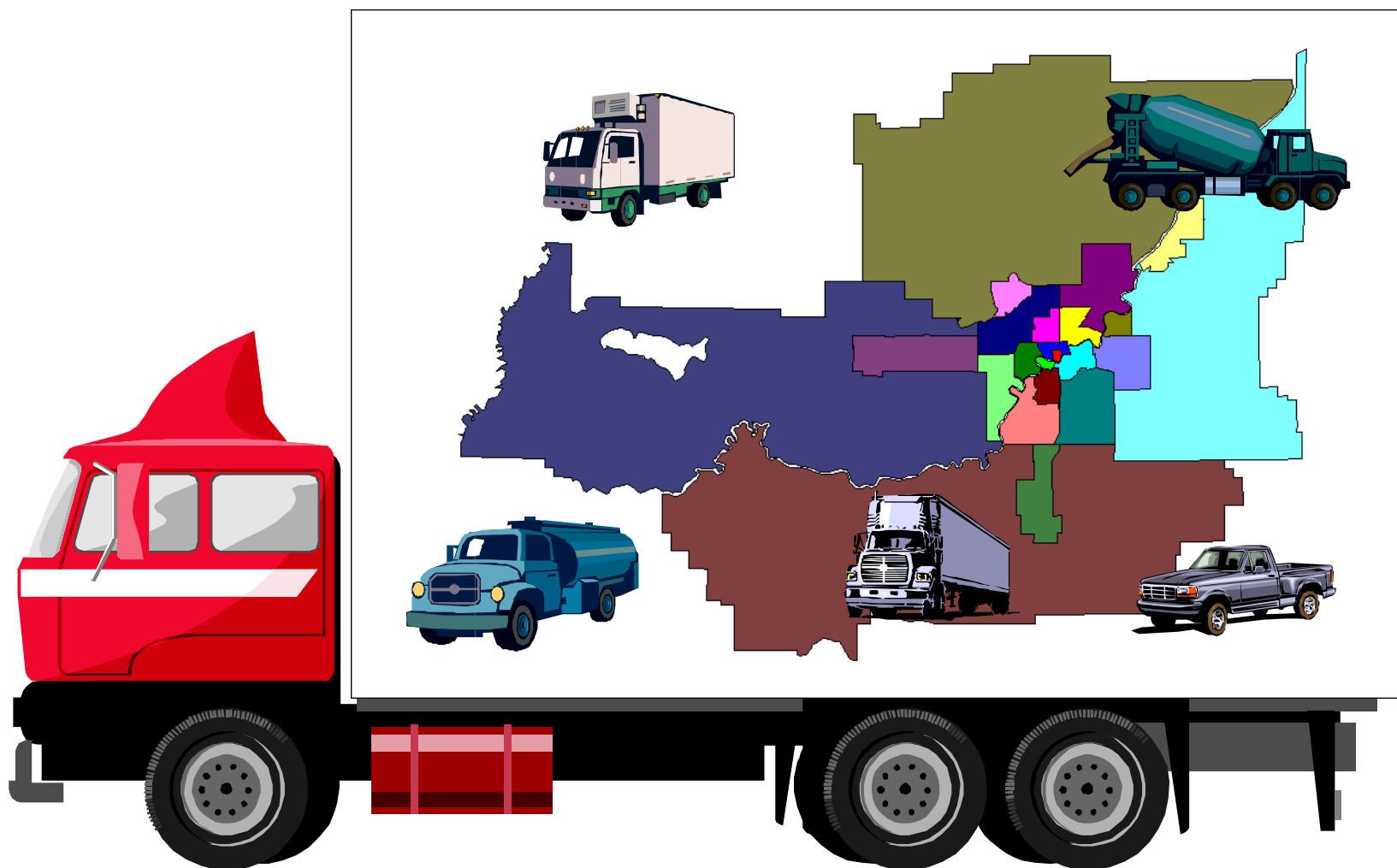


# Edmonton Region Commodity Flow Study Project Report



November 2003



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## Acknowledgements

The 2002 Edmonton Region Commodity Flow Study was a joint City of Edmonton and Alberta Transportation venture, and supported by:

- Economic Development Edmonton (EDE)
- Alberta Motor Transport Association (AMTA)
- Alberta Capital Region Alliance (ACRA)

The survey was directed by a steering committee comprised of:

- Dr. Alan Brownlee, City of Edmonton Transportation and Streets Department
- Dr. Doug Hunt, University of Calgary
- Mr. Jack Phelps, Alberta Transportation
- Mr. Meheboob Ishani, Alberta Transportation

The survey was completed by the International Results Group with the survey team directed by:

- Ms. Edith Wenzel, International Results Group
- Ms. Tracy With, International Results Group

The contributions of the following individuals are also gratefully acknowledged:

- Mr. Ian Bakker, Stantec Consulting Ltd.
- Mr. Dean Cooper, Stantec Consulting Ltd.
- Mr. Wai Cheung, City of Edmonton Transportation and Streets Department
- Mr. Steve Cressy, City of Edmonton Transportation and Streets Department

## 1 Introduction

Starting in October 2001, the City of Edmonton and Alberta Transportation undertook a major survey of business establishments in the Edmonton Region to determine the characteristics of goods and service movements. The information collected will be used to assist in the assessment of regional transportation needs, and in particular truck and service vehicle needs, and to include these needs in the development of short-term and long-term transportation plans.

This report is an overview of the information collected from the Commodity Flow Survey (CFS).

### 1.1 Survey Objectives

The main objectives of the Commodity Flow Survey were to:

- Measure the magnitude of goods and service movements throughout the Edmonton Region,
- Provide information on the characteristics of these goods and service movements,
- Determine the quantity, origin-destination, and types of vehicles used to move the goods and services throughout the Edmonton Region.

Both goods and services commodity flow information were collected.

**Goods** are defined as items that are manufactured or assembled by a business establishment and then shipped or transported to another location for consumption. Examples include newspapers, food products, furniture, and petroleum products.

**Services** are activities that are provided by a business establishment and require transportation in order to provide the service. Examples include waste removal, snow-clearing, construction activities, and repair services.

Goods and service movements in the Region are generated for the most part by business establishments, including small businesses, large companies, public institutions, and all levels of government. A business establishment may;

1. Produce goods that are then distributed or shipped to another location,
2. Provide a service that requires travel to another location,
3. Consume a good or service that is produced by another business,
4. Produce and consume goods and/or services.

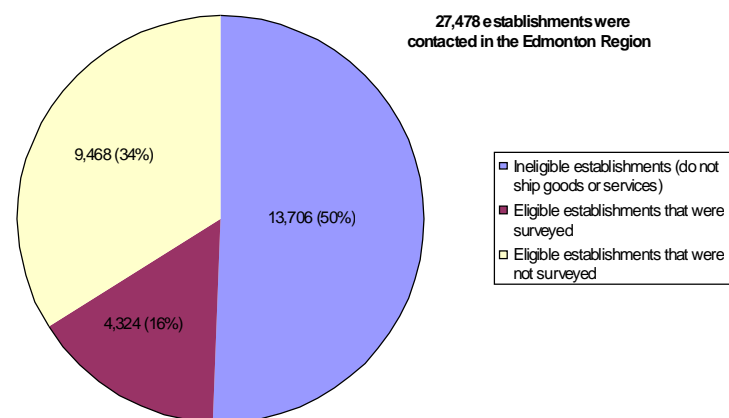


Figure 1 – Summary of the establishment surveyed



In order to measure the magnitude of goods and services that are produced and then shipped in the Edmonton Region, only those business establishments that produce and ship (or move) a good or service, were included in this survey.

Between October 2001 and August 2002, 27,478 business establishments were contacted in the Edmonton Region to determine their eligibility to participate in the Commodity Flow Survey. At the same time, information was also collected to establish the number of employees, location and industry category of the establishment.

Of these business establishments, 13,792 were eligible to participate in the survey in that these establishments produced either a product or service that required transportation. And of these eligible establishments, 4,324 agreed to participate in the survey.

## 1.2 Study Area

The study area for the Edmonton Region Commodity Flow Study is the Edmonton Census Metropolitan Area (CMA). This area includes the City of Edmonton, St. Albert, Sherwood Park as well as the Counties of Leduc, Strathcona, Sturgeon and Parkland.

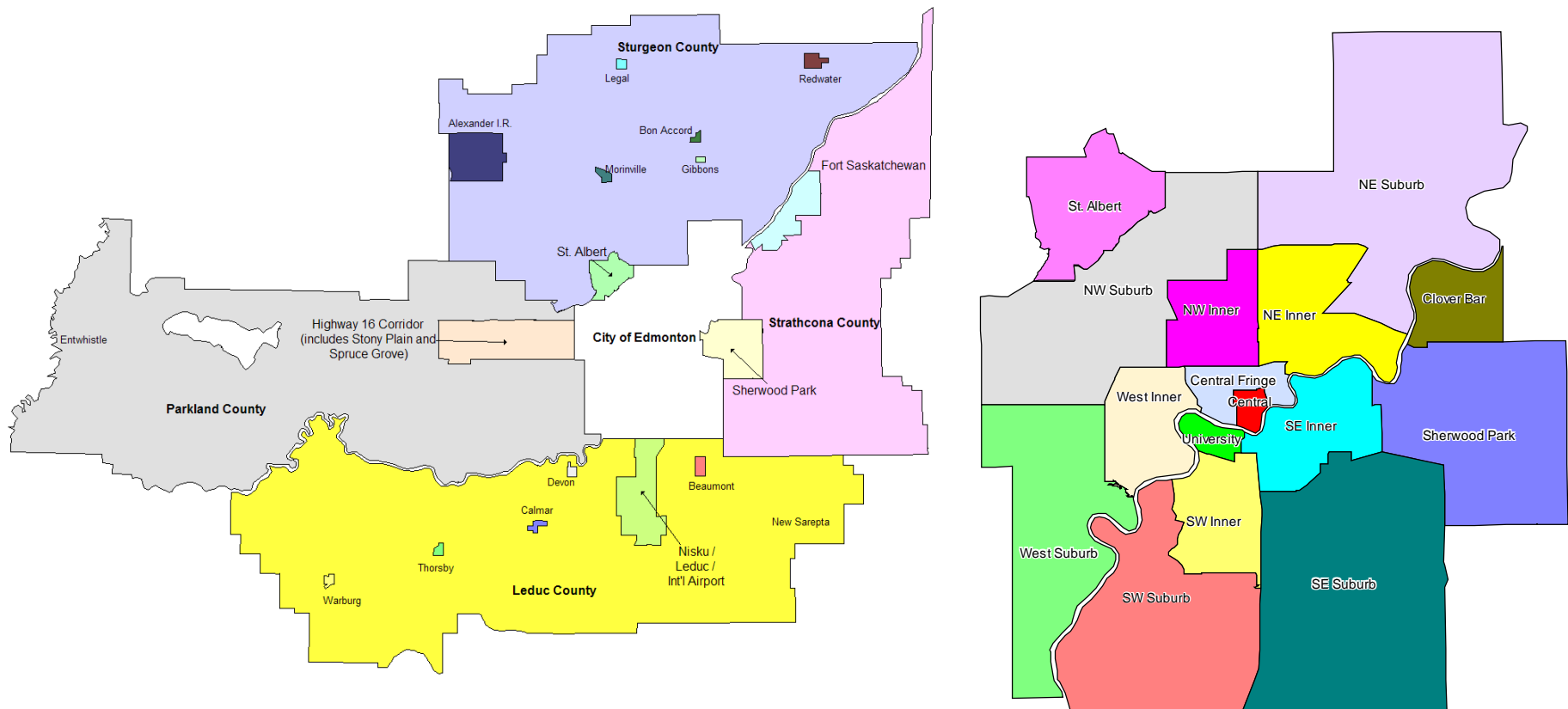


Figure 2 - Study area

For analysis and report purposes, the City of Edmonton was grouped into fourteen sectors; three central areas, five inner city areas, and six suburban areas. St. Albert and Sherwood Park are included as part of urban totals.

Nearly 80% of the surveyed establishments are located within the City of Edmonton, St. Albert and Sherwood Park. And about half of these establishments are located either in the north-west and the south-east suburbs, both of which are also major employment sectors.

Table 1 - Urban establishments surveyed

Sector	Establishments Surveyed
1 Central	92
2 University	18
3 Central Fringe	146
4 NW Inner	149
5 NE Inner	218
6 SE Inner	267
7 SW Inner	161
8 West Inner	144
9 NW Suburb	823
10 NE Suburb	120
11 Clover Bar	16
12 SE Suburb	870
13 SW Suburb	51
14 West Suburb	96
<b>Edmonton Total</b>	<b>3,171</b>
15 Sherwood Park	199
16 St. Albert	145
<b>Urban Total</b>	<b>3,515</b>

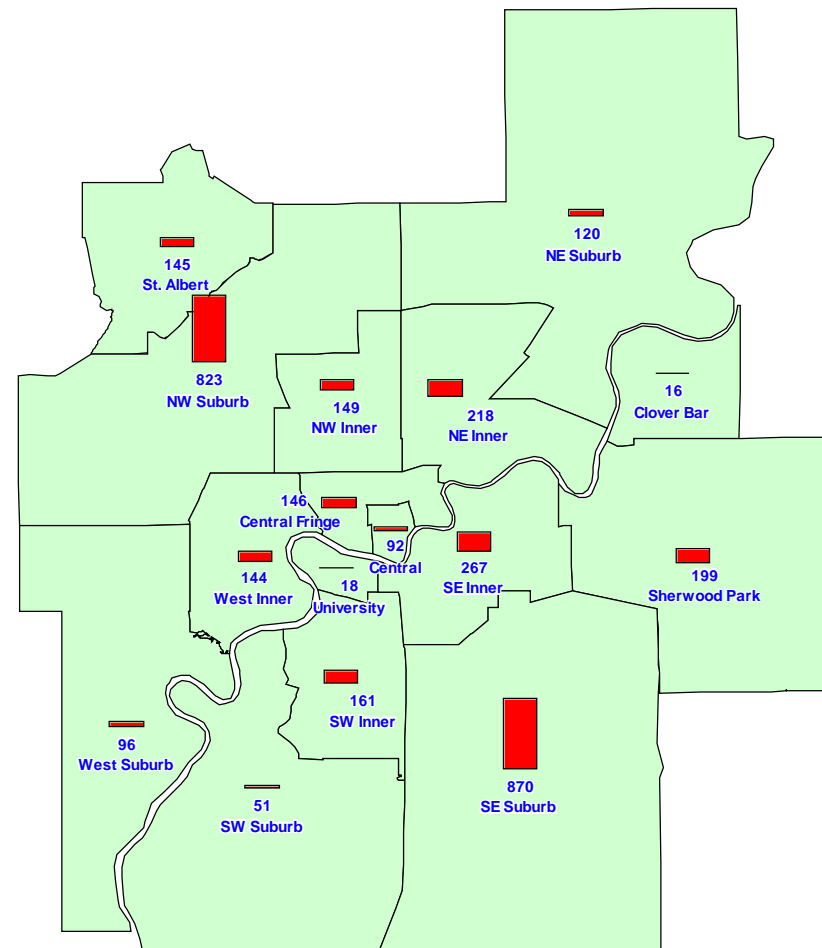


Figure 3 – 3,515 establishments were surveyed in Edmonton, St. Albert and Sherwood Park

The Region was grouped into eight sectors as illustrated in Figure 4.

The majority of the 809 establishments surveyed in the Region are located in the Leduc, Nisku and International Airport corridor, or in the Highway 16 corridor that includes Spruce Grove and Stony Plain.

72 of the surveyed regional establishments are actually located just outside of the study area, in places such as the rural area outside Drayton Valley, in the vicinity of Tofield, and around the Onoway. While technically outside the study area, the data collected from these establishments was considered relevant and therefore included as part of the overall regional goods and service movements.

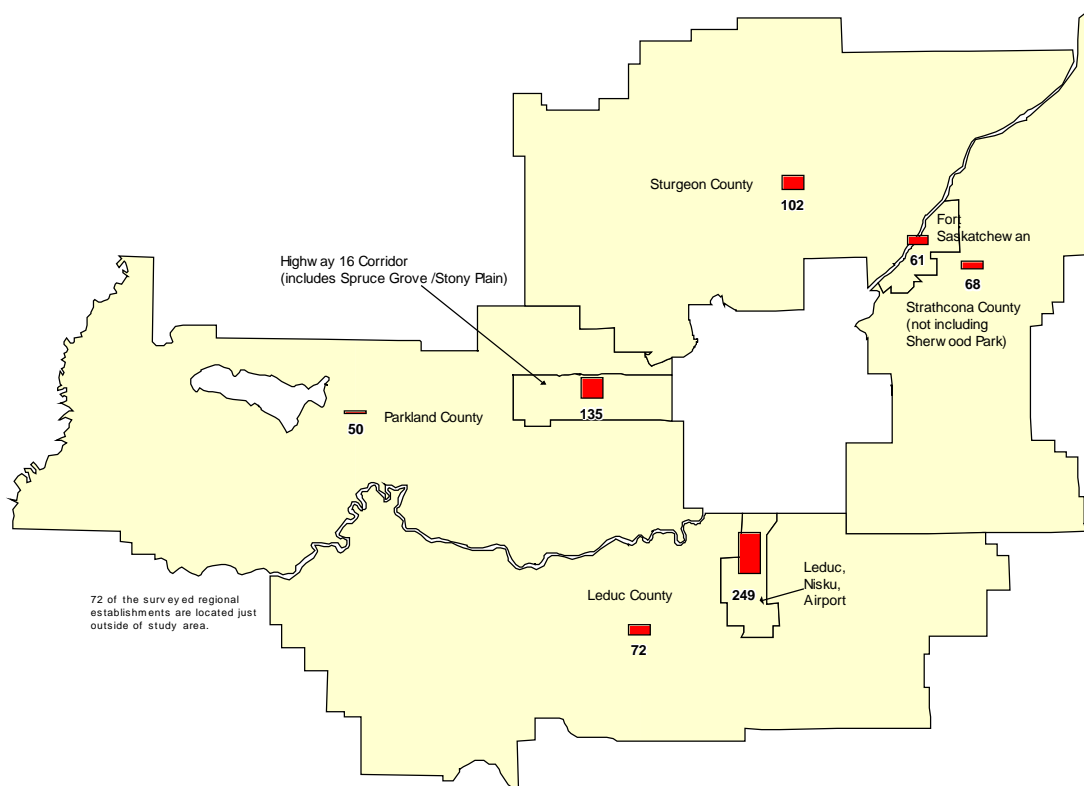


Table 2 - Regional establishments surveyed

Sector	Establishments Surveyed
17 Fort Saskatchewan	61
18 Strathcona County	68
19 Leduc County	72
20 Leduc / Nisku / Airport	249
21 Parkland County	50
22 Highway 16 West Corridor	135
23 Sturgeon County	102
24 CMA Fringe	72
<i>Region Total</i>	809

Figure 4 – 809 establishments were surveyed in the Region

### 1.3 Scaling the Survey Sample Results

The 2001-2002 Commodity Flow Survey surveyed 4,324 establishments (business, schools, governments) in the Edmonton CMA. As the data collected represents only a sample of all goods and service movements in the Edmonton Region on any given day, the data must be expanded to represent the universe of goods and service movements.

The methodology developed to expand the data collected from each establishment involved scaling each establishment across three independent variables; **establishment size in terms of the number of employees, industry category, and geographic location**. The total number of employees within each variable was used to determine the individual expansion factors for each establishment.

Table 3 – Data expansion variables

Number of Employees		Industry		Geographic Location	
1	1 – 4	1 - AG	Agriculture	1	City Central
2	5 – 9	2 - IN	Industrial	2	City NE
3	10 – 49	3 - WH	Wholesale	3	City NW
4	50 – 99	4 - RE	Retail	4	City West
5	100 +	5 -PS	Private Services	5	City SW
		6 - GOV	Government	6	City SE
		7 - ED	Education	7	Sherwood Park
		8 - TH	Transportation handling	8	St. Albert
				9	Region - Urban
				10	Region - Rural

To develop accurate expansion factors, a Total Establishment Survey (TES) was completed at the same time as the Commodity Flow Survey (CFS). While the CFS collected detailed information only from companies that ship either goods or services, the TES survey collected more general information from all establishments in the Edmonton Region including whether or not they shipped goods or services.

The data expansion process is better described by the following illustration.

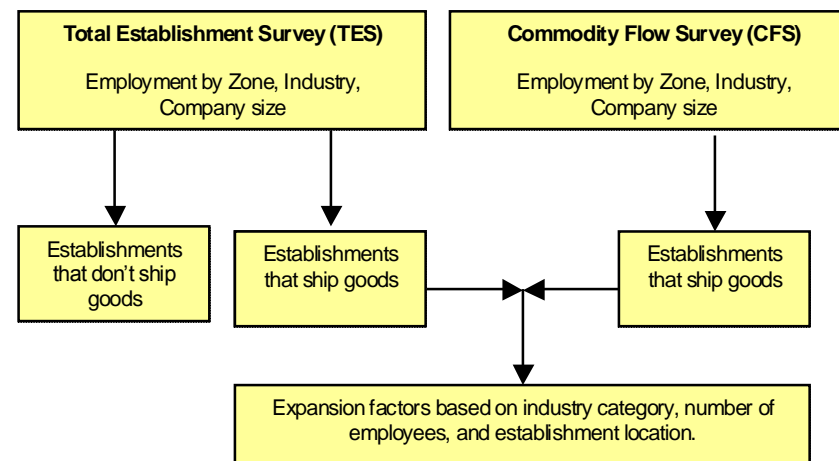


Figure 5 – Data expansion process

The Total Establishment Survey contacted 27,478 establishments in the Edmonton Region. Data was collected from each establishment on the number of employees, industry category, geographic location and whether they ship goods or services. Based on this data, expansion factors were developed for each of the surveyed establishments given its' number of employees, industry category, and geographic location.

It is important to note that all the results presented in this report are based on a sample. As a result, it can be expected that they may differ from other information that may be available on data items presented in this report.

Since the results presented are scaled from the survey sample, caution should be used when interpreting or using numbers that are less than 100. A value of 100 would represent only about 40 survey observations.

The average expansion factors for each of the three expansion variables are illustrated in the following figures.

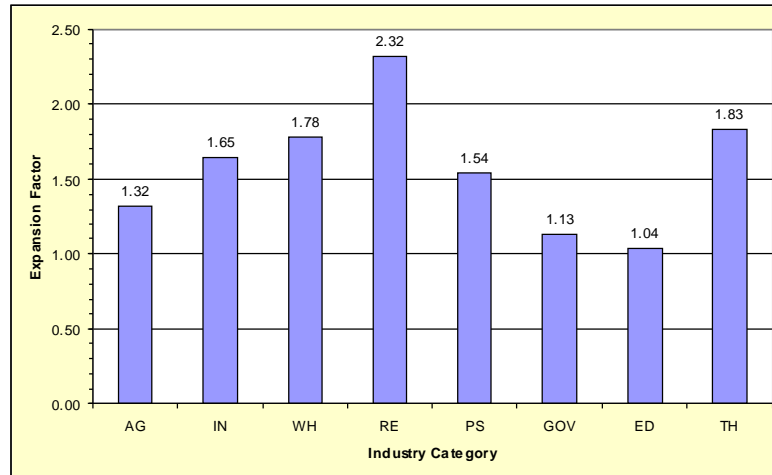


Figure 6 - Average expansion factors by industry category

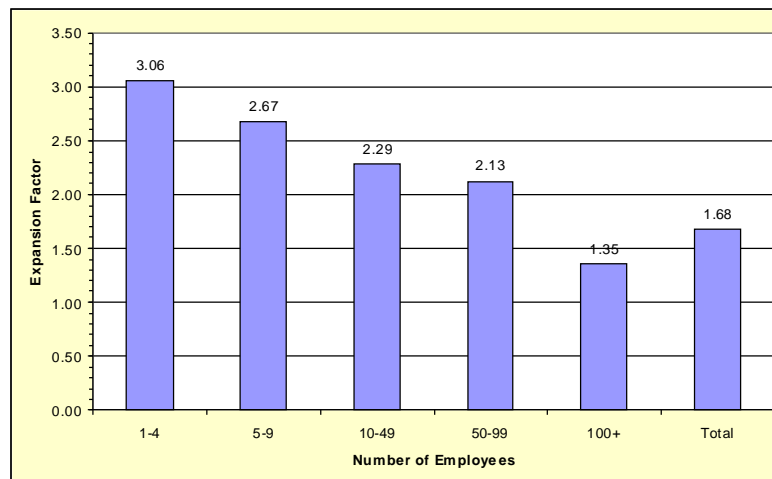


Figure 7 - Average expansion factors by number of employees

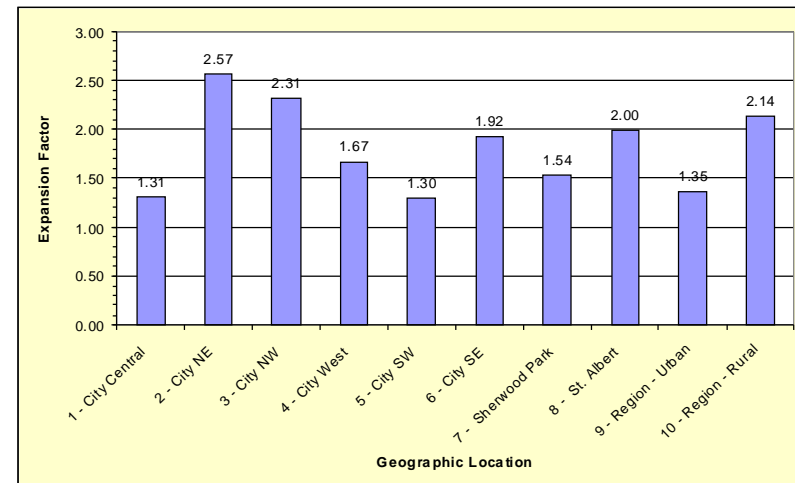


Figure 8 - Average expansion factor by geographic area

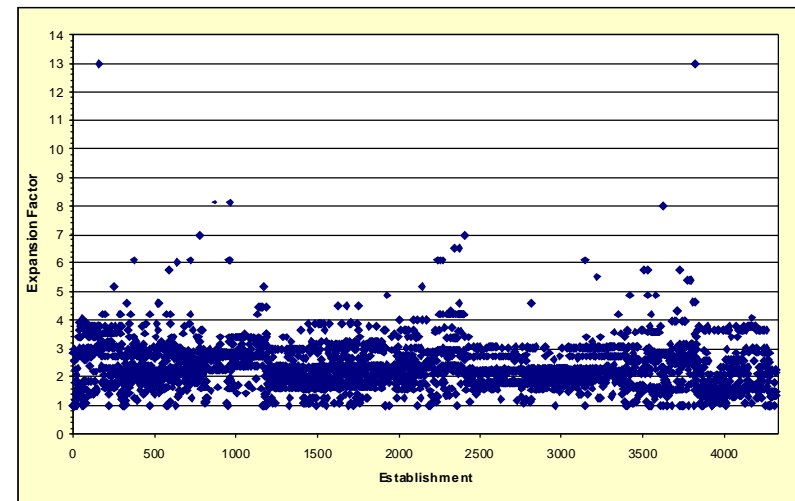


Figure 9 - Expansion factors for each establishment

The average expansion factor for all establishments is 2.36. This means that one surveyed establishment represents the goods and service movements of itself and about another one-and-a-half establishments.

## 1.4 Population and employment

The movement of people or goods and services is determined, to a large extent, by the magnitude and geographic distribution of where people live and where they work. For reference throughout this report, the population and employment statistics for the Edmonton Region for the year 2000 are presented as follows.

Table 4 - Urban 2000 population and employment

Sector	2000 Population	2000 Employment						Total
		AG	IN	WH	RE	PS, GV & ED	TH	
1 Central	7,146	495	2,825	405	3,493	36,903	5,085	49,206
2 University	11,379	151	447	236	819	21,178	45	22,876
3 Central Fringe	44,130	193	3,789	1,323	3,780	23,668	1,444	34,197
4 NW Inner	43,549	176	2,803	909	3,917	13,909	1,153	22,866
5 NE Inner	91,768	216	3,010	596	6,326	13,192	480	23,820
6 SE Inner	58,757	472	6,260	1,625	3,914	13,425	746	26,442
7 SW Inner	51,436	164	2,293	359	5,937	14,801	254	23,808
8 West Inner	57,706	25	507	151	2,934	12,724	38	16,378
9 NW Suburb	39,207	418	14,148	8,683	6,697	12,144	3,889	45,979
10 NE Suburb	52,569	249	1,442	277	2,089	4,947	206	9,210
11 Clover Bar	47	80	2,014	130	10	140	187	2,561
12 SE Suburb	92,211	1,314	16,597	3,628	6,247	21,790	2,805	52,383
13 SW Suburb	50,053	174	702	206	2,415	4,381	62	7,940
14 West Suburb	57,553	133	703	293	5,839	8,312	89	15,368
<b>Edmonton Total</b>	<b>657,511</b>	<b>4,260</b>	<b>57,541</b>	<b>18,820</b>	<b>54,416</b>	<b>201,515</b>	<b>16,483</b>	<b>353,035</b>
15 Sherwood Park	48,338	1,581	3,155	633	2,493	7,629	558	16,049
16 St. Albert	51,716	260	2,534	294	2,891	7,552	408	13,938
<b>Urban Total</b>	<b>757,565</b>	<b>6,101</b>	<b>63,230</b>	<b>19,746</b>	<b>59,800</b>	<b>216,696</b>	<b>17,449</b>	<b>383,022</b>
AG	Agriculture		PS	Private services				
IN	Industrial		GV	Government				
WH	Wholesale		ED	Education				
RE	Retail		TH	Transportation handling				

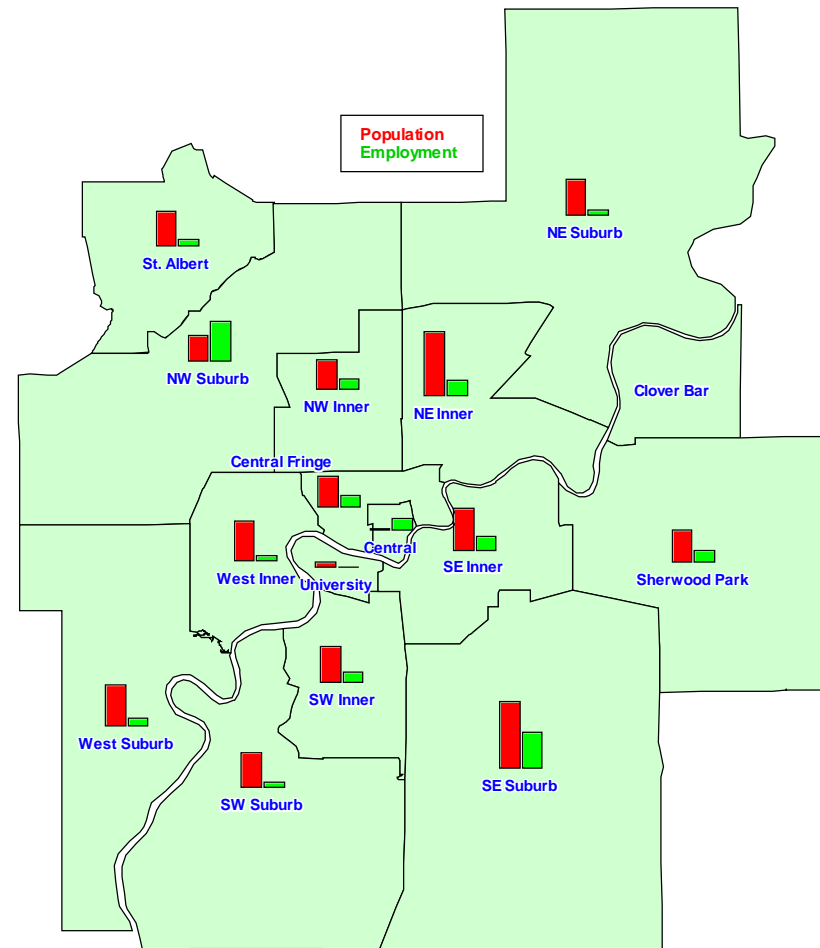


Figure 10 – Urban 2000 population and employment

Table 5 – Region 2000 population and employment

Sector	2000 Population	2000 Employment						
		AG	IN	WH	RE	PS, GV & ED	TH	Total
17 Fort Saskatchewan	13,346	447	3,829	264	868	3,545	366	9,320
18 Strathcona County	23,368	580	960	186	457	2,109	186	4,477
19 Leduc County	27,151	1,242	1,411	189	722	2,564	269	6,396
20 Leduc / Nisku / Airport	15,329	2,920	5,535	551	1,766	8,480	1,249	20,501
21 Parkland County	28,449	1,521	1,265	147	299	1,967	307	5,507
22 Highway 16 Corridor	25,043	441	2,006	215	1,742	4,150	434	8,988
23 Sturgeon County	32,283	1,717	2,601	274	741	5,634	324	11,291
<i>Region Total</i>	<i>164,969</i>	<i>8,866</i>	<i>17,607</i>	<i>1,825</i>	<i>6,595</i>	<i>28,450</i>	<i>3,135</i>	<i>66,479</i>

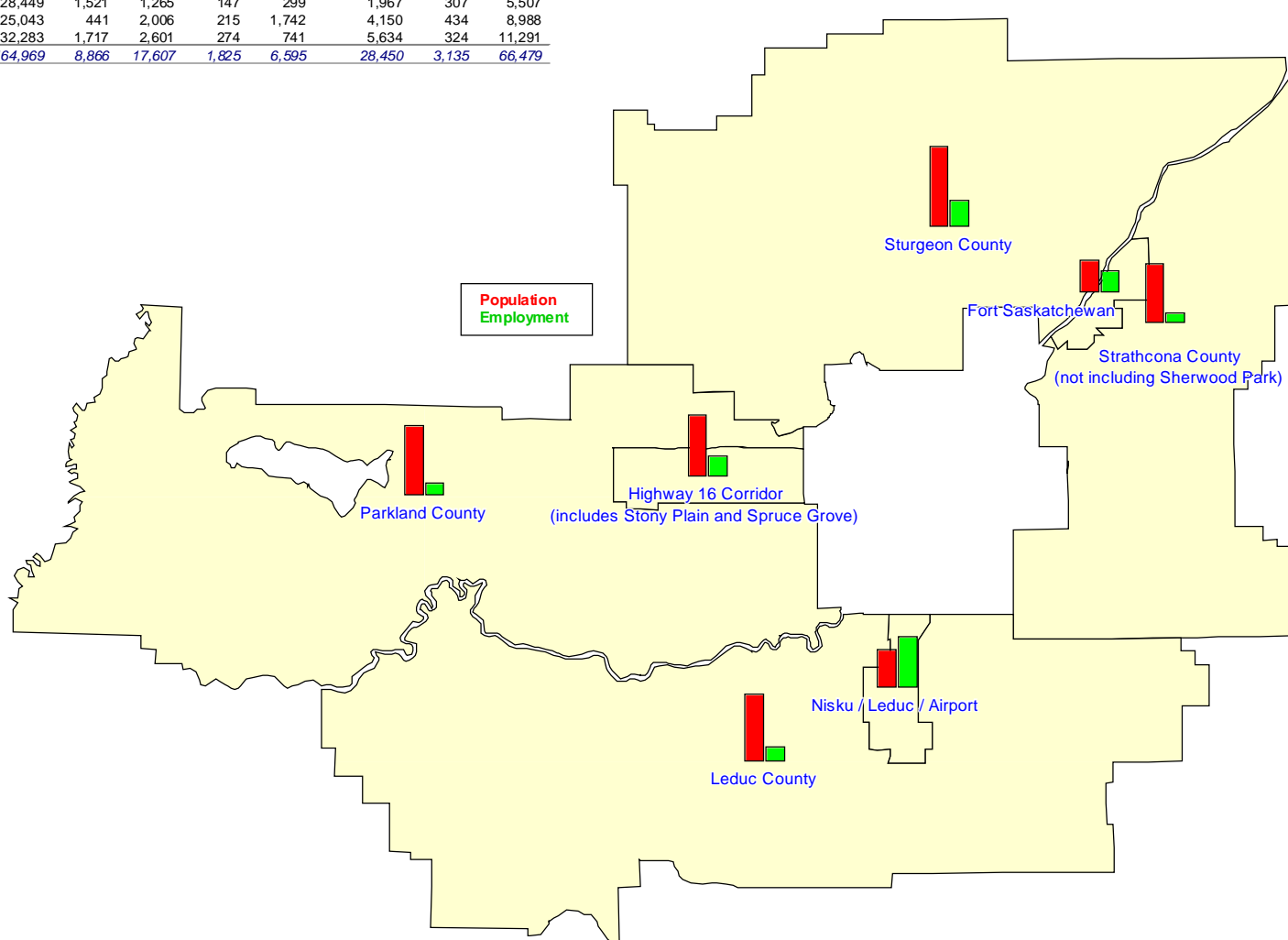


Figure 11 – Region 2000 population and employment

## 2 Goods and Services

As mentioned previously, **goods** are items that are manufactured or assembled by a business establishment and then shipped or transported to another location for consumption or further distribution. **Services** are activities that are provided by a business establishment and require transportation in order to provide the service.

The Commodity Flow Survey collected detailed information on the goods or services that each establishment shipped or provided on a specific day.

Data collected included:

- 1) goods or service type,
- 2) quantity shipped and the units used to measure the quantity,
- 3) the estimated total dollar value of the shipment(s).

### 2.1 Goods shipments

Goods were shipped by 37% of the establishments that were surveyed.

Given the variety of types of goods and the units in which they are measured, the overall magnitude of goods shipments can be difficult to quantify. For example, goods can be measured and shipped in pallets, board feet, kilograms,

tonnes, and litres just to name a few.

Keeping these factors in mind, the magnitude of goods shipment activity on a typical weekday is summarized in Table 6. Food items, crude petroleum, chemicals, lumber, fabricated metal and printed matter are the predominant commodities shipped in their respective units categories.

The total dollar value of these goods shipments proved more difficult to estimate, as a number of establishments were unable to provide an estimate of the value of each shipment, usually due to privacy concerns. Fully 30% of the survey responses were unable to provide an estimate of the dollar value of the goods that were shipped.

From the remaining 70% of the survey responses, the total dollar value of goods shipped in the Edmonton region on a typical weekday was estimated to be \$70 million.

Table 6 – Goods shipments

Commodity type	Tonnes	Litres	Items	cu. Ft.	Skids	Board ft	sq. ft.	Pallets	Shipments	Other
Food or kindred	26,760	861,788	45,054	335	103	-	-	114	777	107,889
Crude petroleum	9,640	18,154,621	3	17	-	-	-	-	-	-
Chemical	2,506,770	45,712	6,236	-	-	-	-	2	3	-
Lumber or wood	15,316	-	503,268	-	7	2,973,502	-	-	1,988	7
Printed matter	212	-	67,280	-	-	-	-	-	-	-
Fabricated metal	18,158	110	814,812	262	32,963	-	-	672	442	88
Electrical machinery	1,503	31	6,794	-	70	-	-	2	82	27
Other freight	2,237	30,675	25,618	-	69	-	-	69	48	68
Rubber or miscellaneous plastic	1,789	-	49,257	-	3	-	240	7	36	-
Furniture or fixtures	700	-	11,720	1,450	-	-	-	2	31	-
Primary metal	5,677	-	36,642	-	2	-	-	-	39	-
Machinery excluding electrical	942	-	1,055	-	118	-	-	-	-	65
Clay, concrete, glass or stone	4,622	-	6,098	9,523	23	-	3,149	14	163	-
Pulp paper or allied	2,331	-	55,746	5	88	-	-	130	28	-
Apparel	18	-	508	-	-	-	-	120	-	-
Instruments, photographic etc.	29	-	1,174	-	-	-	-	-	-	-
Miscellaneous	32,582	88	69,254	7,654	66	-	1,193	18	416	437
Other	101,276	454,144	215,810	16,720	30	-	-	41	33,832	57
<b>Total</b>	<b>2,730,561</b>	<b>19,547,169</b>	<b>1,916,329</b>	<b>35,966</b>	<b>33,541</b>	<b>2,973,502</b>	<b>4,582</b>	<b>1,189</b>	<b>37,887</b>	<b>108,638</b>

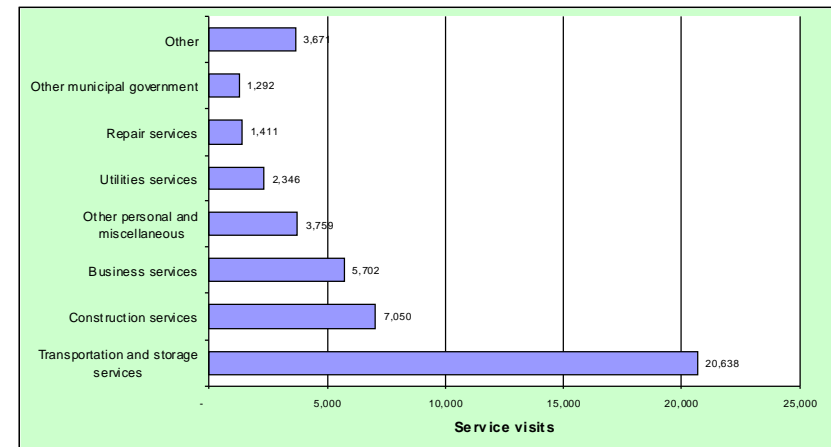


## 2.2 Service visits

Services were measured in terms of 'visits', which typically include site visits or trips to a customer's establishment. Service visits were made by roughly 45% of the surveyed establishments.

Table 7 - Service visits

Service type	Visits	%
Transportation and storage services	20,638	45%
Construction services	7,050	15%
Business services	5,702	12%
Other personal and miscellaneous	3,759	8%
Utilities services	2,346	5%
Repair services	1,411	3%
Other municipal government	1,292	3%
Other	3,671	8%
<i>Total</i>	45,869	100%



### 3 Goods and Service Vehicle Characteristics

The Commodity Flow Survey captured information about the type of vehicles used by establishments in their daily activities that required the shipment of goods or services. Vehicle type information collected as part of the survey included:

- 1) vehicle type,
- 2) gross vehicle weight (kg),
- 3) type of fuel used by the vehicle,
- 4) vehicle ownership.

#### 3.1 Vehicle types

The vehicles used by establishments to deliver goods or services generally fall into one of three categories; **passenger vehicles** (cars, pickup trucks), **single-unit trucks**, and **multi-unit trucks**. Some examples of each of these vehicle types are illustrated below.

On a typical weekday, about 23,400 vehicles are used to deliver goods and services throughout the Edmonton Region. These include about 13,500 passenger vehicles, 4,900 single-unit trucks and 5,100 multi-unit trucks.

Establishments in the industrial and transportation handling industries used nearly 80% of all multi-unit trucks. Wholesale and industrial industries used more than 55% of all single unit trucks while establishments in the private services and industrial categories used about 60% of the passenger vehicles.

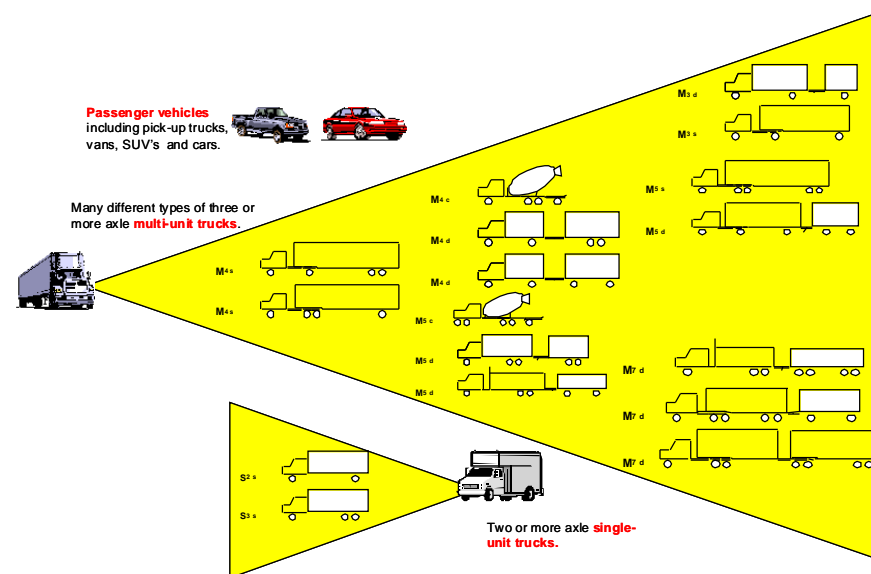


Figure 12 – Vehicle types

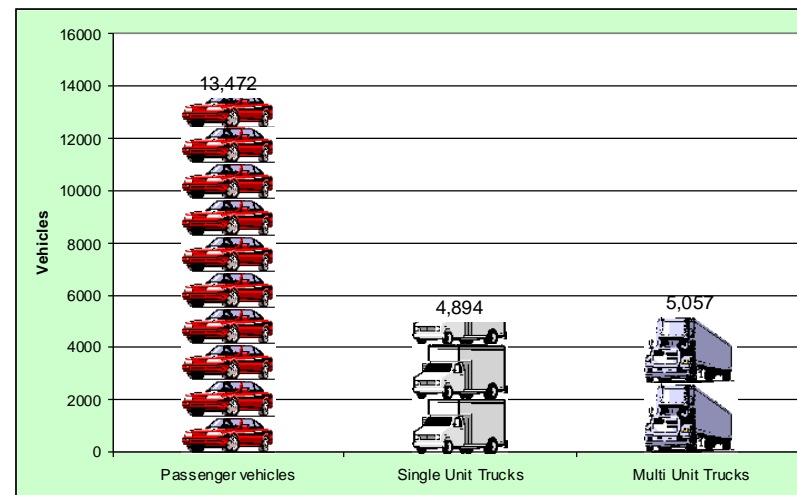


Figure 13 – Vehicles used on a typical weekday to deliver goods and/or services by vehicle type

Table 8 - Vehicle types by industry category

Industry Category	Passenger Vehicles	%	Single Unit Trucks	%	Multi Unit Trucks	%
AG	20	0.1%	25	0.5%	17	0.3%
IN	5,119	38.0%	1,478	30.2%	1,878	37.1%
WH	1,431	10.6%	1,276	26.1%	786	15.5%
RE	1,877	13.9%	522	10.7%	192	3.8%
PS	3,671	27.3%	496	10.1%	144	2.9%
GV & ED	563	4.2%	215	4.4%	35	0.7%
TH	791	5.9%	882	18.0%	2,004	39.6%
<b>Total</b>	<b>13,472</b>	<b>100.0%</b>	<b>4,894</b>	<b>100.0%</b>	<b>5,057</b>	<b>100.0%</b>

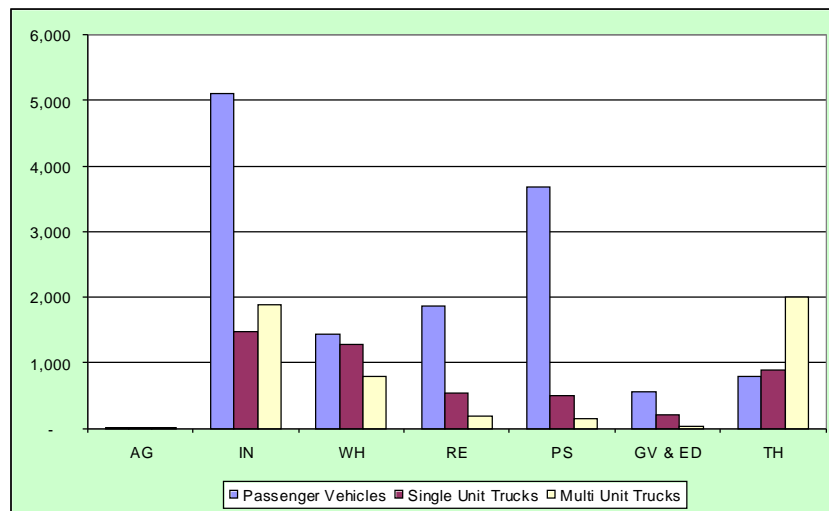


Figure 14 - Vehicle types by industry category

### 3.2 Gross vehicular weight

The majority of the nearly 10,000 single unit and multi-unit trucks that are used to deliver goods / services on a typical weekday have a gross-vehicular weight (GVW) of between 12,000 kg and 60,000 kg. The distribution of the GVW for these vehicles is illustrated in Figure 15.

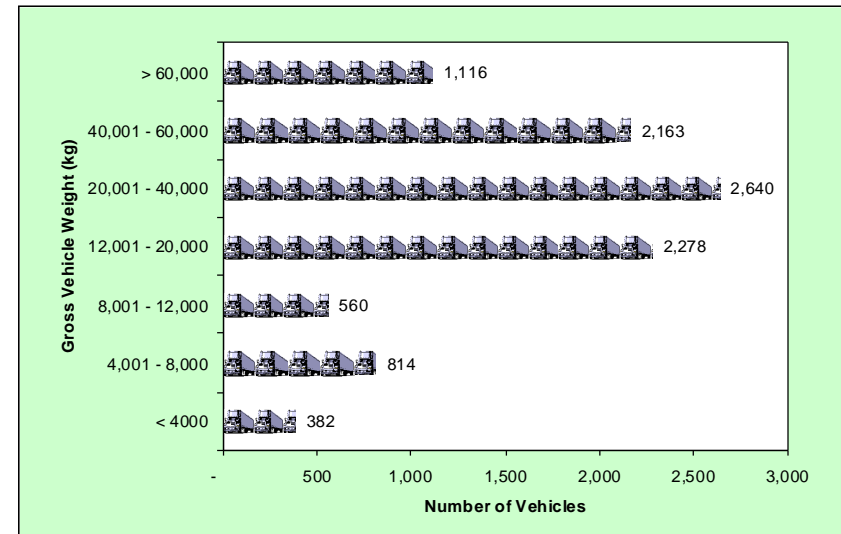


Figure 15 - Gross vehicular weight (kg)

### 3.3 Fuel type

Table 9 - Fuel used by vehicle type

Fuel Type	Passenger		Single Unit		Multi Unit	
	Vehicles	%	Trucks	%	Trucks	%
Gas	12,016	89.2%	806	16.5%	96	1.9%
Diesel	1,216	9.0%	4,006	81.9%	4,959	98.1%
Propane	240	1.8%	82	1.7%	2	0.0%
<b>Total</b>	<b>13,472</b>	<b>100.0%</b>	<b>4,894</b>	<b>100.0%</b>	<b>5,057</b>	<b>100.0%</b>

Not surprisingly, nearly 90% of all passenger vehicles use gas while 98% of the multi-unit trucks use diesel. Less than 2% of all passenger vehicles and single-unit trucks used propane.

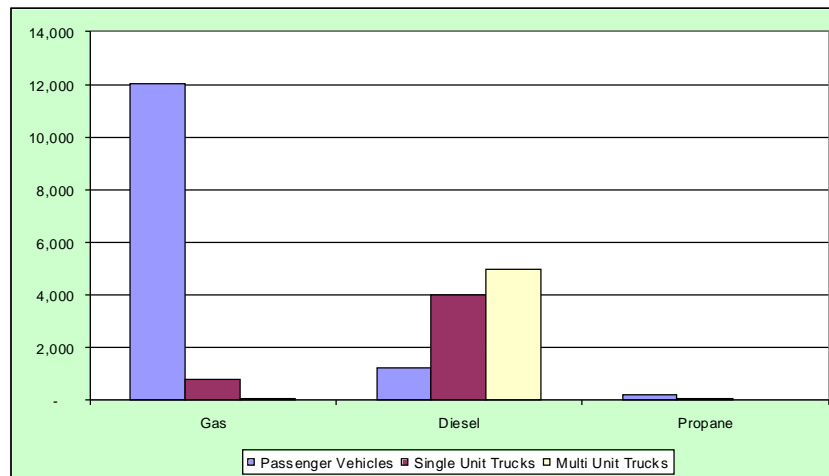


Figure 16 - Fuel used by vehicle type

### 3.4 Vehicle ownership

Table 10 - Ownership by vehicle type

Ownership	Passenger		Single Unit		Multi Unit	
	Vehicles	%	Trucks	%	Trucks	%
Owned by company	7,299	54.2%	2,583	52.8%	2,648	52.4%
Leased by company	1,001	7.4%	192	3.9%	144	2.8%
For hire	2,199	16.3%	2,092	42.7%	2,149	42.5%
Owned by driver	2,973	22.1%	28	0.6%	117	2.3%
<b>Total</b>	<b>13,472</b>	<b>100.0%</b>	<b>4,894</b>	<b>100.0%</b>	<b>5,057</b>	<b>100.0%</b>

The majority of vehicles used to deliver goods and services are owned by the company. Over 40% of all trucks used to deliver goods or services are 'for-hire' while only 16% of passenger vehicles were 'for-hire'. The driver owns about one in five passenger vehicles while only between 1% and 2% of all trucks are owned by the driver.

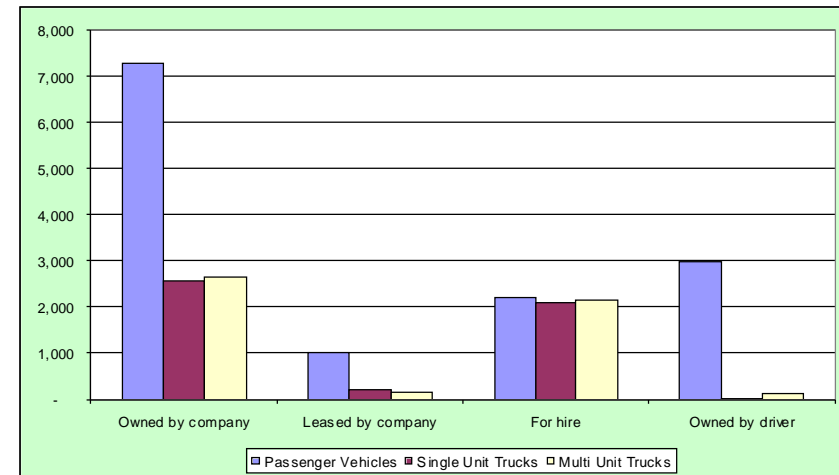


Figure 17 - Ownership by vehicle type

## 4 Vehicle Trip Origins

The Commodity Flow Survey collected information on all vehicle trips made by an establishment over a 24-hour period for the delivery or shipment of goods as well as site or customer visits made for service purposes.

The information summarized in this section of the report includes:

- 1) number of vehicle trips generated for goods delivery or service visits,
- 2) vehicle trips generated by vehicle type,
- 3) vehicle trips by commodity carried or service trip purpose,
- 4) the time of day when the vehicle trip was made.

### 4.1 Definitions

The following terms are used to describe vehicle trip making behaviour.

- **Vehicle trip** – travel made by one vehicle between one point of origin and another point of destination.
- **Daily vehicle trips** – the sum of all vehicle trips made over a typical 24 hour weekday period.
- **Internal trip** – a vehicle trip with both an origin and destination within the study area.
- **Internal to external trip** - a vehicle trip that originates within the study area and has a destination outside the study area.

- **External to internal trip** – a vehicle trip that originates outside the study area and has a destination within the study area. For example, a vehicle trip that starts in Edmonton, travels to Edson and then returns to Edmonton would have both an *internal to external* trip (the trip to Edson) and an *external to internal* trip (the return trip to Edmonton).
- **External to external trip** - a vehicle trip with both the origin and destination outside the study area. For example, a vehicle trip that starts in Edmonton, stops in Edson, then travels to Hinton before returning to Edmonton would have all three types of external trips (internal-external, external-external, and external-internal) where the Edson to Hinton leg of the trip is considered the external to external trip.
- **Time of day of trip** – the average between the start time and the end time of the trip.

### 4.2 Internal and external vehicle trips

The Commodity Flow Survey captured both the internal and external trips made by establishments over a 24-hour period.

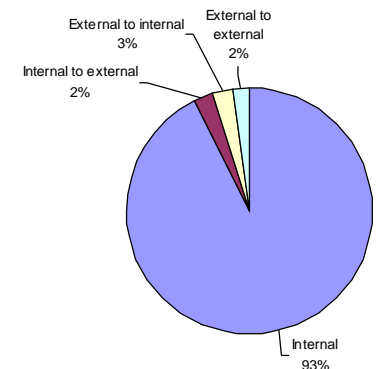


Figure 18 – Internal and external daily vehicle trips

Table 11 - Internal and external daily vehicle trips

	Daily vehicle trips	%
Internal	164,903	93%
Internal to external	4,123	2%
External to internal	5,154	3%
External to external	3,841	2%
<b>Total</b>	<b>178,021</b>	<b>100%</b>

Approximately 93% of the trips surveyed were internal trips, in that both their origin and destination were within the study area. The remaining 7% of the daily trips were external trips; either a trip origin or destination was outside the study area.

**For the purposes of this report, only internal vehicle trips are summarized and presented.** The external trips were surveyed in more detail as part of the Edmonton Region External Truck Commodity Survey and are therefore not included in this report.

### 4.3 Daily vehicle trip origins by vehicle type

Table 12 - Daily vehicle trip origins by vehicle type

Sector	Passenger Vehicles	%	Single Unit Trucks	%	Multi Unit Trucks	Total	%
1 Central	4,336	4.5%	2,004	3.8%	182	6,522	4.0%
2 University	1,167	1.2%	625	1.2%	69	1,860	1.1%
3 Central Fringe	5,847	6.1%	2,533	4.8%	338	8,718	5.3%
4 NW Inner	3,540	3.7%	2,138	4.1%	416	6,094	3.7%
5 NE Inner	4,654	4.9%	3,365	6.4%	551	8,571	5.2%
6 SE Inner	5,638	5.9%	2,758	5.3%	981	9,377	5.7%
7 SW Inner	4,268	4.5%	2,544	4.9%	321	7,133	4.3%
8 West Inner	3,015	3.2%	1,618	3.1%	327	4,960	3.0%
9 NW Suburb	14,700	15.4%	12,508	23.9%	5,398	32,606	19.8%
10 NE Suburb	1,866	2.0%	1,410	2.7%	153	3,428	2.1%
11 Clover Bar	383	0.4%	444	0.9%	407	1,234	0.7%
12 SE Suburb	16,586	17.4%	9,608	18.4%	3,573	29,767	18.1%
13 SW Suburb	2,374	2.5%	1,309	2.5%	148	3,831	2.3%
14 West Suburb	2,623	2.7%	1,300	2.5%	250	4,173	2.5%
<b>Edmonton Total</b>	<b>70,997</b>	<b>74.4%</b>	<b>44,163</b>	<b>84.5%</b>	<b>13,112</b>	<b>128,272</b>	<b>77.8%</b>
15 Sherwood Park	6,186	6.5%	1,818	3.5%	866	8,870	5.4%
16 St. Albert	7,178	7.5%	1,367	2.6%	291	8,837	5.4%
<b>Urban Total</b>	<b>84,361</b>	<b>88.4%</b>	<b>47,349</b>	<b>90.6%</b>	<b>14,269</b>	<b>145,979</b>	<b>88.5%</b>
17 Fort Saskatchewan	1,173	1.2%	548	1.0%	161	1,881	1.1%
18 Strathcona County	665	0.7%	410	0.8%	241	1,316	0.8%
19 Leduc County	1,151	1.2%	501	1.0%	440	2,093	1.3%
20 Leduc / Nisku / Airport	3,658	3.8%	1,665	3.2%	1,033	6,356	3.9%
21 Parkland County	398	0.4%	231	0.4%	62	691	0.4%
22 Highway 16 Corridor	2,440	2.6%	1,052	2.0%	495	3,987	2.4%
23 Sturgeon County	1,630	1.7%	522	1.0%	449	2,600	1.6%
<b>Region Total</b>	<b>11,115</b>	<b>11.6%</b>	<b>4,929</b>	<b>9.4%</b>	<b>2,881</b>	<b>18,924</b>	<b>11.5%</b>
<b>CMA Total</b>	<b>95,475</b>	<b>100.0%</b>	<b>52,277</b>	<b>100.0%</b>	<b>17,150</b>	<b>164,903</b>	<b>100.0%</b>

On a daily basis, about 165,000 vehicle trips are generated within the Edmonton CMA for the purposes of delivering goods or services. About 128,000 daily trips originate within the City of Edmonton, 17,000 trips within Sherwood Park and St. Albert and 19,000 trips in the remainder of the Region.

Of note is the fact that not all establishments were engaged in shipping goods or services on their survey day, even though they did ship goods/services as part of their normal business activities. *Only about 75% of the establishments that ship goods or services did so on their survey day.*

Passenger vehicles are the predominant vehicle type used for goods or service trips, accounting for nearly 60% of all vehicle trips. Single unit trucks are used for approximately 30% of all trips while multi-unit trucks are employed for the remaining 10% of daily trips.

The northwest and the southeast suburbs of the City of Edmonton (Sectors 9 and 12 respectively) generate nearly four out of every ten daily vehicle trips. Sherwood Park and St. Albert generate about 10% of all daily vehicle trips in the Edmonton CMA while the Leduc / Nisku / Airport and Highway 16 Corridor generate the most vehicle trips of the regional sectors.

The daily vehicle trip origins by urban sector are illustrated in Figure 19 and Figure 20 while the origins by regional sector are illustrated in Figure 21 and Figure 22.

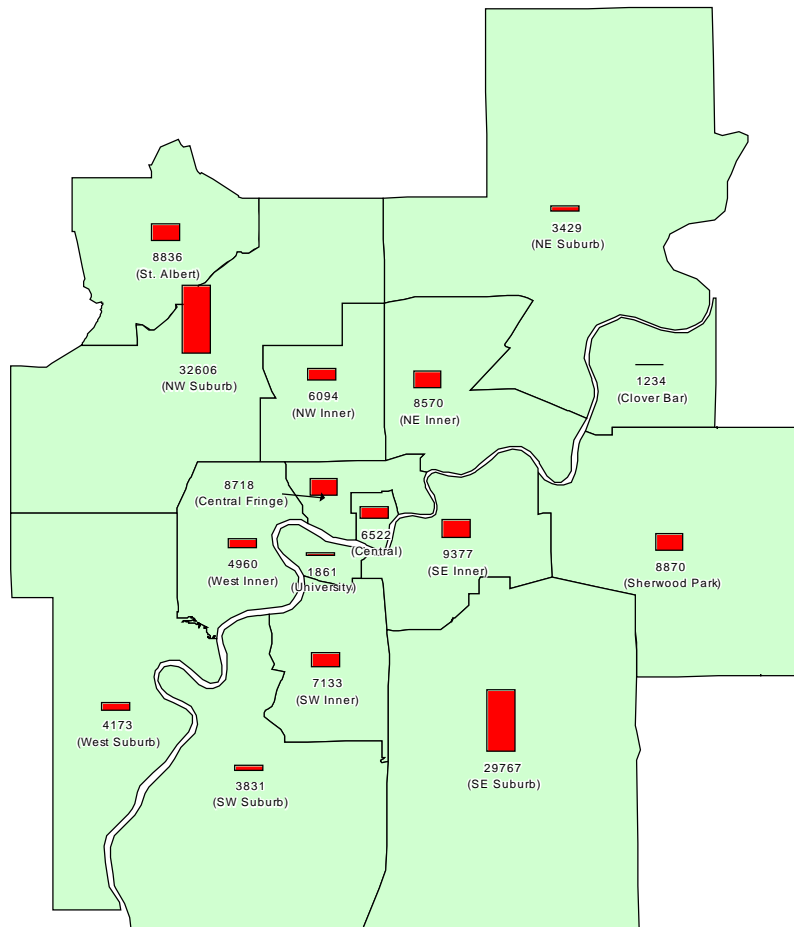


Figure 19 - Daily vehicle trip origins by urban sector

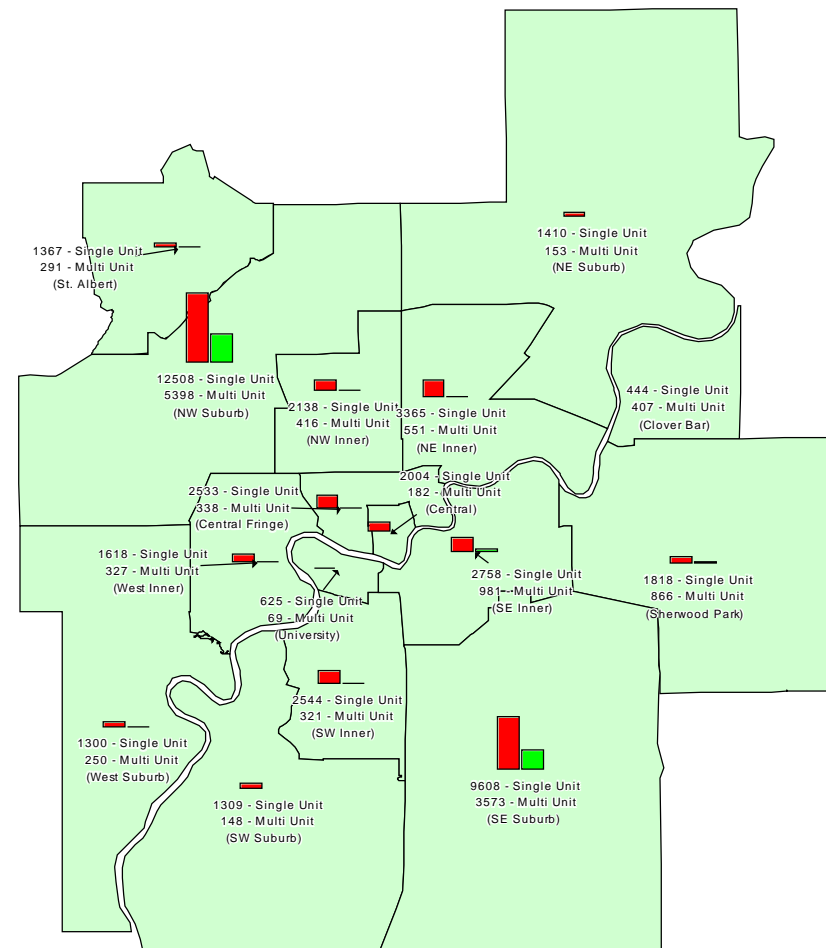


Figure 20 - Daily single-unit and multi-unit trip origins by urban sector

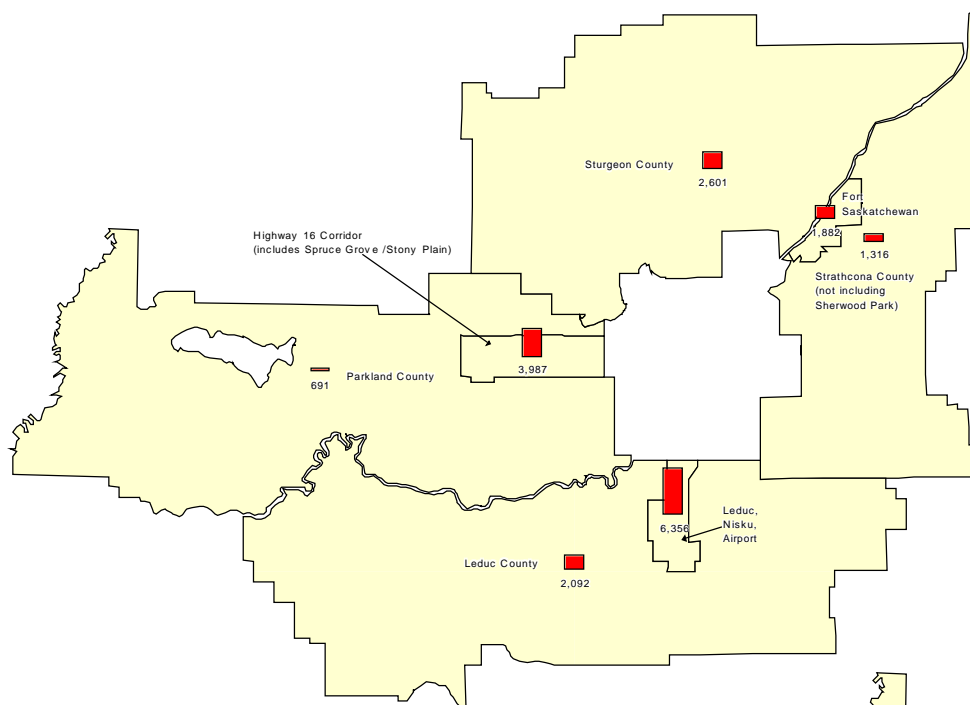


Figure 21 – Daily vehicle trip origins by regional sector

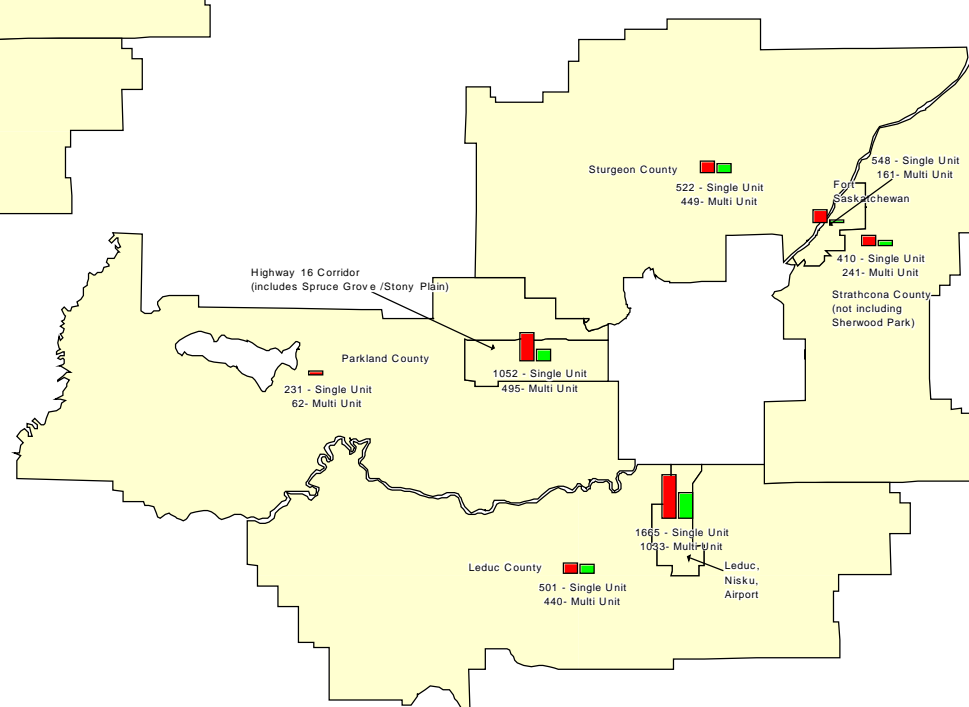


Figure 22 - Daily single-unit and multi-unit trip origins by regional sector



#### 4.4 Daily vehicle trip origins by trip purpose

Each vehicle trip that was surveyed was made for the purpose of:

1. Delivering products or goods,
2. Performing a service,
3. Returning to the base location of the vehicle or making an intermediary stop not directly associated with delivering the product or performing the service.

Nearly one out of every three of the surveyed daily vehicle trips was made for the purpose of delivering or shipping a product. Service trips accounted for just over half of all commodity-related trips. And about 19% of trips made by the surveyed vehicles were either to return to the base location of the vehicle or to make an intermediate stop.

Table 13 - Vehicle trip purpose

Trip Purpose	Urban	%	Region	%	Total	%
Goods	42,164	28.9%	5,859	31.0%	48,023	29.1%
Services	77,199	52.9%	8,355	44.2%	85,554	51.9%
Not applicable	26,616	18.2%	4,710	24.9%	31,326	19.0%
<b>Total</b>	<b>145,979</b>	<b>100.0%</b>	<b>18,924</b>	<b>100.0%</b>	<b>164,903</b>	<b>100.0%</b>

The proportion of service trips in the Region is slightly less than those observed in Edmonton, St. Albert and Sherwood Park; at 44% as compared to 53%.

By geographic sector, the proportion of goods and service trips is relatively constant, with the majority of goods and service trips made to the northwest and southeast suburbs of Edmonton.

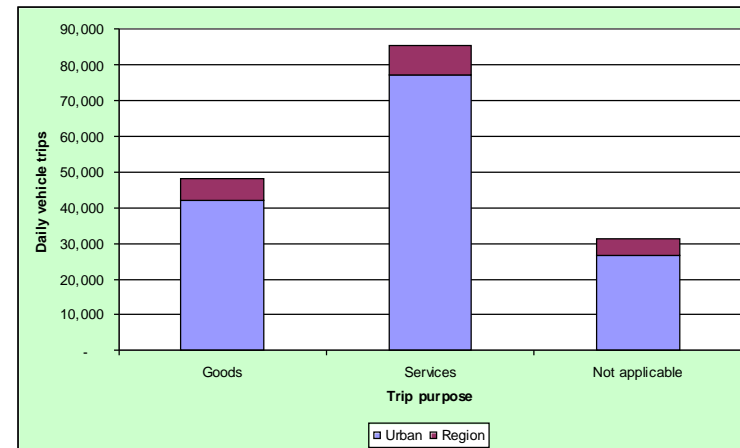


Figure 23 - Vehicle trip purpose

Table 14 - Vehicle trip purpose by sector

Sector	Goods		Services		Not applicable		Total	
		%		%		%		%
1 Central	1,975	4.1%	3,336	3.9%	1,211	3.9%	6,522	4.0%
2 University	391	0.8%	1,019	1.2%	451	1.4%	1,860	1.1%
3 Central Fringe	2,149	4.5%	4,944	5.8%	1,624	5.2%	8,718	5.3%
4 NW Inner	1,526	3.2%	3,198	3.7%	1,370	4.4%	6,094	3.7%
5 NE Inner	2,096	4.4%	4,932	5.8%	1,543	4.9%	8,571	5.2%
6 SE Inner	3,055	6.4%	4,382	5.1%	1,939	6.2%	9,377	5.7%
7 SW Inner	1,683	3.5%	3,963	4.6%	1,488	4.7%	7,133	4.3%
8 West Inner	1,056	2.2%	2,889	3.4%	1,015	3.2%	4,960	3.0%
9 NW Suburb	10,520	21.9%	16,819	19.7%	5,267	16.8%	32,606	19.8%
10 NE Suburb	715	1.5%	1,954	2.3%	759	2.4%	3,428	2.1%
11 Clover Bar	262	0.5%	841	1.0%	131	0.4%	1,234	0.7%
12 SE Suburb	10,955	22.8%	14,134	16.5%	4,677	14.9%	29,767	18.1%
13 SW Suburb	799	1.7%	2,222	2.6%	810	2.6%	3,831	2.3%
14 West Suburb	990	2.1%	2,272	2.7%	911	2.9%	4,173	2.5%
<b>Edmonton Total</b>	<b>38,172</b>	<b>79.5%</b>	<b>66,904</b>	<b>78.2%</b>	<b>23,196</b>	<b>74.0%</b>	<b>128,272</b>	<b>77.8%</b>
15 Sherwood Park	2,397	5.0%	4,783	5.6%	1,689	5.4%	8,870	5.4%
16 St. Albert	1,594	3.3%	5,511	6.4%	1,731	5.5%	8,837	5.4%
<b>Urban Total</b>	<b>42,164</b>	<b>87.8%</b>	<b>77,199</b>	<b>90.2%</b>	<b>26,616</b>	<b>85.0%</b>	<b>145,979</b>	<b>88.5%</b>
17 Fort Saskatchewan	727	1.5%	684	0.8%	470	1.5%	1,881	1.1%
18 Strathcona County	461	1.0%	515	0.6%	340	1.1%	1,316	0.8%
19 Leduc County	477	1.0%	1,045	1.2%	571	1.8%	2,093	1.3%
20 Leduc / Nisku / Airport	1,993	4.2%	2,794	3.3%	1,568	5.0%	6,356	3.9%
21 Parkland County	151	0.3%	288	0.3%	252	0.8%	691	0.4%
22 Highway 16 Corridor	1,405	2.9%	1,761	2.1%	821	2.6%	3,987	2.4%
23 Sturgeon County	643	1.3%	1,269	1.5%	688	2.2%	2,600	1.6%
<b>Region Total</b>	<b>5,859</b>	<b>12.2%</b>	<b>8,355</b>	<b>9.8%</b>	<b>4,710</b>	<b>15.0%</b>	<b>18,924</b>	<b>11.5%</b>
<b>CMA Total</b>	<b>48,023</b>	<b>100.0%</b>	<b>85,554</b>	<b>100.0%</b>	<b>31,326</b>	<b>100.0%</b>	<b>164,903</b>	<b>100.0%</b>

#### 4.5 Daily vehicle trip origins by goods category

Printed matter, fabricated metal, and food or kindred were the three most common commodities carried by vehicles delivering goods throughout the Edmonton Region. Printed matter is one of the more common commodities as it includes newspaper shipments.

As expected, the northwest and southeast suburbs generate the most goods trips across most goods categories. Printed matter is the most common product shipped from the central area of Edmonton.

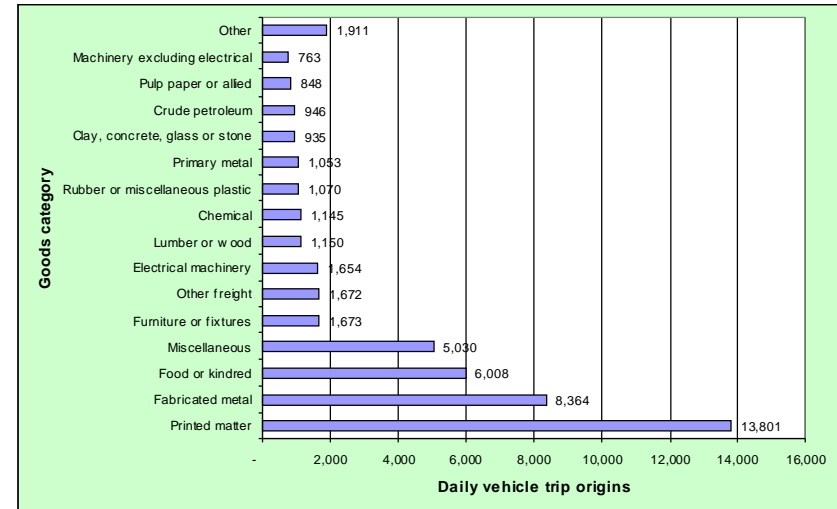


Figure 24 - Daily vehicle trip origins by goods category

Table 15 - Daily vehicle trip origins by goods category and geographic sector

Sector	Printed matter	Fabricated metal	Food or kindred	Misc.	Furniture or fixtures	Other freight	Electrical machinery	Lumber or wood	Chemical	Rubber or misc. plastic	Primary metal	Clay, concrete, glass, stone	Crude petroleum	Pulp paper or allied	Machinery excluding electrical	Other	Total
1 Central	1,053	138	340	138	59	27	45	4	10	21	4	13	3	34	20	67	1,975
2 University	96	51	124	34	31	7	7	7	12	4	5	-	2	2	2	7	391
3 Central Fringe	897	159	378	237	98	33	41	8	68	37	6	24	12	23	20	109	2,149
4 NW Inner	421	189	272	242	60	46	42	12	58	35	25	14	12	18	4	77	1,526
5 NE Inner	748	269	435	177	51	32	42	33	81	51	18	33	30	26	10	61	2,096
6 SE Inner	960	539	359	319	96	99	78	30	84	72	63	28	116	66	53	94	3,055
7 SW Inner	316	398	348	153	113	47	54	35	32	25	29	31	15	20	15	53	1,683
8 West Inner	424	38	173	109	75	56	21	14	30	26	-	10	4	23	7	46	1,056
9 NW Suburb	1,846	2,262	1,208	1,099	364	614	492	393	321	276	217	265	183	263	238	476	10,520
10 NE Suburb	267	33	131	60	63	21	19	48	21	15	3	6	9	5	-	14	715
11 Clover Bar	60	41	19	22	11	3	6	19	44	-	9	3	5	2	2	16	262
12 SE Suburb	2,541	2,888	491	1,382	289	426	537	211	155	275	498	140	183	228	306	404	10,955
13 SW Suburb	110	86	357	34	76	18	2	53	13	4	3	2	3	4	2	31	799
14 West Suburb	399	30	213	85	62	62	15	22	23	22	-	12	4	8	4	29	990
<b>Edmonton Total</b>	<b>10,138</b>	<b>7,120</b>	<b>4,849</b>	<b>4,091</b>	<b>1,448</b>	<b>1,492</b>	<b>1,402</b>	<b>890</b>	<b>950</b>	<b>863</b>	<b>879</b>	<b>582</b>	<b>582</b>	<b>723</b>	<b>682</b>	<b>1,484</b>	<b>38,172</b>
15 Sherwood Park	821	316	331	232	88	39	43	75	40	27	39	17	184	67	12	67	2,397
16 St. Albert	685	233	244	46	81	67	33	40	22	21	6	27	4	21	11	54	1,594
<b>Urban Total</b>	<b>11,643</b>	<b>7,669</b>	<b>5,424</b>	<b>4,368</b>	<b>1,617</b>	<b>1,598</b>	<b>1,477</b>	<b>1,004</b>	<b>1,013</b>	<b>911</b>	<b>924</b>	<b>626</b>	<b>769</b>	<b>811</b>	<b>705</b>	<b>1,605</b>	<b>42,164</b>
17 Fort Saskatchewan	339	145	40	90	3	-	25	9	27	8	10	5	-	3	10	15	727
18 Strathcona County	105	21	135	15	-	4	4	5	6	8	3	2	135	-	2	15	461
19 Leduc County	171	58	91	24	4	4	-	22	19	2	3	54	5	4	-	17	477
20 Leduc / Nisku / Airport	466	281	99	399	28	48	98	45	54	128	83	89	24	20	38	93	1,993
21 Parkland County	40	21	7	18	2	-	2	14	2	3	2	2	2	3	4	31	151
22 Highway 16 Corridor	662	108	153	90	14	15	43	46	13	8	18	131	3	5	5	90	1,405
23 Sturgeon County	375	61	60	25	5	2	5	6	10	2	10	28	8	1	-	45	643
<b>Region Total</b>	<b>2,157</b>	<b>695</b>	<b>583</b>	<b>662</b>	<b>56</b>	<b>74</b>	<b>177</b>	<b>146</b>	<b>132</b>	<b>159</b>	<b>129</b>	<b>309</b>	<b>177</b>	<b>37</b>	<b>58</b>	<b>306</b>	<b>5,859</b>
<b>CMA Total</b>	<b>13,801</b>	<b>8,364</b>	<b>6,008</b>	<b>5,030</b>	<b>1,673</b>	<b>1,672</b>	<b>1,654</b>	<b>1,150</b>	<b>1,145</b>	<b>1,070</b>	<b>1,053</b>	<b>935</b>	<b>946</b>	<b>848</b>	<b>763</b>	<b>1,911</b>	<b>48,023</b>

#### 4.6 Daily vehicle trip origins by service category

Transportation services, municipal government and personal / miscellaneous services were the three most common service visit categories. Transportation service trips are predominantly trips made by courier companies.

Again, most trips originate in the northwest and southeast suburbs. About 10% of all transportation service trips originate from the central and central fringe areas of Edmonton.

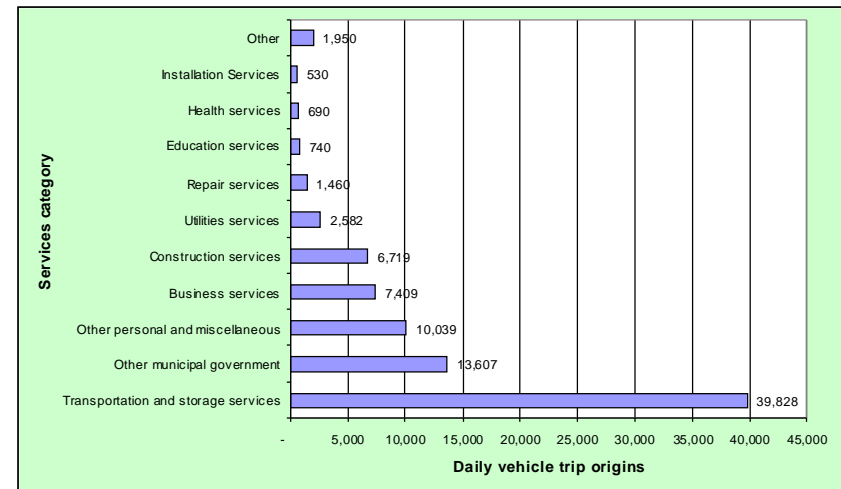


Figure 25 - Daily vehicle trip origins by service category

Table 16 - Daily vehicle trip origins by service category and geographic sector

Sector	Transportation and storage services	Other municipal government	Other personal and miscellaneous	Business services	Construction services	Utilities services	Repair services	Education services	Health services	Installation Services	Other	Total
1 Central	1,563	409	434	507	122	54	30	17	3	35	162	3,336
2 University	278	318	189	94	38	8	7	20	18	13	36	1,019
3 Central Fringe	2,090	554	900	570	319	140	101	68	11	72	119	4,944
4 NW Inner	1,162	764	320	279	219	234	96	18	3	24	79	3,198
5 NE Inner	1,635	1,490	513	300	424	314	106	12	17	19	100	4,932
6 SE Inner	1,650	705	612	436	550	118	87	39	30	27	127	4,382
7 SW Inner	1,234	1,069	708	366	294	55	88	43	12	14	80	3,963
8 West Inner	1,556	167	502	186	195	86	45	43	20	6	82	2,889
9 NW Suburb	8,992	2,677	1,664	1,307	1,248	269	309	49	37	91	176	16,819
10 NE Suburb	530	628	197	121	243	74	51	15	10	16	69	1,954
11 Clover Bar	411	119	89	34	52	118	-	6	7	-	4	841
12 SE Suburb	6,566	2,268	1,850	1,165	1,168	369	189	89	86	63	321	14,134
13 SW Suburb	622	656	407	132	229	69	29	22	4	10	42	2,222
14 West Suburb	1,036	131	387	174	269	70	45	37	25	22	78	2,272
<b>Edmonton Total</b>	<b>29,327</b>	<b>11,954</b>	<b>8,771</b>	<b>5,671</b>	<b>5,372</b>	<b>1,977</b>	<b>1,185</b>	<b>477</b>	<b>283</b>	<b>414</b>	<b>1,473</b>	<b>66,904</b>
15 Sherwood Park	2,635	238	511	346	291	25	64	224	326	42	80	4,783
16 St. Albert	3,870	514	156	361	247	196	21	-	1	53	93	5,511
<b>Urban Total</b>	<b>35,832</b>	<b>12,706</b>	<b>9,438</b>	<b>6,378</b>	<b>5,909</b>	<b>2,198</b>	<b>1,271</b>	<b>701</b>	<b>610</b>	<b>509</b>	<b>1,646</b>	<b>77,199</b>
17 Fort Saskatchewan	374	48	73	60	49	13	31	14	4	-	17	684
18 Strathcona County	186	16	53	86	90	21	9	17	15	2	19	515
19 Leduc County	438	258	34	73	123	49	27	-	6	-	36	1,045
20 Leduc / Nisku / Airport	1,268	410	315	294	207	104	61	8	11	8	108	2,794
21 Parkland County	129	22	8	36	47	24	6	-	3	-	13	288
22 Highway 16 Corridor	1,108	15	61	119	182	140	47	-	3	8	79	1,761
23 Sturgeon County	493	132	56	363	111	34	7	-	38	3	32	1,269
<b>Region Total</b>	<b>3,996</b>	<b>901</b>	<b>601</b>	<b>1,032</b>	<b>810</b>	<b>383</b>	<b>189</b>	<b>39</b>	<b>80</b>	<b>20</b>	<b>304</b>	<b>8,355</b>
<b>CMA Total</b>	<b>39,828</b>	<b>13,607</b>	<b>10,039</b>	<b>7,409</b>	<b>6,719</b>	<b>2,582</b>	<b>1,460</b>	<b>740</b>	<b>690</b>	<b>530</b>	<b>1,950</b>	<b>85,554</b>

## 4.7 Vehicle trips by time of day

The time of day when a vehicle trip takes place is defined as the average time between when the trip leaves its' origin and when it arrives at its' destination.

The distribution of vehicle trips by time of day is similar for each vehicle type. Goods and service vehicle trips quickly rise to a peak between 7:00AM and 10:00AM and then gradually taper off during the rest of the day. The peak hour for all commodity movement vehicle trips is 9:00AM to 10:00AM when 12% of the daily vehicle trips occur.

During the 7:00AM to 9:00AM AM peak period, 15% of daily commodity vehicle trips take place.

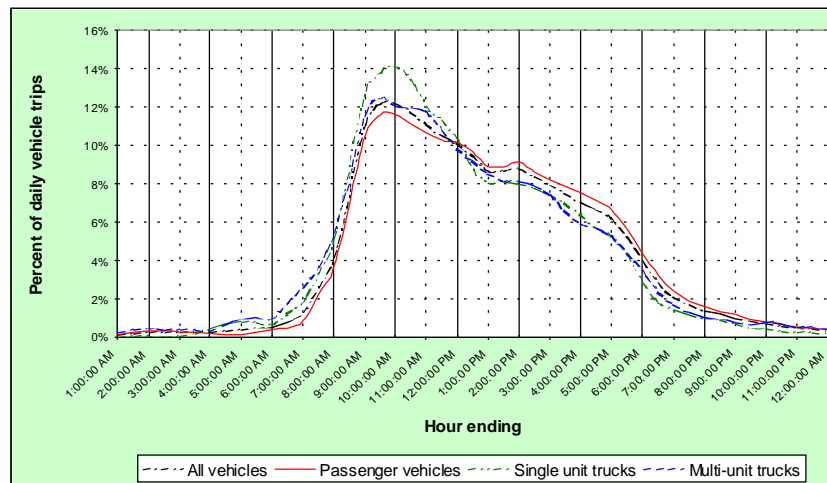


Figure 26 - Distribution of vehicle trips by vehicle type and time of day

Note: The percentages in Table 17 and Figure 26 for each half-hour period represent the percent of daily (24 hour) trips for the previous hour. For example, 11.12% of all daily vehicle trips occurred between 8am and 9am while 7.63% of all daily vehicle trips occurred between 7:30am and 8:30am.

Table 17 - Distribution of vehicle trips by vehicle type and time of day

Hour ending	% of daily vehicle trips	% of daily passenger vehicle trips	% of daily single unit vehicle trips	% of daily multi unit vehicle trips
1:00:00 AM	0.12%	0.13%	0.01%	0.24%
1:30:00 AM	0.20%	0.22%	0.03%	0.35%
2:00:00 AM	0.25%	0.29%	0.04%	0.40%
2:30:00 AM	0.24%	0.29%	0.02%	0.36%
3:00:00 AM	0.22%	0.25%	0.05%	0.35%
3:30:00 AM	0.22%	0.21%	0.19%	0.32%
4:00:00 AM	0.23%	0.16%	0.40%	0.27%
4:30:00 AM	0.29%	0.12%	0.67%	0.63%
5:00:00 AM	0.35%	0.11%	0.75%	0.95%
5:30:00 AM	0.45%	0.25%	0.73%	1.03%
6:00:00 AM	0.50%	0.36%	0.67%	0.95%
6:30:00 AM	0.77%	0.47%	1.16%	1.75%
7:00:00 AM	1.26%	0.83%	1.88%	2.54%
7:30:00 AM	2.56%	2.13%	3.33%	3.64%
8:00:00 AM	4.20%	3.67%	5.18%	5.45%
8:30:00 AM	7.63%	7.04%	9.11%	8.41%
9:00:00 AM	11.12%	10.50%	12.84%	11.66%
9:30:00 AM	12.15%	11.59%	13.78%	12.49%
10:00:00 AM	12.17%	11.59%	14.13%	12.07%
10:30:00 AM	11.70%	11.13%	13.39%	11.96%
11:00:00 AM	11.08%	10.68%	12.02%	11.69%
11:30:00 AM	10.51%	10.25%	11.23%	10.72%
12:00:00 PM	10.08%	10.09%	10.25%	9.78%
12:30:00 PM	9.38%	9.63%	8.67%	9.16%
1:00:00 PM	8.64%	8.85%	8.05%	8.50%
1:30:00 PM	8.62%	8.87%	8.09%	8.14%
2:00:00 PM	8.77%	9.12%	8.00%	8.14%
2:30:00 PM	8.33%	8.59%	7.78%	7.88%
3:00:00 PM	7.94%	8.20%	7.41%	7.36%
3:30:00 PM	7.50%	7.84%	6.95%	6.56%
4:00:00 PM	7.03%	7.45%	6.35%	5.89%
4:30:00 PM	6.67%	7.14%	5.75%	5.66%
5:00:00 PM	6.17%	6.63%	5.23%	5.21%
5:30:00 PM	5.18%	5.63%	4.21%	4.36%
6:00:00 PM	3.94%	4.38%	2.80%	3.42%
6:30:00 PM	2.79%	3.18%	1.81%	2.34%
7:00:00 PM	2.11%	2.38%	1.46%	1.71%
7:30:00 PM	1.65%	1.87%	1.16%	1.28%
8:00:00 PM	1.39%	1.57%	0.99%	1.02%
8:30:00 PM	1.19%	1.33%	0.87%	0.92%
9:00:00 PM	1.00%	1.13%	0.71%	0.73%
9:30:00 PM	0.81%	0.94%	0.49%	0.66%
10:00:00 PM	0.68%	0.74%	0.41%	0.78%
10:30:00 PM	0.57%	0.64%	0.28%	0.68%
11:00:00 PM	0.47%	0.53%	0.22%	0.50%
11:30:00 PM	0.43%	0.48%	0.23%	0.50%
12:00:00 AM	0.31%	0.35%	0.15%	0.38%

The travel time distribution from the survey is similar to the distribution observed on major roadway corridors in the City of Edmonton.

On the Capilano Bridge for example, truck traffic rises to a peak between 7:00AM and 10:00AM, and then falls during the remainder of the day. On the Yellowhead Trail, east of 107 Street, truck traffic peaks at around 10:00AM and then remains at about the same level until dropping off starting at about 3:00PM.

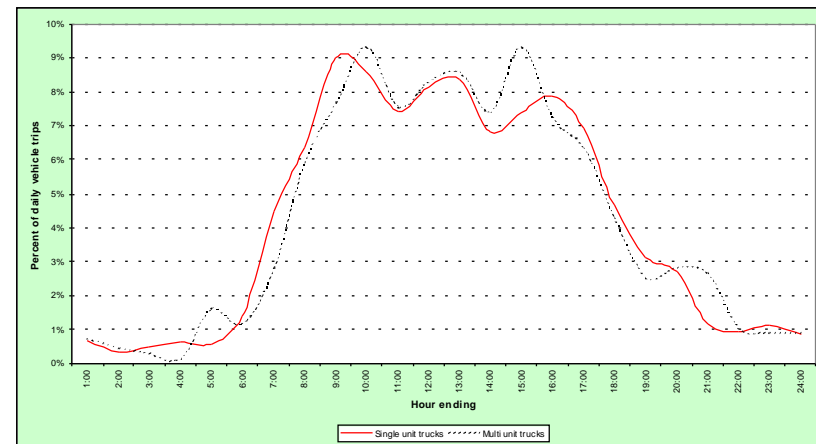


Figure 27 - Distribution of truck trips by time of day on the Capilano Bridge (2000)

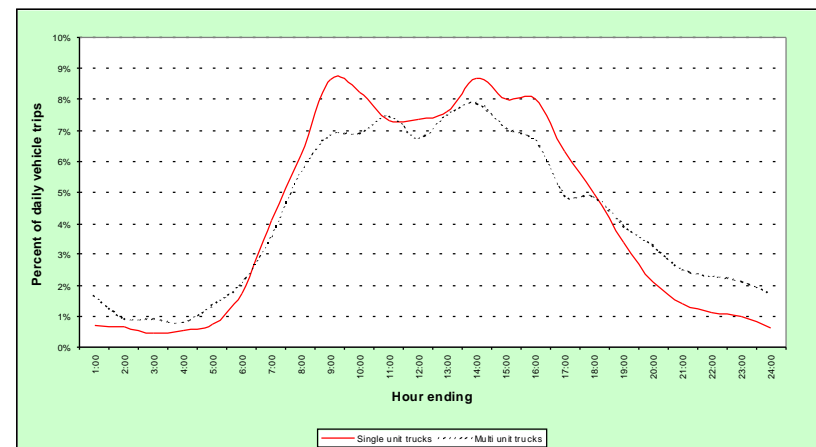


Figure 28 - Distribution of truck trips by time of day on the Yellowhead Trail east of 107 St (2000)

## 5 Vehicle Trip Origins and Destinations

The origins and destinations of the daily vehicle trips are presented in the following tables and figures.

Each table presents the daily vehicle trip origin and destinations to, from and within each of the 23 sectors of the Edmonton CMA. The first column of each table lists the origin sector while the first row shows the destination sector. For example, to determine the number of trips with an origin in the northwest suburb and a destination in the southeast suburb, find the northwest suburb in the first column and follow the row along until the southeast suburb column is reached. In Table 18, the value is 2,980 daily vehicle trips.

The row totals show the total number of daily trips that originate in each sector while the column totals show the total daily trips with a destination in each sector. As daily trips are presented, the row and column totals are nearly identical.

Three maps illustrating the magnitude of the travel desires between the trip origins and destinations follow each origin-destination table. The first map illustrates the travel desires for trips within the City of Edmonton, St. Albert and Sherwood Park. The second map depicts travel desires for trips between the Region and Edmonton, St. Albert and Sherwood Park. The third map shows trips with both an origin and a destination within the Region.

The origin and destination tables and figures are presented for each of the three vehicle types; passenger vehicles, single-unit trucks and multi-unit trucks.

Table 18 - Daily origins and destinations (all vehicles)

	Destination																							CMA Total	% of CMA			
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23					
Origin	Central	Univ.	Fringe	NW Inner	NE Inner	SE Inner	SW Inner	West Inner	NW Suburb	NE Suburb	Clover Bar	SE Suburb	SW Suburb	West Suburb	Edmonton	Sher.	St. Albert	Urban	Fort. Sask.	Strath. County	Leduc County	Lead. - Airport	Park County	Hwy 16 Corridor	Stur. County	Region Total		
1 Central	2,013	86	1,772	255	297	198	134	127	642	124	9	393	40	80	6,170	109	61	6,341	23	20	13	43	3	56	23	181		
2 University	52	293	92	19	38	156	409	51	167	16	16	203	229	36	1,779	28	16	1,823	4	2	9	9	-	9	4	37		
3 Central Fringe	1,795	127	2,665	448	527	250	198	355	844	166	24	457	107	211	8,174	140	120	8,434	19	24	42	71	8	61	59	284		
4 NW Inner	219	17	505	1,006	962	162	107	150	1,654	329	39	385	64	75	5,673	105	126	5,904	19	16	35	33	7	49	31	190		
5 NE Inner	374	32	513	927	2,873	243	108	112	1,283	943	28	456	66	83	8,041	187	89	8,317	41	21	13	62	16	52	48	253		
6 SE Inner	174	146	221	158	242	1,866	521	148	798	88	105	3,677	163	136	8,442	515	43	9,000	46	52	33	149	20	60	17	376		
7 SW Inner	86	415	182	136	106	537	1,940	229	462	39	30	1,467	924	165	6,720	153	47	6,920	15	10	27	126	-	30	5	213		
8 West Inner	116	53	352	136	124	145	190	1,162	1,103	42	13	321	118	771	4,645	85	117	4,846	9	10	10	17	20	33	13	114		
9 NW Suburb	617	144	821	1,733	1,254	783	525	1,193	17,832	513	125	2,980	300	946	29,766	581	828	31,175	121	76	127	431	102	392	183	1,431		
10 NE Suburb	119	15	169	297	936	84	53	42	518	639	16	205	27	40	3,159	100	68	3,327	26	9	5	7	2	25	27	102		
11 Clover Bar	7	2	23	37	40	172	36	6	123	10	132	375	19	11	992	171	4	1,167	7	19	3	23	2	5	8	67		
12 SE Suburb	422	204	477	427	419	3,598	1,450	320	2,605	171	405	15,343	511	321	26,672	1,613	145	28,429	129	142	106	688	29	179	64	1,337		
13 SW Suburb	44	228	98	54	71	125	945	120	271	41	17	486	1,008	116	3,625	64	25	3,715	1	10	11	62	4	20	9	117		
14 West Suburb	62	24	162	102	89	130	143	753	961	51	12	332	130	982	3,932	56	56	4,044	8	7	25	20	43	6	129	4		
Edmonton Total	6,100	1,786	8,052	5,735	7,979	8,450	6,760	4,768	29,261	3,172	970	27,078	3,705	3,973	117,790	3,906	1,746	123,441	467	419	460	1,740	233	1,013	499	4,831		
15 Sherwood Park	121	26	130	98	166	523	185	73	529	98	104	1,477	58	63	3,651	4,612	65	8,329	100	191	18	105	24	65	37	541		
16 St. Albert	87	20	94	143	130	57	34	63	795	62	9	161	20	54	1,732	56	6,709	8,498	18	14	27	50	16	65	148	339		
Urban Total	6,308	1,832	8,277	5,976	8,276	9,031	6,979	4,905	30,586	3,332	1,084	28,716	3,783	4,090	123,173	8,574	8,520	140,268	585	625	506	1,896	273	1,143	684	5,711		
17 Fort Saskatchewan	16	9	25	18	31	41	8	14	127	7	8	120	1	4	430	66	37	532	1,038	78	33	83	2	38	78	1,349		
18 Strathcona County	32	-	23	10	13	76	14	6	64	15	23	116	8	8	406	288	12	706	102	281	49	95	6	33	43	610		
19 Leduc County	17	6	32	10	21	35	24	3	144	4	3	118	16	11	445	20	23	488	45	49	912	372	31	135	60	1,605		
20 Leduc / Nisku / Airport	51	18	49	44	60	132	95	26	410	9	24	712	34	21	1,685	110	55	1,850	65	89	325	3,689	41	193	104	4,505		
21 Parkland County	13	3	11	16	6	13	2	18	96	5	3	20	2	13	221	22	12	255	6	15	37	47	157	142	32	436		
22 Highway 16 Corridor	45	4	62	31	54	64	35	30	346	29	12	163	32	56	965	45	59	1,069	34	40	162	159	173	2,274	78	2,919		
23 Sturgeon County	14	3	41	25	51	19	17	2	202	27	49	61	7	11	529	27	147	703	55	65	56	96	22	73	1,531	1,897		
Region Total	187	43	242	153	236	380	196	100	1,390	96	121	1,311	99	124	4,680	578	346	5,604	1,344	617	1,573	4,541	430	2,889	1,926	13,320		
CMA Total	6,496	1,875	8,519	6,130	8,511	9,411	7,174	5,005	31,976	3,428	1,205	30,027	3,882	4,214	127,852	9,153	8,866	145,871	1,929	1,242	2,079	6,437	704	4,032	2,610	19,031		
% of CMA	3.9%	1.1%	5.2%	3.7%	5.2%	5.7%	4.4%	3.0%	19.4%	2.1%	0.7%	18.2%	2.4%	2.6%	77.5%	5.6%	5.4%	88.5%	1.2%	0.8%	1.3%	3.9%	0.4%	2.4%	1.6%	11.5%		
Inner City - Inner City	30,055	25.5%	City - City										117,790	71.4%	Trips originating in City						128,272	77.8%	City intrazonal trips				49,755	30.2%
Inner City - City Suburb	19,587	16.6%	City - Sherwood Park/St. Albert										5,652	3.4%	Trips originating in Sherwood Park/St. Albert						17,706	10.7%	City interzonal trips				78,518	47.6%
City Suburb - Inner City	19,574	16.6%	City - Region										4,831	2.9%	Trips originating in Region						18,924	11.5%	Sherwood Park/St. Albert intrazonal trips				11,322	6.9%
City Suburb - City Suburb	48,573	41.2%	Sherwood Park/St. Albert - City										5,383	3.3%	Trips with destination in City						127,852	77.5%	Sherwood Park/St. Albert interzonal trips				6,385	3.9%
Total City Trips	117,790	100.0%	Sherwood Park/St. Albert - Sherwood Park/St. Albert										11,443	6.9%	Trips with destination in Sherwood Park/St. Albert						18,019	10.9%	Region intrazonal trips				9,882	6.0%
			Sherwood Park/St. Albert - Region										880	0.5%	Trips with destination in Region						19,031	11.5%	Region interzonal trips				9,042	5.5%
			Region - City										4,680	2.8%									Total CMA Trips				164,903	100.0%
			Region - Sherwood Park/St. Albert										924	0.6%														
			Region - Region										13,320	8.1%														
			Total CMA Trips										164,903	100.0%														

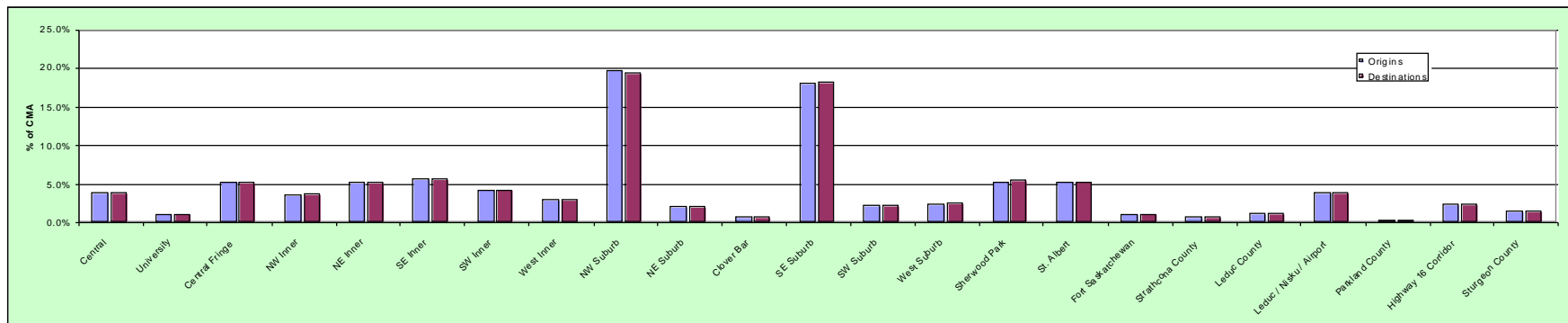
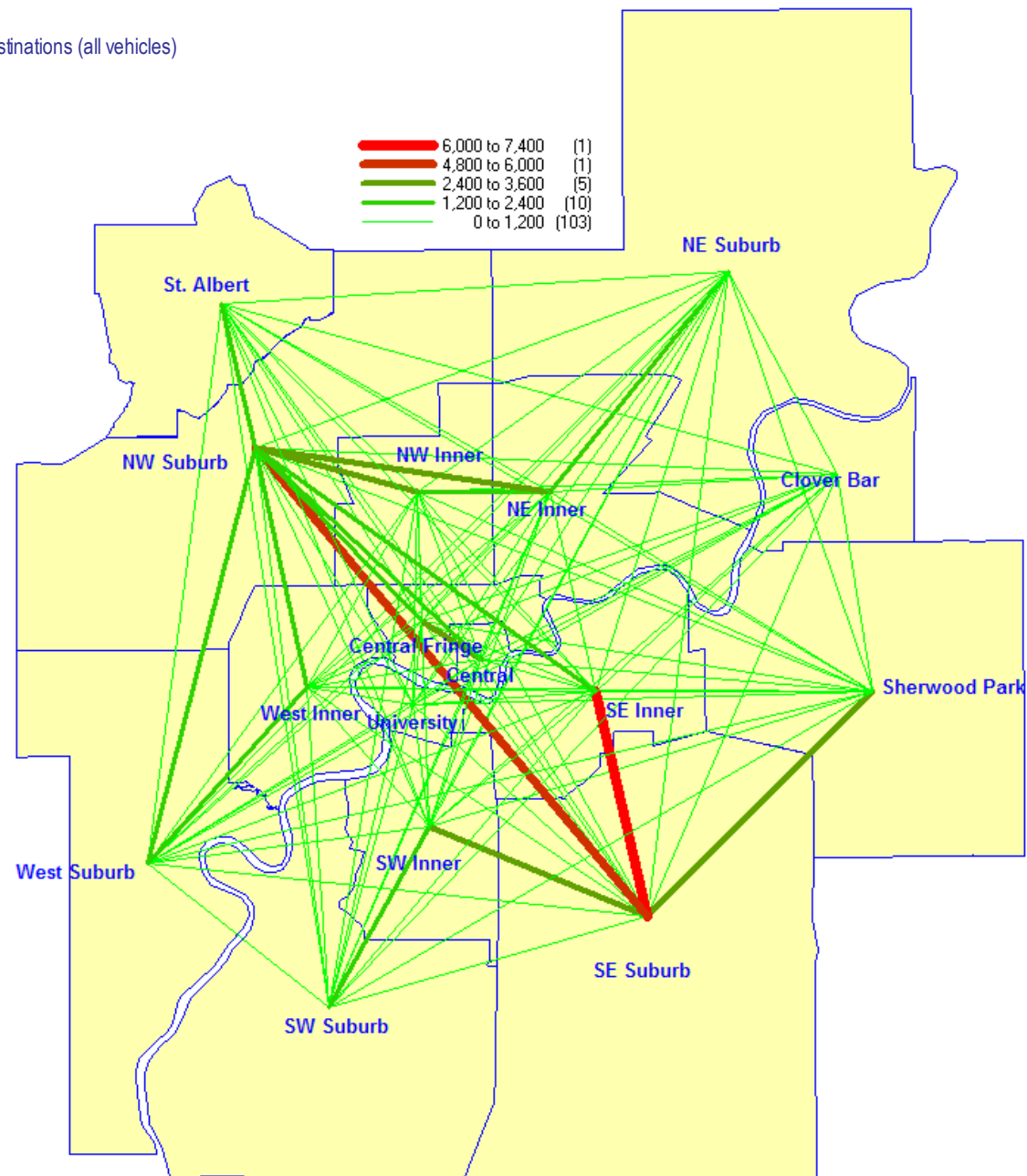


Figure 29 - Daily urban origins and destinations (all vehicles)





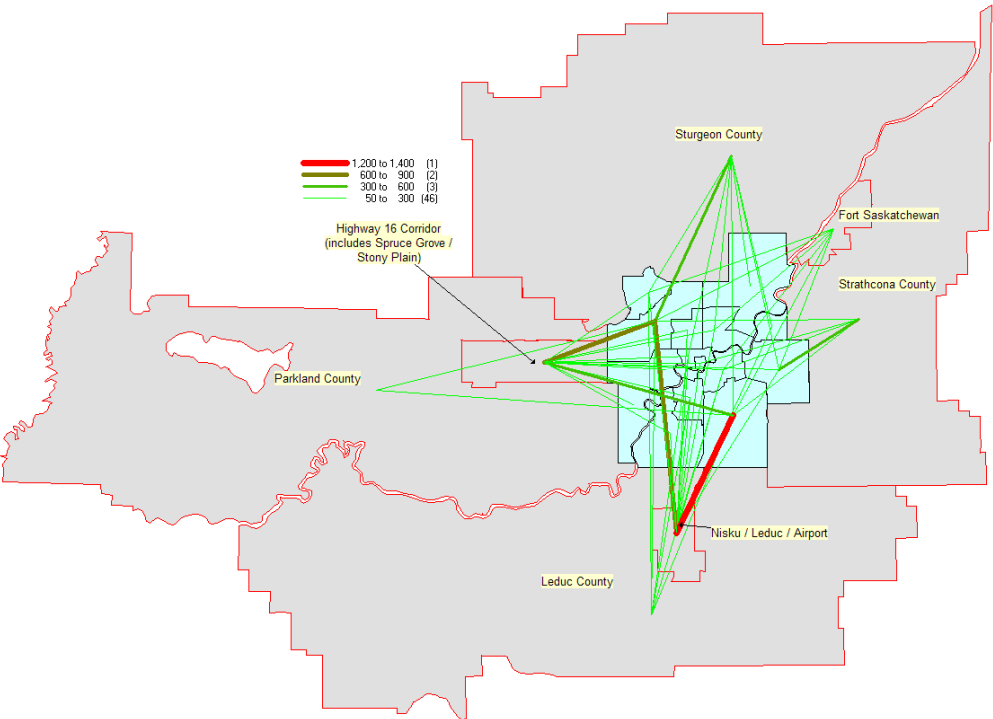


Figure 30 – Daily Region to City origins and destinations (all vehicles)

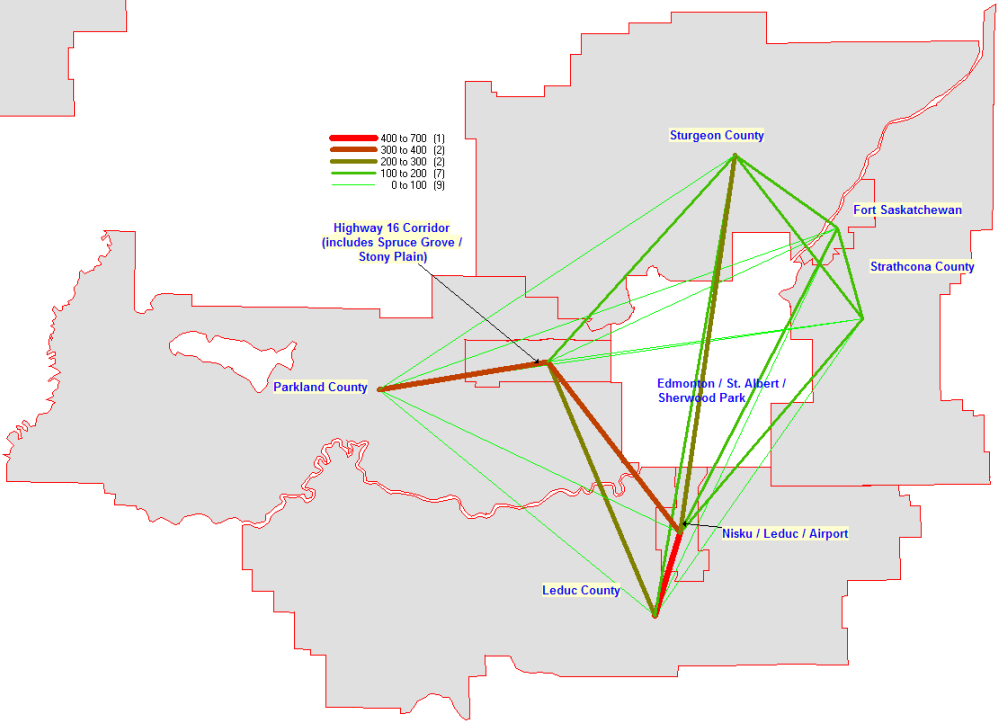


Figure 31 – Daily Region to Region origins and destinations (all vehicles)

Table 19 – Daily passenger vehicle trips

	Destination																								CMA Total	% of CMA
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23			
Origin	Central	Univ.	Central Fringe	NW Inner	NE Inner	SE Inner	SW Inner	West Inner	NW Suburb	NE Suburb	Clover Bar	SE Suburb	SW Suburb	West Suburb	Edmonton Total	Sher. Park	St. Albert	Urban Total	Fort. Sask.	Strath. County	Leduc County	Leduc - Nisk. - Airport	Park County	Hwy 16 Corridor	Stur. County	Region Total
1 Central	1,291	83	1,155	129	135	156	102	100	426	69	3	291	40	59	4,040	85	54	4,179	17	20	12	31	3	56	18	157
2 University	49	162	86	17	31	125	209	39	114	16	4	128	98	27	1,107	18	14	1,138	4	2	7	6	6	4	28	
3 Central Fringe	1,170	115	1,839	305	272	194	162	233	532	91	12	315	99	128	5,467	74	110	5,652	13	20	39	62	5	32	25	195
4 NW Inner	126	12	336	621	498	122	86	111	821	160	5	241	56	43	3,238	66	104	3,408	19	5	30	19	5	31	24	132
5 NE Inner	184	30	269	472	1,517	188	72	103	628	434	6	275	52	72	4,302	126	77	4,505	23	11	13	42	12	17	33	150
6 SE Inner	139	109	170	123	187	1,167	345	94	432	47	52	2,038	93	89	5,085	292	23	5,400	30	31	24	85	15	43	12	238
7 SW Inner	65	210	144	112	74	361	1,009	180	287	26	9	907	458	141	3,983	89	36	4,108	8	5	22	103	20	2	160	
8 West Inner	101	46	213	111	107	95	149	614	575	31	1	178	94	460	2,776	62	109	2,947	8	8	9	12	8	16	6	68
9 NW Suburb	406	111	501	876	615	371	336	627	7,091	229	26	1,240	200	553	13,181	246	619	14,046	49	42	63	188	55	182	75	654
10 NE Suburb	66	15	85	126	441	46	41	33	261	362	7	126	26	29	1,663	75	51	1,789	21	7	3	5	2	18	22	77
11 Clover Bar			6	3	13	71	13	2	20	6	25	157	7	1	323	45	25	368	2	6	2	6			15	383
12 SE Suburb	302	112	328	291	272	1,956	914	202	1,155	118	173	8,548	323	172	14,867	857	80	15,803	59	78	65	419	15	107	40	782
13 SW Suburb	39	87	87	40	60	78	488	98	183	34	2	270	665	99	2,231	44	22	2,287	1	10	9	39	2	9	7	77
14 West Suburb	44	20	106	70	68	79	107	437	561	46	1	191	93	624	2,448	46	40	2,535	6	3	23	12	31	6	88	2,623
Edmonton Total	3,982	1,112	5,325	3,296	4,290	5,010	4,033	2,875	13,087	1,670	328	14,903	2,305	2,497	64,711	2,124	1,339	68,174	258	246	320	1,028	129	567	276	2,823
15 Sherwood Park	91	19	80	62	105	300	102	66	230	73	41	847	46	31	2,093	3,801	40	5,933	54	101	10	40	7	27	13	252
16 St. Albert	76	17	87	125	102	37	20	57	602	52		104	14	45	1,338	42	5,568	6,948	5	5	16	37	10	41	115	230
Urban Total	4,149	1,148	5,492	3,483	4,497	5,347	4,154	2,998	13,919	1,795	369	15,855	2,364	2,573	68,142	5,967	6,946	81,055	317	352	346	1,105	146	635	404	3,306
17 Fort Saskatchewan	14	9	23	10	15	24	6	13	62	7	5	56	1	4	249	45	24	318	676	54	20	38	23	44	855	1,173
18 Strathcona County	30	21	6	10	50	14	6	38	12	2	58	3	4	253	101	8	362	72	123	20	50	2	22	16	304	
19 Leduc County	16	4	27	9	18	25	15	3	56	3	2	73	12	8	271	19	16	305	29	20	512	205	13	32	34	845
20 Leduc / Nisku / Airport	41	15	42	30	44	86	74	18	193	4	4	432	23	14	1,021	41	38	1,100	28	53	181	2,136	18	90	51	2,557
21 Parkland County	8	3	10	8	3	5	2	6	60	5		16	7	132	7	8	147	4	2	18	18	98	95	17	251	
22 Highway 16 Corridor	39	2	29	19	25	37	32	14	185	15	4	95	18	41	556	16	43	615	19	23	51	82	122	1,481	47	1,825
23 Sturgeon County	11	3	13	19	35	14	15	1	76	19		28	7	8	248	12	123	383	31	34	30	58	15	44	1,034	
Region Total	159	36	164	101	150	240	159	61	670	64	16	758	64	87	2,730	240	260	3,231	859	309	831	2,586	268	1,787	1,244	
CMA Total	4,308	1,184	5,657	3,584	4,647	5,587	4,313	3,058	14,589	1,859	385	16,613	2,428	2,660	70,872	6,207	7,206	84,286	1,176	662	1,177	3,691	414	2,422	1,648	
% of CMA	4.5%	1.2%	5.9%	3.8%	4.9%	5.9%	4.5%	3.2%	15.3%	1.9%	0.4%	17.4%	2.5%	2.8%	74.2%	6.5%	7.5%	88.3%	1.2%	0.7%	1.2%	3.9%	0.4%	2.5%	1.7%	
Inner City - Inner City	18,833	29.1%	City - City				64,711	67.8%	Trips originating in City				70,997	74.4%	City intrazonal trips				25,536	26.7%						
Inner City - City Suburb	11,165	17.3%	City - Sherwood Park/St. Albert				3,462	3.6%	Trips originating in Sherwood Park/St. Albert				13,364	14.0%	City interzonal trips				45,461	47.6%						
City Suburb - Inner City	11,089	17.1%	City - Region				2,823	3.0%	Trips originating in Region				11,115	11.6%	Sherwood Park/St. Albert intrazonal trips				9,368	9.8%						
City Suburb - City Suburb	23,624	36.5%	Sherwood Park/St. Albert - City				3,431	3.6%	Trips with destination in City				70,872	74.2%	Sherwood Park/St. Albert interzonal trips				3,996	4.2%						
Total City Trips	64,711	100.0%	Sherwood Park/St. Albert - Sherwood Park/St. Albert				9,450	9.9%	Trips with destination in Sherwood Park/St. Albert				13,413	14.0%	Region intrazonal trips				6,059	6.3%						
			Sherwood Park/St. Albert - Region				483	0.5%	Trips with destination in Region				11,190	11.7%	Region interzonal trips				5,055	5.3%						
			Region - City				2,730	2.9%							Total CMA Trips				95,475	100.0%						
			Region - Sherwood Park/St. Albert				501	0.5%																		
			Region - Region				7,884	8.3%																		
			Total CMA Trips				95,475	100.0%																		

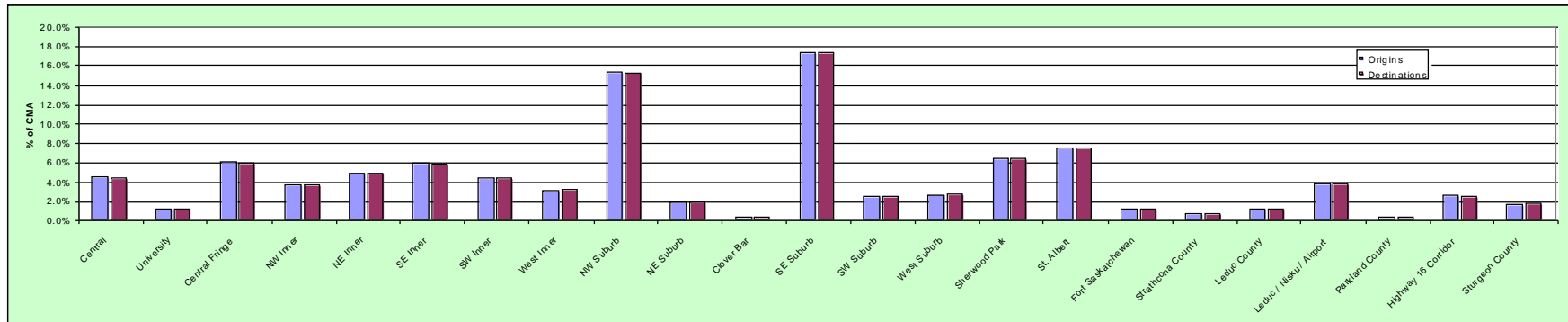
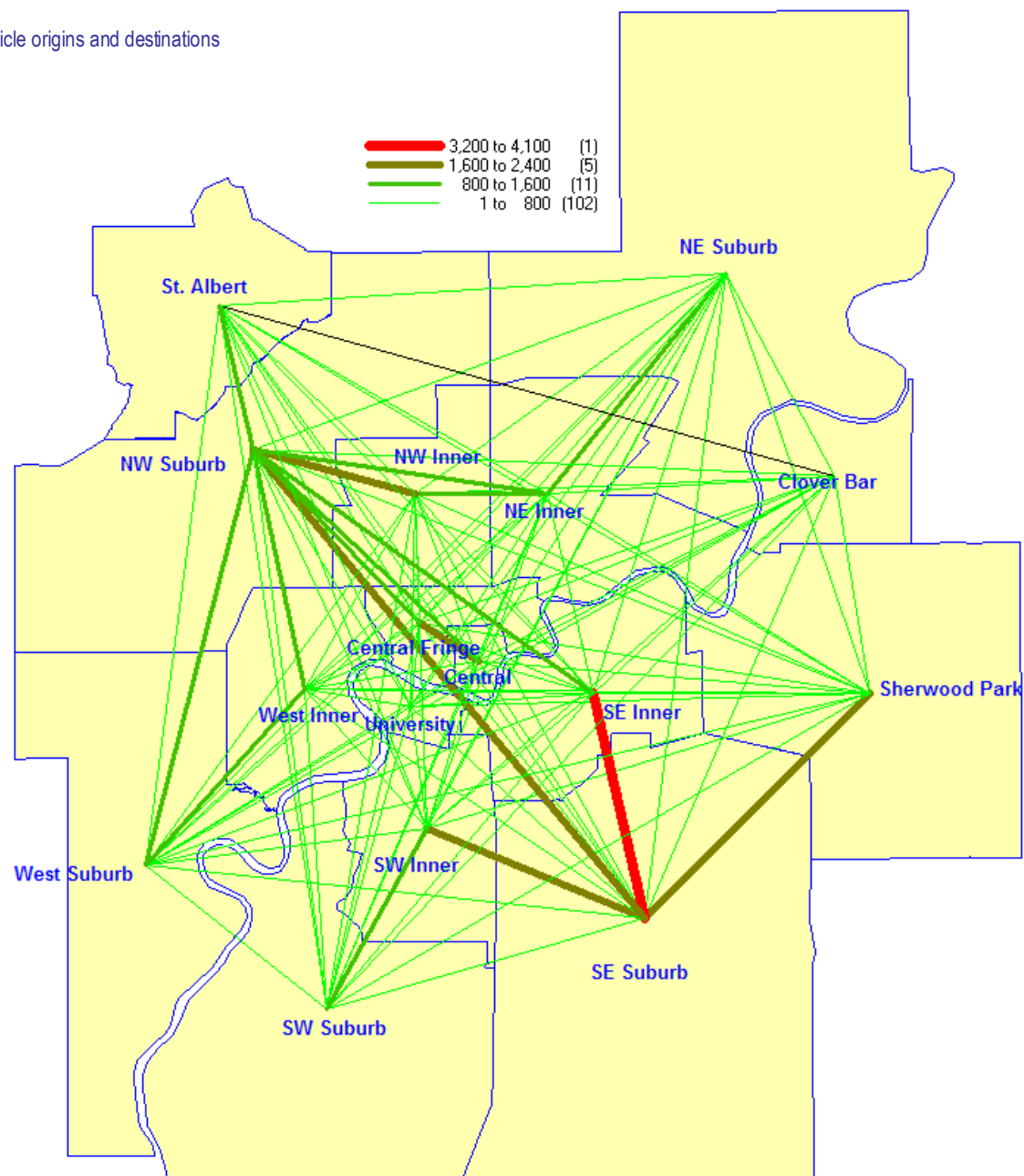


Figure 32 - Daily urban passenger vehicle origins and destinations



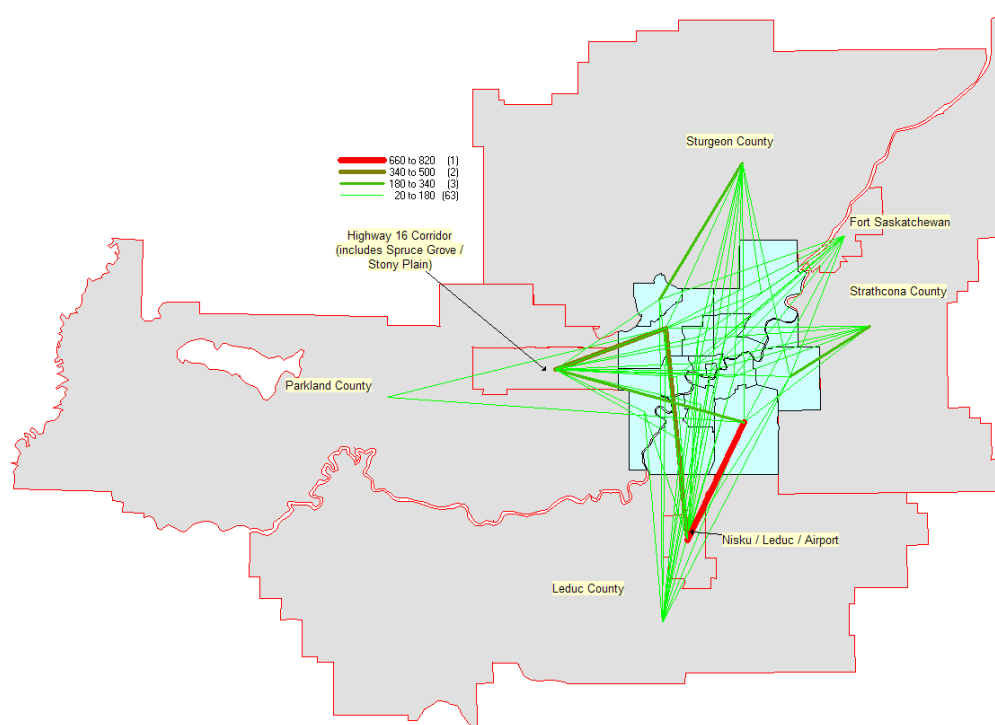


Figure 33 – Daily Region to City origins and destinations (passenger vehicles)

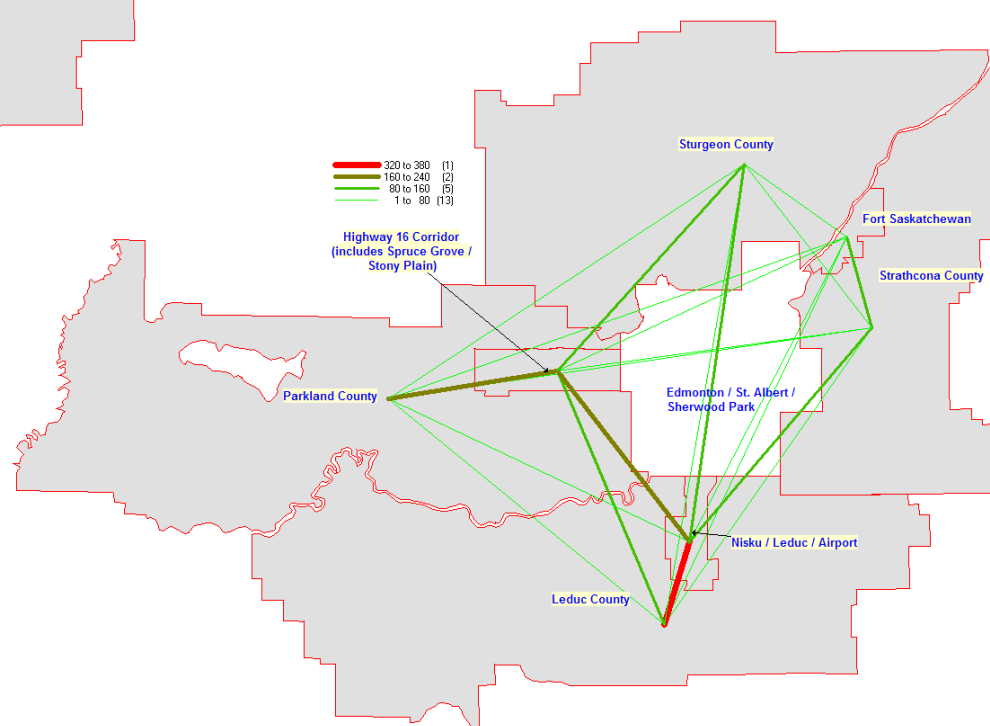


Figure 34 – Daily Region to Region origins and destinations (passenger vehicles)

Table 20 - Daily single unit truck trips

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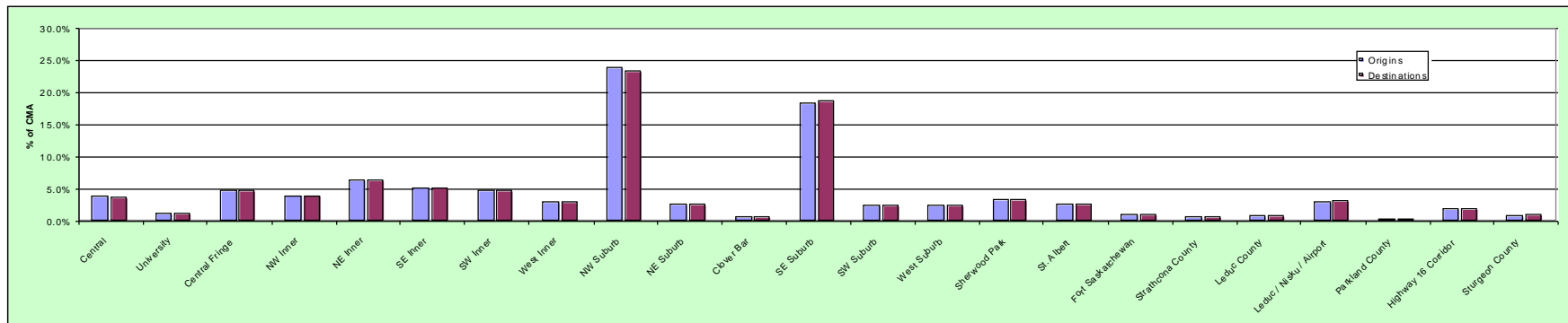
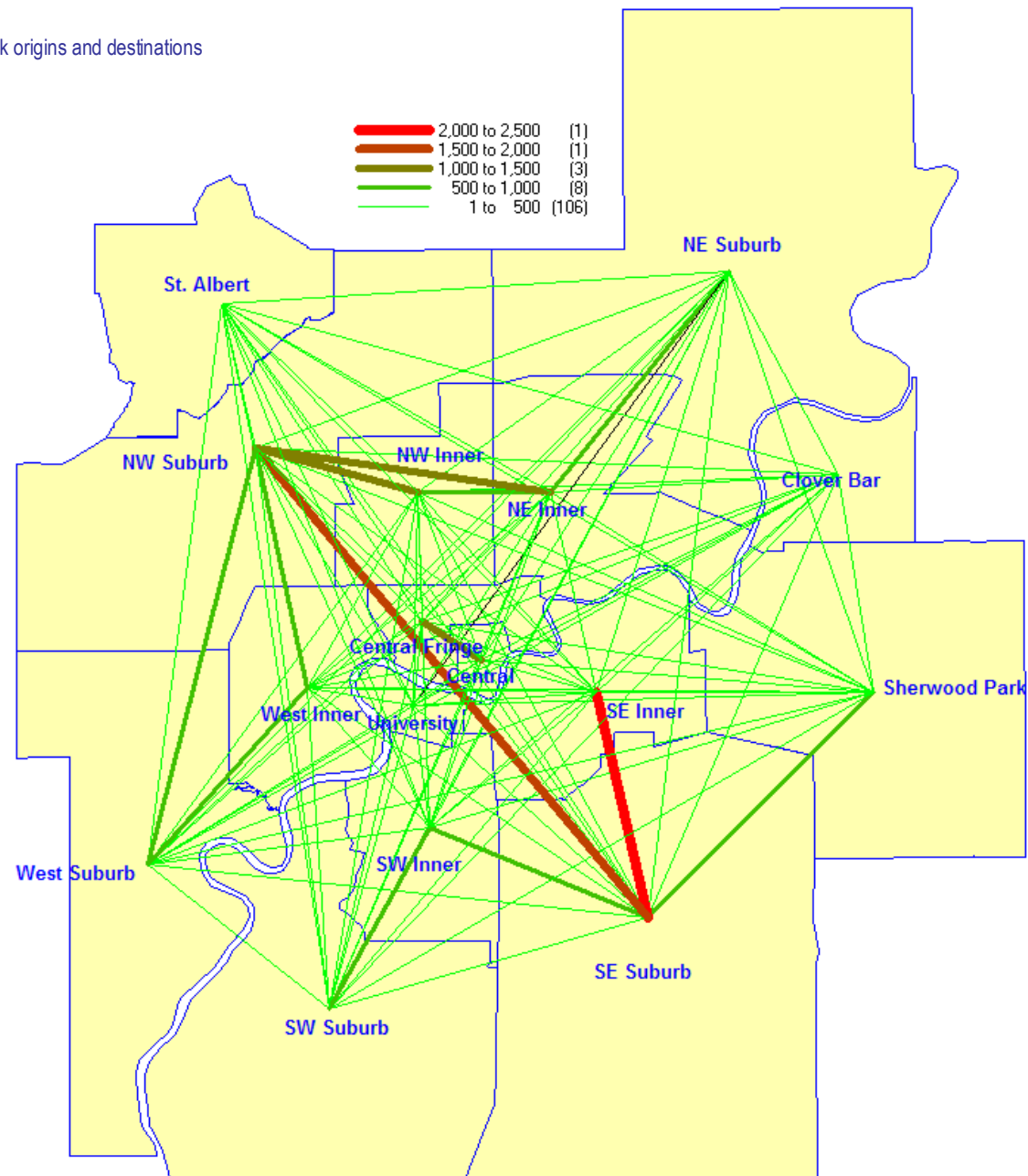


Figure 35 - Daily urban single unit truck origins and destinations



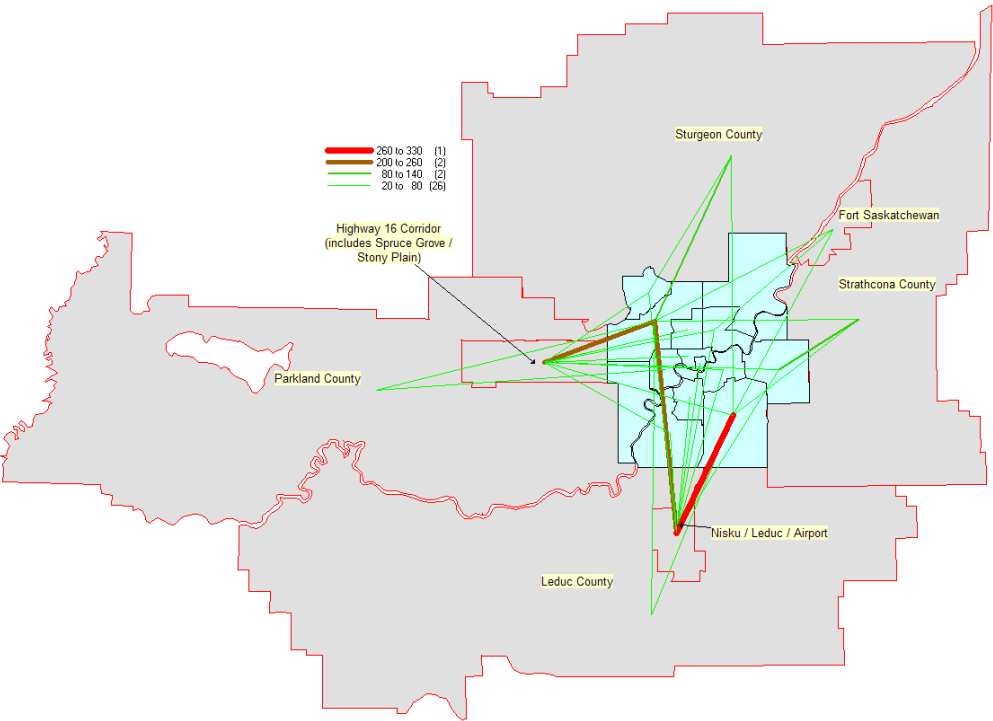


Figure 36 – Daily Region to City origins and destinations (single unit trucks)

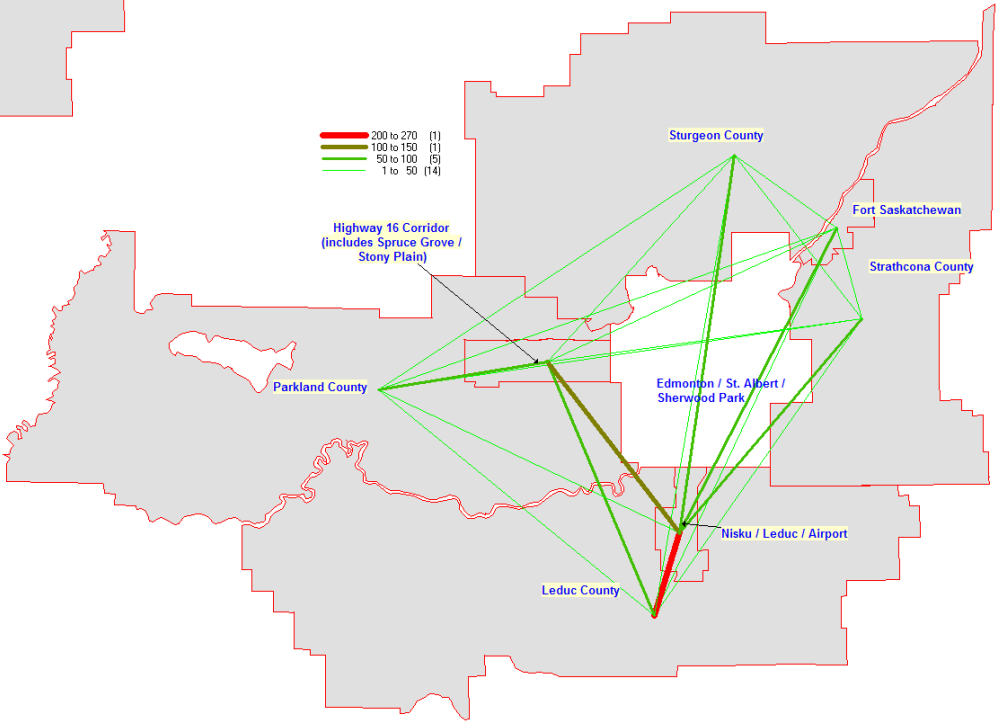


Figure 37 – Daily Region to Region origins and destinations (single unit trucks)

Table 21 - Daily multi-unit truck trips

	Destination																												
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23						
Origin	Central	Univ.	Central Fringe	NW Inner	NE Inner	SE Inner	SW Inner	West Inner	NW Suburb	NE Suburb	Clover Bar	SE Suburb	SW Suburb	West Suburb	Edmonton Total	Sher. Park	St. Albert	Urban Total	Fort. Sask.	Strath. County	Leduc County	Leduc - Nisku - Airport	Park County	Hwy 16 Corridor	Stur. County	Region Total	CMA Total	% of CMA	
1 Central	64		42	11	7	1	5		15			18		5	169	3	4	176							2	6	182	1.1%	
2 University	2	9				6	10		10		2	9	17	1	65			65	4							4	69	0.4%	
3 Central Fringe	49	2	33	13	9	9	5	20	67	3	10	35	2	10	265	24	2	291			2			15	29	46	338	2.0%	
4 NW Inner	3		24	46	42	11	5	8	154	8	27	35		12	375	11	9	395		3	2		2	5	7	21	416	2.4%	
5 NE Inner	5		17	45	141	14	9	4	152	39	8	40	4	3	481	21	4	506	5	14		9			21	6	45	551	3.2%
6 SE Inner	2	6	6	6	10	174	47	6	143	14	10	394	9	11	839	62	7	908	9	14	3	37	2	6	4	73	981	5.7%	
7 SW Inner	4	20	4	9	7	30	52	4	49	4	9	76	23	2	293	11	2	306	3	4		4				15	321	1.9%	
8 West Inner		2	23	5	6	10	6	85	97	2		33	2	36	308	1	3	312				2	1	9	2	15	327	1.9%	
9 NW Suburb	27	5	62	131	137	175	46	111	3,092	42	75	730	29	74	4,733	203	87	5,023	30	15	39	127	23	89	53	376	5,398	31.5%	
10 NE Suburb	4		1	14	29	16	4		38	17	2	10	2	2	138	6	6	151			2					2	153	0.9%	
11 Clover Bar	2		11	27	19	43	7	2	80		7	73		7	279	90	4	373		10		11		5	8	34	407	2.4%	
12 SE Suburb	14	9	24	45	34	420	70	20	570	7	89	1,711	17	23	3,053	265	32	3,351	36	26	9	108	2	33	7	221	3,573	20.8%	
13 SW Suburb		9	7	2	3	7	31	4	17	2		26	25	3	134	2	1	137				7	2	2		11	148	0.9%	
14 West Suburb	7		7	5	4	12	6	39	84	2	7	18	1	32	225	7	9	242			2		4	2		8	250	1.5%	
Edmonton Total	182	62	261	358	450	928	303	304	4,566	138	247	3,207	132	221	11,358	708	171	12,237	87	80	55	312	33	191	117	875	13,112	76.5%	
15 Sherwood Park	4		14	23	27	61	13	7	137	10	36	152	2	13	498	188	11	698	40	34	3	43	10	21	16	169	866	5.1%	
16 St. Albert	4		2	10	17	13		4	86	4	6	23	2	5	177	5	73	255		6	2	3	2	13	11	36	291	1.7%	
Urban Total	190	62	277	391	494	1,002	316	315	4,789	153	288	3,382	135	239	12,033	902	255	13,189	127	119	60	358	45	225	145	1,080	14,269	83.2%	
17 Fort Saskatchewan			2		5	8	1		38		2	22			78	12	4	94	39	7		8			13	67	161	0.9%	
18 Strathcona County				1		17			7			13	22		61	130	3	194		8	5	8	5		7	13	46	241	1.4%
19 Leduc County			2			3			52			25	2		84	2		86	2		240	23	4	74	3	355	440	2.6%	
20 Leduc / Nisku / Airport		2	2	7	6	25	4	4	100	2	17	96	7	3	273	45	6	324	5	7	20	642	2	24	9	709	1,033	6.0%	
21 Parkland County						3		1	13		2		2	2	23	8	3	34		2	4	3	11	4	4	27	62	0.4%	
22 Highway 16 Corridor	1		20	2	14	8		10	67	1	8	26	1	10	167	14	11	191	5	4	75	13	3	201	2	304	495	2.9%	
23 Sturgeon County			24	4	8	2			61	2	49	8			158	5	8	171	6	17	3	8		7	236	278	449	2.6%	
Region Total	1	2	52	14	32	65	5	15	338	5	89	198	11	15	844	216	34	1,094	66	50	351	702	20	317	281	1,787	2,881	16.8%	
CMA Total	191	64	329	405	526	1,068	321	331	5,127	158	378	3,580	146	253	12,877	1,118	289	14,283	193	170	411	1,060	65	542	426	2,867	17,150		
% of CMA	1.1%	0.4%	1.9%	2.4%	3.1%	6.2%	1.9%	1.9%	29.9%	0.9%	2.2%	20.9%	0.9%	1.5%	75.1%	6.5%	1.7%	83.3%	1.1%	1.0%	2.4%	6.2%	0.4%	3.2%	2.5%	16.7%			
Inner City - Inner City		1,197	10.5%												11,358	66.2%		Trips originating in City		13,112	76.5%						5,488	32.0%	
Inner City - City Suburb		1,598	14.1%												879	5.1%		Trips originating in Sherwood Park/St. Albert		1,157	6.7%						7,624	44.5%	
City Suburb - Inner City		1,652	14.5%												875	5.1%		Trips originating in Region		2,881	16.8%						261	1.5%	
City Suburb - City Suburb		6,911	60.8%												278	1.6%		Trips with destination in City		12,877	75.1%						896	5.2%	
Total City Trips		11,358	100.0%												279	1.2%		Trips with destination in Sherwood Park/St. Albert		1,406	8.2%						1,375	8.0%	
															205	1.2%		Trips with destination in Region		2,867	16.7%						1,506	8.8%	
															844	4.9%													
															250	1.5%													
															1,787	10.4%													
															17,150	100.0%													

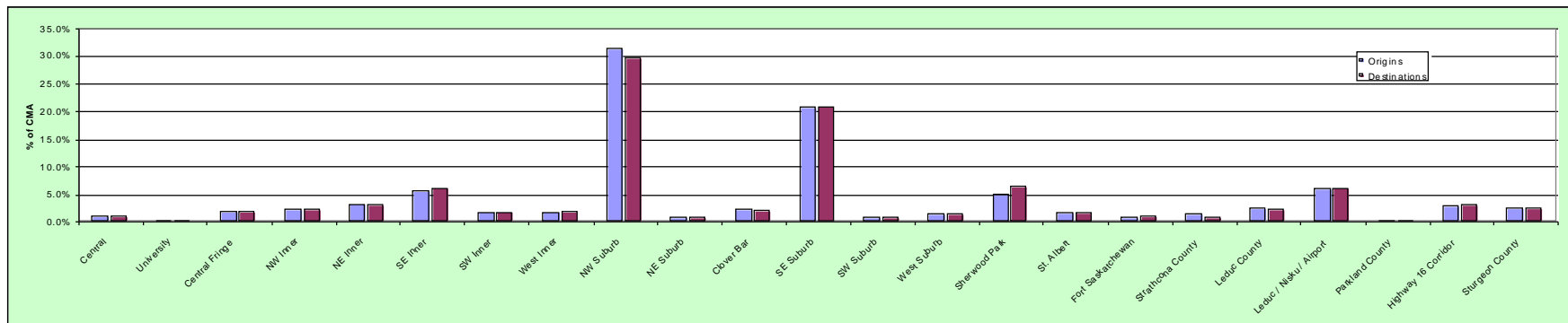
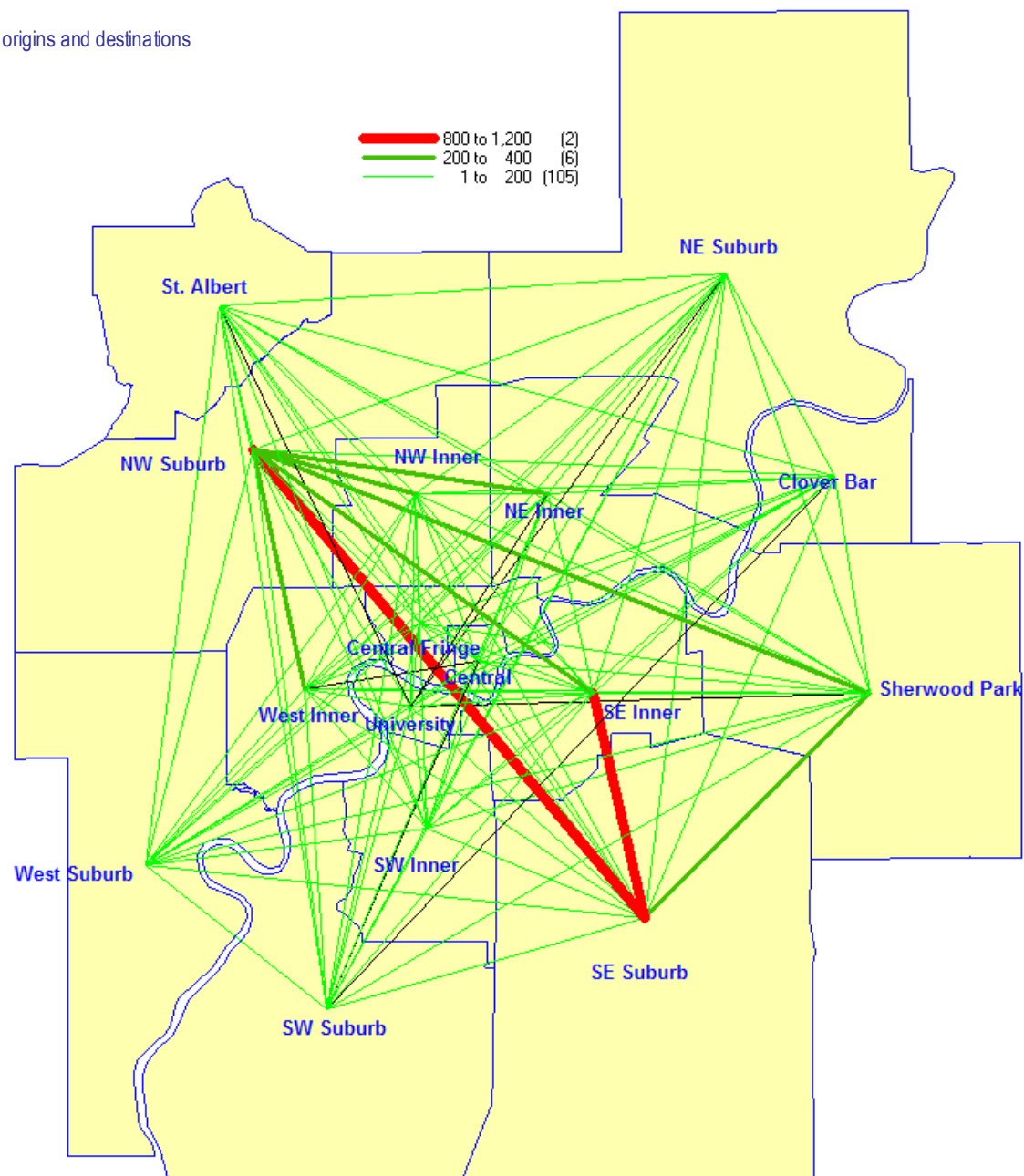




Figure 38 - Daily urban multi unit truck origins and destinations



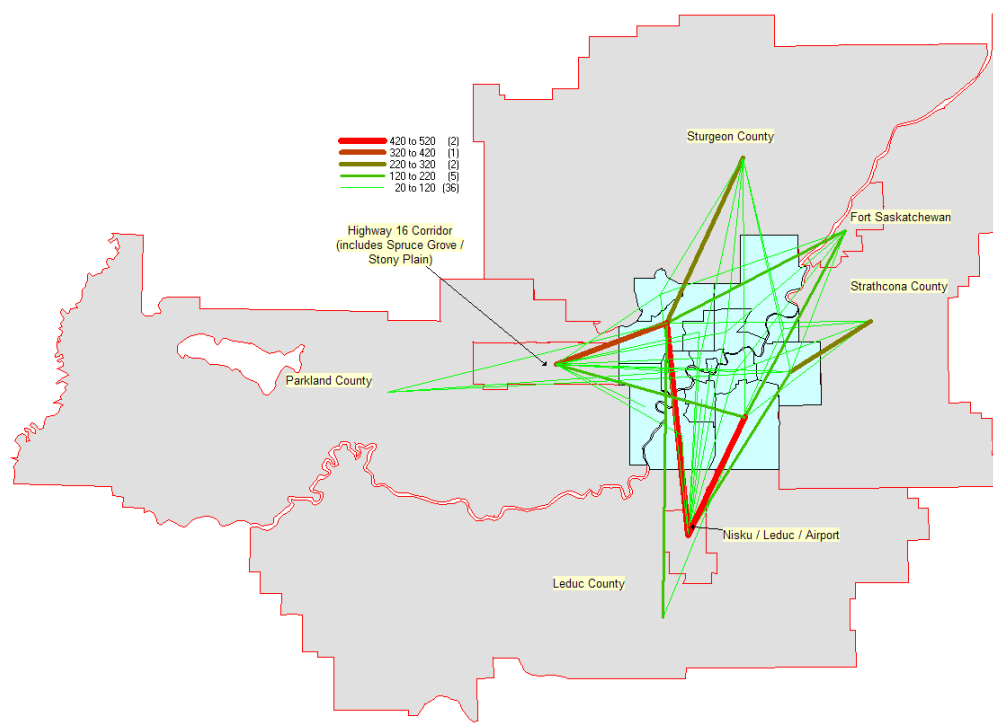


Figure 39 – Daily Region to City origins and destinations (multi unit trucks)

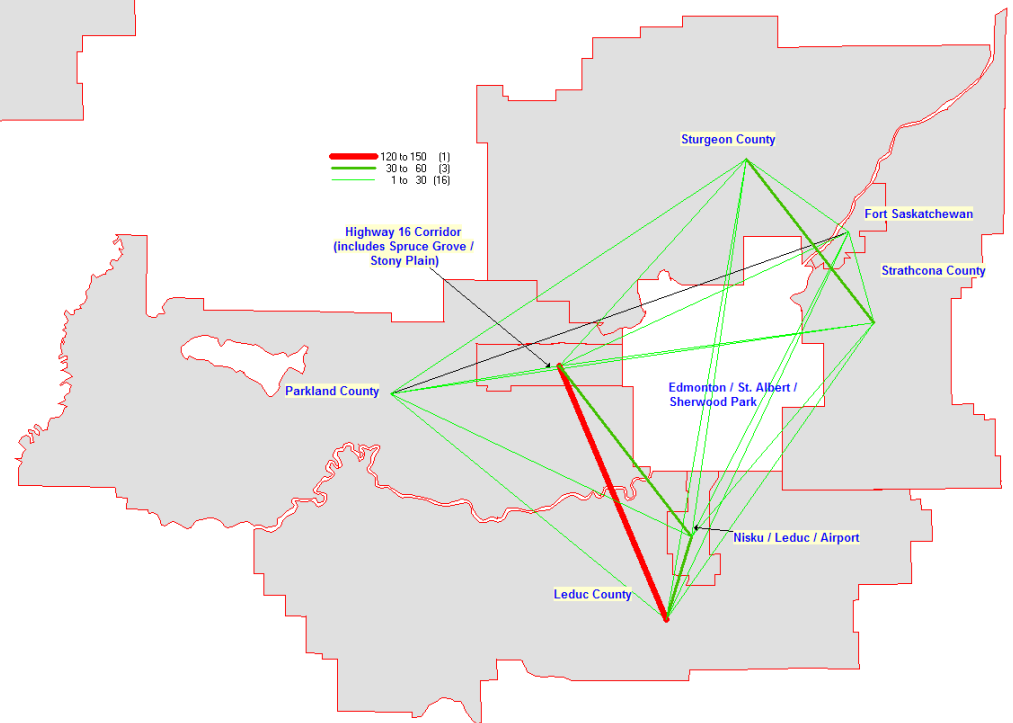


Figure 40 – Daily Region to Region origins and destinations (multi unit trucks)

## 6 Goods and Service Vehicle Traffic Volumes

Using the origin and destination vehicle trip data described above, the daily vehicle trips were assigned to the Edmonton Region roadway network. The EMME/2 transportation planning computer model was used for the vehicle assignment, using a detailed regional roadway network that has been developed for the Edmonton Region by the City of Edmonton Transportation Department.

The methodology used to assign the single-unit and multi-unit truck trips to the network is illustrated in Figure 41.

The results of this assignment process are illustrated in the following figures. In each figure, the width of the 'bar' on a roadway is relative to the total daily truck traffic while the bar color represents a specific range of daily trips.

As illustrated in these figures, the major daily truck volumes are observed on the Yellowhead Trail and on the Whitemud Drive, with daily truck

volumes ranging between 3,000 and 4,000 trucks per day on both roadways. Truck volumes on Highway 2 south and Highway 16 west range between 1,000 and 3,000 vehicles per day.

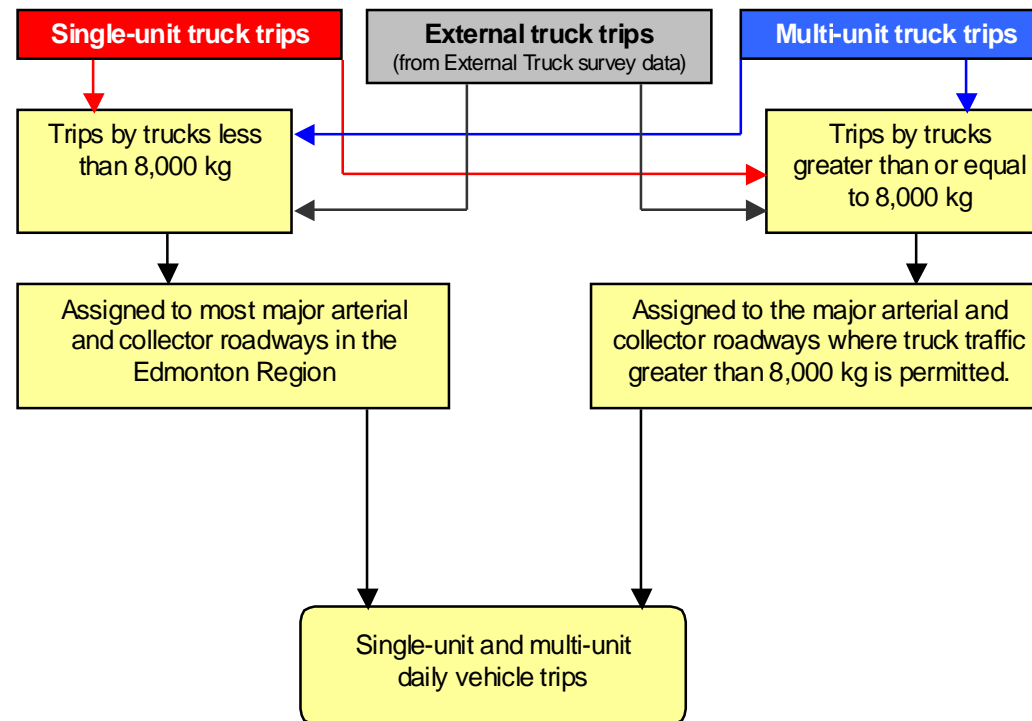


Figure 41 - Daily Truck Trip Assignment Methodology

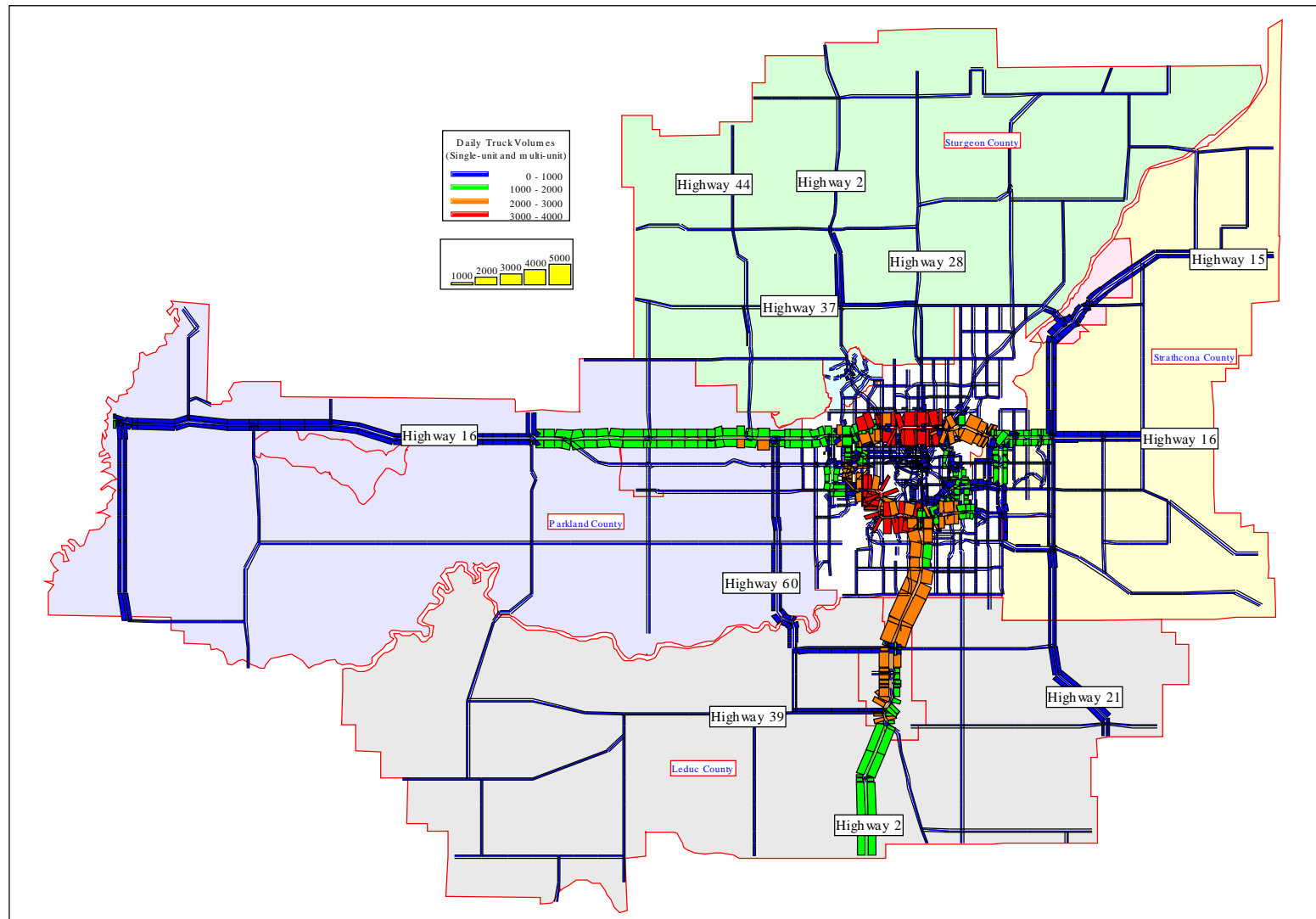


Figure 42 – Daily Assigned Regional Single-Unit and Multi-Unit Trucks

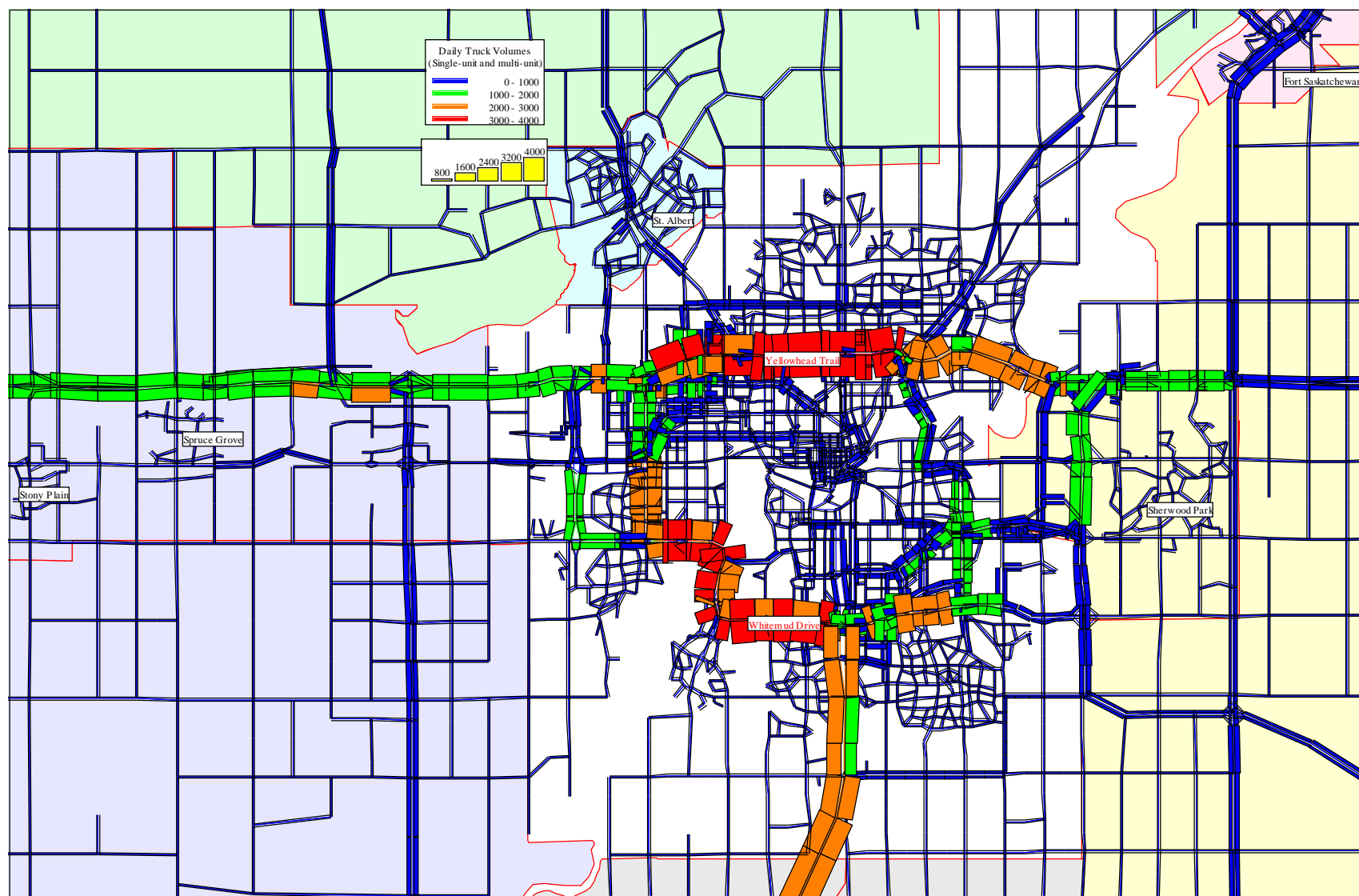


Figure 43 – Daily Assigned City of Edmonton Single-Unit and Multi-Unit Trucks