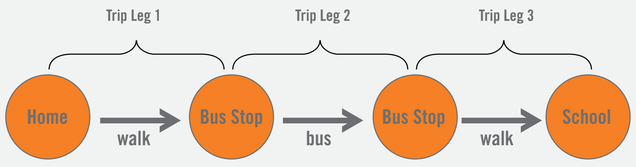
ESTIMATING SCHOOL TRAVEL BEHAVIOUR USING THE HOUSEHOLD TRAVEL SURVEY

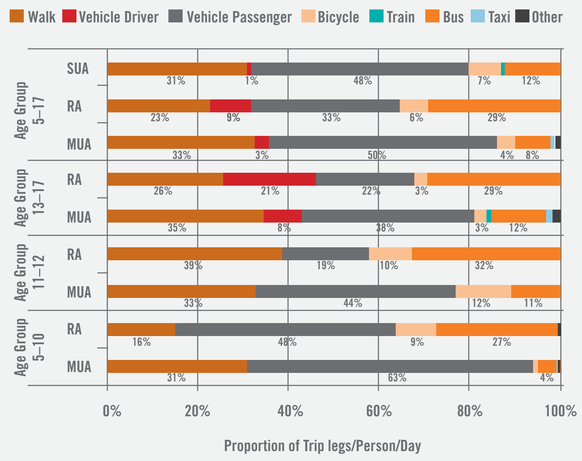
ANALYSIS OF 2003-2006 HOUSEHOLD TRAVEL CAN BE USED TO ASSIST PLANNING DECISIONS IN TERMS OF WHERE NEW HOUSES OR SCHOOLS SHOULD BE BEST LOCATED IN RELATION TO EACH OTHER BASED ON TRAVEL TIME EXPECTATIONS. THE ANALYSIS ALSO PROVIDES A USEFUL BENCHMARK OF CURRENT JOURNEY TO SCHOOL BEHAVIOUR THAT OVERTIME COULD BE USED TO MEASURE PROGRESS TOWARDS MEETING TRANSPORTATION POLICY OBJECTIVES. THIS RESEARCH WILL BE OF SPECIAL ASSISTANCE TO LAND USE TRANSPORTATION PLANNERS TO ILLUSTRATE TRAVEL BEHAVIOUR THAT OCCURS IN DIFFERENT STUDENT AGE GROUPS AND CATCHMENT AREAS.

Illustration of Trip Legs



For this research the analysis uses 'trip legs' and 'trip leg purposes' as defined by the MoT (2007). 'Trips legs' are defined as "A section of travel by a single mode with no stops. Thus if one walks to the bus stop, catches the bus to town and walks to his/her workplace, he/she has completed three trip legs (home-bus stop, bus stop 1 to bus stop 2, bus stop 2-work)." This is shown in the above figure where work has been substituted by a school destination.

Proportion of Trip legs/Person/Day



The above summary table can be used to assist school travel planners to identify age groups within certain locations that can benefit the most from school travel plan initiatives. For instance it can be seen that effort can be directed at the Major Urban Areas to maintain and enhance travel by walking and bus between the 11-12 age group and the 13-17 age group. It can also be used as a national bench mark from which to assess the travel behaviour of a particular school in question.

Example Application – 400-student High School in Rural Area

Total Trip Legs Per Student (two-way) **1.6** x 2 x 400 = 1280 trip legs

Students by Mode of Travel

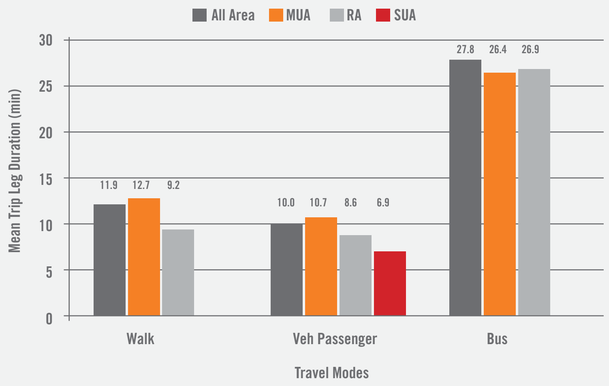
	Walk & Bicycle (29%)	Public Transport (29%)	Vehicle Passenger (22%)	Vehicle Driver (21%)
Trip Legs by Mode	371	371	287	267

School Trips undertaken by Private Motor Vehicles

Passenger Vehicle Trips	= 287/**1.58** = 182
Vehicle Driver Trips	= 267
Total Daily Vehicle Trips	= 182+267+**44** = 493 Vehicle Trips
AM Peak Hour (8am to 9am)	= 493 x **0.43** = 212 Vehicle Trips
PM Peak (3pm to 4pm)	= 493 x **0.25** = 123 Vehicle Trips
Travel distance by Vehicle/ Day	= 493 x **5.43** = 2,677 VKT

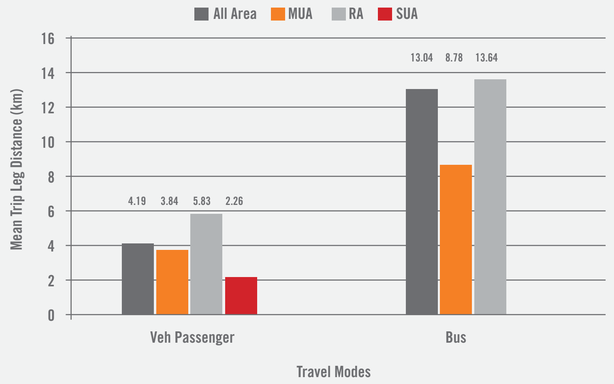
The above example demonstrates the application of the research, with variables from the research indicated in the bold text. These variables can be used to determine the possible modal split, traffic generation, period of greatest impact and vehicle kilometres travelled for any proposed schools. Overall this information is expected to influence how transportation could be better managed to reduce private motor vehicle travel and encourage healthier lifestyles amongst school children.

Mean Trip Leg Duration by Mode of Travel and Area



*Note: Some SUA values not shown because sample size is less than 120. However the 'All Area' columns include those values based on less than 120 samples as collectively the sample size exceeds 120.

Mean Trip Leg Distance by Mode of Travel and Area



*Note: In some cases estimates could not be made in the SUA if the number of trip legs sampled was less than 120.

The analysis of mean trip leg per student per day, trip leg duration and trip distance by mode of travel and area shows that:

- The main mode of travel to school for all catchment areas is as a vehicle passenger.
- The proportion of walking trips is reasonably similar across the different catchment areas and is about 64% to 71% of the proportion of vehicle passenger trips. Walking represents the second most popular travel mode to school.
- In RAs, significantly more trip legs are undertaken by bus than other areas reflecting the remoteness of rural origins to education facilities.
- Cycling represents one of the least popular travel modes in most catchment areas. This finding reveals there may be scope to improve cycle use especially within urban areas.
- Bus journey times are generally the same for RAs and MUAs and take more that double the time taken to get to school as a private vehicle passenger. Over a similar distance buses can compete equally well with the private motor vehicle in MUAs in terms of journey times.
- The journey time and distance data, can enable school travel planners to determine walking and vehicle based catchment areas and hence target Travel plan measures to suit students who live within these catchment areas.

Conclusions

Research findings can be used to :

* **Assist planning decisions in terms of where new houses or schools should be located in relation to each other based on travel time expectations.**
* **Provide a useful benchmark of current journey to school behaviour that can be used to assess progress towards meeting policy aims in terms of reducing car travel and encouraging healthier lifestyles amongst school children.**
* **Assist school travel planners by illustrating the similarity in travel times between active and non-active travel modes in particular circumstances.**
* **Provide transport practitioners and school travel planners with information that can be used to best direct limited resources to gain the maximum benefit by targeting school travel plan initiatives and demand management measures towards specific age groups, located within a particular area catchment.**
* **Provide a convenient source of data to assist in determining the transport impacts of schools in terms of modal split, traffic generation, period of greatest impact and vehicle kilometres travelled.**

[1] MoT (2008). Transport monitoring indicator framework - glossary of terms

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