

## 7.0 ALTERNATIVE DESIGN CONCEPTS FOR PREFERRED TRAIL ALIGNMENT

### 7.1 Alternative Design Concept Approach and Evaluation Criteria

Upon completion of the high-level screening described in Chapter 6, Concept 1A, Concept 2A, and Concept 3A were selected to be carried forward for further study and evaluation. This chapter describes refinements made to the preliminary preferred concepts and how each of the refined routes were evaluated to identify the preferred trail alignment that would be carried forward to a 30% level of design. The “do nothing” scenario was also carried forward as a baseline against which to assess the other concepts.

#### 7.1.1 Description of the Preliminary Preferred Trail Alignment Concepts

Concepts 1A, 2A, and 3A were refined and developed in further detail based on new information collected through technical studies as well as consultation carried out during the MCEA. Technical studies which informed the concept refinements and detailed evaluation included the following:

- Mid Humber Gap Terrestrial Biological Inventory (TRCA, 2022), Appendix C;
- Fluvial Geomorphological and Erosion Assessment (Water’s Edge, 2021), Appendix D;
- Mid Humber Gap Trail – Hydraulic Report V2 (Burnside, 2022) Appendix E;
- Stage 1 – Archaeological Assessment (TRCA, 2021) Appendix F;
- Geotechnical Desktop Study (Terraprobe, 2021), Appendix H;
- Topographic Survey (TRCA, 2021) provided in Appendix I; and
- Traffic Analysis (Burnside, 2021), Appendix J

An overview of the refinements made to the preliminary preferred alignments, as well as additional details gathered to inform the detailed evaluation, are described below.

**Do Nothing:** This scenario refers to maintaining existing trail conditions. Maintenance and inspection for existing trail components, such as the Mallaby Park staircase, would continue. Improvements to pedestrian access along Fairglen Crescent and Cardell Avenue will be provided through the implementation of a sidewalk as part of the 2022 road resurfacing and watermain replacement project led by the City. Modifications through other City project were made to the intersection of St. Philips and Weston Road in 2021, which removed a right turn channel and increased boulevard space to allow for a shared trail facility for south-bound cyclists only and pedestrians along a short segment of Weston Road south of Humberview Crescent and the Mallaby staircase.

**Concept 1A (Modified In-valley Alignment):** This concept was refined based on comprehensive consultation with private landowners, Metrolinx, and City of Toronto

departments. Key technical studies, including the Fluvial Geomorphological and Erosion Assessment and hydraulic analysis also informed refinements to the conceptual alignment.

From the existing trail at Crawford-Jones Memorial Park, users cross a new pedestrian-cycle bridge to the west bank of the Humber River. Due to differences in ground surface elevation between the east and west bank at this location, the northern bridge crossing will need to include a ramp on the east side. Hydraulic modeling indicated that a ramp perpendicular to the river would result in an unacceptable increase to the 350-year and Regional Flood elevations upstream of the bridge. An alternative design, where the ramp was oriented parallel to the river flow, resulted in significant improvements to hydraulic capacity and was carried forward.

Under the original Option 1A concept (see Chapter 6) the at-grade trail would follow the riverbank along WGCC lands and pass below the rail bridge to the west side of the bridge abutment closest to the riverbank. To minimize impacts to and provide greater separation from the golf course lands, the alignment was shifted east and positioned closer to the riverbank. In this configuration, a 183 m raised boardwalk would be constructed to minimize the overall footprint and reduce flood risk impacts.

As part of the original concept design, the southern bridge crossed the Humber River with a slight skew so as to provide adequate turning radius for emergency and maintenance vehicles. This resulted in a longer structure that also had unacceptable levels of impact to flood elevations at the 350-year and Regional Flood events. To minimize capital costs and improve hydraulic conveyance, the bridge was redesigned to cross perpendicular to the river. The refinement also included the addition of protective screening on the southern bridge and boardwalk to safeguard trail users from the active golf course area as well as from possible falling objects due to the overhead rail bridge in accordance with Metrolinx requirements. The canopy and screening also serve to prevent trespassing or vandalism on private lands. Due to the modification to the bridge design to ensure adequate hydraulic conveyance, ambulance access is not permitted due to spatial constraints. Smaller motorized vehicles can be used (e.g., a standard Ford F-150 or Gator) as needed for maintenance and emergency access and a detailed emergency plan will be developed in consultation with City of Toronto Emergency Services staff.

After crossing the southern bridge, users follow the paved at-grade trail through the private land trust along an alignment adjacent to a buried sanitary sewer line via an existing easement. The sewer line was recently upgraded, and the trail will follow an area which was disturbed as part of this recent construction in order to minimize disturbance as much as possible.

Please see Figure 6-1 for an overview of Concept 1A.

**Concept 2A (Hybrid In-valley/On-road Alignment):** This option was not substantially refined after the high-level screening. Hydraulic modeling, provided in Appendix E, indicated that none of the proposed structures (e.g., the cantilevered boardwalk) would impact the current flood regime. An assessment of existing geotechnical conditions based on available data by internal TRCA engineers as well as an external engineering consulting firm did highlight a number of significant constructability challenges and slope stability concerns. This included the close proximity of an underground parking garage on Weston Road, the risk of material displacement from above, and long-term slope instability. A comprehensive, subsurface geotechnical program would be needed to confirm the overall level of complexity and design required to implement Concept 2A safely.

Please see Figure 6-4 for an overview of Concept 2A.

**Concept 3A (On-road alignment):** The on-road alignment underwent a number of refinements based on a detailed transportation analysis undertaken as part the MCEA (see Appendix J). A bi-directional cycle-track would be installed in the current curb-side southbound lane from the rail bridge to Cardell Avenue. To minimize overall length, it was originally assumed that the cycle-track would extend from Fairglen Crescent to the rail bridge. However, to improve user safety and leverage existing infrastructure the cycle track was extended due to the signalized crossing at Cardell Avenue and Weston Road.

With the cycle-track in the western-most lane of Weston Road, all remaining lanes would need to be shifted to the east. There are currently three northbound lanes between Cardell Avenue and Oak Street. As lanes are shifted, the third northbound lane would be eliminated leaving only two in the northbound direction. Between Oak Street and the rail bridge, there are currently only two northbound lanes. In order to ensure that there are at least two lanes remaining in each direction, some property on the west side of Weston Road will need to be acquired. This includes lands owned by Metrolinx and a private auto service business.

Below and south of the rail bridge, the existing sidewalk will be modified to a shared multi-use trail for pedestrians and cyclists to connect with the existing trails in Mallaby Park. A robust guardrail would be added to the section of trail below the rail bridge to protect trail users through this narrow section due to close proximity to vehicle traffic. There may also be property impacts, reduction in traffic lanes, or other modifications to existing facilities to better accommodate trail users between Humberview Crescent and Mallaby Park. The Mallaby Park staircase would be replaced with a switchback trail, improving accessibility to the HRT.

Please see Figure 6-6 for an overview of Concept 3A.

### **7.1.2 Evaluation of the Preliminary Preferred Trail Alignment Concepts**

The criteria used to evaluate the preliminary preferred trail alignment concepts were similar to those used in the high-level Screening, with a few minor changes to better incorporate the findings of the technical studies and information gathered through the consultation program. The refined evaluation criteria are presented in Table 7-1.

**Table 7-1: Evaluation Criteria**

<b>Environmental Component</b>	<b>Criteria</b>	<b>Indicator</b>	<b>Data Source</b>
Problem statement	<ul style="list-style-type: none"> <li>Addresses problem statement</li> </ul>	<ul style="list-style-type: none"> <li>Concept closes the gap and provides a complete connection</li> </ul>	<ul style="list-style-type: none"> <li>Professional Landscape Architect opinion</li> </ul>
Natural Environment	<ul style="list-style-type: none"> <li>Impacts to bank stability</li> </ul>	<ul style="list-style-type: none"> <li>Slope stability concerns</li> <li>Design considerations associated with slope stability</li> <li>Portion of Concept within the erosion hazard limit</li> </ul>	<ul style="list-style-type: none"> <li>Lidar Data</li> <li>Topographic base mapping</li> <li>Air photos</li> <li>Various ravine infrastructure inspection reports</li> <li>Albion Sanitary Trunk Sewer Study MCEA (Hatch Mott MacDonald, 2015)</li> <li>Fluvial Geomorphological Study, provided in Appendix D</li> <li>Desktop Geotechnical Study, provided in Appendix H</li> </ul>
	<ul style="list-style-type: none"> <li>Impacts to woodlands and terrestrial habitat</li> </ul>	<ul style="list-style-type: none"> <li>Length of trail through woodland</li> <li>Effect on wildlife habitat</li> <li>Effect on SAR habitat and connectivity</li> <li>Findings of Natural Environment Study.</li> </ul>	<ul style="list-style-type: none"> <li>Mid Humber Gap Terrestrial Biological Inventory provided in Appendix C</li> </ul>
	<ul style="list-style-type: none"> <li>Impacts to wetlands</li> </ul>	<ul style="list-style-type: none"> <li>Length of trail through wetland and within 30m wetland buffer</li> </ul>	<ul style="list-style-type: none"> <li>Mid Humber Gap Terrestrial Biological Inventory, provided in Appendix C</li> </ul>

<b>Environmental Component</b>	<b>Criteria</b>	<b>Indicator</b>	<b>Data Source</b>
	<ul style="list-style-type: none"> <li>Impacts on aquatic habitat</li> </ul>	<ul style="list-style-type: none"> <li>Length of trail within 30m of a watercourse</li> <li>Area of riparian vegetation to be removed</li> </ul>	<ul style="list-style-type: none"> <li>Mid Humber Gap Terrestrial Biological Inventory, provided in Appendix C</li> </ul>
Social Environment	<ul style="list-style-type: none"> <li>User experience</li> </ul>	<ul style="list-style-type: none"> <li>Professional, qualitative opinion on trail aesthetics, trail user enjoyment, and comfort</li> </ul>	<ul style="list-style-type: none"> <li>Air photos/GIS mapping</li> <li>Professional Landscape Architect opinion</li> </ul>
	<ul style="list-style-type: none"> <li>Impact to private properties and businesses</li> </ul>	<ul style="list-style-type: none"> <li>Portion of trail on private property</li> <li>Property requirements and permissions</li> <li>Potential impacts to businesses</li> <li>Impacts to private property and structures</li> </ul>	<ul style="list-style-type: none"> <li>Property boundary mapping</li> <li>Property ownership data</li> <li>Stakeholder Advisory Group input</li> <li>City of Toronto Real Estate and Legal professional opinion.</li> </ul>
	<ul style="list-style-type: none"> <li>Impact to traffic and public transportation</li> </ul>	<ul style="list-style-type: none"> <li>Potential impacts to traffic flow and public transportation facilities</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Analysis, provided in Appendix J</li> </ul>
	<ul style="list-style-type: none"> <li>Trail accessibility and safety</li> </ul>	<ul style="list-style-type: none"> <li>Ability of Concepts to support an accessible network for all ages/abilities</li> </ul>	<ul style="list-style-type: none"> <li>Ontario Traffic Manual – Book 18 – Cycling Facilities</li> <li>National Association of City Transportation Officials – Design Guidance</li> <li>Toronto Accessibility Guidelines</li> <li>AODA – Design Guidelines</li> <li>Professional Landscape Architect opinion</li> </ul>
	<ul style="list-style-type: none"> <li>Consistency with trail policies and plans</li> </ul>	<ul style="list-style-type: none"> <li>Consistency with TRCA Trail Strategy, Toronto Ravine</li> </ul>	<ul style="list-style-type: none"> <li>TRCA Trail Strategy (2019)</li> </ul>

Environmental Component	Criteria	Indicator	Data Source
		Strategy, Toronto Cycling Network Plan	<ul style="list-style-type: none"> <li>City of Toronto Ravine Strategy (2020)</li> <li>City of Toronto Natural Environmental Trail Strategy (2013)</li> <li>City of Toronto Trails Implementation Plan (2012)</li> <li>City of Toronto Cycling Network Updates (2019, 2021)</li> </ul>
Cultural Environment	<ul style="list-style-type: none"> <li>Impacts to archaeological resources</li> </ul>	<ul style="list-style-type: none"> <li>Portion of trail within area of moderate to high archaeological potential</li> </ul>	<ul style="list-style-type: none"> <li>Stage 1 Archaeological Assessment, provided in Appendix F</li> </ul>
	<ul style="list-style-type: none"> <li>Impacts to cultural heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Portion of trail within proximity to heritage resources</li> </ul>	<ul style="list-style-type: none"> <li>Stage 1 Archaeological Assessment, provided in Appendix F</li> </ul>
Financial Factors	<ul style="list-style-type: none"> <li>Property costs</li> </ul>	<ul style="list-style-type: none"> <li>Costs associated with private property requirements, including easements, fee simple land purchases, restoration of private lands</li> </ul>	<ul style="list-style-type: none"> <li>Property boundary mapping</li> <li>City of Toronto high-level estimates of potential property acquisition costs</li> <li>Professional Landscape Architect high-level cost estimate on restoration</li> </ul>
	<ul style="list-style-type: none"> <li>Design and approval costs</li> </ul>	<ul style="list-style-type: none"> <li>Costs for detailed design and permitting of the proposed concept</li> </ul>	<ul style="list-style-type: none"> <li>Professional Engineer's high-level cost estimate</li> </ul>
	<ul style="list-style-type: none"> <li>Capital costs</li> </ul>	<ul style="list-style-type: none"> <li>Cost of the materials to construct the trail and associated structures</li> </ul>	<ul style="list-style-type: none"> <li>Professional Engineer's high-level cost estimate</li> </ul>
	<ul style="list-style-type: none"> <li>Maintenance costs</li> </ul>	<ul style="list-style-type: none"> <li>Costs to maintain and operate the trail, including inspection and minor maintenance (not</li> </ul>	<ul style="list-style-type: none"> <li>Professional Engineer's high-level cost estimate</li> </ul>

Environmental Component	Criteria	Indicator	Data Source
Technical Environment		including costs for major replacement and reconstruction)	<ul style="list-style-type: none"> <li>City of Toronto typical trail and trail infrastructure maintenance and inspection costs</li> </ul>
	<ul style="list-style-type: none"> <li>Constructability</li> </ul>	<ul style="list-style-type: none"> <li>Professional opinion on the ease and efficiency with which the trail and structures can be built</li> </ul>	<ul style="list-style-type: none"> <li>Professional engineering opinion</li> </ul>
	<ul style="list-style-type: none"> <li>Impacts to existing public utilities and infrastructure</li> </ul>	<ul style="list-style-type: none"> <li>Proximity of project to existing public infrastructure and utilities</li> </ul>	<ul style="list-style-type: none"> <li>Air photos/GIS mapping</li> <li>Professional engineering opinion</li> </ul>
Public Safety Factors	<ul style="list-style-type: none"> <li>Flood risk</li> </ul>	<ul style="list-style-type: none"> <li>Portion of trail subject to flooding</li> <li>Potential for Concept to increase flooding</li> <li>Potential and frequency of flood damage to the trail and associated structures</li> </ul>	<ul style="list-style-type: none"> <li>Hydraulic Analysis, provided in Appendix E</li> </ul>
	<ul style="list-style-type: none"> <li>Safety factors related to traffic</li> </ul>	<ul style="list-style-type: none"> <li>Interactions with active roadways</li> <li>Ability of the Concept to safely separate trail users from traffic</li> </ul>	<ul style="list-style-type: none"> <li>Transportation Analysis, provided in Appendix J</li> </ul>
	<ul style="list-style-type: none"> <li>Other safety factors</li> </ul>	<ul style="list-style-type: none"> <li>Safety concerns associated with adjacent land uses (e.g., proximity of active golf course area, active rail line) and safety conflicts between cyclists, pedestrians and other trail users (does not include safety factors related to traffic which are described above).</li> </ul>	<ul style="list-style-type: none"> <li>Toronto Multi-use Trail Design Guidelines</li> <li>Professional Landscape Architect opinion</li> </ul>



Following the detailed evaluation, each concept was scored using a scale from least to most preferred based on its potential impact or ability to meet the project problem statement. Similar to the high-level screening in Chapter 6, scoring was based on quantitative measures where possible (e.g., area of woodland to be removed). For many criteria (e.g., ease of construction), impacts were based on qualitative assessment and professional experience.

Criteria are categorized into Natural, Social, Cultural, Financial, Technical and Public Safety components. Because each of these main categories has a different number of criteria, the rankings will be averaged under each main category and the Preferred Concept will be based on the average rankings for Natural, Social, Cultural, Financial, Technical and Public Safety components.

The evaluation for the preliminary trail alignment concepts is summarized below in **Table 7-2** and the detailed evaluation is provided in Appendix G

**Table 7-2:** Evaluation Criteria for the “Do Nothing” approach and preferred trail alignment concepts.

EVALUATING CRITERIA		In-Valley Alignment	Hybrid Alignment	On-Road Alignment
	Do Nothing	Concept 1A	Concept 2A	Concept 3A
Natural Environment	●	◐	◑	◐
Social Environment	◑	◐	◑	○
Cultural Environment	●	◐	◐	◐
Financial Factors	◐	◑	○	◐
Technical Factors	●	◐	○	◐
Public Safety Factors	◐	◐	◐	◐
Problem Statement	○	●	◐	◐
<b>OVERALL SUMMARY</b>	Not Carried Forward	Most Preferred	Least Preferred	Somewhat Preferred

**Do Nothing:** With this concept, there are no additional impacts to the natural environment beyond existing use, potential archaeological or cultural resources or private properties beyond the existing conditions. There are no capital costs; however, maintenance of the existing infrastructure, including the Mallaby Park staircase will continue to be required. There are a significant number of disadvantages to doing nothing. The Mallaby Park staircase will remain a barrier to accessibility. The sidewalk and lack of designated cycling lanes along

Weston Road provide relatively unsafe cycling conditions and a poor experience for trail users along the busy roadway, particularly in the narrow space below the rail bridge. A well-connected trail route is not provided.

**Concept 1A (Modified In-Valley Alignment):** The in-valley alignment best meets the project Problem Statement and provides the best-connection overall out of the trail alignment concepts. It provides an appealing user experience through the ravine, with significant safety improvements provided by removing interaction between trail users and vehicles on Weston Road. The grade of this trail route is relatively gentle compared to alternatives that enter and exit the valley. As such, it provides a link in the trail network that is easier to navigate for all ages and abilities. Bridge and boardwalk structures can also be designed to meet accessibility guidelines. This concept has moderate capital and maintenance costs, both of which are estimated to be higher than the cost of Option 3A but less than Concept 2A.

The implementation of Concept 1A will require the acquisition of private lands from both the WGCC and the private land trust. The project team has worked and will continue to work closely with the WGCC to minimize impacts to golf operations. By constructing an elevated boardwalk close to the riverbank, reconfiguration of the existing hole layouts, including the nearby green, tee deck, and irrigation pond, can likely be avoided. However, the proximity and design of trail infrastructure will impact the existing views and aesthetic within the area. To minimize risk to trail users related to active golf play, as well as reduce opportunities for trespassing and vandalism to WGCC property, protective screening will be constructed along the southern bridge and boardwalk. To minimize trespassing concerns on the private land trust to the east of the Humber River, signage will be installed, and fencing constructed.

There are some construction challenges associated with this concept. The presence of an active underground sanitary sewer within the project area requires the trail and boardwalk to be constructed in a way that does not impede access (Figure 5-14). In general, the construction area on the west bank adjacent to the irrigation pond is relatively constricted and adds complexity to the construction process.

Both bridges result in minor increases in the 350-year and Regional Flood elevations, but in both cases the increases are within acceptable design tolerances for bridge crossings within floodplains. No buildings are located within these floodplains; however, two parking lots are present at the end of Dee Dr. on the east bank of the river and various golf course components, including fairways, greens and tee decks are present in the floodplain on the west bank. In a 350-year flood event, portions of the golf course and land trust located within the floodplain will be under 3 m of water. As such, an increase in flood elevation of less than 0.20 m is not expected to modify existing impacts under extreme flood conditions. To withstand more frequent flooding as well as seasonal phenomena like spring ice flows or

debris jams, the boardwalk design will need to be robust and include a comprehensive maintenance plan to ensure user safety and long-term viability.

**Concept 2A (Hybrid In-Valley/On-Road):** The alignment of Concept 2A is restricted to the east side of the Humber River along its entire length, thus eliminating the need for bridge structures and the acquisition of land from the WGCC. The private land trust would be largely unaffected; however, a small section of property would be needed to support the switchback trail that would replace the Mallaby Park staircase.

The cantilevered boardwalk along the steep east slope face present significant engineering and constructability challenges. Most significantly, the below-ground parking lot for the Country Club Towers property appears to be located close to the slope. This could affect the ability to properly anchor the boardwalk to the slope face. Due to spatial constraints between the top of slope and existing private property's, construction of the cantilevered boardwalk would likely have to occur from the river resulting in impacts to the riverbed and any potential aquatic habitat.

Maintenance of the cantilevered boardwalk would also be a significant consideration to the long-term viability of the structure. Regular inspections of the anchoring, underside of the structure, and stability of the slope may require specialized equipment due to the inaccessibility of these areas and adds to operating costs.

A portion of the trail is proposed to cross lands currently owned by Metrolinx. Property acquisition (fee simple or easement) would be required from Metrolinx in order to construct a trail along this segment. Due to its location on Weston Road, land values are estimated to be significant for this parcel and thus adds to overall capital costs for the concept.

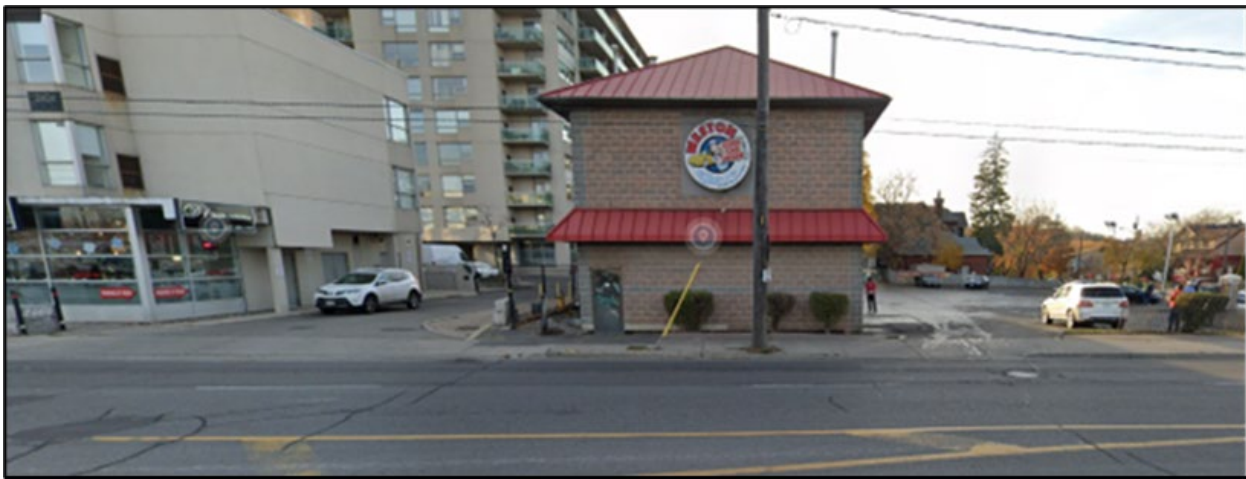
Due to its hybrid approach requiring users to exit the valley temporarily and utilize existing infrastructure along Weston Road (e.g., the narrow, shared facility underneath the rail bridge), the overall safety and accessibility of the concept is reduced as compared to Option 1A.

**Concept 3A (On-Road):** As a cycle-track, Concept 3A has lower overall capital and maintenance costs compared to the more complex Concept 1A and 2A trail alignments. Challenges in implementation of this concept include significant temporary disruption due to high traffic volumes, the need to relocate existing infrastructure (e.g., buried utilities and overhead power lines), and the need for private land acquisition in order to permit land reconfiguration. As an on-road option, impacts to the WGCC and ravine habitat would be avoided, with a small portion of the private land trust required to support the switchback trail that will replace the Mallaby Park staircase.

Private property acquisition would be required along the west side of Weston Road, between the rail bridge and Oak Street, in order to permit road widening for cycle-track installation.

Despite widening, the northbound lanes would be reduced from three lanes to two from the rail bridge north to Cardell Avenue. Modelling of existing and future traffic patterns indicated that overall traffic volumes would not be significantly impacted despite the reconfiguration, however, impacts to some properties south of the rail bridge and to existing TTC operations (e.g., the bus stop at Oak Street.) may occur.

Based on the detailed evaluation, results of the traffic analysis report, and consultation with technical experts at City of Toronto Traffic Operations, the most significant disadvantage of implementation an on-road concept is the overall safety, accessibility, and perceived level of comfort and appeal as compared to Option 1A and 2A. A number of properties on the west side of Weston Road have existing accesses with turning vehicles that will cross a potential cycle-track, as illustrated in Figure 7-1. The full traffic analysis report can be found in Appendix J.



**Figure 7-1:** Access on the west side of Weston Road, north of Oak Street (*Source: Google Street view, 2017*).

As seen in Figure 7-2, southbound queued vehicles on Weston Road (extending back from Oak Street) increase the pressure on drivers to maintain a high-level of awareness and attention for vehicles turning into and out of driveways.

With the addition of a two-way cycle track, the probability of conflict between cyclists and vehicles is increased significantly. Two-way cycling facilities are not recommended on roadways with frequent intersections and driveways (three or less per km) and must consider the available boulevard space and the frequency of conflict points (driveways and destination on each side of the roadway). Additional safety features, such as signage and pavement markings, would be required as a key component of the design phase plus measures to ensure clear sight lines.



**Figure 7-2:** Weston Road, southbound queue (*Source: Google Street View, 2017*).

**Table 7-3:** Summary of key advantages and disadvantages of the refined preliminary preferred trail alignment concepts.

Option	Advantages	Disadvantages
Do Nothing	<ul style="list-style-type: none"> <li>• Avoids impact beyond existing conditions to woodlands, steep slopes, Humber River, archaeological and cultural heritage resources.</li> <li>• Requires no capital cost.</li> <li>• Requires low maintenance costs, associated with existing staircase only.</li> </ul>	<ul style="list-style-type: none"> <li>• Does not address the accessibility barrier created by the staircase</li> <li>• Provides a poorly connected, low-appearance experience as users are required to exit the valley</li> <li>• Does not provide safe cycling conditions on Weston Road</li> <li>• Does not address the problem statement</li> </ul>
Concept 1A (In-Valley)	<ul style="list-style-type: none"> <li>• Provides a safe, accessible and well-connected trail experience</li> <li>• Avoids conflict with traffic.</li> <li>• Requires lower capital cost compared to Concept 2A</li> <li>• Aligns with TRCA and City planning policies</li> </ul>	<ul style="list-style-type: none"> <li>• Requires property acquisition (fee simple and/or easement) from the WGCC and private land trust.</li> <li>• Raises potential for trespassing and vandalism on WGCC and private land trust.</li> <li>• Includes a trail which is primarily within the 25-year floodplain.</li> <li>• Requires short segment of elevated boardwalk at the 5-year floodplain elevation.</li> <li>• Installation of bridges and boardwalk creates minor increase in flood elevation at low frequency flood events.</li> <li>• Construction is complex due to proximity to WGCC and Humber River, sanitary sewer line and rail bridge.</li> <li>• May require bank stabilization measures due to the proximity of the boardwalk to the riverbank.</li> </ul>



Option	Advantages	Disadvantages
Concept 2A (Hybrid In-Valley/On-Road)	<ul style="list-style-type: none"> <li>• Avoids impact to the WGCC.</li> <li>• Requires only a small portion of the private land trust.</li> <li>• Will not increase flood elevations.</li> </ul>	<ul style="list-style-type: none"> <li>• Requires a portion of Metrolinx lands with a high estimated value</li> <li>• Design and construction of cantilevered boardwalk is highly complex due to steep slope, proximity of underground parking garage, stormwater outflow and existing retaining walls.</li> <li>• Removes stabilizing vegetation on a steep slope, potentially causing slope instability.</li> <li>• Provides a poor user experience as trail users must exit and re-enter the valley.</li> <li>• Results in safety concerns with the passage of pedestrians and cyclists through the narrow trail below the rail bridge at Weston Road</li> <li>• Requires the highest capital and maintenance cost.</li> <li>• May require in-water construction access</li> <li>• Switchback trail may cause accessibility issues for some users</li> </ul>

Option	Advantages	Disadvantages
Concept 3A (On-Road)	<ul style="list-style-type: none"> <li>Minimizes impact to natural environment and avoids structures in the floodplain</li> <li>Avoids impact to WGCC</li> <li>Results in minor impact to private land trust.</li> <li>Results in the lowest capital and maintenance costs relative to other concepts.</li> </ul>	<ul style="list-style-type: none"> <li>Requires acquisition of Metrolinx and auto service centre property on Weston Road with a high estimated value</li> <li>Reduces number of northbound lanes from three to two</li> <li>May affect Oak Street bus stop</li> <li>High traffic volumes on Weston Road may result in safety hazards to cyclists on cycle-track due to volume of traffic turning into and out of residential and commercial driveways</li> <li>Provides a poor user experience as trail users must exit and re-enter the valley.</li> <li>Results in safety concerns with the passage of pedestrians and cyclists through the narrow trail below the rail bridge at Weston Road</li> <li>Switchback trail may cause accessibility issues for some users</li> </ul>

## 7.2 Preferred Trail Alignment Concept

Through the detailed comparative analysis of the three preliminary preferred trail alignments, Concept 1A was identified as most preferred due to receiving the highest score in the evaluation. Consisting of an exclusively in-valley connection between Crawford-Jones Memorial Park and Mallaby Park, Concept 1A closes the existing gap in the HRT through the implementation of a paved multi-use trail, with two pedestrian-cycle bridges spanning the Humber River. To minimize impacts to private lands on the west bank of the Humber River, a short segment of elevated boardwalk is proposed parallel to the riverbank.

The preferred trail alignment best meets the evaluation criteria and guiding problem statement, receiving significant public support through open houses, online feedback, and general correspondence. Concept 1A addresses the remaining gap in the HRT with a safe, accessible multi-use trail segment that aligns with municipal planning and trail initiatives. As part of the MCEA, the preferred trail alignment has been brought up to a 30% level of design and is described in more detail below.