

No Place to Sleep, No Place to Rest: Summary Report for a Study of Long-Haul Truck Parking & Rest Areas on Southern Ontario Highways

Implications for the Transportation Industry, Public Safety and Truck Driver Health and Safety

**Prepared for
The Ontario Ministry of Transportation**

**Original submission to MTO, May 2018
Updated: June 25, 2021**

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Acknowledgements

Trucking Organizations: Thanks are due to trucking associations located in Ontario and across Canada. In particular, The Ontario Trucking Association (OTA); The Private Motor Truck Council of Canada; The Women's Trucking Association of Canada; Fleet Safety; Owner-Operator Independent Drivers Association; The Owner-Operator Business Association of Canada; The Canadian Trucking Forum; Unifor; The Teamsters; and others. We would also like to thank Canadian Trucking Associations and State Trucking Associations in the Northern US.

The survey of truck drivers benefitted greatly from the efforts of truck stop operators (Flying J, Husky, Petro Canada, Esso, and ONroute); and individual trucking carriers, who promoted the survey (Erb, ITS, Challenger, Eassons, Double D, Home Hardware, J&R Hall, Mill Creek, Tandet, Skelton, Verspeeten, Woodcock Brothers, Groupe Robert, Andy Transport, and many others). Trucking media also provided assistance with the survey of truck drivers (*Trucking News*); Dave Nemo and Clare Marie Gauthier (Radio Nemo, New Orleans); Stan Campbell of Trucker Radio (St. Catharines), and Bruce Lacasse (Chrome and Steel Radio, Montreal).

Individual Stakeholders who provided advice on design and development of the study include: Mike Millian, Shelley Uvanile-Hesch, Johanne Couture, Joanne Ritchie, Geoffrey Wood and Jon Blackham. Individuals who helped to promote the truck driver survey include: Peter Turner, Richard Kripps, Russ Jackson (Flying J), Husky and Esso, Petro Canada, and Host Kilmer. Thanks are also due to members of the OPP, in particular, Sgt. Peter Ralston, Commercial Vehicle Coordinator. Denis Labossiere of ITS provided advice throughout the study. Municipalities also played a key role, particularly planners from Metro Toronto, Peel Region and Ottawa who attended consultations and submitted briefs. Finally, we would like to thank the 2,300+ truck drivers who completed the on-line survey or submitted briefs/e-mails.

MTO Staff: SPR Associates would like to thank MTO staff for their advice and assistance. In particular, thanks are due to: Mr. Shan Sureshan, Senior Policy Advisor, Mr. John Roberto, Senior Operational Policy Advisor and Mr. Robert Hazra, Manager, Operations Office. Mr. Chris Davies, MTO, assisted with the distribution of survey information at MTO facilities.

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An Expert Panel in Trucking, Freight Movement, Safety and Economics provided direction for the study and reviewed all study conclusions and recommendations. Expert panel members included: Dr. Garland Chow (Trucking, University of BC); Dr. Peter Park (York University Engineering); Dr. Ron Knipling (Safety for the Long Haul Inc.); Dr. Phil Bigelow, Health and Safety (Health, University of Waterloo), and Dr. Clarence Woudsma (Transportation, University of Waterloo); Dr. Morley Gunderson and Dr. Matthew Roorda (University of Toronto); Mr. David Kriger (Trucking, David Kriger Consulting); and Dr. Peter Savolainen (Trucking, Iowa State University).

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* This report reflects the views of SPR Associates. Specific content and recommendations do not necessarily represent the views of MTO or any other stakeholders.

Preface

Overview: This *Study of Long-Haul Truck Parking and Rest Areas in Southern Ontario* is focused on the following key question: "What new truck parking [or other solutions, e.g. new information systems or broader policies and practices] will help to better meet Southern Ontario's needs for truck parking on provincial highways"?

Data Sources: This report presents findings from three sub studies: consultations with stakeholders; a study of MTO traffic data; surveys (including a major survey of truck drivers and a small survey of trucking companies). A key feature of the truck drivers survey was assessments of parking for some 60,000+ data points on Southern Ontario highways (where one assessment = one driver rating the sufficiency of parking in one or more of the 25 sections of highways studied, and for some 76 Ontario truck stops assessed (all locatable by latitude and longitude)).

A Wide Range of Issues: While focused on the adequacy of truck parking on Ontario highways, the report also provides insights on a broader range of related issues, such as: how truck parking affects the industry overall, in its efficiency and economy; how truck parking affects working conditions for truck drivers; aspects of human resources; and how the availability of truck parking affects driver fatigue and risks of collisions. Linkages are also noted between HR practices such as pay levels and the risk of collisions.

Overall, these results, combined with findings from other sub-studies should be of value in improving highway infrastructure. Thus, the report should be of value to the industry in improving economic performance, and improving related HR programs which will aid public safety. In the report a number of these broader issues are addressed in learnings, recommendations and suggestions.

Sub-themes: While this report focuses on results from consultations with stakeholders, a traffic analysis and driver's survey, attention is also given to a small company carrier survey which provided supporting insights. Findings from the driver's survey, including demographic and other results, are noted as *main survey results*. *Main findings* are provided in Sections 2.2 to Section 3, with findings reflected in recommendations in Section 4.

How the study evolved: When the research began, the focus was mainly on 400 series highways. At first, non-400 highways were not examined in detail, mainly because of the complexity of the Ontario highway system, and the need to examine some 1,800+ highway segments, and thousands of data points. Later in the study, non-400 highways were given greater attention. Additionally, in mid-study, a safety review case study was added examining Gibson Lake and Highway 17 as illustrative of the situation of non-400 highways.

On August 6, 2018, the prominence of the truck safety issue was underlined by a Toronto Star editorial which noted that, from 2017 to 2018, there had been a 38% increase in fatal accidents in Ontario involving transport trucks. The Star editorial also quoted Stephen Laskowski, President of the Ontario Trucking Association, who noted that "a tired truck driver is a dangerous truck driver."

Type of Parking Examined: Initially, the study focused on MTO rest stops (such the 23 highway service centres located on Highways 400 and 401, twenty of which are operated by Host Kilmer Service Centres, under a 50-year contract with MTO), and designated private truck stops, such as Flying J, Esso, etc. Since then, interest has emerged in other parking facilities which might be developed with others. As well, some 70 MTO picnic-rest areas were examined, but in less detail, as only two were deemed suitable for truck parking at the time of this study.

Detailed Assessments of Parking Shortages: Drivers who completed the survey provided very extensive assessments of parking shortages. The 2,000+ drivers who completed the survey provided altogether over 60,000 assessments of difficulty of finding parking on 25 Ontario highway segments, and at over 70 truck stops. (Each driver provided an average of about 30 reports on parking availability at specific highways or truck stops!). This allowed very detailed indicators of the parking shortage.

Recommendations: The study recommendations address the severe parking shortages found, and examine a full range of strategies to increase parking. This full range of strategies will be needed, since by applying a number of these approaches, MTO's efforts are more likely to be successful in addressing the important truck parking shortages noted.

An Update on The Situation in 2021 and SPR commentary on MTO Responses.

On January 7, 2021, two and a half years after SPR's initial reports on this study, MTO issued a press release and published the full SPR report.

MTO's press release outlined plans for development of truck parking over 2021-2026.

As of 2021, the Ministry has begun to implement SPR's recommendations for the creation of new parking. The Ministry issued a press release on January 7, 2021, announcing plans to create 178 new parking spaces at a number of ONroute centres and to create several new truck stops in Southern Ontario, and similar activities across Northern Ontario.

Much more effort is needed, however, to create the parking needed for industry and public safety, and particularly to engage municipalities and others in the extensive effort suggested by this report's recommendations.

EXECUTIVE SUMMARY

Objective: This report, for a *Study of Truck Stops and Rest Areas in Southern Ontario*, sought to address the following question:

"What new truck parking [or other solutions, e.g. new information systems or broader policies and practices] will help to better meet Southern Ontario's needs for truck parking on provincial highways"?

Data Sources: The report presents findings from three sub-studies: consultations with stakeholders; a study of MTO traffic data; surveys (including a major survey of truck drivers and a smaller survey of trucking companies/carriers). A key feature of the survey of truck drivers included drivers' assessments of parking for some 60,000+ specific points along 18 highway segments across Southern Ontario.¹

A Wide Range of Issues: While focused on the adequacy of truck parking on Ontario highways, the report also provides insights on a broader range of related issues such as: how a lack of truck parking affects the industry overall, its efficiency and economy; truck parking and working conditions for truck drivers; aspects of human resources; and how the availability of truck parking affects driver fatigue and the risk of collisions. These study results, combined with findings from the other sub-studies should be of value in improving highway infrastructure and improving economic performance, and improving related HR programs to aid public safety. Within the report, a number of these broader issues are addressed in learnings and recommendations.

Sub-themes: While this report focuses on results from the consultations with stakeholders, the traffic analysis and survey of truck drivers, attention is also given to a small company/carrier survey which provided supporting insights. Findings from the survey of truck drivers are noted as *main survey results*. *Main findings* are provided in Sections 2.2 to 2.4 and Section 3, with findings provided in Section 4: Recommendations.

How the study evolved: When the research began, the focus was mainly on 400 series highways. Other highways were not examined in detail, mainly because of the complexity of the Ontario highway system and the need to examine some 1,800+ highway segments and thousands of data points. As the study progressed, non-400 highways were given greater attention. Additionally, a safety review case study was added, examining Gibson Lake and Highway 17 as illustrative of the situation of non-400 highways.

Type of Truck Parking Examined: Initially, the study focused on MTO rest stops, such the 23 highway service centres located on Highways 400 and 401 (twenty of which are operated by Host Kilmer Service Centres under a 50-year contract with MTO), and designated private truck stops, such as Flying J, Esso, etc. As well, some 70 MTO picnic-rest areas were examined, but in less detail, as only two were deemed suitable for truck parking at the time of this study.

Recommendations: Eighteen recommendations are provided to address the severe parking shortages found, and examine a full range of strategies to increase parking. This full range of strategies will be of value, since by applying a number of these approaches, MTO's efforts are more likely to be successful in addressing the important truck parking shortages noted.

¹ Where one assessment = one driver rating the sufficiency of parking in one or more of 25 highway sections and 76 Ontario truck stops (locatable by latitude and longitude).

1. INTRODUCTION

1.1 Study Origin, Background and Overall Goals

Study Origin: A study of truck stops and rest areas in Southern Ontario was initiated by the Ontario Ministry of Transportation (MTO) in Summer 2017. MTO's request for the study reflected a blend of concerns with highway infrastructure and public safety. As stated in MTO's Request for Proposals:

"Ontario's roadways are among the safest in North America. The province makes road safety a top priority, as demonstrated by the many legislative, education and enforcement measures implemented to save lives and prevent injury. With the increased number of commercial motor vehicles on the highway system, and Hours of Service (HOS) Regulations² to minimize driver fatigue, the demand for convenient and safe rest stops has increased. The implementation of Electronic Logging Devices (ELD), in lieu of paper logbooks to track hours of service, is expected to increase demand for rest stop accommodation for commercial motor vehicles."

The purpose of the study (from the RFS) was :

"To ... research... and prepare a report on Southern Ontario Rest Areas and provide recommendations for improvements to accommodate commercial motor vehicles. This (will) include the review of each rest area, identifying needs with respect to the number of rest stops, travel distance between rest stops, number of parking spaces,³ and amenities for both public and commercial establishments." Within this review, this is termed the *Rest Area Inventory*.

Background: *The Importance of Trucking:* Ontario's highways and trucking industry are key elements in the province's economic infrastructure. Rest areas, which allow drivers to sleep on long-haul assignments and rest on shorter routes, are key parts of this infrastructure. *This is because rest, or lack of rest and resulting fatigue are key factors in the efficiency of the trucking sector and a major factor in collisions, with pronounced impacts on both driver health and public safety.*

Parking Shortages -- a Longstanding Issue: Trucking stakeholders have long been clear on the reality and severity of a parking shortage in Ontario. As reported in the Ontario Trucking Association (OTA) release (accessed May 2017): "... there aren't enough places on Ontario where a driver can park his rig and sleep and take a nap.... Instead, drivers in need of rest are often forced to park their vehicles on the shoulders of highways, creating a hazard for drivers and other motorists."

Economic Issues: A particular priority was the cost that drivers and carriers face where truck parking has been scarce. Noteworthy costs (estimated at many hundreds of millions of dollars) have been identified for the trucking industry and for drivers. Drivers experience financial costs as well as health and safety effects (driver fatigue and related impacts on drivers' personal lives).

² HOS regulations were originally posted in 1993. Canada's revised Commercial Vehicle Drivers Hours of Service Regulations were later adopted on November 16, 2005, with an effective date of January 1, 2007.

³ Number of spaces was estimated through SPR's rest stop inventory. A sub-question for the study was: 'What should the ideal distance be between rest areas?' Stakeholders who were surveyed estimated this as 70 kms. However, much greater distances between stops were noted near the GTA.

This situation remains a significant concern in 2018, as SPR confirmed in discussions with Geoff Wood of OTA, Joanne Ritchie of the Truckers' Owner Operator Business Association and many others. *The severity and significance of this issue is reported by the media on a regular basis, where trucks are involved in a crash, often resulting in a loss of life, and often with associated tie-ups on major highways (see trucknews.com 'Dealing with Driver Fatigue', August, 2013).*

Similarly, *The Preliminary 2016 Ontario Safety Annual Report* noted some 2,371 fatal and injury collisions (110 with fatalities and 2,261 with personal injuries), with about 20% involving large trucks. Noting the need for current research, this study to assess *Southern Ontario Rest Areas* provides specific insights on truck parking needs, building on results from similar studies in Canada and the U.S., allowing for a more informed planning and investment strategy for rest areas.

Knowledge Base: The study could not build directly on recent Ontario or Canadian research, as there has been little research conducted on truck parking -- and no hard research conducted in Ontario -- since Transport Canada's more general 2009 survey of truck drivers. This study built on general results of the 2009 Transport Canada Study -- that more parking is needed -- and related views of trucking stakeholders.⁴

Goals of the Study and Methods: The main goal of this study was to provide *detailed recommendations* on how to improve the truck parking situation on Southern Ontario highways and identify gaps in parking. In particular, to estimate *how much parking is needed and where*. This new Ontario research included three sub-studies: (1) *consultations with trucking stakeholders*; (2) an *analysis of truck traffic* on Ontario highways; and (3) two surveys (a *major survey of long-haul truck drivers* from across Ontario, Canada and the US and a small on-line survey of companies). To ensure a high level study, *direction was provided by an international panel of experts on trucking & freight movement, safety and economics*.

Noting both economic and safety concerns, the study was focused on the need for rest areas/parking for commercial vehicles along Southern Ontario highways, particularly as regards long-haul truck drivers. The overall goals of the study were to assess the current parking situation for commercial vehicles; identify gaps in the existing network of truck stops and rest areas; and provide recommendations for rest area/parking improvements along Southern Ontario highways.

Public safety concerns have been a constant backdrop to the research because of the link between a lack of truck parking and driver fatigue. This is a major concern, as driver fatigue has been shown in extensive evidence-based research to be a major factor in truck-related collisions.

⁴ See, for example, Al Goodhall, 'Rest Areas, What Rest Areas?' *Truck News*, August 2010. Evidence of concern across Canada is seen in a BC project. See also, "North Surrey to get a new truck parking facility". The BC Ministry of Transportation has been implementing a new \$35 million truck parking facility with 150 spots for commercial trucks, as well as washrooms and showers. *Peace Arch News*, March 27, 2017.

1.2 The Truck Industry, Parking and Safety

There is widespread consensus that there is a lack of parking for commercial vehicles along Southern Ontario highways. Similarly, the shortage of truck parking is widely reported across all of Canada, the US and internationally.⁵ Some of the factors exacerbating this shortage, as indicated by trucking stakeholders in industry publications, include:

1. The recent closure of a number of truck stops, such as the '*Fifth Wheel Truck Stops*' (resulting in the loss of an estimated 20% of parking spaces)', the loss of some truck stops to fires,⁶ and the lack of construction of new truck stops, especially near major urban areas.
2. An increase in the volume of goods transported by truck, as well as an increased emphasis on 'just-in-time' delivery and the use of trucks as "inventories on wheels."
3. Current hours of service (HOS) regulations which were established in 2007,⁷ largely for safety reasons and related ELD requirements which came into effect in December 2017 (in the US).⁸ The priority of safety in the study and multiple links between broader HR practices and safety. Thus, this report examines factors such as pay level and long hours which considerable research has identified as having an impact on truck safety.⁹
4. The provision of safe and secure truck parking is essential for general highway operations and safety. It also helps guard drivers from violence -- important factors affecting the ability of the industry to attract new drivers.¹⁰

HOS regulations do not themselves cause parking shortages. Rather, shortages result from the interplay of the volume of truck traffic and the supply of parking. HOS regulations and ELD regulations do, however, result in hardships for drivers (and sometimes highly visible confrontations between truck drivers and law enforcement agencies), when safe, legal parking cannot be found at all.

⁵ See: https://ec.europa.eu/transport/modes/road/parking-areas_en . This website summarizes European Union research on truck parking and shows model legislation developed across the European Union.

⁶ Johanne Couture of OOIDA (Canada) estimates that, altogether, close to 1,000 spots were lost as a result of the *Fifth Wheel* closings, fires and other events in recent years (personal communication).

⁷ Initially, HOS regulations were established in 1993.

⁸ These regulations are expected to come into full effect in 2019 in Canada and to continue to increase the demand for truck parking. These regulations require drivers to limit their driving hours, usually to 13 hours. Drivers are not able to drive after being on-duty (this includes driving as well as other duties, such as fuelling, loading/ unloading, inspecting vehicles) for 13 hours in a 24-hour period. Ten hours are reserved for rest, even if there is no place to park.

⁹ See, for example, Michael Belzer and Stanley Sedo, "Why do Long Distance Truck Drivers Work Extremely Long Hours?" *The Economic and Labour Relations Review*, Vol. 29 (2018). An initial examination of these issues is found in Daniel Rodriguez et al., '*The Effects of Driver Working Conditions and Wages on Highway Safety, A Case Study*, 2006, University of North Carolina.

¹⁰ See, for example, "Highway Robbery" *Truck News*, <https://www.trucknews.com/features/highway-robbery/>. Also see references to *Jason's Law* -- a milestone murder of a truck driver in the US.

1.3 The Study Area: Three Southern Ontario Regions

The study area, as defined by MTO, is shown in the map below. The map shows 400 series highways as well as non-400 series provincial highways in the three MTO regions (Southwestern Ontario - yellow; Central Ontario - green; and Eastern Ontario - red).

**The Study Area:
Three Southern Ontario Regions**



Highways examined for this study included: all 400 series highways in Southern Ontario, in particular, Highway 401 and all other major highways in Southern Ontario. For assessment purposes, these were divided into 25 sections, as follows: (1) seven sections of Highway 401; (2) the QEW and 14 other 400 series highways; and (3) clusters of other non-400 series provincial highways in three MTO Regions.¹¹

¹¹ Specifically, these were:

Hwy 401 (7 highway sections):

Windsor to Chatham-Kent; Chatham-Kent to London; London to Cambridge; Cambridge to Toronto; Toronto to Belleville; Belleville to Kingston; and Kingston to Quebec.

QEW and other 400 series highways (15 highway sections):

QEW	Highway 404	Highway 409	Highway 417
Highway 400	Highway 405	Highway 410	Highway 420
Highway 402	Highway 406	Highway 412	Highway 427
Highway 403	Highway 407	Highway 416	

Non-400 series highways (3 sections)

Western Ontario (Highways #3, 4, 6, 7, 8, 9, 10, 21, 23, 26, 40, 93)
 Central Ontario (Highways #7, 9, 12, 35, 48, 69, 89, 115)
 Eastern Ontario (Highways #7, 7A, 17, 28, 35, 37, 41, 62, 115)

2. METHODS AND MAIN FINDINGS

2.1 Description of Methods and Data Sources

Key study methods included consultations with industry stakeholders (in Fall 2017), a detailed engineering study of parking and traffic, utilizing 10 years of MTO traffic data; an on-line survey of truck drivers, which obtained responses from over 2,300 truck drivers from Ontario, across Canada and the U.S., and a small survey of trucking companies/carriers.¹²

Data Sources included on-line surveys, as noted above, and extensive MTO databases on highway truck traffic volumes and collision data by highway. Although a detailed literature review was not conducted, the researchers did examine a wide variety of published research, such as: previous truck parking studies (mostly in the US); and research on factors affecting truck safety, including HR factors. Information was examined on: models of parking demand; studies of collisions and fatigue; and HR factors which are shown to predict safety performance.

Contextual considerations included ways which trucking carriers assist drivers to obtain parking (i.e., procedures for reimbursing parking costs and, in some cases, pre-arranged parking). Other considerations included the role of municipalities (who have the potential to improve the supply of parking through management of land use, by-laws, etc.).

Limitations: The study was systematic, however, a number of limitations are noted:

- *Sampling for the truck drivers survey:* The survey of drivers was not a random sample because no list of drivers existed from which to draw a sample. Rather, it was a sample of opportunity, drawn from those invited by a wide range of stakeholders.
- *Sampling for the Commercial Vehicle Survey (CVS):* While Ontario's commercial vehicle survey is based on very substantial samples, it is also limited in certain ways. Although it captures significant long-haul trucking on major corridors, variation in sample size introduces variability in truck volumes at the individual link level. Also, data for some low volume roads are based on small samples.
- *Non-400 series highways* (Highways 6, 17, etc.) were assessed in less detail because of limitations both in the data and in the analysis plan.

Reliability of projections: While the analyses of MTO traffic and collision data have been implemented with good respect to state-of-the-art practices, the researchers emphasize that all such quantitative models are limited and must be validated using multiple methods, including surveys and stakeholder and expert assessments, and must stand the test of time.¹³ Indeed, while high-level provincially, the traffic data is subject to noteworthy statistical limitations for small areas.

¹² See within regarding research on this link from the National Academies of Sciences, Engineering, and Medicine (2016). *Commercial Motor Vehicle Driver Fatigue, Long-Term Health, and Highway Safety: Research Needs*. Washington, DC: The National Academies Press. doi: 10.17226/21921. Available at: <http://www.nap.edu/21921>

¹³ For points of view on uncertainty in quantitative projections [particularly in transportation], see: Burnewicz, Jan. "Predictability of Transport Development". *Transport Economics and Logistics*, [S.l.], v. 72, p. 7-18, December, 2017, and Flyvbjerg, B., M. K., S. Holm and S. L. Buhl, "How (In)accurate are Demand Forecasts in Public Works Projects? The Case of Transportation", *Journal of the American Planning Association*, 2005, volume 71, pages 131 – 146.

2.2 Method & Results of Consultations: Indications of a Severe Shortage

Goals and Plans for the Consultations: Three in-person consultation meetings were held in Fall 2017 (in Ottawa, Toronto and London). The consultation sessions were intended to obtain stakeholder input on key issues such as the urgency and extent of need for truck parking, and input as to where additional truck parking is required. This input provided added insights to the planned traffic analysis and surveys.

Methods: The consultation sessions were conducted using background materials and a discussion guide which were reviewed with stakeholders and MTO prior to the consultation meetings. The consultation sessions were facilitated by SPR and observed by MTO staff and SPR's transportation consultants. A fourth (evening) telephone consultation session was also held to allow truck drivers to more easily participate. Participants in the consultations included representatives of trucking companies and associations, individual drivers and other stakeholders (staff of municipal planning departments and the Ontario Provincial Police¹⁴).

Stakeholder Views on Parking/Rest Areas: Stakeholders who attended the consultation sessions were unanimous in stating that parking/rest area improvements are urgently needed in Southern Ontario. This view was reflected by company representatives, associations and municipalities who submitted written briefs as follow-ups to the in-person consultations. Many of these comments addressed the general shortage of parking, however, some identified specific highways where additional parking is needed (illustrations extracted from written submissions).

The general and severe need for parking, as well as specific areas where the need for parking is the greatest, were confirmed by nearly all stakeholders. For example, *Ontario's Fleet Safety Council* identified the following highway segments where parking is needed:

- Highway 401 through the GTA, and west and east of the GTA;
- Highway 402 near Sarnia; Highways 7, 12, 11, and 17; and
- Cambridge and surrounding areas, Barrie to Sarnia, in Southwestern Ontario.

With major engineering studies and surveys, this Ontario MTO study is the first of its kind in Canada. As such, it is likely the most substantial review of the truck parking issue ever undertaken in North America. It identifies a severe shortage of truck parking which has significant infrastructure and public safety implications for Ontario and recommends ways to address these issues.

¹⁴ The OPP provided many insights, including clarification of the Highway Traffic Act and its enforcement.

Stakeholders provided a wide range of assessments on the causes and impacts of the truck parking shortage (see Display 1, below). Stakeholder assessments underlined the complex and multi-factor origins of the truck parking shortage, including increases in truck traffic and freight movement. However, some comments provided counter-intuitive insights. For example, as noted earlier, stakeholder assessments of the ONroute redevelopment argued strongly that the result of these renovations was not an increase in truck parking spaces, but rather a loss.¹⁵

Display 1
Factors Contributing to/Exacerbating Truck Parking Shortages



¹⁵ The recent remodelling of ONroute parking is a controversial factor in discussions of Ontario truck parking. ONroute indicates that this remodelling had increased the number of parking spaces. However, associations and drivers are virtually unanimous in the view that new landscaping, barriers, etc. have actually reduced the number of available truck parking spaces.

Some caveats: enforcement of municipal parking by-laws or prohibitions against parking on-ramps does not *increase* parking shortages but results in drivers having greater difficulty finding parking where they will not be ticketed or forced to move.

Johanne Couture of OOIDA (Canada) estimates that close to 1,000 parking spots were lost to the closing of Fifth Wheel stops, fires and other events in recent years, making these changes a major shock to the current supply of truck parking (personal communication).

Stakeholder Recommendations: Emphasizing the urgency of the truck shortage situation, stakeholders noted many steps that MTO and others (carriers, municipalities and truck stop operators) could take to provide immediate, short-term relief to address the need for truck parking. These steps reflected themes of better utilizing MTO-owned land and facilities:

"As an emergency/term relief, there are a number of MTO-owned properties along the 401 corridor that are currently not in use which could be opened to truck parking. Upper-most in mind would be the now defunct west-bound CVIS in Gananoque as well as the former west-bound Ontario Information Centre in Lancaster. Also, MTO highway maintenance yards (salt sheds)." (*International Truckload Services*)

"There are currently two unused MTO scale facilities that could be a quick action item by the ministry; for example, Gananoque westbound . It would require pavement levelling and the addition of proper washrooms, trash cans, and lighting improvements. An initiative like this could be expanded in other locations and modelled after an ongoing effort by the state of Kentucky. Some of their scales include "Safe Haven" areas behind the scale; they are large parking lots with upwards of 80 spots and proper heated washrooms strictly for drivers of commercial vehicles. (*OODA*)

Planning Solutions: When the consultation sessions began, commercial vehicle rest areas/truck parking was not a high priority as expressed by urban planners. By the end of the consultations, however, many had presented some very elaborate ideas. In particular, planners emphasized urban areas as the area of greatest need, with specific remedies including: integrating truck parking in official plans, developing distribution centres and reviewing existing by-laws.

One specific illustrative approach was put forward by Peel Region planners: *A preliminary Peel Region Goods Movement Intensification Assessment* was conducted to identify key areas in Peel Region that should be considered for redevelopment purposes for the goods movement sector. The assessment showed that, in the City of Mississauga, the Northeast Employment Area and Gateway Employment Area are ideal candidates to prioritize goods movement redevelopment initiatives. At the time of writing, the researchers were also advised that several cities were working on additional suggestions regarding truck parking and a preliminary submission was submitted by the City of Toronto.

Collaborative Approaches: Stakeholders also noted that an effective solution to the parking shortage requires a collaborative effort, e.g. between the Province, local municipalities, trucking companies, drivers, receiving companies and shipping companies. The researchers note that this could be patterned after the U.S. National Coalition on Truck Parking.¹⁶

Suggestions from stakeholders for actions to address the parking shortage often reached outside of the usual MTO range of activities -- towards inter-departmental and inter-government initiatives. Many solutions suggested by stakeholders pointed to innovative activities -- e.g. new partnerships with truck stop providers such as Flying J, Petro Canada, etc.

¹⁶ That US coalition brings together government, industry and cities to review and develop remedies for truck parking shortages. See: *National Coalition on Truck Parking: Activity Report*, U.S. Department of Transportation, Federal Highway Administration, 2015-2016.

2.3 The Traffic Analysis

Estimating the Existing Supply of Truck Parking: An inventory was compiled showing the location of 88 designated truck public/private parking facilities¹⁷ along major and non-400 series highways in Southern Ontario (e.g. ONroute, Flying J, Petro Canada, Esso, Husky, etc.). This inventory of designated truck stops showed that, in 2018, Southern Ontario had an estimated total of 3,976 truck parking spaces in 88 designated truck stops/rest areas. Highway 401 had 3,135 of these truck parking spaces (78.8% of the 3,976 spaces) at 56 rest areas (63.6% of the 88 rest areas).

Estimating the Demand for Truck Parking:¹⁸ Estimates of parking demand were derived from the Engineering Traffic Analysis component of the study and indicators of parking need which were derived from results of the on-line surveys. These also complement assessments provided in the consultation sessions. The researchers emphasize that the parking demand estimates provided within are meant for discussion only -- they are estimates based on MTO highway *sample survey data* and cannot, by themselves, tell us exactly where to build new parking (for example, at the level of major highway exits). The traffic analysis included a detailed assessment of collisions, however, these results were inconclusive due to data limitations and are not reported here.

Truck Parking Demand Estimation Method: The following discussion of truck parking demand estimation contains three distinct parts: (1) a discussion of the parking demand model and assumptions; (2) results of the truck parking demand analysis (2018, 2027); and (3) a summary of the entire traffic analysis. The researchers applied two versions of the macro-scope truck parking demand estimation model developed by the US government FHWA (Pécheux et al., 2002). *This model provides a rigorous and scientifically justifiable approach to estimating truck parking demand on each highway segment and has been used in numerous studies of truck parking over the past 16 years.*¹⁹

This means that the FHWA approach estimates parking demand mainly by considering truck hours of travel (distance driven provides a proxy measure) and duration of stops. The hours of service regulations (e.g. number of hours of driving permitted in a day and maximum number of on-duty hours in seven days) have an impact on estimated parking demand as they pre-determine the distance that a truck driver can drive within a certain time window. The model then estimates the number of peak hour parking spaces required on a highway segment. The FHWA (Pécheux et al., 2002) applied 400 kms as the threshold (LH400) that divided short-haul truck trips from long-haul truck trips. However, MTO staff and some members of SPR's Expert Panel noted that some truck drivers travel much further than 400 kms without stopping to rest. For this reason an LH600 model, assuming an average trip of 600kms was also assessed.

¹⁷ "Designated stops" included rest areas specifically intended for long-haul truck drivers.

¹⁸ It is important to note that these are only *estimates* of truck parking needs.

¹⁹ These include major studies for Pennsylvania, Virginia and Georgia (Atlanta Region). The FHWA's truck parking demand model does not aim to estimate parking demand at individual truck rest areas and does not consider the amenities (restaurant, lighting, etc.) available at individual truck rest areas. The model is based on the simple assumption that the demand for truck parking is better explained by the number of hours of driving than by the amenities available at a given truck stop.

Overall Assessments of Parking Demand: For the above reasons, the researchers examined a 600 km threshold (LH600) as a potentially more robust estimation method ²⁰ *The results of both thresholds were then compared.* This comparison was viewed as a sensitivity analysis of different definitions of long-haul truck trips.²¹ The researchers also addressed double counting.

LH400 and LH600 results differed substantially. In the 2018 analysis, parking demand was *lower* in the LH600 analysis provincially, as compared to LH400, but was still notable across regions.²² During a teleconference with on July 9th: MTO staff, specifically Shan Sureshan, suggested that the LH600 results were more reasonable . Dr. Peter Park of SPR's team also noted that increasing industry emphasis on same day delivery (more likely 'local' trips of less than 400 kms) and recent GPS studies favoured the LH600 result. At the conclusion of this teleconference, *SPR's Expert Panel agreed with MTO staff and chose the LH600 result as the most robust, showing a basic requirement for 1,052 new parking spaces in 2018. The analysis estimated that these needs would increase to 1,548 spaces by 2027.*

²⁰ It is noted that a higher volume of long-haul trucks on a segment will result in a higher demand for truck parking on a segment. As well, a higher threshold for long-haul truck trips (e.g. 600 kms rather than 400 kms) reduces the estimated demand for truck parking on any given segment. Appendix F of the main study report shows the average percentage of short-haul and long-haul truck traffic for the highway sections in this study and the average percentages for the two distance thresholds examined (400 kms and 600 kms). Unfortunately, there was no Commercial Vehicle Survey (CVS) long-haul truck information for certain segments of some of the 25 highway sections. To overcome this, the researchers calculated an average percentage value for the short-haul and long-haul truck traffic for the affected highway segments.

²¹ The researchers assumed that the percentages for short-haul vs. long-haul trucks obtained from the 2012 CVS data will also apply to 2018 estimates and future year (2027) estimates.

²² Parking gaps estimated for 2027 were similar. At the provincial level, estimated parking demand was projected to exceed supply by 526 spaces for a total of 1,579 spaces in 2027 (because of increased volume). However, regional disparities persisted to a greater extent for 18 of 23 highway sections, leaving a parking shortfall of 1,548 spaces in those 18 highway sections (see Appendix F for details, including parking demand as a percentage of existing parking).

Key findings from the LH600 Parking Demand Analysis are summarized below

- The highway section for which the LH600 estimated parking demand in 2018 most exceeded the number of existing parking spaces in 2016 was shown to be Highway 401 between Toronto and Belleville. The largest gap was the Toronto-Belleville section of Hwy 401, where parking demand exceeded available spaces by a GAP of 337.

Other highway sections showing a need for additional parking:

- Highway 401 - Chatham to Kent-London: New parking need = 73 spaces
- Highway 401 - Cambridge to Toronto: New parking need = 42 spaces
- QEW: New parking need = 76
- Highway 400: New parking need = 22
- Highway 402: New parking need = 52
- Highway 403: New parking need = 113
- Highway 404: New parking need = 17
- Highway 405: New parking need = 7
- Highway 406: New parking need = 3
- Highway 409: New parking need = 4
- Highway 416: New parking need = 19
- Highway 417: New parking need = 35
- Highway 420: New parking need = 1
- Highway 427: New parking need = 9

Regional areas (non-400 series highways):

- Southwestern Ontario: New parking need = 120
- Central Ontario: New parking need = 56
- Eastern Ontario: New parking need = 66

Validation: These traffic analyses were compared to results assessing the difficulty of finding parking as measured in the truck driver survey, based on 18,000+ driver reports of the difficulty of finding parking in 25 highway sections. Results show a significant correlation between truck driver reports and the traffic analysis.²³ These indications of parking shortages were also consistent with results of the consultation sessions with trucking stakeholders. The exploratory survey of companies/carriers provided additional validation -- results showed a high correlation between company/carrier assessments of the need for parking spaces and results of the traffic analysis (Pearson's $r = .627$ for 25 highway sections).

Overall Conclusions: The traffic data analysis identified large, systematic and persistent parking gaps between parking supply and estimated demand along most sections of Highway 401 and throughout Central Ontario. These parking gaps persist under both modelling conditions used by the researchers (LH400 and LH600) and over time, in our projections for 2027. Clearly, without remedial action, these gaps in parking are here to stay. This has important economic and safety implications, all of which will be exacerbated by the expected stronger implementation of HOS regulations in Canada, with ELDs likely to be fully in place in 2019.

²³ The correlation between the parking gap and driver reports of difficulty finding parking was Pearson's $r = .262$ (at the micro- level, examining 2,000+ driver reports), statistically significant at a level of confidence better than 9,999 chances in 10,000 with a correlation of $r = .768$ at the aggregate level (correlating average values for 25 highway segments).

2.4 Insights From Surveys of Truck Drivers and Companies

Two surveys were conducted: (1) a major survey of truck drivers; and (2) a smaller, more exploratory survey of trucking companies/carriers. The main goal of the survey of truck drivers was to support the key goal of the study -- *to identify the extent of need for and ways to improve truck parking on Southern Ontario highways*. The research began with the premise that truck drivers were the most knowledgeable regarding the current parking situation. Design of the survey built on commentary and writings in trucking media in recent years indicating that there *is* a shortage of truck parking along Southern Ontario highways. This premise was further validated by broadly-based assessments across North America -- that truck parking shortages are widespread. *Thus, a key goal of the survey was to inform MTO in greater detail, of the challenges faced by drivers and to identify where new truck parking is most needed.*²⁴

Other research goals examined by the survey reflected the complex linkage of truck parking and industry. For example, to assess economic and health impacts of a shortage of parking. Thus, the survey asked about the extent to which drivers and carriers experienced financial loss because of the need to search for parking at the end of a shift or when their hours of service (HOS) limits had been reached.²⁵

The survey also examined the extent to which the difficulties experienced by drivers when searching for parking contributed to fatigue and/or had negative impacts on driver's overall health. Some of the findings linked fatigue and collisions to broader HR factors, including pay levels,²⁶ and company practices and HR provisions affecting parking and safety.

The main target group for this survey was long-haul truck drivers who use Ontario highways. This group was deemed to include drivers based in Ontario, but also included drivers from across Canada and the U.S. who used Southern Ontario highways. About two-thirds of the survey sample were employees of trucking companies, while one-third were independent owner-operators hired by trucking companies.²⁷ A small exploratory survey of trucking companies/carriers was also conducted.

²⁴ A memo was previously provided to MTO indicating truck stops which were most in need of expansion.

²⁵ These types of losses have been strongly documented by other research studies in recent years. Illustrations are provided by research conducted by the *American Transportation Research Institute* and *Trucker Path*. See: ATRI, *Managing Critical Truck Parking Case Study*, December 2016, and Trucker Path, *How the Lack of Parking Can Cost the Trucking Industry \$5 Billion Annually*, April 2017.

²⁶ See: Dan Rodrigues et al. "Effects of truck driver wages and working conditions on highway safety: A Case study", *Journal of the Transportation Research Board*, 2003.

²⁷ Companies included Challenger, Groupe Robert, and hundreds of others (represented in Ontario by the Ontario Trucking Association), as well as private fleets operated by entities such as The Beer Store, Home Hardware, etc. (represented by the Private Motor Truck Council of Canada).

Method: The survey of truck drivers was conducted on-line, in both official languages. The survey was developed in consultation with stakeholders and MTO, with an on-line pre-test. The final survey contained mostly closed-response (check-off-the-box) questions, with a section asking drivers to provide answers in their 'own words' regarding their personal experiences finding truck parking. Drivers were also asked to offer recommendations regarding Ontario truck parking and rest stops. Development of the survey proved to be challenging, as no public lists of truck driver e-mails existed. Accordingly, drivers were invited to participate in the survey through a variety of methods.²⁸

Survey Content: The Survey of Truck Drivers examined topics in eleven areas:

- Survey Area 1 - Characteristics of drivers and their trucks
- Survey Area 2 - Driver patterns of highway use
- Survey Area 3 - General assessments of difficulties finding parking
- Survey Area 4 - Difficulty finding parking along 25 highway sections
- Survey Area 5 - Difficulty finding parking in specific cities
- Survey Area 6 - Assessments of parking and services at 76 Ontario Truck Stops
- Survey Area 7 - Economic impacts of not being able to find parking
- Survey Area 8 - Personal impacts of not finding parking
- Survey Area 9 - What companies do to aid drivers to find parking
- Survey Area 10 - Health, parking and fatigue
- Survey Area 11 - Driver's views on parking experiences and issues

Responses were received from over 2,300 truck drivers:²⁹ Responses addressed the above areas, obtaining detailed assessments of parking needs, truck stop services and other data.

Drivers who completed the survey provided very extensive assessments of parking shortages. The 2,000+ drivers who completed the survey provided over 60,000 assessments of difficulty of finding parking on 25 Ontario highway segments and at over 70 truck stops. (Each driver provided an average of about 30 reports on parking availability at specific highways or truck stops.) This allowed very detailed indicators of the parking shortage.

²⁸ Trucking companies/carriers were asked to invite their driver employees and contract drivers to complete the survey. Employers used a variety of channels (internal company communications, Facebook, etc.) to advertise the survey. The researchers also circulated invitations to the survey through dozens of organizations such as: Canadian and US trucking associations, umbrella groups (such as the Canadian Trucking Forum), trucking publications (such as Truck News), radio shows (The Stan Campbell show from Niagara, and Radio Nemo (SiriusXM Channel 128)), and numerous web-sites. As well, flyers advertising the survey were posted at truck stops (Flying J, Petro Pass, Suncor, Husky, Esso, and ONroute) and at MTO inspection stations (who also distributed flyers to drivers). Flyers were also given out by MTO at *Truck World*, held in Mississauga, in April 2018. Invitations to the company/carrier survey were mainly sent by email.

²⁹ Comprised of some 2,300 responses to the truck driver survey, follow-ups with truck drivers, and over 200 e-mail or other submissions from drivers.

Detailed assessments of parking availability: The survey asked each driver to assess parking availability on all of the highway sections and truck stops which they were familiar with. These assessments included truck drivers' multiple ratings of highway sections (on average, each truck driver rated 8 of the 25 highway sections examined, resulting in over 16,000 driver ratings of parking on specific highway sections).

Driver Ratings of Truck Stops: Similarly, drivers gave multiple ratings for individual truck stops (on average, each driver rated the ease of parking and adequacy of services at 76 specific truck stops. A total of over 60,000 data points were obtained, rating availability of parking and quality of truck stop services).³⁰

Other input: Several hundred other responses were provided by drivers who did not complete the on-line survey, but rather chose to write to the researchers instead.

Company/carrier Assessments were also obtained in a related exploratory survey comprised of a small number of questions, mainly focused on locations where new or improved parking is needed. This survey obtained responses from over 50 companies/carriers, representing over 2,000 trucks, 2,000+ drivers and over 500 independent contractors.

Results of the Truck Driver Survey: Three-quarters of truck drivers were of the view that "there is a severe shortage of truck parking" along Southern Ontario highways. An additional 22.5% indicated that the shortage of truck parking was 'significant.' *Thus, difficulty finding parking was reported by 97.5% of all truck drivers.*

Other challenges: Recalling experiences over the past 12 months, drivers reported various problems created by the way others parked at, or used truck stops: Nearly all (95%) reported being unable to park at some time in the past 12 months because they could not determine if there were vacant spots at a particular truck stop. Over 80% reported that they were unable to park at some time in the past 12 months because truck parking spots were being used by recreational vehicles.

Not being able to park within HOS limits created significant difficulties for drivers. The majority of truck drivers (84%) reported that at some time in the past 12 months, they had to end their work shift early because of reaching their HOS limit before their delivery could be made or before parking could be found. More than one-third of drivers reported losing three or more hours of driving time each time that this occurred.

Drivers reported parking problems caused by the practices of receivers, for example, difficulties when loading/unloading at their destination. Over 80% of drivers reported that, at some time in the past 12 months, they had experienced delays when unloading at customer facilities which, in turn, resulted in difficulty parking afterward. Altogether, 88% of drivers reported difficulties finding parking following a delivery. Most drivers (83.4%) stated that receiving facilities should provide parking for trucks delivering goods.

³⁰ These data points are comprised of specific ratings of 76 truck stops, as to whether drivers are "always able to easily find parking" and whether "services allow you to rest and fully prepare for your next driving shift" at each truck stop.

3. MAIN FINDINGS

Difficulty Finding Parking on 25 Highway Sections: An urgent need for parking in Central Ontario was made clear in the survey results, echoing the comment by 75% of drivers noted earlier -- that a lack of parking was a severe problem for Ontario. Analysis of driver-rated difficulty of parking was computed for 25 specific highway sections. The conclusion was that *ease of parking is greatest at the extreme east and west ends of Highway 401; parking is most difficult around the GTA -- from Cambridge to Toronto and from Toronto to Belleville*. In addition, parking is very difficult, with more than 90% of drivers reporting great difficulty finding parking, on almost *all* of the 400 series highways, with the exception of Highways 400, 402 and 417. In the research, over 70% of drivers reported that they regularly experienced difficulty finding parking in 21 of 25 highway sections studied.

Difficulty Finding Parking in Specific Cities/The Need for a Regional Strategy: To assess difficulty finding parking in specific cities, drivers were asked to name up to three cities where it was most difficult to find parking.

Not surprisingly, Toronto and the GTA led in mentions: this could be expected, since these areas are the most important commercial delivery areas and the most densely populated. Over 968 of responding drivers named Toronto and the GTA as needing more truck parking. This finding was consistent with our consultations, particularly the consultation sessions involving the City of Toronto and other central Ontario municipalities -- reflecting the general importance of trucking to today's urban economies. Other centres identified as needing additional parking included: Windsor (241 mentions); Mississauga (193); Hamilton (193); London (159); Kingston (126); Ottawa (93); Barrie (82); and Belleville (53).

Parking Need in Other Cities: While drivers mentioned virtually all of Southern Ontario's major cities as needing significant additional truck parking, many also mentioned smaller towns and cities along non-400 series highways, including Peterborough and Orillia and strings of smaller towns along Highways 10, 11, 26, 17, 7, 89 and 9. The researchers saw this as pointing to a *need for a regional strategy* in the overall development of truck parking, in particular, to respond to the need for smaller, more dispersed truck parking facilities along non-400 highways.

Where drivers go when they can't find parking: Drivers reported that when they can't find designated parking at a truck stop, they seek out other solutions such as parking on off-ramps, in industrial areas, etc. This often results in drivers being chased from one place to another by the OPP or other police agencies.

Drivers and carriers identified the need for parking in urban areas as being critical. This underlines the fact that parking shortages are not just an issue along highways, but for urban economies generally. This echoed strong concerns expressed by urban planners who participated in the study consultations, and suggested value in the development of *parking staging areas* around major cities.

Essential Services Needed at Truck Stops: When rating the importance of specific services at truck stops, drivers provided varying assessments. These assessments underlined the central goal for drivers -- adequate parking -- but also noted other features such as lighting, security, 24/7 washrooms and showers.

Variability of Truck Stops: When rated on a scale from 0 to 100, truck stops were seen to be highly variable in quality of services, from a low of '24' to a high of '88'. Of 76 truck stops rated, 11 had driver satisfaction ratings of 70 or higher. Another 28 had satisfaction ratings of less than 50 on a 0-100 scale. *Drivers were satisfied with most truck stops, which were rated 76% on average. ONroute stops, however, were rated very low by truck drivers (28% satisfied).* This no doubt reflects ONroute's main mission -- to serve the general travelling public (automobiles).

These variations raised the question as to the need for a self-regulating body in Ontario, similar to the US National Association of Truck Stops, which could develop standards for rest areas, along with certifications.

Economic Impacts of Difficulty Parking: Overall, 44% of truck drivers reported losing paid hours at some time in the past 12 months because of difficulties finding parking on Southern Ontario highways. These costs were estimated at over \$4,200 per driver per year in lost driver time (costs to drivers as well as carriers).

Related economic costs³¹ were estimated for Ontario by emulating the Trucker Path analysis of costs. These included annual costs for fuel (looking for parking - \$4,216), truck overhead (\$2,304)³² and lost profits (\$9,120). Additional parking difficulties and costs incurred by drivers at receiver destinations were estimated to be \$1,200 per year per driver.

Thus, the total annual cost to the industry of not finding parking = \$15,640 per driver or truck. This is comparable to costs estimated for the US by Trucker Path. Other costs estimated by the researchers included parking costs associated with delivery delays, which were not included in the Trucker Path analysis.

Drivers' rating of truck stops operated by ONroute and others showed a high variability in level of service -- where a satisfactory level was deemed to be one which "allowed drivers to fully rest and prepare for the next driving shift" (ONroute services were rated very poor compared to other rest stops). This finding suggests the need for service standards for truck stops.

³¹ Allocation of costs other than wages was estimated using Trucker Path 2017, and based on an hourly wage for truck drivers of \$30 per hour (source: Pierre Thiffault, Transport Canada, May 2018).

³² Comprised of estimated lease or capital costs (\$1,125) and maintenance -- wear and tear on trucks (\$920).

Findings from the analysis of parking and fatigue:

- 70% of drivers reported that, in the past 12 months, they drove so long that they experienced extreme fatigue. This is an important public safety concern, as extensive research has shown fatigue to be a significant factor in truck collisions.³³
- 74.7% of drivers reported that difficulty finding parking had negatively affected their health in the past 12 months, and those in poor health were more strongly affected by parking difficulties (in particular, increased stress).
- When the extent of parking difficulties (estimated number of hours lost looking for parking) was correlated with drivers' self ratings of health, a statistically significant Pearson's r correlation was found ($r = -.229$), significant beyond chance, more than 99 times in 100. *Thus, a high incidence of having difficulties finding parking was closely associated with reports of poor health.*

Lost time results in poor health: The estimated total number of hours of lost driving time was used as a proxy measure for drivers' difficulty finding parking over the past 12 months. Using bivariate statistics, it was found that total hours of lost driving time was significantly correlated with reports of stress/ill health ($p < 0.01$). These results were maintained when examined in a multiple regression analysis, controlling for factors such as age, sex, and being a team driver.

What companies/carriers do to help drivers find parking: Drivers indicated that most companies/carriers do little to assist drivers to locate parking. While some indicated that their companies/carriers do a lot to help their drivers find and, where necessary, pay for safe parking, most indicated that their companies "did nothing". As drivers commented: *"We are on our own to find parking, the company does nothing". "We are reimbursed for parking costs, but only within a pre-arranged limit". "The company provides access to or recommends internet tools, but that's all". "The company sometimes arranges parking at tank washes."*

Responses to a company/carrier survey were consistent with the views of drivers, with only a minority of companies/carriers reporting that they helped drivers to find parking (some 'better' companies applied arrangements such as advanced reserve parking, reimbursement of parking costs, and access to APPs such as *Trucker Path*).

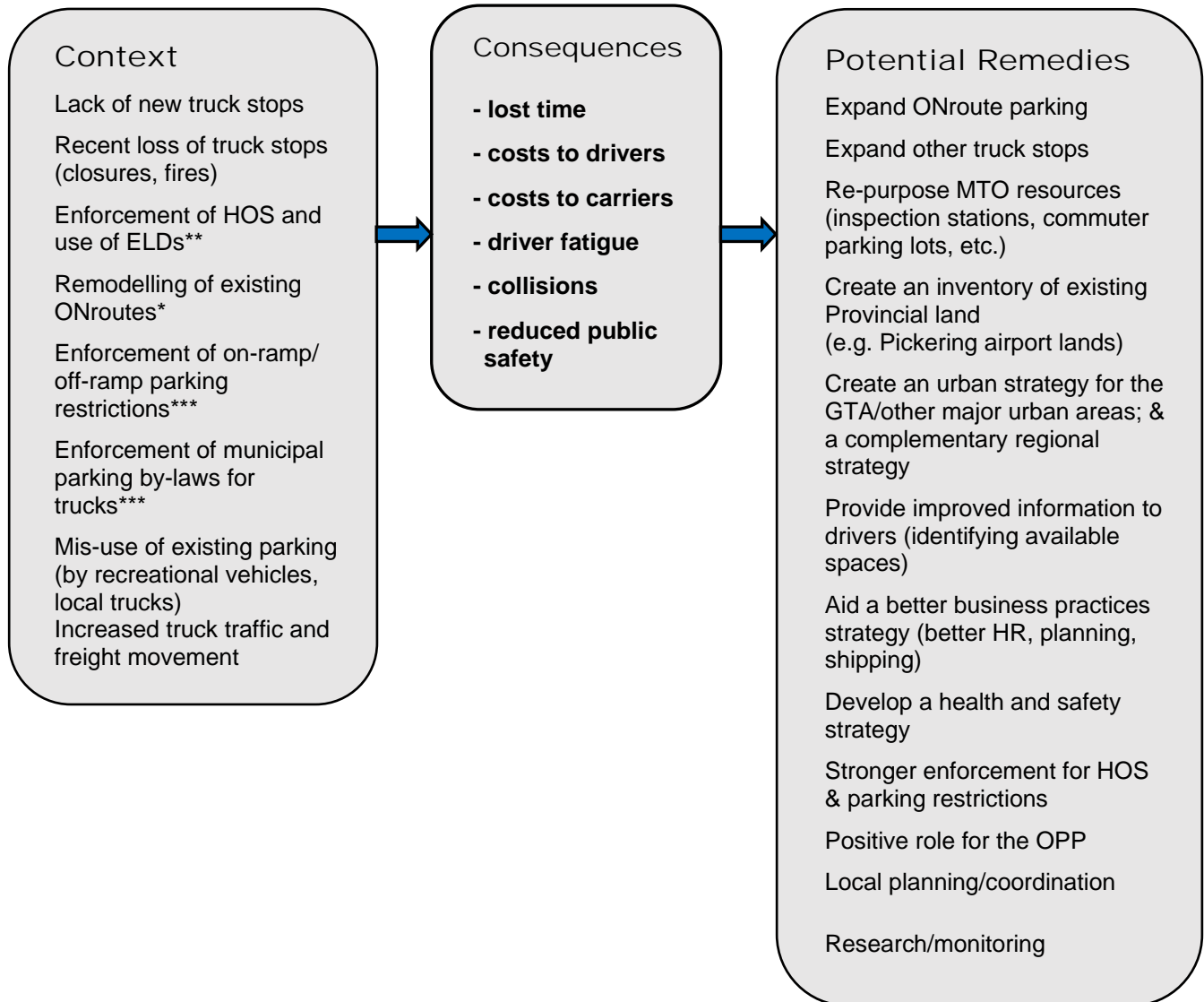
The link of fatigue to risk of collisions: Although no data on collisions was obtained in the driver survey, there is a considerable body of literature linking driver fatigue and collision risk (see Crizzle et al., 2017; National Academies of Sciences, 2016; Rogers and Knipling, 2007; Thiffault, 2011; King et al., 2010). A key finding of the study -- that difficulty finding parking is associated with fatigue -- indicates that a shortage of available truck parking across Ontario contributes to driver fatigue and thus results in increased risk of collisions.

Complex Linkages: Altogether, understanding and remedying the parking shortage requires examination of a wide range of contextual factors, consequences and potential remedies. Display 2 (below) shows contextual factors underlying or exacerbating the parking shortage, along with consequences (impacts) and potential remedies.

³³ A summary of this extensive research on fatigue is available at *National Academies of Sciences*, 2016 (previously cited).

Display 2

Consequences of a Shortage of Truck Parking and Potential Remedies



* Recent remodelling of ONroute parking is a controversial issue. ONroute indicates that the remodelling has increased the number of parking spaces. However, associations and drivers unanimously reported that design factors have actually *reduced* the number of available truck parking spaces.

** Enforcement of HOS is not a cause of the parking shortage, but it intensifies the impact of the shortage on drivers.

*** Enforcement of parking laws is not a cause of the parking shortage but a factor intensifying the impact of the shortage of parking on drivers.

4. RECOMMENDATIONS

4.1 Recommendations for MTO for Working Groups & Related Processes

Eighteen recommendations put forward by the researchers suggest the need for MTO to play a strong leadership role in responding to the truck parking shortage along Southern Ontario highways. This includes involving stakeholders, ideally in a wide range of working groups/ roundtables. SPR recommends this approach be centred on the establishment of a *well-resourced and high level MTO process for implementing all of the achievable recommendations*.³⁴

The rationale for MTO leadership (or the Provincial government more broadly) in establishing a high level response is outlined below:

1. The parking shortage has been exacerbated by HOS regulations introduced by the Province of Ontario and the Federal Government -- particularly over the past decade. Taken together, HOS and ELD intensify the impact of the shortage of parking. This has not been offset by any significant efforts to respond to the lack of parking (*over the past decade, parking supply has not kept up with the increase in truck activity along major routes in Ontario and the related need for truck parking*).
2. The truck parking 'issue' has persisted for more than a decade and has serious economic and safety implications. In order to address the parking shortage effectively, action is needed involving a wide range of governments and stakeholders. As well, a full range of remedies need to be implemented. *Only the province can bring all of the key parties together.*

While the researchers place a priority on increasing the supply of parking, particularly at ONroute service centres, a variety of other approaches to the parking shortage are recommended. These include approaches such as: providing better information about available parking to aid drivers when they need to find a parking space, and improving industry practices in aiding drivers in finding parking (e.g. reimbursing drivers for parking costs).

³⁴ This could take the form of a provincial-level task force or a similar type of high-level body.

SPR recommends that working groups or roundtables be held with: (1) *other Provincial Ministries and agencies* involved in truck parking or holding land;³⁵ (2) *Ontario municipalities*³⁶ and related associations such as the Association of Municipalities of Ontario (also working with the Ministry of Municipal Affairs); (3) *truck stop operators* (Flying J, Husky, Suncor, Esso, ONroute, etc.); and (4) all *trucking associations and driver organizations* (e.g. OTA, PMTC, WTFC, OOIDA and OBAC).³⁷

Ideally, most of these working groups would be at the provincial level, led or coordinated by MTO. Sub-groups at the local level would also be desirable to address needs of specific highways or cities and to provide local coordination (particularly for rural areas -- non-400 highways and smaller centres). An illustration would be coordinating attempts to use some shopping centre parking lots which would best be managed through municipalities. Approached this way, these efforts to respond to the parking shortage could show good division of labour between the Province and local government.³⁸ *MTO would link these provincial working groups/roundtables with local committees, including groups such as regional chapters of Fleet Safety.*³⁹ *The rationale for this meta-recommendation* is that a wide range of partnerships (including local stakeholders) are needed to fully address truck parking needs.

Although non-400 highways in Southwestern, Central and Eastern Ontario appear under-supplied with truck parking, the dispersed nature of the non-400 regional highway network and the relatively low volume of truck traffic on individual sections suggest that truck stops could be smaller on non-400 series highways. Finding cost-effective remedies on these highways may be a greater challenge, although one which is offset by the lower cost of land.

³⁵ Such as the thousands of acres of land expropriated in the 1970's for the proposed Pickering airport, still held by the Federal Government and the Province of Ontario.

³⁶ Especially Metro Toronto and other major municipalities along Highway 401 and related 400 series highways (such as Windsor, London, Halton, Peel, Hamilton Kingston and Ottawa). Municipalities such as Metro Toronto expressed interest in collaborating on truck parking issues, as noted in SPR's previous report to MTO, in January 2018.

³⁷ Separately, for information exchange purposes, it is recommended that MTO reach out to The Canadian Council of Motor Transport Administrators (CCMTA) or Transport Canada, regarding the formation of a national working group on truck parking to share information, possibly emulating aspects of the US National Coalition on Truck Parking.

³⁸ One additional working group could link to those concerned with national-level discussions of truck parking.

³⁹ *Fleet Safety* is an Ontario Trucking Network focused on safety, sponsored by the Ontario Ministry of Labour.

4.2 Other Recommendations for MTO

The researchers note that not all of the recommendations presented below are essential for success. Rather, they represent a kind of 'tool box' for the Ministry. Indeed, implementation of a few key recommendations (1 to 6), could ensure success. The other recommendations would also help. As well, the researchers note that not all recommendations are equally easy to implement or acceptable to all stakeholders. For example, recommendations regarding enforcement may not be agreeable to all stakeholders, but they were seen as agreeable by a number of key carrier organizations and firms that the researchers consulted with during the course of the study.

Recommendation 1: Immediate action should be taken by MTO to begin to resolve the parking shortage. *Ideally, this would involve an MTO or multi-Ministry effort, with a substantial and dedicated staff complement and budget.* This effort would call for high level staffing (*officials senior enough to recommend `deals` such as land swaps*), and a research budget. This recommendation is offered in light of the severe shortage of truck parking identified and the importance of public safety. Recognizing the urgent need for immediate action, MTO should lead a review of proposed solutions and advance the most 'do-able' ones.

Recommendation 2: Set Targets for New Truck Parking: MTO should set initial targets for truck parking expansion by at least 350 spaces in each of the next three years, along with a plan for monitoring the success of the addition of new parking. Based on various discussions with MTO and SPR's Expert Panel, it is recommended that initial targets be based on the LH600 model of parking demand, indicating a current need for at least 1,052 new parking spaces across all highway sections in Southern Ontario. Success in meeting needs by supplying these new parking spaces would need to be monitored over time to ensure that needs are being met in a satisfactory manner.

Recommendation 3: Priority for Added Parking, Particularly at ONroute Service Centres: MTO should explore options and their feasibility to quickly expand parking at existing ONroute locations. Other MTO actions would be important, but initial priority should be placed on ONroute due to its prominence for MTO. Expansion of other existing truck stops should also be promoted.

Recommendation 4: Other MTO Actions: MTO should take additional steps to provide immediate parking, at least for emergencies: (1) at MTO inspection stations; (2) by developing multi-use strategies for commuter parking or converting portions of commuter lots to truck parking; and (3) by creating supplementary or emergency parking at selected MTO rest-picnic areas. *The evidence supporting this recommendation* is the number and wide distribution of these facilities, which could make them an important supplement to the larger truck parking strategy.

Recommendation 5: Create an Inventory of Available Land: MTO should consider leading an effort with other Provincial Ministries/agencies and other levels of government, to compile an inventory of available publicly-owned land, to explore the possible use for truck parking. Key land holdings of interest would include the vast publicly held lands for the proposed Pickering Airport and any other public lands available, but not currently being used.

Recommendation 6: An Urban Strategy: MTO should consider developing a specific urban strategy, recognizing that the greatest need for truck parking is near delivery points -- in cities. A key strategy could involve developing staging areas for truck parking in more rural areas around the GTA and other major cities. *The rationale for this recommendation* is that truck parking in/or near the GTA or other major cities is essential for efficiency of trucking and for urban goods distribution and that cheaper land will be available in rural areas. MTO could review changes to the Planning Act or regulations with the Ministry of Municipal Affairs and others, that would ensure that cities provide for truck parking in their official plans. Changes could encourage municipalities to find ways to better enable overnight truck parking in official plans. (SPR notes that the City of Toronto has expressed interest in collaborating with MTO on new truck parking.)

Recommendation 7: Health and Safety Approaches: MTO should consider inviting the Ministry of Labour to a joint review of possible changes in health and safety regulations which could affect drivers and truck parking. *The rationale for this recommendation* is the relation of parking and related factors to conditions of work and safety, including safety from collisions. The link to occupational health and safety is relevant to truck parking, as stated in OOIDA's December 2017 written brief to the researchers and related research (Rodriguez, 2003; Belzer, 2018). This research provides evidence-based assessments of the link between conditions of work (including pay levels) and truck safety. Similarly, this study has compiled substantial evidence regarding the link between a lack of parking, fatigue and collisions. This recommendation is relevant to independent contract drivers as well as employees.⁴⁰

Recommendation 8: An Information Strategy: MTO should consider approaches to ensure better information (timely and detailed) is provided to truck drivers as regards available parking. *The rationale for this recommendation* is that efficient use of truck stops requires that drivers know which truck stops can provide parking when drivers need it. (Noting that the worst situation is when drivers cannot park at the end of their HOS, simply because they are unsure where to park.)

Recommendation 9: The Broader Trucking HR Environment: MTO should explore ways to develop an industry stakeholder review committee to investigate broader factors such as: (1) HR policies which support drivers and good conditions of work and thus affect truck parking and safety; and (2) carrier policies and practices for arranging for and reimbursing drivers for the cost of parking. Such improved policies and practices should improve overall productivity and profitability.

Considering the economic and other costs experienced by drivers and the entire trucking sector when parking cannot be found, it would be beneficial to establish industry standards for companies to better support drivers efforts to find parking.

⁴⁰ This issue of employer responsibility for contract workers has been increasingly addressed by Canadian courts. For example, the question of employer responsibilities for health and safety of their contractors was recently addressed by the Supreme Court of Canada in its decision on *West Fraser Mills Ltd. Versus Workers Compensation Appeal Tribunal et al.* In that decision, *West Fraser Mills Ltd.* was found to be responsible as the "owner" of an area where the accident occurred. See Elizabeth Raymer, "Supreme Court Upholds Claim of workers' compensation against non-employer", *Canadian Occupational Health and Safety*, September, 2018.

Recommendation 10: Truck Stop-Carrier-Business Communications: MTO should identify a venue for discussions among stakeholders to assess the feasibility of using other sites for truck parking, including 'big box' department stores,⁴¹ stadiums, convention centres, vacant and brownfield sites. Examples might include some Toronto port lands and facilities such as the Canadian National Exhibition (CNE) grounds during the Winter months. The rationale for this recommendation is that when HOS limits are reached, any additional parking is critical, including sites which could be used for parking, particularly over the next 2-3 years.

Recommendation 11: Enforcement Strategies: MTO should invite a review by stakeholders regarding the potential for stronger penalties for carriers, related to illegal parking (violations under the Highway Traffic Act⁴² and exceeding HOS) when violations are related to carrier practices which reflect lack of support for their drivers or sub-contractors in finding parking. The value of stronger enforcement would be seen in carriers improving provisions for parking for their drivers.

Recommendation 12: Policing Liaison; a More Positive Role for the OPP: MTO should create a venue for review of all policing issues related to truck parking. For example, review with the OPP and/or Solicitor General, ways in which the OPP and trucking stakeholders could cooperate more effectively to aid truck parking. As well, a more positive role could be explored for the OPP -- directing drivers to known safe and legal parking (including the option of using OPP parking lots in extreme circumstances).

Recommendation 13: A Regional Strategy: MTO should promote a specific regional strategy aimed at non-400 highways and smaller urban centres. This would respond to the fact that about 25% of the new parking recommended by this study would be on smaller highways and in smaller urban centres. This requires an effort to devolve the responsibility for coordination of the parking response to local planning groups on specific highways and in specific cities. This regional strategy would be coordinated with the urban strategy noted above.

Non-400 series highways in Southwestern, Central and Eastern Ontario appear to be under-supplied with truck parking. The dispersed nature of the non-400 regional highway network and the relatively low volume of truck traffic on individual sections suggest that truck stops should be smaller than on the 400 series highways. Finding cost-effective remedies for the parking shortage may be a greater challenge on these highways, although the costs would be offset by the lower cost of land.

⁴¹ When contacted during the study to inquire about parking practices at Walmart, which were reported to vary from store-to-store, a senior manager at Walmart Public Affairs told the researchers 'MTO should bring us a proposal'.

⁴² For example, when drivers park their trucks illegally on highway on- or off-ramps and citations are issued under the *Highway Traffic Act*.

Recommendation 14: Fiscal/Taxation Approaches: MTO should promote an examination of the potential for dedicated use of tax revenue for building new truck parking and rest areas. This review should examine the idea of allowing municipalities to establish similar taxes.

Recommendation 15: Broader Transportation Planning: MTO should promote the incorporation of truck parking guidelines and best practices into existing or emerging transportation plans at the national, provincial and municipal levels.

Recommendation 16: Research and Monitoring: MTO should promote a wide range of research to aid its work to expand truck parking. *The rationale for this recommendation is the wide range of research issues surrounding the best methods of estimation and response to truck parking. One specific suggestion noted within is research to develop a new Ontario-specific parking demand model, as recommended by SPR's Expert Panel.* As well, research will be important more generally to support the key recommendations. Ideally, this research will require a separate research budget and possibly joint efforts with universities or others.

4.3 Specific Recommendations for Stakeholders

In addition to the recommendations noted above, MTO should also promote discussions regarding the following recommendations, which are provided for other stakeholders who may act on or influence the supply of truck parking in Ontario:

Recommendation 17: Involve Associations and Other Key Stakeholders: MTO should promote the creation of venues for the discussion of association, municipal and other responses to the need for additional truck parking. A model for this could be the US National Coalition on Truck Parking.

Recommendation 18: Follow-up to Ensure There is no Shortage of Parking: MTO should promote mechanisms for regular and systematic follow-up on the recommendations noted above. Such follow-up could create suitable venues for: (1) broader discussions of the Planning Act and truck parking; (2) health and safety linkages to truck parking; (3) municipal reviews of truck parking requirements; and (4) collaboration among truck stop operators to develop additional truck parking. Additionally, a follow-up research assessment of need for truck parking should be considered in three years to assess the impact of this study and follow-up.

Some of the above recommendations face severe challenges, for example, a shortage of land, fiscal limitations, and out-of-date industry practices. Thus, SPR recommends a high level implementation effort -- ideally led by senior officials -- who can bring together key parties and recommend dramatic solutions such as "land swaps".

In the past decade, truck parking has become a major issue in all of North America as well as internationally. Since drivers are required by law to park and rest when they reach their HOS limits, sufficient parking is deemed to be essential. Ontario's recent launch of this rest area study and the parallel Northern Ontario Multimodal Transportation Study reflect Ontario's planful response to this issue.

4.4 Sharing Information, Collaboration

Sharing this study report: The researchers recommend that this study report be shared with key stakeholders to aid in the further development of suggested and new initiatives/remedies to address the truck parking shortage. Alternatively, MTO could develop other reports on the study findings, to aid informed consultations with key stakeholders.

An Inclusive Advisory Panel: Such planning could take place with advice from a broader advisory panel which MTO could develop to work with its staff. Such a conversation was suggested by the Women's Trucking Federation of Canada (WTFC) which, in its December 2017 submission to the researchers, recommended the creation of an industry stakeholder advisory panel to review the results of this study.

Sharing of the final report would also benefit from input from truck stop operators (ONroute, Husky, Flying J, Esso, Petro Canada), as they may provide significant insight. For example, many consultation stakeholders pointed to the need to 'streamline' parking operations at certain types of stops -- removing barriers and improving efficient allocation of truck parking, through stronger management of parking. To illustrate, truck stop operators and supporting authorities could minimize the use of truck parking spaces by recreational vehicles or storage of short haul trucks. *Building an overall strategy which takes into account the experiences of these private sector players will allow MTO to more effectively consider incentives or very high level solutions (such as trading access to provincial land or other publicly-owned land for rights to develop new truck parking).*

Beyond MTO playing a leading role in the truck parking issue, it is also imperative that effective information-sharing occur with and among all other key stakeholders. This would include collaboration among trucking associations such as the associations of independent operators, truck stop operators and other trucking agencies. Their work would consider issues such as providing additional parking, sharing information about parking availability and committing resources to aid these objectives.⁴³

Collaboration across municipal boundaries also has the potential to play a transformative role, particularly if some municipalities are able to take a leadership role in establishing policies and programs that directly address regional truck parking concerns. This is particularly important considering that truck parking has significant impacts across municipalities. For example, new parking in Durham, Peel and York Regions could significantly improve freight movement into the GTA.

A key step in responding to these findings will be sharing results of this study with all stakeholders. This will ensure informed involvement of a wide range of stakeholders in helping MTO to build new solutions.

⁴³ Examples may also be drawn from other jurisdictions. For example, the researchers recently noted that the BC Ministry of Transportation has been implementing a new \$35 million truck parking facility [drawing on federal infrastructure funds, with 150 spots for commercial trucks, as well as washrooms and showers. *Peace Arch News*, March 27, 2017.

4.5 The Situation in 2021

As of 2021, the Ministry has begun to implement SPR's recommendations for new parking. This was evident in the Ministry's press release of January 7, 2021, announcing plans to create new parking at a number of ONroute centres and to create several new truck stops in Southern Ontario. Similar improvements were indicated for Northern Ontario. This included a base commitment for the creation of 178 new spaces at ONroute centres.

More effort is needed, however, to create the parking needed to ensure industry and public safety. In particular, more needs to be done to engage municipalities and others in the extensive effort suggested by this report's recommendations.

To-date, MTO responses have generally been symbolic:

- No new truck parking has been created in the three years since the SPR report was submitted in 2018.
- MTO released a plan to develop 178 new parking spots at ONroute locations and other parking, in 28 locations over the next 6 years. but only 2 of these locations were in high priority Central Ontario locations.
- Only two locations are now under actual development -- both in Eastern Ontario, a low need area according to our engineering studies and surveys.
- No action appears to have been taken to mobilize other stakeholders, or to examine land banking, etc.

A need for action: Clearly more serious action is required! Drivers and other stakeholders in Ontario, across Canada and the US who use Southern Ontario highways are urged to press for remedies. Similar action is urged for the general public, considering the public safety issues.

Provincial action now will help reduce economic losses and avoid future catastrophic collisions.