The New Zealand Household Travel Survey Analysis of the Auckland results for the period 1989-2018

**V1.12**

submitted by

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# Introduction and scope of the analysis

## Introduction

The New Zealand Household Travel Survey has been undertaken at regular intervals starting in 1989 and as such it provides valuable information both on current travel patterns across the country and the way in which these have evolved over this period. The opportunity has been taken to extract the data collected for households in the Auckland region in order to examine at the regional travel patterns over the same period. As well as providing a current snapshot, this work has identified the changes in these patterns which have taken place both in response to the high level of growth in regional population from 0.9 million in 1989 to 1.6 million in 2018 and growth in light vehicle ownership from 0.5 million to 1.3 million over the same period and also in response to the considerable investment in the roading and public transport systems.

This note summarises some of the key findings from this data. It examines the major changes that have taken place over the last 30 years and also provides a snapshot of the current position and the way in which travel patterns respond to a range of socio economic variables. These include:-

* sex
* age
* incomes: and
* ethnicity

## Data issues

Over the period of the Household Travel Surveys the methods of data collection and the way in which the data is collected and analysed has evolved. As a result in considering the results it needs to be noted that the method of data collection changed significantly in the most recent period and as a result of this and other changes any comparisons over time need to be treated with caution. This is particularly the case for the types of journeys or trips for which the sample of information collected is small and these cases are highlighted where appropriate in the text.

## Modes considered

The modes for this analysis comprise:

* Car driver
* Car passenger
* Walk
* Cycle
* Local public transport

There is also some travel by other modes including motorcycles and those used by the mobility impaired as well as more unusual means such as horses and boats but the volumes of these are small. They have therefore been excluded from the analysis of individual modes below but they are included in the overall totals.

## Journey purposes

The journey purposes have been considered under seven main categories:-

* Return home
* Commuting
* Education
* Shopping
* Social and personal business
* Support - picking up or dropping goods or people or accompanying others
* Business journeys

## Trip legs or journeys

The material presented in this report often involves the classification of travel details either in terms of journeys or alternatively as trip legs and there are differences between these which need to be noted in the consideration of the results. **Journey**s represent travel for a single purpose such as the journey to work. However in some instances these journeys for a particular purpose may be made up of a series of interlinked movements often by different modes. These individual modal components are defined as **trip legs**.

As an example a journey to work can involve a number of legs, including a walk trip to a bus stop, a bus trip and then a walk from the bus to the place of work. In this case the single **journey** would involve three trip **legs**. The examination of trip legs allows the travel details by individual modes to be determined.

In the analysis which follows, **journeys** are used to describe travel for a particular purpose and form the major element in this assessment. T**rips** or **legs** are used to describe the individual elements of these journeys used to analyse movements by particular modes.

## Reliability and sample sizes

In presenting the results in this report, numbers that are based on small sample sizes may not be reliable. To reflect this results that are based on a sample size of less than 50 have not been presented and are marked as NA. Those based on a sample size of between 50 and 100 are also potentially subject to wider confidence limits and so have been highlighted in the tables.

**Part 1 – Auckland Snapshots (2015-18)**

# Introduction

This part of the report examines the current position, for those living in the Auckland region and looks at trips and journeys both in total and broken down in a number of categories including:-

* Gender
* Age
* Ethnicity
* Income

In total the survey for 2015-18 is based on results from almost 1500 respondents making 36500 journeys made up of 38,000 individual trip legs.

# Present day travel patterns in Auckland

In a typical week the average Aucklander currently (2015-18) makes about 24 journeys of more than 100m, travelling about 200 kms and spending about 6.5 hours travelling.

These 24 journeys are made up of an average of about 25 individual trip legs. Of these, 15 are made as car drivers, 6 as car passengers, 3 by walking and 1 by public transport. There are also a small number of cycle trips averaging about 0.25 trip legs per week

The split is summarised in Figure 3.1, which clearly shows the dominance of private car travel

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| Figure 3.1  Overall modal share in 2015-18 (share of total trip legs) |

Journeys are made for a number of purposes and the breakdown of these (excluding travel returning home) is set out in Figure 3.2.

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| Figure 3.2  Breakdown of journeys by purpose (excluding journeys returning home) 2015-18 |

The most important reasons for making journeys are shopping and social/personal business which together account for 57 percent of journeys, over half the total. Work related journeys, commuting and business travel account for almost a quarter, with support journeys accounting for a further 20 percent. The balance, 4 percent, represents education journeys, ranging from pre-schoolers to university students.

# Current travel patterns by sex

## Travel by mode

Overall females make more journeys with more individual trip legs than males. This is summarised in Table 4.1.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 4.1  Travel patterns for females and males 2015-18 (movements per person per week) | | | | |
|  | **Female** | **Male** | **Average** | **Female journey or trip numbers as proportion of male** |
| Journeys | 24.7 | 23.3 | 24.0 | 106% |
| Trip legs | 26.0 | 24.5 | 25.3 | 106% |

The ratio between trip legs and journeys by females and males is similar for both sexes at about 1.055.

The modal shares of trip legs by sex are set out in Table 4.2

|  |  |  |  |
| --- | --- | --- | --- |
| Table 4.2  Modal share by sex- 2015-18 (percent of individual trip legs) | | | |
| **Mode** | **Female** | **Male** | **Total** |
| Pedestrian | 11.8 | 11.5 | 11.7 |
| Car driver | 52.6 | 63.2 | 57.6 |
| Car passenger | 30.2 | 19.7 | 25.2 |
| Cyclist | 0.7 | 1.4 | 1.0 |
| Local PT | 4.2 | 3.5 | 3.9 |
| Other | 0.6 | 0.7 | 0.6 |
| All modes | 100.0 | 100.0 | 100.0 |

Notes (1) The sample size for cycling trips is below 100 and so the result should be treated with caution

These are represented graphically in Figure 4.1.

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| Figure 4.1  Modal shares by sex 2015-18 |

In general females also have higher shares of pedestrian and public transport trips. To some extent this is balanced by a lower share of cycling. While females have a similar share of total car trips as males they make more trips as car passengers and less as car drivers.

The average trip leg distances for males and females for 2015-18 are set out in Table 4.3 and Figure 4.2.

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| --- | --- | --- | --- | --- |
| Table 4.3  Average trip leg distance by sex 2015-18 (kms) | | | | |
| **Mode** | **Female** | **Male** | **Total** | **Distance travelled by females as proportion of males** |
| Pedestrian | 0.9 | 0.8 | 0.9 | 105% |
| Car driver | 7.2 | 9.7 | 8.5 | 74% |
| Car passenger | 8.0 | 9.0 | 8.4 | 90% |
| Cyclist | 2.6 | 5.1 | 4.3 | 52% |
| Local PT | 8.4 | 9.7 | 9.0 | 87% |
| All modes including other | 6.9 | 8.8 | 7.8 | 78% |

Notes (1) The sample size for cycling trips is below 100 and so the result should be treated with caution

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| Figure 4.2  Average distance by sex- 2015-18 (kms) |

Whereas average walking distances are similar for males and females, for other modes there is a much larger difference between the two with trips by females being shorter than those for males. This is particularly the case for cyclists where the average distance by females is only about half of that for males, although the scale of the difference may reflect the small sample size. This possibly suggests different cycling patterns with males making more strategic longer journeys possibly associated with travel to the central area with females making more local trips.

In total females travel about 180 kms per week compared to about 215 for males.

Average times spent travelling by male and female travellers are set out in Table 4.4

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Table 4.4  Average trip leg travel time by sex- 2015-18 (minutes) | | | | |
| **Mode** | **Female** | **Male** | **Total** | **Time spent travelling by females as proportion of males** |
| Pedestrian | 12 | 11 | 12 | 109% |
| Car driver | 14 | 16 | 15 | 90% |
| Car passenger | 14 | 16 | 15 | 90% |
| Cyclist | 15 | 18 | 17 | 83% |
| Local PT | 23 | 26 | 24 | 89% |
| All modes including other | 14 | 16 | 15 | 92% |

Notes (1) The sample size for cycling trips is below 100 and so the result should be treated with caution

Overall females spend less time travelling than males. Females have longer average times for walking trips but shorter times for other modes. .

## Journey patterns by purpose

The journey patterns by purpose for males and females are set out in Table 4.5 and Figure 4.3.

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| --- | --- | --- | --- | --- |
| Table 4.5  Purpose split by sex - 2015-18 (journeys per person per week) | | | | |
| **Journey purpose** | **Female** | **Male** | **Total** | **No of journeys by females as proportion of males** |
| Return home | 7.4 | 6.8 | 7.1 | 108% |
| Commuting | 1.9 | 2.4 | 2.1 | 76% |
| Education | 0.7 | 0.8 | 0.7 | 96% |
| Shopping | 4.8 | 3.7 | 4.3 | 129% |
| Social/ personal business | 5.7 | 4.9 | 5.3 | 117% |
| Support | 3.1 | 2.2 | 2.7 | 139% |
| Business | 1.0 | 2.4 | 1.7 | 44% |
| **Total journeys** | **24.7** | **23.3** | **24.0** | **106%** |

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| Figure 4.3  Travel purposes by sex (journeys per person per week) |

Males make more journeys associated with work both for commuting and for business purposes, the latter substantially so. Females do more shopping and social/personal business journeys and also more support journeys possibly associated with transporting children to school and other activities. The number of education journeys is similar.

The average distances per journey travelled for the different travel purposes are set out in Table 4.6

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| --- | --- | --- | --- |
| Table 4.6  Average journey distances per journey by sex and purpose (kms) | | | |
| **Journey purpose** | **Female** | **Male** | **Total** |
| Return home | 7.8 | 9.6 | 8.7 |
| Work | 9.8 | 11.8 | 10.9 |
| Education | 5.0 | 6.1 | 5.5 |
| Shopping | 5.2 | 6.8 | 5.9 |
| Social/ personal business | 8.1 | 9.3 | 8.6 |
| Support | 6.8 | 9.5 | 7.9 |
| Employers business | 6.5 | 10.0 | 8.9 |
| **Total** | **7.3** | **9.2** | **8.2** |

For all purposes, the journeys made by females are shorter than those for males, in many instances substantially so.

This is illustrated in Figure 4.4.

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| Figure 4.4  Average journey distances by sex and purpose (kms) |

Although there are substantial differences in journey distances with those for males typically being longer than those for females, the differences in average trip times are much smaller. This is demonstrated in Table 4.7

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| --- | --- | --- |
| Table 4.7  Average travel times per journey by sex and purpose (mins) | | |
| **Journey purpose** | **Female** | **Male** |
| Return home | 17 | 18 |
| Commuting | 21 | 19 |
| Education | 17 | 18 |
| Shopping | 11 | 12 |
| Social/ personal business | 15 | 16 |
| Support | 13 | 16 |
| Business | 14 | 15 |
| **Total** | **15** | **16** |

In general with the exception of support journeys the travel times for females and males are broadly similar, indicating that males have access to and use faster means of transport.

The differences in average journey speeds by purpose are set out in Table 4.7.

|  |  |  |
| --- | --- | --- |
| Table 4.8  Average travel speeds per journey by sex and purpose (km-h) | | |
| **Journey purpose** | **Female** | **Male** |
| Return home | 27.8 | 31.2 |
| Work | 28.3 | 37.2 |
| Education | 17.6 | 20.0 |
| Shopping | 27.6 | 33.3 |
| Social/ personal business | 31.5 | 35.7 |
| Support | 32.6 | 35.0 |
| Employers business | 29.1 | 40.6 |
| **Total** | **28.9** | **33.9** |

To explore this further, Table 4.9 looks at the differences in average trip leg speeds for the individual mode and purpose combinations. This show the extent to which the average journey speeds for trips by males are faster than those by females.

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| Table 4.9  Relative travel speeds for males and females - Extent to which speeds by male travellers exceed those for female travellers by purpose and mode. | | | | | | |
|  | **Mode** | | | | | |
| **Journey purpose** | **Walk** | **Car driver** | **Car passenger** | **Cycle** | **PT** | **Total** |
| Return home | 14% | 17% | -6% | NA | -5% | 12% |
| Work | -9% | 27% | 18% | NA | 0% | 31% |
| Education | 31% | 28% | 16% | NA | 13% | 14% |
| Shopping | 0% | 16% | 3% | NA | 53% | 20% |
| Social/ personal business | -5% | 18% | -4% | NA | 3% | 13% |
| Support | 6% | 17% | 16% | NA | NA | 7% |
| Employers business | -54% | 24% | NA | NA | NA | 40% |
| **Total** | **3%** | **20%** | **0%** | **60%** | **2%** | **17%** |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

Males have somewhat faster speeds for all modes except car passengers where speeds are similar to those for females, although the differences are small for walking and PT trips. On average males also have higher journey speeds for all purposes.

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# Travel patterns by age

Travel patterns by age have been examined for the 6 age groups:-

* 0-4
* 5-15
* 16-25
* 26-40
* 41-65
* 66-79
* 80+

The patterns of trip making by mode are set out in Table 5.1

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| --- | --- | --- | --- | --- | --- | --- | --- |
| Table 5.1  Trip legs per week per person by age group and purpose | | | | | | | |
| **Age group** | **Trip mode** | | | | | | |
| Walk | Car driver | Car passenger | Cyclist | Local PT | **Total** |
| 0-4 | 2.3 | NA | 15.9 | NA | NA | 18.6 |
| 5-15 | 2.3 | NA | 13.1 | 0.3 | 0.7 | 19.9 |
| 16-25 | 5.0 | 9.7 | 8.0 | NA | 2.8 | 19.5 |
| 26-40 | 2.4 | 18.9 | 4.4 | 0.2 | 0.9 | 26.9 |
| 41-65 | 3.1 | 22.5 | 3.1 | 0.3 | 0.7 | 30.1 |
| 66-79 | 2.6 | 16.2 | 4.0 | NA | 0.7 | 22.7 |
| 80+ | 3.7 | 9.9 | 2.2 | NA | NA | 16.1 |
| Average | 2.9 | 14.6 | 6.4 | 0.3 | 1.0 | 24.7 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

The average number of trips made typically increases with age from about 19 per week for the youngest age groups to about 30 per week for the 41-65 age group but then starts declining as age increases. This is typically the case for car drivers although for car passengers there is a general decline with age from 16 trips per week for the youngest age group to just over 2 for the over 80's. For walk trips the highest number is for the 16-25 age group although the numbers are relatively high for the over 80's. The 15-25 age group also have the highest number of trips by public transport, at about three times the overall average.

The patterns of travel by purpose for these age groups are set out in Table 5.2

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| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 5.2  Journeys per week per person by age group and purpose | | | | | | | | |
| **Age group** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Educ-ation** | **Shop-ping** | **Social/ personal business** | **Support** | **Business** | **Total** |
| 0-4 | 6.0 | NA | 1.6 | 2.3 | 2.4 | 6.1 | NA | 18.4 |
| 5-15 | 5.5 | NA | 2.0 | 1.7 | 2.9 | 4.1 | NA | 16.2 |
| 16-25 | 6.5 | 1.4 | 2.2 | 3.4 | 6.4 | 1.3 | 1.4 | 22.6 |
| 26-40 | 7.5 | 3.3 | 0.2 | 4.4 | 5.2 | 3.0 | 2.1 | 25.7 |
| 41-65 | 8.0 | 3.5 | 0.1 | 5.5 | 6.4 | 2.0 | 3.2 | 28.7 |
| 66-79 | 7.2 | 0.5 | NA | 6.6 | 6.6 | 1.6 | 0.4 | 23.0 |
| 80+ | 4.8 | NA | NA | 5.7 | 5.6 | NA | NA | 16.3 |
| Total | 7.1 | 2.1 | 0.7 | 4.3 | 5.3 | 2.7 | 1.7 | 24.0 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

These are also illustrated in Figure 5.1.

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|  |
| Figure 5.1  Journeys per week by purpose and age group |

For commuting and business journeys, activity is focussed on the age groups from 25-40 and 41- 65 with only a limited level of travel for the younger and older age groups outside this range. The rate of education journey making is not surprisingly focussed on those aged up to 25 including those up to 5, with little outside these age groups

For shopping and social personal business the pattern is similar with a gradual build up from the youngest age groups before declining with the oldest age group. "Support" journeys show a distinct pattern with a high level of travel for the youngest age groups, as children accompany their parents, little travel in the 15-25 age groups and then a gradually declining rate from the 26-40 year group.

# Travel patterns by income

The impact of income on travel patterns has also been assessed and journey patterns by annual incomes are set out in Table 6.1. It should be noted that there was a considerable degree of non-response to the income question in the survey with 50 per cent of the participants choosing not to provide this information. In addition for those who did respond the incomes recorded are self reported and so may be subject to considerable uncertainty. Information is not collected for all age groups.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 6.1  Travel patterns by purpose and income (Journeys per week ) | | | | | | | | |
| **Annual income ($)** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Educ-ation** | **Shop-ping** | **Social/ personal business** | **Support** | **Business** | **Total** |
| No data | 6.8 | 1.6 | 0.9 | 3.8 | 4.9 | 3.3 | 1.7 | 23.1 |
| Zero income or loss | 7.0 | NA | 2.1 | 4.6 | 6.5 | 2.5 | NA | 22.7 |
| 0-10,000 | 7.8 | 1.7 | 2.2 | 4.0 | 5.4 | 1.9 | NA | 23.4 |
| 10-20,000 | 6.4 | 1.0 | NA | 6.0 | 5.6 | 1.5 | NA | 20.8 |
| 20-40,000 | 5.5 | 1.9 | NA | 4.5 | 6.1 | 1.6 | 1.2 | 20.9 |
| 40-70,000 | 8.1 | 3.9 | NA | 4.8 | 5.0 | 2.1 | 3.7 | 27.7 |
| 70-100,000 | 9.4 | 5.6 | NA | 4.6 | 6.8 | 2.3 | 2.0 | 30.7 |
| More than 100,000 | 8.4 | 5.6 | NA | 5.6 | 5.8 | 1.6 | 3.3 | 30.4 |
| Total | 7.1 | 2.1 | 0.7 | 4.3 | 5.3 | 2.7 | 1.7 | 24.0 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

The total pattern of journey making is set out in Figure 6.1.

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| Figure 6.1  Journeys per week by annual income ($) |

In general the overall level of travel stays broadly constant at 20-23 journeys per week for incomes up to about $40,000 per year after which it increases up to about 30 journeys per week at the highest income levels.

Other features of the detail of the table include:-

* High levels of education journey making by zero income and low income ($0-10,000) groups
* General increases in the numbers of commuting journeys with increased income.
* No obvious correlations with income for shopping and personal business journeys.

The pattern of trip making by mode is set out in Table 6.2 and Figure 6.2

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| --- | --- | --- | --- | --- | --- | --- |
| Table 6.2  Trip legs by mode and income | | | | | | |
| **Annual income ($)** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cyclist** | **Local PT** | **Total inc other** |
| No data | 2.7 | 12.7 | 7.6 | 0.2 | 1.0 | 24.3 |
| Zero income or loss | 5.2 | 8.3 | 8.9 | NA | 1.5 | 24.4 |
| 0-10000 | 3.6 | 15.0 | 4.3 | NA | 1.8 | 24.9 |
| 10-20000 | 4.0 | 11.1 | 5.3 | NA | 1.4 | 22.2 |
| 20-40000 | 1.9 | 14.6 | 4.6 | NA | NA | 21.6 |
| 40-70000 | 1.9 | 21.0 | 4.0 | 0.8 | 0.5 | 28.4 |
| 70-100000 | 4.6 | 23.6 | 3.3 | NA | 1.5 | 33.7 |
| More than 100000 | 3.6 | 24.3 | 2.6 | NA | 0.8 | 32.4 |
| Total | 2.9 | 14.6 | 6.4 | 0.3 | 1.0 | 25.3 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

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| Figure 6.2  Travel patterns by mode and annual incomes (trips per week) |

The key points from this include:-

* The number of walk trips per week declines from 4-5 for the lowest income groups to about 2 for those in the $20-40,000 and $40,000-70,000 groups before increasing to 4-5 for the highest income groups. This may reflect lack of resources for other forms of transport for those with the lowest incomes to a positive desire to get exercise or the ability to live close to ones work or other attractions for those on the highest incomes.
* Car driver trip making generally increases with income with the reverse effect for car passenger trips.
* Local PT use displays no clear linkage to income.

# Travel patterns by ethnicity

## Introduction

Travel patterns by ethnicity have been examined for four main ethnic groups:-

* European
* Maori
* Pasifika
* Asian

In defining ethnicity for this purpose, allowance has been made for persons indicating that they identify with more than one ethnic group.

## Travel by purpose

The journey patterns by purpose for the four main ethnic groups are set out in Table 7.1 and Figure 7.1.

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| Table 7.1  Travel patterns by purpose and ethnicity (journeys per week) | | | | | | | | |
| **Ethnicity** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Education** | **Shop-ping** | **Social/ Personal business** | **Support** | **Business** | **Total** |
| European | 7.5 | 2.3 | 0.8 | 4.7 | 5.5 | 2.8 | 1.5 | 25.1 |
| Maori | 6.0 | 1.8 | 1.1 | 4.7 | 4.0 | 1.7 | 2.3 | 21.6 |
| Pasifika | 7.6 | 2.1 | 0.8 | 4.2 | 6.2 | 2.4 | 1.3 | 24.6 |
| Asian | 6.8 | 2.1 | 0.9 | 3.8 | 4.6 | 3.2 | 1.1 | 22.4 |
| Total inc other | 7.1 | 2.1 | 0.7 | 4.3 | 5.3 | 2.7 | 1.7 | 24.0 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

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| Figure 7.1  Travel patterns by purpose and ethnicity (journeys per week) |

The key features from this table and figure include:-

* The low numbers of journeys per week made by Maori. This particularly affects social and personal business and support journeys. However Maori have a relatively high proportion of business journeys and also education journeys.
* Pasifika have travel patterns that are largely similar to those for Europeans and to the average for the country as a whole.
* The number of journeys by Asians is relatively low particularly for travel associated with shopping and social and personal business and also for business.

The average distance per week by purpose for the different ethnic groups is set out in Table 7.2.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 7.2  Average distance per week by purpose and ethnicity (kms) | | | | | | | | |
| **Ethnicity** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Education** | **Shop-ping** | **Social/ Personal business** | **Support** | **Business** | **Total** |
| European | 69 | 25 | 4 | 29 | 50 | 25 | 16 | 220 |
| Maori | 41 | 16 | 9 | 28 | 26 | 11 | 12 | 144 |
| Pasifika | 41 | 21 | 3 | 18 | 30 | 13 | 10 | 136 |
| Asian | 55 | 17 | 4 | 18 | 36 | 20 | 6 | 155 |
| Total inc other | 62 | 23 | 4 | 25 | 46 | 21 | 15 | 197 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

The key points on the distance travelled by purpose include:-

* There is a distinct difference between the travel distances per week for Europeans and for the other ethnic groups considered, with Europeans typically travelling about 50 per cent further. As well as having the highest total travel distance per week, Europeans have the longest travel for all the individual journey purposes except education.
* Overall Pasifika travel the shortest distance per week at about 70 per cent of the average for all groups. Maori and Asians also travel less than the average, with distances of about 75 per cent and 80 per cent of the average respectively.

## Travel by mode

The travel patterns by mode are set out in Table 7.3.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 7.3  Trip patterns by mode and ethnicity (trip legs per week) | | | | | | |
| **Ethnicity** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **PT** | **Total inc other** |
| European | 3.3 | 15.4 | 6.4 | 0.3 | 1.0 | 26.6 |
| Maori | 2.3 | 15.0 | 4.5 | NA | 1.1 | 22.9 |
| Pasifika | 2.6 | 14.0 | 7.8 | NA | 1.3 | 25.7 |
| Asian | 2.6 | 12.7 | 6.6 | NA | 1.0 | 23.2 |
| Total inc other | 2.9 | 14.6 | 6.4 | 0.3 | 1.0 | 24.7 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution.

Key points from this table include:-

* The low level of trips by Maori but with low numbers of trips by walking and as car passengers.
* Pasifika have the highest level of trip making as car passengers.
* Asians have the lowest numbers of trips as car drivers at about 85 per cent of the average for all groups. They have a slightly above average share of car passengers

The average distance per trip leg by mode is set out in Table 7.4

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 7.4  Average distance per trip by mode and ethnicity (kms) | | | | | | |
| **Ethnicity** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **PT** | **Total inc other** |
| European | 0.8 | 8.9 | 9.7 | 4.4 | 9.3 | 8.2 |
| Maori | 0.8 | 6.5 | 7.2 | NA | 10.9 | 6.3 |
| Pasifika | 0.8 | 6.6 | 4.4 | NA | 5.7 | 5.3 |
| Asian | 1.1 | 7.9 | 6.5 | NA | 8.2 | 6.7 |
| Total inc other | 0.9 | 8.5 | 8.4 | 4.3 | 9.0 | 7.8 |

Notes Cells marked with NA are based on sample sizes of less than 50. Cells highlighted are based on sample sizes of less than 100 and the results should be treated with caution

The key points on the average distance per trip leg include:-

* Pasifika have the shortest average trip lengths at about 75 per cent of the total
* Europeans have the highest trip lengths for in total and for car drivers and passengers
* All ethnic groups except Asians have walk trips that are of similar average distances. Asian walk trips are about 20 per cent longer than the average.
* Pasifika have relatively short public transport trips.
* Car passenger trips are long in relation to the distance for car driver trips for Europeans and Maori. They are short for Pasifika and Asians, but overall they are about the same lengths.

**Part 2 – Auckland Trends (1989-18)**

# Changes in overall travel patterns by mode

## Introduction

As well as considering the current position, the way in which the pattern of travel has changed over the 30 years of the Household Travel Survey has also been considered. The analysis below considers both the changes by mode and the changes in the pattern by journey purpose.

In considering the changes over time a number of caveats should be recognised:-

* In 1989-90 only people aged 5 and over were included. In subsequent surveys, journeys by all age groups were included. The effect of excluding the under 5s was examined for the most recent survey results and the effects on overall trip and journey patterns were found to be small.
* In 1989-90 distances were not collected for pedestrians and for public transport excluding bus. However these distances have been imputed using a walking speed of 4.4km-h based on the most recent survey results for which accurate GPS based data is available. Estimates for the small numbers of public transport trips not by bus were based on the observed bus speed of 21.5 km-h. These trips represented only a very small proportion of the total.
* In 2015 the approach to data collection was changed from a 2 day travel diary filled in via a face to face interview, to a self completed 7 day travel diary, assisted by the option of a GPS recording system. Because of these changes, the results for the latest period (2015-2018) may not be directly comparable with the results from earlier surveys and some caution is necessary in comparing the reported changes over time

## Number of trip legs by mode

For the analysis of travel by mode it is necessary to consider trip legs as well as journeys. This allows information on each of the different components of journeys made to be considered.

The changes between 1989-90 and 2015-18 in the number of trip legs per person by mode are set out in Table 8.1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 8.1  Change in the average number of trip legs per person per week 1989-90 to 2015-18 | | | | | | |
| **Period** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **Local public transport** | **Total** |
| 1989-90 | 6.2 | 14.0 | 5.7 | 0.4 | 0.8 | 27.3 |
| 1997/98 | 5.3 | 13.3 | 7.0 | 0.3 | 0.7 | 26.7 |
| 2003-06 | 3.7 | 13.9 | 7.5 | 0.1 | 1.0 | 27.4 |
| 2008-11 | 3.7 | 13.6 | 6.8 | 0.2 | 0.8 | 25.3 |
| 2011-14 | 4.1 | 12.4 | 6.2 | 0.1 | 0.9 | 23.9 |
| 2015-18 | 2.9 | 14,6 | 6.4 | 0.3 | 1.0 | 25.3 |

The change in the pattern is also illustrated in Figure 8.1 . The dotted line highlights the change in the survey approach in 2015-18.

|  |
| --- |
|  |
| Figure 8.1  Change in average trip patterns per person 1989-90 to 2015-18 |

Over the period from 1989-90 to 2015-18, the average number of trip legs travelled by Auckland residents declined slightly by about 7 per cent from 27.3 to 25.3. Within this total, the number of trip legs as car driver, car passenger and public transport user increased but this was offset by a reduction in the number of walking trip legs which more than halved and by a reduction in cycling trips. The changes over the period have however displayed a degree of volatility as the results in Figure 8.1 demonstrate.

## Distance travelled

Despite the number of trip legs declining, the average distance per person per week has increased by about 10 percent. This is set out in Table 8.2.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 8.2  Change in the average distance travelled per person by mode 1989-90 to 2015-18  (kms per week) | | | | | | |
| **Period** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **Local public transport** | **Total** |
| 1989-90 | 5.0 | 111.4 | 49.3 | 0.9 | 8.5 | 179.4 |
| 1997/98 | 4.4 | 113.8 | 56.6 | 0.5 | 7.4 | 190.0 |
| 2003-06 | 3.8 | 121.9 | 79.4 | 0.4 | 7.2 | 213.9 |
| 2008-11 | 3.5 | 120.0 | 56.9 | 0.9 | 7.0 | 189.6 |
| 2011-14 | 3.7 | 118.9 | 61.1 | 0.7 | 7.2 | 192.7 |
| 2015-18 | 2.5 | 124.2 | 53.4 | 1.1 | 8.8 | 197.2 |

The distance travelled by all modes except for walking has increased over the period although again there have been considerable fluctuations from year to year. The total increased up to 2003-06 just before the Global Financial Crisis (GFC) before declining in the following period and then increasing in the subsequent periods.

The changes were particularly large for car passenger travel. This again peaked just before the GFC but then declined sharply in the following period before fluctuating in subsequent years but finishing with levels still above those at the beginning of the analysis period.

In contrast to the other modes, the distance travelled by walking has more than halved.

This position is set out in Figure 8.2

|  |
| --- |
|  |
| Figure 8.2  Change in average trip distances per week per person by mode 1989-90 to 2015-18 (kms) |

## Time spent travelling

Although the average distance travelled has increased, the average time spent travelling has declined, primarily reflecting the decrease in the share of the slow walking trips and the switch to faster car travel. This is set out in Table 8.3 and Figure 8.3.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 8.3  Change in the average time spent travelling by mode 1989-90 to 2015-18  (hours per week) | | | | | | |
| **Period** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **Local public transport** | **Total inc other** |
| 1989-90 | 1.1 | 3.6 | 1.6 | 0.1 | 0.4 | 6.9 |
| 1997/98 | 1.0 | 3.4 | 1.7 | 0.0 | 0.3 | 6.5 |
| 2003-06 | 1.0 | 3.9 | 2.2 | 0.0 | 0.5 | 7.7 |
| 2008-11 | 0.8 | 3.9 | 1.9 | 0.1 | 0.4 | 7.3 |
| 2011-14 | 0.9 | 3.7 | 1.8 | 0.1 | 0.4 | 7.1 |
| 2015-18 | 0.6 | 3.6 | 1.6 | 0.1 | 0.4[[1]](#footnote-1) | 6.4 |

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|  |
| Figure 8.3  Change in average trip times per week per person by mode 1989-90 to 2015-18 (hrs) |

With the exception of walking trips where the average time spent per week has almost halved the average time spent travelling by each mode is broadly the same in 2015-18 as it was at the beginning of the period. Again there were changes over the period with travel times increasing to 2003-06 for all the main modes before declining to the present values.

The changes in average speeds by mode between 1989-90 and 2015-18 are set out in Table 8.4 and Figure 8.4.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 8.4  Change in the average speed by mode 1989-90 to 2015-18  (km-h) | | | | | | |
| **Period** | **Mode** | | | | | |
| **Walk** | **Car driver** | **Car passenger** | **Cycle** | **Local public transport** | **Total** |
| 1989-90 | 4.4 | 31.4 | 30.6 | 9.9 | 21.7 | 26.1 |
| 1997/98 | 4.4 | 33.2 | 33.6 | 11.8 | 27.6 | 29.2 |
| 2003-06 | 3.9 | 31.6 | 35.5 | 13.2 | 18.0 | 28.0 |
| 2008-11 | 4.1 | 30.4 | 30.5 | 13.5 | 18.9 | 26.1 |
| 2011-14 | 4.0 | 31.7 | 33.1 | 12.8 | 20.1 | 27.3 |
| 2015-18 | 4.4 | 34.5 | 33.6 | 15.4 | 19.5 | 31.1 |

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|  |
| Figure 8.4  Change in the average speed by mode 1989-90 to 2015-18 (km-h) |

The period from 1989-90 to 2015-18 has been a period of fluctuating average travel speeds for each of the modes, although typically with increases over the most recent periods. A major feature has been the switch from walking with its low speeds to faster modes, particularly car travel, although car travel itself has also got faster. The average speed of cycling trips has also increased substantially over the period, possibly reflecting the increased availability of segregated cycling links permitting faster travel.

# Journeys by purpose

## Introduction

For the analysis of the changes in travel patterns by purpose, attention has been focussed on journeys reflecting the whole through movement for a particular purpose which may involve the use of more than one mode. The numbers of journeys are therefore less than the numbers of the individual trip legs.

## Changes in journeys by purpose

The changes in the number of journeys by purpose are set out in Table 9.1 and Figure 9.1.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 9.1  Changes in average journeys per person per week by purpose 1989-90 to 2015-18 | | | | | | | | |
| **Period** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Education** | **Shopping** | **Social/ personal business** | **Support** | **Business** | **All purposes** |
| 1989-90 | 8.4 | 3.0 | 0.8 | 3.2 | 6.3 | 1.9 | 1.7 | 25.3 |
| 1997-98 | 8.2 | 2.2 | 1.2 | 2.8 | 5.9 | 3.0 | 1.4 | 24.6 |
| 2003-06 | 9.0 | 2.3 | 1.3 | 3.4 | 6.0 | 2.6 | 1.3 | 26.1 |
| 2008-11 | 8.7 | 2.1 | 1.1 | 3.1 | 4.8 | 3.3 | 0.9 | 24.0 |
| 2011-14 | 8.5 | 2.0 | 0.8 | 2.7 | 4.4 | 2.7 | 0.9 | 22.1 |
| 2015-18 | 7.1 | 2.1 | 0.7 | 4.3 | 5.3 | 2.7 | 1.7 | 24.0 |

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|  |
| Figure 9.1  Average journeys per person per week by purpose |

Overall the average number of journeys per week generally increased over the period from 1989-90 to 2003-06 before declining to 2008-11 and then picking up to the final period 2015-18. However the level at the end of the period was slightly below that at the start. This pattern of overall travel movements has however been accompanied by more substantial fluctuations over the period for some of the individual journey purposes, suggesting either inherently volatile travel patterns or issues with the definitions of the particular journey types, especially for support and personal business journeys.

Of particular note is the decline in work journeys per person. In part this may reflect changing travel patterns with people increasingly having their lunch at their desk or in a cafe or canteen within or close to their place of work and so travelling less than 100m, the minimum distance recognised by the Survey. The change in the balance of journeys by purpose is set out in Table 9.2.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 9.2  Changes in average journeys per week by purpose 1989-90 to 2015-18 (per cent of total) | | | | | | | | |
| **Period** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Education** | **Shopping** | **Social/ personal business** | **Support** | **Business** | **All purposes** |
| 1989-90 | 33% | 12% | 3% | 13% | 25% | 8% | 7% | 100% |
| 1997-98 | 33% | 9% | 5% | 11% | 24% | 12% | 6% | 100% |
| 2003-06 | 34% | 9% | 5% | 13% | 23% | 10% | 5% | 100% |
| 2008-11 | 36% | 9% | 4% | 13% | 20% | 14% | 4% | 100% |
| 2011-14 | 38% | 9% | 4% | 12% | 20% | 12% | 4% | 100% |
| 2015-18 | 30% | 9% | 3% | 18% | 22% | 11% | 7% | 100% |

The key points from this include:-

* While the share of journeys to work has declined over the period as a whole, it has generally been stable over the period from 1997-98.
* The share of education journeys has generally declined from 1997-98 to the current day.
* The share of shopping journeys remained broadly constant over the period to 2008-11 but increased quite significantly in the most recent period.
* As a share of the total, personal business journeys have been generally declining although with some increase in the most recent period.

## Changes in average distances by purpose

The average distance per journey has increased for all purposes over the period from 1989-90 to 2015-18 and this is set out in Table 9.3.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 9.3  Changes in average journey distances 1989-90 to 2015-18 (km per journey) | | | | | | | | |
| **Period** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Education** | **Shopping** | **Social/ personal business** | **Support** | **Business** | **All purposes** |
| 1989-90 | 7.2 | 8.6 | 3.8 | 5.1 | 7.6 | 6.4 | 8.2 | 7.1 |
| 1997-98 | 7.8 | 10.4 | 5.5 | 5.1 | 7.9 | 6.1 | 12.7 | 7.7 |
| 2003-06 | 9.5 | 9.6 | 4.4 | 6.0 | 8.8 | 8.1 | 12.6 | 8.6 |
| 2008-11 | 8.2 | 10.0 | 5.2 | 5.7 | 8.5 | 6.6 | 12.4 | 7.9 |
| 2011-14 | 9.3 | 11.1 | 5.4 | 5.3 | 9.3 | 7.0 | 13.4 | 8.7 |
| 2015-18 | 8.7 | 10.9 | 5.5 | 5.9 | 8.6 | 7.9 | 8.9 | 8.2 |
| Change 1989-90 to 2015-18 | 21% | 27% | 45% | 16% | 13% | 23% | 9% | 15% |

While there has been a general increase over the period, with particularly large increases in the lengths of journeys to work and for education, again the results have fluctuated over the period as can be seen in Figure 9.2.

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|  |
| Figure 9.2  Change in average journey lengths by purpose 1989-90 to 2015-18 |

There is no clear pattern to the fluctuations with increases in some purposes for specific years being accompanied by reductions for other purposes. While journey lengths for shopping and support journeys were relatively high in 2003-06, they were low in that period for education and commuting journeys.

## Change in average travel times by purpose

The changes in average travel times per journey by journey purpose are set out in Table 9.4 and Figure 9.3

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 9.4  Changes in average journey times by purpose 1989-90 to 2015-18 (minutes per journey) | | | | | | | | |
| **Period** | **Journey purpose** | | | | | | | |
| **Return home** | **Com-muting** | **Educ-ation** | **Shopping** | **Social/ personal business** | **Support** | **Busi-ness** | **All purposes** |
| 1989-90 | 16.9 | 17.5 | 16.3 | 13.3 | 17.4 | 13.2 | 15.9 | 16.3 |
| 1997-98 | 16.3 | 20.9 | 16.1 | 12.0 | 15.9 | 12.2 | 20.1 | 15.8 |
| 2003-06 | 19.3 | 19.4 | 17.7 | 13.4 | 17.2 | 15.0 | 20.1 | 17.6 |
| 2008-11 | 19.4 | 21.5 | 18.0 | 13.5 | 18.9 | 14.7 | 22.3 | 18.1 |
| 2011-14 | 20.6 | 23.1 | 19.5 | 13.9 | 19.7 | 14.9 | 23.7 | 19.2 |
| 2015-18 | 17.9 | 20.2 | 18.4 | 11.9 | 15.6 | 14.1 | 14.5 | 15.9 |
| Change 1989-90 to 2015-18 | 6% | 15% | 13% | -11% | -10% | 6% | -9% | -2% |

While journey distances have increased for each of the purpose categories identified, the position for travel time per journey is more mixed with both increases and decreases in these over the period. Journey times for commuting and education travel have increased, in part reflecting the substantial increases in journey distances for these purposes. For other purposes, particularly shopping and personal business journey times have declined over the period, with much of the decrease occurring in the most recent period as Figure 9.3 indicates.

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| --- |
|  |
| Figure 9.3  Changes in average journey times 1989-90 to 2015-18 (mins per journey) |

While there has been some volatility over the period, there appears to have been a general trend of increasing travel times up to 2011-14 after which times have decreased for all the individual purposes identified. It is not clear whether this represents the improvements to the transport network or changes in the pattern of travel over the recent past, possibly taking advantage of these improvements, or whether this reflects the change in the method of data collection in 2015-18.

## Changes in travel speed by purpose

The large increases in average travel distances coupled with smaller increases or reduction in travel times mean that average travel speeds have increased. This is set out in Table 9.5 and Figure 9.4.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Table 9.5  Changes in average journey speeds 1989-90 to 2015-18 (km-h) | | | | | | | | |
| **Period** | Journey purpose | | | | | | | |
| **Return home** | **Com-muting** | **Educ-ation** | **Shopping** | **Social/ personal business** | **Support** | **Business** | **All purposes** |
| 1989-90 | 25.4 | 29.3 | 14.1 | 23.1 | 26.3 | 29.1 | 30.9 | 26.1 |
| 1997-08 | 28.5 | 29.8 | 20.7 | 25.6 | 29.9 | 30.2 | 38.0 | 29.2 |
| 2003-06 | 29.5 | 29.7 | 14.9 | 26.9 | 30.7 | 32.4 | 37.6 | 29.3 |
| 2008-11 | 25.4 | 27.7 | 17.2 | 25.1 | 27.1 | 26.7 | 33.4 | 26.1 |
| 2011-14 | 27.2 | 28.8 | 16.7 | 23.1 | 28.4 | 28.1 | 34.0 | 27.3 |
| 2015-18 | 29.1 | 32.5 | 18.1 | 29.9 | 33.2 | 33.7 | 36.9 | 31.1 |
| Change | 15% | 11% | 28% | 29% | 26% | 16% | 19% | 19% |

|  |
| --- |
|  |
| Figure 9.4  Changes in average journey speeds 1989-90 to 2015-18 (km-h) |

For travel speeds there are possibly more clearly defined trends with speeds in general increasing up to 2003-06, before declining to 2008-11 and then increasing after then. Again the increases over the most recent periods may reflect the upgrading of the transport network in Auckland with the upgrading of the motorway network and the rail network providing faster travel times.

## Overall assessment

In terms of the journeys made by Auckland residents over the period from 1989-90 to 2015-18, the main findings are:-

* The average number of journeys per person per week has fallen from 25.3 to 24.0, although for some purposes particularly shopping and support trips, the numbers of journeys have increased.
* For all trip purposes average distances have increased, on average growing by 15 per cent per journey from 7.1 to 8.2 kms.
* Although average distances have increased, average travel times have decreased slightly overall, although with some increases for work and educational trips, reflecting the relatively large increases in journey lengths for these purposes.
* Travel speeds for all journey purposes have improved, although in part this reflects a shift from slower walking to faster travel by car or by public transport.

# Changes in travel to work trip patterns

## Changes in modal shares

In addition to the assessment of overall trip patterns, attention has been focussed on the travel to work movement to possibly supplement the Census data.

Table 10.1 considers the changes in modal shares over the period based on the numbers of trip legs by different modes and Table 10.2 considers the distances by each mode.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.1  Characteristics of the journey to work 1989-90 to 2015-18  Changes in modal shares by trip legs | | | | | | |
| Mode | Modal share by trip legs | | | | | |
| 1989-90 | 1997-98 | 2003-06 | 2008-11 | 2011-14 | 2015-18 |
| Pedestrian | 20.0% | 19.4% | 16.2% | 13.0% | 19.3% | 12.7% |
| Car driver | 63.8% | 67.4% | 67.1% | 72.4% | 65.5% | 71.4% |
| Car passenger | 9.5% | 8.2% | 8.3% | 8.0% | 7.3% | 6.5% |
| Cyclist | 1.1% | 1.3% | 0.6% | 0.7% | 0.5% | 1.6% |
| Local PT | 4.4% | 2.8% | 6.5% | 4.8% | 6.6% | 7.0% |
| All modes including other | 100% | 100% | 100% | 100% | 100% | 100% |

The key features from this include:-

* A reduction in the share of pedestrian trips from 20 per cent of the total in 1989-90 to 12.7 per cent in 2015-18
* An increase in the share of car driver trips but with a small decline in car passenger trips. The share of car trips overall has increased from about 73 per cent to 78 per cent
* An increase in public transport trips from just over 4 per cent in 1989-90 and an even smaller share in the following period 1997-98 to 7 per cent of the total in the most recent period.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.2  Characteristics of the journey to work 1989-90 to 2015-18  Changes in modal shares by distance | | | | | | |
| Mode | **Modal share by distance** | | | | | |
| **1989-90** | **1997-98** | **2003-06** | **2008-11** | **2011-14** | **2015-18** |
| Pedestrian | 1.5% | 2.2% | 1.3% | 1.0% | 1.5% | 1.2% |
| Car driver | 79.8% | 84.3% | 83.2% | 85.9% | 80.2% | 82.9% |
| Car passenger | 12.1% | 9.8% | 8.4% | 8.1% | 11.3% | 7.7% |
| Cyclist | 0.7% | 0.6% | 0.5% | 0.5% | 0.3% | 1.0% |
| Local PT | 5.9% | 3.0% | 6.7% | 4.5% | 6.7% | 7.2% |
| All modes **excluding** other (1) | 100% | 100% | 100% | 100% | 100% | 100% |

Note (1) The results for 2015-18 are affected by the presence of Other trips which have a very high average distance, probably reflecting flying or very long distance commuting which do not appear to be present in the results for earlier years. To give a better comparison over time these trips have therefore been excluded from this table.

The key features from Table 10.2 include:-

* The decline in the share of the distance made by pedestrian journeys
* The decline in the share of car passenger trips in the total distance from 12 per cent to just under 8 per cent.
* Some increase in the share of the distance undertaken by car driver trips but with an overall decline in the share of car drivers and passengers combined.
* Growth in the share of distance travelled by public transport.

## Changes in journey characteristics

Looking at the total distances travelled to work by mode, the results are set out in Table 10.3. The difference between the averages per trip leg and the averages per journey are an indication of the extent to which commuting journeys involve more than one mode.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.3  Characteristics of the journey to work 1989-90 to 2015-18  Changes in average distances | | | | | | |
| **Mode** | **Distance per trip leg (kms)** | | | | | |
| **1989-90** | **1997-908** | **2003-06** | **2008-11** | **2011-14** | **2015-18** |
| Pedestrian | 0.6 | 1.1 | 0.7 | 0.7 | 0.7 | 0.8 |
| Car driver | 9.4 | 11.7 | 10.2 | 10.6 | 11.6 | 10.8 |
| Car passenger | 9.4 | 11.2 | 8.3 | 8.9 | 14.7 | 11.0 |
| Cyclist | 4.9 | 4.6 | 7.4 | 6.1 | 6.2 | 5.7 |
| Local PT | 9.9 | 10.1 | 8.3 | 8.4 | 9.5 | 9.7 |
| Average all modes per trip leg | 7.8 | 9.5 | 8.3 | 9.0 | 9.5 | 9.9 |
| Average all modes per journey | 8.4 | 10.4 | 9.1 | 10.0 | 11.1 | 10.9 |

The average distances by mode have increased for all modes except public transport, but the main effect has resulted from the switch from the shorter walking journeys to the longer journeys made by other modes with an increase in average travel distance being greater than that for the individual modes. Interestingly the ratio of distances between car drivers and car passengers has fluctuated with the car passenger distances being the same as or lower than those for car drivers in the early parts of the period and higher in the later parts. This may reflect the shorter trips undertaken by walking in the early years of the Survey diverting to car driver trips over time.

In line with the changes in travel distances, the changes in average trip times have also increased over the period, although typically the increases are smaller as journey speeds have increased. These are set out in Table 10.4 and Figure 10.1.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.4  Characteristics of the journey to work 1989-90 to 2015-18  Changes in average times | | | | | | |
| Mode | **Time per trip leg (mins)** | | | | | |
| **1989-90** | **1997-98** | **2003-06** | **2008-11** | **2011-14** | **2015-18** |
| Pedestrian | 7.8 | 14.8 | 9.0 | 9.5 | 9.5 | 10.4 |
| Car driver | 17.1 | 20.2 | 18.7 | 20.7 | 21.8 | 18.1 |
| Car passenger | 17.2 | 19.7 | 18.7 | 20.2 | 24.9 | 21.8 |
| Cyclist | 15.4 | 13.0 | 26.9 | 25.8 | 23.2 | 21.1 |
| Local PT | 27.4 | 24.2 | 24.4 | 25.6 | 23.7 | 30.7 |
| Average all modes per trip leg | 15.7 | 19.1 | 17.6 | 19.6 | 19.8 | 18.4 |
| Average all modes per journey | 17.5 | 20.9 | 19.4 | 21.5 | 23.1 | 20.2 |

|  |
| --- |
|  |
| Figure 10.1  Changes in average times per trip leg for travel to work journeys 1989-90 to 2015-18 (mins per journey) |

In general, times per trip leg for the journey to work increased up to 2011-14 before declining in the most recent period, although the reverse is broadly the case for public transport. With the exception of 1997-98 the average time per trip leg spent walking has increased slowly but steadily over the period.

## Changes in the travel to work distances and times by the average Aucklander

The changes in the average travel to work distance across all Auckland residents are set out in the table below.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.5  Characteristics of the journey to work 1989-90 to 2015-18  Changes in average distance per person per week (kms) | | | | | | |
| Mode | **Average distance per Auckland resident per week** | | | | | |
| **1989-90** | **1997-98** | **2003-06** | **2008-11** | **2011-14** | **2015-18** |
| Pedestrian | 0.4 | 0.5 | 0.3 | 0.2 | 0.3 | 0.3 |
| Car driver | 19.6 | 19.2 | 17.6 | 18.1 | 18.1 | 18.3 |
| Car passenger | 3.0 | 2.2 | 1.8 | 1.7 | 2.5 | 1.7 |
| Cyclist | 0.2 | 0.1 | 0.1 | 0.1 | 0.1 | 0.2 |
| Local PT | 1.5 | 0.7 | 1.4 | 1.0 | 1.5 | 1.6 |
| Average all modes | 25.3 | 22.9 | 21.3 | 21.2 | 22.7 | 23.6 |

While travel to work journeys have got longer as set out in Table 10.3, because the average number of work journeys per resident has declined (as set out in Table 9.1) the total distance per resident has also declined, although there have been fluctuations over the full period. The main proportional decrease has been in the distance as car passenger which has fallen by about 45 per cent over the period. Over the period as a whole the average distance travelled by car has also declined by a similar absolute amount, but the position for intermediate periods is more varied.

The final table considers the changes in the average journey to work travel times when considered from the position of the average Auckland resident. The average travel time for all modes has decreased by about 15 per cent, compared to a reduction in the travel distance of about 7 per cent, again reflecting the increase in travel speeds in the most recent period.

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| Table 10.6  Characteristics of the journey to work 1989-90 to 2015-18  Changes in average time spent per person per week (mins) | | | | | | |
| Mode | **Average time per Auckland resident per week** | | | | | |
| **1989-90** | **1997-08** | **2003-06** | **2008-11** | **2011-14** | **2015-18** |
| Pedestrian | 5 | 7 | 4 | 3 | 4 | 3 |
| Car driver | 36 | 33 | 32 | 35 | 34 | 31 |
| Car passenger | 5 | 4 | 4 | 4 | 4 | 3 |
| Cyclist | 1 | 0 | 0 | 0 | 0 | 1 |
| Local PT | 4 | 2 | 4 | 3 | 4 | 5 |
| Average all modes | 52 | 46 | 45 | 46 | 47 | 44 |

## Overall assessment

The main features from the analysis of journey to work movements over the period from 1989-90 to 2015-18 include:-

* The average number of commuting journeys per week per Auckland resident has declined although much of the change occurred at the beginning of the period after which the total has remained broadly constant
* The shares of trips by walking or as a car passenger have declined substantially and have been balanced by increases in car driver and public transport trips. The share of trips by car as driver or passenger combined has declined slightly.
* The average distance travelled has increased over the period both in total and for all the individual modes except public transport which has declined slightly. However there have been substantial fluctuations over the period considered.
* Average travel times have increased for all modes

1. For the results in 2015-18 waiting times between modes were not directly recorded. A comparison was made between the sum of the times for individual trip legs and the total journey duration which was applied to the public transport times. After cleaning the data to remove unrealistically long waiting times this gave an adjustment factor of about 10 per cent for public transport trip times. No information was available by purpose so the adjustment factor was assumed to apply equally to all public transport travel time totals [↑](#footnote-ref-1)