

# People's Travel Behaviour in a Multicultural Society

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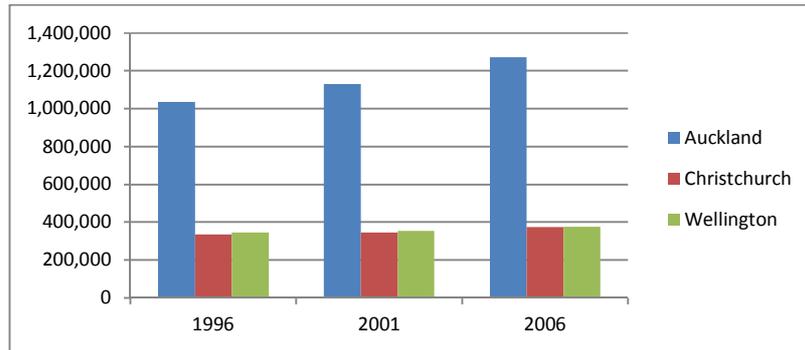
## Abstract

New Zealand in general and Auckland in particular are experiencing a significant change in population composition for the last few decades. The increasing of Pacific Islanders and Asian population in Auckland makes the city become more multicultural than in the past. Along with population and diversity growth, travel volume in Auckland also shows a significant increase marked by an increase in the car ownership and public transport use. This paper seeks to find out the ways ethnic demographic characteristics might affect travel behaviour in a multicultural society. It uses material from two sources, Statistics New Zealand and the Ministry of Transport New Zealand. Statistics New Zealand provides details on demographic characteristics which was collected from 2006 Census of Population and Dwellings and the Ministry of Transport feeds the data which was collected from 2010 New Zealand Household Travel Survey. This study found that ethnicity does matter in terms of travel choices, travel distance and needs. For example, the NZ Europeans was the group with the highest use of cars, especially as a driver and Pacific Islanders was the largest in car use as passengers compared to other ethnic groups. The study also found that income, household structure and residential location can have a significant impact on ethnic groups' travel behaviour. Understanding the differences in travel behaviour among ethnic groups and the possible explanations for these differences can help in the development of more appropriate policies, best suited to meet the travel needs of all population groups. As Auckland becomes more diverse over the next few decades, a significant amount of growth in travel demand will undoubtedly come from minority population. Therefore, differences in travel behaviour, such as those identified in this paper are likely to have wide-reaching consequences for short- and long-term travel demand forecast, planning, and policy development.

Keywords: travel behaviour, ethnicity, minorities, travel demand, Auckland

## Introduction

For many years, New Zealand has been known as a traditional immigrant's destination country. Immigration to New Zealand started to grow in 1970s period when immigrants from the UK, Australia, North America and the Pacific Islands flooded to New Zealand. In the late 1980's, the number of Asian immigrants who came to New Zealand under 1987 Immigration Act, also started to grow (Brabazon, 2000). As the major city in New Zealand, Auckland has an economic appeal that attracts new comers to come and live there. This condition makes Auckland population become more diverse in terms of population and the ways of live compared to other cities (see figure 1). The increasing of the population, especially immigrant minorities' population, is followed by an increasing of travel volume (MoT, 2009b). An increasing level of car ownership and public transport patronage are some evidences of travel growth (NZTA, 2008).



**Figure 1 Auckland population compared to two other major cities in New Zealand**  
(Source: Statistics New Zealand, 2007)

According to other studies on people’s travel behaviour in a multicultural society, it is often found that majority groups’ travel behaviour differs from those of minorities. Studies in the U.S, especially in multicultural cities such as California, show that the majority ethnic group tended to use a private vehicle more often than minorities. On the other hand, the minorities tended to rely on public transport and other “social” transport modes, such as car sharing (Blumenberg, 2008, 2009; Handy, 2009; Tal & Handy, 2010). As a multicultural society, is Auckland show a similar trend where ethnic majority has different travel behaviour than minorities?

For statistical reason, Statistics New Zealand categorises ethnic groups into six major categories: New Zealand (NZ) European, Maori, Pacific Islanders, Asian, Middle Eastern, Latin American and African (MELAA), and Other ethnic groups (Statistics, 2007). NZ European, Pacific, Asian and MELAA groups are based on regions where the individuals come from. Maori is the first indigenous ethnic group in New Zealand. They inhabited Aotearoa (New Zealand’s name in Maori language) long before the European people and still live there. Other ethnicity includes people who identify themselves as New Zealanders. New Zealander is a new category that was introduced by Statistics New Zealand in the census in 2006. It refers to tenure in New Zealand, affinity with New Zealand, being born in New Zealand, nationality and to a few, ancestry. This categorisation is consistent with that of Thomas (1999).

### Multicultural Society

Parekh (1997) defines multiculturalism or multicultural society as a society that consists of diverse cultural communities which has a slight difference in term of the conception of the world, system of meaning, values, forms of social organizations, histories, customs and practices. Multiculturalism includes an understanding, appreciation and assessment of people's culture, as well as a respect for and curiosity about other people’s culture (Blum, 2006). Some scholars define multiculturalism as an ideology that recognizes and glorifies the differences in promoting equality both individually and culturally. It is necessary to emphasize equality in the multiculturalism concept because equality makes multiculturalism differ to cultural pluralism or any other terminology about diverse society.

The emergence of multiculturalism requires societies to recognise cultural differences. Sandercock (2003) says that multiculturalism as a daily political practice provides citizens two fundamental rights:

the right to difference and the right to the city. "The right to difference involves recognising the legitimacy and specific needs of minority cultures. The right to the city is the right to presence, to occupy public space and to participate as an equal in public affairs" (Hucker, 2008, p. 60). Transport, undoubtedly, has a relationship to those rights.

The essence of "the right to the city" is to promote social inclusion. Social inclusion can be achieved if people, regardless their socio-cultural background, participate actively in daily activities. In doing so, transport has to be accessible for them. Transport becomes essential in promoting social inclusion because it moves people from one part of the city to other parts since all activities cannot be done in one location. Some researchers have proven that social exclusion can emerge from the lack of access to transport (Church, Frost, & Sullivan, 2000; Lyons, 2003; Stanley & Lucas, 2008). One of the groups that usually suffer from lack of access to transport is ethnic minorities. The lack of access to transport can be caused by the inability of the transport system to fulfilled people's needs. Some studies have shown that cultural minorities groups have specific transport needs that differ from the majority. These transport needs sometimes cannot be provided by the transport system. The cultural practices of various racial and ethnic sub-groups of the population can yield different transport needs (Ward, 2009). In the spirit of "the right to difference" and "the right to the city", transport planners should take into account cultural minorities transport needs in order to promote social inclusion, which is a very important issue in a multicultural society. The first step to promote social inclusion through transport accessibility is to identify ethnic groups' travel pattern and needs.

#### Ethnicity and Travel Behaviour in Previous Studies

Socio demographic characteristics have been proven can affect people's travel behaviour. Income, age, gender, and ethnicity are socio-demographic characteristics that have been used to explain and predict travel behaviour. While income, age and gender have been used widely by the researchers to explain travel behaviour, ethnicity has not received much attention from transport scholars. Only a few researchers have examined the association between ethnicity and travel behaviour. Some of them are discussed in this paper. Contrino and McGuckin (2009), used data from the US Census Bureau and National Household Travel Survey, found that it is common in minority groups to have lower auto ownership, lower household income, greater household size, lower levels of employment, lower licensure rates, and concentration in deprived urban areas. With these characteristics, car sharing in minorities becomes a common choice. A similar study by Chatman and Klein (2011) shows almost similar result. Using data from the same sources, they found that foreign-born immigrant were much more likely to use transit, carpool, walk, and bicycle especially in their first few years since arrived. Another study in America also reveals that the immigrant/ethnic minorities were more likely to use public transport than white people (Bose, 2004). The findings are supported by Louikatou-Sideris (2004) who conducted a research in Los Angeles and collected data from 202 public transport users. Louikatou-Siderris found that around 96 % of respondents came from ethnic minorities. The findings show the dependency of ethnic minorities to public transports. If public transport services are inadequate, the ethnic minorities cannot fully participate in daily activities.

Some other studies by Blumenberg (2009), Blumenberg and Evans (2007), Owen and Green (2000), Tal and Handy (2010), Handy et al., (2009), using the same source of data (National Household Travel Survey) found that there were some differences between ethnic groups in relation to mode choice, distance travelled and purpose of travel. All of those studies show that ethnicity has a role in affecting travel behaviour, and some of them also found that time since arrived in the US could affect immigrants' travel behaviour. Immigrants who have lived for more than four years seemed to adapt natives' travel behaviour.

Another study on minorities' travel behaviour by Syam, Reeves, and Khan (2011) found that people from different ethnic groups had different preferences regarding additional security on public transport. They found that Asian ethnic groups tended to choose CCTV as their preference and white-people went for additional staff. This preference affects their travel behaviour especially mode choice. Two studies by Department for Transport (2004a, 2004b, 2004c), the UK and Clancy, Hough, Aust, and Kershaw (2001) also in the UK, found that ethnicity affected people's perception of personal safety. One of their key findings is Minority ethnic groups face greater fear of crime than white people. These studies show that socio-demographic plays a role in affecting people's safety feeling.

#### Data Sources

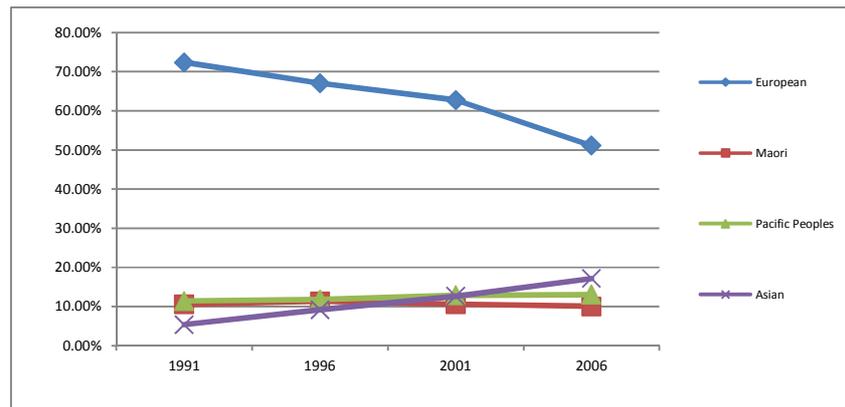
This paper uses data from two sources, Statistics New Zealand and the Ministry of Transport. Statistics New Zealand provides data on demographic characteristics, which was collected from 2006 Census of Population and Dwellings. Data from the census in 2006 is the latest one because the census in 2011 was postponed due to the earthquake in Christchurch. The Ministry of Transport provides data which is collected from its New Zealand Household Travel Survey. The Survey has been conducted by the ministry since 2003, and this paper uses data from the survey in 2010. For the survey, each member of the selected households is asked to keep a record of all their trips on two specific travel days. They are then interviewed in person about their travel by trained surveyors.

As mentioned previously, Statistics New Zealand for statistical reason categories people into six major ethnic groups: New Zealand (NZ) European, Maori, Pacific Islanders, Asian, Middle Eastern, Latin American and African (MELAA), and Other ethnic groups. Meanwhile, New Zealand Household Travel Survey (NZHTS) for statistical reason categories people into just four major ethnic groups: NZ European, Maori, Pacific Islanders and Asian (including Indian). Synchronizing Statistics New Zealand and NZHTS data, two categories from Statistics New Zealand data (MELAA and Other ethnicity) will be excluded from analysis.

#### Socio-Demographic Characteristics of Ethnic Groups in Auckland

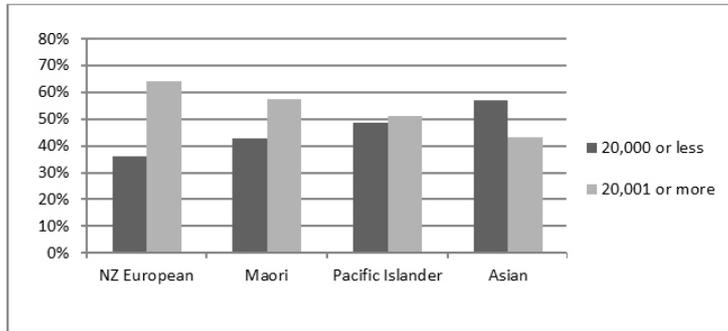
People's migration makes destination cities become more diverse in terms of socio-demographic characteristics. It is undeniable that economic and social segregation are also characteristics of a diverse society (Contrino & McGuckin, 2009). In most cities, ethnic minorities, especially the low-skilled immigrants suffer from low economic prosperity. Auckland also shows this phenomenon.

Overall, population growth in the last two decades in Auckland showed a steady increase. Population growth has been accompanied by the increasing diversity in the population. According to the census in 2006, NZ European ethnic group was the largest but shows a downward trend in the last four periods of census. On the other hand, immigrant ethnic minorities show an upward trend. Asian shows the highest population growth, from around 5% in 1991 to more than 17% in the last census. Another minority group (Pacific Islanders) shows a very small growth with less than 1% in the last few censuses. The national minority group (Maori) also has similar growth pattern to Pacific Islanders.

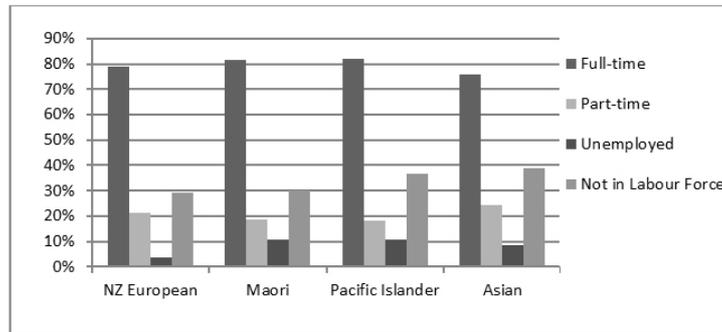


**Figure 2: Population Growth in Auckland (1991-2006)**  
(Source: Statistics New Zealand, 2007)

Regarding economic conditions, Auckland shows a positive growth marked by Gross Domestic Product (GDP) level that has increased from time to time. Although Auckland's economy shows a good sign in general, the income level varies with ethnicity. The majority NZ Europeans had the highest income level of all ethnic groups, followed by Maori, Pacific Islanders (PI), and Asian (see Figure 1). The large number of Asian people who had yearly income level at \$20,000 or less is due to the high percentage of people working part-time or not working at all (see Figure 2). One of the reasons why many Asians work part-time is that a high percentage of people belonging to this ethnic group who come to Auckland usually study at the universities. According to The University of Auckland (UoA) statistics in 2009, Asian was the second largest ethnicity in UoA (34.6%). NZ European was the largest one with almost 40% and the smallest was Maori (6.5%) (Khan & Mohammadzadeh, 2011). This data is also supported by the data from Statistics New Zealand that shows the highest percentage of people who were not in the labour force was Asian [2]. The people who are not in the labour force include students who are not engaged in, or pursuing employment. The students from overseas usually rely on financing by their parents or they receive a scholarship that puts them under limited income.

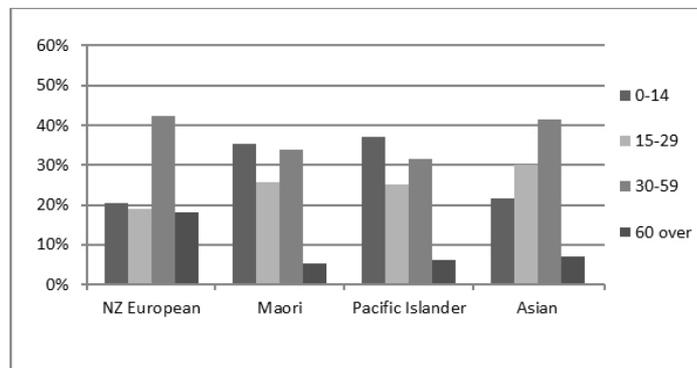


**Figure 3: Income Level of Ethnic Groups**  
(Source: Statistics New Zealand, 2007)



**Figure 4: Employment Status of Ethnic Groups in 2006**  
(Source: Statistics New Zealand, 2007)

The population structure also shows different patterns among ethnic groups (see Figure 3). NZ European and Asian were the groups that have the highest percentage of people aged 30-59 which is a productive age cohort. On the other hand, Maori and PI were the groups with a large number of people aged 0-14. This age cohort is non-productive because this is a period when their main activities are playing and schooling. NZ European had the highest percentage of people in the 60, and over age cohort, while other ethnic groups had lower but almost similar percentages.



**Figure 5: Ethnic Composition in Auckland in 2006**  
(Source: Statistics New Zealand, 2007)

## Travel Behaviour Differences among Ethnic Groups

In relation to mode share, NZ European ethnic group had the highest percentage of people who drove their car/van (see table 1). More than half of the NZ European population in Auckland used a car/van as its driver. While for the Asians, this figure was nearly half of their population. The PI and Maori were next with 43% and 39% respectively. This pattern is almost similar to other studies on ethnicity and travel behaviour; the majority is a group with the highest car use as a driver. Income could be a determinant factor here. A higher income level means a person has the higher ability to own and drive a car. It is consistent that NZ European as a group with the highest income will have the highest percentage of people who use car. In addition, the level of car use can also be explained in the light of population structure. The NZ European and Asian populations had the highest representation in the 30-59 year age cohort. This group is a productive age cohort and financially well-established so they have the ability to own and use a car. In addition, the population composition over 16 years of age for the Asian group was the largest among all ethnic groups. In New Zealand, the legal age to have a driving license is 16 years. Therefore, the possibility for them to drive a car is higher than the Maori and the PI.

Table 1: Mode share of trip legs in 2010

	NZ European	Maori ethnicity	Pacific Islander	Asian
<b>Walking</b>	16%	18%	15%	16%
<b>Car/Van Driver</b>	54%	39%	43%	48%
<b>Car/Van Passenger</b>	23%	35%	37%	30%
<b>Cyclist</b>	1%	1%	0%	0%
<b>Public Transport</b>	3%	3%	2%	5%
<b>Other (inc. motorcycle)</b>	3%	4%	2%	1%

Source: The New Zealand Household Travel Survey

With regard to public transport, all ethnic groups showed a very low percentage of use (between 2%-5%). PI had the lowest and Asian had the highest percentage of public transport use. This can also be used to explain why more Asian people were using public transport. In a survey conducted by the Ministry of Transport (MoT, 2009a), around 35% of public transport use was for educational purpose, the highest among all purposes. A survey in 2007 by ARTA and two universities, The University of Auckland and Auckland University of Technology (AUT), shows that 54% of the students used public transport (ARTA, 2007). Khan and Mohhammadzadeh's (2011) survey concurs with ARTA's findings. It means the Asians as a group that has a high number of students, would use public transport more often.

Maori people walk more than the people of other ethnic groups (see Table 1). This may be due to the large number of children in their population composition. Children mostly walk as playing in the parks and going to the school are often done by foot. This also depends on the location of their housing. If they live in a location where public amenities, such as school and parks, are near then they are more likely to walk. Even though Pacific people (PI) have a large number of children, they have the lowest modal share for walking among all ethnic groups. This is probably because they live in deprived areas, where access to public services is often poor, so they have to travel longer to obtain these services. Based on the census in 2006, the majority of PI's residential concentration was in three deprived

suburbs of Manukau City (27.9%) - Otara, Mangere and Manukau. The children have to travel long distances for going to school in their case, which would make their parents drop them off by private cars in addition to walking them to school. Data from Community Perception of Personal Transport Choices survey confirms this assumption. PI respondents mentioned that walking is unsafe and using a private car can make their trips hassle-free (NRB, 2010). This assumption is also supported by the data on car/van users. Pacific Islander has the highest percentage of car/van use as a passenger, compared to other ethnic groups. This makes sense because they have a high percentage of children (age group 0-14) in their population.

Generally, the use of the bicycle is very low in Auckland. Only 1% of NZ European and Maori opt for cycling and almost zero percentage of PI and Asian people use this mode. The distance between residential house and the CBD is one of many explanations that can be offered here. Lifestyle and culture can also be used to explain the phenomenon. In developing countries, especially in Sub-Saharan Africa, using bicycle has negative images. An image of rurality, as well as poverty, makes people from these countries put bicycle at the bottom of modal hierarchy, and sometimes attach less value than walking. The NZHTS uses two different units of analysis, weekly and annual. The weekly measurement is based on how many trips are made in a typical week. Annual measurement includes all trips in a year. Travel behaviour data show that NZ European, Maori and PI were the groups with the most frequent trips per week (see Table 2). The same pattern was shown by the total distance travelled in a week (see Table 3). The NZ Europeans travelled longer distance, followed by Maori, PI and Asian.

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Table 2: Trip legs per person (Auckland residents) in 2010

	<b>NZ European</b>	<b>Maori ethnicity</b>	<b>Pacific Islander</b>	<b>Asian</b>
<b>Annually</b>	1590	1500	1551	1278
<b>Weekly</b>	30	29	30	25

Source: The New Zealand Household Travel Survey

Table 3: Distance travelled per person (Auckland residents) in 2010

	<b>NZ European</b>	<b>Maori ethnicity</b>	<b>Pacific Islander</b>	<b>Asian</b>
<b>Annually</b>	11774	9459	9375	8781
<b>Weekly</b>	226	181	180	168

Source: The New Zealand Household Travel Survey

The pattern is almost similar if travel behaviour is measured on an annual basis. NZ European was the group with the highest number of trips followed by PI, Maori and Asian (see Table 2). For the distance travelled per year, the longest travel was made by the NZ Europeans followed by Maoris, PI and Asians (see Table 3). The pattern is not surprising because the NZ Europeans had a better income level, which enabled them to travel more often and longer than other groups. This is consistent with Carruthers et al (2005). However, the question may arise why do the PI people travel more often than Maoris? Despite the fact that Maoris have better income than PI. Explanation for this finding is that PI had the higher

percentage of children in their population than Maori. This made the PI adults travel more for escorting children to their activities. In addition, the PI had a high percentage of people who were not in labour force. The people not in the labour force include those involved in childcare or family responsibilities. According to Gossen and Purvis (2004), a person, especially a woman, who is not working and lives in a household with children, will travel more often than a working person.

## Discussion and Conclusion

New Zealand has been known as one of the popular destinations for immigrants for decades. This makes the population of the country becomes more diverse. The diverse population means people's needs are also heterogeneous, including transport needs. The data analysis has shown that the car use by all ethnic groups is high. This trend is contrary to some research in the U.S that found ethnic minorities tend to use public transport quite a lot for their daily activities (see section 3). In this study, it was found that minorities use car as a passenger to a great extent. This is probably due to the presence of the high number of children in minorities, especially Maori and Pacific ethnic groups. Also, this might be caused by the tendency of these ethnic groups (Maori and Pacific Islanders) share their cars with other people. Car sharing/carpooling can be an alternative modal choice to reduce travel cost without compromising number of trips. NZ European has the highest percentage of people who use a car as a driver, travel more often and longer than any other groups. The high level of income enables this group to afford and drive a car, and allocate more funds for travel expenses, leading to more trips and longer travel.

In addition, data analysis shows that Asian was a group with the highest percentage of public transport use. The potential of Asian immigrant to use public transport in the future is very high. This because a trend of Asian people who come to Auckland as students might continue in the next couple of years. Data from the University of Auckland shows that Asian students were the second highest sub-population in the university. According to NZHTS, Student is a group with the highest percentage of public transport use. Based on this fact, there is a need to provide public transport information in other languages to help people from Asia.

As shown in socio-demographic characteristics, Asian and PI were groups with the lowest income level. PIs were concentrated in Manukau, one of the deprived areas in Auckland. The deprived areas often suffer from inadequate public transport service. It makes inhabitants of the area will rely on cars. The problem is using cars will increase the travel cost. If they want to limit the travel cost, they have to selective in using cars by prioritizing some activities over others. It makes them exclude from some activities. On the other hand, a pattern that many main services concentrate in CBD makes them have to travel further that can increase their travel cost. The government has to increase the public transport services, so these minorities can have the same right to participate actively in activities.

With the greater use of private car as a main mode of transport among minorities, the population projection that predicts the increase in the population of minorities in the future, and the tendency of immigrant minorities to come to Auckland as students, initiatives can be taken focussing on public transport improvement to attract people to use it. The transport planners can benefit from understanding the travel behaviour and needs of these important and growing groups in New Zealand

population in general and Auckland population in particular. Because of many minorities reside in deprived area where public transport services are often inadequate, it is essential to improve public transport services, especially the frequency to improve minorities' accessibility, so they can participate actively in everyday activities. In the end, it will promote social inclusion to create cohesion in Auckland multicultural society.

Understanding the differences in travel behaviour and the possible explanations for these differences can help travel demand modelling, and finding policies best suited to meeting the travel needs of all population groups. As Auckland becomes more diverse over the next few decades, a significant portion of growth in travel demand will undoubtedly come from minority populations. Therefore, differences in travel behaviour, such as those outlined in this paper have wide-reaching consequences for short and long-term travel demand forecasting, planning, and policy development.

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