Different types of activities are permitted on the trail including hiking, biking, cross-country skiing and in some locations, horseback riding.

CASO Corridor

The CASO corridor is a significant inactive linear rail corridor stretching from the Town of Essex to the boundary of the County of Essex in Lakeshore. The corridor was recently acquired by ERCA in partnership with the County of Essex, Town of Tecumseh, Town of Essex and Municipality of Lakeshore to accommodate active transportation. The corridor is included on the Province-wide Cycling Network and represents a significant opportunity to develop another prime cycling and recreational trail in the County of Essex to support the objectives of CWATS. The section on the following page provides an overview of potential strategies for incorporating the CASO corridor into the CWATS network.

Cypher Systems Group Greenway

Comprised of a combination of primarily off-road trails and a few on-road segments, the Cypher Systems Group Greenway links the Town of Amherstburg to the Town of Essex and the proposed CASO Rail Trail. The Greenway was formerly known as the “Essex-Amherstburg Greenway” but it was changed after a significant contribution by Cypher Systems Group. The trail also intersects with the CWATS network at multiple points.

6.4 WAYFINDING AND SIGNAGE



A wayfinding strategy consists of a system of signs, pavement markings and other tools to help people on bikes navigate to destinations along a network regardless of their familiarity with a place. This is accomplished through clear and consistent wayfinding guidance. Successful wayfinding is an important investment that supports the growing cycling tourism market by creating an intuitive and welcoming place to explore by bike. It also encourages more casual riders to ride bikes by familiarizing people with the bicycle network, identifying the best routes to destinations, and helping overcome overestimation of travel time by cycling.

The following sections provide an overview of the different components of wayfinding and signage including key principles, existing wayfinding in the County, opportunities, destination hierarchy and types of signage. **Figure 100** illustrates different examples of cycling wayfinding for reference.



Figure 100: Various Examples of Cycling Wayfinding

Principles

The design of a wayfinding strategy should follow principles of:



Connecting Places: Wayfinding should help people bike between destinations and develop an increased sense of how cycling can provide mobility options. It builds on existing cycling and trail networks and gives directions on complete and continuous routes rather than scattered interventions.



Maintaining Movement: It is important to place signs in advance of major decision points and repeat as necessary to ensure that signs are quickly understood so that cyclists maintain motion. Repeated stopping and starting to interpret signs or check maps is tiring and frustrating. Wayfinding information that cannot be read quickly by cyclists at desired travel speeds makes journeys less attractive.



Keeping Information Simple: Providing the right amount of information in a progressive way that is enough to allow users to make decisions without overloading them will help improve wayfinding and navigation of the network by a variety of users. The longer someone needs to understand something, the less likely it will be used.



Being Consistent: It is important to ensure that sign design, materials, symbology, and placement is consistent, predictable and recognizable throughout the network. A consistent set of references also helps users trust and learn the system.



Staying Relevant: Provide connections to places that locals and visitors want to go to or help orient them within the network.

Existing Wayfinding in the County of Essex

The County of Essex has already started implementing cycling wayfinding signage on a number of CWATS routes, such as the Waterfront Trail. Branding for CWATS routes has also been established. **Figure 101** shows some wayfinding examples within the County. The wayfinding strategy should complement what has already been implemented.



Figure 101: Examples of existing wayfinding in Essex County

Opportunities

The wayfinding strategy should build upon the current wayfinding in the County and develop concepts that include distance and direction to key destinations that can be accessed from the CWATS network. Opportunities to expand and enhance these investments include:

- **Unsigned Assets:** Existing cycling infrastructure and destinations that have been established without the provision of wayfinding. Addition of wayfinding signage would provide immediate benefit, particularly for destinations such as transit hubs and popular public spaces.
- **Lack of Information:** In many crucial locations, such as at key decision points or on local streets that may be suggested connections, more information is needed to make navigating the network easier.
- **Cohesive Network Awareness:** Create a system that is easy to recognize, especially for people new to cycling or those unfamiliar with an area. It would also allow users to discover easy routes that can be taken by bike in place of busy routes taken by personal vehicles.
- **Promoting Destinations:** Information on wayfinding signs helps to build awareness about public assets such as parks, community centres, public libraries, civic buildings, landmarks and attractions.



Figure 102: Main Street (County Road 20), Town of Kingsville
Source: WSP Canada

There is good reason for cyclists to visit Essex County, from the serenity of County's rolling countryside to its quaint village centres. Visitors will find award-winning wineries, celebrated culinary scene, fascinating museums, forts, beaches, farms and charming waterfront villages (**Figure 103**). Wayfinding will improve their experience and help make Essex a cycling tourism destination.

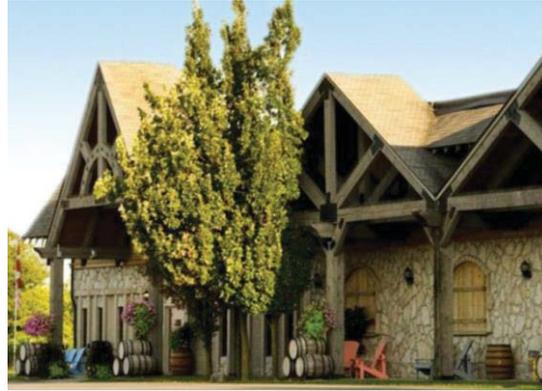


Figure 103: Snapshots of Essex Country
Source: Tourism Windsor Essex Peel Island

The following are some on-road routes recommended by the province-wide cycling advocacy group, Ontario By Bike, that would benefit from enhanced wayfinding:

- **Waterfront Trail:** Primarily on-road through Essex County and Windsor, this fully-signed cross provincial route enters the County in the east at Wheatley, follows Lake Erie, the Detroit River, and Lake St Clair until Lighthouse Cove, stretching close to 200km around Essex.
- **Windsor Off-road Waterfront Trail:** This 5 km route passes by the downtown centre, through several parks, under the international Ambassador Bridge, and through the Odette Sculpture Park. It is co-designated as the Riverfront Trail and Ganatchio Trail.
- **Pelee Island:** The quiet back-roads of Pelee Island are perfect for cycling, and there is much to see. Cyclists can visit two nature reserves, at the northern and southern tips of the island, as well as stop at the beautiful Pelee Island Winery Pavilion, for picnics, barbecues and to taste some of the local wines.
- **Puce River to Ruscom River:** This 13 km route along the Lake St Clair shore between these two rivers passes through the Municipality of Lakeshore.
- **Underground Railroad Bicycle Route:** Follow the route that escaped slaves used to travel to Owen Sound from the southern United States. Bike route maps paint a picture of what the journey was like in the 1800s. Alternate routes through Detroit and Essex County were recently added to this 3200 km route.
- **Wine Route:** Essex County has a plethora of wineries, many connected with an on-road Wine Route that is signed and intended for motorists. Cyclists may wish to follow portions of this route depending on experience and comfort level on shared road facilities. There are also several local companies that run regular wine tours on bike.
- **Historic County Road 50 or County Road 20 between Kingsville and Amherstburg:** This route in the south offers stunning waterfront views.

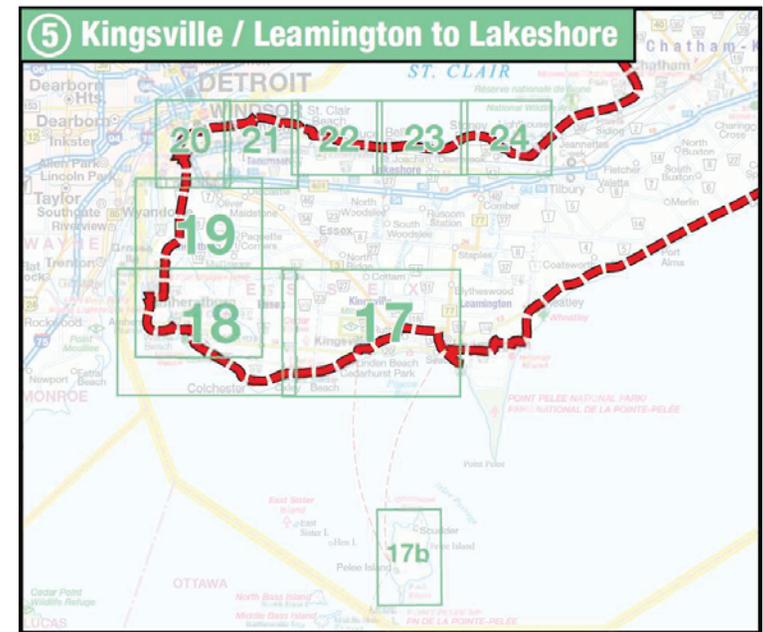


Figure 104: Waterfront Trail through Essex County

Destination Hierarchy

A wayfinding system can be designed for a variety of contexts, from a small municipality to a big city through careful consideration of a variety of components including destination hierarchies, sign types, design of signage and use of pavement markings.

A destination hierarchy is a strategy for consistently and predictably choosing which routes and destinations to sign, and at what distance to sign them. It is useful when there are too many possible destinations to include on a sign. A ranking system is used to categorize routes and destinations, typically based on their level of importance within a certain range of distance.

The following is a list of questions for practitioners to consider when signing routes and destinations within a cycling wayfinding system:

- Is the cycling route significant or leading to a significant destination?
- Is the destination accessible by a continuous cycling route?
- Is the location or route open year-round and accessible to the public?
- Is the destination or route relevant to a user at this particular point in the network?
- Is the destination or route within a distance that is reasonable to travel?

Destination wayfinding signs may be installed on “regionally significant” routes to guide cyclists to the following destinations:

- Major tourist attractions of Regional Significance as defined by regional tourism
- Public trails
- Municipalities
- Downtown areas, rural hamlets and business improvement areas
- Major public transit hubs / stations
- Public washroom facilities
- Schools and post-secondary institutions
- Connecting bike routes
- Public community / recreational centres
- Bridges

A preliminary step in the development of wayfinding signs for CWATS will be to identify and list assets that should be signed in each implementation area or along specific corridors. There will often be many destinations suggested as candidates to sign and it will be difficult or impossible to sign them all. A proposed approach with four destination hierarchy levels is shown in **Table 12** which can be used to determine the distance at which certain destinations are signed.

Table 12: Destination Hierarchy (Source: Capital Regional District, 2014)

Category	Rank	Description	CWATS Examples	Start Signing
Regional Centres	1 (high)	Major centres of activity within individual municipalities that offer a full range of attractions and services	Windsor US border crossing	5-8 km away
Local Neighbourhoods	2 (medium)	Centres of community that offer a mix of services	Municipality of Lakeshore Town of LaSalle Municipality of Leamington Town of Tecumseh Town of Amherstburg Town of Kingsville Town of Essex	4 km away
Major Attractions	3 (medium)	These trip attractors include transit stations, major tourist venues, regional parks, universities and colleges.	Pelee Island Ojibway Nature Centre Chrysler Canada Greenway Trail	2 km away
Local Destinations	4 (minor)	More local in nature such as community centers, parks, schools, public washrooms, Town Hall	McGregor Community Centre Essex Centre Sports Complex	1 km away

It is recommended that only public assets or institutions such as schools, hospitals, heritage sites or tourist attractions be promoted on wayfinding programs that are publicly administered. Shopping or business districts may be considered if they function as a significant landmark in the area, but caution should be taken on promoting individual private businesses by a publicly funded wayfinding system. If private businesses are included, a strong rationale should be documented, such as promoting all businesses of that type, as other businesses will likely wish to receive the same treatment once they see that other private businesses are being promoted.

Types of Signs and Markings

An important consideration for a wayfinding system is the type of signage chosen and its placement throughout the system. **Table 13** shows the main types of signs for a wayfinding system:

Table 13: Sign Types and Placement

Type	Decision	Turn	Confirmation	Road Name Plate	Trailhead	Pavement Markings
<p>Purpose</p>	<p>Provide direction at junctions, allowing users to orient themselves within the cycling network. Inform bicyclists of the designated bike route to access key destinations.</p>	<p>Indicate where a bikeway turns from one street onto another street. These signs can be used in conjunction with directional pavement markings.</p>	<p>Identify the current route of travel and reinforce direction of travel after a turn. Confirmation signs are repeated regularly to indicate to bicyclists and motorists that they are on a designated bikeway. This includes signage used to identify the CWATS network and those not branded to a specific network.</p>	<p>Identify a cycling route, reduce sign clutter by minimizing amount of new signage.</p>	<p>Used to mark the major entrances or gateways of off-road trails. Note that the focus of this strategy is on-road routes since off-road trails are managed by others.</p>	<p>This type of marking can support wayfinding signage, to ensure that turns are not missed. The can also assist with cyclist positioning on the roadway.</p>

Type	Decision	Turn	Confirmation	Road Name Plate	Trailhead	Pavement Markings
Information	Destinations and arrows, distances, and optional travel times; these signs may also provide direction to nearby destinations	Include destinations and arrows	Can include destinations and distance / time. Do not include arrows	On the street signs for designated cycling routes. Retrofitted on existing name plate signs	Map, Destinations, Distances, and Time Information	Directional sharrow marking
Placement	Placed 40-50 metres before a decision point between routes	Placed 5-10 metres in advance of turning points	Placed 20-30 metres after a change point and repeated every kilometer or at a higher frequently	Intersections where street name plates occur	Start and end of trail and at major road crossings and entry points	Typically for cycling routes on quiet streets



Figure 105: Riverside Drive, Town of Tecumseh
 Source: WSP Canada

Sign Design and Placement

Mounting cycling wayfinding signs along adjacent roadways follows the requirements for roadside signs. Vertical clearance is specified to provide the height of sign for visibility. Lateral clearance needs to provide a safe offset between the user and the sign that is a fixed hazard near their path of travel. **Table 14** shows these clearances.

Table 14: Vertical and Lateral Clearance of Cycling Wayfinding Signs (Source: Adapted from York Region Wayfinding Strategy)

Facility	Vertical Clearance	Lateral Clearance
Rural roadway (from edge of paved shoulder)	2.1 – 2.5 m	1.0 – 3.5 m
Urban street (from face of curb)	2.1 – 3.0 m	0.3 – 3.5 m
In-boulevard cycling facility (from edge of path)	1.5 m	Minimum 0.5 m

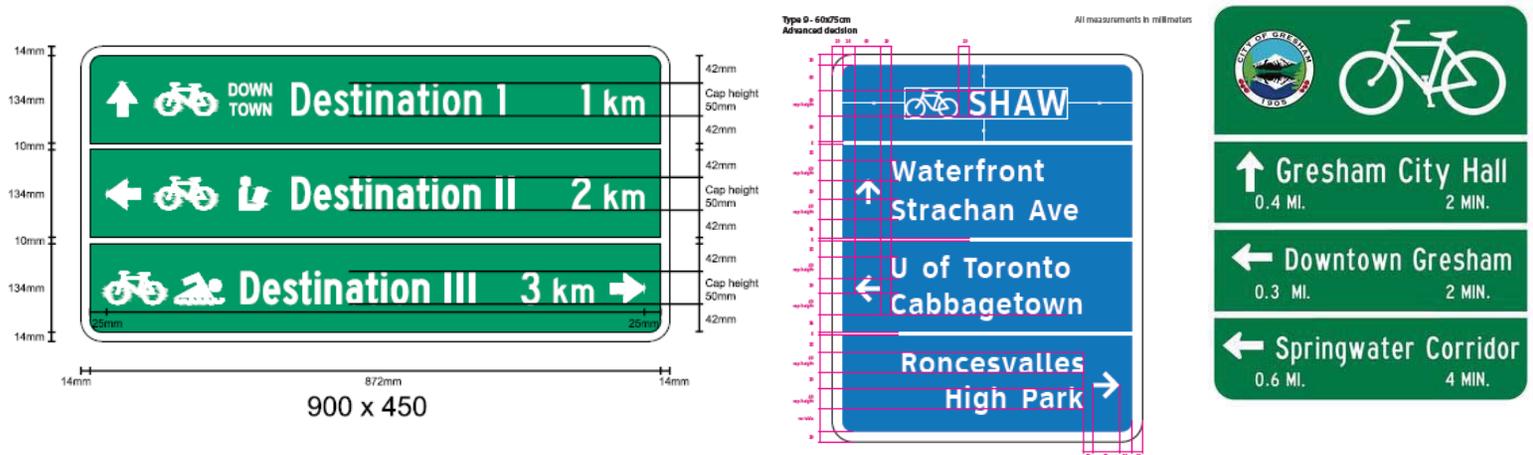
Graphic specifications for signs should consider:

- **Panel size:** The size of signage should allow for legibility from afar, providing enough distance to read and make decisions at average cycling speed. The panel size should allow for the sign to be mountable onto a pole or surface.
- **Typeface:** The font used for signage should allow for legibility from afar, providing enough distance to read and make decisions at average cycling speed. Typeface can also be used to be consistent with local identity.
- **Sign Colours:** The colour palette should be consistent and recognizable for cyclists and separate from signage directed at motorists.
- **Icons and Symbols:** Icons and symbols can be used to help communicate information quickly and with simplicity, expanding comprehension to those without English or French proficiency. Use of icons and symbols can also save space and improve legibility.
- **Volume and Clarity of Text:** The amount of information on a sign should be the minimum level to make decisions. Unless necessary, punctuation such as periods and commas should be avoided.

The following are examples of common signage types that can be developed further and into a sign family with a common colour scheme, typeface and symbology and CWATS branding.

Table 15: Examples of Signage that can be adapted by the County

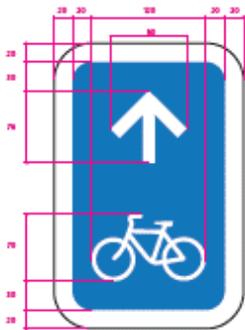
DECISION SIGNS



TURN SIGNS



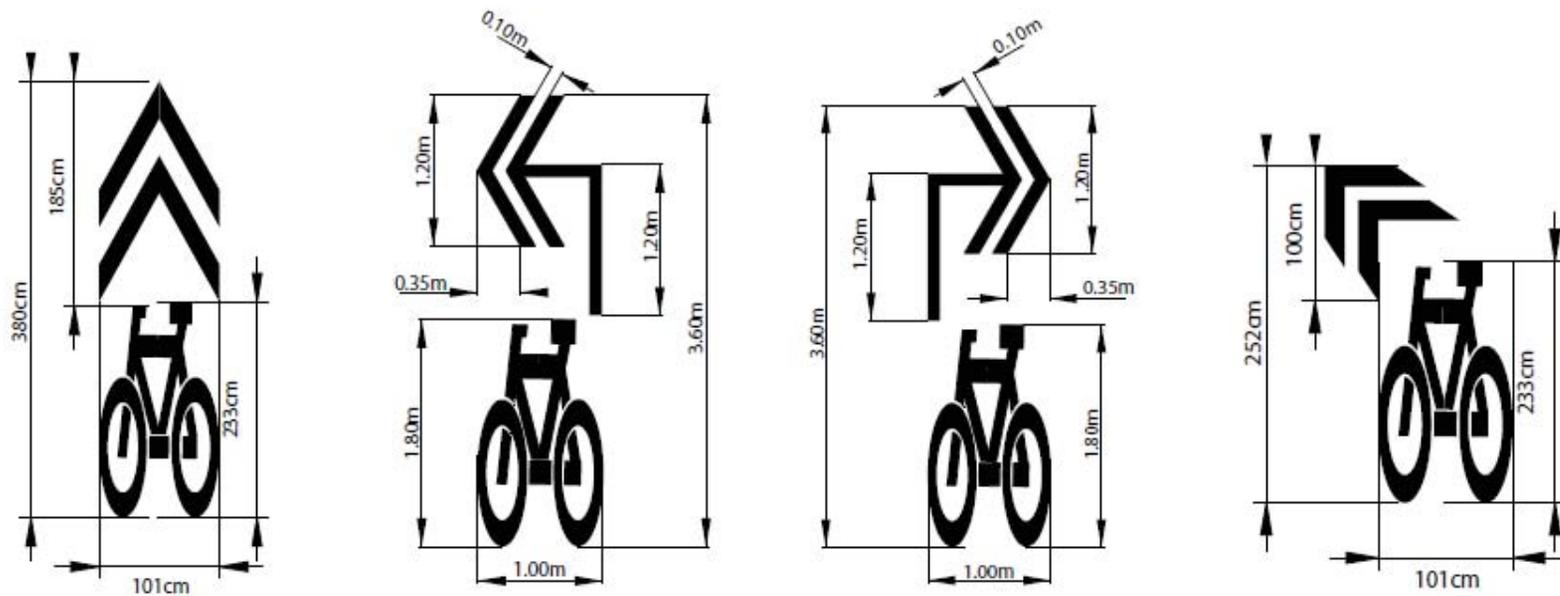
CONFIRMATION SIGNS



ROAD NAME PLATE



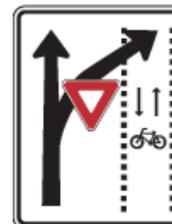
DIRECTIONAL ARROWS



REGULATORY SIGNS



**BICYCLES
EXCEPTED**



Demonstration Project

A pilot implementation is essential to test the functionality of the wayfinding system and get feedback from users. Based on a preliminary review of candidate “regionally-significant” routes, the segment of the Waterfront Trail from Amherstburg to Kingsville, shown in **Figure 106**, is recommended as a demonstration cycling wayfinding project.

- **Start:** Austin “Toddy” Jones Park & Dalhousie Street, Amherstburg
- **End:** Connection with Chrysler Greenway on Heritage Road / Country Rd 50, Kingsville
- **Distance:** 41.9 km

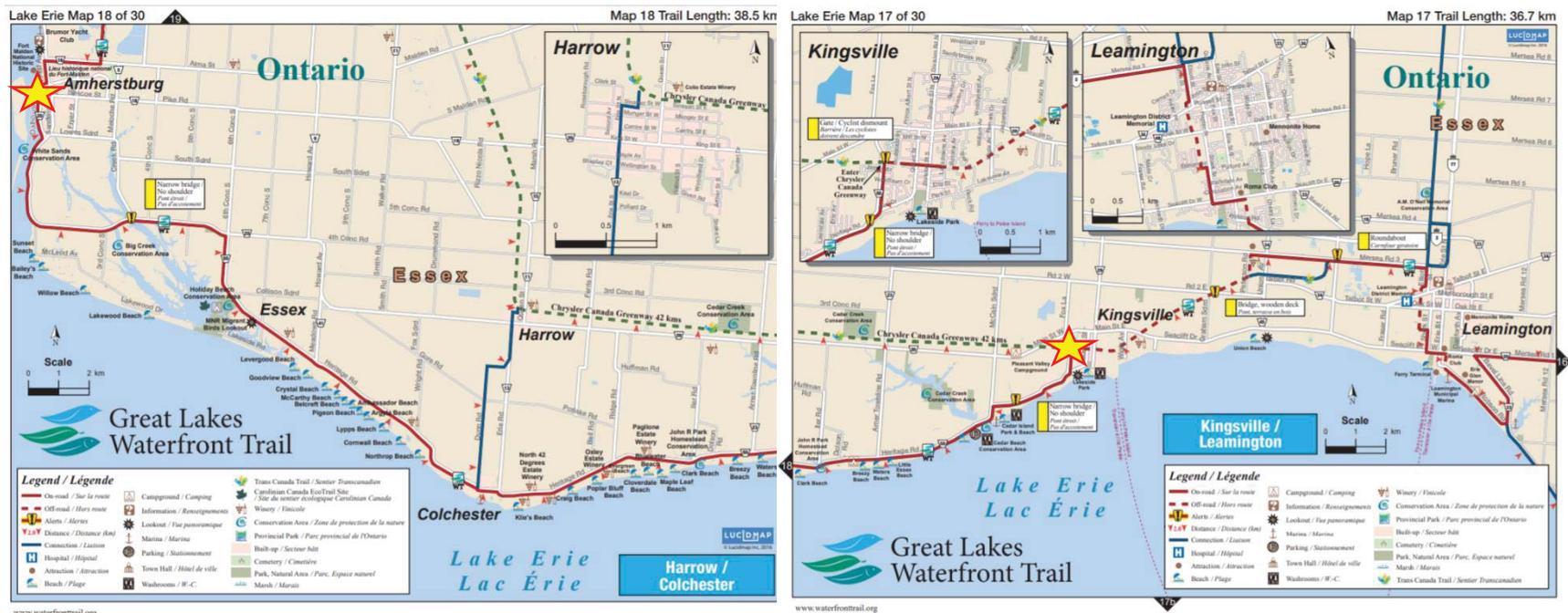


Figure 106: Proposed Cycling Wayfinding Route (Source: Waterfront Trail)

Next Steps

The following steps are recommended to implement a cycling wayfinding demonstration project:

1. Confirm wayfinding approach and finalize sign design
2. Identify and list destinations that should be signed within the pilot area
3. Conduct an initial review of required decision, turning and confirmation signs, as in **Figure 107**.
4. Conduct a signage audit to inventory existing signs and opportunities to install signs on existing posts
5. Prepare signing plan including cost estimate
6. Coordinate with appropriate jurisdictions and confirm budget and approval for installation
7. Manufacture signs
8. Contact Operations to coordinate locations for posts installation (as needed), hardware and other requirements
9. Collect feedback through online and intercept surveys

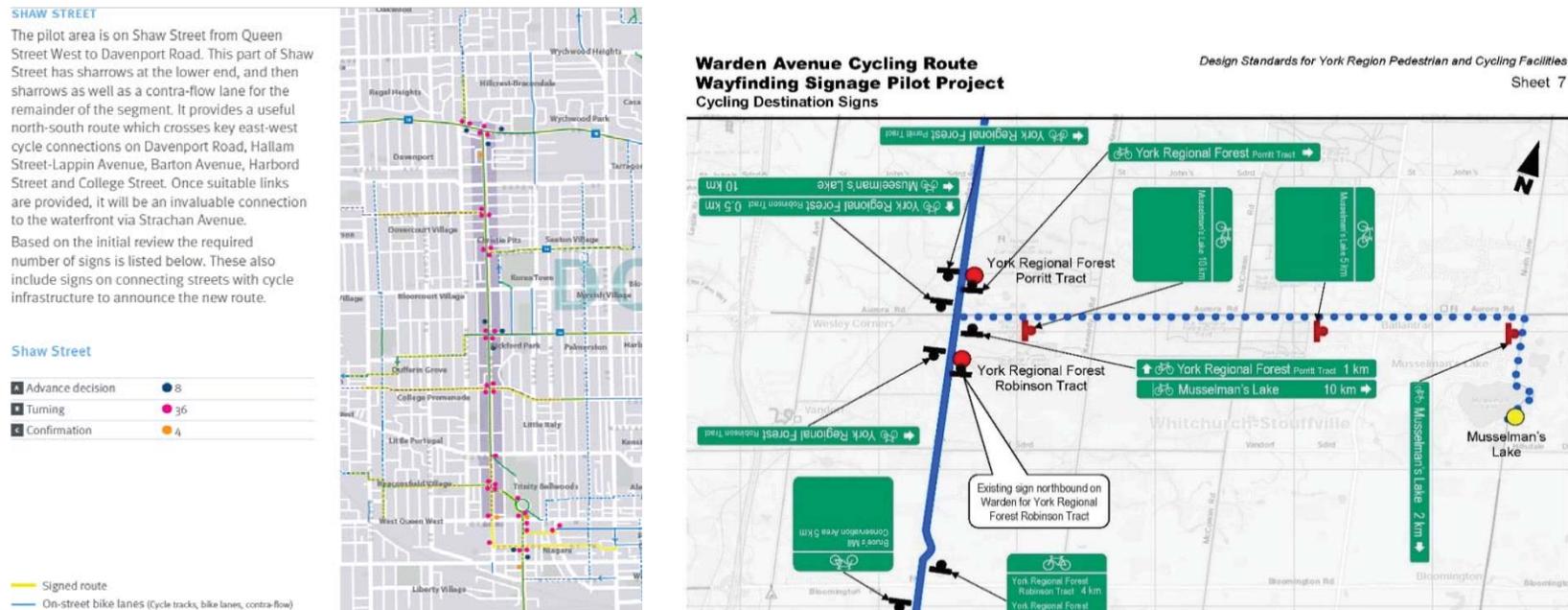


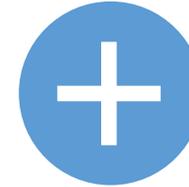
Figure 107: Examples of wayfinding signage plans (Source: City of Toronto & York Region)

6.5 PROPOSED NETWORK RECOMMENDATIONS

These detailed changes to both the CWATS network and process that informed them, are best actioned through the adoption of a series of related recommendations. The approach taken leverages the success of past initiatives and adapts to emerging trends related to cycling, as identified locally or from reviewed best practices. Recommendations from the 2012 Plan that have been implemented and/or are on-going form part of this master plan and should continue to be supported throughout the lifecycle of this update. Previous recommendations that should be re-confirmed and new recommendations are categorized in **Table 16** using the following symbols:



Previously recommended in the 2012 Plan (re-confirmed and to be implemented as part of the 2023 Update)



New recommendation in the 2023 Update

Network decisions are a key aspect of implementing CWATS across the County of Essex and the proposed recommendations in this chapter are meant to assist the County, its local municipalities and partners over the next 10+ years to continue to successfully implement the CWATS Master Plan. The information and recommendations contained in this chapter are intended to demonstrate the shifting landscape of network planning and design guidance within Ontario and the County. A full summary of the recommendations in this plan, including the previously proposed recommendations that have been implemented, is provided in **Technical Appendix A**.

Table 16: Summary of Policy Recommendations

- 
6.1 Consider integrating design features at intersections and other conflict points as noted in **Section 6.3.2** that help to increase a user's sense of comfort and safety and to encourage more people to use the CWATS network.
- 
6.2 It is recommended that the County and its local municipalities consider undertaking a pilot project along a County road on the edge or within an urban area and apply design principles / separation techniques identified in the update to OTM Book 18.

-  **6.3** County staff should reference the design guidelines / standards identified in the update to OTM Book 18 when planning and designing roundabouts and intersections to provide provisions for pedestrians, cyclists and other active transportation users.
-  **6.4** County staff in partnership with its local municipalities and ERCA should develop a wayfinding strategy for the CWATS network. Building upon a wayfinding strategy, a pilot program can be implemented to test the functionality of the wayfinding system and get feedback from users (refer to **section 6.4.7**)
-  **6.5** The County, in partnership with local municipalities, will undertake a complete inventory of existing wayfinding and signage features.

To enhance the active transportation network, the recommendations outlined in this chapter will need to be supported by various policies and programs, which are detailed in **Chapter 5** and **Chapter 7**, respectively. It is recommended that the County review these recommendations with its partners to understand the vision for the future active transportation and to use this as a blueprint for future active transportation decision-making.