

Comparing travel modes

Household Travel Survey

v1.4 revised Jan 2008

The New Zealand Household Travel Survey is an ongoing survey of household travel conducted for the Ministry of Transport. Each year, people in over 2000 **households** throughout New Zealand are invited to participate in the survey by recording all their **travel** over a two-day period. Each person in the household is then visited and interviewed about their travel. Participants are also asked about their alcohol consumption, recent accidents and other travel-related information.

This fact sheet shows the **travel mode** choices made by New Zealanders when they travel. It uses data from 12 700 people in 5 650 households, collected between March 2003 and June 2006. The information will be updated as new data become available.

Highlights

- More than half of New Zealanders' travel time is spent driving. **Driver** and **passenger** travel together account for 80% of all time spent travelling.
- New Zealanders aged between 25 and 70 spend two thirds of their total travel time driving.
- The biggest users of non-car modes are young adults aged 15-24. Even this group spends two-thirds of total travel time in a private vehicle.
- Overall road-based household travel distance has increased by 14% between 1997/98 and 2003-06, an average increase of 1.8% per year. The New Zealand population has increased by 7% during this period.
- Total travel time has increased by 13% between 1997/98 and 2003-06.
- Walking and cycling by children aged 5-14 has decreased from an average of 2 hours and ten minutes per week in 1989/90, to just under an hour and twenty minutes per week in 2003-06. Time spent in the car has increased in almost all age groups.
- People aged 35 to 64 spend the most time travelling. This group reported spending over 9 hours per person per week travelling, and of this, around 70% of time is spent driving.
- People living in small towns (population less than 10,000) and rural areas drive on average one and a half times as far in a year as 'urban dwellers' living in larger towns and cities.
- The number of primary school aged students being driven to school increased sharply between 1989/90 and 1997/98, but has increased only slightly since then.

How do New Zealanders travel?

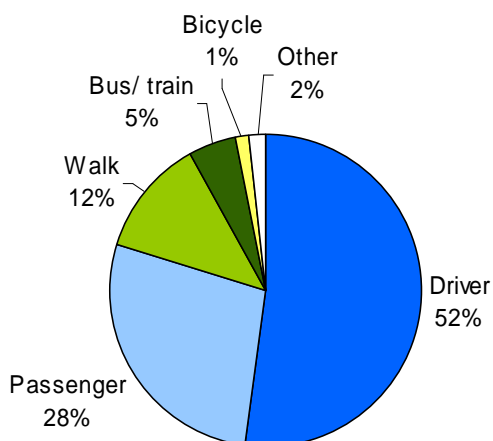
More than half of New Zealanders' travel time is spent driving. Driver and passenger travel together account for 80% of all time spent travelling. Twelve percent of time is spent walking, 5% on public transport and only 3% by other modes of transport (for example, bicycle, plane or boat).

Figure 1a shows the percentage of total travel time spent driving, as a passenger, walking, cycling, on a bus or by other means. 'Other' includes aircraft and boat travel, as well as more unusual modes like horse-riding. (Skateboarders and users of mobility scooters are included with walkers).

Figure 1b shows each mode's share of **trip legs**. A 'trip leg' refers to a single leg of a journey, between any two stops. For example, driving to a friend's place with a stop at the shop on the way, counts as two trip legs. Similarly, walking to the bus stop, catching a bus to town and walking from the bus stop to work is three trip legs.

Figure 1: Overall mode share

a) Share of total travel time



b) Share of trip legs

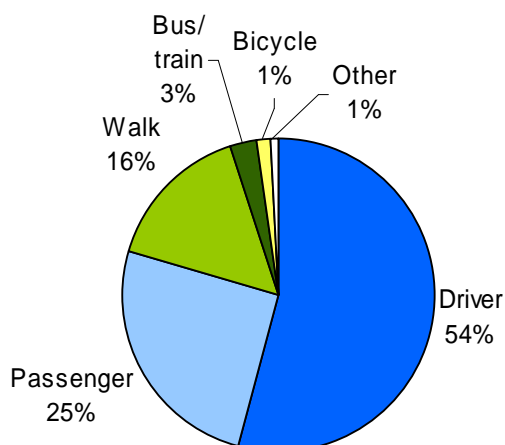


Table 1 shows each travel mode's share of the total travel time, trip legs and on-road distance travelled.

Table 1. Travel mode share of time, distance and trip legs

Travel mode	Trips in sample	Million hours per year	Million km per year	Million trip legs per year
Driver (any vehicle type)	58 239	857	31 592	3 467
Passenger (in private vehicle)	28 384	452	18 253	1 633
Walk	16 588	199	See note	996
Bus passenger	2 200	70	1 791	153
Bicycle	1 901	22	247	89
Taxi passenger	442	7	184	25
Train	279	10	See note	17
Other modes ¹	449	23	See note	31
Total	108 482	1 639	52 066	6 409

Note: Distance estimates are available for road-based modes only.

¹ 'Other modes' include travel by plane and boat as well as uncommon land modes eg horse-riding.

Trends in mode share

Results of three Household Travel Surveys are available for analysis. Single year surveys were conducted during the 1989/90 and 1997/98 financial (June) years, with achieved samples of 8 700 people from 3 100 households and 14 250 people from 5 660 households respectively. The current ongoing survey was designed to allow comparison with these earlier surveys. Table 2 and Table 3 in this section show results, for all three surveys, for those aged five and over as the 1989/90 survey excluded children under five from the sample.

Overall road-based household travel distance has increased by 14% between 1997/98 and 2003-06, an average increase of 1.8% per year. The total distance driven has increased by 16% (about 2% per year) over the same period. The New Zealand population has increased by 7% over this period.

Table 2: 100 million km travelled per year, by mode (road-based modes only, ages 5 and over)

Travel mode	1989/90		1997/98		2003-06	
	Estimated 100 million km	95% confidence interval*	Estimated 100 million km	95% confidence interval*	Estimated 100 million km	95% confidence interval*
Driver (any vehicle type)	201	(180, 223)	273	(256, 290)	316	(293, 339)
Passenger (private vehicle)	121	(106, 136)	139	(127, 150)	156	(141, 171)
Bicycle	3.5	(2.9, 4.1)	2.8	(2.3, 3.4)	2.5	(2.1, 3.1)
Bus passenger	15	(11, 20)	18	(15, 21)	18	(14, 21)
Other road-based	0.9	(0.5, 1.2)	1.5	(1.0, 2.0)	1.8	(1.1, 2.5)
Total	341	(306, 378)	432	(409, 459)	492	(460, 527)
<i>Estimated people aged 5+ (for calculating distance per person)</i>	3 056 701		3 717 878		4 016 331	

* 95% confidence interval shown as (lower bound, upper bound)

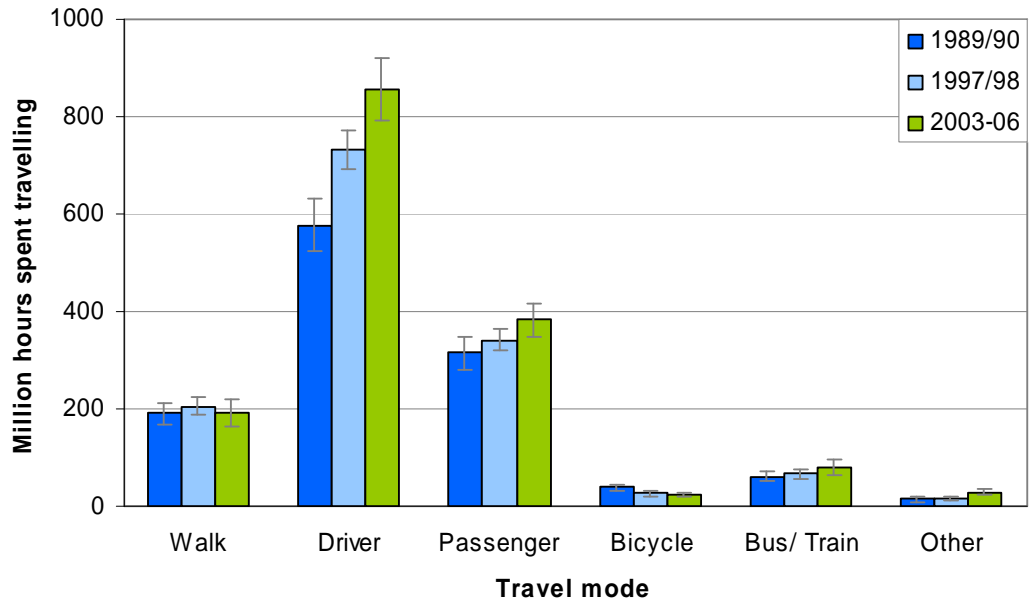
Total travel time, including all modes, increased by 16% between 1989/90 and 1997/98 and by a further 13% between 1997/98 and 2003-06. Time spent driving has increased by 17% between 1997/98 and 2003-06, compared with a 7% increase between 1989/90 and 1997/98 (see Table 3).

Table 3: Million hours per year spent travelling, by mode (ages 5 and over)

Travel mode	1989/90		1997/98		2003-06	
	Estimated million hours	95% confidence interval*	Estimated million hours	95% confidence interval*	Estimated million hours	95% confidence interval*
Walk	191	(170, 212)	205	(187, 222)	191	(164, 218)
Driver (any vehicle type)	576	(522, 631)	732	(692, 773)	857	(792, 921)
Passenger (private vehicle)	315	(282, 349)	342	(318, 365)	383	(350, 416)
Bicycle	39	(33, 46)	26	(22, 30)	22	(18, 26)
Bus/ Train passenger	62	(50, 73)	66	(57, 75)	80	(64, 95)
Other (including taxi)	16	(10, 22)	17	(14, 21)	29	(22, 36)
Total	1199	(1090, 1308)	1 388	(1320, 1456)	1 561	(1454, 1669)

* 95% confidence interval shown as (lower bound, upper bound)

Figure 2: Trends in annual travelling time, by mode (ages 5 and over)



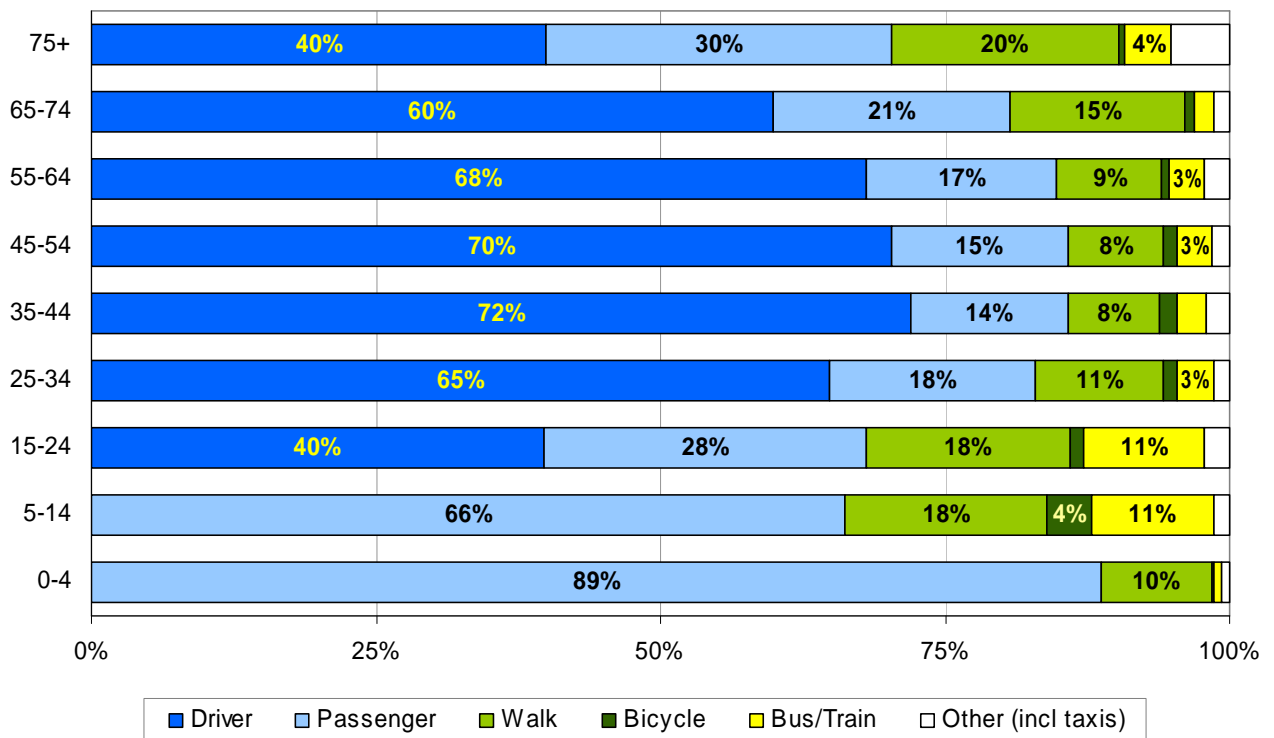
Grey bars represent 95% confidence intervals for each estimate. Non-overlapping intervals indicate a significant (ie likely to be real) difference between years or modes.

Mode share by age group

Figure 3 shows travel patterns for various age groups. Pre-schoolers and people aged 35–64 were the most car-dependent, with between 85% and 90% of their total travel time spent as a car driver or passenger. School-aged children and young adults were the most likely to use non-car modes (walking, cycling or public transport), but even they spent two-thirds of their travel time in a car.

Figure 3: Mode share (percentage of total time spent travelling by each mode of travel)

Age group



Adults aged 35 to 44 report more travel time than any other ten-year age group (shown in Table 4); this group accounts for 18% of all travel hours. This is the result both of a population bulge in this age group and of a high per-person travel rate of more than nine hours per week (Table 5 and Figure 4). Seventy-two percent of this travel time is spent driving. The result is that this 35-44 age group accounts for almost a quarter of all New Zealand's driving hours.

Per person, people aged 35 to 64 spend the most time travelling. This group reported spending over 9 hours per person per week travelling, and of this, around 70% of time is spent driving. There is a sharp decrease in travel at age 65, as the need for travel to work declines.

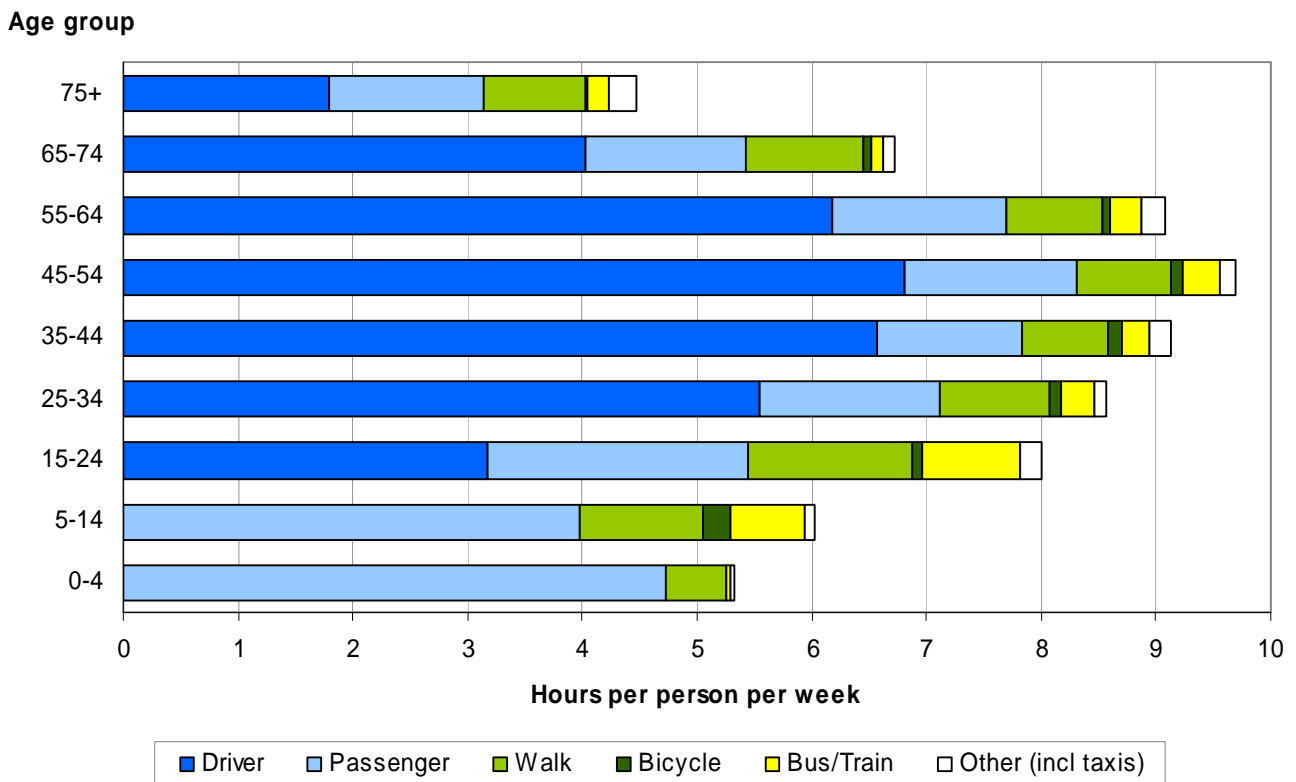
Table 4: Million hours spent travelling, by mode and age group

Mode	Age group									Total
	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Driver		0.0	96.2	156.2	212.6	187.5	128.8	55.0	20.3	856.6
Passenger	69.0	122.4	68.8	43.8	40.6	41.2	31.6	19.1	15.4	451.8
Walk	7.6	32.9	43.3	27.0	24.1	22.5	17.5	14.1	10.1	199.0
Bicycle	0.1	7.1	2.8	3.0	4.2	3.0	1.1	0.8	0.3	22.2
Bus/Train	0.6	20.1	25.6	7.9	7.8	8.5	5.9	1.6	2.1	80.1
Other	0.5	2.4	5.6	3.2	5.9	3.9	4.1	1.3	2.6	29.4
Total	77.8	185.0	242.2	241.0	295.1	266.6	189.0	91.8	50.7	1639.1

Table 5: Hours per person per week spent travelling, by mode and age group

Mode	Age group									Total
	0-4	5-14	15-24	25-34	35-44	45-54	55-64	65-74	75+	
Estimated population (mean 2003-06)	280 000	590 000	581 000	539 000	620 000	528 000	399 000	262 000	218 000	4 020 000
Driver		0.0	3.2	5.6	6.6	6.8	6.2	4.0	1.8	4.1
Passenger	4.7	4.0	2.3	1.6	1.3	1.5	1.5	1.4	1.4	2.2
Walk	0.5	1.1	1.4	1.0	0.7	0.8	0.8	1.0	0.9	0.9
Bicycle	0.0	0.2	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.1
Bus/Train	0.0	0.7	0.8	0.3	0.2	0.3	0.3	0.1	0.2	0.4
Other	0.0	0.1	0.2	0.1	0.2	0.1	0.2	0.1	0.2	0.1
Total	5.3	6.0	8.0	8.6	9.1	9.7	9.1	6.7	4.5	7.8

Figure 4: Hours per person per week spent travelling

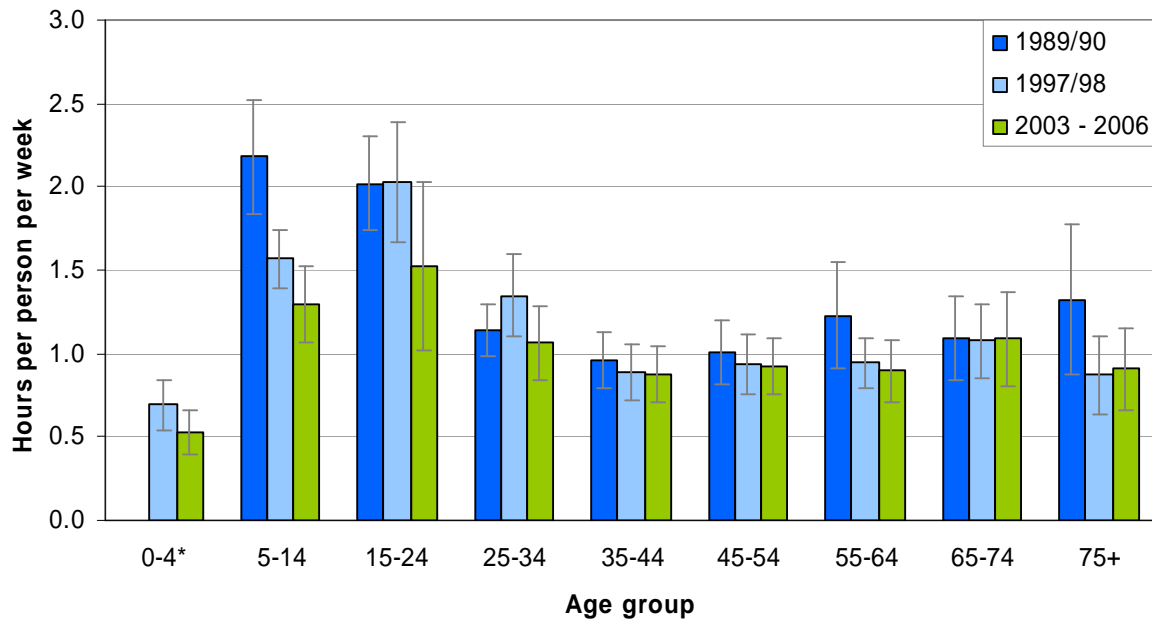


Trends in travel by age group

Figure 5 and Figure 6 show the trends in walking and cycling, and in car travel, expressed in hours per person per week. Note that this survey captures walking and cycling in the road/footpath environment; off-road activities such as tramping, mountain biking and walking around the farm or shopping centre are not included in these estimates.

The only statistically significant change in the time per person spent walking and cycling has occurred in the 5-14 age group, where it has decreased from an average of two hours and ten minutes per week in 1989/90 to just under an hour and twenty minutes per week in the current survey (Figure 5). No consistent trend in the amount of time spent walking and cycling is visible across the other age groups. There has, however, been an increase in the time spent in the car, significant in the 55-74 age group and consistently increasing in the other groups (Figure 6).

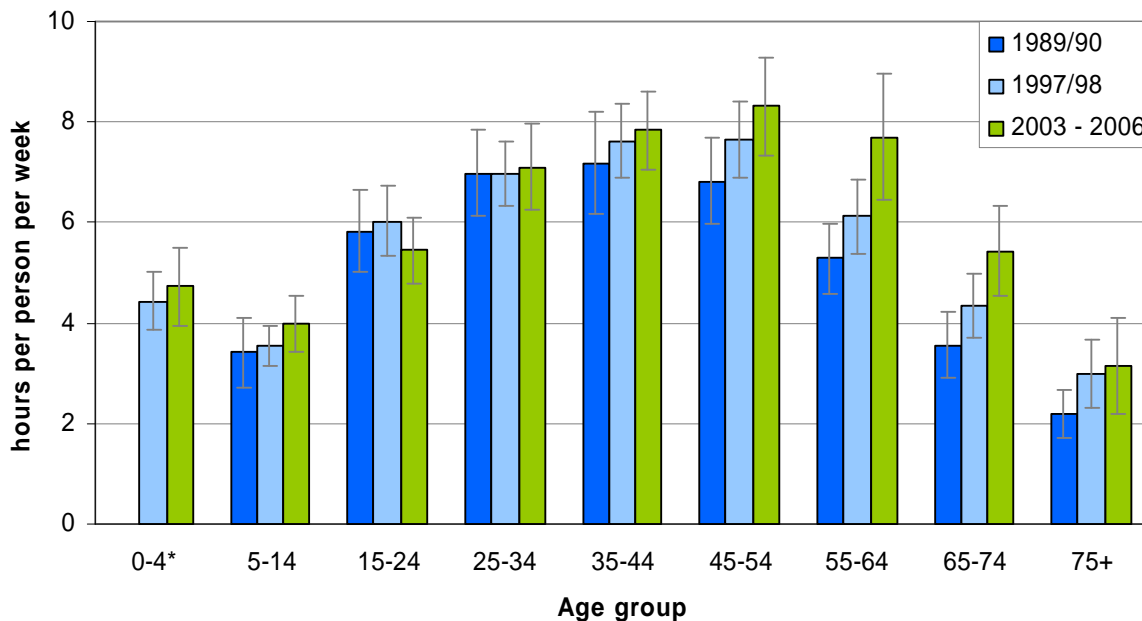
Figure 5: Hours per person per week spent walking and cycling



*Children aged 0-4 were not surveyed in 1989/90.

Grey bars represent 95% confidence intervals for each estimate. Non-overlapping intervals indicate a significant (ie likely to be real) difference between years or age groups.

Figure 6: Hours per person per week spent as a driver or passenger



*Children aged 0-4 were not surveyed in 1989/90.

Grey bars represent 95% confidence intervals for each estimate. Non-overlapping intervals indicate a significant (ie likely to be real) difference between years or age groups.

Travel to destination types

For each piece of travel recorded, the respondent is asked about his or her destination or the purpose of the trip leg. These responses are coded into the categories shown in Table 6. 'Home' is used for the return leg of all travel; the categories shown include only travel to the stated destination types.

In the following tables, trip legs with the immediate purpose of changing to another mode have been reassigned to the final destination of the series of 'change mode' trip legs. For example, if leg 1 is

'walk to bus stop', leg 2 is 'catch bus to town' and leg 3 is 'walk to work', the immediate purpose of legs 1 and 2 is 'change mode', but the eventual purpose of all three legs is 'Work'. The following tables show all three legs as 'work'.

Travel to work is the largest travel category and also the most dependent on driving. Seventy-seven percent of time spent travelling to work is driver travel, and nearly 90% of known distance travelled to work (that is, excluding walking, train, plane or ferry travel) is as a driver.

Travel to social destinations is the next most common reason for travel, in terms of both time and distance. This includes visiting friends and family, entertainment, religious meetings and other hobby-related pastimes. Though driving is still the main mode of transport to social occasions (47% of travel time), passenger travel (38%) accounts for a far greater share of the travel than for work trips, reflecting the 'whole family' nature of many of these activities (Figure 7).

The 'Accompany or transport someone' category includes any trip leg where the primary purpose belonged to another person. It includes, for example, parents accompanying or transporting children to school, or sports; giving a friend a ride to the doctor's; walking to school to meet a child at 3pm. It also includes 'just going for the ride' on someone else's trip purpose, particularly where, for example, children accompany a parent on the parent's errands. This activity category is the only one that is passenger dominated.

Table 6: Total trip legs per year by trip mode and purpose/ destination

Trip purpose/ destination	Travel mode								Total
	Driver	Passenger	Walk	Bus	Bicycle	Other	Taxi	Train	
<i>Trips in sample</i>	58 131	28 369	16 568	2 198	1 894	449	4 742	279	108 330
<i>Million trip legs per year</i>									
Home	1 124.8	544.1	333.3	64.1	35.3	9.3	10.6	7.4	2 128.8
Work – Main Job	675.9	58.1	109.2	22.8	16.0	4.9	1.6	4.5	893.0
Work – Other Job	24.1	3.3	3.0	0.2	0.6	0.1	0.2	0.1	31.6
Work – Employer's Business									
	119.5	7.1	8.6	0.3	0.9	0.8	0.8	0.3	138.3
Shopping	481.5	173.7	138.5	6.9	4.0	1.8	1.5	0.9	808.8
Social visits	341.1	231.5	108.8	8.5	6.8	3.9	6.5	0.9	707.9
Accompany or transport someone	232.0	328.4	50.0	3.8	1.8	4.0	0.3	0.5	620.8
Recreational	141.3	111.4	99.3	5.3	11.6	3.2	1.1	0.6	373.8
Personal business	236.1	53.0	50.3	4.6	2.5	0.8	0.5	0.5	348.3
Education	40.0	99.5	86.3	35.0	8.7	0.9	1.2	1.3	272.8
Medical/Dental	31.4	12.6	6.1	0.4	0.3	0.2	0.3	0.1	51.3
Other	19.0	9.7	2.3	0.3	0.4	0.7			32.4
Left Country	0.2	0.1		0.1		0.6	0.1		1.0
Total (includes unknown purpose)	3 466.9	1 632.6	995.9	152.6	89.0	31.1	24.5	16.9	6 409.5

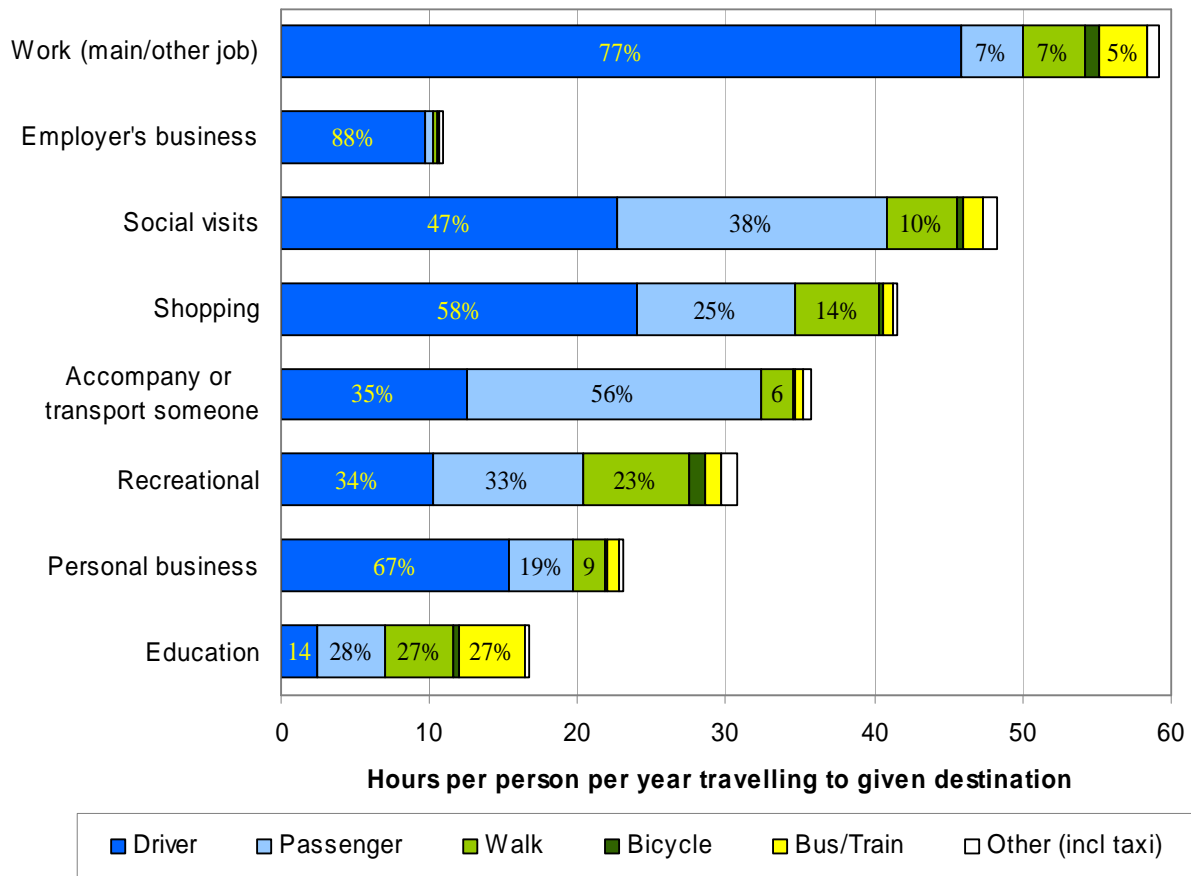
Table 7: Time spent travelling per year, by mode and trip purpose/ destination

Trip purpose/ destination	Travel mode						Total
	Driver	Passenger	Walk	Bicycle	Bus/Train	Other (incl taxi)	
<i>Trips in sample</i>	58 127	28 371	16 569	1 894	2 479	891	108 331
<i>Million hours per year</i>							
Home	277.8	156.2	74.5	9.1	31.0	9.3	557.8
Work (main/other job)	184.2	17.1	16.8	3.7	12.9	3.4	238.1
Employer's business	38.9	2.5	1.0	0.4	0.4	1.0	44.1
Shopping	96.7	42.4	23.0	0.8	2.8	1.1	166.8
Social visits	91.0	73.2	19.2	1.3	5.5	4.0	194.2
Accompany or transport someone	50.6	79.7	8.4	0.3	2.2	2.2	143.5
Recreational	41.4	40.6	28.7	4.2	4.1	4.4	123.4
Personal business/ medical/dental)	61.9	17.3	8.6	0.4	3.3	1.3	92.8
Education	9.7	18.5	18.2	2.0	17.9	0.7	67.0
Other (includes Left country)	4.6	4.1	0.4	0.1	0.1	1.9	11.2
Total (includes unknown purpose)	856.6	451.8	199.0	22.2	80.1	29.4	1 639.1

Table 8: Distance travelled per year (for modes where distance known), by mode and trip purpose/ destination

Trip purpose/ destination	Travel mode					Total (includes taxi)
	Driver	Passenger	Bicycle	Bus (Distance not available for train travel)		
<i>Trips in sample</i>	58 123	28 368	1 893	2 200	91 026	
<i>Million km per year</i>						
Home	10 342	6 495	102	563	17 578	
Work (main/other job)	7 140	605	43	257	8 061	
Employer's business	1 335	124	1	2	1 470	
Shopping	3 149	1 628	7	45	4 837	
Social visits	3 600	3 019	18	182	6 869	
Accompany or transport someone	1 727	3 193	3	79	5 003	
Recreational	1 717	1 907	48	187	3 873	
Personal business/medical /dental	2 068	675	5	42	2 794	
Education	300	485	16	427	1 235	
Other (includes 'Left country')	210	117	4	4	336	
Total (includes unknown purpose)	31 592	18 253	247	1 791	52 066	

Figure 7: Mode share of time spent travelling, for each trip purpose/ destination type



Travel to school

Although travel to school makes up only 6% of trip legs, the health implications for children and the timing of school travel within the morning peak make it a topic of interest.

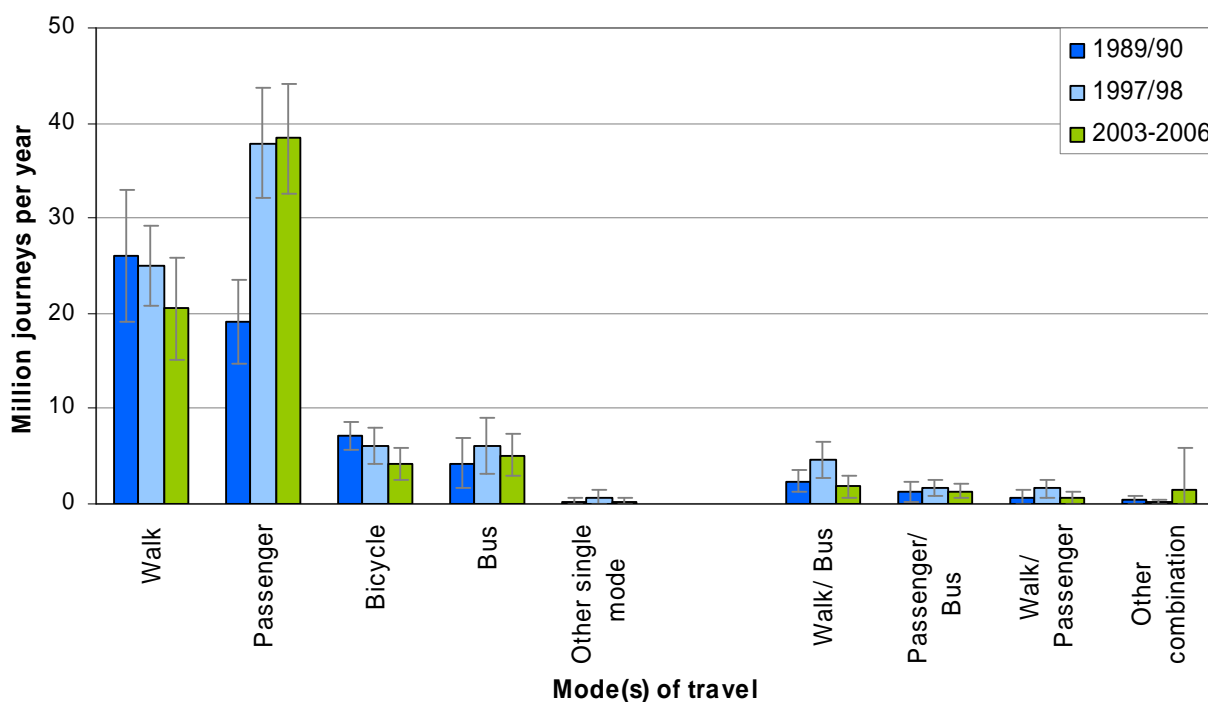
Table 9 shows how children have travelled to school over the last twenty years, as measured by the three Travel Surveys. Here, a **journey** is a series of one or more trip legs where the only intermediate stops are to change to another mode.

Figure 8 shows that the number of primary school-aged students being driven to school increased sharply between 1989/90 and 1997/98, but has increased only slightly since then. Over the same period, walking has declined from the most commonly used mode of transport to school, to be only just over half as common as being driven.

Table 9: Travel from home to school - million journeys per year

	Ages 5-12			Ages 13-17		
	1989/90	1997/98	2003-2006	1989/90	1997/98	2003-2006
People in sample	1 027	1 991	1 442	612	918	812
Population in age group (use for calculating per person travel)	386 360	452 100	449 590	251 800	258 100	282 350
Million journeys per year						
Single mode						
Walk	26.1	25.1	20.5	9.8	7.9	10.6
Passenger	19.1	37.9	38.3	7.4	13.4	16.6
Bicycle	7.1	6.1	4.2	7.1	4.5	1.5
Bus	4.3	6.1	5.1	3.5	3.1	3.4
Driver	-	-	-	1.6	2.8	4.8
Other single mode	0.3	0.6	0.2	0.2	0.2	1.0
More than one mode						
Walk/ Bus	2.4	4.6	1.8	7.0	6.8	5.6
Passenger/ Bus	1.2	1.6	1.3	0.6	0.9	1.0
Walk/ Passenger	0.6	1.6	0.6	0.3	1.2	0.4
Other combination	0.3	0.2	1.4	0.6	1.3	1.0
Total	61.5	83.8	73.5	38.0	42.2	45.9

Figure 8: Travel to school – ages 5 to 12



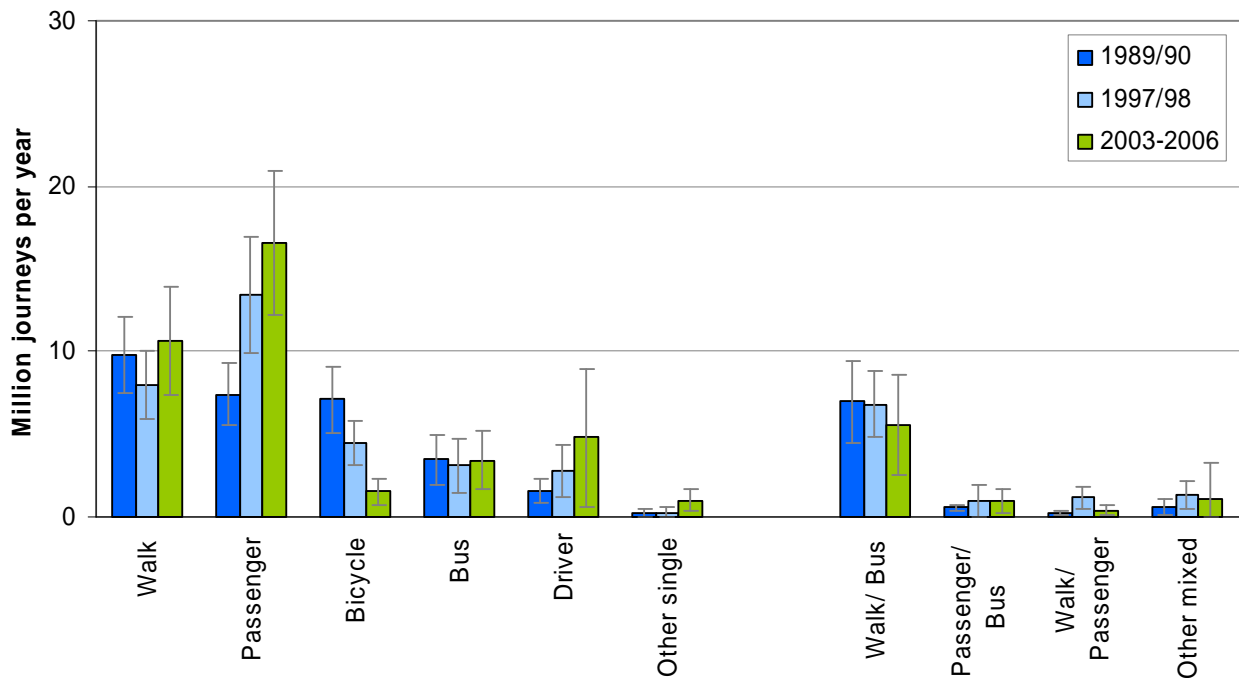
Grey bars represent 95% confidence intervals for each estimate. Non-overlapping intervals indicate a significant (ie likely to be real) difference between years or age groups.

Figure 8 and Figure 9 show the national number of trips to school. It's also possible to look at the per-person travel pattern. The trends in per-person travel to school look very similar to the national overall trends.

Among secondary school-aged students (Figure 9), the total number of passenger trips to school has doubled since 1989/90, while the number of cycling journeys has reduced from 28 million per year in

1989/90 to around 5 million per year. The number of walking journeys has remained fairly constant. A small but probably increasing number of students drive themselves to school.

Figure 9: Travel to school – ages 13-17



Grey bars represent 95% confidence intervals for each estimate. Non-overlapping intervals indicate a significant (ie likely to be real) difference between years or age groups.

Travel by urban and rural residents

The 24% of New Zealanders who live in small towns and rural areas account for 30% of the total distance driven by New Zealanders and 23% of total travel time (see Table 10). People living in small towns (population less than 10,000) and rural areas drive on average one and a half times as far in a year as ‘urban dwellers’ living in larger towns and cities (see Table 11). The average driver trip leg length (between stops) is 8km for urban dwellers and 12 km for small town/ rural dwellers.

Urban dwellers spend more time walking than their small town and rural-dwelling counterparts. The average urban dweller (across all age groups) walks for about 53 hours per year, compared to only 37 hours per year for small town/ rural dwellers. However, as noted above, these figures do not include off-road walking, for example tramping or walking around private land.

Table 10: Comparing city/town and rural dwellers – mode share of time, distance and trips

	Main/secondary urban (population centres of 10,000 or more)				Minor urban/ rural (population less than 10,000)			
	Trips in sample	Million hours per year	Million km per year	Million trip legs per year	Trips in sample	Million hours per year	Million km per year	Million trip legs per year
Driver	41 508	654	21 915	2 686	16 710	202	9 677	780
Passenger	20 619	350	13 038	1 286	7 765	101	5 215	347
Walk	12 477	164	Not available	805	4 111	35	Not available	191
Bicycle	1 281	16	183	64	620	6	64	25
Bus/Train	1 750	60	1 233*	128	729	20	557*	41
Taxi	395	6	171	22	47	1	13	2
Other	334	19	Not available	26	115	4	Not available	5
Total	78 364	1 269	36 541	5 019	30 097	370	15 525	1 391

*distances are not available for train travel, so quoted ‘bus/train’ distances are for bus travel only.

Table 11: Travel per person by city/ town and rural dwellers

Travel mode	Main/secondary urban (population centres of 10,000 or more)				Minor urban/ rural (population less than 10,000)			
	Trips in sample	Hours per person per year	Km per person per year	Trip legs per person per year	Trips in sample	Hours per person per year	Km per person per year	Trip legs per person per year
Driver (per person)	41 508	214	7 168	879	16 710	211	10091	814
Driver (per person aged 15+)	41 508	269	9 022	1106	16 710	282	13481	1087
Passenger	20 619	115	4 264	421	7 765	106	5438	361
Walk	12 477	54	Not available	263	4 111	37	Not available	199
Bicycle	1 281	5	60	21	620	6	67	26
Bus/Train	1 750	20	403*	42	729	21	581*	43
Taxi	395	2	56	7	47	1	13	2
Other	334	6	Not available	9	115	4	Not available	5
Total	78 364	415	11 952	1641	30 097	386	16 190	1450

*distances are not available for train travel, so quoted 'Bus/Train' distances are for bus travel only.

Glossary

Driver: in this fact sheet includes all vehicle drivers including motorcyclists and taxi drivers.

Household: group of people living at the same address, sharing facilities but not necessarily financially interdependent. May be an individual, couple, family, flatmates or a combination of these (eg family plus boarder).

Journey: a series of one or more trip legs where the only intermediate stops are to change to another mode.

Passenger: passenger in a private vehicle (car, van, ute, SUV, truck, or motorcycle). Passengers in buses, trains and taxis are coded under those categories. Aircraft and boat passengers are included in the 'Other' category.

SUV: Sports utility vehicle. Used in this report to refer to light passenger vehicle with high wheel base and distinctive body shape. Normally, but not always, four wheel drive.

Travel: includes all on-road travel by any mode; any walk which involves crossing a road or walking for 100 metres or more along a public footpath or road; cycling on a public road or footpath; some air and sea travel. Excludes off-road activities such as tramping, mountain biking, walking around the mall or around the farm.

Travel mode: the method of travel. Includes vehicle driver, vehicle passenger, pedestrian, cyclist, motorcycle rider or passenger, bus or train passenger, ferry or aeroplane passenger and so forth.

Trip distance: For road-based trips, distances are calculated by measuring the distance from the start address along the roads to the finish address. If an unusual route was used, the interviewer records an intermediate point to indicate the route; otherwise, the journey is assumed to follow the quickest available route.

Trip leg: a single leg of a journey, with no stops or changes in travel mode. For example, driving from home to work with a stop at a shop, is two trip legs; one ending at the shop and one ending at work.

Ute: Utility vehicle; a light flatbed truck weighing up to 3.5 tonnes. Typically based on a car or van model with a front cab and a flatbed instead of rear seats or luggage space.

Walk: Includes walkers, joggers, users of mobility scooters and children on tricycles.

Work: Employer's business: includes work-related travel other than to and from work (eg travelling to meetings or clients).

For more information about the background to the survey see the Ministry of Transport website at: www.transport.govt.nz/ongoing-travel-survey-index/

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