AECOM

M6T Research Study - Stage 2 Utilisation Surveys

Executive Summary

Department for Transport
February 2010

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1 Introduction

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The Department for Transport commissioned Faber Maunsell (subsequently AECOM) in February 2006 to undertake a series of studies based around a case study of the M6 Toll Road (M6T) in the West Midlands, covering travel demand analysis, utilisation and willingness to pay studies. This summary document describes the utilisation surveys and analysis aspects of this work.

The principle aim of the utilisation survey was to understand the revealed preferences of journeys on the tolled route by origin and destination and purpose. This would allow analysis of trip lengths by purpose, as well as providing data that could be used to support an understanding of choice behaviour.

Details presented below include an overview of the survey process and data conversion, and key results for different groupings (by non-TAG users, TAG users and combined data).

2 Survey Process

2 Survey Process

2.1 Survey Fieldwork

The project required data to be collected during 2006 from several different sources. Utilisation data were collected from M6T users to derive market composition through: interviews conducted at toll plazas; self-complete questionnaires handed out at toll plazas; and from drivers who were registered with MEL (the toll road operator) as TAG users and were consequently not required to stop and make payments at toll plazas. Other surveys that were undertaken in late 2006 are covered in other reports; these cover stated preference interviews for cars and freight vehicles. In order to capture non-M6T users for these surveys, interviews were undertaken at motorway service areas (MSAs) and using roadside interviews (RSIs) on slip roads.

The main utilisation survey of non-TAG M6T users took place on Sunday 3rd, Monday 4th, Wednesday 6th and Friday 8th September 2006 at Weeford Park mainline plaza southbound, Weeford Junction slip road plaza, Great Wyrley mainline plaza north bound and Shenstone slip road plaza. Surveys took place between 07:00-19:00 on each day at each location. Locations of plazas in the context of the scheme are shown in Figure 1, with those used for non-TAG screening interviews/main questionnaire hand-out circled in red. Questionnaires for TAG users were distributed to a selection of MEL's database of users.

The screening interviews we conducted with every fourth/fifth vehicle, collecting data such as: vehicle type; journey purpose; journey length; occupancy; gender and follow-up details. Questionnaires handed out covered the journey details (length, purpose, vehicle type), usage (reasons, frequency, alternative roads) and personal data (gender, age, income).

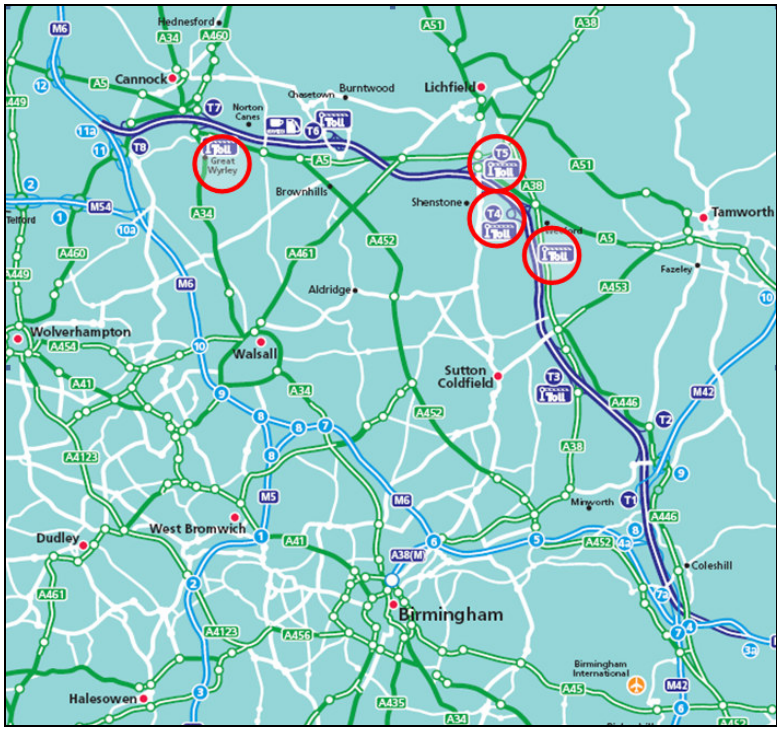

Figure 1: Location of M6T and non-TAG Survey Sites (circled)

2.2 Survey Volumes

During the course of the survey over 8,300 drivers were screened as they passed through the toll booths in order to provide a random sample of basic driver information. In total around 35,000 main questionnaires were distributed and as such the interviews comprised almost 25% of those passing, which exceeded the target of 10%. Over 6,600 (non-TAG) questionnaires, almost a 20% return rate, were completed and returned, punched and checked for inclusion in the data analysis. TAG questionnaires were completed and returned from individuals by post, providing almost a further 1,000 TAG questionnaires for analysis.

2.3 Data Conversion

A selection of logic and range checks were completed on data collected in the screening interviews and questionnaires to assist in data processing and expansion. The screening interview had been designed so that any response bias in the survey returns could be identified and adjusted for. This procedure enabled the self-complete questionnaires to be rebased to a 'random' sample of M6T users for further expansion and analysis. MEL provided flow data (that gave expansion targets) and also the non-TAG and TAG proportions. Non-TAG data was expanded for survey days 3-8 September 2006, and TAG data was expanded for assumed response days 17-23 September 2006.

3 Non-TAG User Findings

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3.1 Journey Length

Journey 'lengths' (duration) determined from interviews were used as a proxy for distance. An extra variable for the analysis was created for journey length, based on matches in origin and destination data from the questionnaires. From the origin-destination analysis, the peak grouping for most of the journeys fell in the band between 200-300km, and over 75% fell between 50-350km, regardless of the survey day. There were a higher proportion of vehicles travelling between 50-150km on Monday and Wednesday. This indicates few of the M6T journeys intercepted were local or short distance.

From the travel duration analysis, the peak bands fall in the 3rd and 4th band (between 2-3 and 3-4 hours). Figures 2 and 3 below show that the O-D analysis indicates a greater spread of busy bands, while travel duration indicates flows fall off gradually after a short peak.

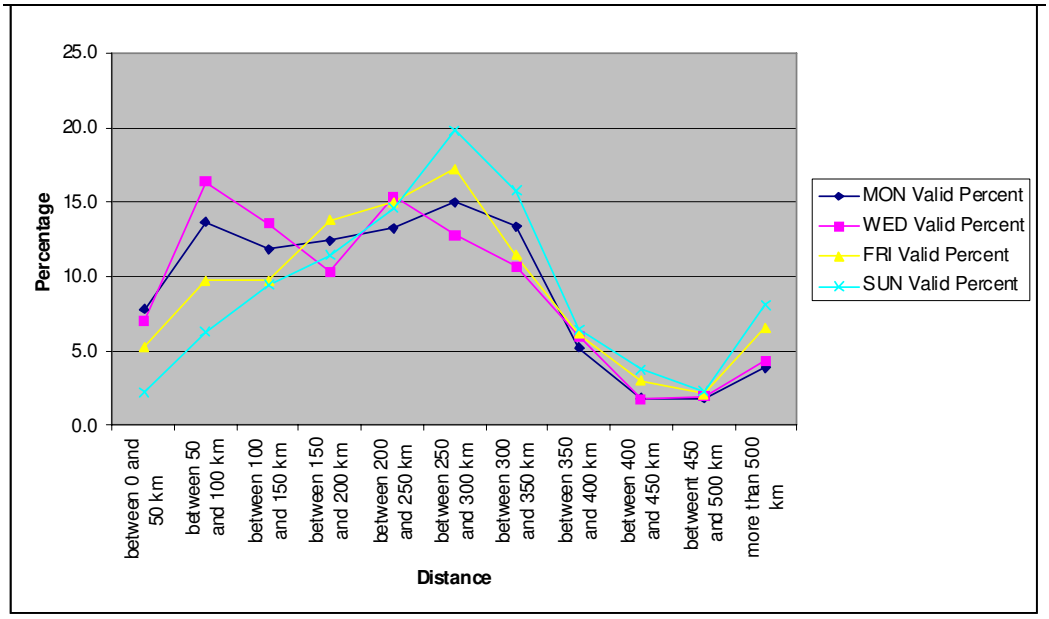

Figure 2: Journey Length (by OD) (Non TAG)

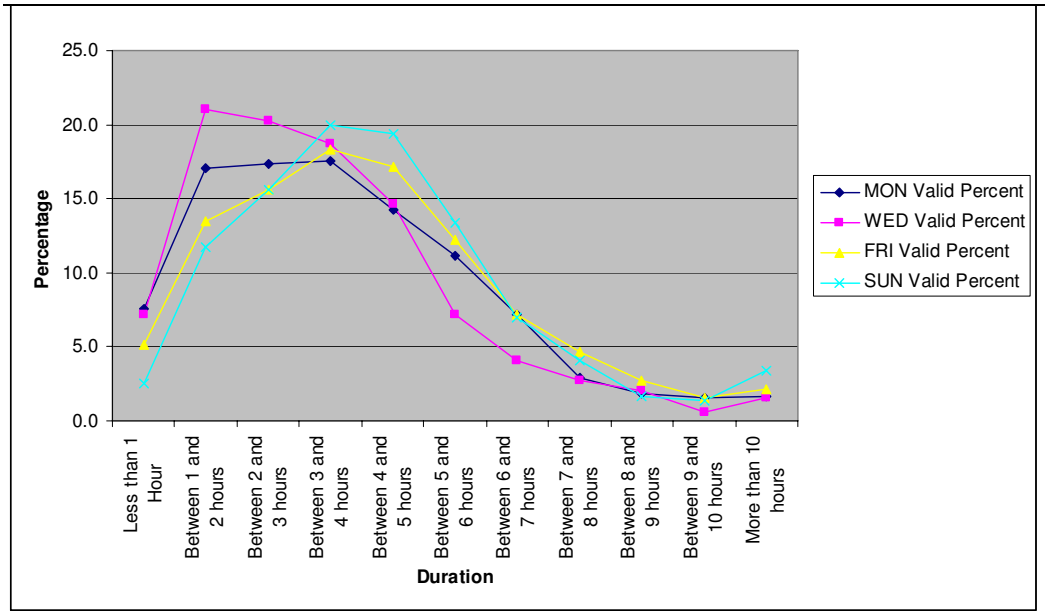

Figure 3: Journey Length (travel duration) (Non TAG)

3.2 Journey Purpose

For the main questionnaire returns, new variables were created to group together Home Based Work (HBW), Employer Business (EB), Home Employer Business (HEB), Home Based Other (HBO) and Non-Home Based Other (NHBO).

The HBO (home-based other) group, matched to leisure in the interviews, comprised the largest grouping on a Friday. On Monday and Wednesday, the work-related activities (EB, HBW, HEB) comprise over 50%. These are shown in Figure 4 below for weekdays.

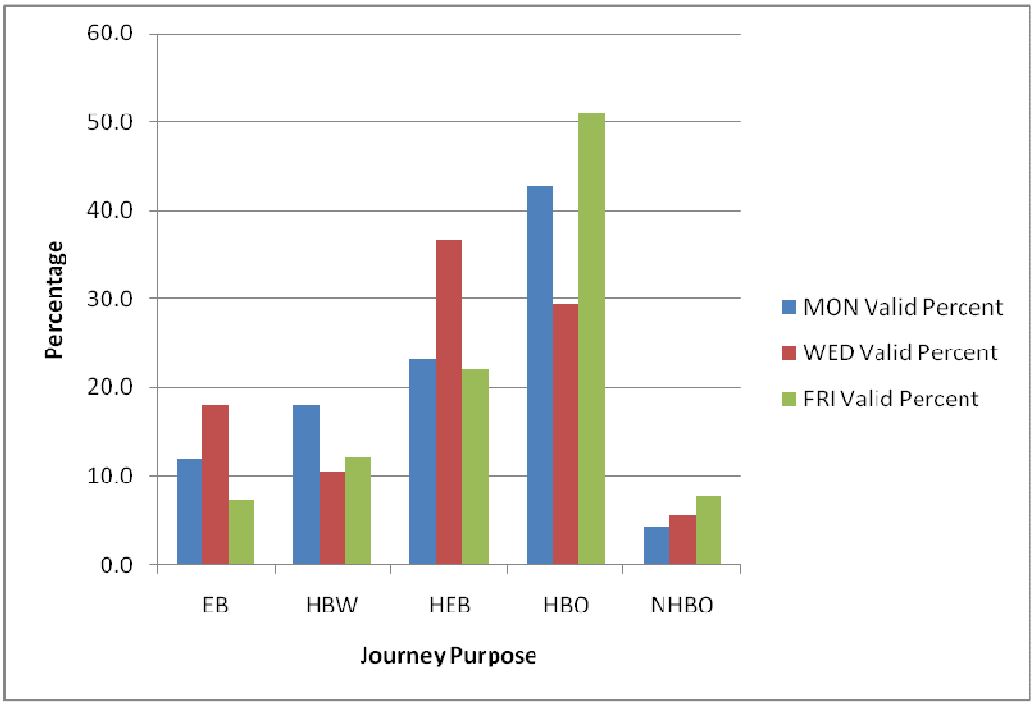

Figure 4: Journey Purpose (Non-TAG)

3.3 Vehicle Type

The largest vehicle group was cars, at almost 90%. This is shown in Figure 5 below for weekdays.

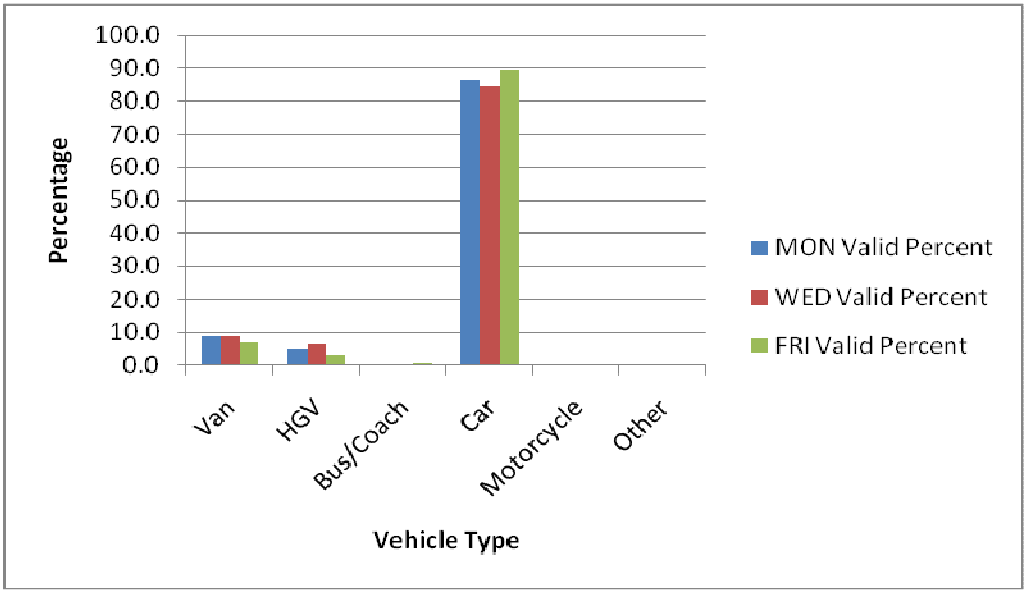

Figure 5: Vehicle Type (Non-TAG)

3.4 Reasons for Use

The weighted importance of reasons for using the M6T was similar on the different days. The weighting was attained by combining 60% of 'very important' responses, 30% of 'quite important' responses and 10% of 'not at all important' responses for a particular reason. This means the highest weighting would be 60 (all 'very important'), and lowest 10 (all 'not at all important') – this was then converted to an index between 100 (all 'very important') and 0 (all 'not at all important'). Consistently the most important reasons for using the M6T were: 'saves time over alternative routes', 'guarantees no hold-ups' and 'journey times are more predictable than alternative routes'. The least important were 'using it by mistake', 'use of the MSA' and 'trying it out'. These are shown ranked in Figure 6 below.

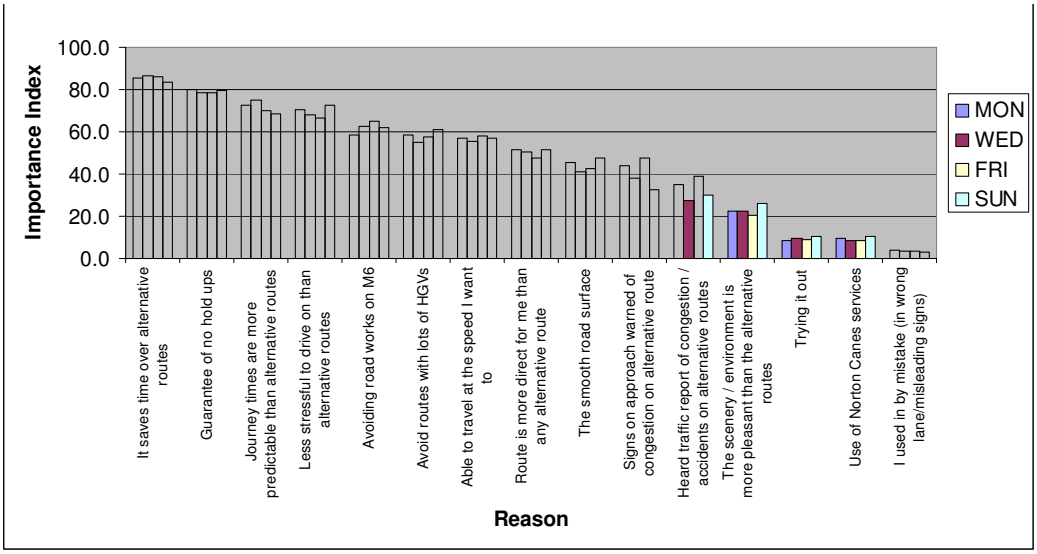

Figure 6: Hierarchy of Reasons for using M6T (Non TAG)

3.5 Journey Frequency

On a Monday, Wednesday and Friday, the proportions of journeys that fall into each frequency classification are similar for the frequencies of usage between 'daily' to 'monthly'. Sunday usage is decidedly less for these frequencies. On Monday, Wednesday and Friday, the highest proportion of usage is 'several times a year', at almost 40%, while on a Sunday it reaches over 50%. This is shown on Figure 7.

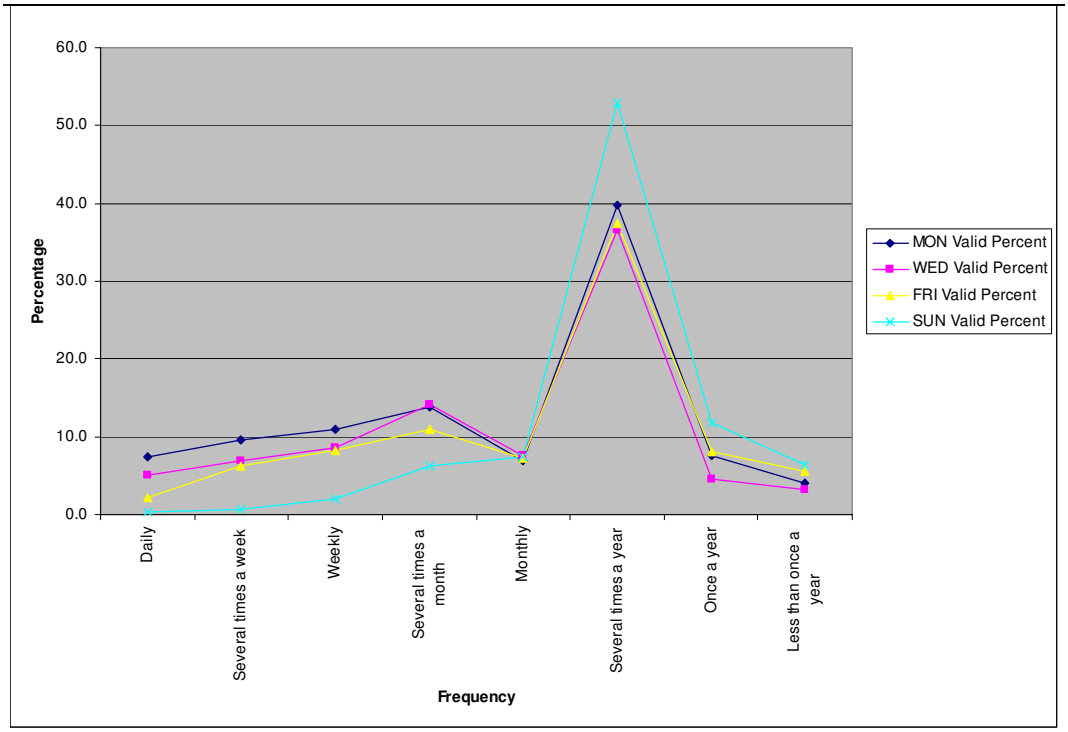

Figure 7: Frequency of Journey (Non TAG)

3.6 Journey Purpose and Reasons for Use

Drivers with a HBW or HEB journey purpose tended to give more importance to the main reason for using the M6T than other journey purposes. Drivers with an EB or NHBO journey purpose on a Sunday gave lower importance to reasons for using the M6T than other purposes. Consistently the most important reasons for using the M6T were 'time saving over alternative routes' and 'guarantees of no hold-ups'. Most variation in the ranking of journey purposes occurs on a Wednesday. Selected results are shown in Figures 8 and 9 below.

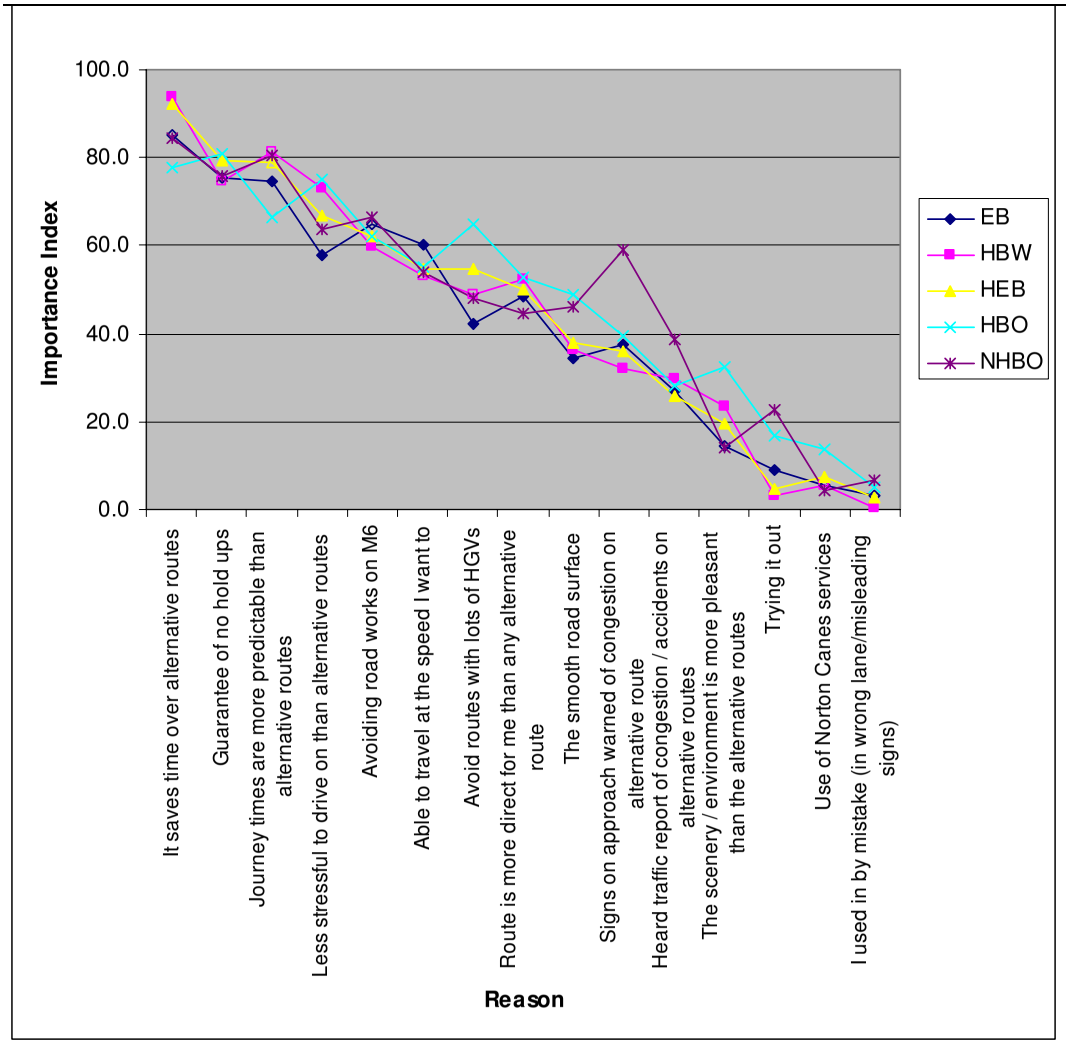

Figure 8: WEDNESDAY Journey Purpose and Hierarchy of Reasons for using M6T

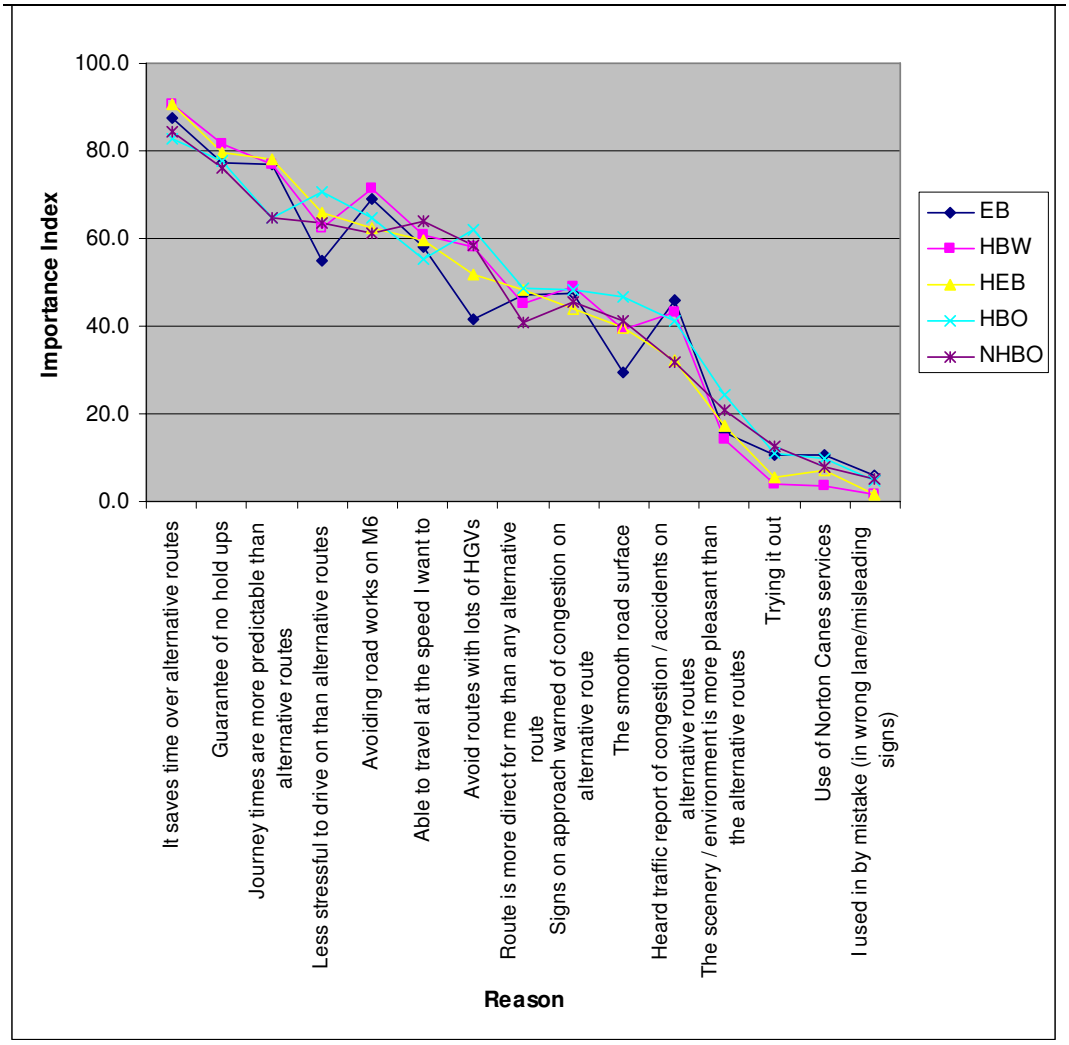

Figure 9: FRIDAY Journey Purpose and Hierarchy of Reasons for using M6T

3.7 Journey Frequency and Reasons for Use

The frequency of journey responses were classed as first time, regular ('daily' – 'several times a month'), occasional ('monthly' – 'several times a year'), infrequent ('once a year' – 'less than once a year'). The most importance was given to 'saving time over alternatives' and 'avoidance of hold-ups'. The lowest importance was for 'using it by mistake'. Regular and occasional drivers gave the higher ratings to the most important reasons than infrequent and first-time users. Selected results are given in Figure 10 below.

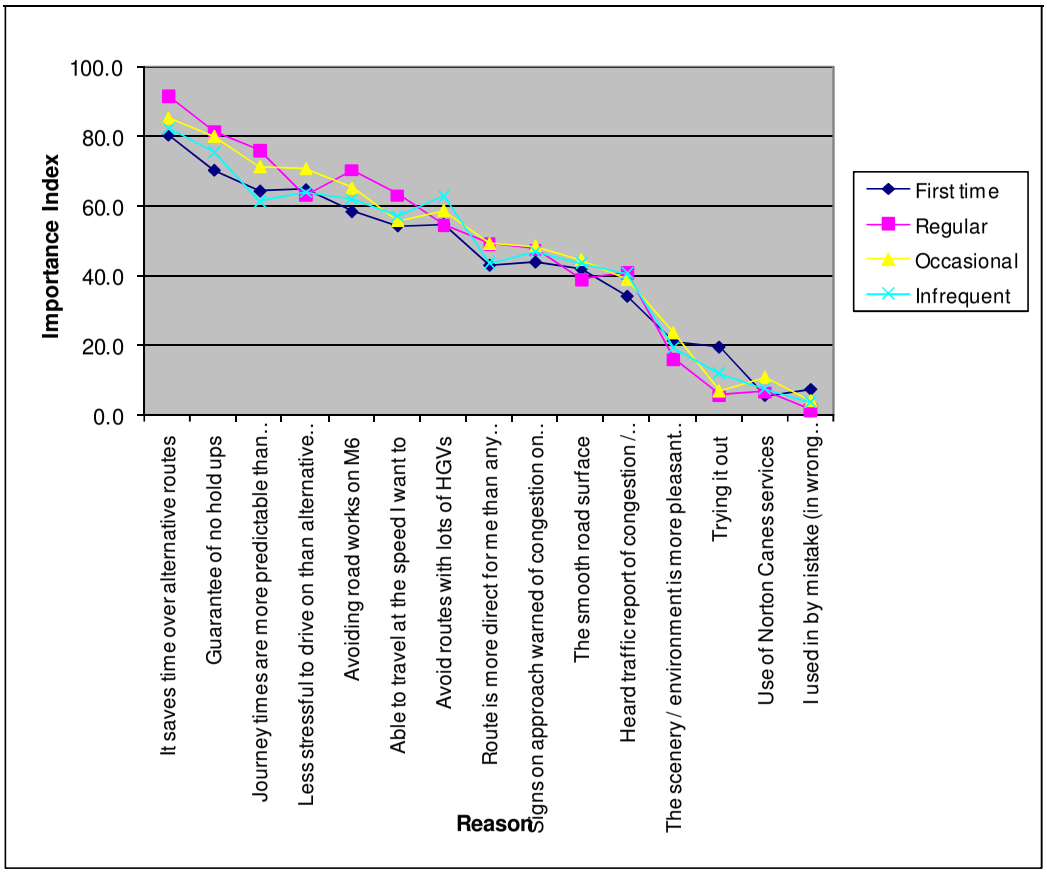

Figure 10: FRIDAY Frequency of Journey and Hierarchy of Reasons for Using M6T

3.8 Route Choice

Drivers were asked how many times they would use routes when making a particular journey. 75% of drivers would choose the M6T 'most of the time', 60% of drivers would choose the M6 'rarely or never', and 90% of drivers would choose the A50 'rarely or never'.

4 TAG User Findings

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4.1 Journey Length

From the origin-destination analysis, most of the journeys fell in the band between 50-100km on a weekday, tapering away with increased distance. The indications for weekends were that there was no clear declining trend unless journeys were over 350km in length, when their popularity declined. Results (by all survey days) are shown in Figures 11 and 12 below.

Analysis by travel duration indicated the most populous weekday trips were between 1-2 hours, and between 3-4 hours at weekends.

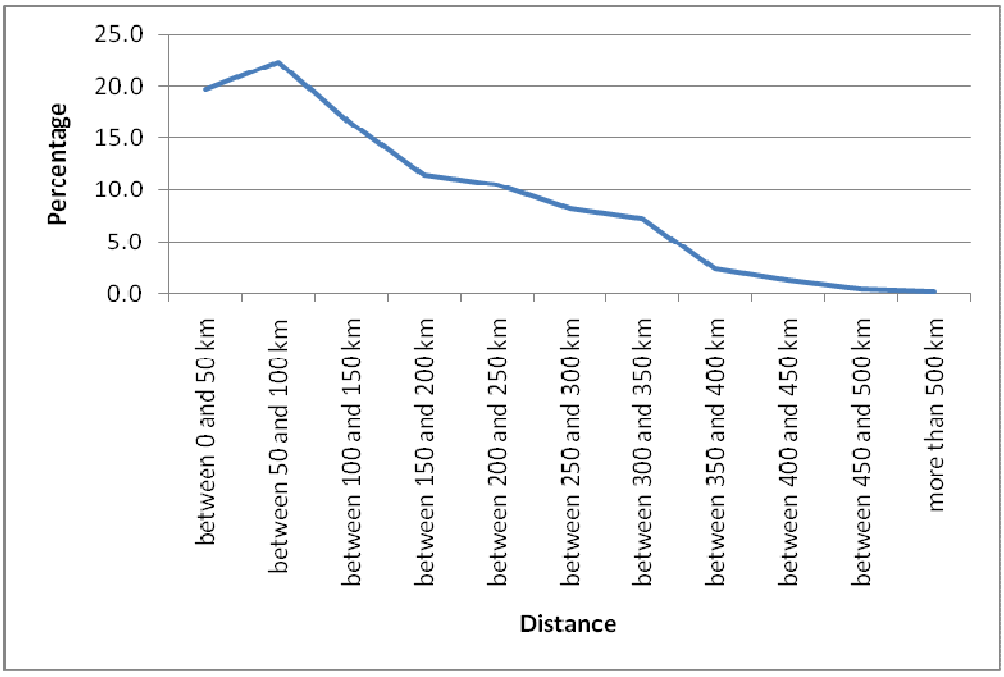

Figure 11: Journey Length (by OD) (TAG)

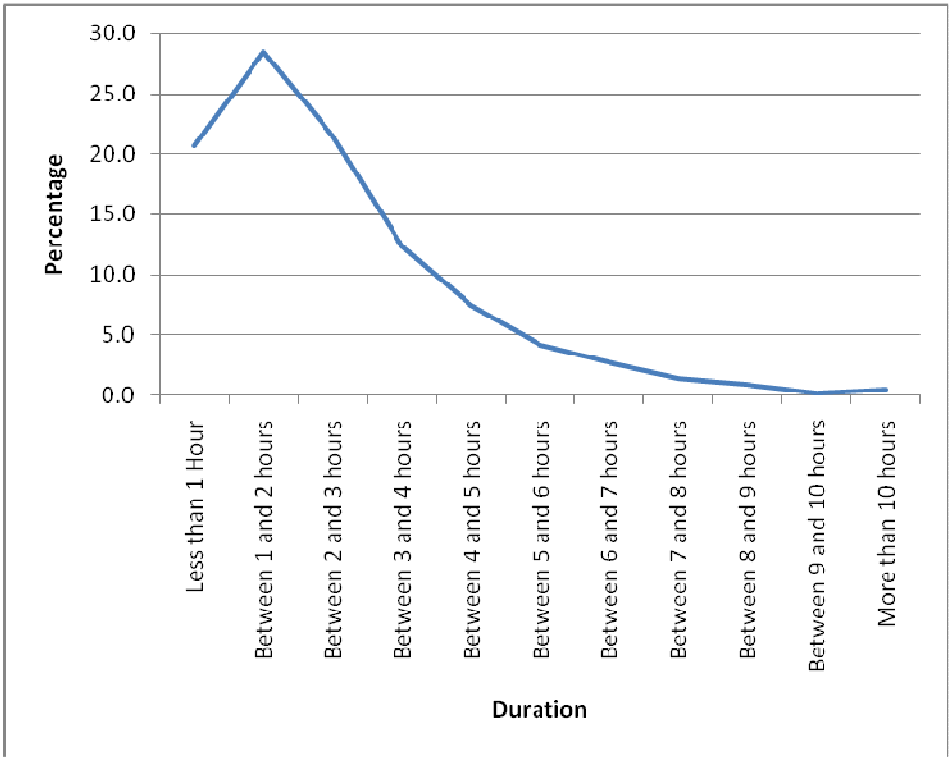

Figure 12: Journey Length (travel duration) (TAG)

4.2 Journey Purpose

The HEB (home-employers business) group comprises the largest grouping, followed by HBW. The proportion of work-related trips on a weekday is 3x more than at weekends. This is shown in Figure 13 below (by all survey days).

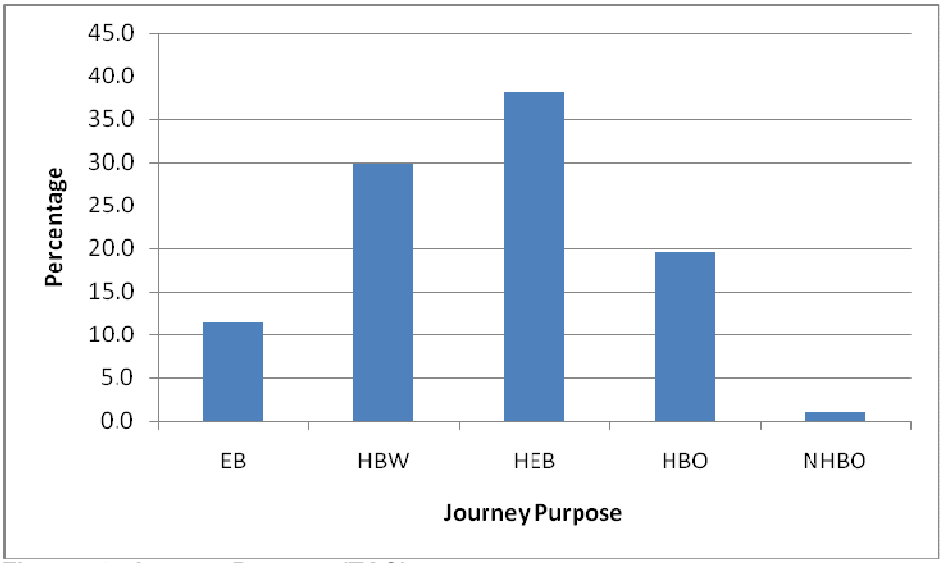

Figure 13: Journey Purpose (TAG)

4.3 Vehicle Type

The largest user group were cars, at almost 95%, regardless of day-type. This is shown in Figure 14 below (by all survey days).

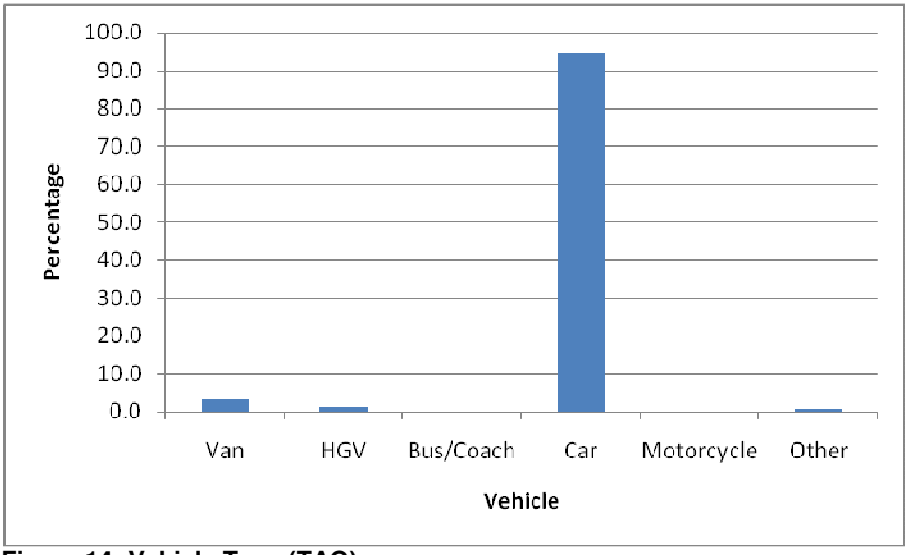

Figure 14: Vehicle Type (TAG)

4.4 Reasons for Use

Consistently the most important reasons for using the M6T were: 'saves time over alternative routes', 'journey times are more predictable than alternative routes' and 'guarantees no hold-ups'. The least important were 'using it by mistake', 'trying it out' and 'use of the MSA'. These match reasons expressed by non-TAG users. These are shown in Figure 15 below (by all survey days).

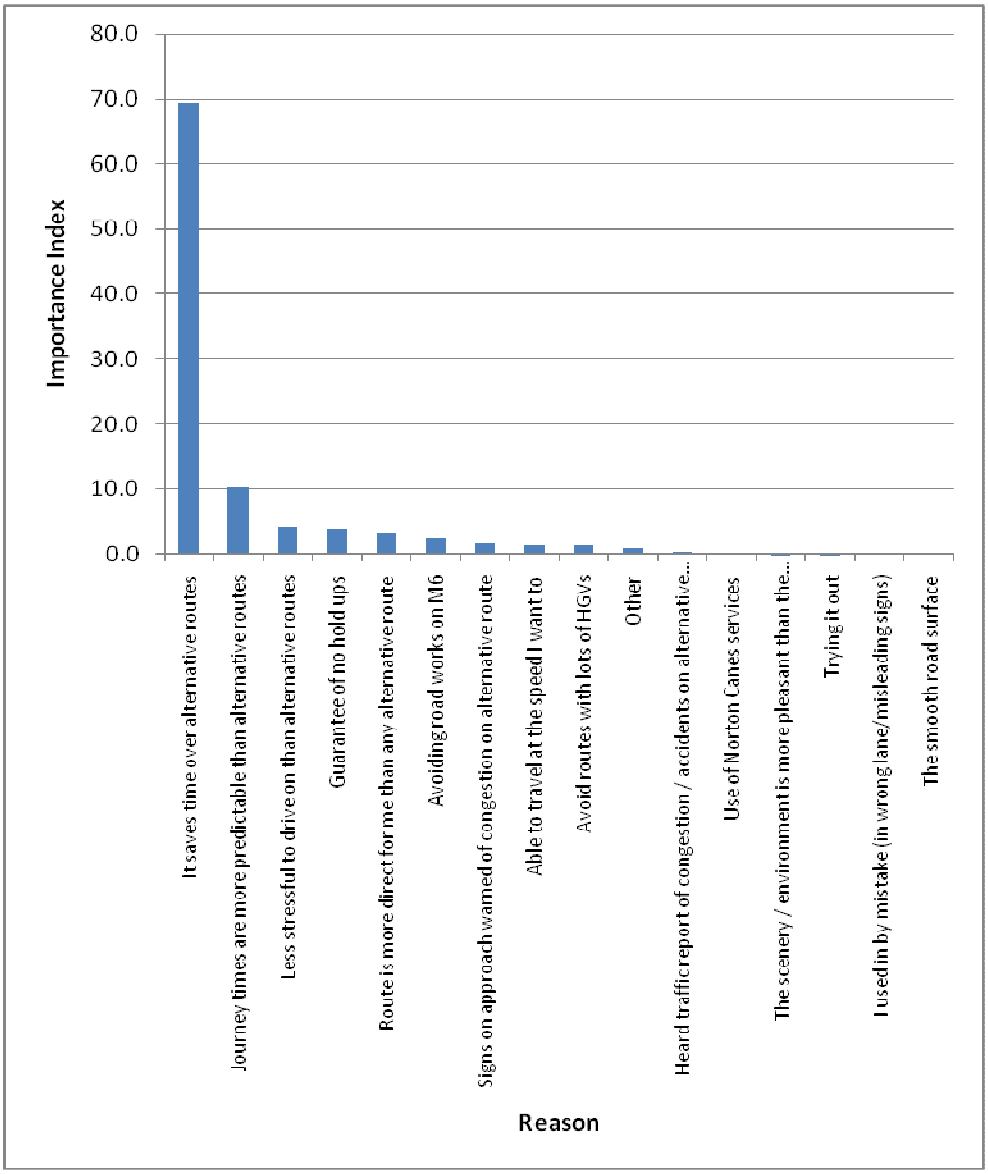

Figure 15: Hierarchy of Reasons for using M6T

4.5 Journey Frequency

For journeys at frequencies of “at least several times a month”, the proportion of journeys made on weekdays where higher than the proportion at weekends. For journey frequencies between ‘several times a month’ and ‘less than once a year’, there were higher proportions at a weekend. 35% of weekend trips were made ‘several times a year’. These are shown in Figure 16 below (by all survey days).

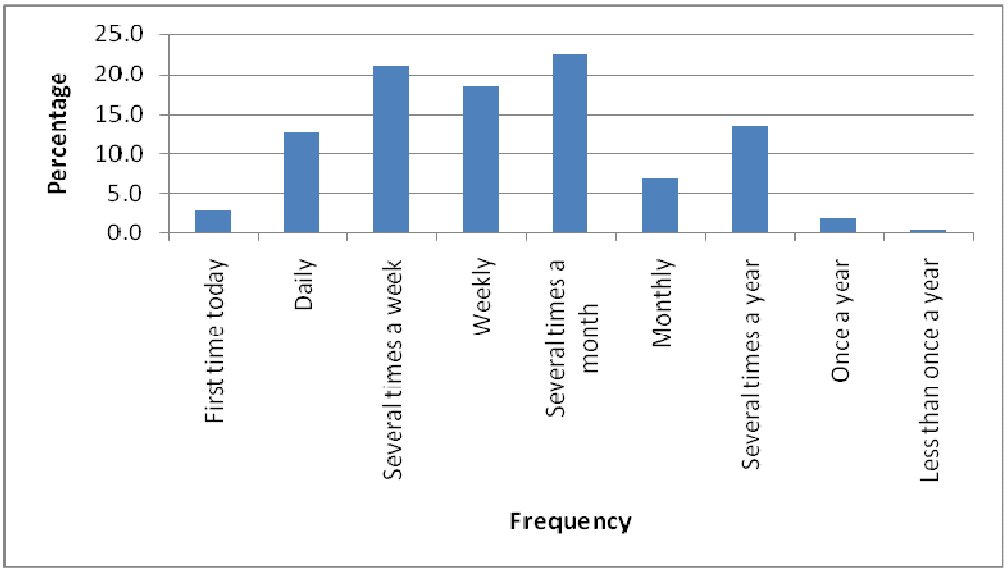

Figure 16: Frequency of Journey (TAG)

4.6 Journey Length and Purpose

On weekdays, home based work (HBW) journeys were most prevalent in the shorter journey bands, presumably related to daily commuting – over 60% were less than 100km and over 70% less than 2 hours. Results are shown in Figures 17 and 18 below.

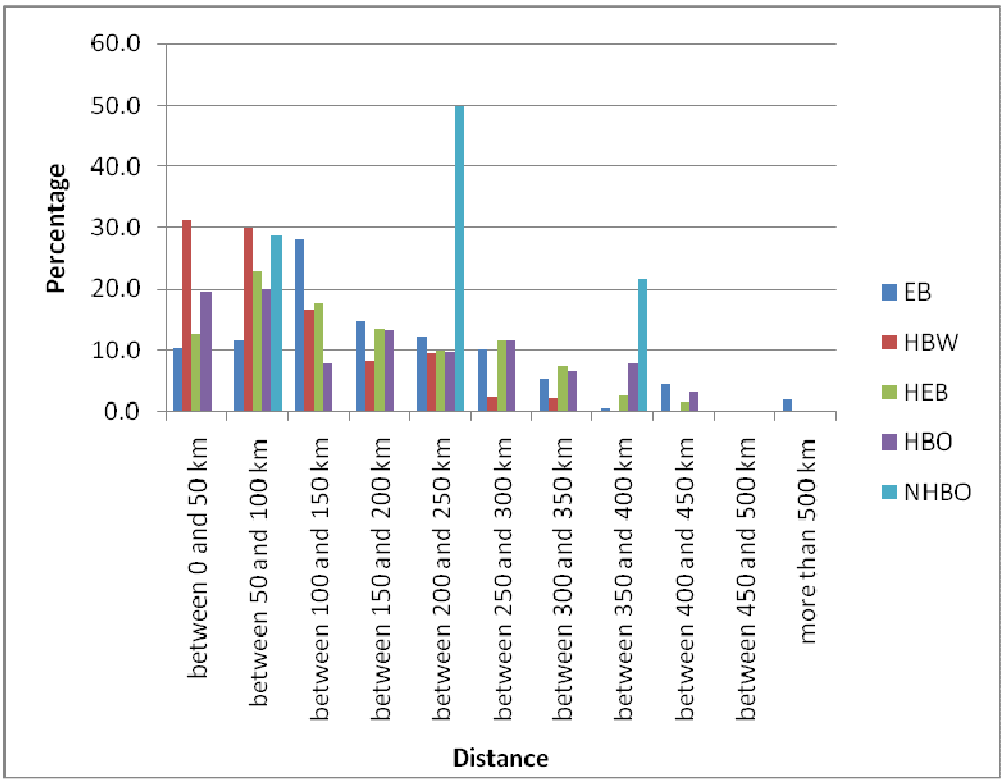

Figure 17: Journey Purpose Weekdays by Distance (Non-TAG)

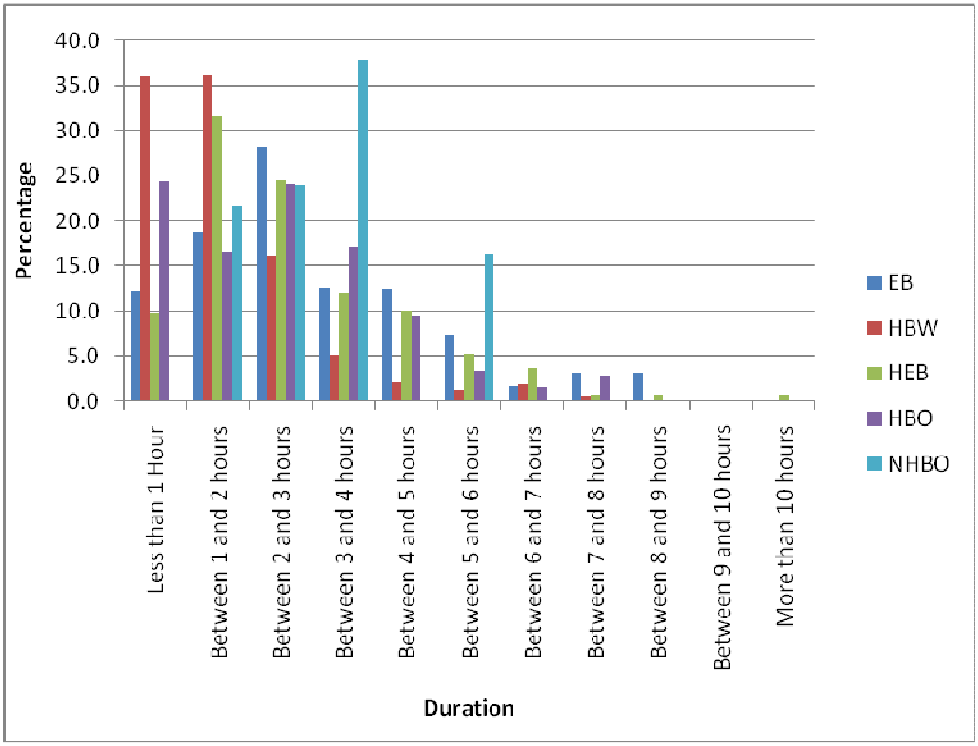

Figure 18: Journey Purpose Weekdays by Duration (Non-TAG)

4.7 Route Choice

Drivers were asked how many times they would use routes when making a particular journey. 86% of drivers would choose the M6T 'most of the time', 76% of drivers would choose the M6 'rarely or never', and 90% of drivers would choose the A50 'rarely or never'.

5 Combined User Findings

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5.1 Journey Length

The combined journey length profiles show weekday and weekend proportions peak in the 200-350km bands, with weekday proportions being similar for shorter distances bands. By travel duration, both the weekday and weekend profiles peak early (1-2 hour duration weekdays, 3-4 hour duration weekend) before tailing off gradually with distance. Results (24hr/7day) are shown in Figures 19 and 20.

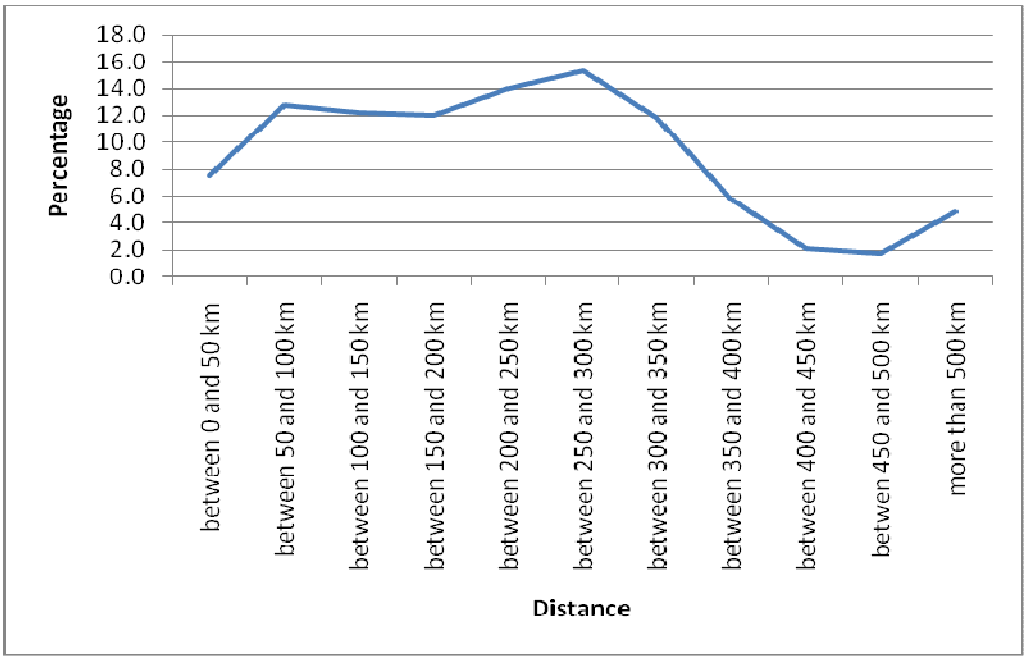

Figure 19: 24/7 Combined Journey Length (OD)

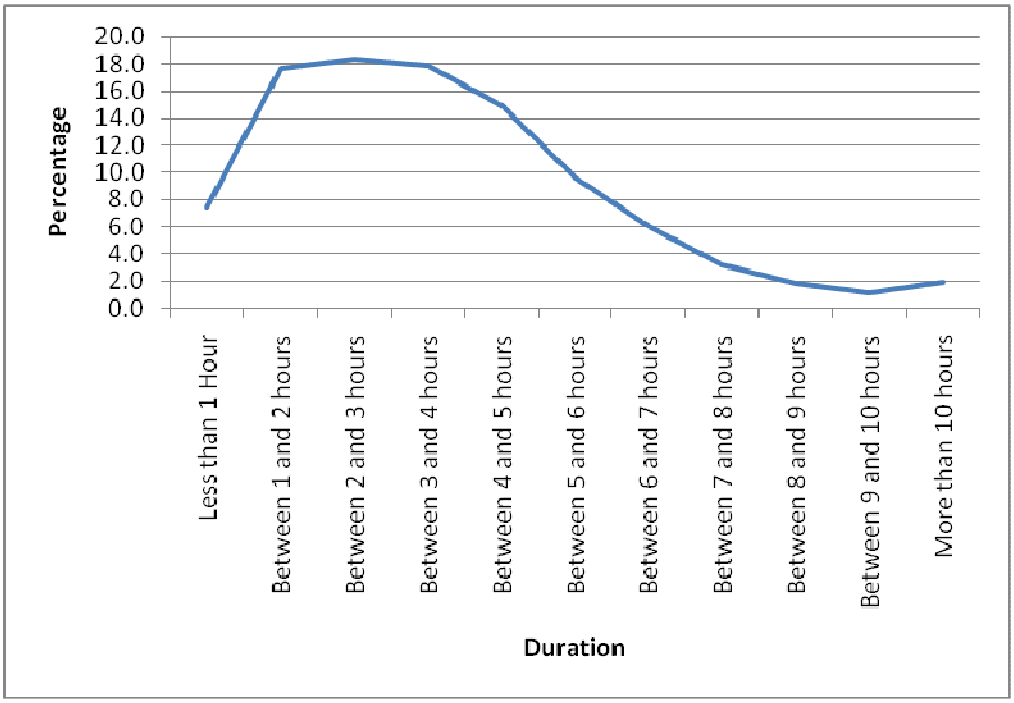

Figure 20: 24/7 Combined Journey Length (travel duration)

5.2 Journey Purpose

Over 50% of journeys were for HBO journey purpose (almost 40% of weekday journeys). Commuting type journey purposes (HBW) were for almost 15% of weekday journeys and less than 5% of weekend journeys. Results (24/7) are shown in Figure 21 below.

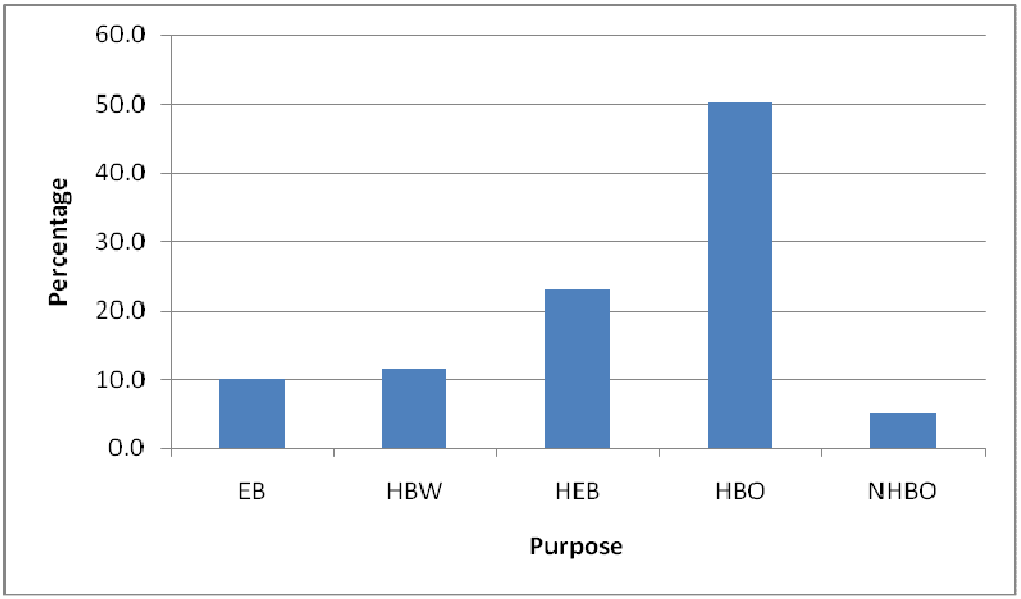

Figure 21: 24/7 Journey Purpose

5.3 Journey Length and Vehicle Type

On a weekday, the peak grouping for cars was for a journey length of 250-300km, and between 2-3 hours. The proportion of bus/coaches tended to decline with increasing journey distance. The proportions of HGV and cars were relatively constant for journey distances up to 300km,

before declining thereafter. At weekends, the peak distances for HGVs tended to be longer. Weekday results are shown in Figure 22 below.

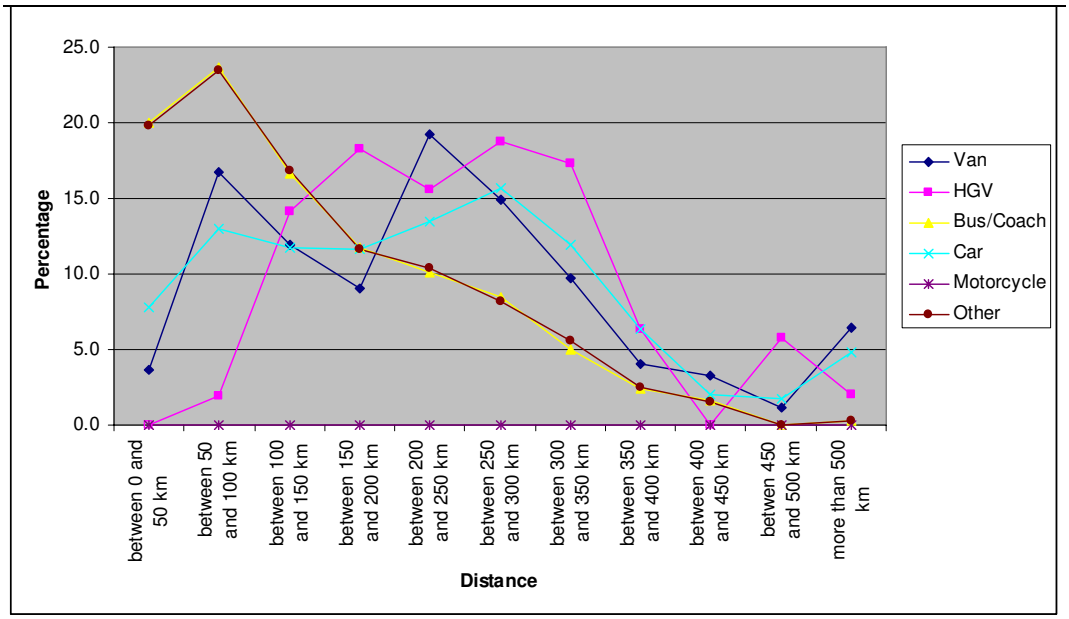

Figure 22: Monday-Friday Combined Journey Length (OD) and Vehicle Type