INTRODUCTION AND OBJECTIVES

Demand responsive transport (DRT) systems are usually specified for low density sub-urban areas, where scheduled public transport systems are not feasible, to provide service to the elderly and other social groups who cannot afford alternative personal transport modes. On the other hand, in [1] DRT systems are suggested as a replacement to the private car. The system’s feasibility is studied for a town that spans over 100 to 200 square kilometres. It is shown that the cost and quality of experience offered by the door-to-door DRT service is comparable to that typically enjoyed if one owns and uses a private car. The offering of a DRT service, as described in [1], is motivated by the want to mitigate congestion on the roads and cost to economy, to lessen parking demand, and to provide a sustainable and affordable personalized transport option to society at large.

Lately, increased pressure in meeting climate change targets and obligations, as well as the realization and acceptance that automobile generated pollution has significant adverse health effects [2], have resulted in a renewed interest to re-consider shared-modes in transport. In [3] the benefits of taxi pooling, where two independent passengers share the same taxi during part of the journey, are studied. The reduction in the cumulative trip length and therefore taxi-pipe emissions is calculated to be 40%, while the added passenger discomfort is minimal. On the other end of the scale, busses used in public transport systems, which are vehicles typically shared by 10-75 passengers, are known to generate on average the lowest emissions per passenger if targeted average patronage is reached. Total vehicle emissions can be minimized if systems operate efficiently. This means that shared modes, reduce global

NOTES AND ASSUMPTIONS

The pollution generated per person per kilometre depends on (a) Vehicle make, passenger capacity and engine, and (b) Maintenance and roadworthiness.

The percentage use of private car, taxis and buses is not necessarily optimised for efficient use and depends largely on transport policies. The pollution generated per person per kilometre depends on (a) Vehicle make, passenger capacity and engine, and (b) Maintenance and roadworthiness. Pollution generated per person per trip is only estimated for fuel consumption. Manufacturing of vehicles and building and maintenance of park facilities are excluded. It is assumed that congestion is avoided by discouraging private car use. It is assumed that motorized alternatives are available. Trip time in the case of private car is constant except when drivers try to avoid congestion, either by travelling earlier or later or by opting for a longer route.

CONCLUSIONS

Total vehicle emissions can be minimized if systems operate efficiently. This means that shared modes, reduce global emissions per passenger if targeted average patronage is reached. DRT systems provide good quality of service at low cost and low emissions, second to busses. Four persons travelling in a private car competes in emissions to travelling by bus. However parking facilities are required. The right policies on private car usage are required to encourage shared modes and maintain the network in a non-congested state. The percentage portion for each system needs to take into account time of travel, quality of service and the various social income groups or cost of the system.

 selecioned references

6) DEFRA (June 2007) "Passenger transport emissions factors Methodology paper www.defra.gov.uk/environment/business/knrrpdf/passenger-transport.pdf"