

Daventry Transport Conference, 2007 – review.

## 1. Introduction

Daventry District Council hosted a one-day conference on Personal Rapid Transit (PRT) in September 2007. I was in UK at the time and went up to Daventry for this. About 200 people attended. No list of delegates was circulated, but from observation most were either officers or members of local government (with a fair proportion of women) or PRT advocates (mostly male and getting on in years). The conference presentations were a mixture of Daventry's own plans (Millar, Vincent, Buchanan, Humphreys), various aspects of an EC public transport initiative, CityMobil (Van Dijke, Alessandrini, Parent) and a review of progress with PRT generally (Ponsford, Lowson, Fabian).

## 2 PRT

What is PRT ? Essentially it is a cross between a taxi and a lift, offering driverless non-stop travel through a network at the touch of a button, probably – but not necessarily – using electric vehicles running on dedicated overhead infrastructure. A variant is GRT, or Group Rapid Transit : the essential difference between PRT and GRT is the size of the vehicles. PRT vehicles can carry up to 4 people while GRT vehicles carry 8-30 plus, depending on the application.

PRT is not a new concept. The web site of Jerry Schneider at the University of Washington lists over 100 systems or concepts. The first PRT – or strictly speaking, GRT – system was installed in Morgantown, West Virginia, about forty years ago and remains to date the only major application of the idea.

## 3 Daventry

Daventry is a small, compact but growing market town in the East Midlands, between Northampton and Rugby. The town population is currently about 23,000, expected to rise to 40,000 by 2021. The District Council administers nearly 260 square miles (over 650 sq. km) of territory, most of it low density rural areas but including the town of Daventry.

The centre of Daventry with narrow streets currently contains 1500 car parking spaces in 14 off-street car parks, of which 782 are short-stay, 600 are long stay and the rest could be either.

Councillor Chris Millar described Daventry in general and Ian Vincent described the Daventry Project (managing the growth sustainably). Malcolm Buchanan then outlined why British cities should be interested in PRT, using Daventry as an example, and Ed Hunphreys of SKM described some work he had done validating the claimed benefits for Daventry.

#### 4 CityMobil

The European Union (EU) has given the CityMobil project a budget of 40 million euros, half of which is to fund demonstrations. The CityMobil project covers advanced urban transit systems which include cybercars, advanced buses and dual mode vehicles as well as PRT. They are focusing on three major projects : the Ultra being installed at Heathrow Terminal 5, a Roman System of cyber-cars to connect the Rome Exhibition Centre to a car park, and a bus corridor in Castellón (near Valencia), The Daventry PRT is one of a number of lesser (and more speculative?) projects being studied by the CityMobil team. Jan van Dijke, the Project Co-ordinator, described its objectives (achievement of a more effective organization of urban transport). Adriano Alessandrini gave an entertaining talk on how the projects will be evaluated, and Michael Parent from INRIA gave an update on the state of the art in technology for driverless road vehicles. Some vehicles were demonstrated outside the Conference Centre.

#### 5 Other PRT

Three other presentations were made.

Alan Ponsford of Mobilcity was the only speaker to recognise energy issues more than in passing. He characterised the three problems that PRT addressed as congestion, energy and atmosphere.

After lunch Martin Lowson, the Director of Advanced Transport Solutions, described the Ultra PRT application now under construction at Heathrow Terminal 5, due to open in October 2008 with 16 vehicles and expected to carry 0.3 M passengers per year, In the English-speaking part of the world, at least, much depends on the success of the Heathrow Ultra. Ultra is an off-the-shelf system which can be installed today. It was chosen five years ago for a large-scale project in Cardiff, that fell foul of EC procurement regulations and was eventually cancelled.

And Larry Fabian, a long-time advocate of PRT, described progress with PRT, particularly in the US, It was notable that the flagship system was still Morgantown (actually GRT), now over forty years old. The Raytheon automated taxi project had been aborted, and there was little official interest in PRT, The Morgantown system weathered early difficulties in the seventies, upgraded its computer system in the nineties, and now operated 70 vehicles on some 5 km of dedicated linearly configured infrastructure. Several other systems of lesser size were operating, usually in situations of large single-owner single-land-use (airports, medical or educational campuses, theme parks etc).

#### 6 Reflection.

The “elephant in the bedroom”, the unacknowledged obvious fact, was that PRT had not progressed significantly despite forty years of activist effort and interest. This can be put down variously to official reluctance to be the first major implementation, to the difficulty and cost of providing the infrastructure and the vehicles, to the lack of an

established industry behind PRT and the vested interests of those already there, and to public reluctance to trust driverless technology (not to mention general public antipathy to overhead structures, on environmental grounds).

Nevertheless two things in particular have happened lately which greatly enhance the chances of a major PRT implementation somewhere. One is the great advances in computer power in recent years, the other is the growing realisation that the Age of Cheap Oil is almost over and that as a consequence we are going to have to rethink urban transport (and much else).

It is undeniable that the issues of urban transport are complex, but it is very important for the future of PRT that any new implementation be greeted with instant and overwhelming success. This means that small-scale applications, probably non-Government, will continue to be the focus of attention. Small islands, where the land use and the scale of activity are appropriate, could offer a self-contained test bed for general-use systems, although the experience on Hamilton Island (Queensland), where despite the buses being free most visitors choose to hire buggies to move themselves around, is not encouraging.

Many systems rely on expensive prototypes and/or computer-generated imagery for sales potential. Two systems in the English-speaking world that did not fall into this category are the British Ultra system and the Australian Austrans. The former is being installed now at Heathrow Terminal 5 and the latter enjoyed a major grant from the Australian Federal Government for R & D around the turn of the century. Austrans was criticised by one speaker for having gone overboard on engineering tests; in my view this was necessary, and the main criticism of Austrans is that it did not recognize that operating as a system and overcoming real-life hurdles (such as public opposition to using something new, and the opposition from vested interests) were ten and a hundred times harder respectively than getting the mechanical engineering right.

Examples of whole suburbs that were laid out to be served by PRT which was never provided can be found. The Melbourne suburb of Knox City is one such, It was designed and built in the 1970's, but the transport system (PRT) planned by the firm of Loder & Bayley, did not materialise.

Two academics (Messrs Dodson & Sipe) at Griffith University in Brisbane have produced maps showing the vulnerability of fringe areas of big Australian cities to mortgage rate increases and to petrol price rises. It is in these fringe areas that car dependency is highest, yet conventional public transport cannot compete with the car. PRT could become a viable alternative to car use in such low-density areas/

Despite lack of progress with implementation, there is no shortage of PRT concepts. Outside of the Anglophone world, I am aware of a demonstration project in Opole (Poland) which was not covered by the Daventry conference, and there was a conference just held at the University of Uppsala (Sweden) to discuss the Podcar concept (a sort of PRT). I have no doubt that developments in Japan are not more widely known because of the language barrier.