

**Draft Report**

# Phase 2: Truck Route Network Development

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City of Windsor  
Truck Route Study

**Date**

April 12, 2024

**Prepared for**

The City of Windsor

**Prepared by**

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# 1. Introduction

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The City of Windsor (“the City”) is conducting a Truck Route Study to review and update its truck route network in light of the changing context, needs and priorities in Windsor. A map of the current City of Windsor truck route network under review is shown as Exhibit 1.1.

## 1.1. Addressing Windsor’s Unique Goods Movement Challenges

Windsor is a vibrant and growing urban municipality. It is home to several unique trucking activity generators that increase both the need for and challenges of managing truck traffic. These include two international border crossings: the Ambassador Bridge, which is the busiest Canada-US international border crossing for trucks, and the Detroit-Windsor Tunnel. These crossings funnel significant long-haul and local truck volumes through the city centre. The Gordie Howe International Bridge (GHIB), scheduled to open in late 2025, should alleviate some of the truck traffic through the city centre, although it may also change existing truck traffic patterns.

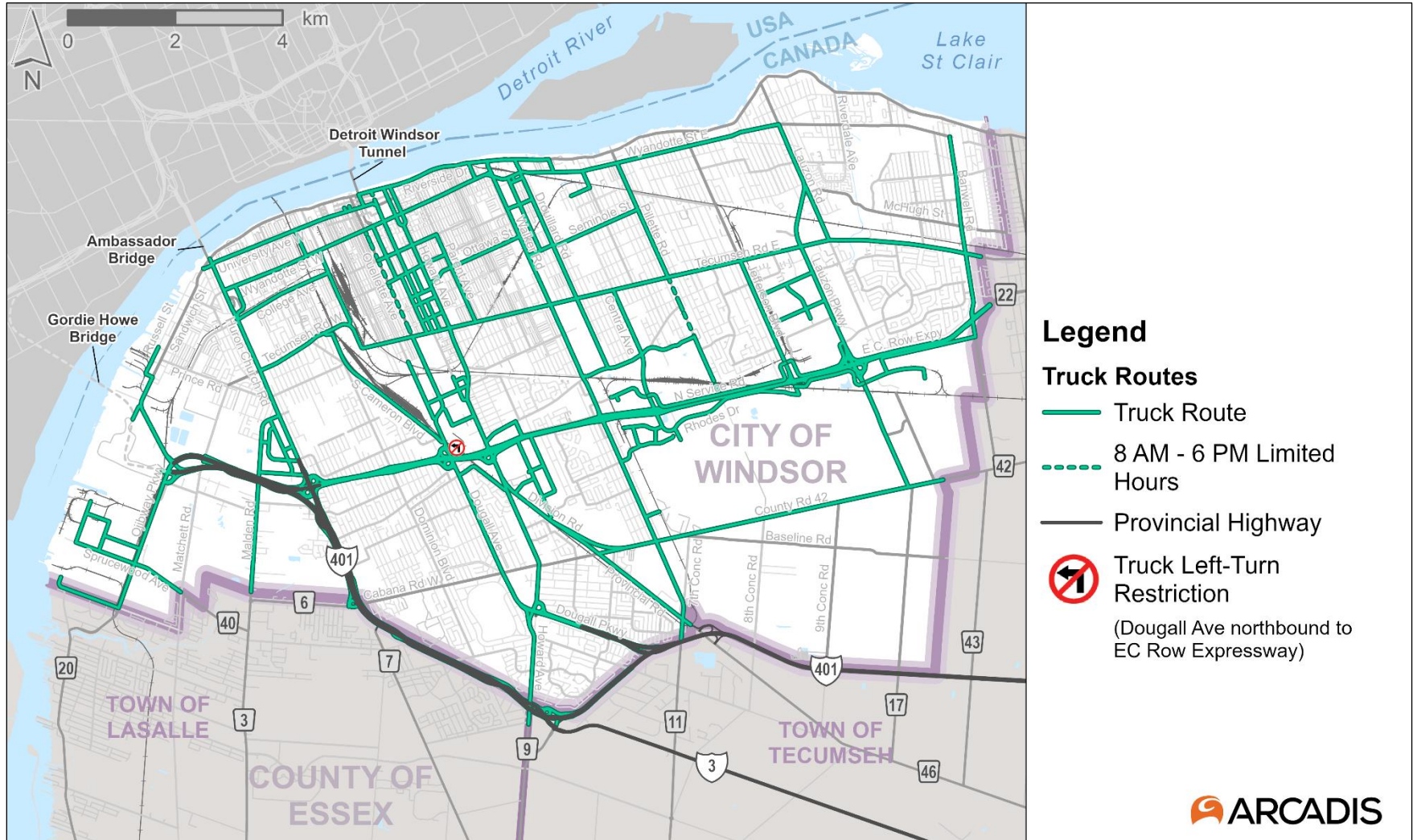
Major automotive manufacturers as well as trucking logistics firms are also interspersed within or adjacent to Windsor’s urban realm. These generate significant cross-border truck traffic as well as local flows between facilities and suppliers and traffic to south central Ontario. The City also has the more typical needs of urban areas for truck traffic to support general commercial and economic activity and the valuable services that support quality of life in the city.

All told, trucks contribute to Windsor’s economic well-being and competitiveness.

Given community concerns, recent and planned industrial and residential development and the pending opening of the GHIB, there is a need to ensure that the City’s truck route network appropriately serves both current and future conditions.

In developing an updated truck route network for the City of Windsor, the study must address the varied and often competing perspectives of the private sector, residential communities and other citizen groups with respect to goods movement and heavy vehicle traffic, while also aligning with the City’s other transportation, land use, climate emergency, economic development, safety and fiscal goals.

Exhibit 1.1: Existing City of Windsor Truck Route Network



## 1.2. Report Purpose and Outline

This report builds on Phase 1 of the Truck Route Study, which provided a foundational understanding of the context, issues and opportunities related to the truck route network.

This Phase 2 report describes a transparent and methodical process to inform truck route network development. The report presents two truck route network options, from which a single network option will be further developed in Phase 3 of the study

Following this introduction, which also includes a study overview, this document is structured as follows:

- Section 2 outlines the strategic framework developed for this study;
- Section 3 describes the truck route network development process leading to draft truck route network options;
- Section 4 outlines engagement activities and opportunities for Phase 2 of the study; and
- Section 5 summarizes next steps in the study.

## 1.3. Study Process Overview

The City of Windsor Truck Route Study includes the following consecutive phases:

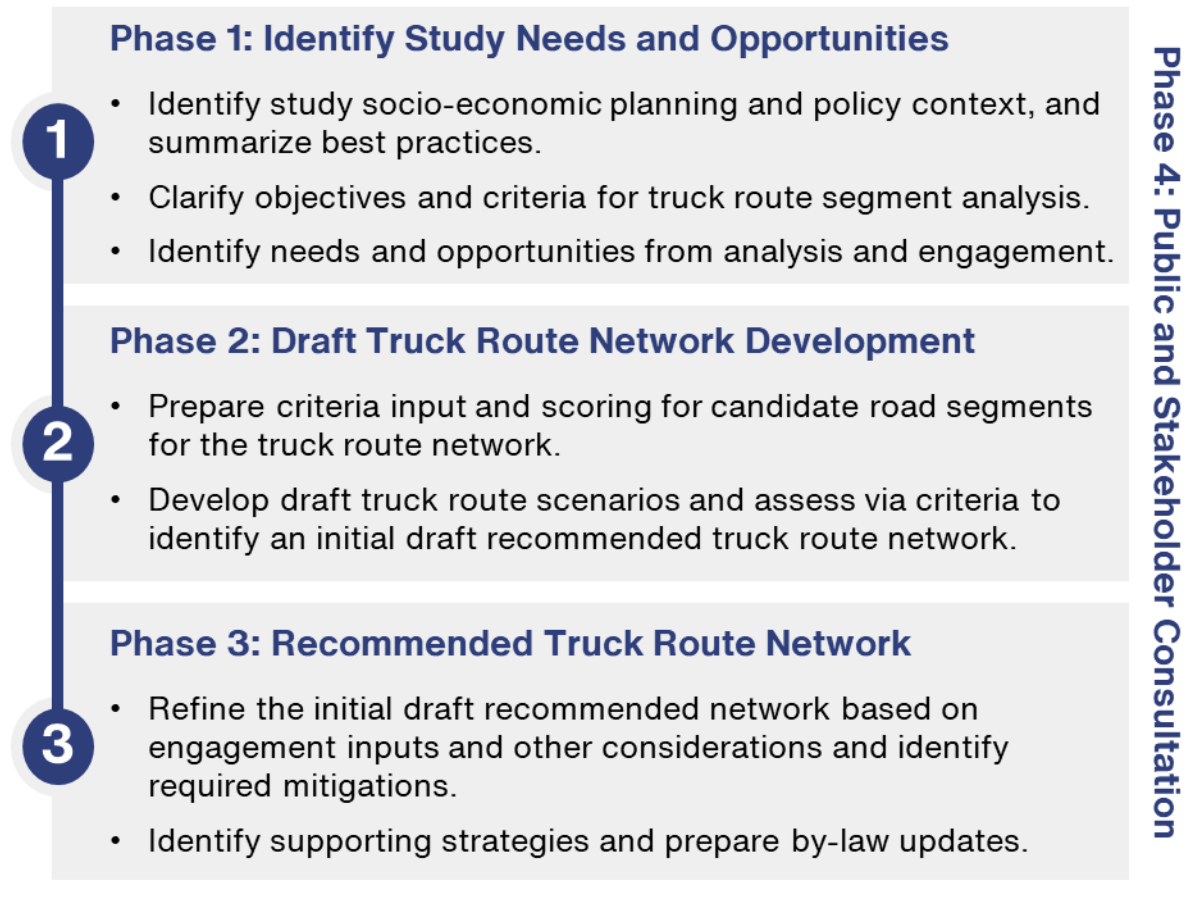
- Phase 1: Identify Study Needs and Opportunities;
- Phase 2: Draft Truck Route Network Development; and
- Phase 3: Recommended Truck Route Network.

Phase 4: Consultation and Communications takes place concurrently with the first three phases. Two rounds of engagement, corresponding to Phase 1 and Phase 2 of the Truck Route Study, feature customized consultation and engagement activities.

Exhibit 1.2 summarizes these study phases.

The Truck Route Study was initiated in July 2023 and is planned to be completed by June 2024.

Exhibit 1.2: Study Process Overview



## 2. Strategic Framework

The strategic framework was developed in Phase 1 of the study and presented in draft to the public and stakeholders for review and input as part of the first round of engagement. The Phase 1 report details the final framework and its components which, for convenience, are recapped here. The framework includes the following elements:

- **Principles:** These guide the study process. While the objectives below can be opposed to each other and may need to be weighed against each other in some cases in developing the truck route network, the principles are fixed and all truck route outcomes will aim to follow the outlined principles.
- **Objectives:** These are used together with their associated criteria for each to assess individual candidate road segments for suitability for inclusion in the truck route network.

## 2.1. Truck Route Network Principles

The following six truck route network principles guide the study process and informed the truck route network objectives and related criteria described in the Phase 1 report.



### **Support Safety Outcomes**

- Focus truck routes on higher-order road classes (e.g. arterials instead of local roads).
- Reduce opportunities for conflicts with vulnerable road users (or apply appropriate design mitigations).
- 



### **Support Environmental and Public Health**

- Reduce the negative impact of truck operations to improve environmental and public health outcomes, e.g. reduce overall vehicle-kilometres travelled.
- Avoid simply moving a truck routing issue from one place to another to create similar impacts.



### **Provide a Connected Truck Route Network**

- Ensure truck route connectivity between the higher-order transportation network and major truck trip generators.
- Provide one or more truck route connections at each Hwy 401 interchange where feasible.



### **Design for Reliability and Redundancy**

- Redundancy in the truck route network (back-up or detour routes) can ensure that goods can continue to move safely in the event of road closures on main truck routes.
- Ensure that the Province's designated network of Emergency Detour Routes on City roads is suitable to manage increased truck volumes in the event of highway traffic incidents.



### **Simplify Enforcement Requirements**

- Avoid excessive travel times for goods movement.
- Clearly identify and communicate the truck route network.
- Avoid truck route “spurs” that do not allow legal truck turn-arounds.



### **Plan for Consistency and Adaptability**

- Develop a clear and transparent truck route assessment framework that can be updated for future conditions.

The above principles inform or are embedded in the truck route network objective and criteria below, as well as in the application of network connectivity guidelines (Section 0).

## **2.2. Truck Route Network Objectives and Criteria**

The two key objectives and associated criteria are summarized as follows:

### **Optimize Goods Movement Efficiency and Connectivity**



1. Prioritize higher functional road classes.
2. Prioritize higher-capacity roads.
3. Prioritize roads with higher truck volumes.

### **Maintain Community Livability and Integrity**



1. Prioritize routes that run alongside appropriate adjacent land uses.
2. Prioritize routes with lower pedestrian and cyclist volumes.
3. Prioritize routes that do not require sharing road space with the cycling network.

These objectives and criteria form the structure for a scoring scheme to assess the general suitability of individual candidate road segments for inclusion in Windsor's truck route network and are described further Section 0

Two additional criteria had been considered for Objective 1 but for practical reasons were not carried forward:

- Prioritizing routes without load restrictions: it was determined that none of the candidate road segments have load restrictions.
- Providing a connected and reliable truck route network: the connectivity aspect of Objective 1 is addressed more holistically addressed as guidelines in developing draft truck route networks (Section 0), rather than on an individual roadway segment basis.

Note that the above do not identify **safety** as a separate objective or criterion. Increasing safety is a common pursuit across both objectives and is a Truck Route Study principle. Increasing safety is inherent in some of the criteria above. Moreover, the truck route network development process includes mitigating measures to improve safety (Section 3.4).

Also not included in the above criteria are indicators of **equity** such as the prevalence of low-income households along a road segment or the prevalence of vulnerable age cohorts living along the corridor (younger than 18 years and older than 65 years). These correlate with the criterion of prioritizing routes that run alongside appropriate adjacent land uses. Moreover, the available data do not allow the necessary measurement at the level of precision needed to apply to specific road segments, and are subject to change over time.

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### 3. Truck Route Network Development Process and Outcomes

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The Truck Route Study uses a transparent and methodical truck route network development process, first presented to the public and stakeholders in Phase 1 of the study. The process has five steps:

- **Step 1:** Select candidate road segments for assessment;
- **Step 2:** Evaluate individual candidate road segments;
- **Step 3:** Create a draft truck route network;
- **Step 4:** Address network issues and identify mitigations; and

- **Step 5:** Finalize the recommended truck route network.

At this point in the study, Steps 1 through 3 have been completed, and Step 4 has been started. Sections 3.1 through 3.5 describes the process and outcomes for each of the five steps of the process.

### **3.1. Step 1: Select Candidate Road Segments for Assessment**

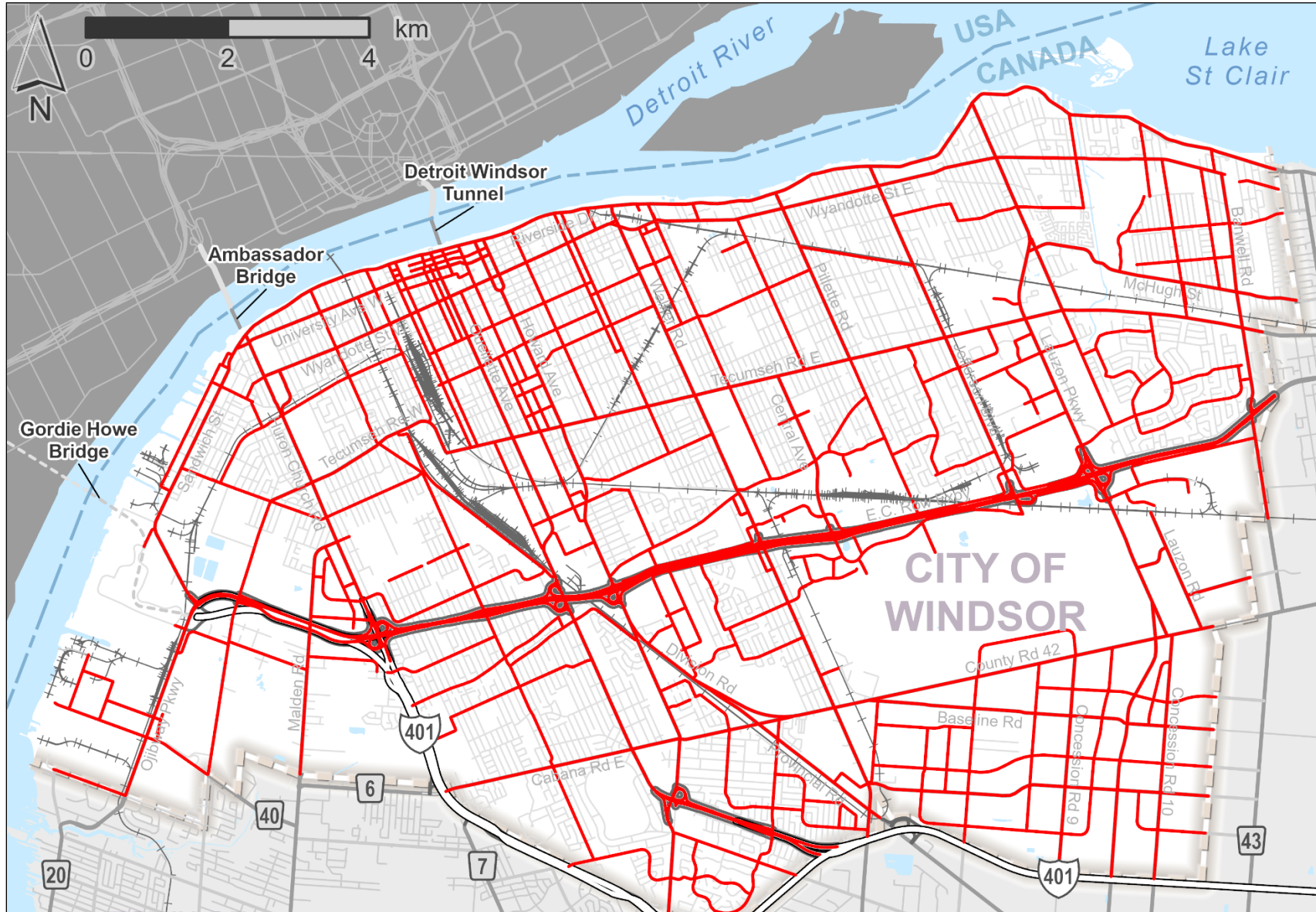
All Provincial highways and all international road border crossings in Windsor support the movement of trucks and are de facto part of the goods movement network in Windsor.

Based on functional road classifications identified in the City of Windsor Official Plan (2012), the following existing or planned City-owned roadways are included as candidates for inclusion in the truck route network, as shown in Exhibit 3.1:

- All Class 1 Arterial, Class 2 Arterial, Class 1 Collector, Class 2 Collector, Scenic Drive or Local Commercial-Industrial roadways; and
- Local Residential roadways where they are part of the City's current Truck Route Network and/or they are currently being used by significant volumes of trucks.

None of the above roadways were identified to have geometric design or structural limitations that would limit truck use, such as insufficient clearance beneath an overpass, or bridges not being able to carry truck weights. (Intersection design limitations were considered in developing the draft truck route network in Step 3.)

Exhibit 3.1: Assessed Municipal Roadways – Truck Route Development Process



For purposes of this evaluation, candidate municipal roadways were evaluated block by block, split into analysis segments at intersections.

## 3.2. Step 2: Evaluate Individual Candidate Road Segments

In Step 2, the candidate road segments identified in Step 1 were assessed for their general suitability for inclusion in the truck route network. The scoring scheme is outlined below, followed by scoring results.

The results of Step 2 serve as a key input into the development of draft truck route network options in Step 3.

### 3.2.1. Road Segment Assessment: Scoring Scheme

Building on the study's strategic framework (Section 2), specifically objectives and criteria, a scoring scheme was developed to consistently and transparently evaluate candidate network segments as to their general suitability for inclusion in the draft truck route network.

The scoring scheme gives equal weighting to the two objectives:

- Objective 1: Optimize Goods Movement Efficiency and Connectivity; and
- Objective 2: Maintain Community Livability and Integrity

The criteria and related scoring under each objective are outlined in Exhibit 3.2. The maximum scoring under each objective is 100, for a combined total score of 200. Scores for individual criteria were developed to reflect the relative importance of each indicator within each objective.

The scoring scheme was applied on a roadway segment-by-segment basis using a Geographic Information System (GIS) mapping framework. Working in GIS allowed for the ability to translate the scoring results into map-based visual representations.

**It is important to note that the scoring criteria look at the characteristics of each roadway segment in isolation, and do not consider broader truck route network connectivity (part of Objective 1) until Step 3 in the process.**

A discussion of each objective's individual criteria is provided below. Associated data for each criterion was provided by City of Windsor in GIS format unless noted below. The data inputs used in the evaluation of road segments were described in the Phase 1 report, which also includes mapping of each of the data inputs.

## Exhibit 3.2: Road Segment Assessment: Scoring Scheme

<b>Objective 1 – Optimize Goods Movement and Efficiency</b>	<b>Score</b>
<b>Criterion 1: Prioritize higher functional road classes</b>	<b>Maximum 20 points</b>
Expressway	20
Class I Arterial Road	20
Class II Arterial Road	15
Class I Collector Road	10
Class II Collector Road	10
Scenic Drive	10
Local Road – Commercial-Industrial	15
Local Road – Residential	0
<b>Criterion 2: Prioritize higher-capacity roads</b>	<b>Maximum 50 points</b>
<b>Speed (km/h)</b>	
100	20
80	20
70	15
60	10
50	5
<50	0
<b>Lanes per direction</b>	
3 or more	30
2 or 2.5	25
1.5	15
1	0
<b>Criterion 3: Prioritize roads with higher truck volumes (11-hour weekday count totals)</b>	<b>Maximum 30 points</b>
5000+	30
1000 to <5000	25
500 to <1000	20
250 to <500	15

100 to < 250	10
50 to <100	5
<50	0
No Data - Expressway	25
No Data - Arterial	15
No Data - Collector	10
No Data - Other	0
<b>Maximum Possible Score</b>	<b>100</b>

<b>Objective 2 – Maintain Community Livability and Integrity</b>	<b>Score</b>
<b>Criterion 1: Prioritize routes that run alongside appropriate adjacent land uses</b>	<b>Maximum 50 points</b>
Adjacent to elementary school	0
Adjacent to other Institutional (hospital, school, etc.)	10
Adjacent to Green District	20
Adjacent to residential land use – front facing	20
BIA Main Street	25
Adjacent to residential land use – rear/side facing	35
Other adjacent land uses only (e.g. industrial)	50
Expressway/grade separated road	50
<b>Criterion 2: Prioritize routes with lower pedestrian and cyclist volumes (11-hour weekday count totals)</b>	<b>Maximum 25 points</b>
Pedestrian volumes >500 <b>or</b> Cyclist volumes >100	0
Pedestrian volumes >250 <b>or</b> Cyclist volumes >50	10
Pedestrian volumes >100 <b>or</b> Cyclist volumes >25	15
Pedestrian volumes >50 <b>or</b> Cyclist volumes >10	20
Pedestrian volumes <=50 <b>and</b> Cyclist volumes <=10	25
Downtown street – no volume data available	15
Other street – no volume data available	20
Expressway (no pedestrians or cyclists allowed)	25

<b>Criterion 3: Prioritize routes that do not require sharing road space with the cycling network</b>	<b>Maximum 25 points</b>
Shared route (i.e. sharrow/signed bike route)	0
Existing or planned bike lane	10
Existing or planned cycle track/buffered bike lane	15
Not a cycling route (i.e. no cycling facility)	25
<b>Maximum Possible Score</b>	<b>100</b>

**Objective 1: Optimize Goods Movement Efficiency and Connectivity**



**Criterion 1: Prioritize higher functional road classes.**

**Functional road classes** specify a roadway’s role with respect to movement of traffic vs. access to local properties, with expressways at the high end of prioritizing traffic movement and local roads at the low end of prioritizing traffic movement. The highest-order road classes include expressways, followed by arterials then collectors.

Higher-order road classifications typically have more suitable physical and operating characteristics to accommodate truck traffic (e.g. frequent road and winter maintenance, larger turning radii, structural integrity).

Classes also correspond to the degree to which the road segment prioritizes traffic movement vs. land access needs. A higher score means the roadway gives a higher priority to traffic movement and therefore a lower priority to local property access, and is therefore generally more suited to truck movement.

Functional Road Classifications are identified as per City of Windsor Official Plan (2013). The Sandwich South Master Servicing Plan (2023) identifies functional road classifications for future roadways.

**Criterion 2: Prioritize higher-capacity roads.**

Higher-capacity urban roads are typically intended to carry higher volumes of traffic including trucks.

Roadways with higher **posted speeds** score higher as they can help trucks and other traffic more quickly for increased efficiency.

Roadways with more **lanes per direction** also score higher as they are better suited to accommodating a higher volume of trucks and causing less disruption to overall

traffic movement. Roadways with a greater number of lanes can also more easily accommodate oversized/wide loads and have sufficient space at intersections to accommodate wider truck turning movements. Planned or committed road widenings by the City of Windsor are included in the scoring assessment.

**Criterion 3: Prioritize roads with higher truck volumes.**

Current **truck traffic volumes** are a particularly effective indicator of the current demand for goods movement, while also considering the anticipated demand for truck traffic for future developments. Scoring is correlated with existing truck volumes score, as truck volumes are an effective indicator of the observed goods movement patterns and how they relate to location of major freight generators on the road network.

Truck volume data were based on analysis of weekday (7 a.m. to 6 p.m.) traffic count totals at intersections throughout the city, with counts on individual intersections conducted between late 2020 and 2023.

**Objective 2: Maintain Community Livability and Integrity**

**Criterion 1: Prioritize routes that run alongside appropriate adjacent land uses.**



This criterion evaluates individual roadway segments based on the **adjacent land use zoning** fronting the road segment within 30 metres. This recognizes the negative impacts trucks can have on sensitive land uses, particularly when they tend to serve especially vulnerable populations, and helps respond to the needs and priorities of communities (i.e. livability, safety of vulnerable road users, public health). Land uses considered as more appropriate to accommodating truck traffic score higher, while sensitive land uses score lower.

Expressways by design are separated from and have no access to adjacent land uses, and therefore have maximum scoring under this criterion.

**Criterion 2: Prioritize routes with lower pedestrian and cyclist volumes.**

This criterion uses **pedestrian and cycling activity** as an indicator to help balance the needs of vulnerable road users and to minimize any negative impacts on them (i.e. potential for conflicts, noise, vibrations, emissions). Roadways with lower pedestrian and cyclist volumes are generally seen to be more suitable in accommodating truck traffic and are scored higher than roadways with higher volumes of pedestrians and cyclists.

Pedestrian and cyclist volume data is based on current weekday (7 a.m. to 6 p.m.) count totals spanning between 2020 and 2023.

**Criterion 3: Prioritize routes that do not require sharing road space with the cycling network.**

This criterion addresses the presence of current or planned municipal **cycling network infrastructure**. Ideally, truck and cycling networks would be separated to reduce conflicts through using separate roadways or through the use of multi-use paths or cycle tracks that separate cyclists from vehicular traffic; however, this is not always feasible or practical. Where trucks and cyclists share the same roadway space, the appropriate space and separation is needed between modes so that trucks and cyclists can safely operate along the same roadway.

Roadways not part of the City's on-road cycling network score higher than roadways part of the cycling network; streets with a higher grade of cycling facility scores higher than roadways with a lower facility grade.

### 3.2.2. Road Segment Scoring Results

The results of applying the road segment scoring scheme is provided in the following exhibits:

- Objective 1 scoring results are shown in Exhibit 3.3;
- Objective 2 scoring results are shown in Exhibit 3.4; and
- Combined scoring results across both objectives are shown in Exhibit 3.5.

The segment-by-segment evaluation of individual links indicate a roadway's general suitability to be included as part of truck route network. Higher scores indicate that the road segment is generally more suitability for serving truck traffic.

Road segments with a score of 100 points or more combined across Objectives 1 and 2 indicates that a roadway is generally appropriate to consider for inclusion in the truck route network.

Roads with scores less than 100 are generally avoided for inclusion in the truck route network where feasible should other alternatives exist. Where lower-scoring road segments are included in the truck route network, it is likely that mitigating measures may be needed to manage the potential negative impacts of truck traffic on that road segment.

Exhibit 3.3: Scoring Results for Objective 1: Optimize Goods Movement and Efficiency

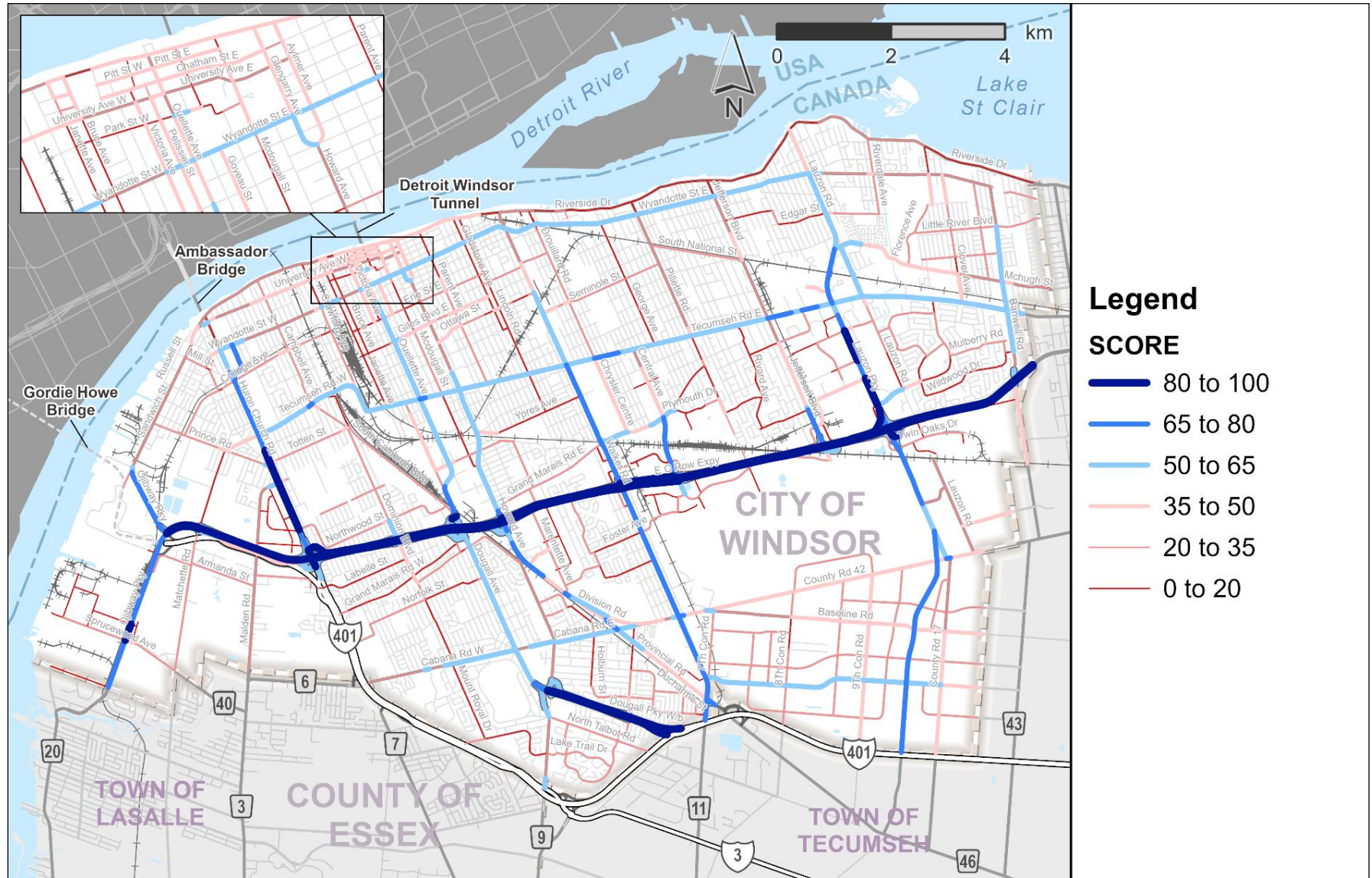


Exhibit 3.4: Scoring Results for Objective 2: Maintain Community Livability and Integrity

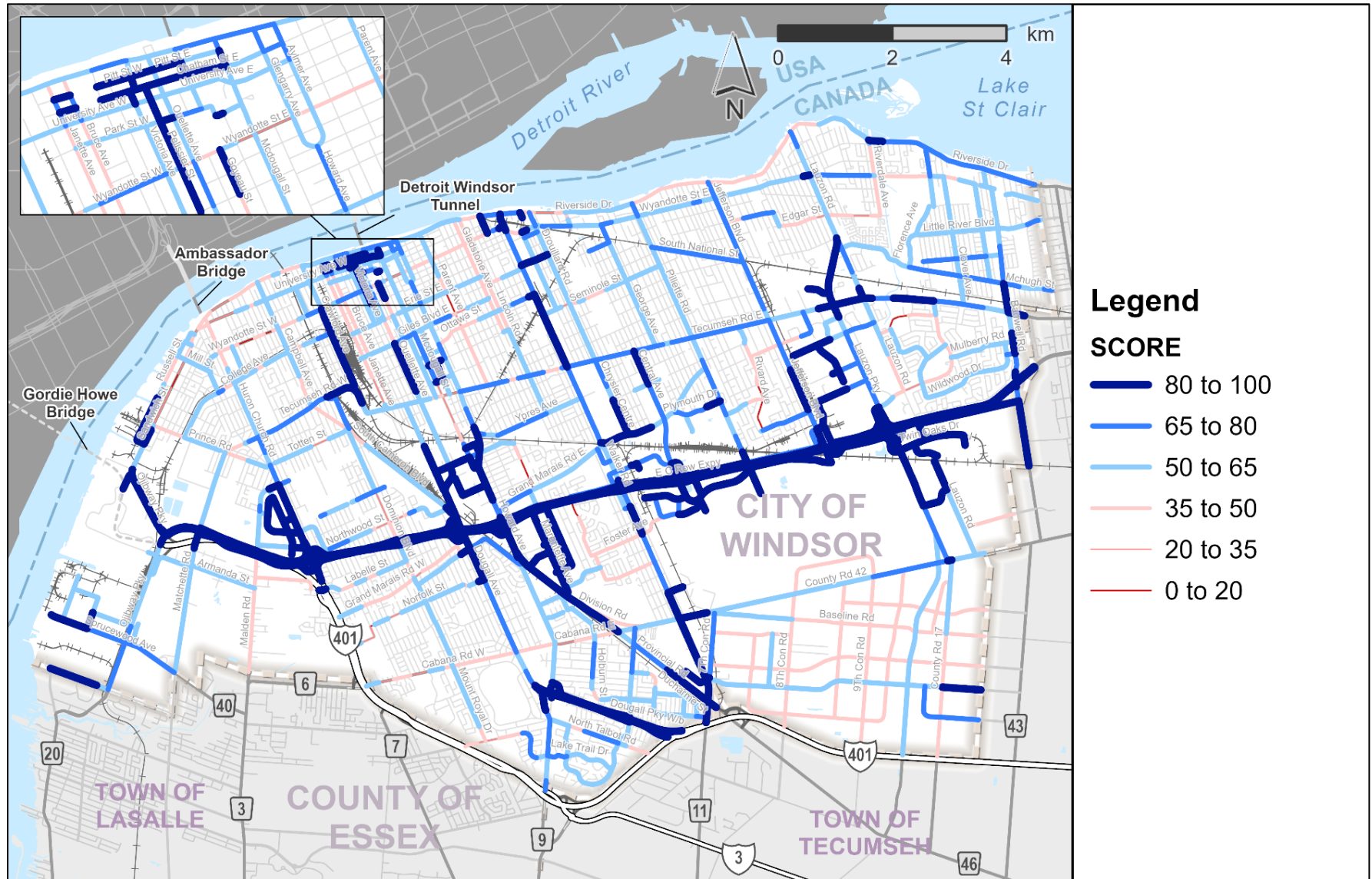
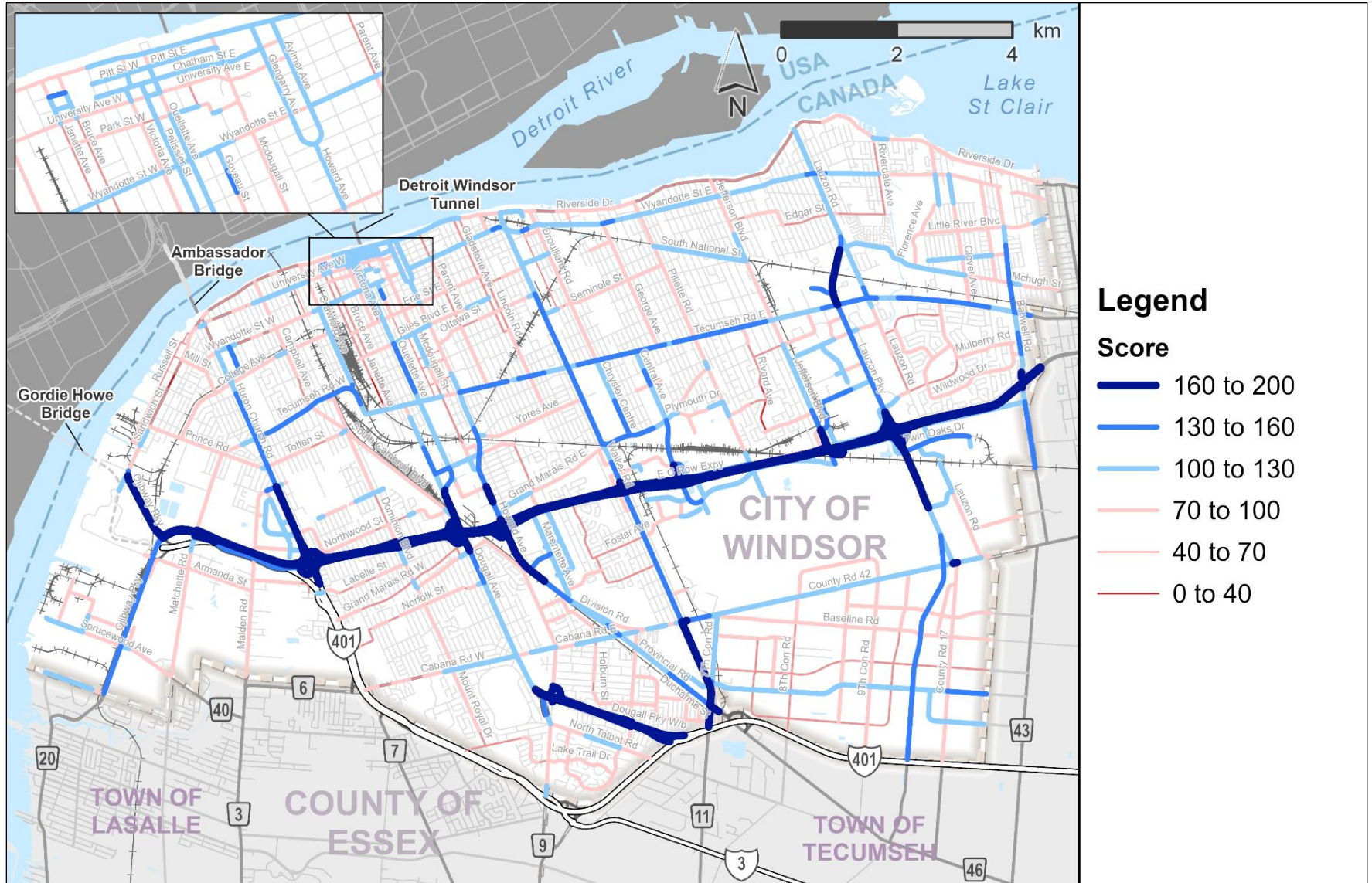


Exhibit 3.5: Combined Scoring Results for Objectives 1 and 2



**The road segment scoring results show that in most cases, the current truck route network in the City of Windsor is comprised of higher-scoring road segments.**

In other words, the current truck route network is largely comprised of those individual roadway segments that are generally more suitable to be part of the truck route network, and that the current network provides a good starting point for truck route network refinements.

The road segment assessment results of Step 2 do not on their own generate a complete and feasible truck route network, as the segments were assessed individually and not in the context of their role in broader truck route connectivity, which is the next step in the truck route development process.

### 3.3. Step 3: Create a Draft Truck Route Network

**Road segment scoring** together with **truck route connectivity guidelines** informed the development of draft complete and connected truck route network options.

Priority is given to candidate road segments with a higher combined score in Step 2—ideally over 100—while also observing the following connectivity guidelines:

1. Each **provincial highway interchange** has a direct truck route connection.
2. Each **international border crossing** has a direct truck route connection.
3. **Intermodal freight terminals** (marine port, airport or truck-rail transfer yards) have a direct truck route connection.
4. Each **upper-tier road in Essex County** suitable for heavy trucks has a truck route connection at the Essex-Windsor boundary; conversely, the Windsor truck route network does not “dead-end” on any connecting roads within Essex County that are not suitable for trucks.
5. Key **trucking activity origins and destinations** are connected without the need for excessive detours; appropriate connectivity is provided between/among other major truck activity generators—manufacturing plants, industrial sites, commercial areas, etc.—while also providing appropriate connectivity to the transportation connections identified in connectivity guidelines 1 through 4.

Factors to consider in determining the most appropriate connecting routes include the segment-by-segment evaluation results of Step 2, travel times, and route reliability<sup>1</sup>.

6. Truck route **redundancy is provided**, i.e. there is more than one possible way to travel between key trucking activity origins and destinations in the event of a traffic incident, construction, etc. requiring closure of one of the routes.
7. The network **avoids “spurs” or “dead-ends”**—to the extent possible, each segment will connect to another truck route or have a feasible, legal means of turning back once on any truck route segment.
8. Ensure that the resulting truck route network has a **reasonable density**. The aim is to avoid gaps that otherwise would encourage trucks to inappropriately cut through local roads or to overload limited designated truck routes.

The appropriate truck route density may vary depending on the spacing and suitability of other nearby roadways for truck travel.

Beyond the Step 2 scoring results, additional context-specific considerations need to be considered in developing complete and connected truck route networks, for example the size and suitability of intersections where truck turning movements would be required.

### 3.3.1. Truck Route Network Alternatives

Two truck route network alternatives were developed, as described below, and shown as Exhibit 3.6 and Exhibit 3.7, respectively. Exhibit 3.8 and Exhibit 3.9 show how these networks compare to the current truck route, highlighting route segments that have been added or removed.

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<sup>1</sup> Reliability speaks to the frequency and degree to which the road section is subjected to congestion. A common measure of reliability is the Travel Time Index (TTI), which is the ratio of travel time on a corridor relative to free-flow or posted speeds. As the City of Windsor does not have travel time data available for use for this study, reliability considerations are based on local knowledge of the transportation network, the number of signalized intersections along a potential route, etc.

### Draft Option 1: Simple Network (Single-Tier)

The Simple Network option designates a single-tier truck route network which all commercial vehicles—regardless of size, weight or number of axles—are required to use.



Under this option, all trucks over a gross registered vehicle weight (GRVW) of 4,500 kilograms must use the truck route network, as per the City's current Traffic By-law 9148, amended 2018, and as is the case in many Canadian municipalities. A single-tier network is relatively straightforward to implement, understand and enforce.

In some cases, time-of-day restrictions may be implemented to help limit the impacts of truck traffic on local communities. The inclusion of additional limited-hours truck route segments helps to close or reduce some of network gaps in the current network.

### Draft Option 2: Dual-Tier Network

The Dual-Tier Network consists of two tiers of truck routes that are differentiated based on vehicle size:

- **Primary routes** operate in the same manner as the City's current truck routes and the Simple Network option above: permitting all trucks (i.e. over 4,500 kilograms GRVW). These ideally are on higher-order roadways best designed for moving heavy traffic.



- **Secondary routes** are routes designated for and restricted to smaller trucks—for example, trucks with a maximum of 4 axles<sup>2</sup>. This secondary truck route designation would keep larger, heavier trucks away from areas where there is a concern or potential for cut-through trips and potential for negative impact on local communities, a key concern for the City of Windsor. Meanwhile, secondary routes still provide guiding smaller trucks to the more appropriate routes for them to use in the area, especially for local deliveries or pick-ups. (However, larger, heavier trucks would typically be directed to use secondary routes as part of the shortest path from the primary truck route to the truck's origin or destination, barring physical roadway constraints.)



<sup>2</sup> The City of Hamilton and the City of Regina both have portions of their truck route network designated to trucks with a maximum of 4 axles, though other means of restricting the routes to smaller trucks may be considered.

**Option 1 and Option 2 are two distinct truck route network alternatives.** While there is much overlap in the routes included across both two options, there are also some differences between the networks for the following reasons:

- Large-truck traffic inappropriately cutting through communities is a concern that both options need to address, and because all routes in Option 1 would allow heavy truck traffic, this alternative has fewer recommended routes in order to manage this risk; and
- Some secondary routes included in Option 2 are physically not suitable for larger trucks, in particular at some intersections, and so are not included in Option 1.

### **Preliminary Recommended Alternative**

Option 2's two-tier network provides a more-effective solution than Option 1 for areas of the City where there are concerns about heavy truck traffic inappropriately cutting through communities instead of using higher-order roadways. Option 2's secondary network designation has the benefit of allowing greater network coverage and a greater degree of guidance for smaller trucks and for local deliveries, pick-ups, and services.

Buy-in of this two-tiered network approach is needed by City staff, Windsor Police and other stakeholders as well as input from the public, would be needed to provide confidence in proceeding with this approach. Given that this approach is currently used only in a few Canadian municipalities (though others are considering it), should the decision be to proceed with the two-tiered network, the City may wish to investigate how these municipalities have implemented and now operate and enforce their networks.<sup>3</sup>

The final truck route network carried forward to the next phase of the study may include elements from both truck route network alternatives.

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<sup>3</sup> Hamilton has recently implemented its two-tiered network, limiting the downtown area to smaller trucks. Regina's two-tiered network is currently under reviewed; however, the focus of the review is on tightening up the by-law wording for enforcement purposes, as opposed to making significant changes to the network. Ottawa is considering a two-tiered truck route network via its Transportation Master Plan (2023), Part I Policies, Policy 10-1. Some streets in older parts of downtown Toronto effectively function as two-tier networks because it is physically impossible to move a large vehicle along certain roadways.

Exhibit 3.6: Draft Option 1: Simple Network (Single-Tier)

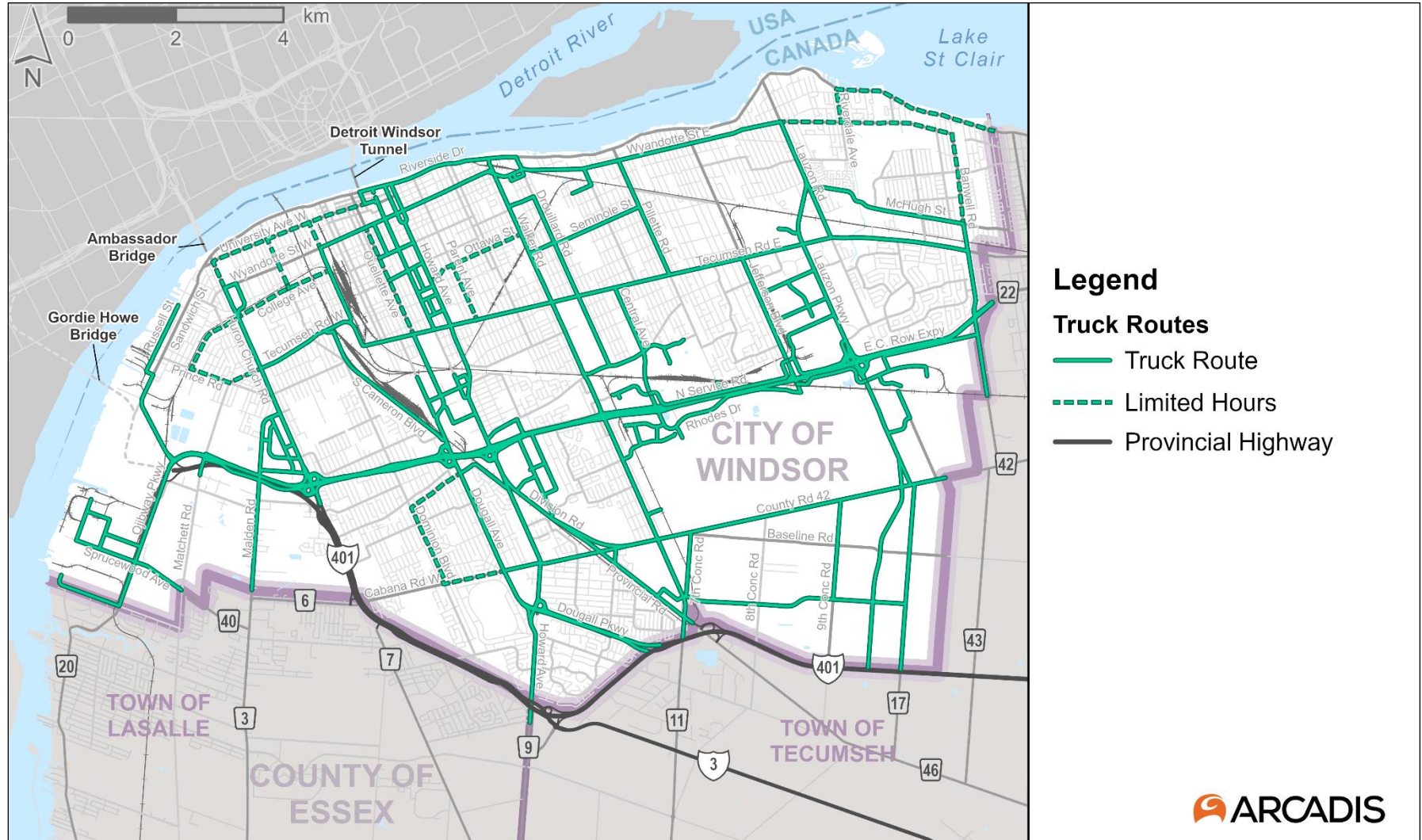


Exhibit 3.7: Draft Option 2: Dual-Tier Network

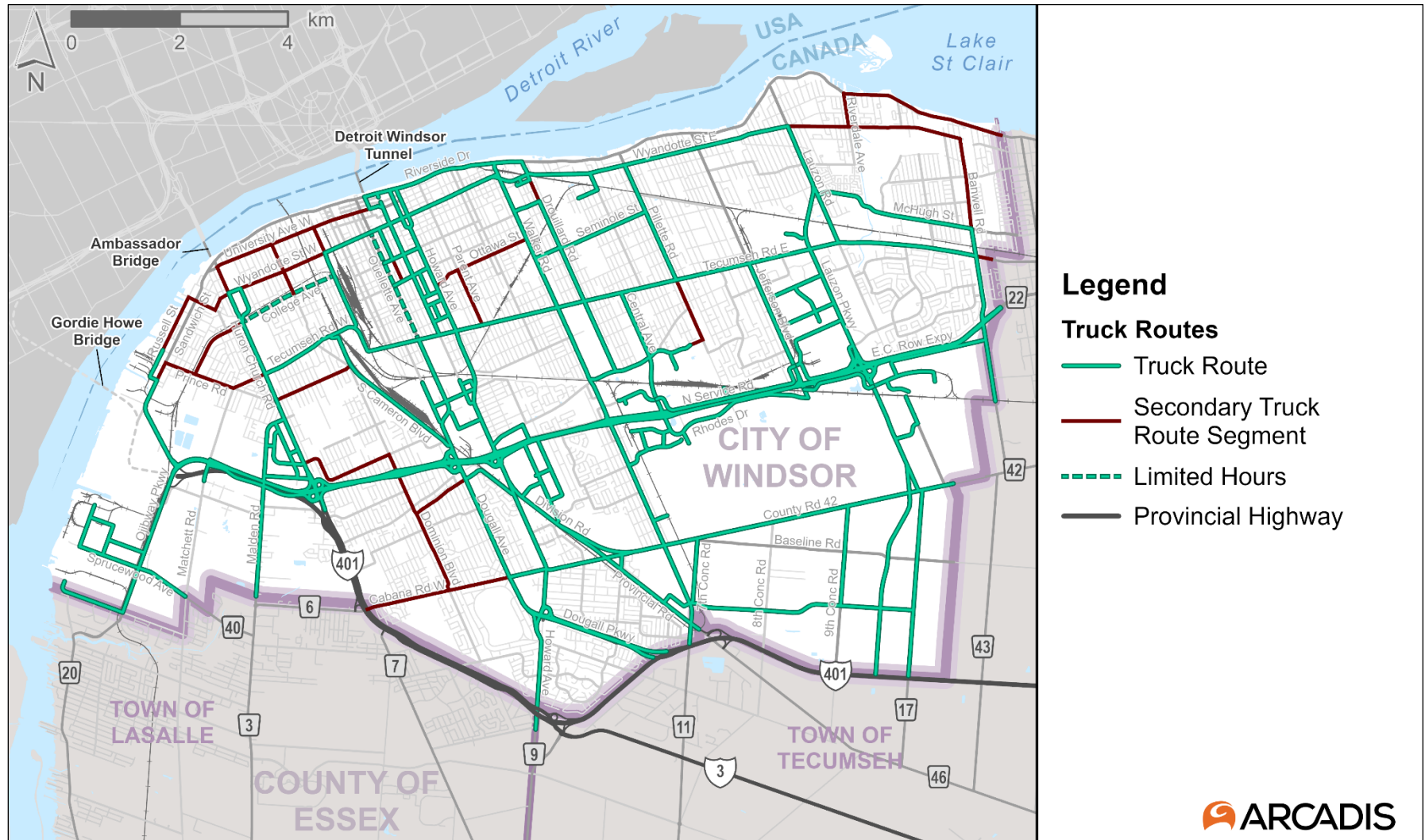


Exhibit 3.8: Draft Option 1: Simple Network (Single-Tier) – Comparison to Current Truck Route Network

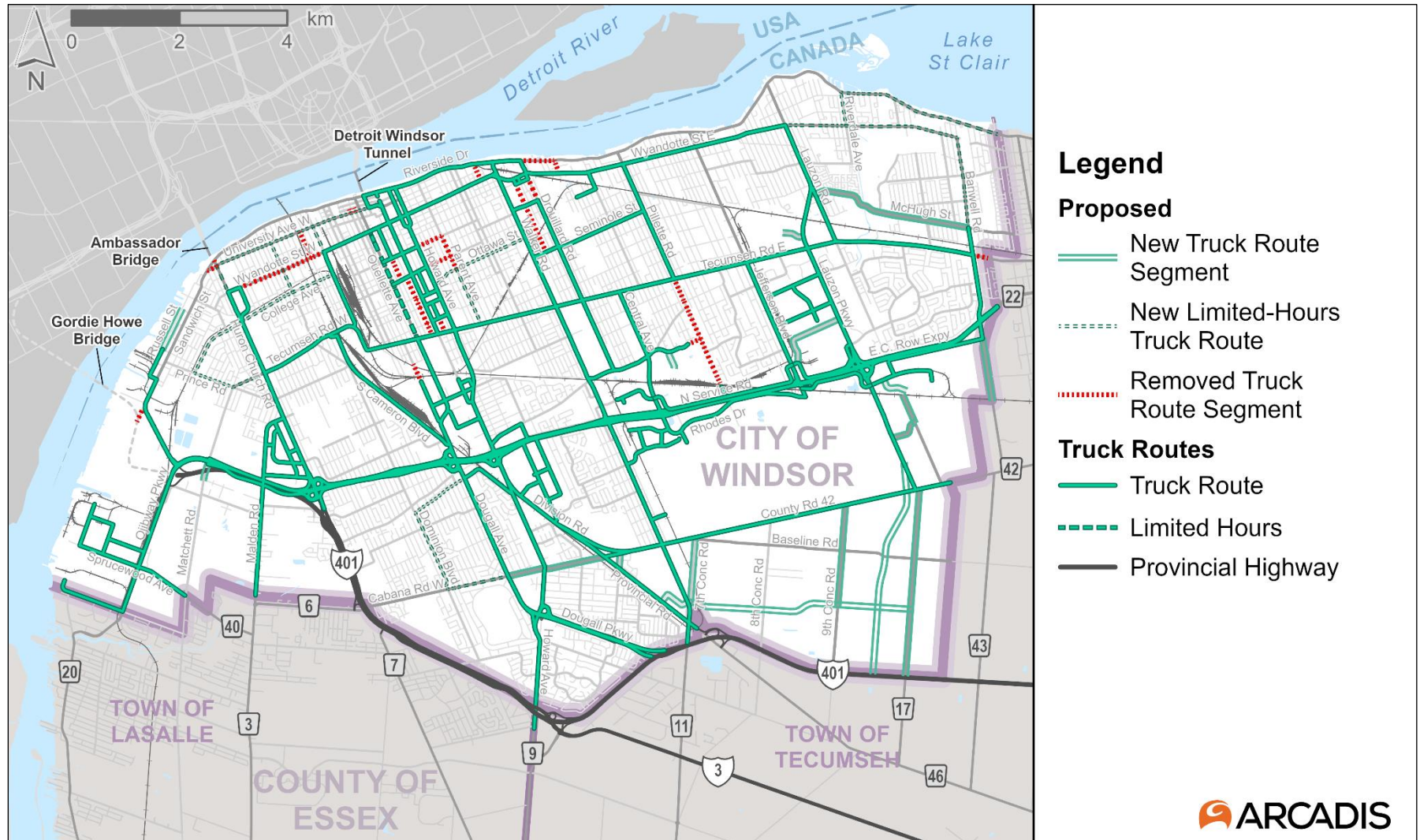
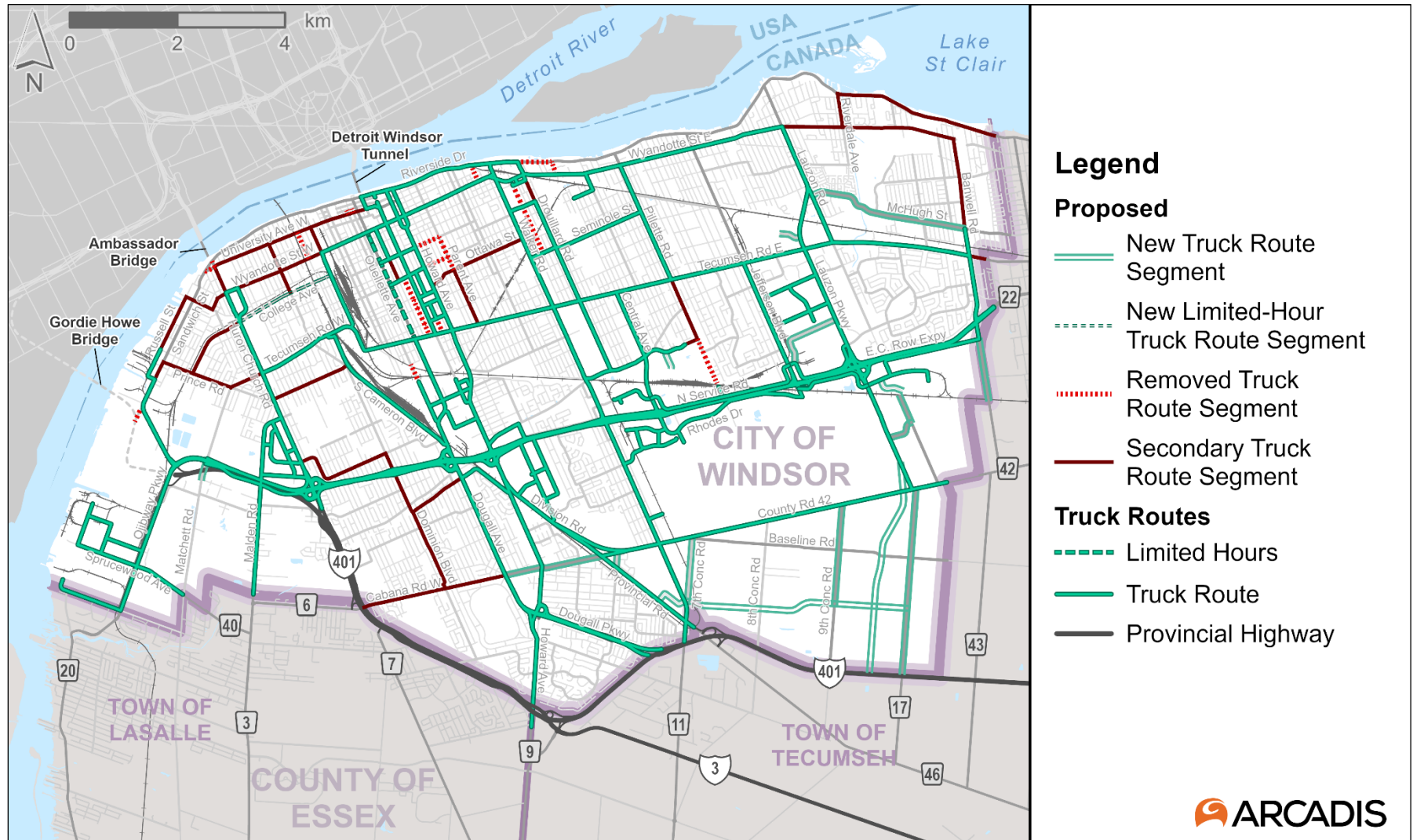


Exhibit 3.9: Draft Option 2: Dual-Tier Network – Comparison to Current Truck Route Network



### Long Combination Vehicles

Identifying municipal long combination vehicles (LCV) routes is part of the Windsor truck route network development process.

The popularity of LCVs is growing among manufacturers and distributors across Canada. As detailed in the Phase 1 report (Section 5.1.4), in Ontario the designation of LCV routes is governed by Provincial policy, which focuses on the use of the 400-series highways and limits the first and last legs of the journey via local roads to no more than 5 kilometres from the nearest 400-series interchange. The use of local roads must be approved by the municipal authority. The approval process typically requires applicants to have an engineering assessment conducted of the proposed route, to demonstrate that the intersection and interchange geometries, vertical and horizontal clearances, overhead traffic signals, turnarounds at the origin and destination, and so on can be safely negotiated by the LCV. There must also be safe off-highway locations for coupling and uncoupling the trailers. If required, the applicants must make adjustments to the proposed route<sup>4</sup>.

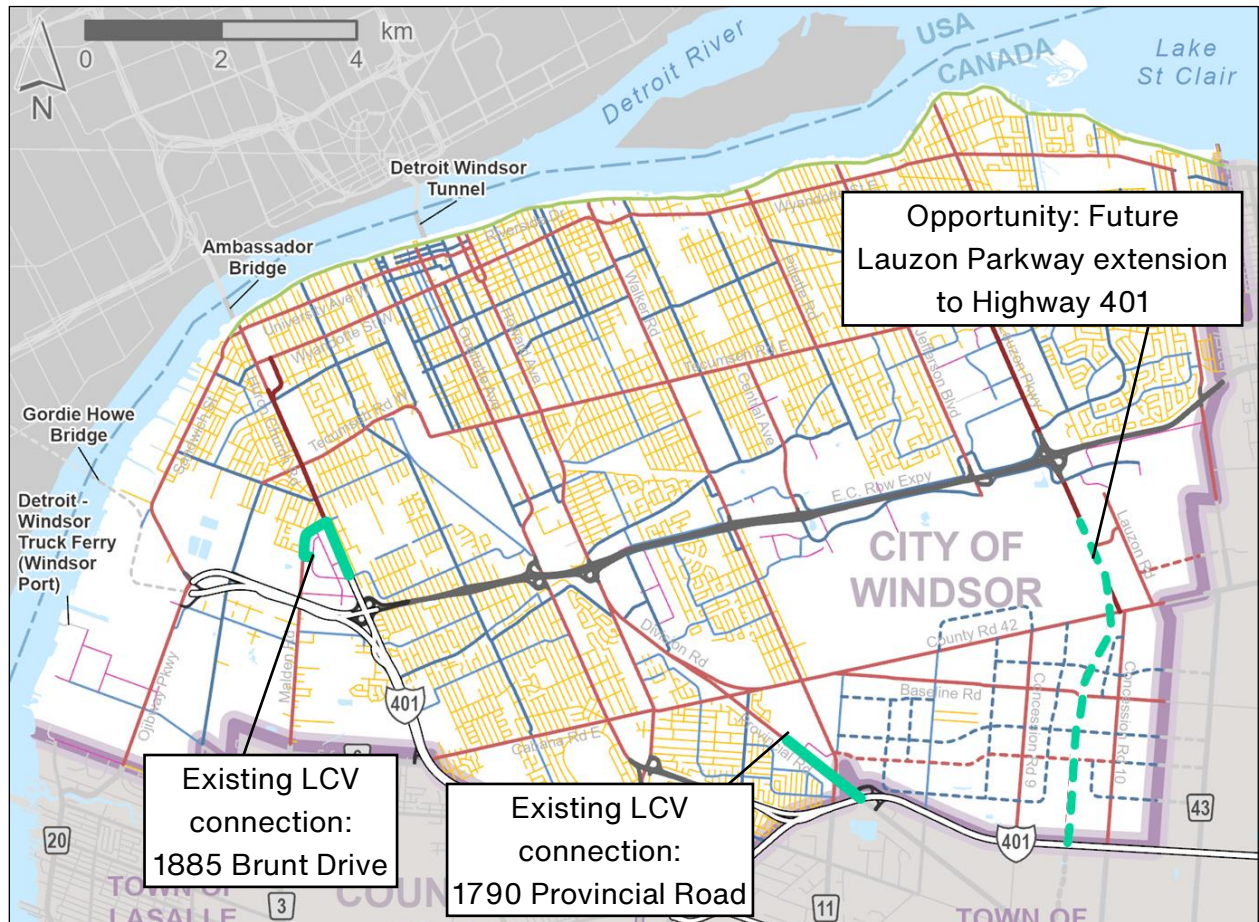
To date, the City has approved two LCV routes, serving specific sites on Brunet Drive and Provincial Road (shown in Exhibit 3.10). However, as new industries come to Windsor and existing industries expand their operations, more requests for additional LCV routes can be anticipated.

**The planned extension of Lauzon Parkway to connect via a new interchange at Highway 401—as shown in Exhibit 3.10—provides an important economic opportunity to add Lauzon Parkway as an additional LCV route**, should the parkway corridor's planned land uses indicate the potential for LCV-capable industrial sites within 5 kilometres of Highway 401. It is less costly overall to incorporate LCV-appropriate elements into roadway design from the outset instead of implementing expensive retrofits to existing routes.

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<sup>4</sup> Geometric Design Guide for Canadian Roads, Transportation Association of Canada, Ottawa, 2017 (with 2019 and 2020 revisions).

Exhibit 3.10: Existing and Potential Future Municipal LCV Routes



Early planning for future LCV routes, such as for Lauzon Parkway or other future roadway retrofits of existing routes, offers several benefits:

- It identifies suitable locations for LCV-capable industrial sites.
- It identifies appropriate LCV-capable corridors.
- It allows planned road and intersection improvements to be proactively designed to accommodate LCVs (avoiding the costs of subsequent retrofits). In addition to the design and operational considerations described above, this pre-planning informs plans for roundabouts and for active transportation routes and infrastructure.
- It defines site planning requirements for LCV-capable industrial land development. Considerations include site access design, on-site LCV circulation, trailer coupling / decoupling areas and trailer storage.
- It informs plans for complementary uses, such as truck parking and servicing areas.

- It helps attract potential investors by signaling where LCV-capable properties are located.
- It alerts property owners to where LCV routes are planned.

### 3.4. Step 4: Address Network Issues and Apply Mitigations

Based on feedback during round 2 engagement and other considerations, the recommended truck route network will be confirmed and be carried forward for further development in Step 4.

While trucks support economic activity and help provide valuable services, their large size and heavy weight create challenges on designated truck routes. Step 4 will address identified issues or concerns for the recommended truck route network to the extent possible. This may be done through recommended mitigations, which will be identified at a high level, or potentially through revisions to the designated routes.

For example, a road corridor desirable for both the cycling and trucking network could involve the need for trade-offs, wherein either the proposed truck lane or another the cycling route may be better served by shifting either the truck route segment route or the cycling route to another parallel corridor. Alternatively, the mitigating measure of increasing the separation between vehicular traffic and cycling lanes could make co-existence of the corridor safer for all road users.

**Potential negative impacts of truck routes** on adjacent land uses or on other road users can be mitigated by measures such as:

- Time-of-day restrictions for trucks;
- Filling sidewalk gaps for pedestrian safety and comfort;
- Larger pedestrian refuge spaces at intersections;
- Providing additional safe opportunities for pedestrian to cross; and
- Increased separation between traffic and cyclists and/or pedestrians.

**Truck route operational challenges** can be improved for trucks and other road users by measures such as:

- Intersection improvements (e.g. moving stop bars back to better accommodate wider truck movements, or adding, modifying or extending turning bays);

- Traffic signal timing changes (i.e. coordinated signals on major roads to reduce travel delays and encourage truck traffic to use the intended routes, or adding/ revising left-turn signal phases);
- Turning restrictions; and
- Provision of routes to allow trucks to turn back without using non-designated routes.

Exhibit 3.10 is a preliminary list of potential mitigating measures. This list is not comprehensive – it only responds to potential issues identified to date through engagement inputs and technical analysis. The actual implementation of any of these potential measures must be predicated by understanding the needs and concerns at each location and consideration of potential alternative measures and their associated benefits and costs, as well as detailed planning, priority setting and budgeting.

**Exhibit 3.11: Preliminary List of Location-Specific Mitigating Measures**

Truck Route Location ID	Potential Mitigating Measures for Consideration
Russell Street	<p>Given the truck route dead end, provide a legal way to turn back for trucks not intending to continue eastbound through Russell Street and who are not access a business along Russell Street.</p> <p>To reduce potential for conflicts between trucks and vulnerable road users on Russell Street, especially children (noting proximity to General Brock Public School):</p> <ul style="list-style-type: none"> <li>• Increase opportunities for safe pedestrian crossings, e.g. by adding intersection controls (e.g. stop signs) at Brock Street</li> <li>• Add pavement markings (i.e. stop bars) at the controlled intersection at Mill Street</li> <li>• Additional controlled intersections would also serve to reduce truck speeds along Russell Street</li> </ul>
Prince Street (new draft truck route segment)	Sidewalks gaps could be filled where there are sidewalks only on one side of the street.

Truck Route Location ID	Potential Mitigating Measures for Consideration
	Intersection improvements could be appropriate at Prince Street and Sandwich Street to improve visibility and provide a larger refuge area for pedestrians.
Malden Road	Malden Road has a signed cycling route. Increase protection for cyclists or consider moving signed route to Matchett Road or other parallel route.
West Grand Boulevard (new draft truck route segment)	West Grand Boulevard has a signed cycling route. Enhance cyclist protection or remove signed route (bike lane is available on parallel Grand Marais Road).
Dougall Avenue	Provide a feasible and legal turn-around for trucks at dead-end truck route.
Pilette Road and Seminole Street	Pilette Road and Seminole Street have bike lanes buffered with pavement markings. Increase physical separation (e.g. bollards or curbs, or add grade separation with cycle track) to avoid potential conflict between trucks and cyclists.
Oullette Avenue north of Tecumseh Road	Extend truck route limited-hours on Oullette Avenue from 8 am-6 pm to 8 am-8 pm to limit congestion along Oulette Avenue between Elliott Street and Wyandotte Street caused by local delivery trucks.
Dougall Avenue and EC Row Expressway	Consistent with the recommendation of the Central Box Study Area EA (2016), remove the existing northbound left-turn restriction for trucks. The need for the turn restriction is anticipated to be further reduced when the Gordie Howe Bridge is opened (diverting a portion of trucks from Huron Church Road and Ambassador Bridge) and when Provincial/Division road improvements are complete (making this a more attractive alternative to Dougall Avenue for a portion of bypassing truck traffic). Pending the GHIB opening and the road improvements, there may be a need to review trucking operations at this location and enhance the inter-

Truck Route Location ID	Potential Mitigating Measures for Consideration
	section capacity (e.g., with an extended left turn lane on Dougall Avenue, changes to signal timing, etc.)
Elsmere Avenue between Grand Marais Road and North Service Road	Install sidewalks to improve safety of pedestrians, especially given the nearby multi-unit residences along this street.
Walker Road and Seminole Street	Move stop bar back on Walker Road to facilitate truck turning movements eastbound to Seminole Street.
Drouillard Road and Wyandotte Street	Signage is needed that no right turns are allowed for trucks from eastbound Wyandotte Street to southbound Drouillard Road due to geometry limitations of the underpass. Turning restrictions for all traffic at this intersection should also be noted on the final truck route network map (i.e. no left turns from eastbound Wyandotte to northbound Drouillard, no left turns from westbound Wyandotte to southbound Drouillard).
Jefferson Boulevard, north of Tecumseh Road	Jefferson Boulevard is not on the recommended truck route network, but to limit cut-through truck traffic, ensure efficient timing of traffic signals on parallel Pillette Road and other truck routes.
Jefferson Boulevard, south of Tecumseh Road	Jefferson Blvd has standard bike lanes. Increase separation, e.g. through buffered bike lanes or physical separation.
Riverdale Avenue	Riverdale Avenue is currently a signed bike route only. Increase separation of cyclists from truck traffic, e.g. implement a multi-use path, or reallocate shared bike route to a parallel route such as Greendale Drive via Cedarview Drive.
McHugh Street	Assess the need for additional crossing opportunities for vulnerable road users (e.g. connecting McHugh Park Public Parking/retirement home with the Avery Jackson Memorial Pond).

### **3.5. Step 5: Finalize the Recommended Truck Route Network**

The final step is to bring forward the recommended truck route network, outlining any truck route network treatments identified in Step 4.

Given that the recommended truck route network will include planned roads that are not yet improved (e.g. widened) or constructed, the recommended truck route network will include two truck route phases:

- A near-term truck route network that could be implemented directly, or upon the completion of potential simple mitigations, to meet existing needs while also accounting for imminent infrastructure improvements like the Gordie Howe International Bridge; and
- A longer-term truck route network that will take shape as new routes are constructed, after planned route improvements are made such as road widenings, after the opening of a new major trucking activity generator, or after more significant mitigating measures required for a route are put in place.

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## 4. Round 2 Engagement Overview

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A second round of engagement on Phase 2 findings is being conducted, with the following objectives:

- Provide updates on the strategic framework and truck route network development process; and
- Solicit feedback on the draft truck route network options to help inform Phase 3 of the study process.

### 4.1. Communications and Engagement Opportunities

Communications for the second round of engagement included the following:

- Updated study web page (<https://letstalk.citywindsor.ca/truck-route-study>); and
- Notice of Public Information Centre (PIC) 2, posted on the study web page, and printed in the Windsor Star (April 13 and 27), sent to members of the public part of study contact list, and posted multiple times on official City social media platforms preceding the PIC.

Engagement activities/opportunities include the following:

- Public Information Centre 2:
  - Drop-in style in-person public events was hosted at the John Muir Library on April 29 from 6 to 8 p.m. and at the WFCU on April 30 from 5 to 7 p.m.; and
  - To allow for asynchronous engagement and provide a broader opportunity for participation, display boards from the PIC were also available on the study web page.
- Public Opinion Survey: A brief survey will be launched virtually on to help structure public feedback, with paper copies available at the in-person events, and remained open for input through May 9, 2024.
- Stakeholder Engagement: Various stakeholder meetings—Goods Movement Community Meeting 2, Business Community Meeting 2, and the Focus/Advisory Group meeting—are also being held.

Engagement inputs will inform next steps in the study and will be documented in a separate Engagement Summary report.

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## 5. Next Steps

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This document built upon the understanding of key background and context as well as needs and opportunities identified in Phase 1. It used the study's strategic framework and a step-by-step process to inform the development of two alternative draft truck route networks. A two-tier network is recommended for the City of Windsor, pending support and buy-in from City staff, enforcement, stakeholders, and the public.

The document also presents a preliminary list of truck route mitigations to improve truck traffic operations, or to help manage the impacts of truck traffic on Windsor roadways and communities, to be built upon in Phase 3.

Phase 3 of the study will involve refining the initial draft recommended network based on engagement inputs and other considerations, and preparing a list of truck route mitigations at a high level. It also involves outlining supporting strategies and preparing the traffic by-law update.

Study recommendations will first be presented to the Environment, Transportation and Public Safety Committee. With the committee's support and after incorporating their inputs, recommendations will then be presented Windsor City Council for approval.