2005 Household Travel Survey

Summary Report on Weekday Travel by Residents of the Edmonton Region

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Prepared By:

ISL

Banister Research & Consulting Inc.

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Executive Summary

Background

This summary report describes the weekday travel patterns of residents of the Edmonton Region and travel between the region and the City of Edmonton. Over 6,600 randomly selected households were surveyed on weekdays in the fall of 2005, including 2,800 that were located within the region surrounding Edmonton.

Population and Employment Growth

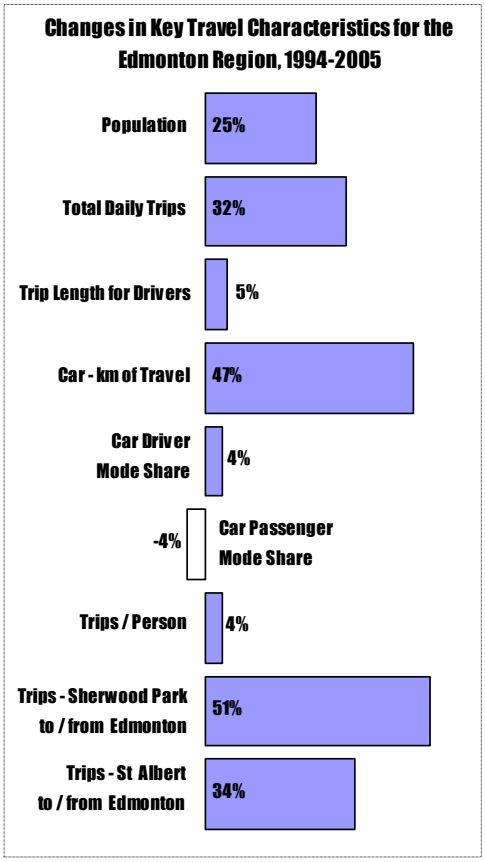
- The Edmonton Region had 293,100 residents in 2005, a 25% increase from 1994. The City of Edmonton had 712,400 residents in 2005, a 13% increase from 1994.
- Employment has grown significantly in Leduc County, Strathcona County, and Parkland County. Employment growth in Southeast and Northwest Edmonton are attracting travel from Sherwood Park and St. Albert.

Travel Behaviour

- On a trips per person basis, trip rates have increased from 3.49 trips per person per weekday in 1994, to 3.63 in 2005
- Urban residents of the Edmonton Region generate more trips per weekday than rural residents
- Females make more trips per day than males, 3.76 trips per weekday for females vs. 3.51 trips per weekday for males
- The largest group of transit users are 16 to 24 year olds in St. Albert and Sherwood Park, who use transit for 13% of trips

Aggregate Trips

- The number of trips made by region residents has risen to 1,100,000 trips per weekday in 2005, a 32% increase over 1994
- A high growth was observed in person-km of travel, which is a measure of demand on the roadway network. In 2005 car trips accounted for 10,300,000 person-km per weekday, a 47% increase from 1994



- The largest change in mode share is car passenger to car driver for females. Females use car driver mode for 63% of trips, a 9% increase from 1994
- Region residents on average use transit for 1.8% of trips, which rises to 2.9% for residents of St. Albert and Sherwood Park. This compares with 9% of trips by City of Edmonton residents

Travel Patterns

- The number of trips between the Region and the City of Edmonton was 406,700 per weekday in 2005, a 36% increase over 1994. The number of trips within the region was 692,200 in 2005, a 28% increase from 1994
- Travel between Sherwood Park and Edmonton increased 51% from 1994 to 2005. In 2005 there were 40,000 trips per day (two way) between Sherwood Park and Southeast Edmonton and 23,000 between Sherwood Park and Central Edmonton
- Travel between St. Albert and Edmonton increased 34% from 1994 to 2005. In 2005 there were 32,000 trips per day (two way trips) between St. Albert and Northwest Edmonton, and 24,000 trips per weekday between St. Albert and Central Edmonton
- Transit mode share shows strength for trips from home to Central Edmonton. Mode share is 17% of trips from home (commuting trips) from Sherwood Park and St Albert to Central Edmonton
- Transit mode share shows weakness in trips from the region to city suburbs. Transit mode share is 2% of trips from home from Sherwood Park to Southeast Edmonton, and 3% of trips from home from St. Albert to Northwest Edmonton

Table of Contents

Appendices

List of Tables

List of Figures

1.0 Introduction

In the fall of 2005, the City of Edmonton, together with Alberta Infrastructure and Transportation, undertook an extensive survey of households in the Edmonton Region to determine the nature of current travel patterns. The collected information will be used to assess the transportation needs of the City of Edmonton and surrounding region, and to help develop plans to meet those needs.

The first step in determining the need for transportation infrastructure and services is gaining an understanding of current travel patterns and the underlying elements which affect these patterns. Once these are known, transportation planning models can be developed to project future transportation needs based upon various assumptions about the type and magnitude of regional growth and the location of these developments.

This report provides an overview of the information collected from the 2005 Household Travel Survey. It is intended to be illustrative of the pattern and intensity of travel in the metropolitan area at the time of the survey, as well as the variables which underlie these travel patterns. The primary focus of this report is on the travel characteristics of residents of the Edmonton Region.

1.1 Overview of the Household Travel Survey

Between September 26, 2005 and December 15, 2005, approximately 9,300 households in the Edmonton metropolitan area participated in a survey which collected information about the household, the residents of the household, and travel information for each member of the household for a 24 hour weekday or weekend period. Approximately 2,800 of the households were located within the region, of which 2,000 provided their data for weekday travel which is reported here.

The main objectives of the 2005 Household Travel Survey were to:

- Provide current demographics and travel data, including origin and destination, trip purpose, mode choice, time of day, activities undertaken, and trip frequency

for updating the regional travel forecasting model being used to forecast travel in the Edmonton area and to assess future transportation policies and strategies.

- Provide current empirical data and stated preference data on travel choices, including cost, mode, and time of day, by a representative sample of households.

The survey participants were selected at random from published telephone lists for the Edmonton Region. Those households who agreed to participate in the survey were assigned a travel day and each member of the household was asked to record their travel information on travel diaries, which were provided in an information package mailed to each participating household. Household, person, and travel information was collected by trained surveyors following the assigned travel day. The survey results were coded and entered into an electronic data base for analysis.

1.2 Study Area

The study area for the Household Travel Survey corresponds to the Edmonton Census Metropolitan Area (CMA) which encompasses the City of Edmonton, the City of St. Albert, Strathcona County (including Sherwood Park), the City of Fort Saskatchewan, M.D. of Sturgeon, Parkland County (including the City of Spruce Grove and Town of Stony Plain), and Leduc County (including the City of Leduc, Town of Devon, and Town of Beaumont). The study area is illustrated in Figure 1.1. For the purpose of presenting the findings of the survey, the study area has been divided into seventeen sectors. The City of Edmonton, together with St. Albert and Sherwood Park, make up fifteen of the seventeen sectors, while the remaining area has been divided into two sectors: “region-urban” and “region-rural”.

Figure 1.2 illustrates the locations of the households surveyed in the Edmonton Region.

1.3 Scaling

A sample survey approach was used in this study. The relevant information was gathered from a sample of households and then scaled, or factored up, to represent the full population of households in the Edmonton Region.

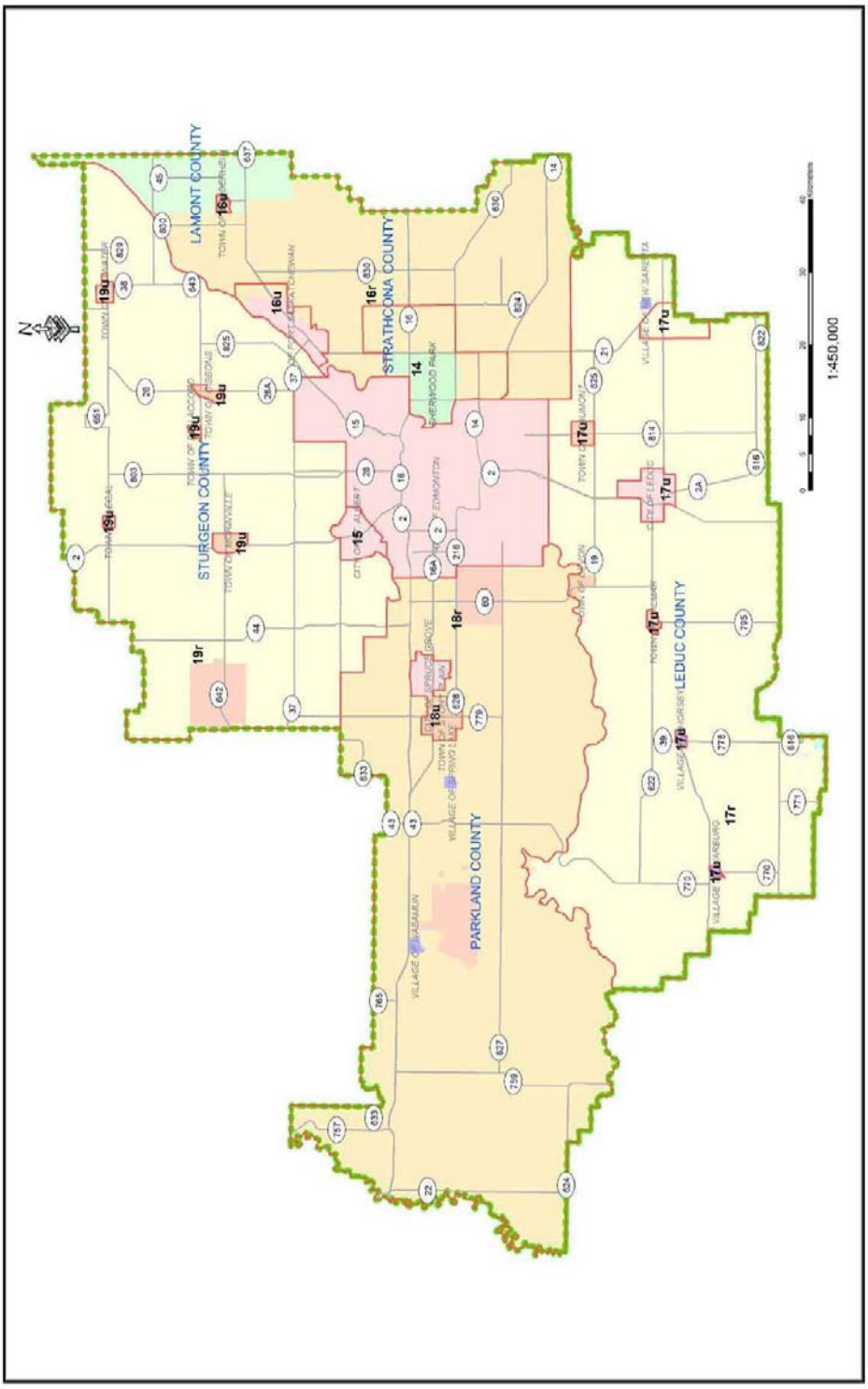


Figure 1.1: Study Area

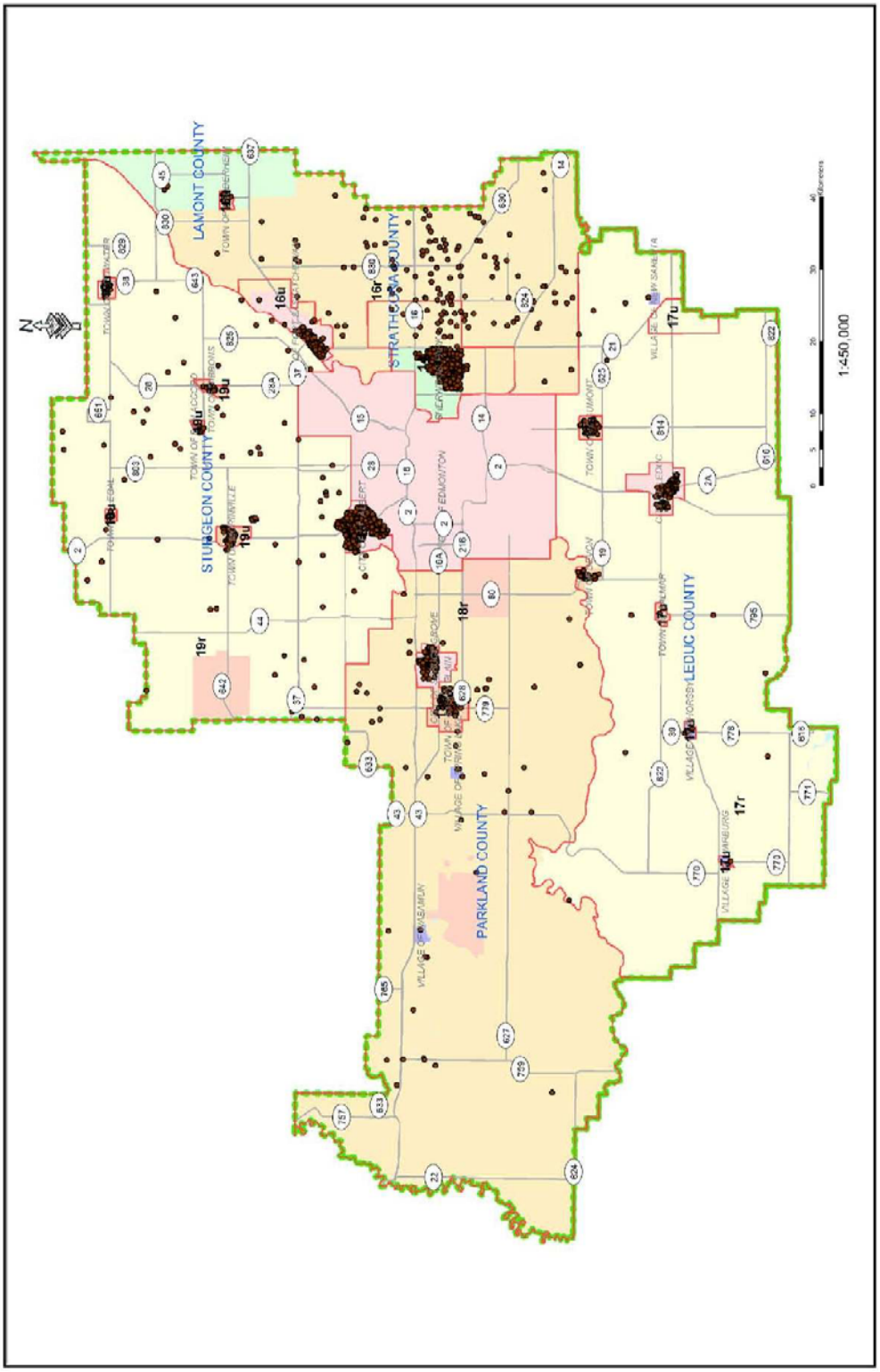


Figure 1.2: Distribution of Surveyed Households

In order to ensure that the scaled survey results best represent the population, a separate scaling factor was developed for each sample household so that the scaled sample matches the actual population. The scaling factors cause the sample to match the real world across several variables including: population, income, dwelling type, households, household size, age, gender, and employment status by geographic area.

On average, each household in the sample is used to represent the behaviour of 65 households in the full population of Edmonton and the region. Using the scaling methodology some households in the sample have a scaling factor higher than 65 and some lower than 65, depending on the rate that households of their type were in the sample, compared to the full population. The result is a scaled survey which compares favourably with the available totals, and the survey results regarding travel can therefore be used with confidence.

1.4 Sample Accuracy

Because the scaled survey results are based on a sample, they are subject to a form of imprecision or 'sample error'. A difference of one or two households in the sample is magnified in the scaled values. Consequently, the numbers reported here for the population – such as the number of trips made by transit or the number of car drivers – must be interpreted with the understanding that they are estimates of the population values influenced by the random chance that one or two more or less households of one type or another may be included, and the true population value may be slightly different from the calculated value.

This lack of precision, the 'sample error', is typically reported as a +/– range about the calculated value that is expected to contain the population value with some specified probability. For example, the number of trips per person for the population of the Edmonton Region is calculated to be 3.63 using the full sample of 5,418 persons – with a +/– range of 0.067 expected to contain the actual population value 19 times out of 20. The magnitude of this +/– range for a given estimate, and the resulting precision of the estimate, is influenced by the number of observations in the sample. Consequently, the number of trips per household for the population of region households with 4 cars is calculated to be 13.19 using the sample of such households (just 102 out of the full set of 2,024 sampled households) – but in this case with a +/– range of 1.312 expected to

contain the actual population value 19 times out of 20. Note that with the smaller sample the +/– range increases, reflecting a greater imprecision.

The same sort of sample error arises with the population proportions estimated using the sample: there is a +/– range about the calculated value that is influenced by the size of the sample used. For example, the proportion of all trips that are made using transit for trips from St. Albert and Sherwood Park to Edmonton is calculated to be 5.47% using the full sample of 2,022 trips, - with a +/– range of 0.950% expected to contain the actual population proportion value 19 times out of 20. Similarly, the proportion of trips from just St. Albert to the city made using transit is calculated to be 4.99% using the sample of 862 trips going from St. Albert to the city – with a +/– range of 1.370 % expected to contain the actual population value 19 times out of 20. As the available sample size decreases, the sample error, as indicated by the +/– range, increases. This example also highlights how a change in the value, from 5.47% to 4.99%, may suggest a difference in the transit rates, however the difference does not actually exist at the desired confidence level.

In general, the samples available for calculating the values reported here are comparatively large, with hundreds and even thousands of observations, and the associated sample error is consequently fairly small and not a matter for concern. But increasing caution needs to be used when the sample is smaller, which happens as smaller and more detailed components of the full system are considered.

2.0 Demographic Characteristics

The Household Travel Survey captured detailed travel and demographic information from residents living in the Edmonton Census Metropolitan Area (CMA). Information was collected about the household and about the people living in each household.

The survey captured travel information which illustrates current travel patterns and behaviours. A number of key changes in travel patterns and behaviours have emerged which appear to be strongly related to demographic changes and shifts.

2.1 Population, Employment and Related Information

2.1.1 Population

The 2005 population statistics presented in Table 2.1 below were obtained from the 2005 City of Edmonton Census and the municipal censuses conducted by St. Albert and Strathcona County. For the remainder of the region, recent municipal surveys were examined where available and the 2001 Federal Census and historical growth rates were used for the remainder.

As shown in Table 2.1, the Region had a population of 293,100 in 2005, an increase of 25% over the 1994 population. This compares with a City of Edmonton growth of 13% in the same period.

Table 2.1: Population of the Edmonton Census Metropolitan Area (CMA) by Sector, 1994 and 2005

Sector Description		1994	2005	Difference	% Difference
	CITY OF EDMONTON	633,200	712,400	79,200	13%
14	Sherwood Park	38,700	55,000	16,300	42%
15	St Albert	45,200	56,300	11,100	25%
16	Region - Urban	76,700	94,700	18,000	23%
17	Region - Rural	74,000	87,100	13,100	18%
	REGION	**234,600**	**293,100**	**58,500**	**25%**
	CMA	**867,800**	**1,005,500**	**137,700**	**16%**

Note: In 2005, Region - Urban includes Bruderheim, Thorsby, Warburg, Wabamun, Seba Beach, Legal

Table 2.1 illustrates that the CMA population has grown by 137,700 people with the region gaining 58,500 people and the City of Edmonton gaining 79,200. All sectors of the region, including the rural areas, are showing healthy population growth. As noted, Region-Urban includes several towns that were included in the rural population in the 1994 census.

The growth in the region population is attributed to the significant increase in residential development that has occurred in the 'bedroom communities' of Edmonton as well as employment growth, particularly in Strathcona County.

2.1.2 Age Profile of the Edmonton Region's Population

The age profiles retrieved from civic censuses for St. Albert and Strathcona County reveal significant characteristics that have implications for travel patterns and behaviours. Figures 2.1 through 2.4 illustrate the age profiles for St. Albert, Fort Saskatchewan, Sherwood Park, and Strathcona County respectively.

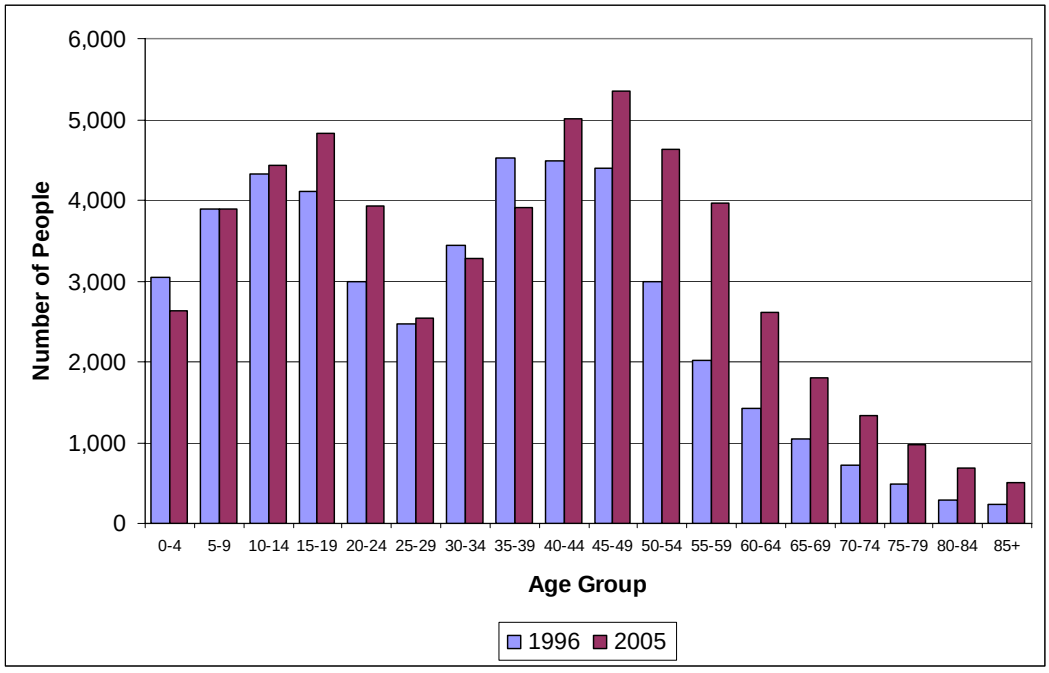


Figure 2.1: Population Age Distribution for St. Albert, 1996 and 2005

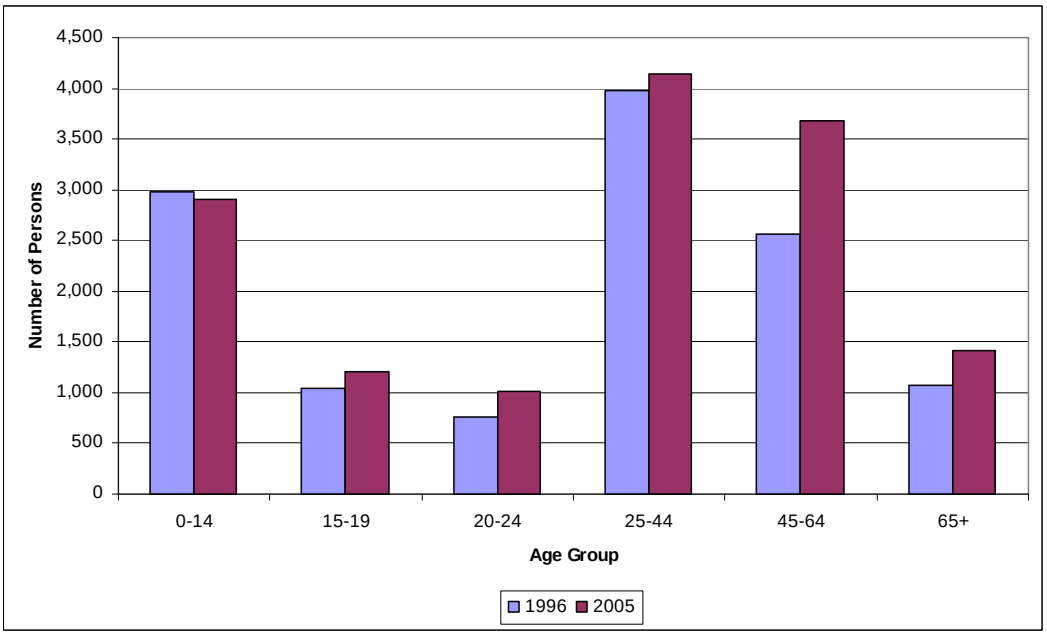


Figure 2.2: Population Age Distribution for Fort Saskatchewan, 1996 and 2005

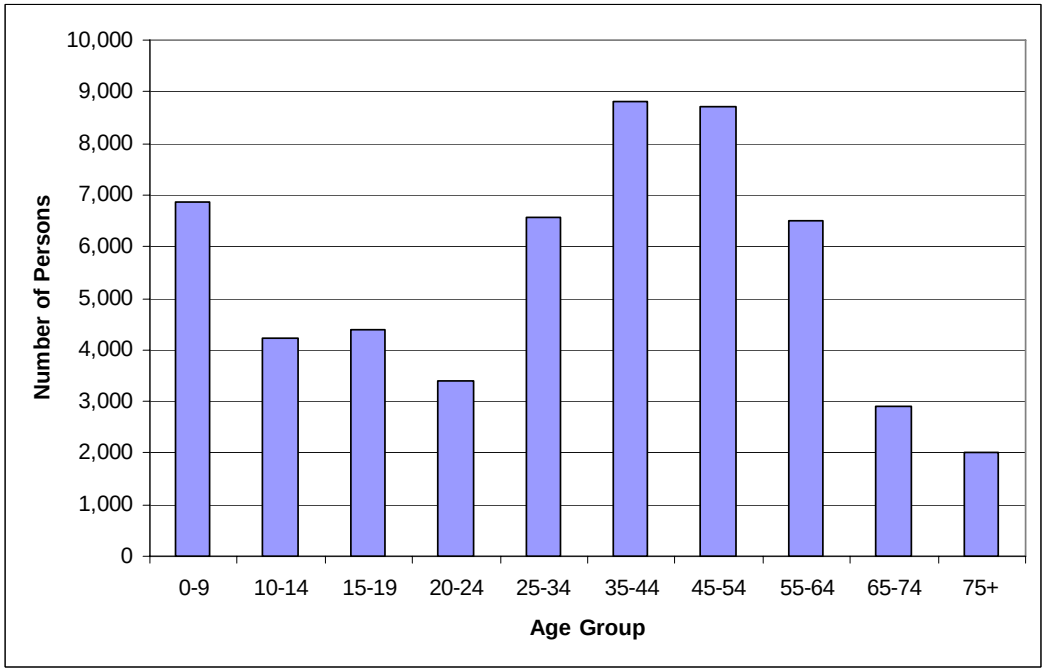


Figure 2.3: Population Age Distribution for Sherwood Park, 2005

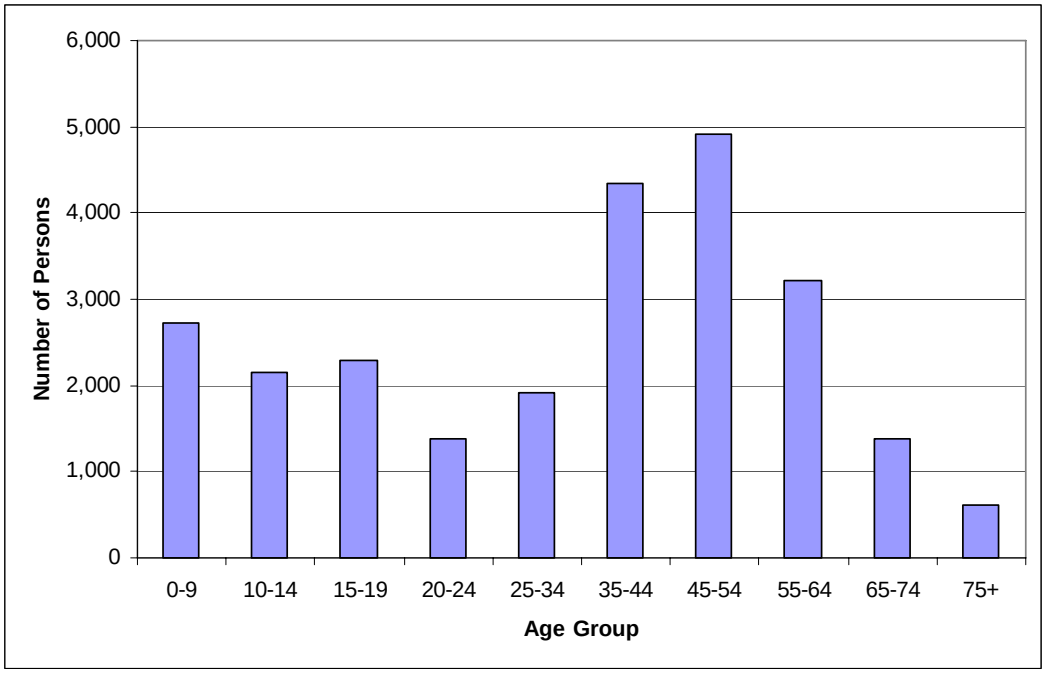


Figure 2.4: Population Age Distribution for Rural Strathcona County, 2005

Figure 2.1 reflects that St. Albert is a family oriented city. There are a lower number of people aged 20-30 but a higher proportion of younger children, teenagers, and parenthood aged people. There has also been a notable shift in the age profile from 1996 to 2005 which is consistent with an aging population. Figure 2.2 shows that Fort Saskatchewan is also experiencing an aging population. Sherwood Park and the rural parts of the region share a similar age profile, as shown in Figures 2.3 and 2.4. The 35 to 64 year old age categories contain the highest number of people. However, Sherwood Park's population of children age 0 to 9 is high, similar to St. Albert.

2.1.4 Household Size

In 2005, there were approximately 93,000 households in the Edmonton Region, an increase of over 19,000 households, or 26%. Figure 2.5 and Table 2.2 illustrate the distribution of household size by sector in the Edmonton Region. The average household size in 2005 for the entire region was 3.1 as compared with 3.2 in 1994. In all sectors in the region household size has declined, with the exception of the rural sectors which saw an increase of 24% to 3.88. For the urban sectors alone, the average has decreased from 3.2 persons per household in 1994 to 2.9 in 2005. This represents a

notable decline in household size and is consistent with the decline in the number of children and the increase in the number of persons over 65 years of age, who typically reside in small households consisting of one or two persons.

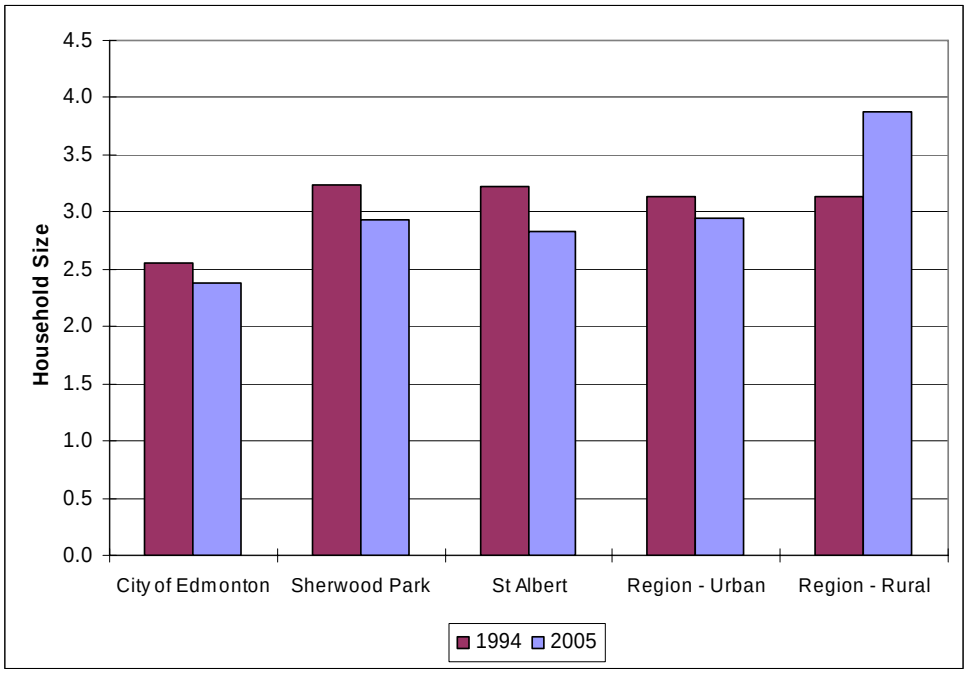


Figure 2.5: Household Size by Sector, 1994 and 2005

Table 2.2: Household Size by Sector, 1994 and 2005

Sector Description		1994	2005	Difference	% Difference
	CITY OF EDMONTON	**2.56**	**2.38**	**-0.18**	**-7%**
14	Sherwood Park	3.24	2.93	-0.31	-9%
15	St Albert	3.23	2.83	-0.39	-12%
16	Region - Urban	3.13	2.94	-0.18	-6%
17	Region - Rural	3.13	3.88	0.75	24%
	REGION	**3.17**	**3.14**	**-0.02**	**-1%**
	CMA	**2.70**	**2.57**	**-0.13**	**-5%**

2.1.5 Household Income

Household income is defined as the combined annual gross income (before taxes) for all members of the household for the 2005 calendar year. Household income is known to have a strong influence on travel characteristics and it is therefore useful to understand the level and distribution of household incomes. Figure 2.6 illustrates the distribution of household incomes in the Edmonton Region and indicates that in St.

Albert and Sherwood Park, over 40% of households earn more than $100,000 while less than 10% earn less than $30,000.

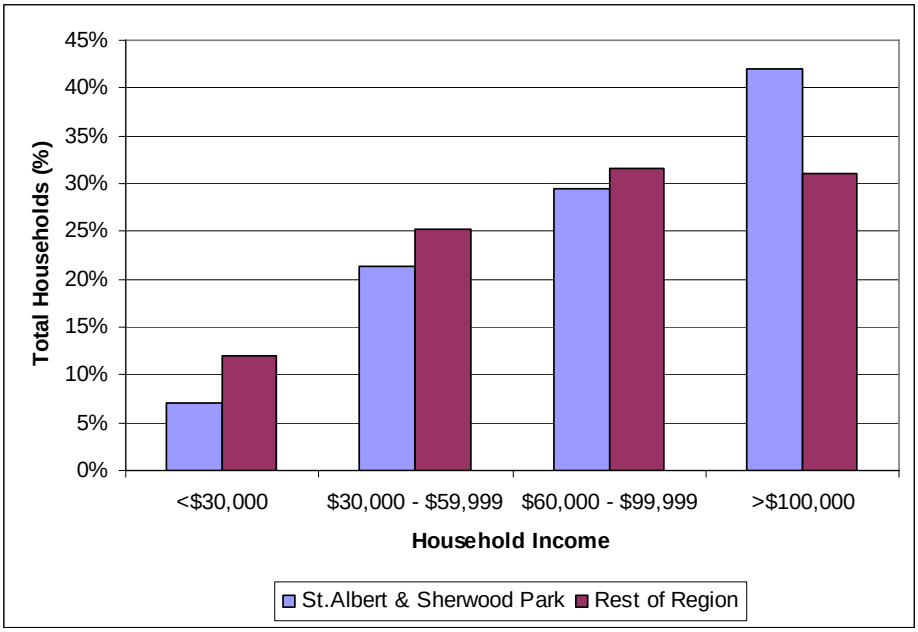


Figure 2.6: Household Income Distribution, 2005

2.1.8 Travel Costs

Travel costs and any changes to those costs can have an influence on travel choices and patterns. Travel costs can have a larger impact on region residents as they tend to travel longer distances compared to City of Edmonton residents. The costs of travel depend on numerous factors including travel time, delay, and out of pocket expenses. A comparison of out of pocket costs illustrates some differences between 1994 and 2005.

- The price of gasoline in Edmonton has risen from 39.9 cents/litre in October 1994 to 91.0 cents/litre in October 2005. When inflation is accounted for, the increase in the cost of gasoline amounts to approximately 80%.
- The Adult cash transit fare in Edmonton was $1.60 in 1994. In 2005, the cash fare was $2.00. When the 1994 fare is adjusted for inflation, the 1994 and 2005 adult transit fares are on par with each other.
- In Strathcona County, the adult cash transit fare for a local trip was $1.25 in 1995 while a commuter trip to Edmonton cost $2.00. In 2005 the fares had risen to $2.00 for a local trip and $3.50 for a commuter trip to Edmonton in peak hours.

After inflation, the increase in transit fares in Strathcona County was 26% for local trips and 38% for commuter trips.

The above comparison of travel costs indicates that between 1994 and 2005, the cost of travel has risen.

3.0 Travel Behaviour

The 2005 Household Travel Survey collected information on all trips generated by all persons residing in the surveyed household during a 24 hour period. This section of the report describes the various characteristics of weekday trips in terms of the:

- Trip generation rates;
- Choice of travel mode;
- Average trip length (km) and travel time (minutes).

3.1 Weekday Trip Generation

3.1.1 Weekday Daily Trip Generation Rates for Persons

Figure 3.1 illustrates the trip generation rate of people in different age groups by gender for the entire region.

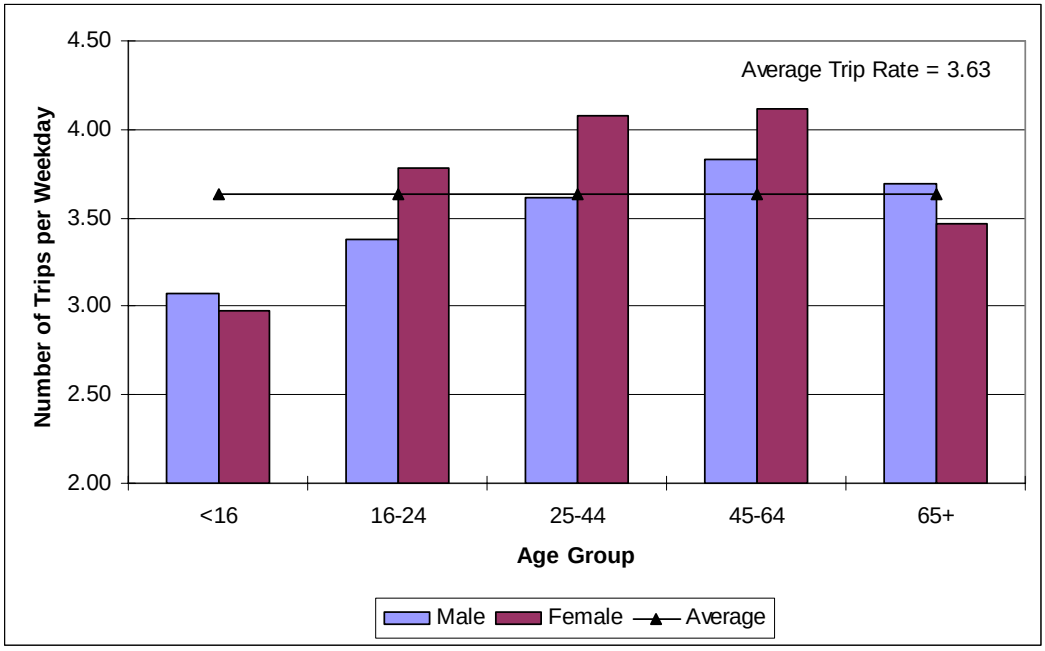


Figure 3.1: Weekday Trips per Person by Age and Gender for All of Region, 2005

The overall trip rate for the entire region is 3.63 trips per person, which is an increase over the 1994 trip rate of 3.49 trips per person. This increase is the result of the urbanization of the region. Also, females tend to make more trips per weekday than males do. Females make an average of 3.76 trips per day while males make an average of 3.51 trips per weekday.

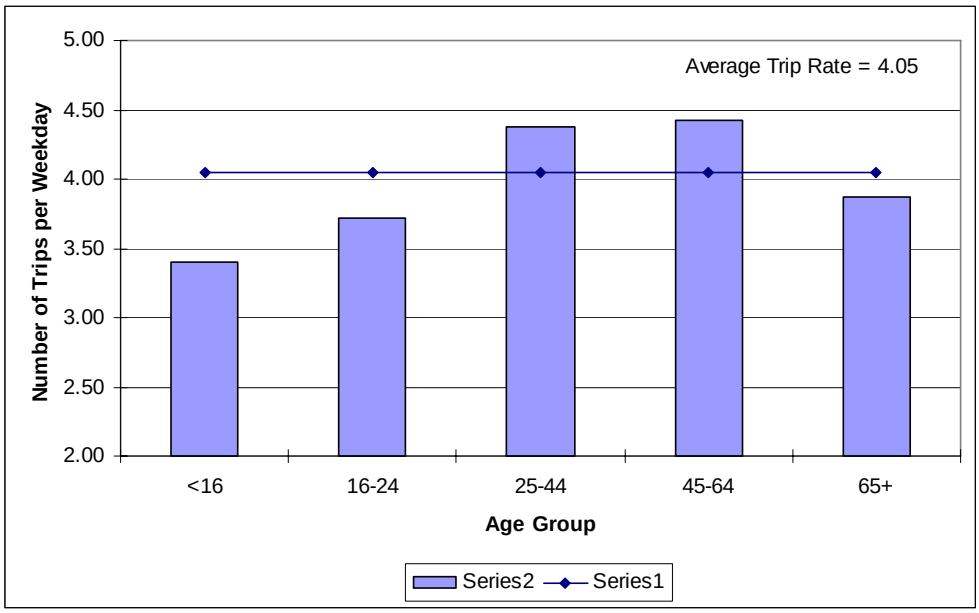


Figure 3.2: Weekday Trips per Person by Age, St. Albert and Sherwood Park, 2005

On average, residents of St Albert and Sherwood Park generate 4.05 trips per person per weekday as shown in Figure 3.2.

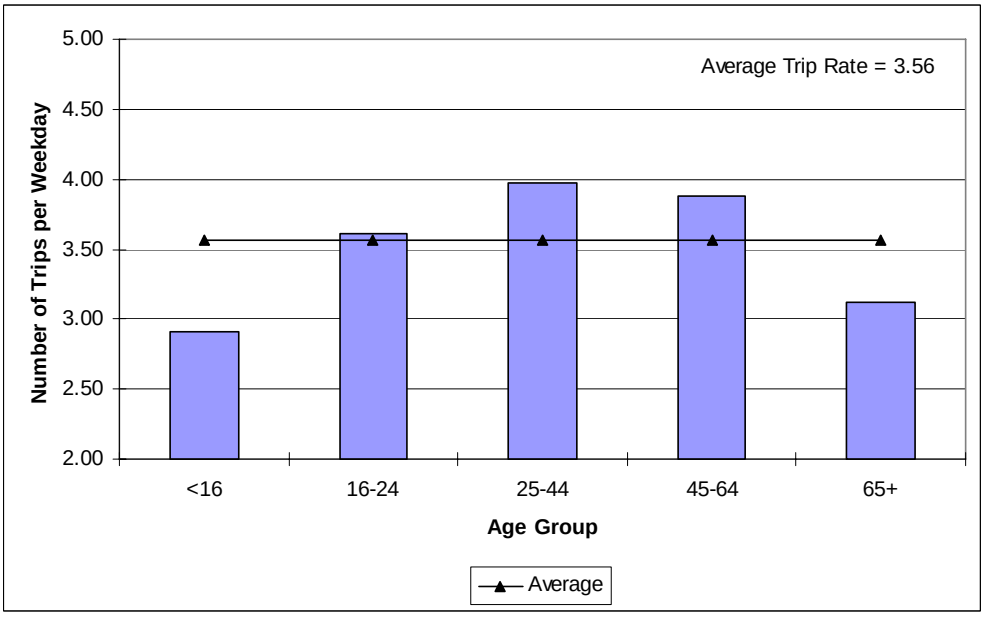


Figure 3.3: Weekday Trips per Person by Age, in Region Urban Areas Excluding St. Albert and Sherwood Park, 2005

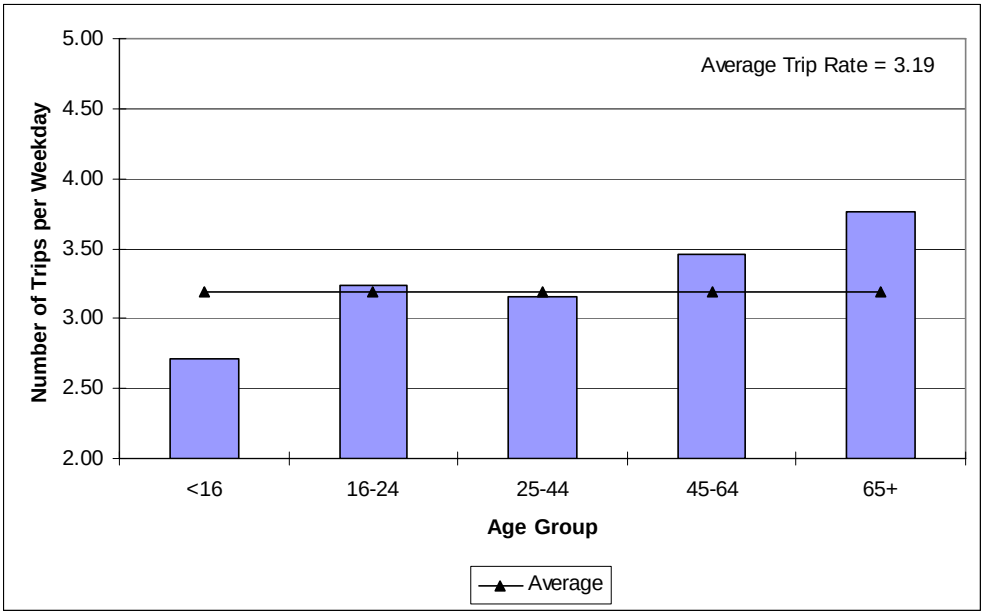


Figure 3.4: Weekday Trips per Person by Age, in Region Rural Areas, 2005

The trip rate for the Region Urban and Region Rural sectors is 3.56 and 3.19 trips per weekday, respectively, as shown in Figures 3.3 and 3.4. Also, in the rural parts of the region, seniors make more trips compared to other age groups.

These figures illustrate how urban residents generate more trips per day than rural residents. Since the population of the urban areas of the Edmonton region has grown by more people than the population of the rural areas, the average trip rate, in trips per person, is increasing over time.

Overall, females tend to generate more trips per weekday compared to males, mimicking a similar trend within the City of Edmonton. In general this can be attributed to a "Supermom" phenomenon where women with children are making a variety of trips for work, recreation, and personal/family business. Since St. Albert and Sherwood Park tend be family-oriented, this effect becomes even more pronounced in their male and female trip-making characteristics.

3.1.2 Weekday Daily Trip Generation Rates for Households

Household size, income levels, and the availability of cars are all important factors that influence the number of trips generated by a household. Figures 3.5, 3.6 and 3.7 illustrate the daily person trip generation rates by these three factors.

On average, households in the Edmonton Region generate 10.44 trips per weekday, which is a decrease from 11.09 trips per weekday in 1994. The decrease in trips per household is mainly a result of the decreasing household size rather than a decrease in the number of trips made by individuals.

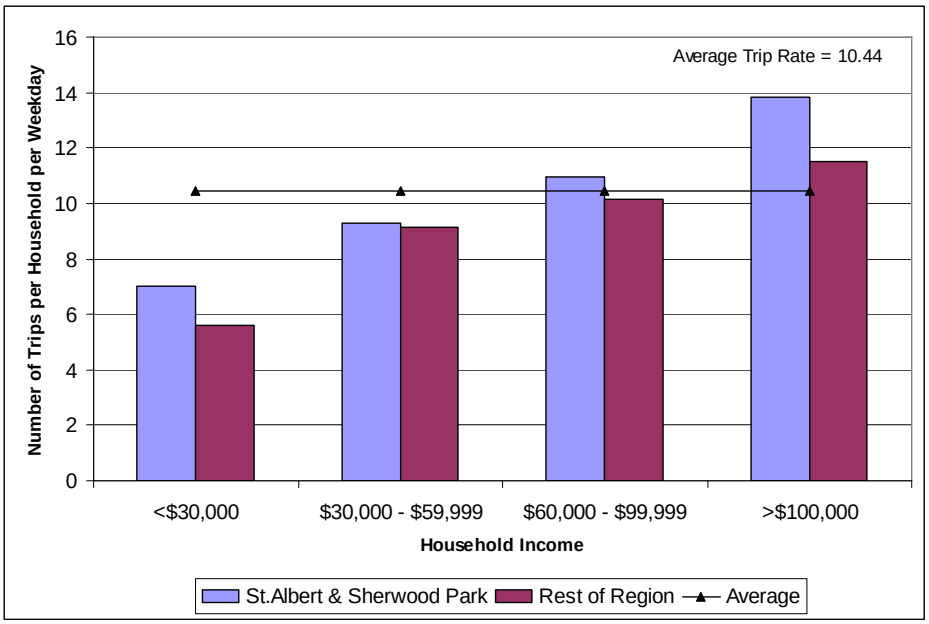


Figure 3.5: Trips per Weekday by Household Income, 2005

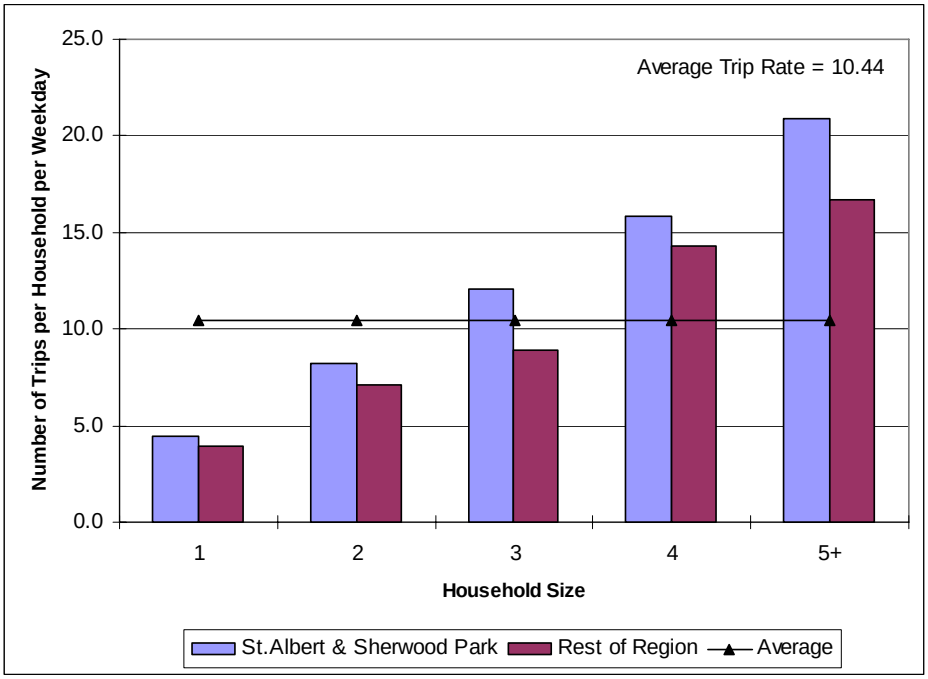


Figure 3.6: Trips per Weekday by Household Size, 2005

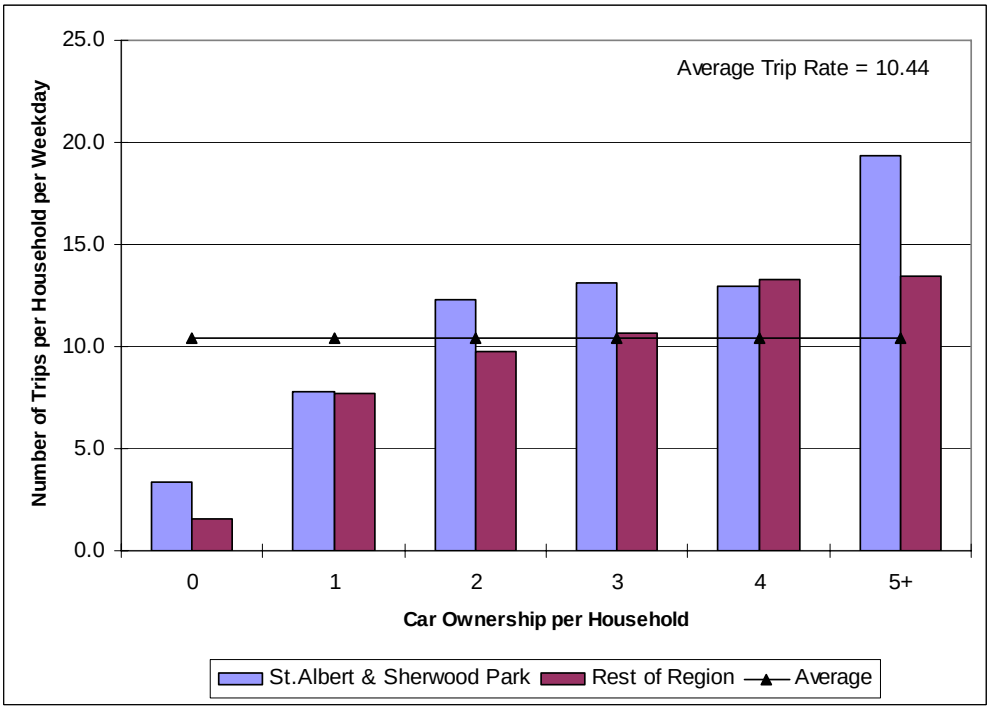


Figure 3.7: Trips per Weekday by Car Ownership, 2005

The following observations are drawn from Figures 3.5, 3.6 and 3.7:

- The number of trips made per weekday increases with household income;
- The number of trips made per weekday increases with household size;
- The number of trips made per weekday increases with car ownership.
- Residents of St. Albert and Sherwood Park tend to generate more trips per household than the rest of the region

These relationships are consistent with those observed in 1994 and confirm the strong influence of income, household size, and car ownership on the number of weekday trips made by a household.

3.2 Weekday Travel Mode Share

The mode by which people travel is an extremely important element of a transportation system as it affects the type and nature of transportation facilities and services that need to be provided. Accordingly, Figures 3.8, 3.9, 3.10 and Tables 3.1 through 3.3 illustrate the relationship between mode choice and a number of variables such as age, gender, and income. In addition, in 1994 transit service was only available in St. Albert and Sherwood Park while by 2005 transit service was available in St. Albert, Sherwood Park, Morinville, and Fort Saskatchewan.

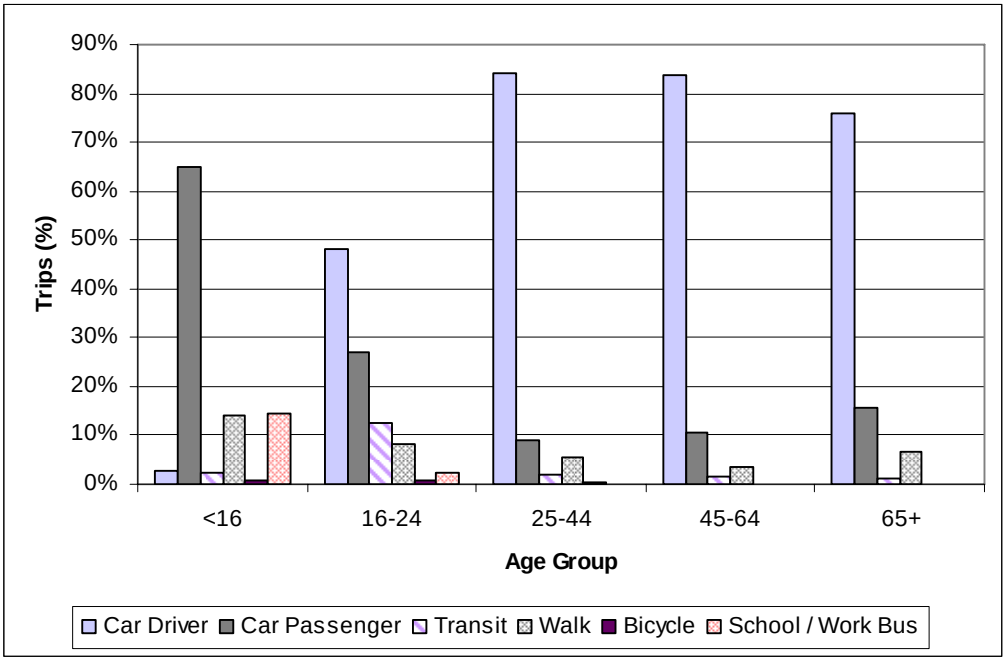


Figure 3.8: Mode Share by Age Group, St. Albert and Sherwood Park, 2005

Table 3.1: Mode Share by Age and Gender, St. Albert and Sherwood Park, 2005

Mode	Age Group					Gender		Total
	<16	16-24	25-44	45-64	65+	Male	Female	
Car Driver	3%	48%	84%	84%	76%	68%	61%	64%
Car Passenger	65%	27%	9%	11%	16%	20%	26%	23%
Transit	2%	13%	2%	2%	1%	2%	3%	3%
Walk	14%	8%	5%	3%	7%	6%	7%	7%
Bicycle	1%	1%	0%	0%	0%	0%	0%	0%
School / Work Bus	15%	2%	0%	0%	0%	4%	3%	3%

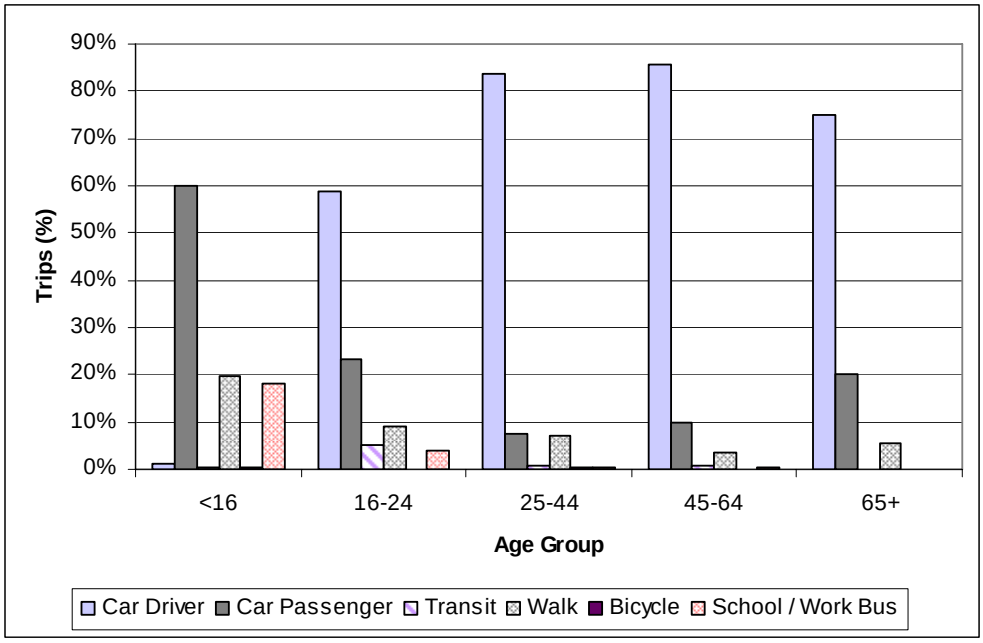


Figure 3.9: Mode Share by Age Group, Rest of Region, 2005

Table 3.2: Mode Share by Age and Gender, Rest of Region, 2005

Mode	Age Group					Gender	
	<16	16-24	25-44	45-64	65+	Male	Female
Car Driver	1%	59%	83%	86%	75%	64%	64%
Car Passenger	60%	23%	8%	10%	20%	21%	23%
Transit	0%	5%	1%	1%	0%	1%	1%
Walk	20%	9%	7%	3%	5%	8%	9%
Bicycle	1%	0%	1%	0%	0%	1%	0%
School / Work Bus	18%	4%	0%	0%	0%	5%	3%

Comparing the mode share figure for St. Albert and Sherwood Park to the rest of the region illustrates some notable differences. First of all, transit is more commonly used in the urban areas with a 3% overall mode share. This is significantly lower than a 9% mode share for transit within the City of Edmonton. In the rest of the region, the overall transit share is even lower at 1%. Even this 1% can be attributed to the 16-24 age group, which

are mainly post-secondary students who are using transit within the City of Edmonton. The rest of the region also has a higher proportion of school bus riders. In general modes including driver and passenger dominate the other modes as a percentage of trips people make.

Table 3.3: Change in Mode Share by Age and Gender, All of Region, 1994-2005

Mode	Age Group					Gender		Total
	<16	16-24	25-44	45-64	65+	Male	Female	
Car Driver	2%	-1%	0%	0%	-1%	-1%	9%	4%
Car Passenger	0%	0%	-4%	-2%	-2%	0%	-9%	-4%
Transit	0%	3%	0%	1%	1%	1%	1%	1%
Walk	1%	1%	3%	1%	3%	1%	2%	1%
Bicycle	0%	0%	0%	0%	0%	0%	0%	0%
School / Work Bus	-3%	-3%	0%	-1%	0%	-1%	-3%	-2%

Table 3.3 illustrates the mode shifts in percentage terms since 1994 across the entire region. The largest shift in modes is from car passenger to car driver modes. This shift is caused by more females driving instead of being passengers.

Figure 3.10 illustrates the relationship between household income and transit mode share in St. Albert and Sherwood Park. In general, the lower income households have the highest transit share. On the figure, the highest income households appear to have a slightly higher transit use compared to middle income households. However, it was found that the difference of 0.9% is not large enough to be statistically significant from the transit share of middle income households.

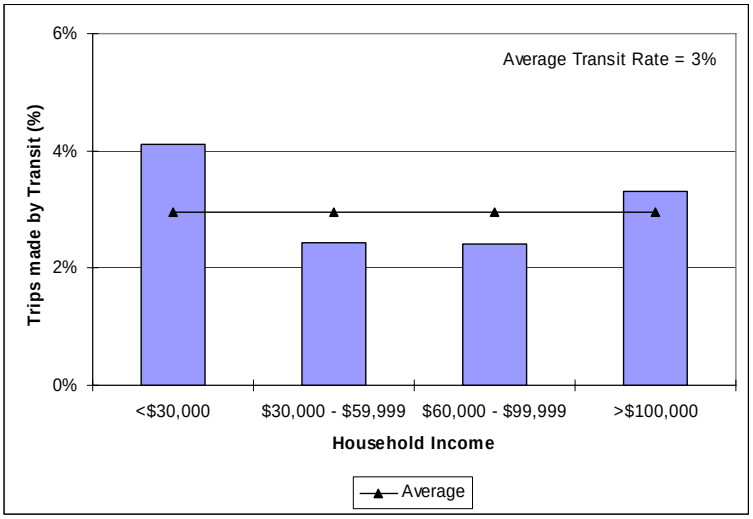


Figure 3.10: Transit Mode Share by Household Income, St. Albert and Sherwood Park, 2005

3.3 Weekday Person Trip Lengths

3.3.1 Trip Length by Trip Purpose

The length of trips taken is an indicator of the spatial characteristics of travel and the extent to which people are willing or forced to travel to complete activities. Figure 3.11 illustrates the average trip length for different trip purposes for St. Albert and Sherwood Park and the rest of the region.

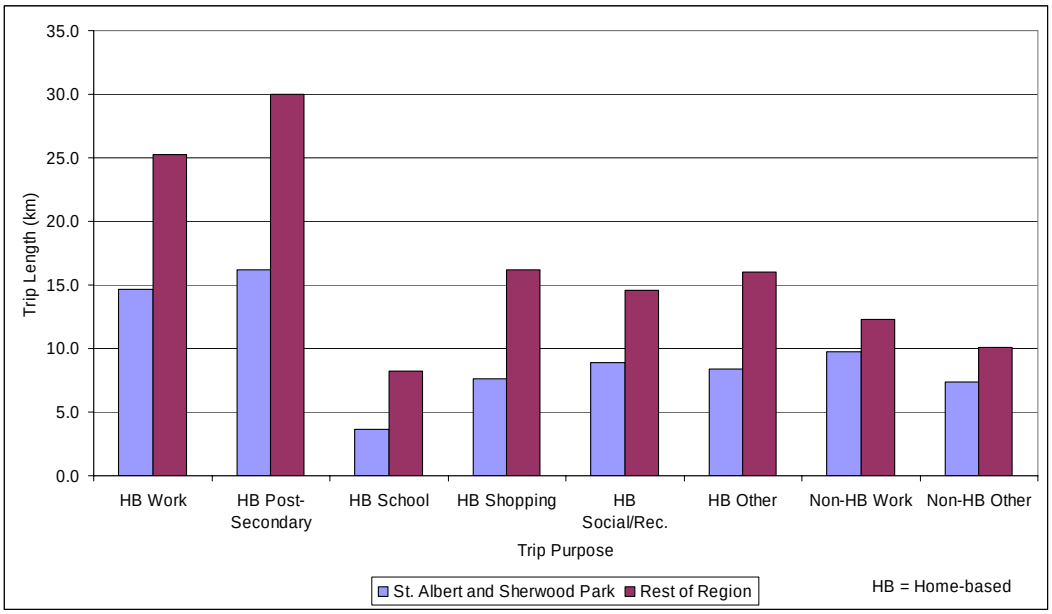


Figure 3.11: Trip Lengths by Trip Purpose, 2005

From Figure 3.11 it is clear that trip lengths for St. Albert and Sherwood Park are significantly less than those for the rest of the region. The overall pattern of trip length is similar for both sectors; home and post secondary trips are longest while school trips tend towards shorter distances.

3.3.2 Trip Length by Mode

Trip lengths also vary by the mode being used. Of course, walking and bicycle trips will be shorter than car or transit trips on average. Figures 3.12 and 3.13 illustrate trip length by mode for the Edmonton Region; trip lengths are significantly longer for residents of the rest of region compared to residents of Sherwood Park and St. Albert. Table 3.4 illustrates the percent change since 1994.

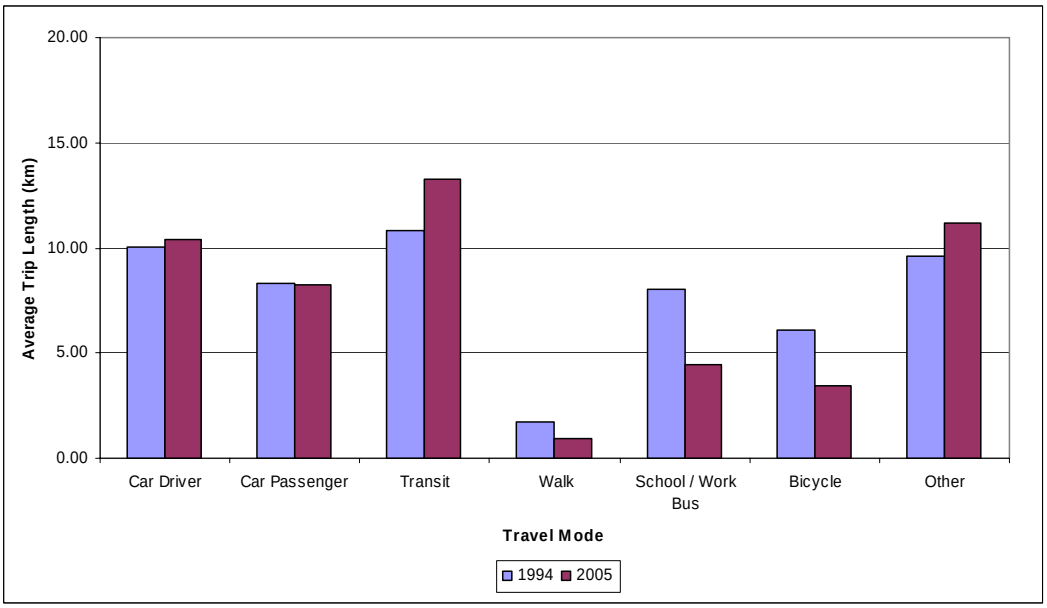


Figure 3.12: Average Trip Length (km) by Travel Mode, St. Albert and Sherwood Park, 1994 and 2005

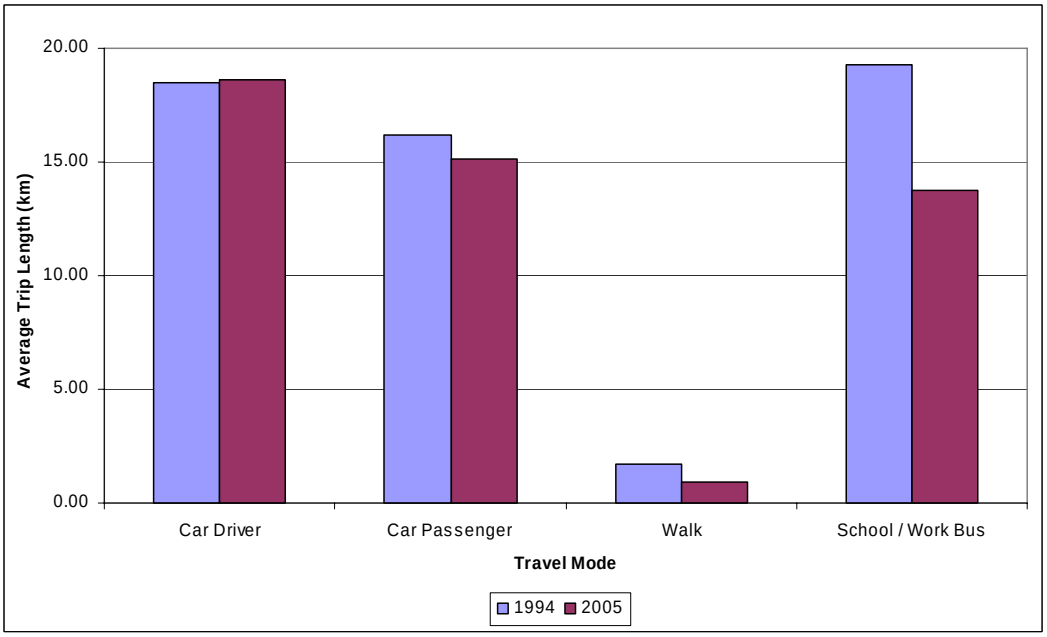


Figure 3.13: Average Trip Length (km) by Travel Mode, Rest of Region, 1994 and 2005

Table 3.4: Average Trip Length (km) by Mode, All of Region, 1994 and 2005

Modes	1994	2005	Difference	% Difference
Car Driver	14.5	15.1	0.7	5%
Car Passenger	12.6	12.1	-0.4	-3%
Transit	12.7	14.1	1.3	10%
Walk	1.7	0.9	-0.8	-46%
Bicycle	3.5	3.6	0.1	3%
School Bus / Works Bus	16.6	10.5	-6.1	-37%
Other	14.8	11.8	-3.0	-20%
Average	13.2	13.1	-0.1	-1%

In St. Albert and Sherwood Park, the average trip length for transit is higher than the average trip lengths for car driver and car passenger. This may reflect that transit in St. Albert and Sherwood Park is used for commuting into Edmonton rather than for local travel. Trip lengths for transit have also increased since 1994 while remaining constant for car trips. In both figures, trip length for school and work bus trips has decreased. This may be a reflection of the increased number of schools in the region, allowing students to travel shorter distances on average.

4.0 Aggregate Trips

The number of trips made by region residents has risen from 814,000 trips per weekday in 1994 to 1,100,000 in 2005, an increase of 32%. This increase exceeds the robust population growth of 25%. This differs from the City of Edmonton where the number of trips being made has grown at the same rate as the population increase. The aggregate trip characteristics described in this section allow an assessment of the characteristics of this increase in demand and the effect on the transportation system.

4.1 Total Weekday Person Trips and Mode Share

Of the 1.07 million trips per weekday made by region residents, 0.92 million are made by car driver and car passenger, a share of approximately 86%. Figure 4.1 illustrates the mode share of all person trips in 1994 and 2005, and Figure 4.2 has the mode share for the different region sectors.

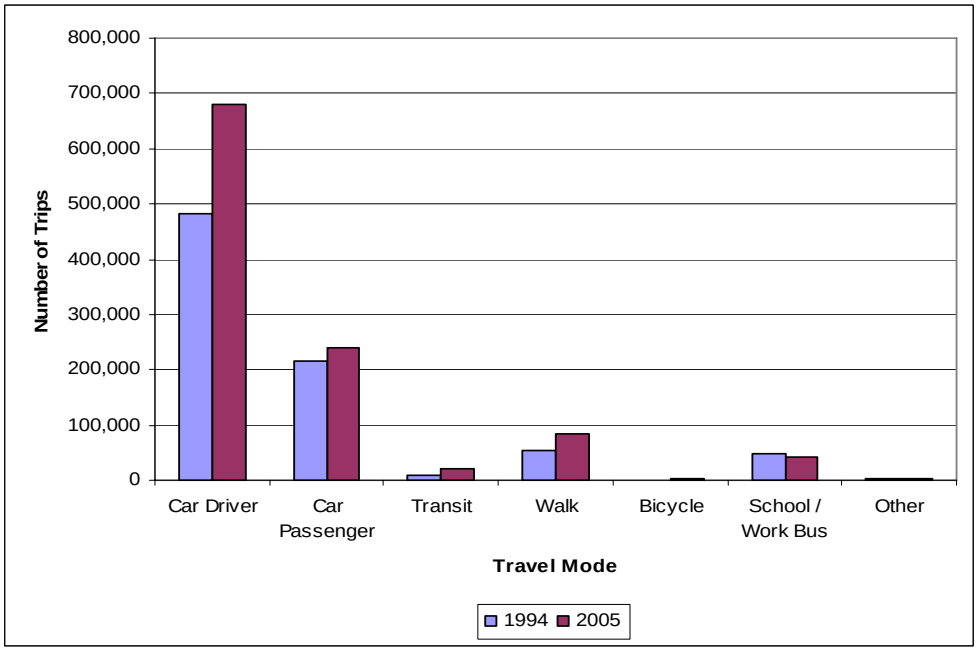


Figure 4.1: Mode Share by Number of Trips, All of Region, 1994 and 2005

From Figure 4.1 the largest change in the number of trips since 1994 is by car driver, which today account for nearly 680,000 trips per weekday made by region residents, an increase of 41% over 1994. The increase in the number of car passenger trips is much smaller than the increase in car driver trips. This relative decrease can be attributed to the switch from car passenger to car driver for females as shown in Table 3.3.

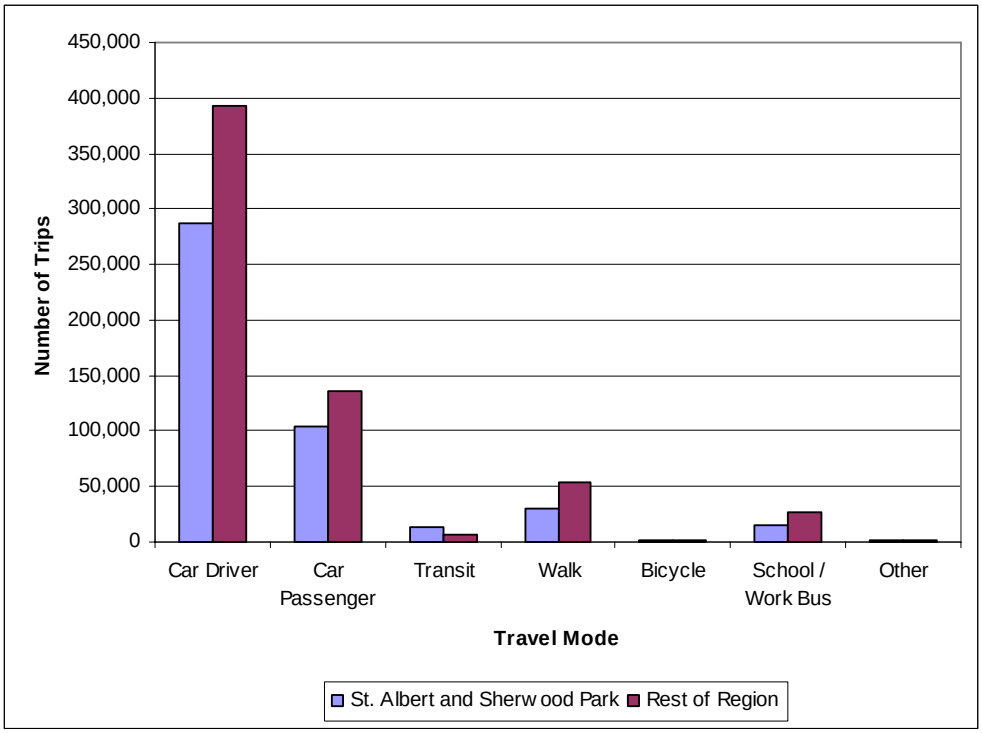


Figure 4.2: Mode Share by Number of Trips, 2005

Figure 4.2 illustrates that the greater region accounts for more car driver and passenger trips than St. Albert and Sherwood Park.

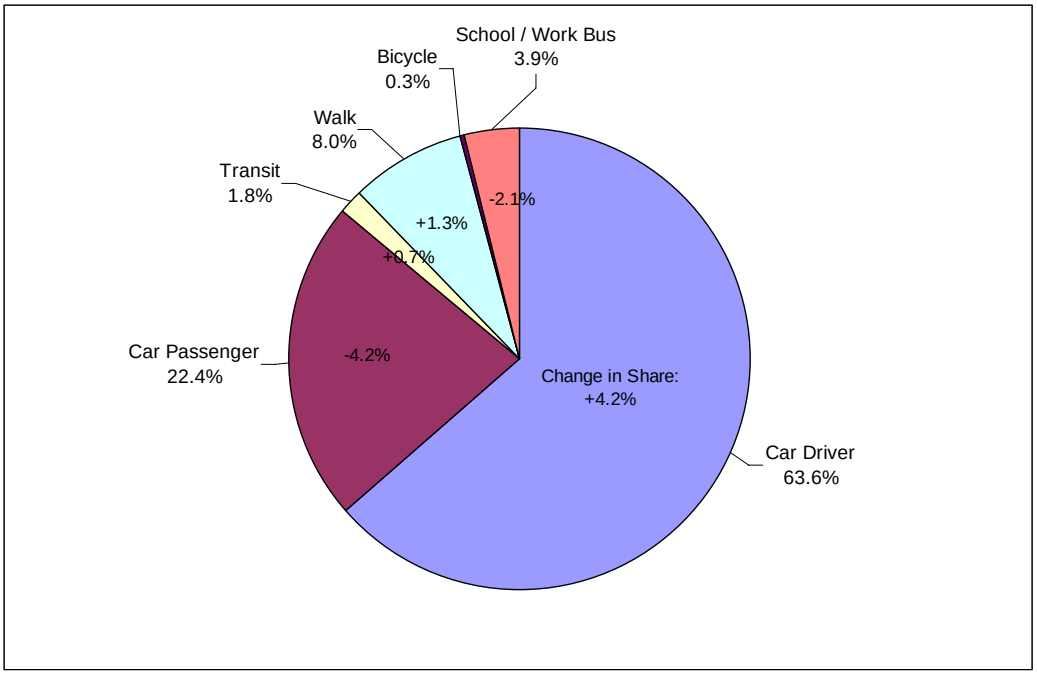


Figure 4.3: Mode Share by Percent of All Trips, All of Region, 2005

Figure 4.3 illustrates percentage mode share in 2005 and the change in share since 1994. The figure shows a decrease in car passenger and a corresponding increase in car driver percentages. The overall share of car trips has remained constant at just under 86%. Transit is shown to have an increasing mode share from 1.1 to 1.8%, which can be attributed to the new transit services that are now being provided to the region residents in the municipalities of Morinville and Fort Saskatchewan and possibly improved service in St. Albert and Sherwood Park. The overall transit share of 1.8% is much lower than the transit share within the City of Edmonton which is 9%.

4.2 Total Weekday Daily Trips by Purpose

In transportation planning it is useful to categorize trips by the purpose of travel; different trip purposes have different sensitivities to travel elements such as cost, mode use, and time constraints.

The trip purposes used in the 2005 travel survey are the same as those used in 1994. These include Home-Based Work and Home-Based School purposes. Home based trips either start or end at home. In other words, two trips, one from home to work and the

other from work to home, are each counted as home-based work trips. Table 4.1 lists the total trips by purpose in 2005 and changes from 1994 to 2005.

Table 4.1: Weekday Daily Trips by Trip Purpose, 1994 and 2005

Purpose	1994 Trips	1994 % of Total Trips	2005 Trips	2005 % of Total Trips	Difference in Trips, 1994 - 2005	% Difference
HB Work	128,000	16%	204,000	19%	76,000	59%
HB Post-Secondary	9,000	1%	19,000	2%	10,000	111%
HB School	108,000	13%	92,000	9%	-16,000	-15%
HB Shopping	71,000	9%	123,000	11%	52,000	73%
HB Social/Recreation	84,000	10%	153,000	14%	69,000	82%
HB Other	193,000	24%	235,000	22%	42,000	22%
HB Subtotal	***592,000***	***73%***	***826,000***	***77%***	***234,000***	***40%***
Non-HB Work	27,000	3%	49,000	5%	22,000	81%
Non-HB Other	195,000	24%	195,000	18%	0	0%
Non-HB Subtotal	***222,000***	***27%***	***244,000***	***23%***	***22,000***	***10%***
Total	**814,000**	**100%**	**1,070,000**	**100%**	**256,000**	**31%**

HB = Home-based

From Table 4.1, 19% of trips in 2005 are to and from work, and if school trips are added to work trips the total is 30%. This ratio highlights the need to plan transportation facilities considering more than just peak period trips to or from work. It is also worth noting that the Federal Census only considers the AM peak period home to work trips, and therefore lacks important information for planning and evaluation purposes that are captured by this survey.

There are several changes in trips by trip purpose since 1994. First is a shift away from home-based school trips to other purposes. This is likely a result of the changing demographics and aging of the population. Social and recreation trips have experienced the large increases, followed by shopping trips. These changes might be attributed to income growth, a move towards a healthier lifestyle, and an increase in the retired population. In general, the other changes can be attributed to a number of causes including social changes, new trends, or differences in survey questions and responses.

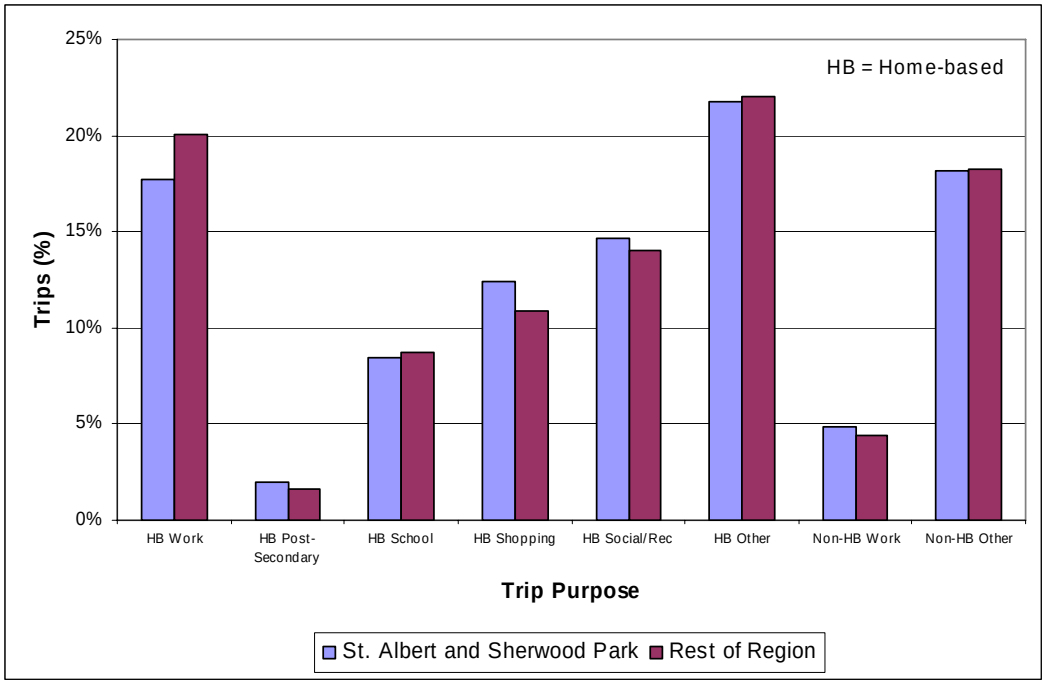


Figure 4.4: Weekday Daily Trips by Purpose, 2005

Figure 4.4 illustrates the daily trips by trip purpose, comparing St. Albert and Sherwood Park with the rest of the region. As a percentage of all trips, the rest of the region has a higher percentage of home-based work trips and a lower percentage of shopping trips. Other trip purposes are comparable between the sectors.

4.2.1 Weekday Mode Share by Trip Purpose

Home to work is an important part of overall transportation demand because of the prevalence of the car driver mode and the hope of attracting commuters to transit facilities. Figure 4.5 has the home to work trips broken down by travel mode. As expected, car driver trips are the dominant mode, capturing nearly 90% of trips to work for region residents.

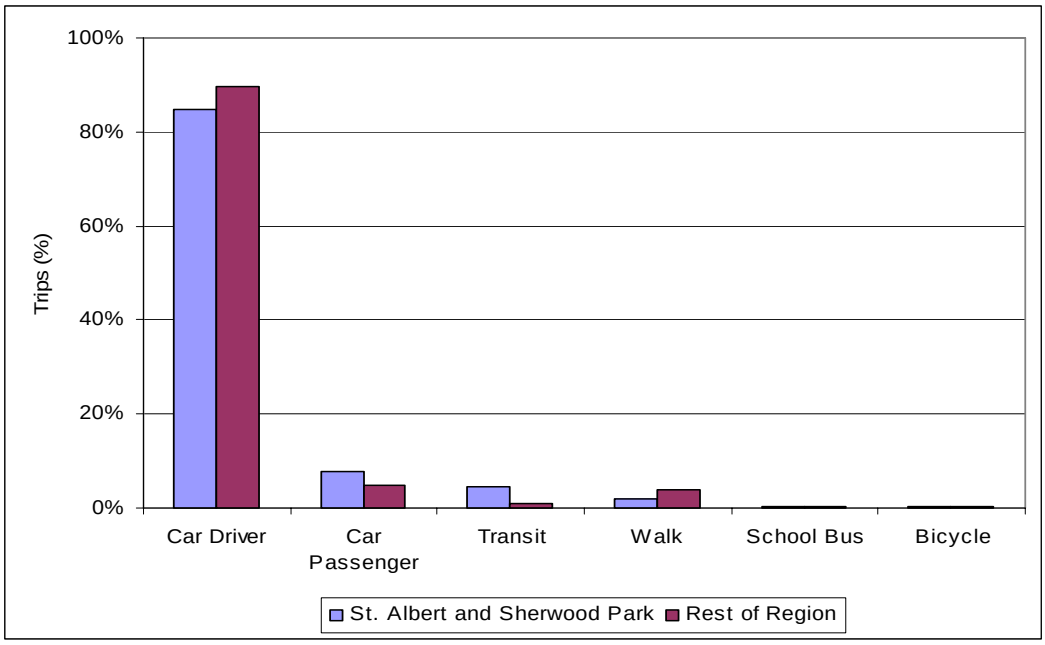


Figure 4.5: Weekday Daily Commute to Work Mode Share, 2005

Figures 4.6 through 4.9 have mode share for travel from home to different school types. There are several patterns in the data including the proportions of trips that are passenger, walk, and transit. For the elementary, junior high, and senior high levels, Figures 4.6 through 4.8 illustrate that kids are driven to school more in St. Albert and Sherwood Park compared to the rest of the region. The importance of school buses for region residents outside of St. Albert and Sherwood Park is also apparent. Figure 4.8 illustrates that high school students in St Albert and Sherwood Park are more likely to use both transit mode and car driver mode for trips to school compared to high school students in the rest of the region. At a post secondary level, Figure 4.9 shows that transit is used by students from all region sectors, and auto driver is also a major mode.

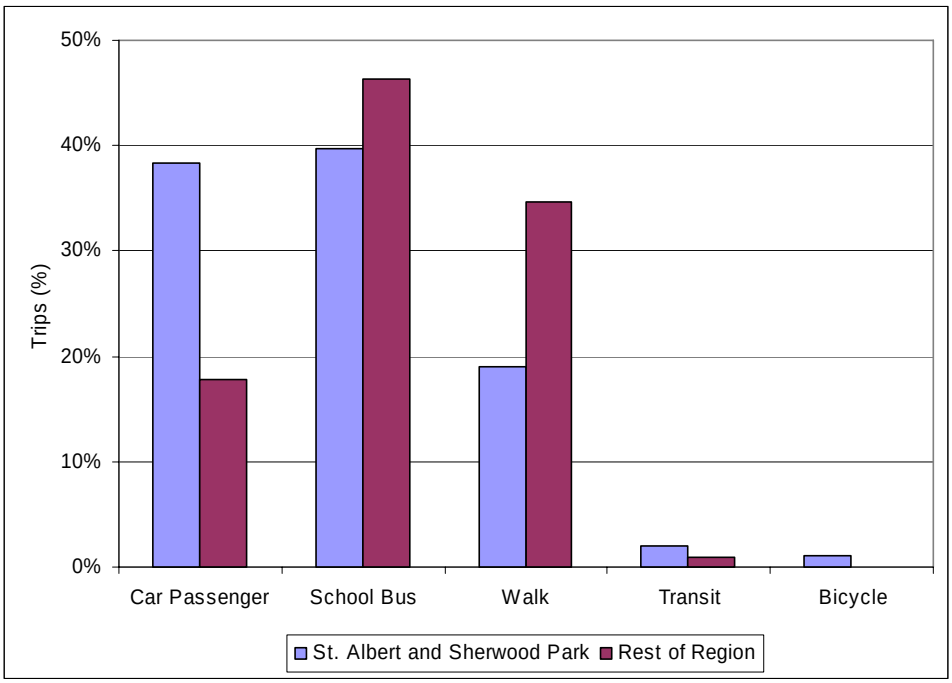


Figure 4.6: Weekday Daily Commute to Elementary School by Mode Share, 2005

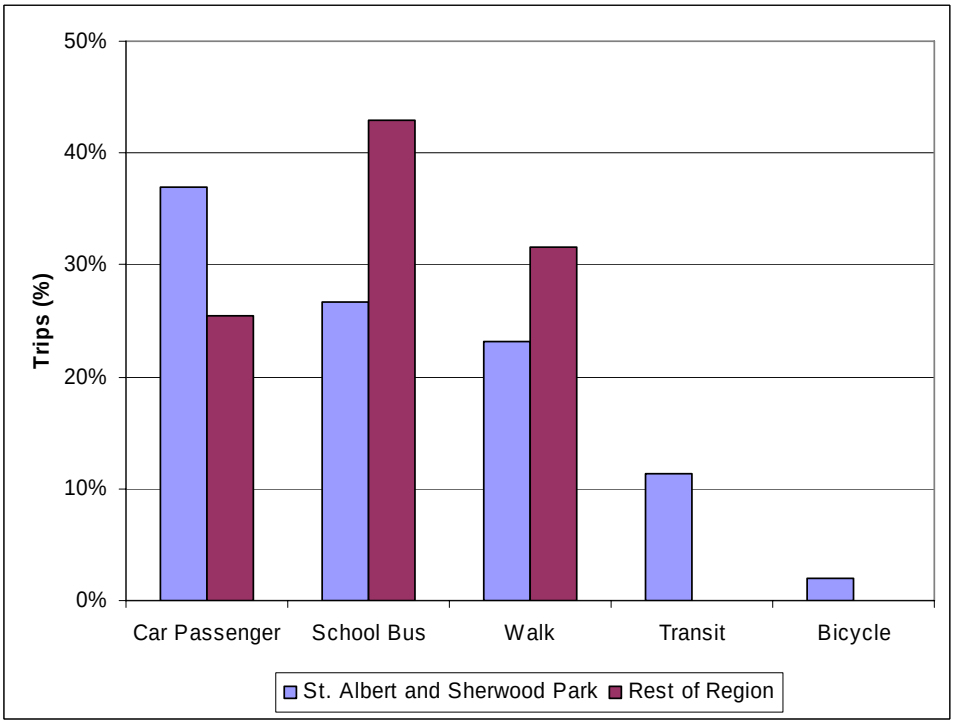


Figure 4.7: Weekday Daily Commute to Junior High School by Mode Share, 2005

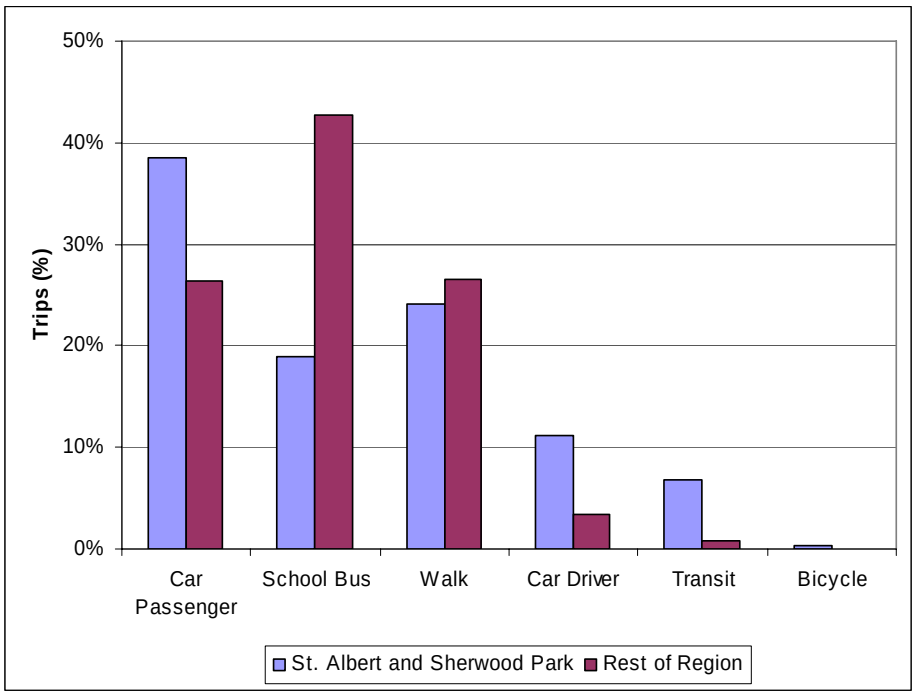


Figure 4.8: Weekday Daily Commute to Senior High School by Mode Share, 2005

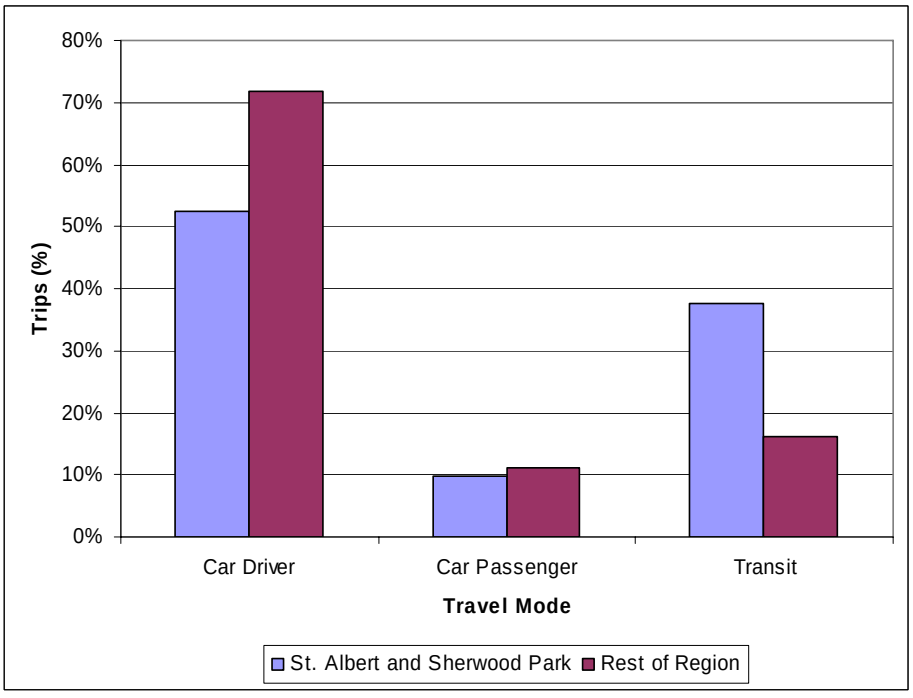


Figure 4.9: Weekday Daily Commute to Post-Secondary School by Mode Share, 2005

4.3 Weekday Travel Distances

The aggregate distance traveled combines the distance traveled on trips and the number of trips. The result is the total person-km, which is an indicator of demand. Figure 4.10 has the person-km of travel by mode for the entire region.

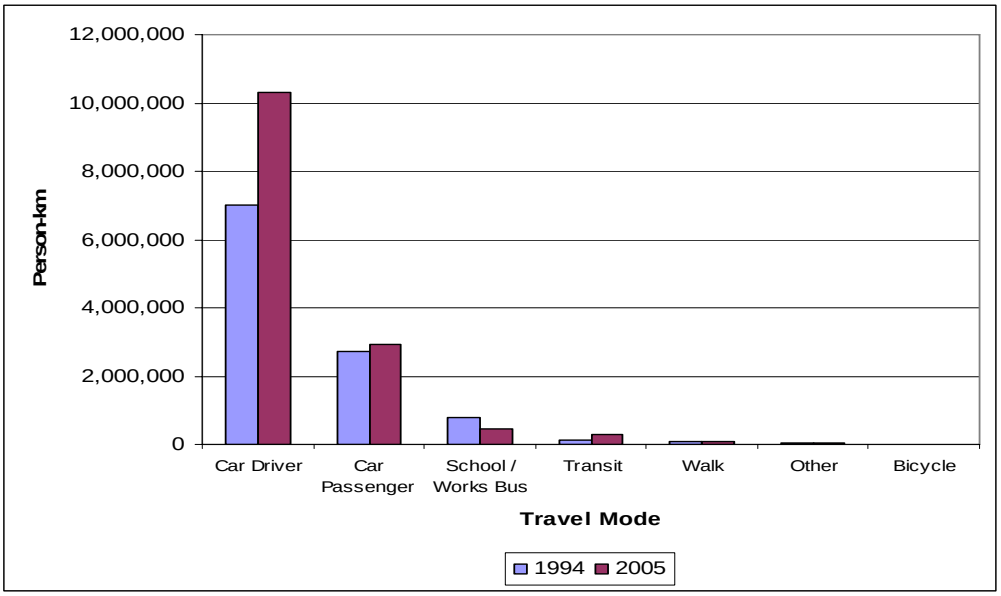


Figure 4.10: Weekday Daily Person-km Traveled by Mode, All of Region, 1994 and 2005

As shown in the figure, the person-km travelled by car driver has risen dramatically. In 1994 car driver accounted for 6,990,000 person-km while in 2005 it accounted for 10,300,000 person-km, an increase of 47%. This increase is due in part to the population growth in the region of 25%. These figures clearly illustrate the demands placed on the transportation system: the combination of more driving and longer trip length has caused the demand on the road network to rise nearly 50% in eleven years.

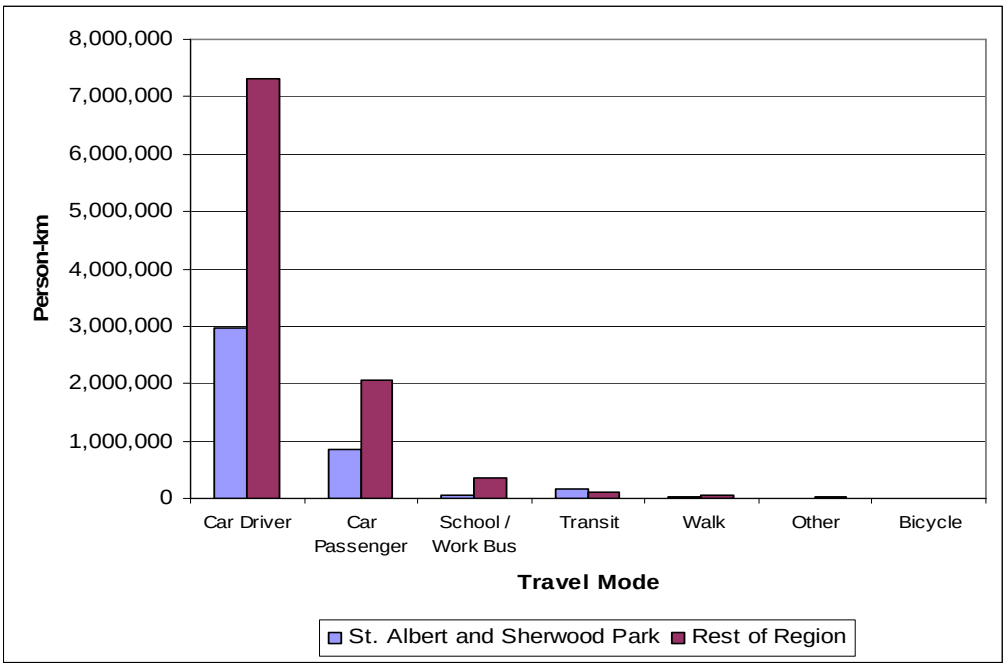


Figure 4.11: Weekday Daily Person-km Traveled by Mode, 1994 and 2005

Figure 4.11 illustrates that the total distance travelled by car is primarily caused by travellers in the region and not in St. Albert and Sherwood Park.

5.0 Weekday Travel Patterns

In the 2005 Household Travel Survey, trip origins and destinations were tracked so that travel demand between areas could be evaluated. This chapter is divided into two sections. Section 5.1 reports on travel between the Edmonton Region and the City of Edmonton, made by residents of both the city and region. Section 5.2 reports on travel from home; the data is filtered to represent travel for region residents only.

5.1 Weekday Regional Travel by City and Region Residents

On an overall basis, the number of trips between the Edmonton Region and the City of Edmonton has grown by 36%, while travel within the region has grown by 28%, as shown in Table 5.1.

Table 5.1: Two-way Weekday Daily Trips, 1994-2005

Trips Between	1994 Trips	2005 Trips	Difference	% Difference
City and Region	298,600	406,700	108,100	36%
Region and Region	542,000	692,200	150,200	28%

*City refers to the City of Edmonton

** Trips counted include travel in both directions, made by all residents of CMA

To report in greater detail, the Edmonton CMA was divided into ten sectors: The region consisting of St. Albert, Sherwood Park, Region-Urban, and Region-Rural; and the City of Edmonton consisting of Northeast, Northwest, Southeast, Southwest, West, and Central. Using this system allows travel patterns to be explored while maintaining a reasonable sample size in each area. Appendix A contains the Origin-Destination tables for trips within and between these sectors.

The number of trips between sectors is dependent on the population of those sectors. The population of the region sectors, as reported in Section 2.0, is given again in Table 5.2.

Table 5.2: Population of the Edmonton Census Metropolitan Area (CMA) by Sector, 1994 and 2005

Sector Description		1994	2005	Difference	% Difference
	CITY OF EDMONTON	633,200	712,400	79,200	13%
14	Sherwood Park	38,700	55,000	16,300	42%
15	St Albert	45,200	56,300	11,100	25%
16	Region - Urban	76,700	94,700	18,000	23%
17	Region - Rural	74,000	87,100	13,100	18%
	REGION	**234,600**	**293,100**	**58,500**	**25%**
	CMA	**867,800**	**1,005,500**	**137,700**	**16%**

Note: In 2005, Region - Urban includes Bruderheim, Thorsby, Warburg, Wabamun, Seba Beach, Legal

For the 2005 Travel Survey, the Region-Urban and Region-Rural sectors were redefined so that Bruderheim, Thorsby, Warburg, Wabamun, Seba Beach, and Legal were included in the Region-Urban Sector instead of Region-Rural. This may cause an exaggeration in the growth in trips from Region-Urban and a slight under-reporting in the trips from Region-Rural.

As shown in Table 5.1, the overall growth in travel between the City and the region is 108,100 trips. These trips are distributed to the different parts of the region as shown in Table 5.3.

Table 5.3: Two-way Weekday Daily Trips Between Edmonton and Region Sectors, 1994 and 2005

Between	1994 Trips	2005 Trips	Difference	% Difference
City and Sherwood Park	71,100	107,200	36,100	51%
City and St. Albert	66,100	88,900	22,800	34%
City and Region - Urban	67,500	94,000	26,500	39%
City and Region - Rural	93,900	116,600	22,700	24%
Total City and Region	**298,600**	**406,700**	**108,100**	**36%**

*City refers to the City of Edmonton

** Trip counts include travel in both directions, made by all residents of CMA

Table 5.3 illustrates that trips between the City of Edmonton and Sherwood Park have grown the most since 1994, with a 51% change, and that travel between the City of Edmonton and the other region sectors has also increased substantially. Figures 5.1 through 5.4 illustrate the breakdown of how trips from the region are distributed to the different Edmonton sectors. The scale of the figures has been kept constant so that comparisons can be made between figures.

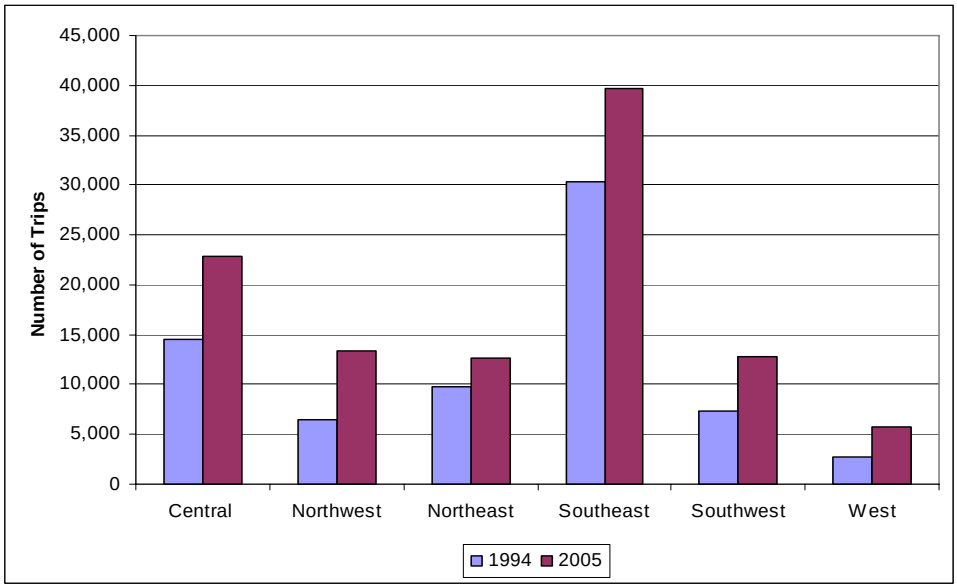


Figure 5.1: Two-way Weekday Daily Trips between Sherwood Park and Edmonton Sectors, 1994 and 2005

Figure 5.1 illustrates that trips between Sherwood Park and Southeast Edmonton are the highest at nearly 40,000 trips per weekday, almost twice as many trips as between Sherwood Park and Central Edmonton at 23,000 trips per weekday. Sectors further away from Sherwood Park have much lower interaction as seen in the number of trips to West Edmonton.

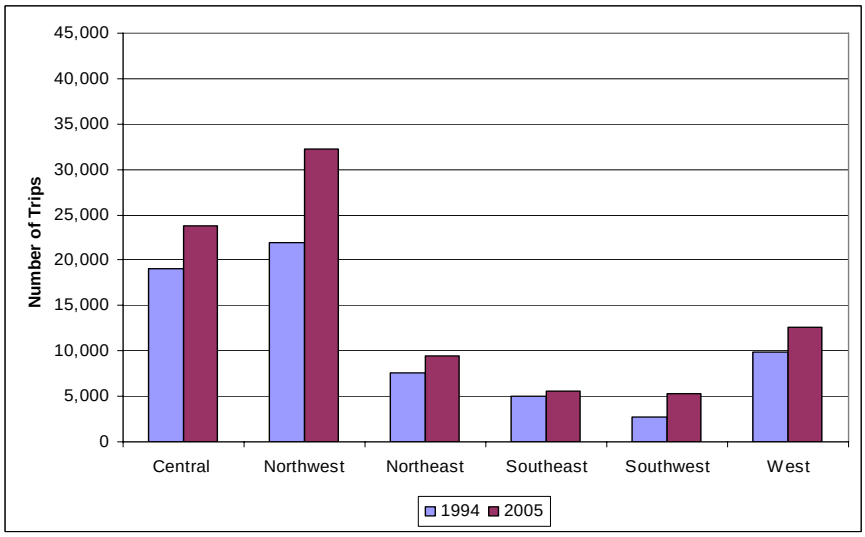


Figure 5.2: Two-way Weekday Daily Trips between St. Albert and Edmonton Sectors, 1994 and 2005

Figure 5.2 illustrates that travel between St. Albert and Northwest Edmonton accounts for 32,000 trips per day; between St. Albert and Central Edmonton is also high at 24,000 trips per weekday. St. Albert has little interaction with other sectors due to the longer distances, the number of trips between St. Albert and Southwest Edmonton is the least at approximately 5,000 trips per day.

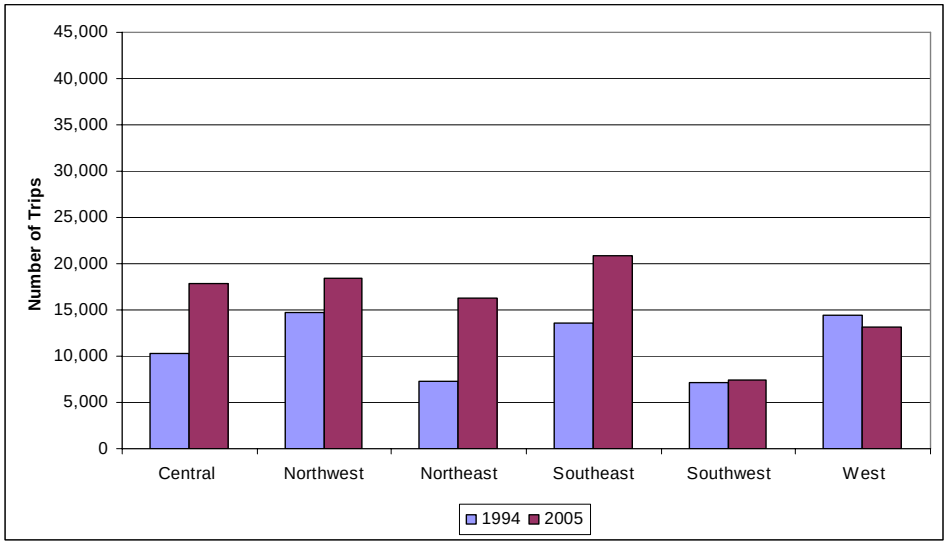


Figure 5.3: Two-way Weekday Daily Trips between Region-Urban and Edmonton Sectors, 1994 and 2005

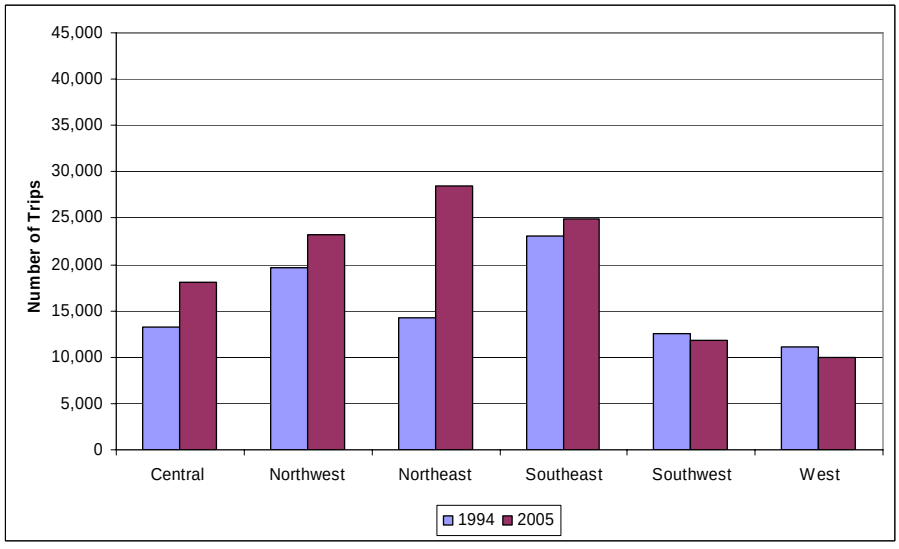


Figure 5.4: Two-way Weekday Daily Trips between Region-Rural and Edmonton Sectors, 1994 and 2005

Figures 5.3 and 5.4 illustrate that Region-Urban and Region-Rural trips are distributed across Edmonton, except for Southwest and West Edmonton which do not receive many trips. The Northeast sector has seen notable growth; these trips were examined and the Northeast appears to have become a larger destination for shopping and social and recreation trips from Strathcona County and the rest of the region.

To illustrate travel within the region and between the region sectors, an Origin-Destination graph is shown in Figure 5.5, while Figure 5.6 shows the growth in number of trips for the same sectors.

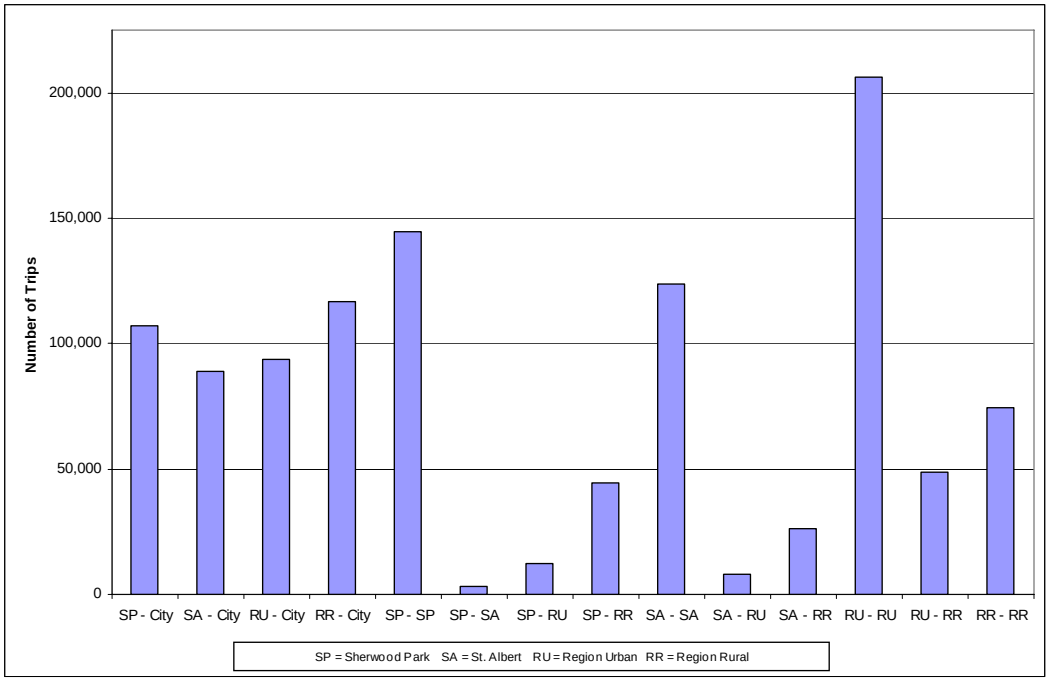


Figure 5.5: Two-Way Weekday Daily Regional Trips, 2005

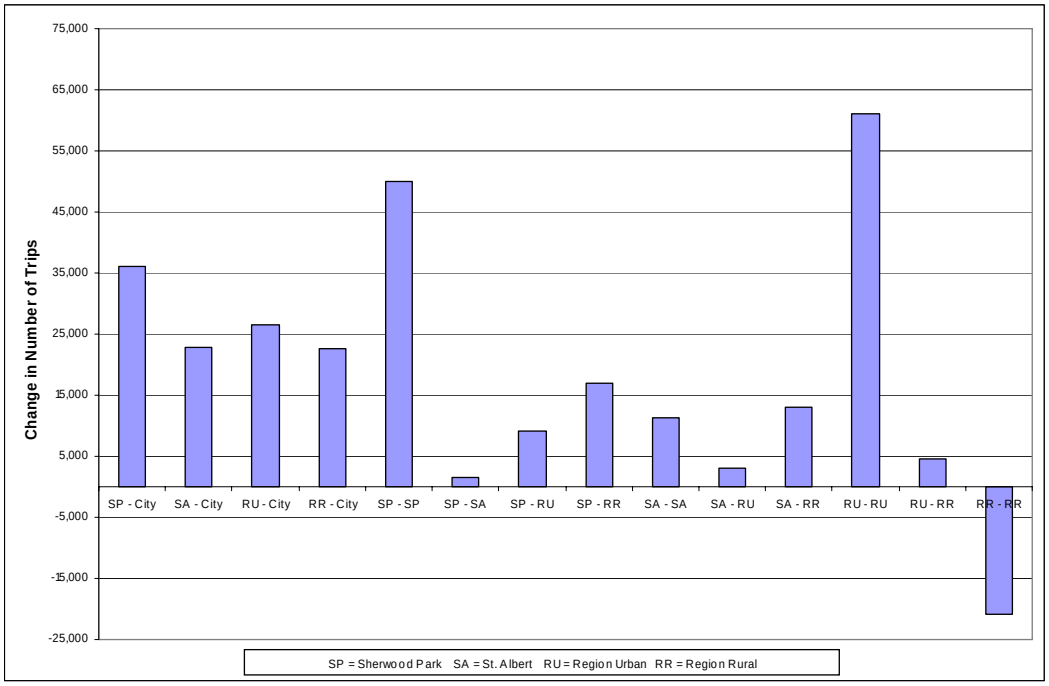


Figure 5.6: Change in Two-Way Weekday Daily Regional Trips, 1994 - 2005

Figures 5.5 and 5.6 illustrate the increasing demand for travel within and between the CMA sectors. Note that growth in travel with the Region-Urban sector is exaggerated as some towns are now included whereas they were counted as rural in 1994, and the number of trips from and to the Region-Rural sector is slightly under-reported.

In general, travel patterns within the region are the expected result of the changing land uses in and around Edmonton and the demographics shown in Section 2.0. There has been notable employment growth south of Edmonton in Nisku (part of Leduc County), and in the Strathcona County east and northeast of the city. Residential growth has occurred throughout the CMA in a suburbanization trend; development on the periphery of the City and in nearby communities. Traffic within the region and between the region and the City of Edmonton are both increasing faster than the population growth.

5.1.1 Mode Choice in Regional Travel

Figure 5.7 illustrates the car driver and transit share for intra-regional trips in 2005. The figure demonstrates the limited availability and use of transit in the region. The only

origin-destination pairs with transit share greater than 5% are for trips between Edmonton and St. Albert and Sherwood Park.

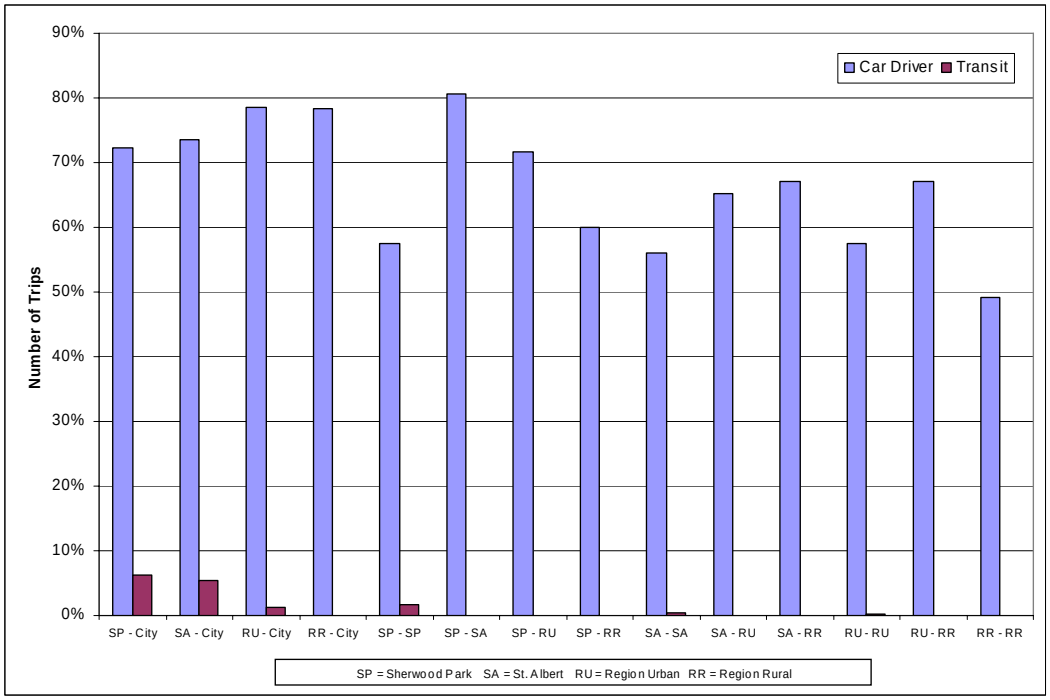


Figure 5.7: Percent Car Driver and Transit Weekday Daily Regional Trips, 2005

Figure 5.7 also shows a small but notable mode share for trips between Edmonton and Region-Urban. This is caused by newly available transit services to some of the communities around Edmonton. In 1994, transit service in the region was restricted to St. Albert and Sherwood Park (Strathcona County Transit). By 2005, transit service was available in two more municipalities, Morinville and Fort Saskatchewan.

5.2 Weekday Travel from Home by Region Residents

It is useful to isolate trips from home in reporting travel patterns because it highlights the characteristics of trips to work and trips to school compared to other trip types. Trips from home are one way trips such as from St. Albert to Central Edmonton. In other words, while the trips reported in Section 5.1 illustrate the overall demand between sectors, the travel from home illustrates where region residents are traveling to. Appendix B contains Origin-Destination tables for trips from home.

Table 5.4 shows trips from home between the region and the city, and within the region.

Table 5.4: Weekday Daily Trips from Home - Edmonton Region, 1994 and 2005

From	To	1994	2005	Difference	% Difference
Region	City	81,600	117,400	35,800	44%
Region	Region	213,400	283,800	70,400	33%
City	Region	34,400	48,800	14,400	42%

Note: City residents included to report City to Region trips from home

Table 5.4 illustrates that there are more commuters from the region into Edmonton than in the reverse direction, 117,400 trips per weekday versus 48,800 trips per weekday in 2005. Trips in both directions have experienced a similar growth percentage of 44% and 42%. These numbers indicate strong employment growth throughout the CMA.

For trips by region residents from home into Edmonton, it is important to explore the destinations of travellers. Figures 5.8 through 5.11 illustrate the trips by region residents from home to the different Edmonton sectors.

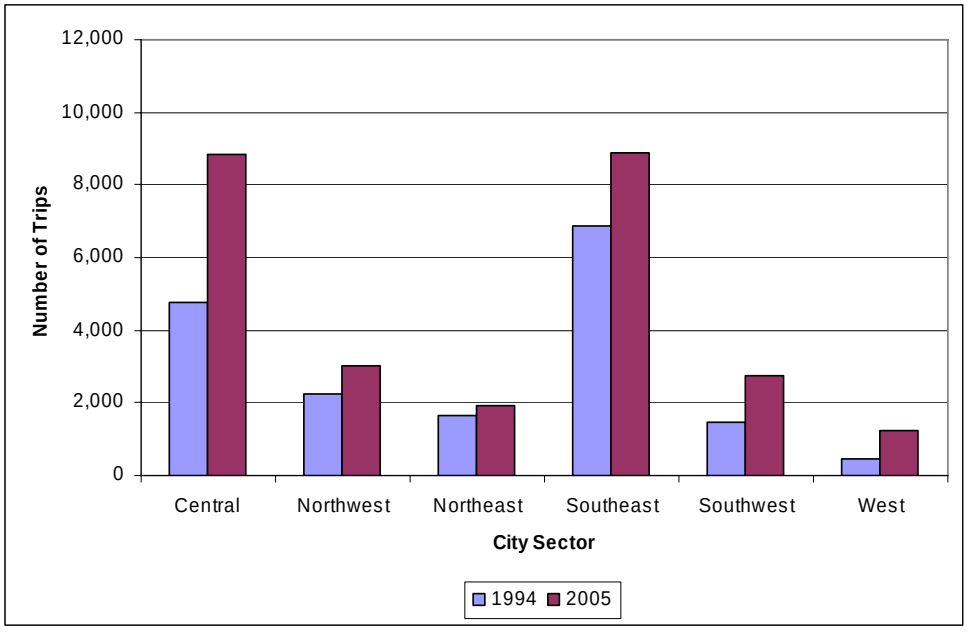


Figure 5.8: Weekday Daily Trips from Home - Sherwood Park to Edmonton Sectors, 1994 and 2005

Figure 5.8 illustrates that Central Edmonton has attracted a significant increase in trips from home for Sherwood Park residents since 1994. Southeast Edmonton and Central Edmonton together account for the majority of trips from Sherwood Park, consistent with the relative proximity and strong employment of those sectors.

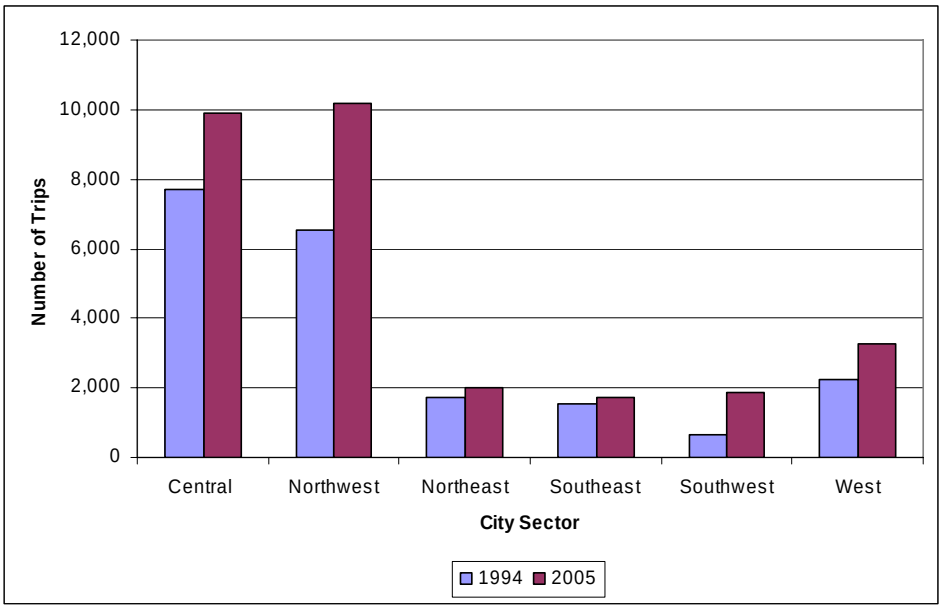


Figure 5.9: Weekday Daily Trips from Home - St. Albert to Edmonton Sectors, 1994 and 2005

Figure 5.9 illustrates that St. Albert residents generate as many trips destined for the Central sector as to the Edmonton sector closest to their Home, i.e. Northwest. Trips from home from St. Albert to Northwest Edmonton have experienced the largest increase since 1994.

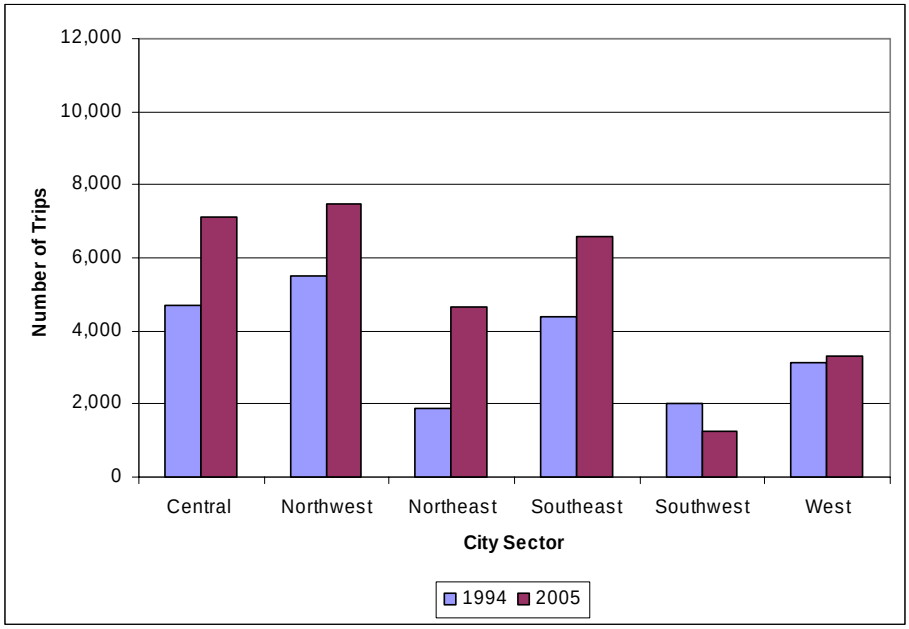


Figure 5.10: Weekday Daily Trips from Home - Region–Urban to Edmonton Sectors, 1994 and 2005

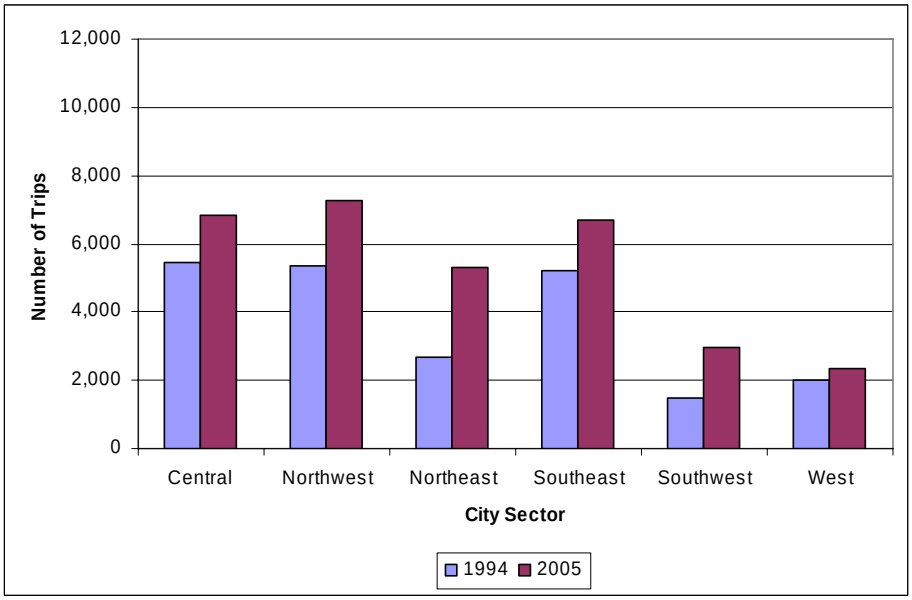


Figure 5.11: Weekday Daily Trips from Home - Region–Rural to Edmonton Sectors, 1994 and 2005

Figures 5.10 and 5.11 are generally consistent with growth in travel to sectors with notable increases in employment. Also, in these figures the Northeast sector has

attracted growth from the Region-Urban and Region-Rural areas. These trips are a result of increased shopping and social / recreation trips to Northeast Edmonton.

Figure 5.12 reports on weekday trips from home within the CMA, and Figure 5.13 shows growth in trips since 1994 for the same sector to sector pairs. The trips reported for each sector pair in this case include travel in both directions.

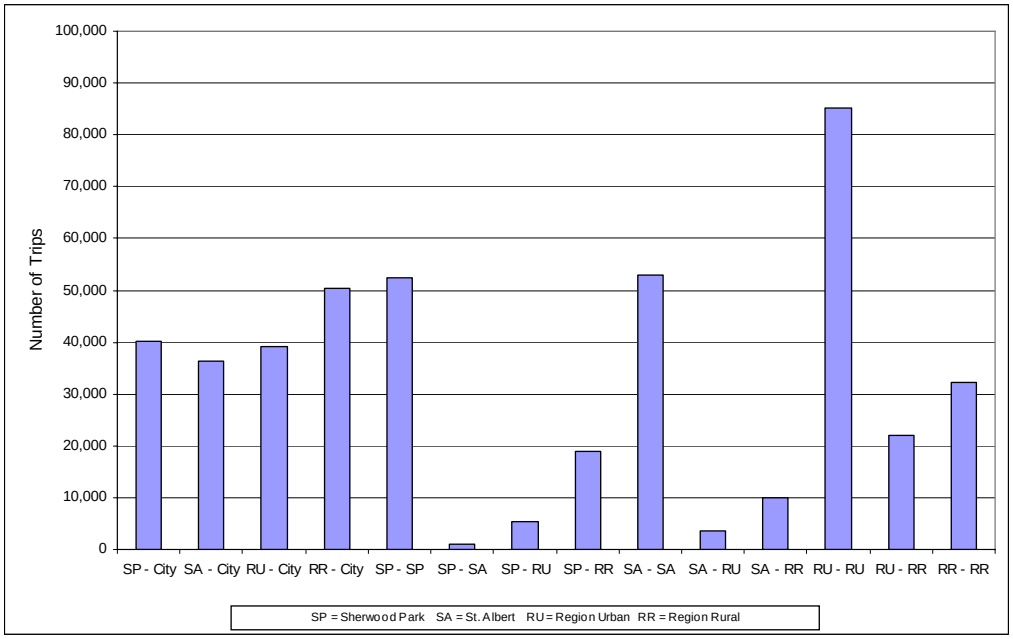


Figure 5.12: Weekday Daily Trips from Home, 2005

** Trip counts include travel made by City and Region residents from home.

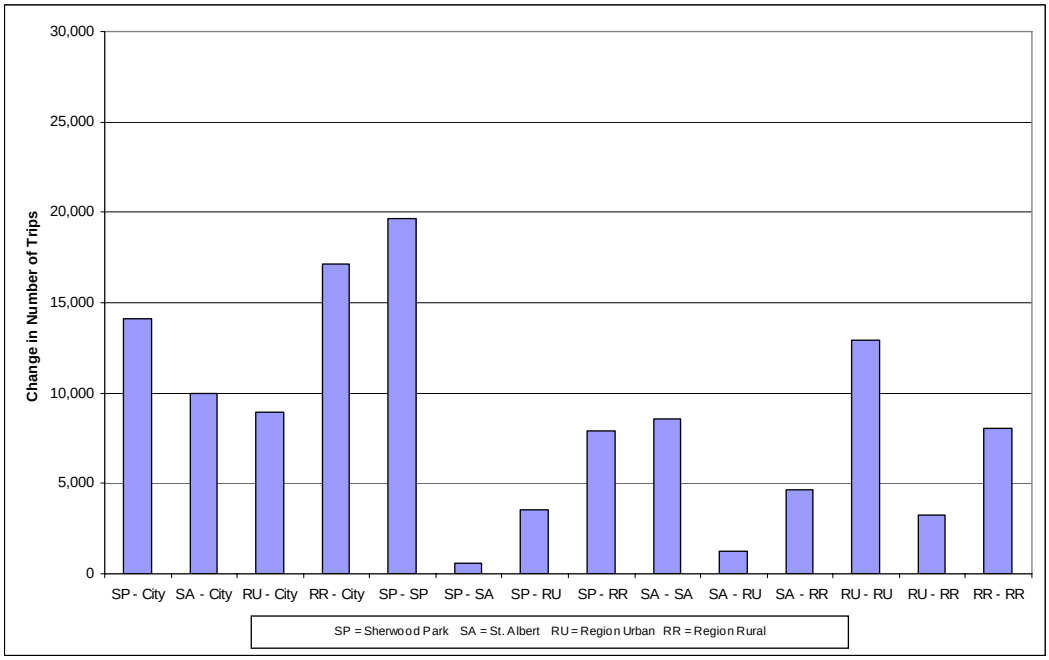


Figure 5.13: Change in Weekday Daily Trips from Home, 1994 to 2005

Figures 5.12 and 5.13 illustrate similar trends as noted for all regional travel. There has been notable growth in travel from home between the City of Edmonton and the region and between the urban areas of the region. Trips between Sherwood Park and Edmonton, and trips between Edmonton and Region-Rural, have also experienced strong growth, illustrating the effect of employment growth both in Edmonton and in Strathcona County and other parts of the region. Note that some of the growth in Region-Urban to Region-Urban is due to the inclusion of communities in the urban sector which were counted in the rural sectors in 1994, as described in Section 5.1.

5.2.1 Mode Choice in Trips from Home

For region residents, existing transit service focuses on providing access to downtown Edmonton and to the University of Alberta, which are located in the Central Edmonton sector. Table 5.5 has trips to Central Edmonton from home for the different region sectors and the transit share. Figure 5.14 has a comparison of car driver trips and transit trips.

Table 5.5: Weekday Daily Trips to Central Edmonton from Home, 2005

Home Sector	Total Trips to Central Edmonton	Total Transit Trips to Central Edmonton	Transit Share
Sherwood Park	8,900	1,500	17%
St. Albert	9,900	1,700	17%
Region - Urban	7,100	300	4%
Region - Rural	6,800	0	0%
Total Region	**32,700**	**3,500**	**11%**

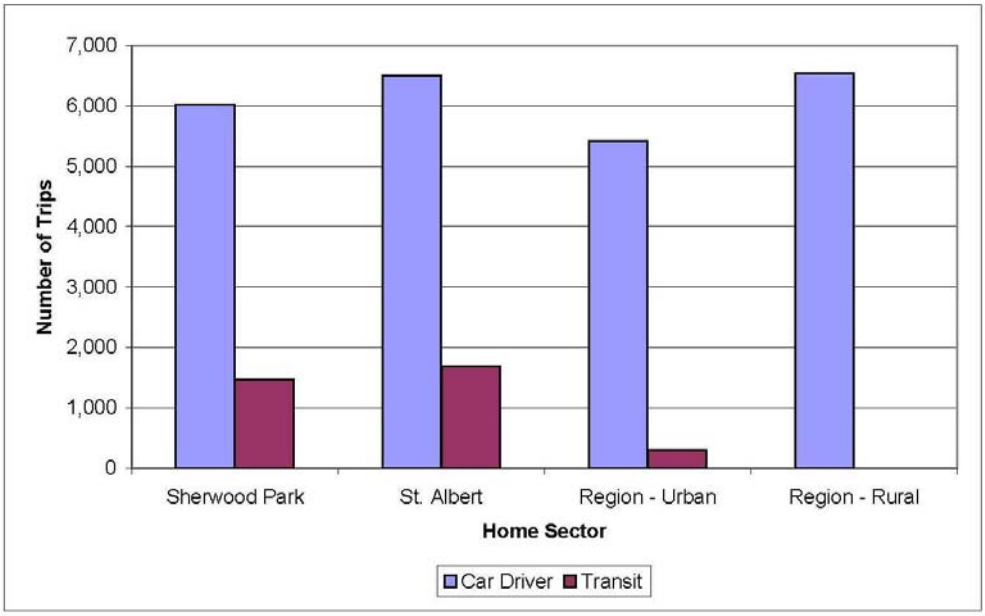


Figure 5.14: Weekday Daily Car Driver and Transit Trips to Central Edmonton from Home, 2005

Table 5.5 and Figure 5.14 illustrate that transit continues to be a viable alternative for trips from home, for travel from St. Albert and Sherwood Park to central Edmonton. For these types of trips, which consist of home to work and home to school travel, transit mode share is 17%. As discussed in Section 3.0, some residents of St. Albert and Sherwood Park are using transit as a lifestyle choice rather than a necessity.

Along with the Central sector, the most common destination for St. Albert residents is Northwest Edmonton and for Sherwood Park residents it is Southeast Edmonton. Mode share between these sectors is presented in Table 5.6.

Table 5.6: Weekday Daily Trips from Home to Major Destinations, 2005

From	To	Transit Trips	All Trips	Transit Share, %
St. Albert	NW Edmonton	320	10,200	3%
Sherwood Park	SE Edmonton	170	8,900	2%

Table 5.6 illustrates the lower mode share for travel to the Northwest and Southeast sectors of Edmonton. This is a result of destinations being more dispersed, so that users of transit must transfer, increasing travel times and lowering the desirability of transit services.

In general, transit service is showing strength in trips from home in St. Albert and Sherwood Park to Central Edmonton, which indicates that commuters and Post Secondary students find the services relatively attractive. In contrast, transit share is lower to the suburbs of Edmonton, which have experienced recent employment growth.

6.0 Conclusions

The 2005 Household Travel Survey provided a very rich poll of data on the travel patterns of residents of the Edmonton Census Metropolitan Area, including the city and adjacent municipalities. The information that has been collected reveals significant changes in travel patterns and behaviours that will be assessed and applied towards transportation policies and strategies for Edmonton and the Edmonton Region over the coming years.

6.1 Growth

Part of the change in travel patterns observed can be attributed to growth. While the City of Edmonton has seen a population growth of 13% since 1994, the region surrounding Edmonton has grown by 25%. In total, the population of the metropolitan area has increased from 867,800 to 1,005,500, a 16% increase.

The metropolitan area is also experiencing a strong employment growth. Within Edmonton, the southeast and northwest commercial and industrial areas have grown significantly, attracting commuter trips from the nearby region. In the region Strathcona County, Leduc County, and the Acheson Industrial Area in Parkland County have also had an increase in employment.

6.2 Demographic Changes

One of the most significant areas of change since 1994 is the change in the demographic characteristics in Edmonton's population. Household sizes are decreasing as families have fewer children and the population ages. From 1994 to 2005, average household size has decreased from 3.24 to 2.93 in Sherwood Park, from 3.23 to 2.83 in St. Albert, and from 3.13 to 2.94 in the Region-Urban sector. The Region-Rural sector has seen a household size increase from 3.13 to 3.88 on average.

In the region there is also a 'gap' in the age profile of people aged 20 to 30, which may be caused by young people relocating for post secondary education. Finally, a review of

occupations and school status shows higher level of full time employment, greater incidence of retired people and lower levels of children in grade school.

6.3 Weekday Travel Changes

6.3.1 Trip Rates and Demographics

The number of trips made per weekday by a household in the Edmonton Region has decreased from 11.09 to 10.44. This is mainly a result of the changing demographics (such as smaller household size) rather than a change in the trip rates per person. Trip rates were also shown to be influenced by household income, household size, and car ownership.

The person trip rate for the entire region is 3.63 trips per person, which is an increase over the 1994 trip rate of 3.49 trips per person. This increase is the result of the urbanization of the region. Residents of urban areas tend to generate more trips than residents of rural areas. The trip rate for the Region Urban and Region Rural sectors is 3.56 and 3.19 trips per weekday, respectively. Residents of St. Albert and Sherwood Park generate even more trips with an average of 4.05 trips per person per weekday.

Also, females tend to generate more trips per weekday compared to males. Females in the region make an average of 3.76 trips per day while males make an average of 3.51. In general this difference between genders can be attributed to a “Supermom” phenomenon where women with children are making a variety of trips for work, recreation, and personal/family business.

Demographics were shown to have an impact on mode share. For region residents, the most significant users of transit are 16-24 year olds in St. Albert and Sherwood Park. The relationship between household income and transit share was also explored for St. Albert and Sherwood Park. Households with income less than $30,000 were found to use transit the most at 4%, and households with income greater than $30,000 were found to use transit for 2% to 3% of trips.

Average trip lengths were also shown to be increasing. Region students now travel 4.4 km on average to get to school from home versus 3.3 km in 1994. There has also been an increase in the home to work trip length from 10.3 km to 11.0 km on average.

6.3.2 Weekday Aggregate Trips

The number of trips made in the Edmonton Region has increased from 800,000 trips per weekday in 1994 to 1,100,000 in 2005, an increase of approximately 32%. The largest change in the number of trips is by car driver, which account for 680,000 trips per day, an increase of 41% over 1994. This increase is a result of growth as well as a mode shift from car passenger to car driver.

Transit mode share has increased slightly with the provision of new services to some communities, but the overall share remains low at 1.8% of trips by all residents of the region, or 2.9% of trips made by residents of St. Albert and Sherwood Park. This is significantly lower than the City of Edmonton overall transit share of 9% of trips.

When trips are categorized by trip purpose, it becomes clear that trips from home to work and back are only a fraction of the travel that occurs in the Edmonton Region. Trips for shopping and social/recreation purposes have experienced the biggest percent change since 1994, and now account for 25% of all trips, more than work trips (19%) and post-secondary trips (2%) combined.

Coupled with increased suburban travel there has been a disproportionately strong growth in vehicle–kilometres of travel. All weekday car trips account for 10.3 million person-km, an increase of 47% compared to the 7.0 million person-km driven in 1994. This illustrates how the demand on the road system has increased much faster than growth in population, in the number of trips, or growth in average trip length when viewed independently.

6.3.2 Weekday Travel Patterns

On an overall basis, the number of trips per weekday between the Edmonton Region and the City of Edmonton has grown by 36%, while travel within the region has grown by 28%. A significant portion of the growth in travel from the region is to Sherwood Park.

Travel between Edmonton and Sherwood Park has grown by 51% since 1994, primarily focused to Southeast Edmonton and Central Edmonton. There are nearly twice as many trips per day between Sherwood Park and Southeast Edmonton (40,000) than between Sherwood Park and Central Edmonton (23,000). Travel between St. Albert and Edmonton has increased by 34% since 1994. Between St Albert and Northwest Edmonton the number of two-way trips has also grown substantially to nearly 32,000 trips per weekday, which compares with 24,000 trips per weekday between St Albert and Central Edmonton.

Travel from home for region residents is used to present the characteristics of commuters and students. Central Edmonton attracts a higher proportion of trips from home, indicating that it is a major destination for students and workers. In total, 117,000 trips from home are made from the Edmonton Region to the City every weekday, an increase of 44% over 1994. In the reverse direction there has also been an increase in travel. There are 48,800 trips from home from Edmonton to the Edmonton Region every weekday, an increase of 42% over 1994.

Travel from home also highlights the importance of transit for access to Central Edmonton. From both St Albert and Sherwood Park to Central Edmonton, transit share is approximately 17% of trips from home.

6.4 Implications

Overall, the mode share of trips between cars, transit, walking, and cycling is relatively unchanged since 1994, with a shift from car passenger to car driver for women being the most notable change. Car travel now accounts for 86% of all trips in the region.

Transit continues to show particular strength in trips from St. Albert and Sherwood Park to Central Edmonton. On these routes transit share is approximately 17% of trips from home. This indicates that transit service continues to attract people who work or go to school downtown. However there are now more trips being made from Sherwood Park to Southeast Edmonton and from St. Albert to Northwest Edmonton. On these trips transit share is much lower at 2 or 3%. This is likely a result of the longer transit travel times caused by the need for multiple transfers and the difficulty in servicing lower density land use with transit.

The difference between all trips and travel from home highlights how Central Edmonton is a major destination for work and education, but other trip types are being attracted elsewhere. The road system in the region accomodated 47% more travel in 2005 compared to 1994. This has implications on the congestion levels experienced by drivers and illustrates a need to plan for traffic levels that increase faster than population growth.

The majority of growth in travel was observed for suburban origins or destinations and between the urban areas of the region. This has implications on the City's ring road system. Growth in trips serviced by these roads is occurring much faster than the otherwise notable population growth.

Appendix A

Weekday Daily Trips, 2005

A1: Weekday Daily Person Trips, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	210,200	48,900	48,500	56,300	57,300	39,000	***460,200***	10,900	11,700	8,500	8,500	***39,600***	**499,800**
Northwest City	48,000	159,900	65,600	27,600	12,800	45,300	***359,200***	7,000	15,900	9,400	10,800	***43,100***	**402,300**
Northeast City	46,400	66,500	239,000	31,200	11,300	12,000	***406,400***	6,300	5,000	8,100	15,500	***34,900***	**441,300**
Southeast City	58,000	25,400	33,600	332,400	65,300	20,500	***535,200***	20,600	2,700	10,800	11,500	***45,600***	**580,800**
Southwest City	54,500	13,600	9,900	66,700	195,300	16,600	***356,600***	7,000	2,300	3,600	6,400	***19,300***	**375,900**
West City	40,200	44,400	11,600	21,000	16,300	230,900	***364,400***	3,200	6,600	6,200	4,300	***20,300***	**384,700**
CITY	***457,300***	***358,700***	***408,200***	***535,200***	***358,300***	***364,300***	***2,482,000***	***55,000***	***44,200***	***46,600***	***57,000***	***202,800***	***2,684,800***
Sherwood Park	11,900	6,300	6,500	19,200	5,800	2,600	***52,300***	144,600	1,700	6,100	23,800	***176,200***	**228,500**
St. Albert	12,100	16,400	4,400	2,800	3,000	6,100	***44,800***	1,500	123,600	4,200	13,400	***142,700***	**187,500**
Region-Urban	9,400	9,000	8,100	10,100	3,900	6,900	***47,400***	6,300	3,700	206,400	24,500	***240,900***	**288,300**
Region-Rural	9,700	12,400	13,000	13,400	5,400	5,600	***59,500***	20,700	12,900	24,300	74,500	***132,400***	**191,900**
REGION	***43,100***	***44,100***	***32,000***	***45,500***	***18,100***	***21,200***	***204,000***	***173,100***	***141,900***	***241,000***	***136,200***	***692,200***	***896,200***
TOTAL	**500,400**	**402,800**	**440,200**	**580,700**	**376,400**	**385,500**	**2,686,000**	**228,100**	**186,100**	**287,600**	**193,200**	**895,000**	**3,581,000**

A2: Weekday Daily Car Driver Trips, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	60,400	31,700	22,600	31,200	31,500	25,000	***202,400***	7,100	7,900	6,800	7,600	***29,400***	**231,800**
Northwest City	31,000	93,700	44,900	21,400	9,300	32,400	***232,700***	5,500	12,500	7,600	8,700	***34,300***	**267,000**
Northeast City	22,200	44,700	128,000	20,700	7,800	7,900	***231,300***	4,700	3,500	6,400	11,000	***25,600***	**256,900**
Southeast City	32,900	19,400	21,900	180,900	44,200	15,300	***314,600***	15,300	2,200	8,500	9,100	***35,100***	**349,700**
Southwest City	30,100	10,600	6,700	45,100	101,700	11,200	***205,400***	4,400	1,700	2,900	4,700	***13,700***	**219,100**
West City	25,700	32,000	8,000	15,700	11,200	117,000	***209,600***	2,500	4,600	4,600	3,400	***15,100***	**224,700**
CITY	***202,300***	***232,100***	***232,100***	***315,000***	***205,700***	***208,800***	***1,396,000***	***39,500***	***32,400***	***36,800***	***44,500***	***153,200***	***1,549,200***
Sherwood Park	7,800	5,200	4,900	14,200	3,800	2,200	***38,100***	83,100	1,300	4,200	14,500	***103,100***	**141,200**
St. Albert	8,100	13,000	3,300	2,100	2,300	4,200	***33,000***	1,200	69,300	2,700	9,100	***82,300***	**115,300**
Region-Urban	7,300	7,400	6,400	7,600	2,900	5,400	***37,000***	4,600	2,400	118,600	16,700	***142,300***	**179,300**
Region-Rural	8,500	10,100	9,300	10,200	4,200	4,400	***46,700***	12,200	8,600	16,100	36,700	***73,600***	**120,300**
REGION	***31,700***	***35,700***	***23,900***	***34,100***	***13,200***	***16,200***	***154,800***	***101,100***	***81,600***	***141,600***	***77,000***	***401,300***	***556,100***
TOTAL	**234,000**	**267,800**	**256,000**	**349,100**	**218,900**	**225,000**	**1,550,800**	**140,600**	**114,000**	**178,400**	**121,500**	**554,500**	**2,105,300**

A3: Weekday Daily Transit Trips, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	28,000	6,300	18,300	10,000	10,300	6,800	***79,700***	2,100	2,100	300	0	***4,500***	**84,200**
Northwest City	5,900	5,700	2,900	1,300	600	1,600	***18,000***	400	400	0	0	***800***	**18,800**
Northeast City	17,100	3,000	14,600	2,800	1,200	500	***39,200***	400	100	200	0	***700***	**39,900**
Southeast City	11,700	1,500	2,800	19,300	2,800	1,100	***39,200***	300	100	200	0	***600***	**39,800**
Southwest City	9,700	400	1,200	3,100	8,700	700	***23,800***	0	0	0	0	***0***	**23,800**
West City	7,300	2,400	800	1,200	600	10,000	***22,300***	200	0	0	0	***200***	**22,500**
CITY	***79,700***	***19,300***	***40,600***	***37,700***	***24,200***	***20,700***	***222,200***	***3,400***	***2,700***	***700***	***0***	***6,800***	***229,000***
Sherwood Park	2,200	300	500	400	0	0	***3,400***	2,300	0	0	0	***2,300***	**5,700**
St. Albert	1,700	400	0	100	0	0	***2,200***	0	600	0	0	***600***	**2,800**
Region-Urban	300	0	200	0	0	0	***500***	0	0	200	0	***200***	**700**
Region-Rural	0	0	0	0	0	0	***0***	0	0	0	0	***0***	**0**
REGION	***4,200***	***700***	***700***	***500***	***0***	***0***	***6,100***	***2,300***	***600***	***200***	***0***	***3,100***	***9,200***
TOTAL	**83,900**	**20,000**	**41,300**	**38,200**	**24,200**	**20,700**	**228,300**	**5,700**	**3,300**	**900**	**0**	**9,900**	**238,200**

A4: Weekday Transit Mode Split, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	13%	13%	38%	18%	18%	17%	***17%***	19%	18%	4%	0%	***11%***	**17%**
Northwest City	12%	4%	4%	5%	5%	4%	***5%***	6%	3%	0%	0%	***2%***	**5%**
Northeast City	37%	5%	6%	9%	11%	4%	***10%***	6%	2%	2%	0%	***2%***	**9%**
Southeast City	20%	6%	8%	6%	4%	5%	***7%***	1%	4%	2%	0%	***1%***	**7%**
Southwest City	18%	3%	12%	5%	4%	4%	***7%***	0%	0%	0%	0%	***0%***	**6%**
West City	18%	5%	7%	6%	4%	4%	***6%***	6%	0%	0%	0%	***1%***	**6%**
CITY	***17%***	***5%***	***10%***	***7%***	***7%***	***6%***	***9%***	***6%***	***6%***	***2%***	***0%***	***3%***	***9%***
Sherwood Park	18%	5%	8%	2%	0%	0%	***7%***	2%	0%	0%	0%	***1%***	**2%**
St. Albert	14%	2%	0%	4%	0%	0%	***5%***	0%	0%	0%	0%	***0%***	**1%**
Region-Urban	3%	0%	2%	0%	0%	0%	***1%***	0%	0%	0%	0%	***0%***	**0%**
Region-Rural	0%	0%	0%	0%	0%	0%	***0%***	0%	0%	0%	0%	***0%***	**0%**
REGION	***10%***	***2%***	***2%***	***1%***	***0%***	***0%***	***3%***	***1%***	***0%***	***0%***	***0%***	***0%***	***1%***
TOTAL	**17%**	**5%**	**9%**	**7%**	**6%**	**5%**	**8%**	**2%**	**2%**	**0%**	**0%**	1%	7%

Appendix B

Weekday Daily Person Trips from Home, 2005

B1: Weekday Daily Person Trips FROM HOME, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	52,900	12,700	3,700	8,000	5,200	4,400	***86,900***	500	700	500	1,100	***2,800***	**89,700**
Northwest City	21,700	55,300	17,200	8,300	1,800	7,700	***112,000***	1,800	2,500	700	3,200	***8,200***	**120,200**
Northeast City	34,000	35,000	94,000	17,800	7,100	5,100	***193,000***	2,600	1,700	2,600	6,300	***13,200***	**206,200**
Southeast City	35,400	12,200	7,900	123,400	20,300	6,000	***205,200***	6,400	600	1,700	3,600	***12,300***	**217,500**
Southwest City	37,900	8,000	2,400	23,900	75,800	7,200	***155,200***	1,500	700	1,200	2,300	***5,700***	**160,900**
West City	27,300	24,600	3,700	11,300	6,200	90,900	***164,000***	900	1,200	2,100	2,400	***6,600***	**170,600**
CITY	***209,200***	***147,800***	***128,900***	***192,700***	***116,400***	***121,300***	***916,300***	***13,700***	***7,400***	***8,800***	***18,900***	***48,800***	***965,100***
Sherwood Park	8,900	3,000	1,900	8,900	2,700	1,300	***26,700***	52,400	600	1,100	2,100	***56,200***	**82,900**
St. Albert	9,900	10,200	2,000	1,700	1,900	3,200	***28,900***	1,100	52,400	1,100	5,400	***60,000***	**88,900**
Region-Urban	7,100	7,500	4,700	6,600	1,200	3,300	***30,400***	4,300	2,400	85,200	8,200	***100,100***	**130,500**
Region-Rural	6,800	7,300	5,300	6,700	3,000	2,300	***31,400***	16,800	4,500	14,000	32,200	***67,500***	**98,900**
REGION	***32,700***	***28,000***	***13,900***	***23,900***	***8,800***	***10,100***	***117,400***	***74,600***	***59,900***	***101,400***	***47,900***	***283,800***	***401,200***
TOTAL	**241,900**	**175,800**	**142,800**	**216,600**	**125,200**	**131,400**	**1,033,700**	**88,300**	**67,300**	**110,200**	**66,800**	**332,600**	**1,366,300**

B2: Weekday Daily Car Driver Trips FROM Home, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	11,800	8,400	2,000	5,200	3,200	2,500	***33,100***	400	400	600	900	***2,300***	**35,400**
Northwest City	12,900	29,000	11,100	6,100	1,400	4,300	***64,800***	1,200	1,900	700	2,500	***6,300***	**71,100**
Northeast City	15,100	23,000	45,400	12,000	4,700	3,400	***103,600***	1,900	1,200	2,600	4,800	***10,500***	**114,100**
Southeast City	18,500	9,500	5,300	61,500	13,300	4,200	***112,300***	4,300	500	1,200	3,200	***9,200***	**121,500**
Southwest City	20,300	6,000	1,600	16,200	35,100	4,900	***84,100***	1,300	600	1,000	1,800	***4,700***	**88,800**
West City	16,900	18,600	2,100	8,900	4,300	42,000	***92,800***	900	1,000	1,400	1,800	***5,100***	**97,900**
CITY	***95,500***	***94,500***	***67,500***	***109,900***	***62,000***	***61,300***	***490,700***	***10,000***	***5,600***	***7,500***	***15,000***	***38,100***	***528,800***
Sherwood Park	6,000	2,500	1,400	7,200	1,700	900	***19,700***	27,700	500	900	1,800	***30,900***	**50,600**
St. Albert	6,500	8,400	1,600	1,300	1,400	2,300	***21,500***	900	27,100	900	3,600	***32,500***	**54,000**
Region-Urban	5,400	6,200	3,400	4,900	1,000	2,700	***23,600***	3,000	1,500	46,300	6,000	***56,800***	**80,400**
Region-Rural	6,600	6,100	3,300	5,000	1,900	1,600	***24,500***	9,300	2,700	8,500	15,700	***36,200***	**60,700**
REGION	***24,500***	***23,200***	***9,700***	***18,400***	***6,000***	***7,500***	***89,300***	***40,900***	***31,800***	***56,600***	***27,100***	***156,400***	***245,700***
TOTAL	**120,000**	**117,700**	**77,200**	**128,300**	**68,000**	**68,800**	**580,000**	**50,900**	**37,400**	**64,100**	**42,100**	**194,500**	**774,500**

B3: Weekday Daily Transit Trips FROM HOME, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	10,400	1,600	1,100	1,000	500	600	***15,200***	0	0	0	0	***0***	**15,200**
Northwest City	3,800	2,600	900	600	0	400	***8,300***	0	0	0	0	***0***	**8,300**
Northeast City	13,300	1,800	6,500	2,000	1,000	100	***24,700***	400	100	0	0	***500***	**25,200**
Southeast City	8,300	800	200	8,400	700	400	***18,800***	0	100	0	100	***200***	**19,000**
Southwest City	7,400	400	400	1,700	3,700	200	***13,800***	0	0	0	0	***0***	**13,800**
West City	5,800	1,600	600	600	300	4,200	***13,100***	0	0	0	0	***0***	**13,100**
CITY	***49,000***	***8,800***	***9,700***	***14,300***	***6,200***	***5,900***	***93,900***	***400***	***200***	***0***	***100***	***700***	***94,600***
Sherwood Park	1,500	300	100	200	0	100	***2,200***	900	0	0	0	***900***	**3,100**
St. Albert	1,700	300	0	0	0	0	***2,000***	0	300	0	0	***300***	**2,300**
Region-Urban	300	0	100	0	0	0	***400***	0	0	100	0	***100***	**500**
Region-Rural	0	0	0	0	0	0	***0***	0	0	0	0	***0***	**0**
REGION	***3,500***	***600***	***200***	***200***	***0***	***100***	***4,600***	***900***	***300***	***100***	***0***	***1,300***	***5,900***
TOTAL	52,500	9,400	9,900	14,500	6,200	6,000	98,500	1,300	500	100	100	2,000	100,500

B4: Weekday Transit Mode Split FROM HOME, 2005

Sector	Central City	Northwest City	Northeast City	Southeast City	Southwest City	West City	*CITY*	Sherwood Park	St. Albert	Region-Urban	Region-Rural	*Region*	TOTAL
Central City	20%	13%	30%	13%	10%	14%	***17%***	0%	0%	0%	0%	***0%***	**17%**
Northwest City	18%	5%	5%	7%	0%	5%	***7%***	0%	0%	0%	0%	***0%***	**7%**
Northeast City	39%	5%	7%	11%	14%	2%	***13%***	15%	6%	0%	0%	***4%***	**12%**
Southeast City	23%	7%	3%	7%	3%	7%	***9%***	0%	17%	0%	3%	***2%***	**9%**
Southwest City	20%	5%	17%	7%	5%	3%	***9%***	0%	0%	0%	0%	***0%***	**9%**
West City	21%	7%	16%	5%	5%	5%	***8%***	0%	0%	0%	0%	***0%***	**8%**
CITY	***23%***	***6%***	***8%***	***7%***	***5%***	***5%***	***10%***	***3%***	***3%***	***0%***	***1%***	***1%***	***10%***
Sherwood Park	17%	10%	5%	2%	0%	8%	***8%***	2%	0%	0%	0%	***2%***	**4%**
St. Albert	17%	3%	0%	0%	0%	0%	***7%***	0%	1%	0%	0%	***1%***	**3%**
Region-Urban	4%	0%	2%	0%	0%	0%	***1%***	0%	0%	0%	0%	***0%***	**0%**
Region-Rural	0%	0%	0%	0%	0%	0%	***0%***	0%	0%	0%	0%	***0%***	**0%**
REGION	***11%***	***2%***	***1%***	***1%***	***0%***	***1%***	***4%***	***1%***	***1%***	***0%***	***0%***	***0%***	***1%***
TOTAL	22%	5%	7%	7%	5%	5%	10%	1%	1%	0%	0%	1%	7%