MODE CHANGE STUDY

SUMMARY

1. Scope of Work

1.1 The objective of the work was to use the Jersey Transport Model and the output from recent modelling studies to identify and quantify the measures needed to meet the car reduction targets for the Sustainable Transport Plan for Jersey 2010 – 2014. Mode share models were calibrated with available data and validated against TTS St Helier cordon, JASS and 2001 Census data. Using the calibrated models, forecasts were made of the increased use of bus, cycle and motorcycle modes due to bus time improvements and fare changes and parking charge increases.

1.2 The transport modelling was backed up by an interview survey of car drivers at private and public car parks to find out the likelihood of changing to bus, cycle or other modes as a result of the bus time improvements, fare changes or parking charge increases. The interviews were structured so that estimates of mode share parameters could be made to compare with the calibrated values from observed behaviour and with standard UK DfT parameter values.

1.3 The work has built on the mode share analysis carried out in the recently completed Beaumont Capacity Study Stage 2 in which mode share models were developed. These were extended for the investigations of increased bus use and the cycle and motorcycle models which were island wide. The potential for increased walk trips was also assessed using 2001 Census and JASS data.

2. Choice of Transport Attitude Survey

2.1 The aim was to obtain views of car commuters on the extent to which they would change their mode of transport if parking charges increased by a range of amounts. They were also asked about the extent to which they would use buses if various features were improved. The survey was carried out in the morning peak period (0700-0930hrs) at the Patriotic St, Esplanade, Green St, Pier Rd & Gas Place public long stay car parks and at the Talman private car park.

2.2 Car commuters' reaction to increased parking charges was strong. Overall 19% of interviewees at public car parks said they would probably change mode if parking charges were increased and 45% said they would definitely change, Table 1. The proportion who said they would definitely change mode increased markedly with the amount of the parking charge increase. Only 16% said they would definitely change if the parking charge was increased by 50p per day but this increased to 77% if the increase was £5 per day. Of the interviewees who said they would change mode 51% would change to bus, 18% to cycle, 15% to walk, 10% would car share and 6% would change to motorcycle/scooter. The limited data for the private Talman car park shows similar trends as for the public car park data.

2.3 The question on car commuters' likelihood to use bus to work if there were various improvements also led to a generally positive response. For public car parks 12% of interviewees said they would probably use the bus if there were improvements and 29% said they would definitely use the bus. A more frequent service was the most

important factor linked to a definite change of mode followed by a quicker service and less crowded buses. Cheaper fares was not so important for private car park users.

2.4 The reasons for those interviewees not being able to change mode from car were also noted. The need to drop off schoolchildren, 9%, was the most stated reason in public car parks whilst needing the vehicle for work, 8%, was the most stated reason for the Talman private car park. The lack or inadequacy of the bus service was the most stated reason, 8%, for both public and private parking.

Table 1: Mode Change Due to Parking Charge Increase

Parking Charge Increase	Definitely	Probably	No View	Probably Not	Definitely Not	All
Public Car Parks:						
50p	16%	16%	2%	25%	40%	100%
£1	32%	24%	2%	22%	19%	100%
£2	56%	24%	2%	6%	12%	100%
£5	77%	11%	1%	3%	9%	100%
All	45%	19%	2%	14%	20%	100%
Talman Private Car Park:						
£5	22%	59%	0%	15%	4%	100%
£10	63%	30%	0%	7%	0%	100%
All	43%	44%	0%	11%	2%	100%

3. Mode Change Forecasts

3.1 Mode share relationships were calibrated for the choice between car and bus, cycle, walk and motorcycle. The relationships represented the characteristic that changes in the relative journey cost and time lead to switching between car and other modes. For the changes between car and bus, the calibrated mode share parameters for the western corridor data and attitude survey data was averaged for use in forecasting. As strong relationships were calibrated from the attitude survey data for all modes it was considered appropriate to use the calibrated parameters from the attitude survey data for the non-bus modes in the forecasting.

3.2 Having established and calibrated mode share relationships, likely mode changes were forecast for:

- Bus mode share changes with reduced bus times, improved bus quality and marketing, and increased parking charges;
- Cycle, walk and motorcycle mode share changes with improved facilities and marketing, and increased parking charges.

3.3 The mode change forecasts were applied to person travel data on the St Helier cordon collected by TTS every year. This involved counting the number of vehicles and persons on the inbound radial roads in the AM peak period for walk, cycle, motorcycle, car, commercial vehicles and bus. The car mode data was split into trips to public car parks, trips to private and other parking and through trips using 2008 JASS survey data. Overall, almost 79% of persons travel by car, 9% walk, 6% travel by bus and 3% each by cycle and motorcycle. Car through trips account for 25% of

all person trips. 25% of person trips are to public car parking and 33% to private parking.

3.4 The assumptions for the mode change options were:

- For private parking, both paid and not paid by employer, the additional parking charges were assumed to be one half of the additional public parking charges and would influence only one half of those with private parking paid by employers;
- Transfer to walk would affect the 36% of cordon crossing walk trips of less than 2 miles;
- For trips to St Helier bus priority measures represented by a 12 minute decrease in journey time for one half of bus services and travellers;
- For trips through St Helier the provision of a new through bus service (existing services 1 and 15) represented by a 12 minute decrease in journey time for one half of bus services and travellers between the south coast areas east and west of St Helier;
- For trips to and through St Helier the improvement in quality of non-car modes represented by a 10 minute decrease in mode constant model parameter for one half of motorcycle, cycle, walk and bus journeys, reflecting that the improvements in image, changing facilities, new buses, real time bus information etc. would influence one half of users;
- For trips to and through St Helier workplace and school travel plans and travel awareness campaigns to reduce total traffic by 4% and is represented by a 4.0 minute decrease in mode constant.

3.5 The mode change forecasts for the St Helier cordon, Table 2, shows potential reductions in total traffic of 1.1% to 11.4% for the range of public parking charge increases, 3.0% for bus travel time reductions, 4.4% for non-car mode quality improvements and 4% for travel plan and awareness campaigns to reduce car trips.

3.6 These results show that there is the potential for significant car reduction by improving the quality of non car modes and persuading people to use them. This can be achieved through tangible improvement measures such as the introduction of high quality, limited stop buses with bus priority measures, extending bus services through St Helier and the improvement of cycle changing facilities, cycle parking and cycle lanes and priorities. The 10 minute reduction in mode constant is the level that is often used to represent the introduction of a high quality bus service in the UK, for example in Ashford in Kent and Daventry in Northamptonshire, and represents a realistic level of the expected change in Jersey, being 20% of the 50 minute bus mode constant for existing bus services.

3.7 The UK DfT's Smarter Choices – Changing the Way We Travel, 2004 report identified a number of transport policy initiatives, often described as 'soft' measures, that seek to give better information and opportunities on non-car travel choices:

- Workplace and school travel plans;
- Personalised travel planning, travel awareness campaigns;
- Public transport information and marketing;

- Car clubs and car sharing schemes;
- Teleworking, teleconferencing and home shopping.

3.8 Travel plans and public awareness campaigns can help to persuade people to consider and use non car modes. Workplace travel plans are required for redevelopment applications with a target car generation reduction of 15% compared with present use. Travel plans for schools and States offices are being introduced with target car generation reductions of 15% for States departments and secondary schools and 5% for primary schools. In total it is estimated that a 2.9% reduction in traffic over a 5 year period could be achieved with travel plans. An additional 1% reduction could be achieved through travel awareness campaigns. In total a 4% reduction in total traffic to St Helier in the morning peak period is regarded as achievable and is equivalent to a 4.0 minute decrease in mode constant for non-car modes.

3.9 Other 'soft' measures will also significantly reduce car trips. The 'Smarter Choices' study found that a reduction in urban traffic of about 21% in the peak period and 13% in the off-peak could be achieved with all the measures. These have not been quantified but represent further car reduction measures that could be introduced.

3.10 Public parking charge increases and bus travel time improvements would in combination provide significant reductions in car travel. A £2 per day increase in parking charge and a 12 minute reduction in bus travel time for half of bus users would decrease car travel by 9.6%. There would be a 14.4% reduction if the parking charge increase was £5 per day.

3.11 The transport plan mode change targets include a 100% increase for bus and cycle and a 20% increase for walk. A £2 per day increase in public car parking charges would increase bus passengers by 39%, cyclists by 28% and pedestrians and motorcyclists each by 9%. A £5 per day parking change increase would double bus use, increase cyclists by 69%, pedestrians by 9% and motorcyclists by 9%. A 12 minute saving in bus travel time for half of bus users would increase bus use by 47%.

3.12 There is also an overall target of a 15% reduction in peak traffic and this and other transport plan mode change targets could be achieved by:

- £2 per day increase in public car parking charges (4.6% reduction on St Helier cordon);
- Bus priority improvements to decrease travel time (3.0% reduction on St Helier cordon);
- Introduction of high quality bus services, and improvements in image, quality and facilities for non car modes (4.4% reduction on St Helier cordon);
- Travel plans and public awareness campaigns (4.0% reduction on St Helier cordon).

Table 2: Forecast St Helier Cordon Mode Proportions

Mode	Sub Mode	Inbound Persons 0730-0900 hrs							
		2008/9	Increased Parking Charge / Day				Bus Time Savings *	High Quality Services / Facilities **	Travel Plans & Awareness Campaigns ***
			50p	£1	£2	£5			
All	Overall Reduction	-	1.1%	2.3%	4.6%	11.4%	3.0%	4.4%	4.0%
Commercial Vehicles	Total	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)	2,457 (11.6%)
Car	Total	14,700 (69.7%)	14,504 (68.8%)	14,307 (67.8%)	13,912 (65.9%)	12,739 (60.4%)	14,192 (67.3%)	13,948 (66.1%)	14,014 (66.4%)
Car	Public Car Parks	3,889 (18.4%)	3,764 (17.8%)	3,637 (17.2%)	3,380 (16.0%)	2,616 (12.4%)	3,720 (17.6%)	3,676 (17.4%)	3,720 (17.6%)
Car	Private Paid For	4,587 (21.7%)	4,554 (21.6%)	4,520 (21.4%)	4,452 (21.1%)	4,246 (20.1%)	4,503 (21.3%)	4,422 (21.0%)	4,370 (20.7%)
Car	Private Pay Self	1,496 (7.1%)	1,459 (6.9%)	1,423 (6.7%)	1,351 (6.4%)	1,149 (5.4%)	1,380 (6.5%)	1,377 (6.5%)	1,398 (6.6%)
Car	Through Traffic	4,728 (22.4%)	4,728 (22.4%)	4,728 (22.4%)	4,728 (22.4%)	4,728 (22.4%)	4,589 (21.8%)	4,474 (21.2%)	4,526 (21.5%)
Motorcycle	Total	653 (3.1%)	669 (3.2%)	684 (3.2%)	710 (3.4%)	758 (3.6%)	653 (3.1%)	736 (3.5%)	741 (3.5%)
Cycle	Total	598 (2.8%)	640 (3.0%)	681 (3.2%)	764 (3.6%)	1,008 (4.8%)	598 (2.8%)	755 (3.6%)	742 (3.5%)
Walk	Total	1,599 (7.6%)	1,635 (7.7%)	1,671 (7.9%)	1,742 (8.3%)	1,943 (9.2%)	1,599 (7.6%)	1,738 (8.2%)	1,728 (8.2%)
Bus	Total	1,090 (5.2%)	1,192 (5.7%)	1,297 (6.1%)	1,512 (7.2%)	2,192 (10.4%)	1,598 (7.6%)	1,462 (6.9%)	1,416 (6.7%)
All Modes		21,097	21,097	21,097	21,097	21,097	21,097	21,097	21,097

Notes: * For trips to St Helier bus priority measures represented by a 12 minute decrease in journey time for one half of bus services and for trips through St Helier the provision of a new through bus service (existing services 1 and 15) represented by a 12 minute decrease in journey time for one half of travellers between the south coast areas east and west of St Helier.

** For trips to and through St Helier the improvement in quality of non-car modes represented by a 10 minute decrease in mode constant model parameter for one half of motorcycle, cycle, walk and bus journeys, reflecting that the improvements in image, changing facilities, new buses, real time bus information etc. would influence one half of users.

*** For trips to and through St Helier a 4% reduction in total trips through workplace and school travel plans & travel awareness campaigns.