



CITY OF HAMILTON
PLANNING AND ECONOMIC DEVELOPMENT DEPARTMENT
Transportation Planning and Parking Division

TO:	Chair and Members Truck Route Sub-Committee
COMMITTEE DATE:	November 29, 2021
SUBJECT/REPORT NO:	Truck Route Master Plan Update (PED19073(b)) (City Wide)
WARD(S) AFFECTED:	City Wide
PREPARED BY:	Omar Shams (905) 546-2424 Ext. 7474 Steve Molloy (905) 546-2424 Ext. 2975
SUBMITTED BY:	Brian Hollingworth Director, Transportation Planning and Parking Planning and Economic Development Department
SIGNATURE:	

RECOMMENDATION

- (a) That the City of Hamilton Truck Route Master Plan (TRMP) Update, attached as Appendix "A" to Report PED19073(b), be approved;
- (b) That the General Manager of the Planning and Economic Development Department be authorized to file the City of Hamilton Truck Route Master Plan (TRMP) Update with the Municipal Clerk for a minimum thirty-day public review period to formally complete the Class Environmental Assessment (EA) process;
- (c) That the Transportation Operations and Maintenance (TOM) Division develop a truck route signing implementation strategy and that the estimated cost of \$300 K for signage modifications and installations be funded from the Unallocated Capital Levy Reserve Account #108020;
- (d) That the Transportation Operations and Maintenance (TOM) Division prepare an amendment to the City of Hamilton Traffic By-law 01-215 for consideration by Council to incorporate the Recommendations within the Truck Route Master Plan (TRMP) Update;

OUR Vision: To be the best place to raise a child and age successfully.

OUR Mission: To provide high quality cost conscious public services that contribute to a healthy, safe and prosperous community, in a sustainable manner.

OUR Culture: Collective Ownership, Steadfast Integrity, Courageous Change, Sensational Service, Engaged Empowered Employees.

- (e) That, where truck routes have been identified along various roads within the Recommended Truck Route Network (TRN) - Future Conditions, as presented in Exhibit 4.13 of Appendix "A" attached to Report PED19073(b), that these roadways are planned and designed with the appropriate roadway and pavement structure to support truck movement and reflect a Complete-Livable-Better Streets and Vision Zero approach;
- (f) That Hamilton Police Services (HPS) be requested to review and develop an enhanced commercial vehicle enforcement strategy in collaboration with Transportation Planning (TP) and Transportation Operation and Maintenance (TOM).

EXECUTIVE SUMMARY

The City of Hamilton Truck Route Master Plan (TRMP) Update was initiated following the approval of Report PED19073, on April 10, 2019, outlining a Terms of Reference (TOR) for the Update. The primary purpose of the TRMP review was to explore opportunities to balance the needs of residents and communities while advancing the safe and efficient movement of goods using trucks in Hamilton to support economic vibrancy and goods movement activities. The TRMP Review and Update is provided in Appendix "A" attached to Report PED19073(b).

The City's current Truck Route Network (TRN), which forms the starting point for the Update, was implemented in 2010 and has remained largely intact since that time. The Network is based on a hybrid truck route signing system utilizing both permissive and restrictive truck route signing. This involves using permissive truck route signs for designated routes and augmenting the permissive signs with restrictive truck route signs at critical locations to reinforce the truck route system.

Given that more than a decade has passed since the original TRN was implemented, there has been significant feedback on where the Network has functioned well, and where there are challenges. A primary challenge relates to the incompatibility of large trucks with the achievement of liveable communities. Additionally, over the past decade, there has been a heightened awareness of the relationship between our transportation systems and their role in addressing major challenges including climate change, road safety through Vision Zero, Complete-Livable-Better Streets, and public health, including social equity, among others.

What has not changed is the importance that goods movement plays in supporting Hamilton's economy. John C. Munro International Airport is Canada's busiest expedited overnight cargo airport, and the Hamilton Oshawa Port Authority (HOPA) is the largest and busiest on the Great Lakes. These major economic nodes, along with Hamilton's rural agricultural industry and overall commercial sector, are very much dependent on

an effective TRN. Virtually all goods produced and consumed in Hamilton are delivered by trucks for some or all of their journey. Based on a Ministry of Transportation Commercial Vehicle Survey (CVS), the average value of commodities shipped daily to and from Hamilton by trucks is estimated \$120 M.

Accordingly, and through consultation with the public and stakeholder groups, a Vision statement for the TRN Update was developed that reflects the City's (2016-2025) Strategic Plan Vision "To be the best place to raise a child and age successfully" and the 2018 Transportation Master Plan (TMP) Vision, Priorities, and Objectives. It reads as follows:

"A truck route network supports Hamilton and regional economic prosperity, coexisting with a high quality of life for communities as well as environmental and public health."

The Vision recognizes and supports three pillars of sustainability:

- Economic Prosperity;
- Community Livability (high quality of life for communities); and,
- Environmental and Public Health.

The TRMP Review and Update was conducted in accordance with the requirements of Phases 1 and 2 of the Municipal Class Environmental Assessment (MCEA) process (Municipal Engineers Association, October 2000, as amended in 2007, 2011, and 2015), for Master Plans.

An enhanced consultative approach was undertaken for the Study, which exceeded the minimum requirements for master plan studies outlined in the MCEA. This was undertaken to consider the comments and concerns of the public whose daily activities are directly impacted by truck movements (e.g. residents living along a truck route) and contrasted with comments received from the business and goods movement industry. Due to the COVID-19 Pandemic situation, the civic engagement efforts for this Study were undertaken on-line in alignment with the Provincial Public Health directions. Invitations to the second Public Information Centres (PIC) was communicated to all stakeholder groups and residents of the City via a city-wide mail drop to approximately 230,000 addresses, in addition to printed and social media, and other communication means. This Project was the first major City-wide undertaking that was hosted on Engage Hamilton platform. These engagement efforts resulted in one of the highest attended virtual public meeting events hosted by the City.

This Study was a data-driven master planning exercise. The recommendations and development of the final draft TRN were informed using a wide variety of data inputs and the application of Geographical Information Systems (GIS). The evaluation framework for the development of the TRN involved an iterative process that evaluated

all road segments within the jurisdiction of the City of Hamilton and those with shared jurisdiction between adjacent municipalities and combined both technical data and public and stakeholder inputs to arrive at the final recommended Network. The Network evaluation, which is described in Appendix "A" to Report PED19073(b) and summarized in the main body of this Report, considered a range of indicators reflecting the Study pillars and evaluated four potential broad network philosophies. The evaluation differed from a traditional Environment Assessment (EA) comparison approach which seeks to select the highest scoring alternative. Rather, the evaluation approach was designed to learn from evaluation and attempt to design a Network that best meets all objectives, while placing a strong emphasis on public and stakeholder input.

In June 2021, a draft TRN was selected and presented to the public and stakeholders as part of the second round of consultations. Key features of this Network included a rationalization of truck routes and a focus on balancing all objectives including connectivity, environment and public health, equity, reliability, and safety. Several major modifications were made to the existing TRN including eliminating some downtown and surrounding areas routes and introducing a time of day restriction for routes within the downtown and other areas with residential populations.

Based on the feedback received during the second phase of public and stakeholder engagement, the final draft Network and implementation strategies were further refined. The final Network is illustrated in Exhibit 4.12 of Appendix "A" to Report PED19073(b) and is referred to as the Near Term Operational Network. Additionally, the TRMP also identifies a Future Conditions Network, as presented in Exhibit 4.13 of Appendix "A" to Report PED19073(b), which is intended to assist with planning for longer-term needs. These future routes will be strategically considered for truck route designation as part of the asset management process and as opportunities arise to improve their structure to accommodate goods movement. Some of these routes will augment or replace nearby existing truck route segments.

Compared to the draft TRN presented in June 2021, the proposed final recommended Network includes a number of additional changes. Specifically, it removes some of the proposed roads in the rural areas of Flamborough and Glanbrook including most boundary roads which are shared with adjacent municipalities. It also introduces a size restriction for an area in the lower City (downtown) and part of the upper City, which trucks larger than five-axes could be prohibited. This prohibition would still permit local deliveries by large trucks, and allow smaller trucks, but would serve to divert large longer-distance trucks to routes that do not traverse the downtown area. It is specifically intended to address concerns raised with respect to vulnerable road users and the goal of promoting livable communities.

In addition to recommended changes to the Network itself, the TRMP also identifies a number of supporting strategies including advancing a strategy to test a cargo e-bike delivery program in urban communities, creating partnerships with Ministry of Transportation Ontario (MTO) and private entities to make the Hamilton TRN visible on ON-511 app and Google maps and working with Hamilton Police Services (HPS) to augment enforcement of truck routes and related regulations.

Alternatives for Consideration – See Page 16

FINANCIAL – STAFFING – LEGAL IMPLICATIONS

Financial: Implementation of the recommended changes to the Truck Route Network (TRN) will require new signage for routes that have changed, as well as signage for new restrictions. The cost of making changes to the truck route signing system and printing of new truck route maps is estimated at \$300,000 and is proposed to be funded from the Unallocated Capital Levy Reserve Account #108020.

Staffing: N/A

Legal: An amendment to the City of Hamilton Traffic By-law, and relevant schedules, will be required based to implement Recommendation (d) of this Report PED19073(b). A number of housekeeping and other changes reflecting the terminology and definition of heavy trucks as described in this Report are also required to make the wording of the By-law current.

HISTORICAL BACKGROUND

The City commissioned its first TRMP in 2007, to review and provide recommendations for an efficient truck route system. In 2010, council approved the TRMP, which has since been used to manage the movement of trucks in Hamilton.

In 2016, as per Report 16-001, the City adopted an alternative truck traffic management system referred to as "Hybrid" system to effectively integrate trucks in City's transportation system and to minimize the impacts of truck traffic on the interests of the greater community. The decision to embrace the Hybrid system was a result of numerous concerns received by the members of Council, staff, and HPS regarding illegal trucking activities in primarily residential communities.

In July 2018, a motion was passed by the Council respecting creation of a Hamilton General Hospital Safety Zone where staff was advised to report back to the Truck Route Sub-Committee on the feasibility of re-routing trucks away from Victoria Avenue North and Wellington Street North.

In August 2018, the Hamilton TMP was approved by Council. The 2018 TMP acknowledges the importance of a reliable goods movement Network and freight supportive land-uses as a key aspect of economic growth of the City. Action 65 of the TMP recommended a review and update of the 2010 TRMP Study, following which staff commenced steps to initiate a Terms of Reference for the Update.

In March 26, 2019, the Truck Route Sub-Committee convened and approved the Terms of Reference (TOR) for the TRMP Update. IBI Group, in association with GLPi and David Kriger Consultant, was retained through a competitive Roster process to carry out the technical analysis and consultation required for this Study. At the November 1, 2019 Truck Route Sub-Committee Meeting, the Consultant presented the Study Work Plan and the Consultation Plan for review and input. The Work Plan and Consultation Plan were unanimously approved, and staff was directed to proceed with the Project.

On November 1, 2021, Public Works Committee considered a Citizen Committee Report from the Cycling Committee regarding a Truck Route Proposal Motion (Item 9.3) and TRMP Input (Item 11.2). The recommendations of this Committee Report were directed to the Truck Route Sub-Committee for consideration in the TRMP.

POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS

The TRMP Review and Update was conducted in accordance with the requirements of Phases 1 and 2 of the MCEA process (Municipal Engineers Association, October 2000, as amended in 2007, 2011, and 2015), for Master Plans. There are no Schedule B or C projects developed from this Master Plan, and as such, there is no opportunity for the public or industry partners to request a Part II Order, or “bump up” request, to the Minister.

Consistent with the Highway Traffic Act, the City’s Traffic By-law requires a vehicle weighing more than 4,500 kg to follow the designated truck route system. Vehicles are permitted to deviate from the truck route system when making a local delivery and to do so they must take the shortest path from the truck route system to the point of pickup or delivery and then return immediately via the shortest route to truck route system. It should be noted that as changes are made in the truck route system, additional truck travel distance is required. Additional truck travel equates to higher levels of greenhouse gasses (GHG) emissions and increased potential for motor vehicle collisions, which are contrary to the goals of the City's Strategic Plan, climate change, and Vision Zero Action Plans. Overall, the Study recommendations are consistent with the Places to Grow Act (Section 3.2.4), TMP, and other related policy documents.

RELEVANT CONSULTATION

Public and stakeholder engagement was an integral part of the TRMP Update. Extensive public engagement activities were undertaken across Hamilton throughout the Study. The engagement approach that was applied went above and beyond the requirements of the EA process for master plans. The City's public engagement charter and use of the Engage Hamilton platform tools was applied. The Study included three levels of participation: Inform (providing the public with opportunity to understand the Study's scope and purpose, along with problems, alternatives, opportunities and/or solutions); Consult (obtaining public feedback on truck route issues, strategic direction, Study goals, and principles); and, Involve (working directly with the public and key stakeholder groups to ensure their concerns and needs are understood and considered).

Throughout the Study process, both internal City staff and external stakeholders were engaged virtually as per the Provincial Public Health authority directions. Many different opportunities for participating in the TRMP Update were provided. A summary of engagement activities is provided below:

- **Project Webpage:** A separate project page was developed in the Engage Hamilton portal to increase engagement efforts and project visibility. The website obtained over 8,600 hits between June 2020 and September 2021, which was the peak period of community engagement process.
- **On-line Mapping Tool:** An interactive mapping tool was developed to solicit location-specific input from the community. The tool obtained over 1,060 hits between June 2020 and September 2020. Nearly, 330 location-specific comments were provided, mostly by residents.
- **Surveys:** Two on-line surveys were conducted. A total of 380 individuals visited Survey #1 and 200 submitted their responses. Survey #2 was visited by 322 individuals which resulted in 202 submissions. The first online survey was conducted July to September 2020, themed around "Let's Talk About Trucks". The second survey was conducted to solicit input on Advantages, Impediments, Mitigations and Maybes of the draft recommended TRN. The survey was open to the public throughout June and July 2021.

Virtual Public Information Centres (PIC): Two virtual PICs were held. A total of 64 individuals attended the first PIC and 240 attended the second PIC. Notices were advertised in the Hamilton Spectator (At Art and Life Section) consistent with City practice. Invitations to the second PIC was communicated to all stakeholder groups and residents of the City via a city-wide mail drop to approximately 230,000 addresses, in addition to social media and other

communication means. Formal letters with the Notice of PIC were sent to Indigenous Communities, Federal and Provincial Agencies, adjacent municipalities, neighbourhood association, BIAs, and Chambers of Commerce.

Speaking Engagements: City staff attended the following eight events to discuss the Study objectives, evaluation process and progress:

- Sherman Community;
- Community Awareness Emergency Response Group;
- Bayfront Industrial Area Strategy – Focus Group;
- Glanbrook Community;
- Flamborough Community Council;
- Hamilton Cycling Committee;
- Agriculture and Rural Affairs Advisory Committee; and,
- Environment Hamilton.

Approximately 160 people were engaged in this manner.

Stakeholders, including Truck Route Sub-Committee, Agriculture and Rural Affairs Advisory Committee, and Cycling Committee, were also engaged to provide feedback, as well as other internal and external stakeholder meetings. A list of other agencies contacted, during the course of this Master Plan, can be found in Appendix “B” of Report PED19073(b).

In addition to public engagement, extensive internal engagement was undertaken throughout the TRMP Update.

- **Technical Advisory Committee:** An internal multi-departmental project team consisting of staff members from across the City. Collaboration between other studies/initiatives undertaken or in consultation with the City was an important part of the Plan development. This was an important part of the Plan to ensure a unified strategic direction (e.g. Strategic Plan, Transportation Master Plan, Light Rail Transit Planning, Complete-Liveable-Better Streets design, and Climate Action Plan).
- **Truck Advisory Focus Group:** An external advisory group comprised of equity-seeking groups, agriculture and farming community, representatives from the business community, port and airport, public health, and six members of the public representing urban, suburban and rural communities. This was an important component of the engagement to ensure transparency in communication and consistency of messages among various stakeholder groups.

- **Truck Route Sub-Committee:** A presentation to the Truck Route Sub-Committee was made at the initial stage of the TRMP Update process to confirm the scope of work and consultation and, inform Council on the strategy to undertake the planning process. Information Updates were also included to inform Council on the progress and direction of the planning process.

- **Digital Communications:** Social media was used during the TRMP Update as a method to inform the community on upcoming public meetings, engagement and on-line surveys. A summary of the social media activities results are provided below:
 - LinkedIn:
 - Posts = 1
 - Impressions = 1,679
 - Comments = 0

 - Instagram Stories:
 - Post = 3
 - Impressions = 11,846
 - Link Clicks = 269
 - Actions = 301

 - Twitter:
 - Posts = 9
 - Impressions = 59,305
 - Engagement = 1,182
 - Retweets = 58
 - Link Clicks = 311

 - YouTube:
 - PIC #1:
 - Impressions – 972
 - Views – 592
 - Watch Time – 70.6 hours

 - PIC #2:
 - Impressions – 1,200
 - Views – 626
 - Watch Time – 71.8

Direct emails were sent to members of the public and key stakeholder who expressed interest to receive communication related to this Study.

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The following table summarizes engagement activities completed throughout the course of this Master Plan Update.

Date	Outreach
May 6, 2019	Sherman Community Meeting
November 1, 2019	Truck Route Sub-Committee
January 8, 2020	Ministry of Transportation and Adjacent Municipalities
February 13, 2020	Technical Advisory Committee
March 10, 2020	Truck Advisory Focus Group
March 17, 2020	Business Community and Chambers of Commerce
July 14, 2020	Goods Movement Community
September 2, 2020	Virtual Public Information Centre # 1
October 7, 2020	Hamilton Cycling Committee
October 20, 2020	Technical Advisory Committee
November 24, 2020	Agriculture and Rural Affairs Advisory Committee
March 1, 2021	Technical Advisory Committee
April 28, 2021	Technical Advisory Committee
May 13, 2021	Community Awareness Emergency Response Group (CAER)
May 31, 2021	Truck Advisory Focus Group
June 9, 2021	Ministry of Transportation and Adjacent Municipalities
June 11, 2021	Business Community and Chambers of Commerce
June 16, 2021	Goods Movement Community
June 24, 2021	Virtual Public Information Centre # 2
July 7, 2021	Glanbrook Community Meeting
September 16, 2021	Environment Hamilton
October 14, 2021	Flamborough Community Council

As per the direction of the Truck Route Sub-Committee, a Truck Advisory Focus Group was established that was comprised of members of the business community, public health, equity-seeking groups, agriculture community, and six members of the community representing urban, suburban and rural communities. The group's mandate was to represent community and stakeholder's interests and provide two-way communication between the City and the community regarding the TRMP. Moreover, to attend other stakeholder meetings to audit transparency of the consultation process.

Throughout the first and third quarters of 2020, several consultation sessions were held to purposefully engage various affected communities and stakeholder groups and facilitate meaningful dialogues. It provided the opportunity for the City's citizens and key stakeholders to understand the Study scope and purpose, along with Study activities and provide feedback.

The TRN and strategic directions were developed and refined through meetings with the Technical Advisory Committee (TAC) and, the Truck Advisory Focus Group, as well as, public and stakeholders' input.

Following the final consultation phase, based on the feedback received and further technical analysis, the Consultant revised the initial TRN and developed the final Study recommendations and implementation strategies.

ANALYSIS AND RATIONALE FOR RECOMMENDATION

In the City of Hamilton, virtually everything in the supply chain process reaches to its end consumers by truck. Trucks are vital to the economic prosperity of the City and the City is recognized as a major transportation hub and the gateway of North-American trade. For instance, based on the Ministry of Transportation's CVS the average value of commodities shipped daily to and from Hamilton by trucks is estimated \$120 M. However, despite their critical role in the transportation system, heavy vehicles, in particular large trucks, can create negative impacts through safety concerns, noise, vibration, air quality impacts, and even their visual presence.

At the commencement of the TRMP Study there were approximately 26 locations in the City which were known areas where trucks had been a source of ongoing public concern and comment. Following the consultation and meetings, that list was expanded to 54, part due to input received as different routes were considered for exclusion or removal. A review of stakeholder and public engagement revealed that, in general, concerns regarding trucks was primarily associated with larger vehicles, likely due to their increased visibility and the increased noise, vibration, and compatibility concerns.

Key issues, challenges and opportunities identified through the background review, problem identification, and stakeholder engagement process include the following:

- Connecting Key Employment Areas;
- Environment and Climate Change;
- Truck Route Non-Compliance and Enforcement Needs;
- Safety for Vulnerable Road Users;
- Impacts on Nearby Sensitive Land Uses;
- Noise and Vibrations;
- Air Quality Impacts;
- On-Road Truck Parking and Idling Issues;
- Road Maintenance Impacts;
- Rural Issues;
- Hamilton Light Rail Transit;
- Social Equity; and,
- Emerging Technologies.

The Study was a master planning exercise. This means that it was conducted at a higher level and decisions were informed by data and made based on technical evaluation and Network planning principles. While some detailed reviews were made of more controversial sections, the Study was not intended to, and did not, review the impact of current system or of changes in the truck route system on property values, physical impact to specific properties or geotechnical road structures.

The Study benefitted from a data-driven approach. The recommendations and development of the final draft TRN were informed using a wide variety of data inputs and the application of Geographical Information Systems (GIS). The data sources consisted of telemetric truck data from private sector providers, Global Positioning System (GPS) based truck data, City's traffic data repository, location specific manual counts, and data collected by community volunteers amongst others.

The following datasets were garnered and used for Network evaluation and development of Study recommendations and implementation strategies:

- Population Density;
- Sensitive Land Uses and Community Facilities;
- Employment and Industrial Land Uses;
- Cycling and BLAST Networks;
- Functional Roadway Classification (Urban Hamilton Official Plan (UHOP), and Rural Hamilton Official Plan (RHOP));
- Employment and Household Density;
- Vulnerable Age Cohort Distribution;
- Truck Trip Density;
- Average Daily Truck Volumes and Turning Movement Counts (including counts from community volunteers);
- Emergency Detour Routes;
- Truck Trip Origin-Destination Pairs and Key Trip Generator Nodes;
- Reduced Load Roads and Functionally Obsolete Structure Assets;
- Pavement Condition Index;
- Travel Time Index;
- Potential for Safety Improvements;
- Collisions History Involving Trucks;
- Commercial Vehicle Survey;
- Commercial Vehicle Cost Calculator (Developed by Commercial Capital and American Transportation Research Institute Tool); and,
- Emission analysis using American Transportation Research Institute Methodology.

The Study did not conduct detailed noise, vibration and health impact assessments near sensitive land uses given the high-level nature of the Study and limitations on budget,

however, these issues are well known and did factor into the Study decisions. It is also noted that staff carried out numerous site visits and walk-about/drive-about to develop a full appreciation to issues raised during the Study.

The evaluation framework for the development of the TRN involved an iterative process that evaluated all road segments within the jurisdiction of the City of Hamilton and those with shared jurisdiction between adjacent municipalities and combined both technical data and public and stakeholder inputs to arrive at the final recommended Network.

The technical analysis considered a set of indicators reflecting the Study pillars including the following:

- Efficient Connectivity (Pillar – Economic Prosperity);
- Environment and Public Health (Pillar – Environment and Public Health);
- Equity (Pillar – Community Liveability);
- Reliability (Pillar – Economic Prosperity); and,
- Safety (Pillar Community Liveability).

These indicators were used to assess four network philosophies representing different levels of emphasis on different criteria. The four different network philosophies included:

- A Balanced (all criteria/goals are weighted equally);
- A Goods Movement Mobility-Focused (greater focus on goals/criteria that relate to moving goods);
- A Community Resiliency-Focused (greater focus on goals/criteria related to equity and public health); and,
- A Public Health-Focused (greater focus on goals/criteria related to safety and public health).

The existing TRN (“do nothing”) was also examined against the four philosophies to gain an understanding of the existing Network’s performance. Most links within the existing Network scored higher than the minimum threshold except for a few downtown routes. However, none of the four philosophies resulted in a well-connected TRN. A draft TRN was developed based on the balance network philosophy by applying good planning principles and institutional knowledge of City infrastructure.

Based on the feedback received during the second phase of public and stakeholder engagement, the final draft Network and implementation strategies were further refined. The final Network is illustrated in Exhibit 4.12 of Appendix "A" to Report PED19073(b) and is referred to as the Near Term Operational Network.

The key changes recommended by this Study are introduction of downtown restrictions by truck size (maximum five-axle) and removal of road segments from the truck route system. Moreover, a number of roadways are identified for future truck route designation. However, due to infrastructure and geometric constraints, consideration was given to delaying the designation of those segments until after infrastructure and geometric constraints are addressed.

The guiding principles upon which the final route decision was made, are as follows:

- Create a safer network for all road users - minimize the impacts imposed by large heavy vehicles on the community and vulnerable road users by applying appropriate design standards in alignment with Complete-Liveable-Better Street design guideline. Consideration was given to minimize overlap between proposed TRN, BLAST network, and the existing and planned cycling network. Where overlaps between the truck route and cycling networks could not be avoided, this Study recommends that as part of Capital improvement projects, physical buffer be considered for cycling infrastructure to improve safety and level of comfort for cyclists of all ages and abilities (i.e. Burlington Street and Rymal Road).
- Enable goods to be transported economically – develop an efficient TRN that provide direct connections among goods-generating land uses and freeway system. Improve travel reliability on the TRN with key central in predictable and expeditious movement of goods which supports achieving the economic aspiration goal for the City. Design resiliency and redundancy into the transportation system to manage truck movements in the event of incidents or road closures.
- Have a transparent route selection process.
- Avoid the inequitable distribution of impacts (e.g. public health, emissions, vibrations) on sensitive areas, such as schools, hospitals, parks, residential neighbourhoods, and community destinations.
- Specify routes clearly and intuitively to minimize the need for Police enforcement – through implementation of appropriate truck route signing system, increase adherence to the truck route system, and minimize the need for Police enforcement. Explore and deploy technology and navigation solutions to increase adherence to the truck route system and minimize ingenuine intrusion of trucks into residential communities.
- Enable the Plan to adapt to changing conditions – anticipate emerging trend and new technologies and provide a framework for addressing future issues.

Develop a future TRN including all planned new road infrastructures that should be designated as truck route. The new roadways, upon their completion, could augment or replace exiting routes in the Network. Incorporate the Long Combination Vehicles in the design of arterial roads within a two-kilometre radii of provincial freeway system with the Airport Employment Growth District and other business districts.

- Maintain route connectivity and continuity to provide reliable routes and avoid dead ends – while trucks travel between multiple jurisdiction, regional network connectivity and route continuity is important for efficient inter-regional goods movement.
- Create routes that optimize the use of higher-quality road facilities and match the relationship of trucks to road category and roadway configuration. Consideration was given to the status of a roadway within the City's Official Plan, and, also the actual physical configuration of the roadway in terms of intersection geometry, buffer between active transportation facilities and travel lanes, truck classes primarily using the route, and the adjacent land uses.

As part of the Network development, various approaches were considered to further mitigate issues raised by the public and stakeholders. These included:

- Implement time of day restriction (7 p.m. – 7 a.m.);
- Implement operational improvements; and,
- Pair city-wide Network change to mitigation measures such as addressing infrastructure and geometric constraints to accommodate safe passage to trucks on links identified as future truck routes.

The time of day restriction in urban areas was proposed as a measure to improve the quality of life for residents living along the goods movement corridors. However, the widespread implementation of overnight restrictions on nearly all urban routes would cause significant issues for truck deliveries outside of the permitted hours. The draft recommended TRN was developed based on the balanced network philosophy and the above-listed implementation strategies, which was presented to the public and stakeholder groups through the second engagement phase. Based on the feedback received during the second phase of engagement and further technical analysis, the widespread implementation of part-time truck routes was reverted due to reasons of enforceability and equitableness. Though, the existing part-time routes are maintained, and new routes are added, where justified. This led to focusing on larger trucks that cause increase noise, vibration and compatibility concerns. Given the density of pedestrian and vulnerable road users and increasing presence of sensitive land uses, an area in which trucks with five axles or less could be permitted was identified — envisaged that this change would prevent large vehicles from using downtown Hamilton

as a through route. However, these restrictions may come with trade-offs for large and heavy truck movements in terms of increased travel times and distance, resulting in GNG and shifting the unavoidable impacts to other communities, particularly for those travelling to or from the northwest of the City.

Re-routing large heavy vehicles away from the downtown routes and communities will result in additional operating cost, travel time, and distance for truck operators. Specifically, for trucks travelling from West (London-Windsor) and Northwest (Guelph) directions to Bayfront industrial lands/Port terminals. On average, the travel time increases by eight minutes for trucks coming from West and seven minutes for trucks coming from Northwest. Exhibit 5.4 of Appendix "A" to Report PED19073(b) summarizes the impact of requiring the alternate route for select origin-destination pairs including, the cost, energy consumption, and GHG emissions per truck trip.

Conversely, the proposed restrictions by vehicle size enables economic growth opportunities within the Downtown Secondary Plan Area. The proposed changes will improve walkability, bikeability, liveability, public and environmental health in the downtown community and adjacent residential neighbourhoods.

The TRN developed through this Master Plan is not intended as a static entity; rather, it's expected to evolve and adapt, as dictated by development and/or redevelopment within this City. This includes the construction of new road infrastructure and implementation of Hamilton Light Rail Transit (LRT). The Plan is also adaptable to changing conditions as the landscape of supply chain process changes and new trends and technologies emerge in the goods movement industry (e.g. Sharing Economy, Internet of Things, Connected and Autonomous Vehicles, and Drones for Freight Delivery). From a Complete Streets perspective, the Plan recommends accommodation of trucks in the urban curbside to account for courier/express delivery, development of guidelines for designation of major truck routes, and incorporating freight-friendly practices in land use plan development.

ALTERNATIVES FOR CONSIDERATION

The Truck Route Sub-Committee could choose to alter the staff recommendations. Most typical changes would be to remove road sections from the truck route system. One impact of added deletion would be to increase the demand of enforcement and/or to increase the difficulty of enforcement. Past experience has shown that despite the best efforts of staff and the Police to try to understand the implications of truck route changes, because so many individual trucking companies and businesses are involved, unpredictable problems often occur when the system is revised. Revisions to the proposed TRN will require additional time and money to investigate and evaluate the impacts of changes on the overall TRN from a safety, enforcement, connectivity, and public and environmental health perspectives.

ALIGNMENT TO THE 2016 – 2025 STRATEGIC PLAN

Community Engagement and Participation

Hamilton has an open, transparent and accessible approach to City government that engages with and empowers all citizens to be involved in their community

Economic Prosperity and Growth

Hamilton has a prosperous and diverse local economy where people have opportunities to grow and develop.

Healthy and Safe Communities

Hamilton is a safe and supportive City where people are active, healthy, and have a high quality of life.

Clean and Green

Hamilton is environmentally sustainable with a healthy balance of natural and urban spaces.

Built Environment and Infrastructure

Hamilton is supported by state-of-the-art infrastructure, transportation options, buildings and public spaces that create a dynamic City.

APPENDICES AND SCHEDULES ATTACHED

Appendix "A" to Report PED19073(b) - Truck Route Master Plan Update

Appendix "B" to Report PED19073(b) - List of Agencies contacted for consultation,
during the course, of the Master Plan Study