

## 5.4 FREEWAY CROSSINGS

Freeways and highways often act as major barriers to active transportation networks. Where active transportation facilities must cross these barriers, the following strategies should be considered to avoid or mitigate potential conflicts (in decreasing order of preference):

1. **Provide grade separation of the active transportation facility** (refer to Exhibit 5-34 for an example and Chapter 5.7 for details on grade separated crossings). A separate bridge for vulnerable users located up or downstream of the interchange will help to eliminate potential conflicts with motorists as users remain within their own dedicated path or trail.

Exhibit 5-34. Proposed McKenzie Interchange Project with Multi-use Path Overpass



"McKenzie Interchange project – detail of Galloping Goose Trail" by Province of British Columbia (CC BY-NC-ND 2.0)

2. Where facilities cannot be grade separated and facilities must cross interchanges, **interchanges which restrict free flow vehicular movements by providing signal or stop controlled entry and exit legs** meeting an arterial perpendicularly **are preferred**.
3. **Where high-speed merge and diverge ramps must be provided, jughandle designs can provide safer crossings.** In a recent survey of the Highway 7 corridor in York Region, many cyclists noted their lack of comfort using conventional conflict zone treatments across these ramps, therefore jughandle treatments are generally preferred for applications in York Region.

In the case of high speed merge and diverge ramps, this chapter illustrates two jughandle design concepts (shown in Exhibit 5-35 to Exhibit 5-36).

Interchange ramps provide high stress environments for pedestrians, cyclists and drivers alike. Mixing relatively high speed, high volume motor vehicle traffic making frequent turning movements with vulnerable users is a challenge. To facilitate safe movements for cyclists and pedestrians, its critical provide ample time to select a gap when crossing merging and diverging traffic.

The jughandle designs provides clearly delineated space for cyclists, allowing ample time to choose when to cross merging and diverging traffic. Tactile plates are applied to the pedestrian ramps to improve accessibility. Although not shown in these concepts, there may be a possibility of introducing PXOS at ramps to provide controlled crossings.

**Note these jughandle designs are conceptual only and any design of ramp crossings under MTO jurisdiction require consultation.**



**One of the major conflict areas between motorists and cyclists on Highway 7 is the interchange at Highway 404 where Highway 7 passes under Highway 404.**

The conflict between cyclists and motorists entering the on-ramps or exiting the off-ramps poses one of the more common barriers to safe and comfortable cycling. Just 14% of respondents indicated that they feel safe with the conventional conflict zone design, while 45% indicated that they do not feel safe, and 40% indicated that the new facility has improved their sense of safety but that they are still concerned at this location.





## Bike Lanes & Sidewalk with Diverging Ramp Crossing

### Minimum

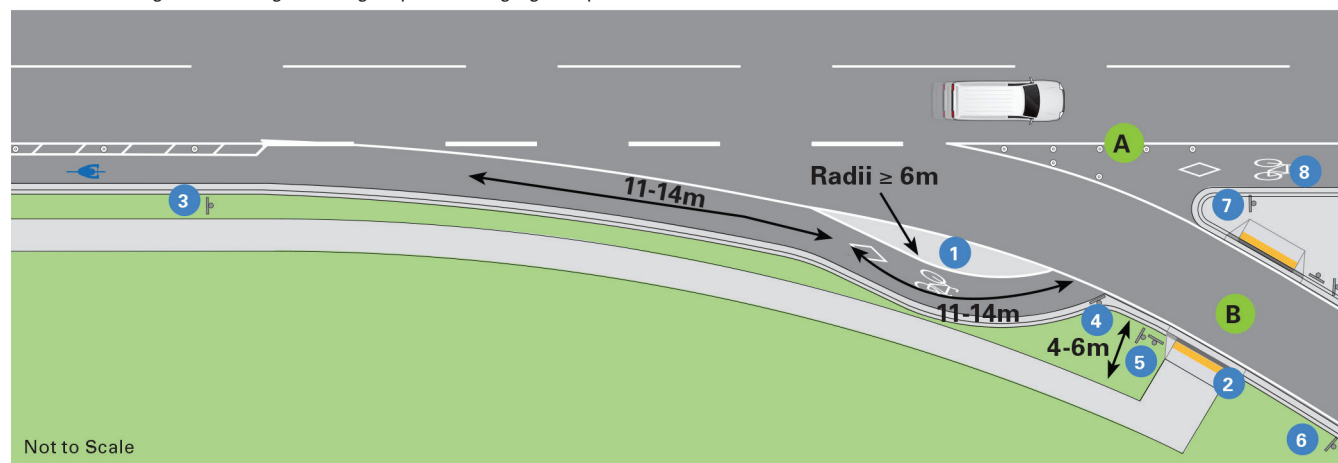
- 1 Jughandle design with reserved bike lane symbol slows cyclists and allows them to come closer to a perpendicular crossing to better evaluate gaps in vehicular traffic
- 2 Pedestrian crossing with tactile plates and AODA – compliant curb ramps
- 3 'Pedestrian and Bicycle Crossing Ahead' signage and 'Crossing' tab (WC-46R + WC-7s – TAC) alerting drivers to the potential presence of cyclists and pedestrians crossing the ramp
- 4 'Yield' signage (Ra-2 – OTM) indicating to cyclists that they are required to yield right of way to drivers merging onto the ramp
- 5 'Wait for Gap' signage (Wc-28 – OTM) facing both directions indicating to pedestrians that they are required to yield right of way to drivers merging onto the ramp
- 6 'No Pedestrians or bicycles' signage (Rb-68 – OTM) to indicate to cyclists and pedestrians that entry onto the freeway is prohibited.
- 7 'Reserved Bicycle Lane' (RB-91 - TAC) to re-confirm the designation of the cycling facility after the merge ramp.

### Preferred

- A Optional bollards in gore area to discourage late lane changes. Late lane changes can be particularly risky for vulnerable users who may be deciding to cross.
- B At present, there are no opportunities to formalize or control pedestrian crossings of ramps, so no pavement markings should be applied. However, as the use of pedestrian crossovers grows in Ontario, opportunities to introduce crossovers at ramps locations as appropriate should be considered.



Exhibit 5-35. Jughandle Design at a High-Speed Diverging Ramp with Bike Lanes & Sidewalk



## Bike Lanes & Sidewalk with Merging Ramp Crossing

Minimum	Preferred
<ol style="list-style-type: none"> <li>1 Jughandle design with reserved bike lane symbol slows cyclists and allows them to come closer to a perpendicular crossing to better evaluate gaps in vehicular traffic</li> <li>2 Pedestrian crossing with tactile plates and AODA – compliant curb ramps</li> <li>3 'Pedestrian and Bicycle Crossing Ahead' signage and 'Crossing' tab (WC-46L + WC-7s – TAC) alerting drivers to the potential presence of cyclists and pedestrians crossing the ramp</li> <li>4 'Yield' signage (Ra-2 – OTM) indicating to cyclists that they are required to yield right of way to drivers merging onto the ramp</li> <li>5 'Wait for Gap' signage (Wc-28 – OTM) facing both directions indicating to pedestrians that they are required to yield right of way to drivers merging onto the ramp</li> <li>6 'Reserved Bicycle Lane' (RB-91) to re-confirm the designation of the cycling facility after the merge ramp.</li> </ol>	<ol style="list-style-type: none"> <li>A Optional bollards in gore area to discourage cyclists from continuing straight through the crossing</li> <li>B At present, there are no opportunities to formalize or control pedestrian crossings of ramps, so no pavement markings should be applied. However, as the use of pedestrian crossovers grows in Ontario, opportunities to introduce crossovers at ramps locations as appropriate should be considered.</li> </ol>

Exhibit 5-36. Jughandle Design at a High-Speed Merging Ramp with Dedicated Bikeway and Sidewalk

