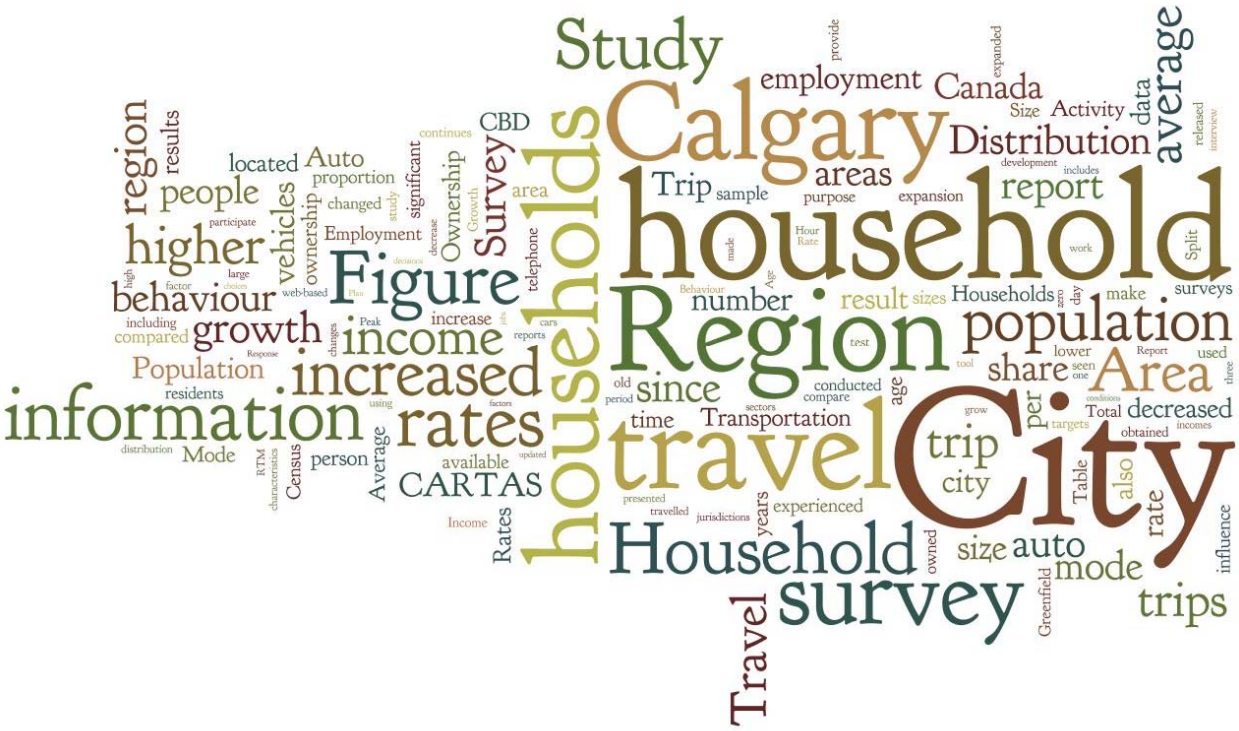

Changing Travel Behaviour in the Calgary Region

Travel Behaviour Report Series: Volume 4 May 2017

Executive Summary

This report is the fourth in a series developed to report the findings from the Calgary and Region Travel and Activity Survey (CARTAS) conducted in 2012. Household travel surveys have been conducted approximately every 10 years since 1964 and provide key information to decision makers on how travel behaviour and influences are changing over time. The primary purpose for the survey is to collect information to update the Regional Transportation Model (RTM), but these surveys offer a unique insight in the characteristics of travel in Calgary and the surrounding region.

This report will examine changes in regional travel as well as travel that occurs on the weekend.

KEY FINDINGS

People living in the region surrounding Calgary are commuting to work in city more than they did ten years ago.

While the population in the region surrounding Calgary has increased by over 60% since 2001, employment growth in the region has been significantly lower. As a result a higher portion of region residents are travelling into Calgary for employment.

Workers travelling in the region use auto for over 90% of their work trips. Walk mode share between 2001 and 2011 has decreased due to fewer region residents working in Calgary's downtown core.

Region residents are staying in the region for discretionary travel more than 10 years ago

While work travel by region residents to the city has increased, travel to the city for discretionary purposes has decreased. Increases in retail and service employment in the region that resulted from developments such as CrossIron Mills have provided more opportunities for region residents to shop or use services without entering the city.

Like work travel, most region residents use auto mode for discretionary travel as well. However, while the auto passenger mode is around 5% for work travel, it is almost 30% for discretionary travel. This suggests that people are more likely to travel as a group when they are conducting discretionary activities.

Calgarians have different travel patterns on the weekend than they do on weekdays

On weekends, Calgarians make the majority of their trips using their personal vehicles and use transit and active modes less than during the week. More people travel together in groups, so while the overall auto mode share is higher, the number of vehicles on the road is lower on the weekend.

Weekend travel does not have the same defined peak periods that are seen in weekday travel. Travel peaks on the weekend in the afternoon and slowly tapers off into the evenings.

Weekend transit ridership is lower than weekday travel.

Transit usage declines on the weekend; approximately 2% of weekend trips use transit compared with 9% on weekdays. Young people made the largest share of transit trips as almost a third of weekend transit trips were made by people who are 15 to 24 years old. Another key characteristic of transit users was that just over half of transit users did not have a driver's license.

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Changing Travel Behaviour in the Calgary Region

1 Report Purpose

This report is the last of a series of four reports to communicate the results from the Calgary and Region Travel and Activity Survey (CARTAS) and compare those results to travel surveys conducted in the past. This report includes information on travel by region residents and weekend travel by city residents and connects why people travel with how they travel.

This report builds upon the information in Volumes 1 to 3 and continues with analysis into who, what, when, where, why, and how of travel in the Calgary Region. Previous reports can be found on the City of Calgary Travel Surveys website (www.calgary.ca/travelsurveys) and includes demographic information, household travel characteristics, trip rates, and city wide mode split.

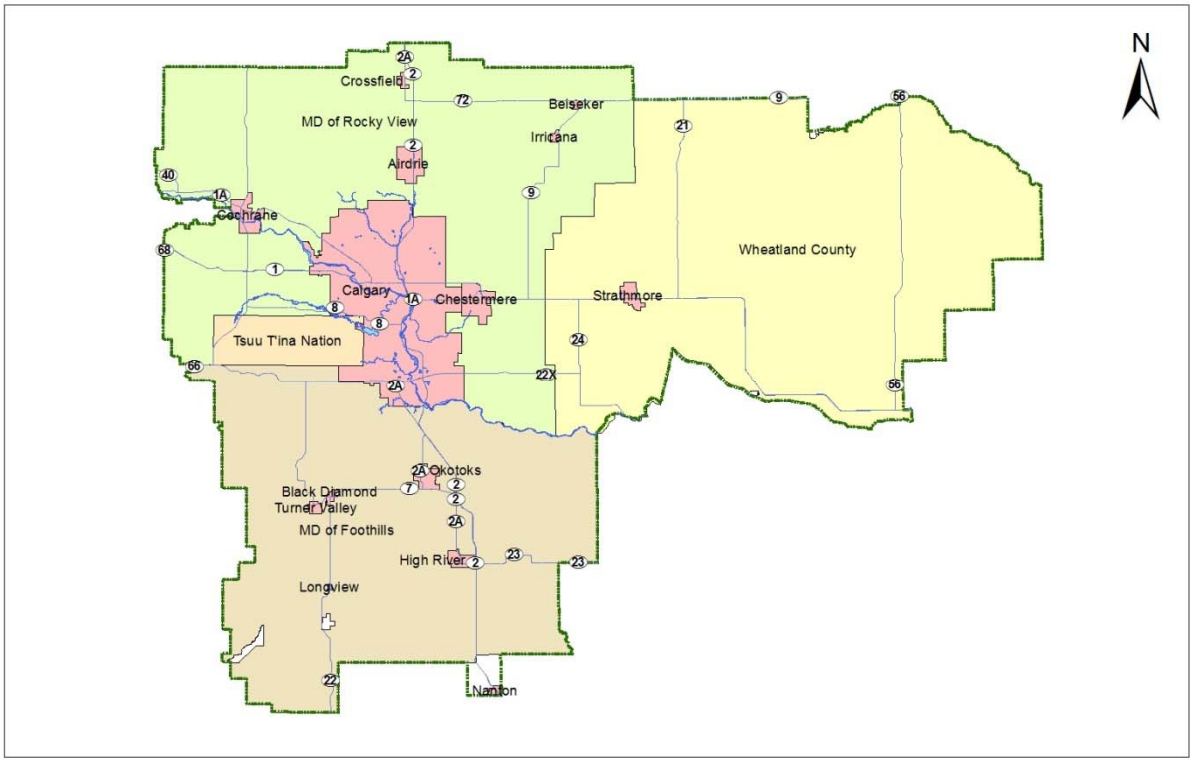
CARTAS was conducted in 2012 and was expanded to a variety of demographic targets to represent to the total study area population. The demographic targets for this survey were obtained from the 2011 Calgary Civic Census and 2011 Census of Canada. The result is that the information presented in this report represents travel behaviour conditions from 2011. This report focuses on travel changes from 2001 to 2011.

A Glossary of Terms found in this report can be found in Appendix A. Additional information on the background of this study as well as information on the data sources used, limitations to the survey data, and availability and release of survey data, can be found in Appendix B.

2 Study Area Description

The CARTAS study area includes The City of Calgary, the Municipal District of Foothills, Rockyview County, Wheatland County, and all the towns and villages within those boundaries including: Airdrie, Chestermere, Cochrane, High River, Okotoks, Nanton, and Strathmore. The Region is an important inclusion in the survey as regional travel, including travel between the City and the Region, continues to grow. For the purpose of this report, the Study Area refers to the entire area, the City refers to the city of Calgary, and the Region refers to the region surrounding Calgary. This report will focus on travel by Calgary and Region residents.

Figure 1: Study Area



3 Travel Behaviour of Residents in the Calgary Region

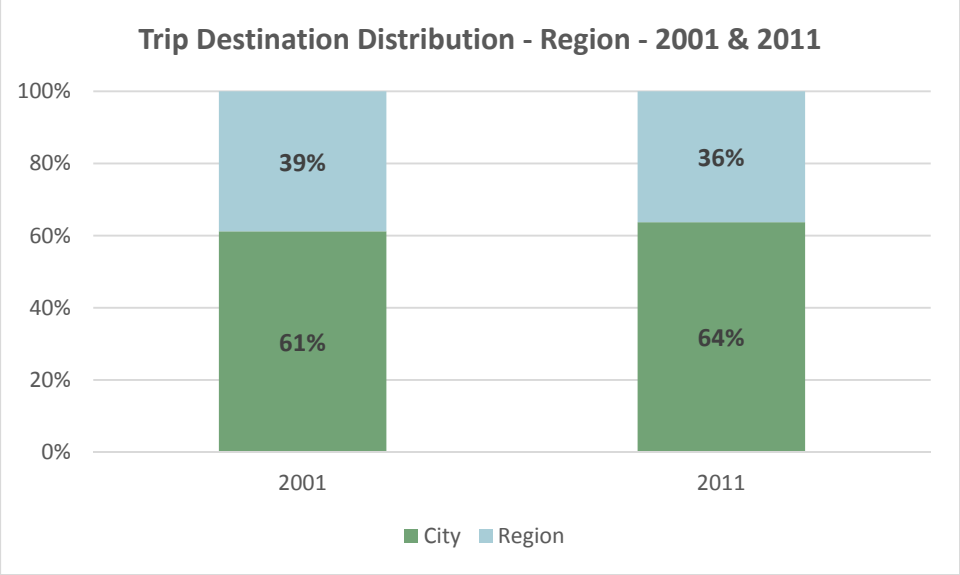
Urban areas can often dominate travel in their metropolitan regions, Calgary is no different. The city itself has a population of over a million people while the surrounding counties of Foothills, Rockyview, and Wheatland have a combined population of approximately 200,000. While the populations of the regions are quite different, the interaction between the city and region is important. People living in either area travel back and forth between them for work, school, shopping, and other purposes. The report looks at how that interaction has changed between 2001 and 2011.

3.1 People living in the region surrounding Calgary are making more commute trips to the city.

The region surrounding Calgary has been labelled one of the fastest growing areas in terms of population across Canada. From 2001 to 2011 the population of region increased by more than 60%, this led to an increasing share of the population in the Calgary area[1]. Despite this growth, more people in the region are travelling to the city for work purposes. In 2001 approximately 60% of work travel by region residents had a destination in the city, over ten years that number increased to 64%.

[1] (The City of Calgary, 2013)

Figure 2: Work Trip Destinations - Region - 2001 & 2011



Job growth in the region has not experienced the same rate of growth as the populations. This suggests that region workers are travelling to the city for work purposes because there are more jobs available in the city. The working population (people aged 15 years or older) and the labour force participation rates did not change significantly[2]. This indicates that there has not been significant growth in the number of workers outside of population growth.

Table 1: Population and Employment Growth Region - 2001 & 2011

	2001	2011	Growth
Region Population	128,011	205,555	61%
Region Employment	55,683	64,160	15%

Household income also influences work travel as almost 80% of people with a household income larger than $150,000 travelled to the city for work, compared with about 20% of people with a household income less than $30,000. This is may be due to higher travel costs to the city would encourage lower income workers to remain in the region to reduce travel costs. Higher income households are less sensitive to travel costs which may lead them to make different decisions.

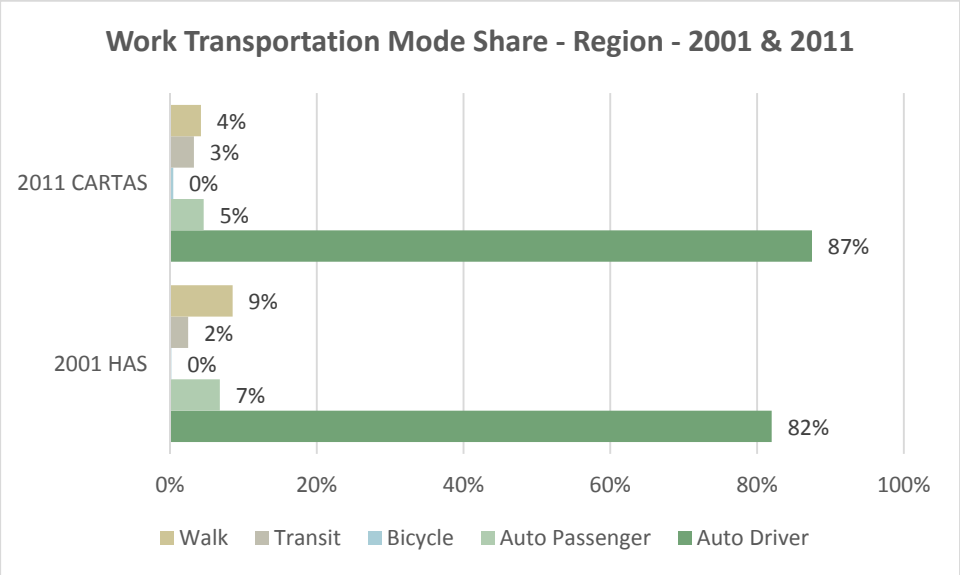
Table 2: Trip Destinations by Income Category - Region - 2001 & 2011

Household Income	City Destinations	Region Destinations
Less Than $30,000	21%	79%
$30,000 - $75,000	44%	56%
$75,000 - $150,000	68%	32%
Greather Than $150,000	78%	22%

[2] (Statistics Canada, 2001), (Statistics Canada, 2011)

The transportation mode for people living in the region has also shifted since 2001. In both cases most travel was made by auto either as a driver or a passenger. The proportion of people driving has increased from just over 80% in 2001 to just under 90% in 2011. There are fewer options for alternative modes such as transit, walking, or cycling from the region to the City which leads to more people choosing to drive to work. For the purposes of this analysis, a work trip is a trip where work was the primary purpose at the destination.

Figure 3: Work Transportation Mode Share - Region - 2001 & 2011



Walk mode share has decreased from about 10% to just under 5% in 2011. This is likely due to a shift in work location as fewer region residents are working in Calgary's downtown core or central business district (CBD). The number of work trips made by region residents to the CBD decreased slightly despite large increases in population which suggests a smaller proportion of region residents are working the Calgary's downtown core. It is likely that fewer region residents are making walk trips on their lunch hours or work breaks to run errands or do other kinds of shopping as their work locations no longer make this convenient.

Table 3: Work Travel to Calgary Downtown - Region - 2001 & 2011

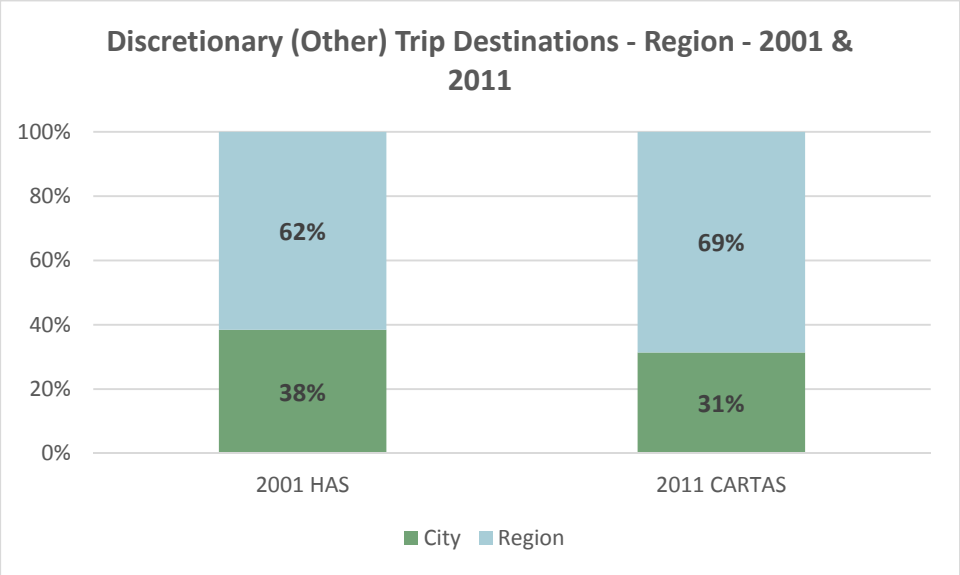
Work Trip Destination	2001 HAS	2011 CARTAS
Calgary Downtown	17%	14%
Rest of Calgary	44%	49%
Region	39%	36%

There has been no significant change in work travel to the region by city residents.

3.2 Region residents are staying in the region for discretionary travel more than 10 years ago

While region residents are travelling to the city more for work purposes, the opposite is true for discretionary travel such as shopping, errands, or services. While discretionary travel generally remains within the region, fewer and fewer region residents are travelling to the city. In 2001 just over 60% of discretionary trips stayed in the region. In 2011 that number increase to over two-thirds of travel. The most likely cause is increased retail and service options in the region from major developments such as CrossIron Mills Outlet Mall. The number of jobs in the retail industry grew by almost 60% becoming the largest employment industry in the region[3] (See Appendix D for employment data table.)

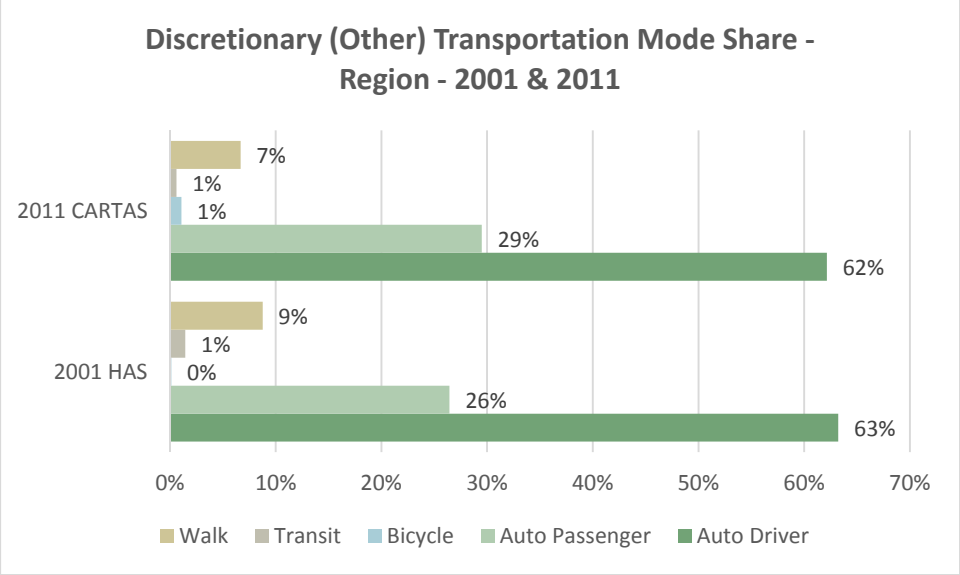
Figure 4: Discretionary (Other) Trip Destinations - Region - 2001 & 2011



Although there has been a change in destination for discretionary travel within the region, there has not been a significant shift in mode choice. Like work trips, most trips are made by auto either as a driver or passenger. There have been slight increases in travelling as an auto passenger and by bike. This may be due to the destinations being located closer to home as it's easier to ride a bike or travel with a passenger for a short trip.

[3] (Statistics Canada, 2006), (Statistics Canada, 2011)

Figure 5: Discretionary (Other) Transportation Mode Share - Region - 2001 & 2011



Discretionary travel often has more flexible destinations as the specific travel purpose matters more to travellers than the destination itself. As options for discretionary travel become available closer to where people live, they are more likely to use the services that are close to home. <maybe add an example>

3.3 Calgary residents travel to the region for fewer than 2% of their discretionary travel. Region Travel Conclusions

The key changes in travel behaviour for region residents are related to the development of retail centres in region locations. These centres have resulted in an increased in the number of discretionary trips that remain in the region. These developments have also attracted some travel from city residents, although the effect on the city transportation is minimal as less than 2% of trips made by city residents had a destination in the region.

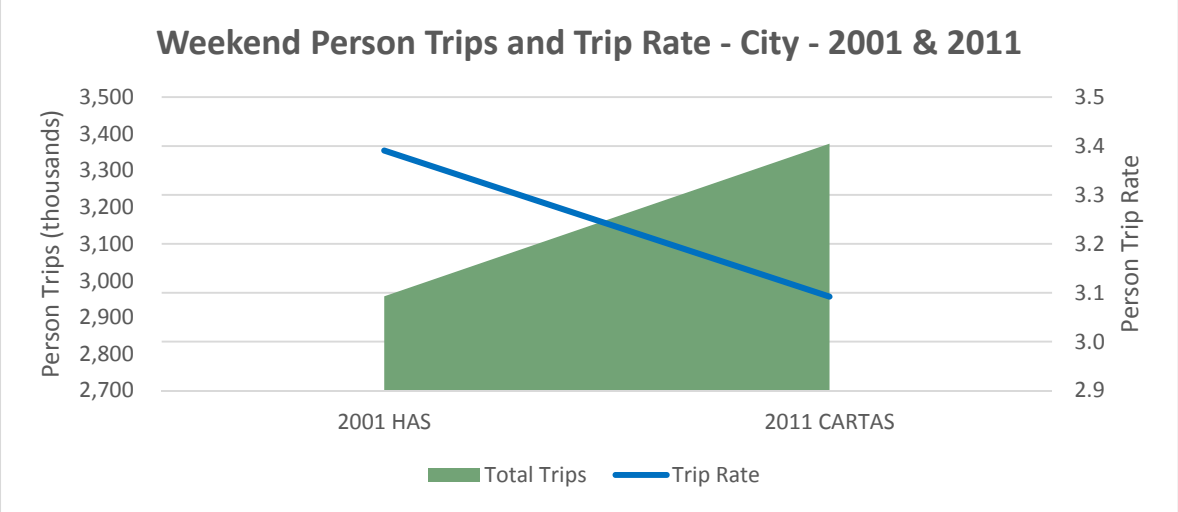
The auto mode continues to be the primary mode of transportation for region residents as almost 90% of travel is made as either an auto driver or auto passenger. Walk and transit modes have decreased slightly most likely due to a shift in work location away from the CBD where non-auto transportation options are more readily available.

4 Calgary Weekend Travel

This analysis looks at the travel behaviour of Calgarians on the weekend. It is common knowledge that daily traffic patterns are different on the weekend; this study quantifies the differences based on the results of the household activity survey. Changes in weekend travel patterns between 2001 and 2011 are also included. Key topics covered include time of travel, travel purpose, mode share and trip rates.

In 2011 Calgarians made over 3 million person trips per day on the weekend using various travel modes including auto, transit and active modes. While the total number of person trips within Calgary increased due to population growth between 2001 and 2011, the data collected shows Calgarians appear to be making fewer trips per person on the weekend. Figure 6 shows the increase in overall person trips and decrease in average trip rate.

Figure 6: Weekend Person Trips and Trip Rate - City - 2001 & 2011

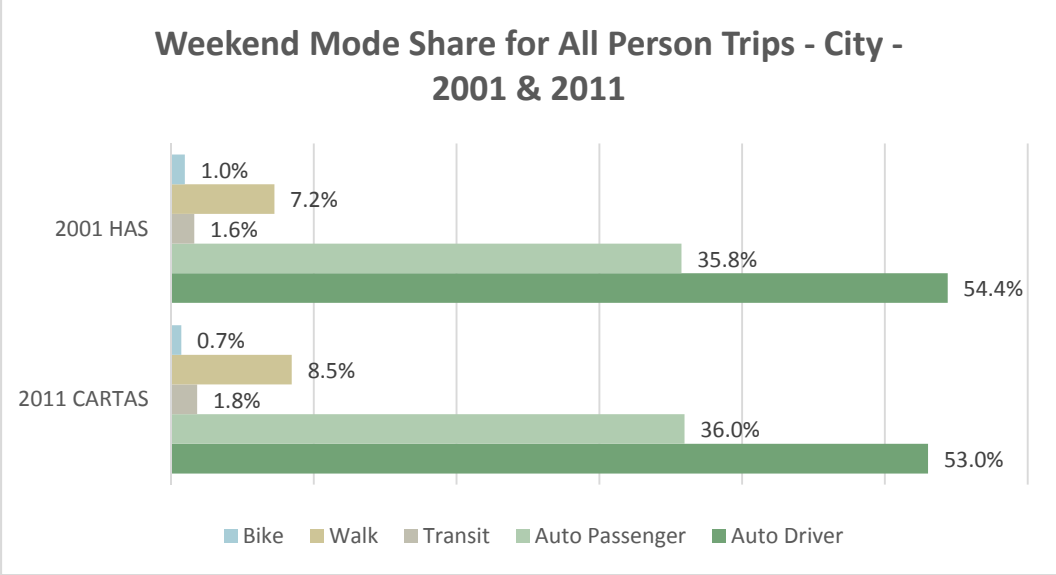


4.1 Weekend Mode Share

Auto travel dominates the weekend mode share representing 89% of all person trips in 2011. This is slightly lower than what was observed in 2001 when 90% of weekend travel was made by auto modes, as shown in Figure 7 below.

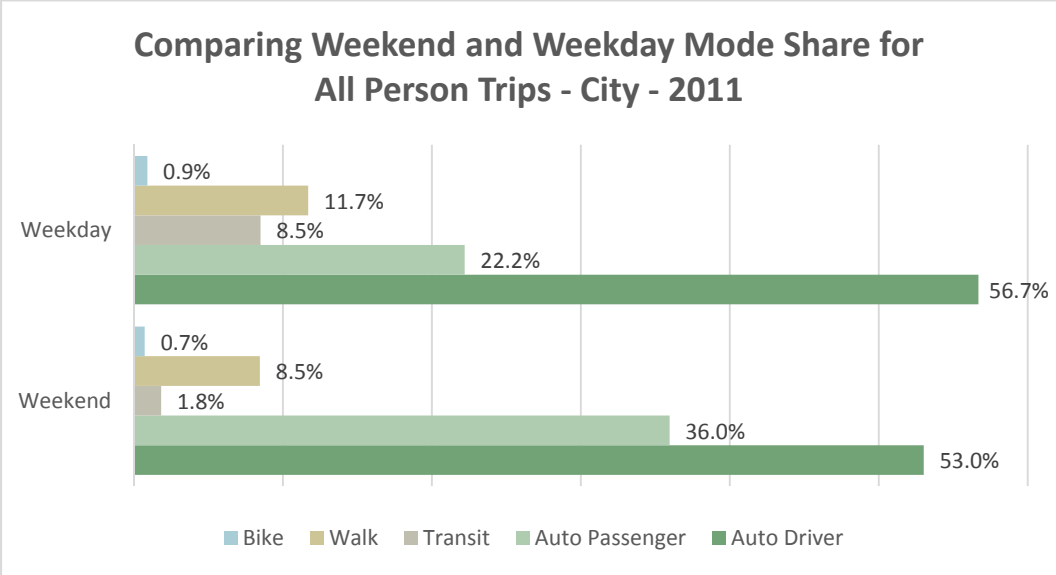
While the cycling mode share reduced between 2001 and 2011, overall active modes are up slightly. It is possible that the reduction in cycling trips maybe be due to seasonal variation rather than changes in travel behavior. A larger portion of the weekend samples were collected in winter months in the 2011 survey compared to the 2001 survey.

Figure 7: Weekend Mode Share for All Person Trips - City - 2001 & 2011



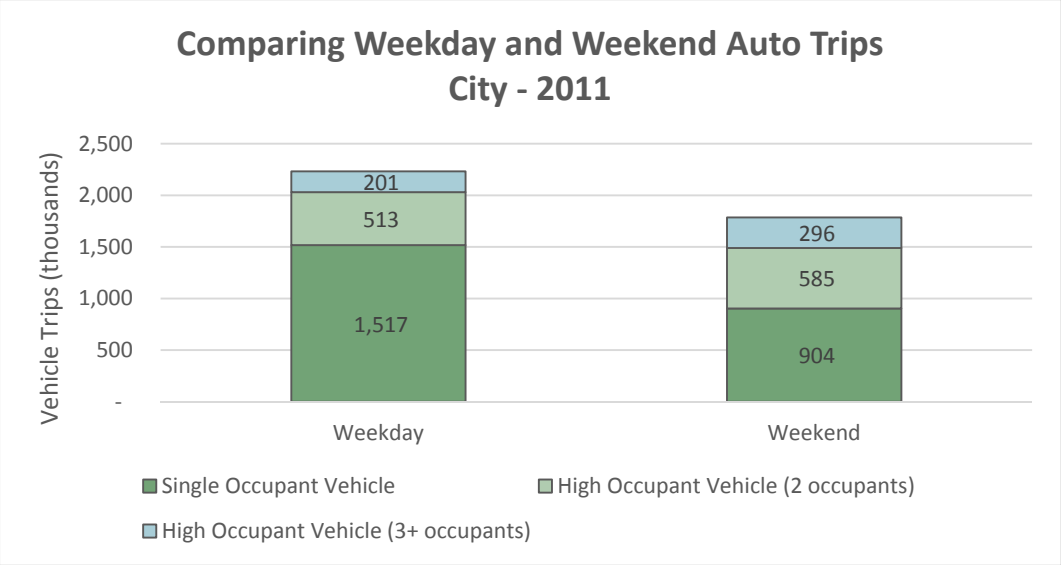
Auto trips account for 10% more of the mode share on the weekend then during the week as seen in Figure 8. Strictly comparing the shift in mode share distribution does not provide a complete picture of the difference in weekend and weekday travel. When person trip rate is considered, the data tells us Calgarians make 20% less vehicle trips daily because of decreased travel per person and increased high occupant vehicle travel compared to the weekdays.

Figure 8: Comparing Weekend and Weekday Mode Share for All Person Trips - City - 2011



While a larger portion of person trips are made by auto during the weekend, auto occupancy is also higher on the weekend as more people travel with friends and family. In 2011 the average auto occupancy on weekdays was 1.39 persons/vehicle and it increased to 1.75 on the weekend. The distribution of auto trips by occupancy can be seen in Figure 9 below.

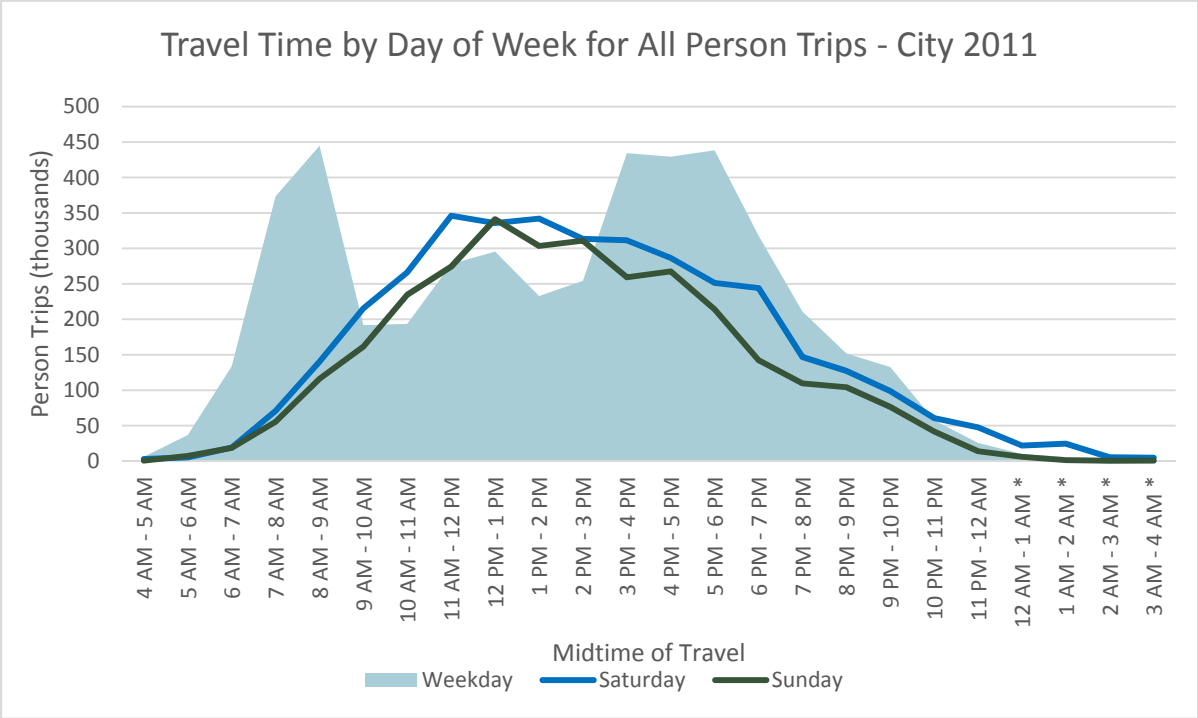
Figure 9: Comparing Weekday and Weekend Auto Trips - City - 2011



4.2 Time of Travel

Time of travel differs greatly between the weekdays and weekends. There is no morning or evening rush hour on the weekend, instead travel peaks during the midday as shown in Figure 10.

Figure 10: Travel Time by Day of Week for All Person Trips - City - 2011



** Note: Travel data was collected from 4 AM on the respondents travel day until 4 AM the following morning. As a result travel occurring after midnight in this graph actually occurs on the following day of the week.*

While the peak volume of person trips on Saturday does approach the weekday volumes the overall demand on the transportation system differs greatly. During the weekday peaks there is a greater volume of people travelling in one direction, either home to work/school or the reverse. With only one weekend peak there is greater overlap of people leaving and returning home.

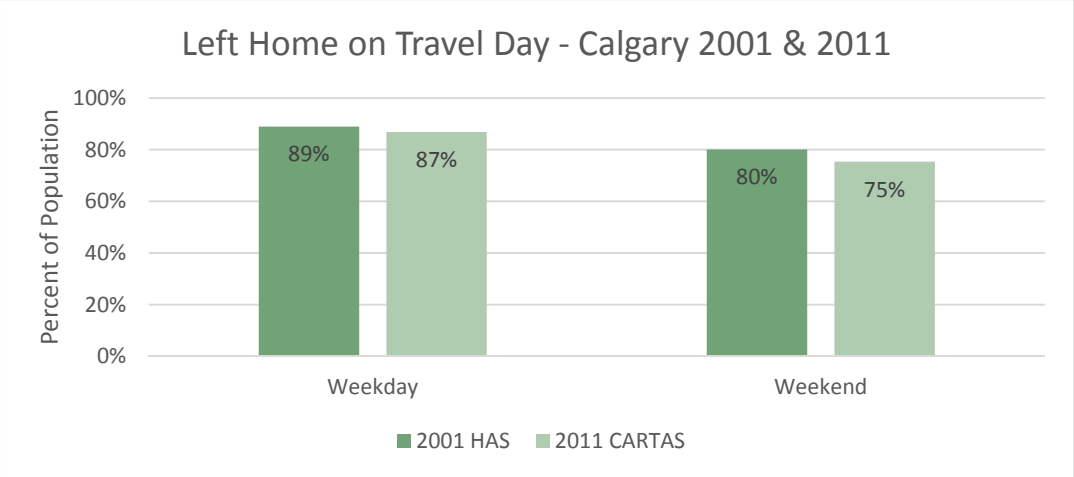
Survey respondents reported 20% more person trips on Saturday compared to Sunday. The higher trip volume on Saturday was a result of respondents making more trips per travelling person as opposed to more people travelling.

4.3 Who Travels on the Weekend?

During the work week 87% of Calgarians surveyed left their home on their travel day, on the weekend that number drops to 75%. Based on the survey data it appears that more Calgarians may be opting to spend their weekends at home then they previously did in 2001 as show in Figure 11 below. However, during the analysis of the 2001 survey data there was some concern that the survey instrument may have failed to adequately engage individuals who did not leave home on their travel day. In 2011 the

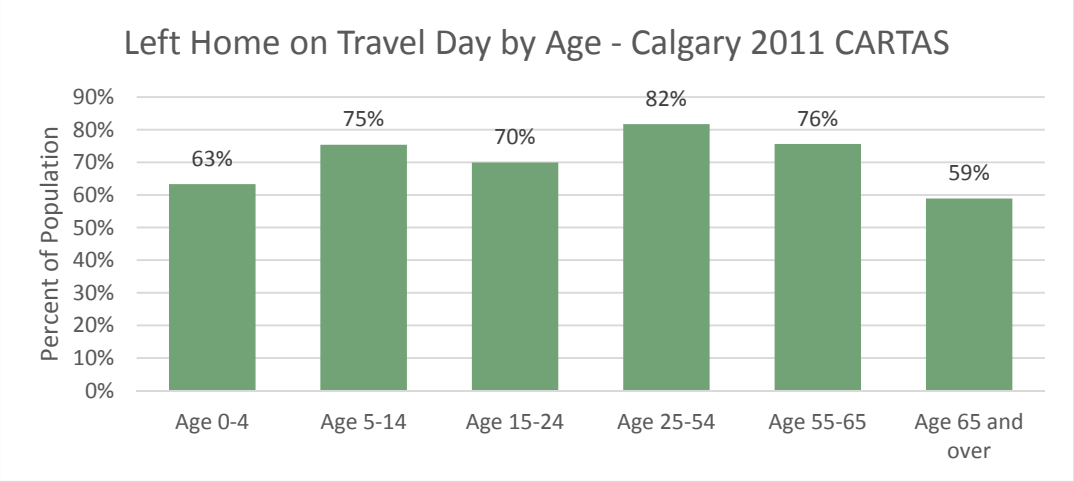
survey materials explicitly explained how important it was to collect data from both people who did and did not travel on their survey day. As a result it is possible the change displayed below maybe related to the improved survey design rather than a change in travel behavior.

Figure 11: Left Home on Travel Day - City - 2001 & 2011



Looking at only the 2011 survey data, adults were more likely to report leaving the house on the weekend compared to children and seniors as seen on Figure 12.

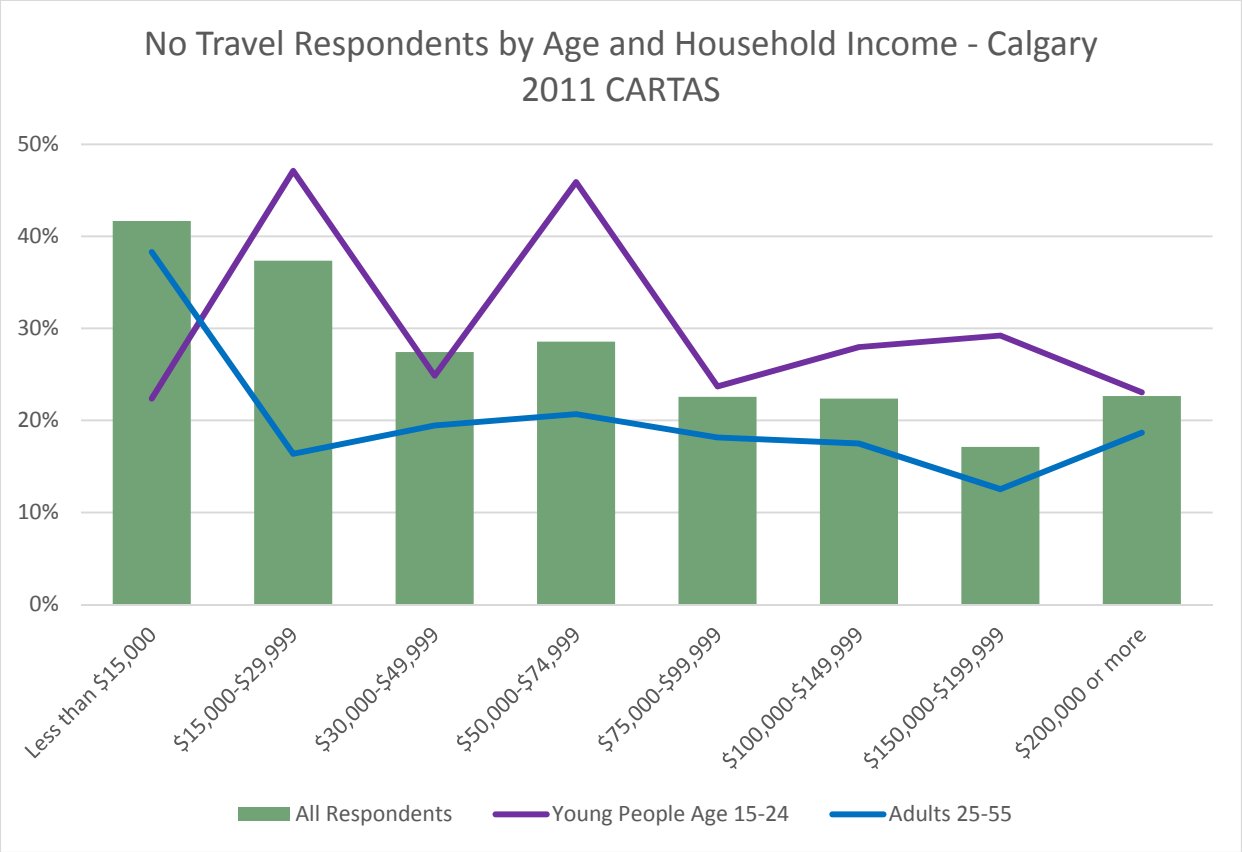
Figure 12: Left Home on Travel Day by Age - City - 2011



It is interesting to note that young people aged 15-24 were more likely to report staying home on the weekend. Other factors which appeared to show a correlation with whether someone travelled included household income, household size, presence of a vehicle in the household. In the case of young people, it's possible that they are more likely to stay home not because they are young but because they have a lower household income. To identify what factors actually correlate with travel behavior we must look at the results based on multiple demographic factors rather than simply one.

Figure 13 below shows the percent of respondents who stayed home on their travel day based on age and household income. Looking at the data for all respondents displayed on the bar chart elements, a clear pattern can be observed telling us that respondents in lower income household stay home more than those in higher income households. However, when we look at the affect of income on respondents of the same age we find that the same pattern of lower income individuals travelling less is not near as clear. By comparing these two demographic details in combination we can conclude that income is not an accurate predictor of whether someone will leave home on the weekend.

Figure 13: Respondents who report "No Travel" by Age & Household Income - City - 2011



The results of comparing multiple combinations of demographic information collected provided the following conclusions:

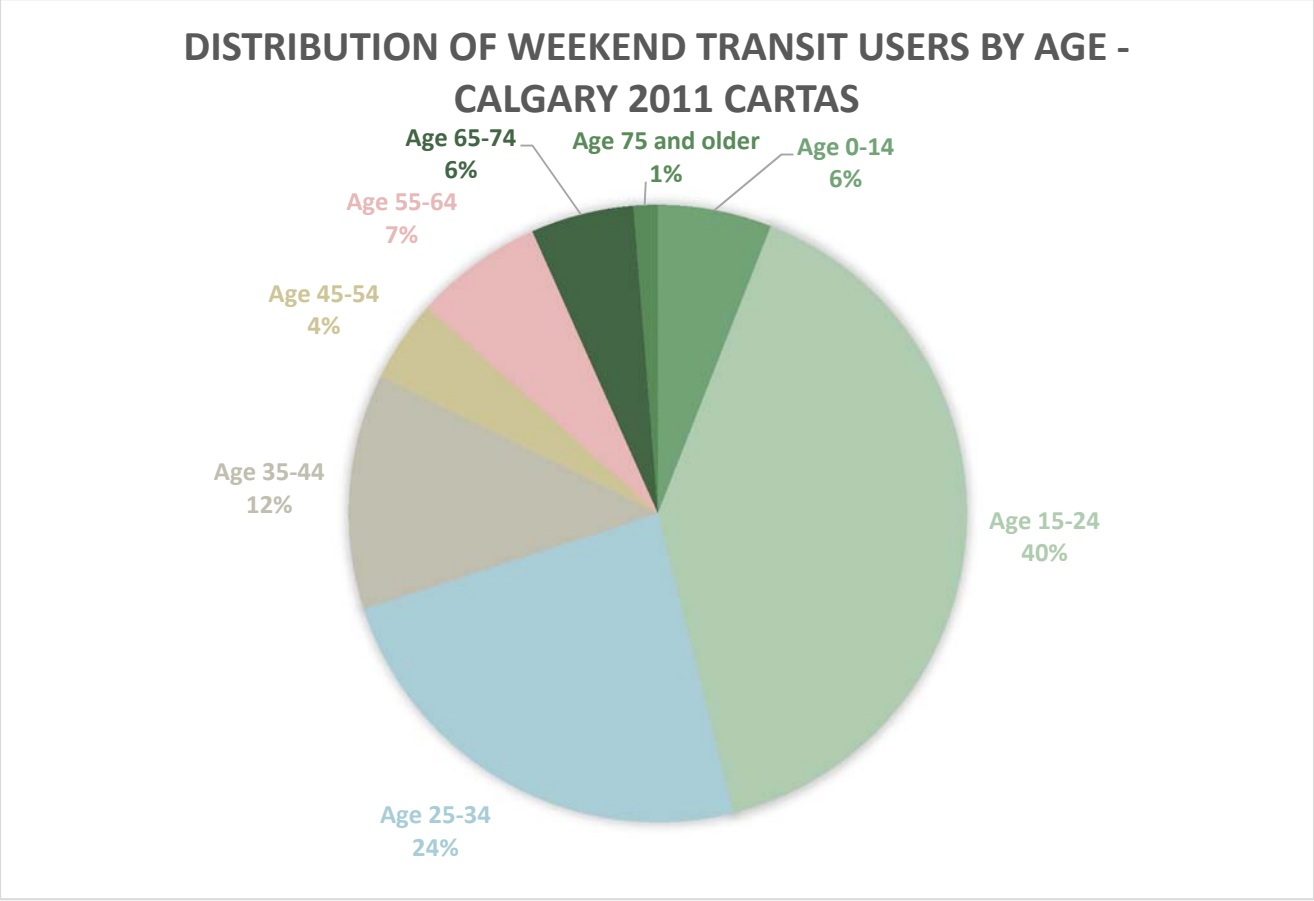
- Individuals 16 and over without a driver's licences are more likely to stay home on the weekend compared to individuals with a driver's license.
- Unemployed persons were somewhat more likely to stay home on the weekend compared to employed persons.
- Gender, having a transit pass and auto ownership within the household do not appear to significantly impact whether someone will leave home on the weekend.
- The strongest indicator of whether someone would travel the age of the respondent.

4.4 Weekend Transit

During the weekend transit ridership is significantly lower than during the week. Based on the CARTAS survey results 61,800 daily person trips are made on transit on the weekend compared to 335,500 on weekdays. A large portion of the decline is a result of decreased work and school travel.

The largest portion of weekend transit users are between the ages of 15 to 24 as shown in Figure 14 below. This age group also has the highest portion of people riding transit with 9% of all 15 to 24 year olds reporting they used transit on the weekend. In comparison only 1-4% of all the other age groups reported using transit.

Figure 14: Distribution of Weekend Transit Users by Age - City - 2011



The most prevalent characteristic of weekend transit users was not having a license. Over half of the weekend transit users who were 16 or older did not have a driver's license. Across all Calgarians only 10% of individuals 16 or older do not have a license. Of people without a license 17% used transit for one or more trips on the weekend.

Of weekend transit users surveyed, 63% had a transit pass. It is interesting to note however, only 10% of people who reported having a transit pass used transit on the weekend.

4.5 Conclusion

The travel needs and demands of Calgarians differ greatly on the weekend compared to weekdays. Calgary residents make the majority of weekend trips in their personal vehicles and use transit and active modes less than during the week. With more people travelling together and less single person vehicle trips the total number of vehicles on the road is lower on the weekend.

Travel demand peaks during the midday on the weekend but the peak is far less defined then the weekday AM and PM periods. Travel demand remains relatively high through the afternoon and into the evening on Saturdays but drops off more quickly on Sunday afternoons.

Adults aged 25-65 and school age children are more likely to be out and about on the weekend compared to young children, seniors and young adults aged 15-24.

Individuals without a driver's license rely heavily on Calgary Transit during the weekend with 17% of them making one or more transit trip.

6 Appendix A – Glossary of Terms

Term	Definition
24 Hour Trips	All trips that occurred in one day from 00:00 to 23:59
All Purpose Trips	Trips that are made for any purposes which may include work, school, shopping, pick up/drop off etc.
Auto Ownership	The number of cars, pick up trucks, SUVs, or motorcycles owned by a household as reported by the household. Does not include recreation vehicles, commercial vehicles or vehicles that are not operational
Average Household Size	The average number of people who live in the same household and share a kitchen.
Calgary Area	The city of Calgary and the surrounding Region. (See Region below)
CATI	Computer Aided Telephone Interview is a process used by survey companies to collect information from survey respondents over the telephone to ensure high quality data.
CBD	Central Business District
Census of Canada	A survey of all Canadians that is conducted by Statistics Canada every 5 years.
Central Business District	In Calgary, and for the purposes of this report this is the central area of the city bounded by the Bow River on the North and East, 17 Avenue to the South, and Bow Trail to the West.
City	Area located within the 2012 city of Calgary boundary.
Civic Census	An annual survey of all residents in Calgary conducted by The City of Calgary.
Cordon Study	A study that counts vehicles, bikes, and pedestrians as they cross a particular boundary.
CTP / MDP	The Calgary Transportation Plan and Municipal Development Plan approved by Calgary City Council in 2009.
Dataset	A collection of data, usually presented in tabular form, where each column represents a particular variable.
Demographics	Statistical data relating to the population and particular groups within it such as household size, income, age, and gender.
Downtown	The same area as the Central Business District

Employment	The number of people who are employed in an area.
Established Communities	Residential communities that were planned and developed between the 1950s and 1990s. They are primarily residential communities containing a mix of low- and medium-density housing with support retail in relatively close proximity as defined in the Municipal Development Plan.
Expanded Survey Results	Results obtained from the survey using expansion factors developed from demographic targets
Expansion Factor	Weighting factor developed from demographic targets so the survey distributions match the actual population distributions.
Greenfield Communities	Residential communities that have been planned since the 1990s and are still being developed as defined in the Municipal Development Plan.
Household Income	Total annual pre-tax income for all members of the household.
Household Size	The number of people that live at an address and share a kitchen.
Household Travel Survey	Survey to collect information from households describing their travel choices and travel influences.
Income	See Household Income
Industrial Area	Areas that include a broad variety of industrial uses and intensities that support business in Calgary as defined in the Municipal Development Plan..
Inner City	Residential communities that were primarily subdivided and developed prior to the 1950s as defined in the Municipal Development Plan..
Jobs Per Capita	The number of employed people divided by the total population.
Migration	Population increase or decrease due to people moving into or out of the Calgary Area.
Mode Share	The percentage of trips that are made by different travel modes.
Mode Split	The percentage of trips that are made by different travel modes.
New Communities	Residential communities that have been planned since the 1990s and are still being developed as defined in the Municipal Development Plan.
Peak Periods	Periods where travel demand in the study area is highest. Typically there is a peak in the morning from 6:00AM to 9:00AM and in the afternoon from 3:00PM to 6:00PM.

Place of Work Survey	Survey conducted in conjunction with the Civic Census that collects employment information including the work location, industry, and occupation.
Population	The number of people living in an area.
Region	The area surrounding the City of Calgary that includes the MD of Foothills, Rockyview County, Wheatland County. It also includes all the towns and villages within that area such as Airdrie, Chestermere, Cochrane, Okotoks, Strathmore, and High River.
Regional Transportation Model	Computer simulation of the city and surrounding region that is used to support transportation and land use decisions.
RTM	See "Regional Transportation Model"
Sample	A set of data collected and/or selected from a population by a defined procedure.
Statistically Significant	A statistical assessment of whether observations reflect a pattern rather than just chance.
Study Area	Includes The city of Calgary and the surrounding Region. (See Region above).
Travel Mode	Different methods of travelling about the Study Area. Includes walk, bike, transit, and auto.
Trip	Travel between two points by any mode. In cases of transit trips where the travel mode changed between two points, such as a park and ride trip or a walk to the bus stop, the trips were linked together to form one transit trip.
Trip Distance	The distance travelled on the road network when going between two points.
Trip Purpose	The reason the trip was made and includes, work, school, shopping, etc and is primarily defined by the destination purpose unless otherwise specified.
Trip Rate	The number of trips made per person or per household.
Vehicle Kilometres Travelled	The total number of kilometres travelled by all vehicles on the road network.
Vehicle Kilometres Travelled per Capita	The total number of kilometres travelled by all vehicles on the road network divided by total population.

7 Appendix B – Background Information

7.1 Background

Approximately every 10 years, The City of Calgary conducts a comprehensive household travel and activity survey to collect travel behaviour information from City and Region residents. The CARTAS is the latest survey and was conducted from January to May 2012. Travel behaviour includes information about the trips people make, where they go, what they do, and any costs they incurred as well as a number of travel influences such as the number of people in the household, how old they are, how many vehicles they own, and the annual income of the household.

The travel behaviour information is used to update the Calgary Regional Transportation Model (RTM), a computer simulation of the city and surrounding region that is used to support transportation and land use planning decisions. The City of Calgary has maintained travel models since 1964 that have been updated approximately every 10 years. The data collected in CARTAS will be used to update the RTM to 2011 conditions so it can continue to support decision makers.

7.2 Data Sources

One purpose of this report is to look at how travel has changed over that time. This report compares information between surveys conducted in 2001 and 2011 CARTAS as appropriate. Household travel surveys prior to 2001 are not included in this report as they did not collect weekend or regional travel information. The 2001 travel behaviour data was retrieved from the 2001 Household Activity Survey Database and the 2011 data was retrieved from the CARTAS database.

The data tables for all the charts in this report are shown in Appendix D.

7.3 Data Availability and Release

The household travel survey datasets contain significant amounts of personal information and are protected by the Freedom of Information and Protection of Privacy Act. The database and the individual data records cannot be released outside of The City of Calgary Forecasting Division. If additional analysis is required, requests may be submitted to tranplanforecast@calgary.ca and the request will be assessed appropriately.

7.4 Survey Limitations

CARTAS is a comprehensive and detailed survey that captures significant amounts of travel behaviour information. However, there are some limitations to the data that must be considered. The survey asked respondents to provide an arrival and departure time; however, respondents tend to round their arrival and departure times to the nearest 5, 10 or 15 minute intervals. As a result, travel times directly from the survey have limited accuracy and are only used to assign trips to broad time periods for modelling purposes.

CARTAS does not include any information on trip distance. Each location is geocoded, but respondents were not asked to provide travel route information. As a result, information on vehicle kilometres travelled (VKT) and VKT per capita are not a result that can be obtained from this survey.

This is a sample survey, not a census, and 2% of city and region households were sampled. This provides a statistically significant sample to develop travel models that are used to support decision making. However, sample sizes at fine geographies or for specific demographics may be too small to be able to provide statistically significant results. For example, trip rates may be possible for Downtown Calgary, but not for the community of Dalhousie.

8 Appendix C - Bibliography

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9 Appendix C – Data Tables

The figure numbers listed above each table in this section reference the figures within the report which the data is for. Note due to rounding totals may vary.

9.1 Regional Travel Analysis Tables

Table 4: Labour Force Participation Rates - City & Region - 2001 & 2011 (Statistics Canada, 2001), (Statistics Canada, 2011)

	Total Population 15 years of age or older		Total Population 15 years of age or older in the labour force		Labour Force Participation Rate	
	2001	2011	2001	2011	2001	2011
City	701,740	885,845	525,865	656,545	75%	74%
Region	98,950	155,070	75,610	116,450	76%	75%
Calgary Region	800,690	1,040,915	601,475	772,995	75%	74%

Table 5: Employment Changes by Industry - Region - 2006 & 2011 (Statistics Canada, 2006), (Statistics Canada, 2011)

NAICS Industry	**2006 Census**	**2011 Census**	**% Growth**
Professional Services	5730	7390	29%
Industry (Manufacturing, utilties, construction)	8520	8780	3%
Retail Trade	**5765**	**9090**	**58%**
Other services (management, information, repair)	5405	5500	2%
Health care and social assistance	3475	4815	39%
Entertainment, arts, recreation, hotel and food services	6170	6560	6%
Mining and Oil and Gas Extraction	1525	1640	8%
Education Services	3905	4630	19%
Wholesale Trade	1925	2045	6%
Transportation and Warehousing	1700	2880	69%
Government (Public Administration)	1370	2220	62%
Agriculture	5580	4310	-23%
Total Employment	**51125**	**60,540**	**18%**

Figure 2: Trip Destination Distribution – Region – 2001 & 2011

Trip Destination	2001 HAS		2011 CARTAS		95% Confidence Limits +/-
	# Trips	% Trips	# Trips	% Trips	
City	49,501	61%	65,131	64%	0.045
Region	31,358	39%	37,046	36%	0.045
Total Trips	80,858	100%	102,176	100%	

Figure 3: Work Transportation Mode Share – Region – 2001 & 2011

Mode	2001 HAS		2011 CARTAS		95% Confidence Limits +/-
	# Trips	% Trips	# Trips	% Trips	
Auto Driver	66301.0033	82%	89397.7	87%	0.033
Auto Passenger	5491.65003	7%	4692.9	5%	0.022
Bike	158.730003	0%	451	0%	0.006
Transit	2002.92002	2%	3336.3	3%	0.012
Walk	6903.90001	9%	4317.1	4%	0.024
Grand Total	80858.2034	100%	102195	100%	

Figure 4: Discretionary (Other) Trip Destinations – Region – 2001 & 2011

Trip Destination	2001 HAS		2011 CARTAS		95% Confidence Limits +/-
	# Trips	% Trips	# Trips	% Trips	
City	71,789	38%	101,556	31%	0.0274
Region	117,009	62%	221,777	69%	0.0274
Total Trips	188,798	100%	323,334	100%	

Figure 5: Discretionary (Other) Transportation Mode Share – Region – 2001 & 2011

Mode	2001 HAS		2011 CARTAS		95% Confidence Limits +/-
	# Trips	% Trips	# Trips	% Trips	
Auto Driver	120,170	63%	201,034	62%	0.028
Auto Passenger	50,254	26%	95,425	29%	0.026
Bike	234	0%	3,480	1%	0.004
Transit	2,750	1%	1,976	1%	0.006
Walk	16,660	9%	21,621	7%	0.015
Grand Total	190,068	100%	323,537	100%	

9.2 Calgary Weekend Travel Analysis Tables

Figure 6: Weekend Person Trips and Trip Rate - City - 2001 & 2011

	2001 HAS	2011 CARTAS
Total Daily Weekend Person Trips	2,957,000	3,373,000
Trip Rate per Person	3.4	3.1

Figure 7: Weekend Mode Share for All Person Trips - City - 2001 & 2011

	2001 HAS		2011 CARTAS		95% confidence limits +/- on difference
Mode	**# Trips**	**% Trips**	**# Trips**	**% Trips**	
Auto Driver	1,608,000	54.4%	1,789,000	53.0%	0.011
Auto Passenger	1,057,000	35.8%	1,213,000	36.0%	0.010
Bike	29,000	1.0%	25,000	0.7%	0.002
Transit	48,000	1.6%	62,000	1.8%	0.003
Walk	214,000	7.2%	285,000	8.5%	0.006
Total Trips	2,956,000	100.0%	3,374,000	100.0%	

Figure 8: Comparing Weekend and Weekday Mode Share for All Person Trips - City – 2011

	Weekday		Weekend		95% confidence limits +/- on difference
Mode	**# Trips**	**% Trips**	**# Trips**	**% Trips**	
Auto Driver	2,243,000	56.7%	1,789,000	53.0%	0.009
Auto Passenger	879,000	22.2%	1,213,000	36.0%	0.008
Bike	35,000	0.9%	25,000	0.7%	0.002
Transit	336,000	8.5%	62,000	1.8%	0.003
Walk	464,000	11.7%	285,000	8.5%	0.005
Total Trips	3,957,000	100.0%	3,374,000	100.0%	

Figure 9: Comparing Weekday and Weekend Auto Trips - City – 2011

	Weekday	Weekend
Single Occupant Vehicle Trips	1,517,000	904,000
High Occupant Vehicle Trips - 2 occupants[4]	513,000	585,000
High Occupant Vehicle Trips - 3+ occupants	201,000	296,000
Total Vehicle Trips	**2,231,000**	**1,785,000**

[4] Occupants include auto driver and passenger(s)

Figure 10: Travel Time by Day of Week for All Person Trips - City – 2011

	Number of Person Trips		
Midtime of Travel	**Weekday**	**Saturday**	**Sunday**
4 AM - 5 AM	6,000	2,900	500
5 AM - 6 AM	36,800	5,100	7,500
6 AM - 7 AM	133,800	19,000	18,700
7 AM - 8 AM	373,500	70,900	55,400
8 AM - 9 AM	444,800	140,300	116,300
9 AM - 10 AM	191,700	215,300	161,600
10 AM - 11 AM	193,500	266,200	234,700
11 AM - 12 PM	278,100	346,100	274,300
12 PM - 1 PM	295,600	335,800	341,100
1 PM - 2 PM	232,800	342,000	303,600
2 PM - 3 PM	254,300	313,400	311,000
3 PM - 4 PM	434,400	311,500	259,200
4 PM - 5 PM	429,300	286,500	267,500
5 PM - 6 PM	438,500	251,400	214,200
6 PM - 7 PM	318,000	244,100	142,300
7 PM - 8 PM	210,900	146,800	109,700
8 PM - 9 PM	151,900	127,300	104,100
9 PM - 10 PM	132,600	98,700	76,400
10 PM - 11 PM	57,400	60,600	41,700
11 PM - 12 AM	25,600	47,600	13,800
12 AM - 1 AM[5]	10,000	21,900	5,900
1 AM - 2 AM	5,700	24,400	1,300
2 AM - 3 AM	4,200	5,400	400
3 AM - 4 AM	2,300	4,600	600

Figure 11: Left Home on Travel Day - City - 2001 & 2011

Percent of Respondents who Left Home on Travel Day			
	2001 HAS	2011 CARTAS	95% confidence limits +/- on difference
Weekday	89%	87%	0.010
Weekend	80%	75%	0.014

[5] Travel data was collected from 4 AM on the respondents travel day until 4 AM the following morning. As a result travel occurring after midnight in this table actually occurs on the following day of the week.

Figure 12: Left Home on Travel Day by Age - City – 2011

	Percent of Respondents who Left home on Travel Day	95% confidence limits +/- on proportion
0-4 years	63%	0.052
5-14 years	75%	0.012
15 -24 years	70%	0.013
25-54 years	82%	0.011
55-64 years	76%	0.012
65 years and older	59%	0.014

Figure 14: Distribution of Weekend Transit Users by Age - City - 2011

	Percent of Weekend Transit Users	95% confidence limits +/- on proportion
Age 0-14	6%	0.044
Age 15-24	40%	0.092
Age 25-34	24%	0.080
Age 35-44	12%	0.062
Age 45-54	4%	0.038
Age 55-64	7%	0.047
Age 65-74	5%	0.042
Age 75 and older	1%	0.021