

Calgary



# The Calgary Goods Movement Strategy

Stage 2 Report: Issues and Challenges

Approved by Council: December 17, 2018

Prepared for The City of Calgary by:

Watt Consulting Group  
In association with  
David Kriger Consultants Inc. and CPCS Transcom Ltd.

Contact:  
Tomasz Kroman  
Senior Consultant  
Watt Consulting Group Ltd.  
403.569.8721  
tkroman@wattconsultinggroup.com  
#310, 3016 5 Avenue N.E.  
Calgary, T2A 6K4



# Executive Summary

This report describes the issues and challenges that are associated with goods movement in and around Calgary. These issues and challenges were identified through an extensive stakeholder engagement, which was conducted as part of The City of Calgary's Goods Movement Strategy. The findings of this report will be used to explore potential opportunities for addressing the issues and challenges, through a subsequent review of how other jurisdictions address the issues and challenges and through a literature review of best practices.

The engagement used several means to gather information from stakeholders in the Calgary goods movement community. These comprised:

- Informal one-page surveys that were distributed at the February 2017 project kick-off meetings, which were held at meetings of goods movement and economic development industry associations and other groups.
- One-on-one interviews that were conducted with stakeholders. These stakeholders comprised a wide range of perspectives: the provincial and federal governments, infrastructure and facility owners, emergency services, utilities, retailers, distributors, carriers, couriers, aggregates producers and industry associations.
- Stakeholder meetings, which were held with four groups:
  - Operational Advisory Group (OAG), an external body set up to advise the Strategy on short term issues and solutions. OAG members are drawn from retailers, grocery chains, long-haul truckers, local and long-distance couriers, the construction industry, industry associations and academia.
  - Strategic Advisory Group (SAG), an external body set up to advise the Strategy on long term issues, solutions and strategies. SAG members are drawn from the Province of Alberta, the Calgary Regional Partnership, infrastructure owners, commercial developers, economic development and academia.
  - Internal Advisory Group (IAG), which comprises representatives from several City of Calgary departments and business units.
  - Regional Advisory Group (RAG), which comprises representatives from the neighbouring municipalities and counties.

Participation in these advisory groups and meetings is voluntary. All responses remain anonymous when reported.

Many issues and challenges were identified. These were arranged into the following themes:



- Existing road network. This theme consists of operational, congestion and capacity issues with the current road and highway network.
- Addressing emerging trends and needs. This theme consists of issues that concern demographic, economic, environmental and technological changes, and how they impact goods movement in Calgary.
- Long term planning for goods movement. This theme consists of long-term issues regarding existing goods movement infrastructure, corridor protection and land use planning.
- Last kilometre deliveries and accessibility. This theme consists of local circulation issues, parking issues, site access issues, loading issues and building design issues that are associated with deliveries and pick-ups, all in the face of changing consumer and business purchasing demands.
- Protecting for future needs while maintaining flexibility. This theme consists of issues that are associated with long term planning for new infrastructure and with the need to incorporate flexibility in the face of changing future demands.
- Implications of regional needs. This theme consists of issues that concern the broad perspective of Calgary and the surrounding region as an integrated economy and as Western Canada's dominant distribution hub.

It can be seen that the themes, issues and challenges all have elements of both short- and long-term considerations. Note that the themes, issues and challenges are all derived directly from the stakeholder input. This report elaborates these themes and breaks down specific issues.

Two other sources and data analyses were used to provide a context for the issues and challenges. These were:

- Findings from an analysis of GPS truck trip traces to identify bottlenecks, which were used to corroborate operational, capacity and congestion issues identified by stakeholders.
- A roadside truck origin-destination survey that was conducted in June-July 2017 along the roads and highways that lead to and from Calgary.

Stakeholders also described what an ideal goods movement system for Calgary would look like. They expressed possible solutions that The City and others could potentially apply to help achieve this ideal goods movement system and to address the various issues and challenges.

Based on this assessment, twenty-two initiatives were identified for further examination. The examination considers the solutions suggested by the stakeholders, and identifies other possible solutions through a jurisdictional survey and best practice review. This is conducted in the next stage of the Strategy. The twenty-two initiatives are listed below:



1. Continue inter-governmental communication, collaboration and coordination to promote integrated network planning in the Calgary region.
2. Continue collaboration and communication with industry and with the public.
3. Avoid land use planning conflicts with use of intermodal terminals and key goods movement corridors.
4. Ensure utility coverage in new development areas is sufficient to meet emerging logistics needs.
5. Consider the need for additional road-rail grade separations.
6. Recognize the special requirements of freight hubs as key employment centres.
7. Consider options for managing growth in air and freight traffic.
8. Consider options to shift goods from trucks to other modes, to ease congestion.
9. Examine how changing industrial land use designations would impact goods movement.
10. Improve planning for deliveries, especially in mix-used developments.
11. Plan for e-commerce.
12. Plan for emerging goods movement technologies and techniques that improve efficiencies.
13. Investigate additional ways that transit and other alternatives to driving can get vehicles off the road and help workers get to their jobs.
14. Promote multi-agency collaboration and consistency in design and operational standards.
15. Improve accessibility and circulation, reduce parking costs and clarify enforcement of truck route regulations through operational and regulatory enhancements.
16. Promote company compliance with electronic logging devices (hours of service).
17. Consider more ways to reduce traffic disruptions during road reconstruction or rehabilitation.
18. Investigate potential partnerships with the private sector to test innovations.
19. Investigate information-sharing possibilities with the private sector.
20. Allow the private sector to support new goods movement infrastructure.
21. Collaborate to promote international trade connections.
22. Promote inland port to circumvent congestion in Vancouver.

Stakeholders also identified another five initiatives. The solutions to these solutions are mainly found locally; that is, determined in large part through further stakeholder consultation and, as noted below, the ongoing City of Calgary – Alberta Transportation *Deerfoot Trail Corridor Study*. These five initiatives are listed below:



23. Ensure robustness of Calgary's road network.
24. Investigate ways to improve Deerfoot Trail operations and throughput. It should be noted that this initiative is being investigated as part of the ongoing City of Calgary – Alberta Transportation *Deerfoot Trail Corridor Study*.
25. Promote use of the Stoney Trail as a bypass for external truck traffic.
26. Review clearances on routes that carry over-dimensional loads.
27. Reconsider the potential for implementing a registration program for aggregates industry.



# Table of Contents

<b>1</b>	<b>Introduction</b>	<b>9</b>
1.1	Study Overview	9
1.2	Sources of information	10
1.3	This report	12
<b>2</b>	<b>Themes identified from stakeholder consultations</b>	<b>13</b>
<b>3</b>	<b>Elaboration of issues and challenges</b>	<b>16</b>
3.1	Overview	16
3.2	Existing road network	16
3.3	Addressing emerging trends and needs	18
3.4	Long term planning for goods movement	20
3.5	Last kilometre deliveries and accessibility	22
3.6	Protecting for future needs while maintaining flexibility	24
3.7	Implications of regional needs	25
<b>4</b>	<b>What do the data tell us?</b>	<b>27</b>
4.1	GPS truck trip traces	27
4.2	Comments from the roadside origin-destination survey	27
4.3	What this means	29
<b>5</b>	<b>Potential solutions</b>	<b>30</b>
5.1	An ideal goods movement system	30
5.2	What The City can do	31



**6 How the findings will be used 36**

**7 Appendices 38**

7.1 Interview guide (generic) 38

# List of Tables

Table 1- 1: Discussion list of issues ..... 11

Table 2-1: Themes, issues and challenges ..... 14

Table 3-1: Existing road network..... 16

Table 3-2: Addressing emerging trends and needs ..... 18

Table 3-3: Long term planning for goods movement ..... 20

Table 3-4: Last kilometre deliveries and accessibility ..... 22

Table 3-5: Protecting for future needs while maintaining flexibility ..... 24

Table 3-6: Implications of regional needs..... 25

Table 4-1: External truck survey - summary of comments by type ..... 28

Table 5-1: An ideal goods movement system according to stakeholders ..... 30

Table 5-2: What The City can do to achieve an ideal goods movement system ..... 31

Table 6-1: Initiatives examined in Stage 3..... 36

Table 6-2: Initiatives examined locally..... 36



# Acronyms and Abbreviations

CN	Canadian National Railway
CP	Canadian Pacific Railway
CTP	Calgary Transportation Plan
GPS	Global Positioning System
IAG	Internal Advisory Group
MDP	Municipal Development Plan
OAG	Operational Advisory Group
RAG	Regional Advisory Group
SAG	Strategic Advisory Group
YYC	Calgary International Airport



# 1 Introduction

## 1.1 Study Overview

Calgary is connected to local, national and international markets in several ways. Major railways, interprovincial and international highways and a large international airport move products to and from businesses in Calgary and all over the world. The Goods Movement Strategy will help The City of Calgary determine what transportation infrastructure improvements need to be made to help Calgary thrive as an economic leader in multi-modal services and solutions over the next 30 years.

The Strategy will also help The City support businesses and residents alike through continued improvements to our transportation network. These improvements will help us continue to efficiently move goods to markets in Calgary and beyond.

The Goods Movement Strategy will:

- Identify and prioritize short, medium and long-term actions and investments in transportation infrastructure to enhance the goods movement network in Calgary.
- Support the Calgary Transportation Plan (CTP) and Municipal Development Plan (MDP).
- Complement other City and regional economic development initiatives.

The City's bylaws related to goods movement will be reviewed and consolidated where appropriate as part of the Goods Movement Strategy. This includes the truck route map and bylaw 60M90.

The Goods Movement Strategy has four stages:

- Stage 1 Foundation establishes the basis for the Strategy, by outlining a vision for goods movement in Calgary, establishing the policy context, inventorying the multi-modal goods movement network, profiling current conditions and trends, explaining the economic importance of goods movement to Calgary and reviewing the available data that can be used to support goods movement analyses.
- Stage 2 Issues and Challenges summarizes and assesses issues and challenges as defined by goods movement stakeholders.
- Stage 3 Opportunities explores potential solutions and opportunities to address the identified issues and challenges, based on solutions proposed by stakeholders, surveys of other jurisdictions and a review of best practices.
- Stage 4 Strategy and Actions draws on the preceding stages to develop a policy framework, within which candidate actions, investments and priorities are identified and evaluated. The resultant actions, investments and priorities are then detailed, and an implementation plan, monitoring plan and follow-on plan for continuing to work with stakeholders on ongoing issues are developed.

**This report describes the findings of Stage 2.**

## 1.2 Sources of information

All the information presented in this report was gathered directly from the stakeholder engagement, which was conducted during the first half of 2017.<sup>1</sup> Stakeholders were asked to characterize goods movement issues and challenges, drawing on their own experiences and perspectives, in the following ways:

- Informal one-page surveys were distributed at the February 2017 project kick-off meetings. Respondents were asked to rank their top issues from a list (see **Error! Reference source not found.**). They were also given the opportunity to provide comments about the Strategy and about goods movement in general. The findings are summarized in the Stage 1 report.<sup>2</sup> They were used to inform the ensuing stakeholder engagement and are incorporated in the findings of this report.
- One-on-one interviews were conducted with a series of stakeholders from across the Calgary goods movement community. These stakeholders comprised a wide range of perspectives: the provincial and federal governments, infrastructure and facility owners, emergency services, utilities, retailers, distributors, carriers, couriers, aggregates producers and industry associations. The interviews were conducted as telephone interviews or as in-person meetings. Participants were provided with a discussion guide prior to the meeting, to help them prepare for the interview. The guide listed the possible discussion topics, with the understanding that these were intended solely as a guide for the discussion. The guide was tailored to each type of stakeholder organization, although the discussion topics were common to all participants. The discussion topics are listed below:
  - The three most important issues that stakeholders were asked to identify from a list (see

<ul style="list-style-type: none"><li><input type="checkbox"/> Congestion on Provincial highways, in or around Calgary</li><li><input type="checkbox"/> Congestion on other roads, in or around Calgary</li><li><input type="checkbox"/> Inadequate road access to rail terminals or to the airport</li><li><input type="checkbox"/> Inadequate road access to shippers / receivers</li><li><input type="checkbox"/> Inadequate intercity connectivity (road, rail or air)</li><li><input type="checkbox"/> Need for improved / additional transportation links (where?)</li><li>_____</li><li><input type="checkbox"/> Supply and location of zoned and serviced employment and industrial lands</li><li><input type="checkbox"/> Inconsistent truck route regulations / designations</li><li><input type="checkbox"/> Changing logistics, retailing and/or distribution patterns (e.g., e-commerce, automation)</li><li><input type="checkbox"/> Conflicts with other traffic, including transit, pedestrians and cyclists</li><li><input type="checkbox"/> Trucks moving through residential neighbourhoods or other sensitive areas</li></ul>
---

<sup>1</sup> A full description of the engagement plan can be found in Section 1.5 of the Stage 1 report, *State of goods movement in Calgary*.

<sup>2</sup> See Chapter 7 of the Founding principles report, *State of goods movement in Calgary*.

- Traffic signal timing / coordination on arterials
- Inadequate space for truck or courier loading / parking, on-street or off-street
- Operating costs for goods movement
- Reducing greenhouse gas (GHG) emissions / air pollutants
- Keeping up with emerging technologies such as alternative fuels and/or regulatory standards
- Bottlenecks (where?) \_\_\_\_\_
- Other (please describe) \_\_\_\_\_

- ), as well as possible solutions for addressing these issues.
- Description of what is working well in terms of moving goods in and around Calgary, and the implications for their organization or operations (what they do).
- Trends that are most likely to impact the movement of goods in and around Calgary over the next 10 years (i.e., the medium-term future), and the implications for their organization or operations.
- Views on an ideal system for urban goods movement in and around Calgary.
- The most constructive roles that The City of Calgary could have in attaining this ideal future.

- Two series of stakeholder meetings were held, the first in April/May 2017 and the second in July 2017. In each series, meetings were held with four different groups:
  - Operational Advisory Group (OAG), an external body whose mandate is to advise on short term issues and solutions, especially from the perspective of front line operators. OAG members are drawn from retailers, grocery chains, long-haul truckers, local and long-distance couriers, the construction industry, industry associations and academia.
  - Strategic Advisory Group (SAG), an external body whose mandate is to advise on long term issues, solutions and strategies, especially from the perspectives of policy and infrastructure owners. SAG members are drawn from the Province of Alberta, the Calgary Regional Partnership, infrastructure owners, commercial developers, economic development and academia.
  - Internal Advisory Group (IAG), made up of representatives from several of The City's departments and business units. These departments and business units comprised Roads, Transportation Strategy, Transportation Planning, Intergovernmental and Corporate Strategy (City Manager's Office), Climate Change, Environment and Safety Management, Real Estate and Development Services, Growth Strategies, Calgary Police Service, Calgary Fire Department and Calgary Emergency Management Agency.
  - Regional Advisory Group (RAG), made up of representatives of the neighbouring municipalities and counties, comprising the Calgary Regional Partnership, Rocky View County, Chestermere, Cochrane, Airdrie, Okotoks, High River and the MD of Foothills.
- The meetings all had a common format, although materials were tailored to each audience:
  - Presentation of findings to date. For the OAG and SAG meetings, stakeholders were provided with pre-read materials to prepare for the meetings.
  - Guided discussions, in which participants were asked to consider a series of questions. The participants were asked to comment on the content, completeness and

appropriateness of the issues. They were also given the opportunity to expand on the issues and to add other issues, if they felt a particular topic had not been covered.

After each series of meetings, The City prepared *What We Heard* reports, which summarize the stakeholder contributions.

Note that participants in all meetings, surveys and interviews were advised at the outset that their participation was voluntary, and that all responses remained anonymous when reported. Meeting notes have been retained as confidential. From time to time, updates about the project have been sent to those stakeholders who had provided an e-mail address for this purpose.

Table 1- 1: Discussion list of issues

<input type="checkbox"/> Congestion on Provincial highways, in or around Calgary
<input type="checkbox"/> Congestion on other roads, in or around Calgary
<input type="checkbox"/> Inadequate road access to rail terminals or to the airport
<input type="checkbox"/> Inadequate road access to shippers / receivers
<input type="checkbox"/> Inadequate intercity connectivity (road, rail or air)
<input type="checkbox"/> Need for improved / additional transportation links (where?)
_____
<input type="checkbox"/> Supply and location of zoned and serviced employment and industrial lands
<input type="checkbox"/> Inconsistent truck route regulations / designations
<input type="checkbox"/> Changing logistics, retailing and/or distribution patterns (e.g., e-commerce, automation)
<input type="checkbox"/> Conflicts with other traffic, including transit, pedestrians and cyclists
<input type="checkbox"/> Trucks moving through residential neighbourhoods or other sensitive areas
<input type="checkbox"/> Traffic signal timing / coordination on arterials
<input type="checkbox"/> Inadequate space for truck or courier loading / parking, on-street or off-street
<input type="checkbox"/> Operating costs for goods movement
<input type="checkbox"/> Reducing greenhouse gas (GHG) emissions / air pollutants
<input type="checkbox"/> Keeping up with emerging technologies such as alternative fuels and/or regulatory standards
<input type="checkbox"/> Bottlenecks (where?) _____
<input type="checkbox"/> Other (please describe) _____

### 1.3 This report

This report describes the findings of Stage 2. It is organized into six chapters, as follows:

- Introduction (Chapter **Error! Reference source not found.**).
- Key themes of stakeholder issues and challenges. These themes provide a way of organizing the many issues that were identified. The themes are based on what was heard from stakeholders. (Chapter 2).

- Elaboration of stakeholder issues and challenges, within each theme (Chapter 3).
- Supporting analysis: what the data from other sources tell us about the issues and challenges (Chapter 4).
- Potential solutions to the issues and challenges, as identified by stakeholders (Chapter 5).
- How the findings will be used in Stage 3 to further examine potential solutions and opportunities to these issues and challenges (Chapter 6).

Two appendixes accompany the report. Appendix 7.1 lists the questions that were used in detailed one-on-one interviews with selected stakeholders during Stage 2. Appendix **Error! Reference source not found.** contains the presentation slides that were used to guide the discussions during one of the July 2017 stakeholder meetings. Note that meeting materials were tailored to each audience.

To provide additional context, the reader is also referred to two *What We Heard* reports, which The City prepared to summarize stakeholder comments. The first *What We Heard* report was issued in June 2017, following the initial stakeholder consultations and advisory group meetings. The second *What We Heard* report followed in July 2017 after the completion of the Stage 2 stakeholder consultations.

This report draws on comments made by the stakeholders. No verbatim comments are provided in this report. Verbatim comments can be found in the two *What We Heard* reports.

## 2 Themes identified from stakeholder consultations

The *What We Heard* reports organized the issues and challenges into six key themes. This structure allows the discussion to be elaborated into specific issues for subsequent consideration in the Stage 3 identification of opportunities to resolve the issues.

Table 2-1 lists the six themes as well as key issues and challenges. These themes were discussed at the July 2017 engagement meetings. In light of the comments received and to provide direction to the Stage 3 identification of opportunities, the themes have been further clarified. The six themes are:

- Existing road network. This theme consists of operational, congestion and capacity issues with the current road and highway network.
- Addressing emerging trends and needs. This theme consists of issues that concern demographic, economic, environmental and technological changes, and how they impact goods movement in Calgary.
- Long term planning for goods movement. This theme consists of long-term issues regarding existing goods movement infrastructure, corridor protection and land use planning.
- Last kilometre deliveries and accessibility. This theme consists of local circulation issues, parking issues, site access issues, loading issues and building design issues that are

Figure 1.0 – Caption Lorem ipsum dolor sit amet, consectetur adipiscing elit. Aenean sed ex consequat, porta

associated with deliveries and pick-ups, all in the face of changing consumer and business purchasing demands.

- Protecting for future needs while maintaining flexibility. This theme consists of issues that are associated with long term planning for new infrastructure and with the need to incorporate flexibility in the face of changing future demands.
- Implications of regional needs. This theme consists of issues that concern the broad perspective of Calgary and the surrounding region as an integrated economy and as Western Canada's dominant distribution hub.

It can be seen that all the issues have elements of both short- and long-term considerations. The table also lists several qualifying issues that can be derived from the six themes, again provided for clarity and direction. Note that the themes and issues are all derived directly from the stakeholder input.

Table 2-1: Themes, issues and challenges

Theme	Key issue or challenge
Existing road network	<ul style="list-style-type: none"> <li>• Stoney Trail has been successful in getting trucks around Calgary, but some additional needs remain.</li> <li>• Operational and capacity constraints cause bottlenecks at several locations, notably along Deerfoot Trail.</li> <li>• Some additional connections and corridors are desired.</li> <li>• Traffic disruptions due to road construction or rehabilitation should be minimized.</li> </ul>
Addressing emerging trends and needs	<ul style="list-style-type: none"> <li>• Changing demands and economic conditions will impact when and how goods are moved.</li> <li>• New technologies will impact goods movement, but some government interventions may be needed to enable them.</li> <li>• Economic downturns can impact compliance with safety regulations.</li> <li>• Potential environmental impacts should be anticipated in plans or designs, rather than mitigated after an incident occurs.</li> </ul>
Long term planning for goods movement	<ul style="list-style-type: none"> <li>• Strategic goods movement infrastructure, especially airports, rail lines and rail terminals, needs to be protected from conflicting land uses, to enable them to continue to effectively serve the region.</li> <li>• Complementary land use around strategic goods movement infrastructure needs to be protected. Access for goods movement needs to be protected even as lands are redeveloped.</li> <li>• Truck routes need to be protected to serve goods movement even when roads are reconfigured.</li> <li>• Conflicts between rail and truck traffic need to be minimized.</li> <li>• Efficient access to aggregates-producing lands needs to be maintained as the surrounding areas develop. Conflicts between aggregates haulers and other traffic need to be minimized.</li> <li>• Roads into new development sites are not adequate to support heavy construction vehicles.</li> </ul>
Last kilometre deliveries and accessibility	<ul style="list-style-type: none"> <li>• Changing demands for deliveries generate impacts within neighbourhoods.</li> <li>• Delivering goods without impacting local residents can be challenging.</li> <li>• Parking and operational constraints can impede deliveries.</li> <li>• Building design can constrain the delivery of goods.</li> <li>• The planning, supply and location of loading zones can constrain the delivery of goods.</li> <li>• Planning decisions impact goods movement.</li> </ul>
Protecting for future needs while maintaining flexibility	<ul style="list-style-type: none"> <li>• The actual uptake of emerging technologies and their impact on goods movement.</li> <li>• Incorporating flexibility in planning for technological changes.</li> <li>• The costs of flexibility.</li> </ul>

Table 2-1: Themes, issues and challenges

Theme	Key issue or challenge
Implications of regional needs	<ul style="list-style-type: none"> <li>• Goods-generating activities are attracted to the region, but some will locate outside Calgary itself. This means that a regional perspective to goods movement is needed.</li> <li>• The City of Calgary must act on the Strategy in order to attract and communicate with businesses.</li> <li>• Getting people to logistics jobs is an issue, but it is difficult to provide cost-effective transit to low-density industrial areas and maintain, at the same time, costs that are competitive with the surrounding region.</li> <li>• Congestion at the Port of Vancouver could impact industry and goods movement in Calgary.</li> <li>• Calgary has potential as an inland port, but the port's role and function need to be better defined.</li> </ul>



# 3 Elaboration of issues and challenges

## 3.1 Overview

This chapter elaborates the issues and challenges that were defined for each theme in the previous chapter. There is one table for each theme. The explanations of the issues and challenges are drawn from comments made by stakeholders. No verbatim comments are provided in this report.

## 3.2 Existing road network

This theme considers operational and capacity constraints on the existing road and highway network. There are four issues and challenges:

- Stoney Trail has been successful in getting trucks around Calgary, but some additional needs remain.
- Operational and capacity constraints cause bottlenecks at several locations, notably along Deerfoot Trail.
- Some additional connections and corridors are desired.
- Traffic disruptions due to road construction or rehabilitation should be minimized.

Table 3-1 elaborates each issue and challenge.

*Table 3-1: Existing road network*

Issue or challenge	Explanation
<p>Stoney Trail has been successful in getting trucks around Calgary, but some additional needs remain.</p>	<p>Stoney Trail is a very effective route for getting trucks around Calgary. However, there are some constraints to its use:</p> <ul style="list-style-type: none"> <li>• There are steep grades in certain areas.</li> <li>• More accesses are needed to adjacent areas, in order to provide more direct routing and to offload the Deerfoot Trail and other roads. For example, to get to the Highfield industrial park, drivers still need to use the Glenmore Trail.</li> <li>• Better signage is needed in some locations – for example, to the airport.</li> </ul> <p>Stoney Trail is under provincial responsibility, so coordination of any proposed initiatives with provincial plans and strategies is necessary.</p> <p>Stakeholders are looking forward to the completion of the ring road in order to further improve mobility.</p>
<p>Operational and capacity constraints cause bottlenecks at several locations, notably along Deerfoot Trail.</p>	<p>Stakeholders identified problems at several locations. These problems mostly concerned bottlenecks and congestion, but some problems also concerned traffic operations, the progressions of traffic signals and conflicts between trucks and other traffic. The following locations were cited:</p> <ul style="list-style-type: none"> <li>• Several locations on the Deerfoot Trail or on the approaches to interchanges:             <ul style="list-style-type: none"> <li>○ Congestion at 64th Avenue coming on to the Deerfoot Trail northbound.</li> </ul> </li> </ul>

Table 3-1: Existing road network

Issue or challenge	Explanation
	<ul style="list-style-type: none"> <li>○ Congestion at the Anderson and Southland interchanges during the peak periods.</li> <li>○ Deerfoot south of Cranston, going down the hill towards the Bow River – popular fishing area, people park in the median. People drive along at the speed limit, then make a left turn onto the median and trucks must take evasive turns.</li> <li>○ Short on-ramps and short merge lanes at some locations require vehicles to cross several lanes of traffic – for example, southbound on Barlow.</li> <li>● Glenmore Trail:             <ul style="list-style-type: none"> <li>○ Several bottlenecks northbound along the Glenmore Trail and also from east to west.</li> <li>○ Congestion along Glenmore and 84th Street – there are large distribution centres in this area.</li> </ul> </li> <li>● Other locations were cited as congestion points:             <ul style="list-style-type: none"> <li>○ Balzac – Highway 2 and Highway 566 interchange.</li> <li>○ Approaches to the airport.</li> <li>○ Accesses to the Kleysen Industrial Park</li> <li>○ The Spy Hill area.</li> <li>○ Country Hills Boulevard at the 85th Street and 112th Street intersections.</li> <li>○ McKnight Boulevard, especially approaching Stoney Trail and, outside Calgary, approaching Conrich.</li> <li>○ Sarcee Trail and Stoney Trail.</li> </ul> </li> <li>● Traffic signal timing coordination on Country Hills Boulevard (trucks cannot get out of gear).</li> <li>● 84th Street is too narrow with limited shoulder space, and there are weight restrictions in the spring.</li> <li>● Desire to improve traffic flow on east-west arterials, almost all of which are controlled by signalized intersections and are subjected to stop-and-go driving conditions. Glenmore Trail is the exception, but there is no equivalent in N.E. or N.W. Calgary.</li> </ul>
<p>Some additional connections and corridors are desired.</p>	<p>Stakeholders proposed the need for several new road connections:</p> <ul style="list-style-type: none"> <li>● Connections to Beddington Trail.</li> <li>● Improved connections between Calgary and Rocky View County.</li> <li>● A tunnel beneath Nose Hill.</li> <li>● A high-capacity east-west connection, similar to the Whitemud Expressway in Edmonton.</li> <li>● An additional lane on the Glenmore in the far western part of Calgary.</li> <li>● An extension to Shaganappi Trail beyond 144th Avenue, plus a further east-west expansion.</li> </ul>
<p>Traffic disruptions due to road construction or rehabilitation should be minimized.</p>	<p>The issue concerned:</p> <ul style="list-style-type: none"> <li>● The costs to industry of rerouting trucks while intersections or roads are closed for construction over a long period.</li> <li>● The costs to The City of trucks delivering aggregates to road or intersection construction sites over an extended period, compared with a shorter construction period.</li> <li>● The desire for The City to improve how it communicates its alerts to industry of upcoming road and intersection construction.</li> </ul>

### 3.3 Addressing emerging trends and needs

This theme looks at emerging trends and needs, and how they impact goods movement in Calgary. There are four issues and challenges:

- Changing demands and economic conditions will impact when and how goods are moved.
- New technologies will impact goods movement, but some government interventions may be needed to enable them.
- Economic downturns can impact compliance with safety regulations.
- Potential environmental impacts should be anticipated in plans or designs, rather than mitigated after an incident occurs.

Table 3-2 elaborates each issue and challenge.

*Table 3-2: Addressing emerging trends and needs*

Issue or challenge	Explanation
<p>Changing demands and economic conditions will impact when and how goods are moved.</p>	<p>Online purchasing (e-commerce) has grown rapidly in Calgary for both individual consumers and for businesses. The demand for immediate pick-up and delivery has also grown. In the meantime, the economy continues to evolve, with longer store opening hours and people working from their homes becoming commonplace. All of these changes have impacted goods movement, in several ways:</p> <ul style="list-style-type: none"> <li>• Consumer products are increasingly being delivered to residences in addition to businesses, warehouses and stores.</li> <li>• This has resulted in increased growth in residential deliveries and in the frequency of express deliveries, which in turn are causing a shift to smaller vehicles for the final portion of the trip between the distribution centre and the destination (last kilometre)</li> <li>• Deliveries are increasingly being made outside the traditional 9-5 work hours into evenings and weekends. This means that deliveries are being made outside traditional business hours to, for example, restaurants that are located next to high-density condo towers.</li> <li>• There is increased demand for highly specialized (“right glove”) services, such as the transfer of tissue and fluids between hospitals to meet surgery requirements and schedules.</li> <li>• Disruptive technologies, such as Uber-like apps that allow individuals to informally move small parcels on demand, are emerging as competitors to established courier and delivery companies. One result is that anyone can be a courier.</li> <li>• Manufacturing and distribution processes are increasingly being automated. One result is that these processes can operate 24/7. Another is that driver do not only delivery the product, but may also assemble and install it.</li> </ul> <p>More traditional types of goods movement also continue to grow, as exemplified by growth in the delivery of large consumer products to stores, the scheduled daily restocking of neighbourhood supermarkets and the delivery of aggregates to construction sites. In the meantime, rising costs and increased efficiencies are leading to greater use of long-combination vehicles (double and triple trailers hauled by a single tractor) and, although these vehicles typically cannot venture too far from</p>

Table 3-2: Addressing emerging trends and needs

Issue or challenge	Explanation
	<p>highways and designated routes, longer single-trailer vehicles are increasingly being used to make traditional deliveries of the types noted above.</p>
<p>New technologies will impact goods movement, but some government interventions may be needed to enable them.</p>	<p>New lower emissions technologies are being deployed for urban deliveries. For example, electric or hybrid delivery vans are being more commonplace for last kilometre deliveries. Transportation firms are increasingly using alternative-fuel vehicles for larger loads, such as liquefied natural gas (LNG), and all-electric long-haul vehicles are now being tested in several countries.</p> <p>However, some government intervention may be needed in order to offset the high purchase costs of alternative fuel vehicles, as well as to supply the power supply infrastructure, such as LNG fuelling stations and publicly available electric vehicle recharging stations. Changing technologies, such as electrically powered refrigerator trucks, require continuous operation in order to be economically viable, and this in turn could mean that governments will be pressed to allow off-hours deliveries using these admittedly quieter vehicles.</p> <p>Some transportation firms and distributors are starting to test new, potentially disruptive technologies, such as drones. These have the advantage of being able to deliver small packages directly and very quickly after a customer places an order. However, the regulatory environment for operating drones is still unclear and is the subject of government investigation.</p> <p>Other distributors are deploying longer (60 foot) trailers. These can generate heavier loads, which means that The City of Calgary and other municipalities must review pavement capacities on truck routes and other roads in order to ensure that the structure is not damaged.</p> <p>The uptake of new technologies is the subject of much speculation and differing opinions. On the one hand, some stakeholders view large commercial fleets as being the only participants in the goods movement industry to be able to afford testing and implementing new technologies. On the other hand, some stakeholders consider that technologies such as drones, which could be operated by individuals, might prove to be disruptive to the operations of larger firms. Some stakeholders have also noted the need for specially trained staff who can operate and maintain the new technologies.</p>
<p>Economic downturns can impact compliance with safety regulations.</p>	<p>Continuing pressures to reduce costs in an increasingly competitive operating environment, coupled with the recent economic downturn, have resulted in more independent truck operators in the Calgary goods movement industry. One outcome is that independent operators undercut the more established transportation firms, so they do not have the resources to maintain their vehicles safely. Many independent operators do not have regular maintenance programmes, unlike their larger competitors.</p>
<p>Potential environmental impacts should be anticipated in plans or designs, rather than mitigated</p>	<p>The mitigation of environmental impacts is a key component of the plans and designs of transportation infrastructure improvements. For example, roadway curbing was added to sections of the Stoney Trail in order to minimize the risk of runoff spilling into environmentally sensitive areas, and the new S.W. Stoney Trail section will incorporate these and other features as well. However, not all roads have mitigation treatments, which can result in additional costs of having to mitigate the impact after a spill or other incident occurs.</p>

Table 3-2: Addressing emerging trends and needs

Issue or challenge	Explanation
after an incident occurs.	<p>In addition to spills, it is recognized that oil will run off a vehicle when it rains. However, not all roads in Calgary have measures to contain spills or runoff, including some roads in industrial areas. The City has implemented wastewater containment – oil-water separators in some locations that have large volumes of truck activity, to intercept runoff and spills before they reach natural waterways.</p> <p>There may be a need to account in more depth for the potential risks of increased truck activity, especially the movement of dangerous goods, in the development of road and intersection improvements. For example, improvements that prohibit left turns from fuel trucks into gasoline stations may result in the truck having to take a more circuitous route in order to make a right turn into the site, thereby increasing its exposure to potential accidents.</p> <p>There are concerns about the potential impacts of climate change on pavement infrastructure. For example, it is expected that higher average temperatures could increase the susceptibility of roads to damage from heavy trucks - for example due to increased pavement rutting.</p>

### 3.4 Long term planning for goods movement

This theme examines long-term issues regarding goods movement infrastructure, corridor protection and land use planning. There are six issues and challenges:

- Strategic goods movement infrastructure, especially airports, rail lines and rail terminals, need to be protected from conflicting land uses, to enable them to continue to effectively serve the region.
- Complementary land use around strategic goods movement infrastructure needs to be protected. Access for goods movement needs to be protected even as lands are redeveloped.
- Truck routes need to be protected to serve goods movement even when roads are reconfigured.
- Conflicts between rail and truck traffic need to be minimized.
- Efficient access to aggregates-producing lands needs to be maintained as the surrounding areas develop. Conflicts between aggregates haulers and other traffic need to be minimized.
- Roads into new development sites are not adequate to support heavy construction vehicles.

Table 3-3 elaborates each issue and challenge.

Table 3-3: Long term planning for goods movement

Issue or challenge	Explanation
Strategic goods movement infrastructure, especially airports, rail lines and rail terminals, needs to be protected	Calgary has developed around the airport, along the rail corridors and around the rail terminals. There is limited room for these facilities and corridors to expand, and it is difficult and costly to relocate them away from development. As a result, stakeholders expressed the need for these facilities and terminals to be able to maintain and expand their current freight operations.

Table 3-3: Long term planning for goods movement

Issue or challenge	Explanation
<p>from conflicting land uses, to enable them to continue to effectively serve the region.</p>	<p>Stakeholders were especially concerned that proposed residential development could eventually inhibit the use of these facilities and corridors for freight operations. In particular, The City is proposing higher density development on lands that are within the designated airport flight path. Stakeholders were concerned that noise complaints from residents of future developments in these areas eventually could result in restrictions on late night flights, just at the time when cargo flights are most active.</p> <p>Stakeholders were also concerned about letting development get too close to existing rail corridors. The concerns reflected noise complaints from future residents as well as safety concerns of pedestrians encroaching on the rail corridor. Stakeholders also were concerned that plans for using existing rail rights-of-way for LRT could inhibit the potential for the railways to expand.</p>
<p>Complementary land use around strategic goods movement infrastructure needs to be protected. Access for goods movement needs to be protected even as lands are redeveloped.</p>	<p>Many industrial properties are being redeveloped to residential, commercial and other uses. One result is that the demand for goods movement changes and can even drop altogether. However, there is still a need to maintain goods movement access to the property, even as changes occur:</p> <ul style="list-style-type: none"> <li>• New developments will still generate deliveries but, as discussed in the previous section, more of them will require express service with direct delivery to the doorstep, at any time.</li> <li>• Neighbouring industrial developments might still remain in place and must be served – even as the overall area transitions to other uses. However, the access roads serving the redeveloped property might be reconfigured to reflect a Complete Streets design, and can inhibit truck traffic serving the existing industrial development.</li> <li>• Traffic from the existing industrial areas and the new developments can sometimes be funnelled together through a limited number of intersections and roads, thereby creating traffic conflicts and residential complaints.</li> <li>• New residential development can sometimes be located between industrial areas and highways, thereby requiring the truck traffic to either cut through the residential neighbourhood or make a long and costly detour around the new neighbourhood.</li> <li>• The growth of e-commerce is expected to generate an increased demand for distribution centres and fulfillment centres. To meet consumer needs for timely deliveries, some of these centres could be situated in or near existing residential areas, thereby generating increased truck traffic in these neighbourhoods.</li> <li>• Many industries could be better served by rail, potentially reducing truck traffic. However, some industrial areas that were initially served by rail have grown in area but not in density so that it no longer is efficient or cost-effective to serve them by rail.</li> </ul>
<p>Truck routes need to be protected to serve goods movement even when roads are reconfigured.</p>	<p>As urban roads are reconfigured to support Complete Streets schemes, there is a need to ensure that goods movement needs are still met. For example, stakeholders were concerned that Centre Street and 16th Avenue would continue their role as important components in The City’s truck route network and that there would be adequate provision for local on-street loading as these roads are reconfigured.</p>

Table 3-3: Long term planning for goods movement

Issue or challenge	Explanation
Conflicts between rail and truck traffic need to be minimized.	Stakeholders noted that there can be lengthy delays to truck traffic at at-grade crossings when long trains pass by – for example, at 52nd Street. They cited the need to reduce these conflicts between rail and road traffic, including the implementation of more grade separations.
Efficient access to aggregates-producing lands needs to be maintained as the surrounding areas develop. Conflicts between aggregates haulers and other traffic need to be minimized.	Aggregates producers in N.W. Calgary were concerned that access to their pits is being constrained as the lands around them are built into residential development. The new developments add traffic to the access roads and increases the potential for conflicts between industrial and other traffic.
Roads into new development sites are not adequate to support heavy construction vehicles.	In some new development sites, the existing rural roads cannot handle heavy construction vehicles. Examples, especially in S.W. Calgary, included 37th Street and Sheriff King Road south of Highway 22X. This forces aggregates haulers to travel through existing neighbourhoods.

### 3.5 Last kilometre deliveries and accessibility

This theme looks at local circulation, loading and site access and design issues. There are six issues and challenges:

- Changing demands for deliveries generate impacts within neighbourhoods.
- Delivering goods without impacting local residents can be challenging.
- Parking and operational constraints can impede deliveries.
- Building design can constrain the delivery of goods.
- The planning, supply and location of loading zones can constrain the delivery of goods.
- Planning decisions impact goods movement.

Table 3-4 elaborates each issue and challenge.

Table 3-4: Last kilometre deliveries and accessibility

Issue or challenge	Explanation
Changing demands for deliveries generate impacts within neighbourhoods.	Emerging trends, changing demographics and so on mean that goods movement will have localized impacts within neighbourhoods. People increasingly want goods to be delivered right to their door, or to a nearby store or restaurant. However, these demands generate conflicts with other residents and stores, especially in high-density mixed used developments where residences, stores and restaurants are side by

Table 3-4: Last kilometre deliveries and accessibility

Issue or challenge	Explanation
	side.
Delivering goods without impacting local residents can be challenging.	Delivering goods without impacting residents can be challenging. Some transporters and couriers have expanded the use of off-hours deliveries as a means of serving the demands. However, noise can be a concern.
Parking and operational constraints can impede deliveries.	Snow clearance and on-street parking can impede deliveries. Some stakeholders noted that local roads can be difficult to traverse because overnight on-street parking is permitted.
Building design can constrain the delivery of goods.	<p>Deliveries need to be better considered in the design of residential, commercial and retail developments, especially in light of changing customer demands. For example:</p> <ul style="list-style-type: none"> <li>• There needs to be better planning for deliveries to adjacent commercial and residential uses.</li> <li>• In some new commercial developments deliveries must be made through a business' front door, which blocks other store fronts and takes up parking spaces. Beacon Hill was cited as an example.</li> <li>• Some developments do not have a sufficient number of loading docks. Some loading docks do not have sufficient vertical clearance to accommodate new delivery vehicles.</li> <li>• Some new developments are designed to adhere to Complete Streets principles. These allow the circulation of delivery vans safely and slowly, but it is difficult to support the occasional movement of large vehicles such as moving vans.</li> <li>• The retrofitting of bicycle lanes can make truck access to individual addresses more difficult.</li> <li>• For some packages, the consignee's signature is not required so couriers can leave the package at the door. However, some condominium buildings lack a space to leave the package.</li> </ul>
The planning, supply and location of loading zones can constrain the delivery of goods.	<p>Deliveries need to be better considered in the planning and supply of loading areas, especially in light of changing customer demands. For example:</p> <ul style="list-style-type: none"> <li>• On-street loading zones are not always big enough to support delivery vehicles, especially downtown. Transportation companies must match the size of the vehicle to the customer's demands and, although many companies generally avoid the use of long trucks downtown, they find that many zones cannot handle even a 5-tonne truck.</li> <li>• Bollards are important to protect pedestrians. However, at some downtown loading zones, they make it difficult for trucks to manoeuvre into the space.</li> <li>• A lack of on-street spaces forces drivers to park in the back lane. However, the vehicles are often ticketed.</li> <li>• If a courier driver cannot find a parking space at the destination, the driver will skip this customer and go to his/her next call, thereby adding costs for both the courier and the customer.</li> </ul>



Table 3-4: Last kilometre deliveries and accessibility

Issue or challenge	Explanation
	<ul style="list-style-type: none"> <li>The expansion of bicycle and pedestrian lanes can take away lane capacity and make it difficult for trucks to manoeuvre on narrower lanes.</li> </ul>
Planning decisions impact goods movement.	<p>Goods movement cannot always be prioritized in planning decisions, but this comes at a cost for goods movement. For example, smaller delivery vehicles could be used in order to reduce the impact of trucks so that they can operate more easily in Complete Street corridors. However, this would require multiple trips to carry the same volume, which in turn increases the costs to couriers and to customers. Some corridors, such as Macleod Trail, have sections of mixed use, and that makes it difficult to develop Complete Streets schemes that can support delivery and loading needs.</p>

### 3.6 Protecting for future needs while maintaining flexibility

This theme examines issues that are associated with long-term planning for new infrastructure, while also recognizing the need for flexibility. There are three issues and challenges:

- The actual uptake of emerging technologies and their impact on goods movement.
- Incorporating flexibility in planning for technological changes.
- The costs of flexibility.

Table 3-5 elaborates each issue and challenge.

Table 3-5: Protecting for future needs while maintaining flexibility

Issue or challenge	Explanation
The actual uptake of emerging technologies and their impact on goods movement.	<p>New technologies have the potential to impact goods movement. However, it is unclear how quickly, if ever, certain technologies related to goods movement will change.</p> <p>For example, a truck will still be moving on the road whether it has a driver or it is automated, so in itself automation will not reduce the number of trucks on the road. Instead, automation could increase the number of truck trips, because it might be cheaper to run an automated delivery vehicle over multiple trips than to have a driver carry the same parcels in fewer trips.</p> <p>Much is still unknown about the costs and potential applications of emerging technologies such as drones and automation in manufacturing. The technologies are evolving rapidly and could be completely different from today in 5-10 years. Some stakeholders see new technologies, such as automated vehicles, as more applicable to long-distance inter-urban trips than to urban goods movement. Other stakeholders see platooning, which links several manned trucks together, as being more a more likely near-term development than automated vehicles.</p>

Table 3-5: Protecting for future needs while maintaining flexibility

Issue or challenge	Explanation
	In the meantime, stakeholders felt that there is still a need to provide enough infrastructure to ensure that trucks and other traffic will still be able to move congestion-free into the foreseeable future. Flexibility in planning is required to accommodate the impacts of new technologies as they materialize.
Incorporating flexibility in planning for technological changes.	<p>Stakeholders noted various needs for incorporating flexibility in planning in order to consider these potential technological changes:</p> <ul style="list-style-type: none"> <li>• Many infrastructure investments take a very long time to be implemented – for example, planning for the Stoney Trail began 40 years ago. As a result, there is a need to start planning now for new infrastructure, even it is not likely to be implemented for many years.</li> <li>• There is a need to consider the possibility of future repurposing and retrofitting of infrastructure as the composition of traffic changes.</li> <li>• There is a need to ensure that regulations keep pace with new technological developments, so that the uptake of a viable technology is not restricted by out-of-date legislation.</li> </ul>
The costs of flexibility.	However, flexibility comes at a cost. For example, stakeholders noted utility cables have been buried underground in order to make certain industrial lands in S.E. Calgary more attractive. However, this increases the cost of providing services to these lands. The need to protect road rights-of-way is another example of maintaining flexibility to accommodate future demand, at the cost of purchasing and maintaining the corridor land.

### 3.7 Implications of regional needs

This theme considers the broad perspective of Calgary and the surrounding region as an integrated economy and as Western Canada’s dominant freight hub. There are five issues and challenges:

- Need a regional perspective on goods movement.
- Implementing the Goods Movement Strategy.
- Accessibility for goods and workers to low-density industrial lands in suburban Calgary.
- Impacts of congestion at the Port of Vancouver.
- Defining the role and function of Calgary as an inland port.

Table 3-6 elaborates each issue and challenge.

Table 3-6: Implications of regional needs

Issue or challenge	Explanation
Need a regional perspective on goods movement.	<p>More goods movement activities are looking to locate in the Calgary Region, but not all necessarily in Calgary. A regional view is needed, for a number of reasons:</p> <ul style="list-style-type: none"> <li>• Goods-generating activities are attracted to the region, but some will locate outside Calgary itself.</li> <li>• The supply of land near the ports of Vancouver and Seattle is limited, which forces land values to increase. This could make it less expensive for</li> </ul>

Table 3-6: Implications of regional needs

Issue or challenge	Explanation
	<p>businesses to relocate to the Calgary region. However, this also could result in a shift in modes (e.g., from truck to rail) if the overall cost of processing a product from the time it arrives at the port changes, which in turn impacts the potential for development around existing rail terminals, the need for new access roads and so on.</p> <ul style="list-style-type: none"> <li>• There is a need to ensure the adequacy of the road connections to support goods movement between Calgary and the surrounding municipalities.</li> <li>• There is a need to ensure long-term coordination in land use planning from a regional perspective. The varying development regulations, water rights and so on among the region’s municipalities mean that they are competing with each other, which can make it difficult to coordinate inter-municipal connections.</li> </ul>
Implementing the Goods Movement Strategy.	The City of Calgary must act on the Strategy in order to attract and communicate with businesses. There is a need for potential businesses to see that The City is committed to acting on planned improvements, even if these improvements are intended for implementation only the long term.
Accessibility for goods and workers to low-density industrial lands in suburban Calgary.	Getting people to logistics jobs is a challenge. This is because many of the jobs offer low wages, so workers cannot afford their own autos. Shifts often change at night when transit does not operate or has a low frequency. However, it is difficult to provide cost-effective transit to low-density industrial areas and maintain, at the same time, service costs that are competitive with the surrounding region. Calgary Transit does not a mandate to serve beyond the city limits, which makes it difficult for Calgary residents to get to logistics jobs in the surrounding municipalities without driving.
Impacts of congestion at the Port of Vancouver.	Although it is not within The City of Calgary’s control, stakeholders noted that congestion at the Port of Vancouver is a concern. This is because congestion at the Port of Vancouver could result in shippers using other ports, which would result in inbound containers bypassing Calgary and outbound shipments of grains and other commodities being made from terminals outside Calgary.
Defining the role and function of Calgary as an inland port.	Calgary has potential as an inland port, but the port’s role and function need to be better defined. Stakeholders were unclear, for example, whether an inland port needed a secure bonded area to function or whether it needed a formal designation as free trade zone in order to attract new business. Other stakeholders noted the need to consider the Calgary region’s goods movement infrastructure – the airport, the rail terminals and so on – as a single entity when it comes to marketing the inland port.

## 4 What do the data tell us?

### 4.1 GPS truck trip traces

The Stage 1 report analyzed GPS truck trip traces, to illustrate travel times across Calgary's road and highway network and to identify bottlenecks.<sup>3</sup> The findings of that analysis generally corroborate the congestion points and problems that were identified by stakeholders, notably:

- Stoney Trail generally operates at free-flow speed, even during the commuter peak periods.
- Many sections of Deerfoot Trail, notably from 64 Avenue N.E. to Memorial Drive and from Glenmore Trail S.E. to 130 Avenue S.E., are significantly congested during the commuter peaks. There is significant heavy truck delay northbound between 130 Avenue S.E. and Anderson Road S.E., especially during the morning peak period, and southbound from 11 Street S.E. to Anderson Road S.E. during the afternoon peak period.
- Conditions on Deerfoot Trail vary by time of and location. Northbound Deerfoot Trail, north of Highway 1, is congested only during the afternoon commuter peak. Southbound Deerfoot Trail between Barlow Trail and Anderson Road experiences lower truck speeds throughout the day.
- Some sections of Glenmore Trail S. also operate under congestion during the peak periods. Glenmore Trail westbound approaching Ogden Road S.E. is especially congested during the morning peak.
- Many of the streets in downtown Calgary are subject to significant truck delay, although speeds are generally low to begin with.

### 4.2 Comments from the roadside origin-destination survey

In June and July 2017, roadside origin-destination surveys were conducted of truck drivers in and around Calgary. The surveys were conducted at a cordon surrounding Calgary, at all 12 roads and highways leading to and from the city. The results are presented in the draft *External Truck Origin/Destination Survey Summary Report*, September 2017.

The survey mainly gathered factual information, such as the start and end locations of the truck's itinerary and the type of load carried by the vehicle. However, drivers were also asked to indicate their satisfaction with Calgary's goods movement network, in response to three statements:

- Calgary's truck routes and restrictions are easy to understand.
- I am able to maintain my schedule on Calgary's roadways.
- Overall, I am satisfied with Calgary's truck routes and roads.

Drivers generally indicated that they completely agree or somewhat agree with the three statements. Almost 80% of drivers indicated they were satisfied with their ability to understand Calgary's truck routes. Just over 70% of drivers were satisfied with Calgary's truck routes and roads, and just over 60% were able to maintain their schedules on Calgary's roads. Maintaining schedule elicited the strongest

---

<sup>3</sup> For details, see Section 4.3.1.8 of Report 1, *State of goods movement in Calgary*.

negative response, with more than one-third of drivers somewhat or completely disagreeing with the proposition. While these results suggest positive overall impressions of Calgary’s truck route network, at least among long-distance drivers, the results corroborate the findings among the stakeholders that congestion is a concern. Of note, drivers who used the three primary controlled access highways (Stoney Trail, Highway 1 or Highway 2) generally expressed the highest levels of satisfaction.

Drivers were offered the opportunity to provide additional comments on goods movement. These are summarized in Table 4-1. The comments largely concern delays and bottlenecks. The comments again generally corroborated the comments expressed during stakeholder consultation – this time from drivers who are making long-distance trips hence may be spending less time in Calgary than their stakeholder counterparts.

*Table 4-1: External truck survey - summary of comments by type*

Source: Figure 2-80, *External Truck Origin/Destination Survey Summary Report*.

<b>Comment</b>	<b>Count</b>
Roads are too bumpy	102
Difficulty with signage	53
Frustration with traffic	43
Problems with Stoney Trail	38
Cannot maintain schedule during rush hour	28
Frustration with construction	22
General desire for infrastructure improvements	20
Problems with Deerfoot Trail	18
Need more facilities for trucks (rest stops, parking, etc.)	15
Problems with Glenmore Trail	12
Problems with intersections	9
Problems with other drivers	9
Concerns over restricted routes	9

The most frequently noted comment concerns the bumpiness of roads – that is, the state of repair of the road - which can cause damage to the load. This comment was unique to the survey. This comment referred mainly to Stoney Trail, although other highways were noted as well. For example:

- Stoney Trail too uneven. Roads sunken by bridges.
- Highway 8 within city is very rough, Crowchild Brisebois frost heaves.

Details and a full listing of the comments can be found in the *External Truck Origin/Destination Survey Summary Report*.

### **4.3 What this means**

In general, the analysis of GPS data corroborates the findings expressed during stakeholder engagement regarding congestion and bottlenecks. The external survey of truck drivers, large portions of whom are travelling long distances, similarly corroborates these findings, while also providing the important perspectives of people who are actually on the roads. This corroboration is important because it underscores and broadens the points made during the stakeholder engagement.

# 5 Potential solutions

## 5.1 An ideal goods movement system

Stakeholders were asked to describe an ideal goods movement system in Calgary. Their responses considered planning, infrastructure and operations. These responses were grouped into four characteristics, which are described in Table 5-1.

Table 5-1: An ideal goods movement system according to stakeholders

Characteristic	Description
Land use planning that separates uses and interactions between trucks and other vehicles.	The intent is to minimize the mix of high concentrations of trucks, especially those carrying dangerous goods, and other traffic. This can happen when lands surrounding industrial areas are developed into residential and other uses, and trucks entering and leaving these areas must now share access roads with residential, retail and commercial traffic. Residents also object to the noise, vibration and pollution generated by the trucks. In some cases, there are few or no alternative routes. Where such routes exist, their use might result in significant increases in truck operational costs, thereby reducing the viability of the industrial operation.
Expanded availability of the road system for trucks through improvements to the existing network and more connections.	The intent is to expand the capability of the road network to accommodate trucks. One way is to extend the capability of existing roads so that their pavements and structures are able to support larger and heavier trucks. In this way, the truck route network could be expanded, thereby distributing trucks to less congested routes. The necessary structural improvements could be implemented when roads are scheduled for rehabilitation. Another way is to add new connections in selected locations, with stakeholders making several suggestions: <ul style="list-style-type: none"> <li>• Stakeholders were especially interested in additional connections with the surrounding municipalities, citing as possibilities a widened Shaganappi Trail linking with Highway 772, Metis Trail north of Stoney Trail and Kleysen Industrial Park (Peigan Trail / 84<sup>th</sup> Street).</li> <li>• Dedicated truck lanes around the Spy Hill area or on 144<sup>th</sup> Avenue.</li> <li>• Additional high-capacity east-west and north-south highways.</li> <li>• Improved access to industrial lands generally.</li> </ul>
Increase efficiency of deliveries by encouraging more off-hours deliveries.	The intent is to reduce congestion and costs and to improve operating efficiency, by encouraging more deliveries during the quieter evening and overnight hours instead of the congested daytime. Off-hours deliveries are already being made in Calgary. Their expanded use would require such measures as: <ul style="list-style-type: none"> <li>• Ensuring that there are no regulatory inhibitors to night-time delivery, such as noise curfews.</li> <li>• Working with customers to give drivers access to their businesses in a safe and secure way.</li> <li>• Educating residential customers to expect e-commerce deliveries in the evening when the recipient is most likely to be home, thereby avoiding a wasted delivery trip to an empty house during the daytime.</li> </ul> <p>It is understood that night-time deliveries are not practical for all customers. Moreover, drivers cannot always see the delivery address in the dark, especially during the winter, so productivity can actually drop significantly between the daytime and the night-time. As one</p>

Table 5-1: An ideal goods movement system according to stakeholders

Characteristic	Description
	stakeholder noted, the intent is to aim for a “healthier” mix of daytime and nighttime deliveries.
Improved integration with transit and expanded transit.	The intent is to extend the reach of transit, especially in suburban areas in and surrounding Calgary where goods movement generators are located, and expand the number of locations where commuters could transfer conveniently and quickly. Some stakeholders recognized the importance of transit in removing autos from the road, thereby reducing congestion for trucks. Other stakeholders proposed the addition of high-speed rail linking Calgary with other cities, and connecting this network to the LRT.

## 5.2 What The City can do

Stakeholders were asked what The City can do in order to achieve the ideal goods movement system, while more specifically addressing the issues and challenges that were identified in Chapter 3. They identified a number of potential solutions. Table 5-2 describes 27 initiatives and the solutions they suggested for each initiative. Note that the implementation of many of these initiatives require collaborations with and the support of the province, the airport, the railways, industry and other goods movement stakeholders.

Table 5-2: What The City can do to achieve an ideal goods movement system

Initiative	Solutions suggested by stakeholders
Continue inter-governmental communication, collaboration and coordination to promote integrated network planning in the Calgary region.	Collaborative efforts among The City, the province, neighbouring municipalities, terminal owners, the private sector and other stakeholders were seen as essential to ensuring that future roads can effectively serve goods movement. Stakeholders recognized The City’s leadership in making this happen, through such initiatives as the 61 <sup>st</sup> Avenue Flyover and the Goods Movement Strategy.
Continue collaboration and communication with industry and with the public.	Related to the previous initiative, stakeholders also saw communications and education as important. However, more advanced notice of development that is planned for lands near industrial areas could help shippers and transporters to better anticipate and address the potential impacts on their operations. It is also important to educate the public on how goods movement works and what changes realistically can be implemented to address problems. Stakeholders also noted that industry potentially could help The City in its planning efforts by contributing funding and information such as GPS truck trip traces.
Avoid land use planning conflicts with use of intermodal terminals and key goods movement corridors.	The intent is to avoid potential inhibitions on freight operations as development occurs ever closer to the airport, rail terminals and rail corridors, or impacts the airport flight paths. Stakeholders cited several concerns: <ul style="list-style-type: none"> <li>Proposed high-density development in Inglewood, under the airport flight path, could eventually lead to restrictions on night-time cargo flights.</li> <li>There is a need for greater separation of development adjacent to heavy rail lines and/or greater protection of the rail corridor.</li> <li>There is a need to educate the public on the importance of protecting the operation of strategic goods movement facilities from conflicting uses.</li> </ul>



Table 5-2: What The City can do to achieve an ideal goods movement system

Initiative	Solutions suggested by stakeholders
Ensure utility coverage in new development areas is sufficient to meet emerging logistics needs.	Stakeholders noted that the transportation and logistics sector, and industry generally, increasingly rely on wireless and other electronic communications technologies. As a means to attract new businesses to sites that can be better managed for goods movement, stakeholders proposed that fibre and other services be provided to industrial lands.
Consider the need for additional road-rail grade separations.	Stakeholders noted the desire to avoid lengthy traffic delays that are caused by long trains crossing industrial areas, especially at 52 <sup>nd</sup> Street. Some stakeholders also noted that grade separations allow railways to increase their throughput.
Recognize the special requirements of freight hubs as key employment centres.	Stakeholders noted that the airport, rail terminals and the nearby warehouses and distribution centres are large concentrations of employment. As such, consideration might be given to improved transit service, possibly including the LRT, to serve workers. In addition, many of these sites operate on shifts, so their the peak activity times are often different from those of the general morning and afternoon commuter peaks.
Consider options for managing growth in air and freight traffic.	<p>Recognizing the primacy of the YYC and the existing rail terminals in handling air and rail freight, stakeholders suggested The City, working with other stakeholders, could examine the feasibility of:</p> <ul style="list-style-type: none"> <li>• Using smaller airports in the surrounding municipalities to handle small airfreight volumes, thereby potentially offloading YYC.</li> <li>• Rail-only industrial parks, whose tenants could be clustered in a smaller space while being served by rail.</li> </ul>
Consider options to shift goods from trucks to other modes, to ease congestion.	Stakeholders suggested greater use of existing pipelines to bring fuel from northern Alberta refineries, especially jet fuel to the airport, instead of trucks.
Examine how changing industrial land use designations would impact goods movement.	As redevelopment takes place around Calgary, especially as older industrial areas change to high density mixed use residential and retail uses, stakeholders noted that changing land uses must account for goods movement. This is to make sure that the new type of development is appropriately planned for goods movement access. Proper planning also is needed to must ensure that existing industrial uses continue to be accessible for goods movement.
Improve planning for deliveries, especially in mix-used developments.	Stakeholders noted the need to avoid conflicts between commercial and residential uses, especially in high-density developments. They proposed the need for better consideration of how deliveries can be made to commercial venues without disturbing nearby residents. They also proposed additional dedicated loading zones to serve these venues, so as to avoid illegal parking or having to park in front of other commercial establishments or residences.
Plan for e-commerce.	<p>Stakeholders noted the need to consider a greater presence of e-commerce in the near future. They suggested that, in its transportation and land use plans, The City needs to take into account:</p> <ul style="list-style-type: none"> <li>• An increase in the number of fulfillment centres, from which deliveries are made directly to consumers hence they have a greater frequency of trucks carrying smaller packages to a broader area compared with distribution centres and warehouses.</li> </ul>

Table 5-2: What The City can do to achieve an ideal goods movement system

Initiative	Solutions suggested by stakeholders
	<ul style="list-style-type: none"> <li>• The potential impacts of automation, which could reduce truck traffic and the associated impacts.</li> <li>• The potential need for drop-boxes in residential neighbourhoods in order to reduce delivery attempts to residences while the occupants are at work or school.</li> </ul>
Plan for emerging goods movement technologies and techniques that improve efficiencies.	<p>Stakeholders noted that new technologies are coming, although the pace and uptake cannot be predicted. Stakeholders suggested that The City could:</p> <p>Allow for truck platoons, which – because the vehicles are separable – would not require the same turning geometries as long-combination vehicles.</p> <p>Consider the regulatory environment that is needed to accommodate on-demand delivery services.</p> <p>Consider promoting ways to fill empty containers.</p>
Investigate additional ways that transit and other alternatives to driving can get vehicles off the road and help workers get to their jobs.	<p>Transit plays an important role in moving Calgarians. Workers in transportation and logistics jobs, which tend to be low paying, do not have access to their own vehicles. They rely instead on transit. However, many transportation and logistics jobs are located in the remote suburbs that have a low transit service level. Some jobs are located in the surrounding municipalities that cannot be reached by transit. The low-density development that is typical of transportation and logistics businesses makes it difficult for The City to serve cost-effectively by transit. Many shifts start and end in the middle of the night, when transit hours of service are low and some routes do not operate. Stakeholders noted the need to promote better transit connectivity to these remote job sites, especially during the off-hours. Other options include ride-sharing and shuttle buses.</p>
Promote multi-agency collaboration and consistency in design and operational standards.	<p>Stakeholders noted the difficulty in getting approvals for new province-wide initiatives due to varying standards among municipalities. For example, some Alberta municipalities had approved the use of wider low-resistance truck tires, which could reduce costs for trucking companies, but The City of Calgary has not given its approval. One proposed solution was to adopt more consistent load design specifications among the province’s municipalities. These consistent specifications could be developed together with Alberta Transportation.</p>
Improve accessibility and circulation, reduce parking costs and clarify enforcement through operational and regulatory enhancements.	<p>Stakeholders cited several operational problems whose resolution falls in The City’s domain. These included:</p> <ul style="list-style-type: none"> <li>• Faster snow clearance in suburban areas.</li> <li>• More tolerance for illegal parking in lanes, when no other alternatives exist.</li> <li>• Increased supply of short-term parking for couriers, perhaps even charging couriers for their use.</li> <li>• More tolerance for night-time delivery, in potential contradiction of noise bylaws, to avoid road congestion and limited parking spaces during the daytime.</li> <li>• Improve the flow of truck traffic through a better progression of traffic signal timings, or even by removing some signals altogether on key routes such as the Trans Canada Highway. Flow also could be improved by replacing stop signs at some intersections with yield signs.</li> <li>• Review the wording of The City’s truck bylaws in order to clarify the enforcement of trucks that are not using the truck routes - for example, being able to differentiate more clearly whether or not this is a legitimate last kilometre</li> </ul>

Table 5-2: What The City can do to achieve an ideal goods movement system

Initiative	Solutions suggested by stakeholders
	use or identifying clearly whether commercial vehicles are parking on private properties in residential areas.
Ensure robustness of Calgary's road network.	Stakeholders noted the need to continue to extend Calgary's road network, so as to reduce truckers' reliance on the Deerfoot Trail and Stoney Trail. Stakeholders also expressed the desire for more interchanges on the Stoney Trail in order to more directly access new industrial areas, although it was also recognized that fewer interchanges allows a higher level of service.
Investigate ways to improve Deerfoot Trail operations and throughput.	Stakeholders proposed ways to increase the throughput of the Deerfoot Trail through such initiatives as ramp metering, adding HOV lanes and improving certain interchanges. Note that these and other improvements are currently being examined by a joint City – Alberta Transportation study. It was understood that adding significant capacity to the Deerfoot is not likely to be practical.
Promote use of the Stoney Trail as a bypass for external truck traffic.	Drivers travelling to, from or through Calgary recognize that Stoney Trail is an effective bypass around Calgary's roads. However, stakeholders felt that additional benefits could be gained in order to offload congested roads such as the Deerfoot Trail. They suggested: <ul style="list-style-type: none"> <li>• Additional advance signage that alerts drivers to the travel time savings offered by the Stoney Trail compared with other routes.</li> <li>• Additional accesses to serve the nearby industrial lands more directly, rather than forcing drivers to take longer, more congested routes.</li> </ul>
Review clearances on routes that carry over-dimensional loads.	Stakeholders noted especially the desire to relocate overhead traffic signals so that they would not have to be moved as part of the progression of an over-dimensional load.
Promote company compliance with electronic logging devices (hours of service).	Truck drivers will be required to record their hours of service on electronic logging devices (ELDs) by 2020. ELDs already are mandatory in the United States. Drivers will be required to find a rest area upon reaching their allowable service hours, and the ELDs provide greater precision over existing hand-written logs while also providing enforcement agencies with an improved ability to monitor compliance. Some stakeholders noted that need for The City to help alert trucking companies of the need to prepare for ELDs. Other stakeholders noted the potential to develop new rest areas that are easily accessible from the roads and highways that lead to and from Calgary, perhaps along Stoney Trail and Highway 22. This also has the potential benefit of reducing congestion on Calgary's roads and highways.
Consider more ways to reduce traffic disruptions during road reconstruction or rehabilitation.	Stakeholders proposed that The City consider ways to minimize traffic disruptions during road reconstruction or rehabilitation. Proposals included shorter durations, more work on weekends rather than on weekdays and earlier notifications (see also Table 3-1).
Investigate potential partnerships with the private sector to test innovations.	Stakeholders proposed having The City and industry working together to test new technologies that could improve goods movement operations and reduce costs and impacts.
Investigate information-sharing	Stakeholders proposed asking trucking companies to share their data, in confidence, with The City in order to improve goods movement planning and operations. The City could also use the data to monitor compliance with speed

Table 5-2: What The City can do to achieve an ideal goods movement system

Initiative	Solutions suggested by stakeholders
possibilities with the private sector.	<p>regulations and to better analyze improvements at high-collision areas. For example:</p> <ul style="list-style-type: none"> <li>• GPS fleet data, which record truck trip origins, destinations, interim stops, routes used, travel times and delays.</li> <li>• Truck volumes entering and exiting industrial areas.</li> <li>• Data about where employees live, to better determine the potential for transit.</li> <li>• GPS trackers mounted on unescorted over-dimensional vehicles, to get real-time information on their actual progress and delays.</li> </ul>
Allow the private sector to support new goods movement infrastructure.	Stakeholders suggested that the goods movement industry could fund and operate certain infrastructure, such as increased accesses from Stoney Trail to the adjacent industrial lands. As an initial step, The City, the province and other stakeholders could investigate its regulatory feasibility.
Reconsider the potential for implementing a registration program for aggregates industry.	Aggregates industry stakeholders have implemented a vehicle registry program. Its purpose is to allow the public to identify and track an aggregates vehicle that caused damage or was operating unsafely. Industry stakeholders had earlier proposed that The City support the program and make it mandatory, thereby expanding its coverage. However, The City had declined, noting that there was no apparent benefit to The City in taking this on and that the public already could contact CPS with any complaints. Stakeholders have proposed that The City revisit this decision.
Collaborate to promote international trade connections.	Calgary International Airport has a growing potential as a hub for international trade, especially with the growth in e-commerce. However, stakeholders noted the importance of building on the airport's expertise and skills and having The City work with the federal government and the CBSA to ensure the seamless clearance of incoming goods. Co-locating warehouses with a CBSA clearance facility was seen as a key to this seamlessness, but not all warehouses are located near the CBSA facilities.
Promote inland port to circumvent congestion in Vancouver.	<p>Stakeholders proposed ways to develop Calgary's potential as an inland port. Working with industry and other goods movement stakeholders, The City could investigate:</p> <ul style="list-style-type: none"> <li>• The feasibility of loading and unloading containers away from Vancouver instead of having this processing taking place in Vancouver.</li> <li>• Opportunities for refilling inbound containers with food products and other Alberta-sourced goods for export, rather than shipping them back to the port empty.</li> <li>• Promoting the strong supply of large, serviced land parcels to prospective businesses, recognizing that there is only a one year supply of land in the Vancouver region.</li> <li>• Educating the public and others on the importance of Calgary as a distribution hub. Stakeholders noted that the Calgary region's 85 distribution centres were important in helping to offset the recent economic downturn.</li> </ul>

## 6 How the findings will be used

This chapter brings together the categories and lists of issues and challenges identified in Chapters 2, 3 and 4, together with the initiatives potential solutions proposed in Chapter 5, to come up with a list of opportunities for further examination in Stage 3.

**Error! Reference source not found.** summarizes 22 initiatives that are explored through the jurisdictional survey and through the best practice review. Note that this table is derived from the 27 initiatives listed in Table 5-2. However, five initiatives have not been included in the Stage 3 jurisdictional survey and best practice review because the candidate solutions are provided locally through further consultation with the Advisory Groups and through the ongoing *Deerfoot Trail Corridor Study*. These five initiatives are listed in Table 6-2.

Table 6-1: Initiatives examined in Stage 3

Initiative
1. Continue inter-governmental communication, collaboration and coordination to promote integrated network planning in the Calgary region.
2. Continue collaboration and communication with industry and with the public.
3. Avoid land use planning conflicts with use of intermodal terminals and key goods movement corridors.
4. Ensure utility coverage in new development areas is sufficient to meet emerging logistics needs.
5. Consider the need for additional road-rail grade separations.
6. Recognize the special requirements of freight hubs as key employment centres.
7. Consider options for managing growth in air and freight traffic.
8. Consider options to shift goods from trucks to other modes, to ease congestion.
9. Examine how changing industrial land use designations would impact goods movement.
10. Improve planning for deliveries, especially in mix-used developments.
11. Plan for e-commerce.
12. Plan for emerging goods movement technologies and techniques that improve efficiencies.
13. Investigate additional ways that transit and other alternatives to driving can get vehicles off the road and help workers get to their jobs.
14. Promote multi-agency collaboration and consistency in design and operational standards.
15. Improve accessibility and circulation, reduce parking costs and clarify enforcement of truck route regulations through operational and regulatory enhancements.
16. Promote company compliance with electronic logging devices (hours of service).
17. Consider more ways to reduce traffic disruptions during road reconstruction or rehabilitation.
18. Investigate potential partnerships with the private sector to test innovations.
19. Investigate information-sharing possibilities with the private sector.
20. Allow the private sector to support new goods movement infrastructure.
21. Collaborate to promote international trade connections.
22. Promote inland port to circumvent congestion in Vancouver.

Table 6-2: Initiatives examined locally

Initiatives
23. Ensure robustness of Calgary's road network.

27. Investigate ways to improve Deerfoot Trail operations and throughput for aggregates industry.
25. Promote use of the Stoney Trail as a bypass for external truck traffic.
26. Review clearances on routes that carry over-dimensional loads.

\*Subject of the ongoing City of Calgary – Alberta Transportation *Deerfoot Trail Corridor Study*.

The jurisdictional survey and the best practice review are described in the Stage 3 report. The jurisdictional survey comprises several questions on selected topics. The best practice review considered the solutions that stakeholder had proposed (see Table 5-2), augmented by solutions that are documented in the practical Canadian and U.S. literature and other sources.

# 7 Appendices

## 7.1 Interview guide (generic)

A generic copy of the interview guide for the one-on-one stakeholder interviews follows. Note that there were seven versions of the guide. These were tailored to specific audiences but generally followed the same format.

### CITY OF CALGARY GOODS MOVEMENT STRATEGY INTERVIEW GUIDE – PRIVATE SECTOR

**The City of Calgary is developing a Goods Movement Strategy.** The Strategy will:

- Identify and prioritize short, medium and long-term actions and investments in transportation infrastructure to enhance the goods movement network in Calgary.
- Support the Calgary Transportation Plan (CTP) and Municipal Development Plan (MDP).
- Complement other City and regional economic development initiatives.

As well, The City's bylaws related to goods movement will be reviewed and consolidated where appropriate as part of the Goods Movement Strategy. This includes the truck route map and bylaw 60M90.

The City has appointed a consulting team to develop the Strategy. The team is led by the Watt Consulting Group, in association with David Kriger Consultants and CPCS.

To aid in the development of the Strategy, the consultants are conducting interviews with key public and private goods movement stakeholders in and around Calgary. **This interview will give you a chance to communicate your experiences, needs and ideas that can inform the development of the Goods Movement Strategy.**

This interview guide is meant to help participants prepare for the interview. Please note:

- The questions / topics below are guidelines only, to help the discussion.
- The discussion is meant to be open-ended.
- Some points might not apply to your particular organization or might be of lesser importance, so they can be omitted.
- Information gathered will be shared with The City of Calgary and will be used to inform Strategy reports, but will **not** be directly attributed in any documents without your permission, nor will your organization be identified by name without your permission.

**Participation in this interview is voluntary. All responses will remain anonymous when reported. No personal information will be disclosed. The personal information collected via this interview is being collected under the authority of section 33 (c) of the Freedom of Information and Protection of Privacy (FOIP) Act. The information**

**will be used for the purpose of The City of Calgary Goods Movement Strategy. You may receive future correspondence and emails pertaining to this project. If you have any questions regarding the collection and use of this information, please contact 3-1-1.**

\* \* \* \* \*

1. From the perspective of your organization, which of the following are the most important goods movement issues in or around Calgary? Please pick the Top 3 issues and rank them, 1 = most important.

- Congestion on Provincial highways, in or around Calgary
  - Congestion on other roads, in or around Calgary
  - Inadequate road access to rail terminals or to the airport
  - Inadequate road access to shippers / receivers
  - Inadequate intercity connectivity (road, rail or air)
  - Need for improved / additional transportation links (where?)
- 
- Supply and location of zoned and serviced employment and industrial lands
  - Inconsistent truck route regulations / designations
  - Changing logistics, retailing and/or distribution patterns (e.g., e-commerce, automation)
  - Conflicts with other traffic, including transit, pedestrians and cyclists
  - Trucks moving through residential neighbourhoods or other sensitive areas
  - Traffic signal timing / coordination on arterials
  - Inadequate space for truck or courier loading / parking, on-street or off-street
  - Operating costs for goods movement
  - Reducing greenhouse gas (GHG) emissions / air pollutants
  - Keeping up with emerging technologies such as alternative fuels and/or regulatory standards
  - Bottlenecks (where?)
- 
- Other (please describe)
- 

2. What is the nature of your goods movement operations in Calgary? What types of goods do you carry? What types of industries do you serve? What area/geography do you cover?
3. Approximately what volume or tonnage do you move in and around Calgary? Please indicate whether these are daily, weekly, monthly or annual amounts.



4. Do you have an in-house truck fleet? If so, how many vehicles do you have in your fleet? What types (categories) of vehicles are they? Do you have hybrid or other alternative-energy vehicles?
5. What is working well in terms of moving goods in and around Calgary, and what are the implications of each for your business / operations?

	<b>Aspect</b>	<b>Implications for your business / operations</b>
1.		
2.		
3.		

6. What trends would you say are most likely to affect the movement of goods in and around Calgary in the next 10 years, and what are the implications for your business / operations?

	<b>Trend</b>	<b>Implications for your business / operations</b>
1.		
2.		
3.		

7. Do you have any suggestions or solutions to address the issues and challenges identified above? What are the short-term and long-term opportunities that would improve how goods move in and around Calgary?

	<b>Short term opportunities</b>	<b>Long term opportunities</b>
1.		
2.		
3.		

8. Are you aware of any policies/actions that other urban regions/carriers are taking to improve goods movement for operations similar to yours? If so, what are they and do you think they could be applied in an around Calgary?
9. What would an ideal system for urban goods movement in and around Calgary look like?
10. What role do you think The City of Calgary can play most constructively in getting us to this ideal future?
11. Are other comments you would like to make regarding urban goods movement in and around Calgary?

*Thank you!*