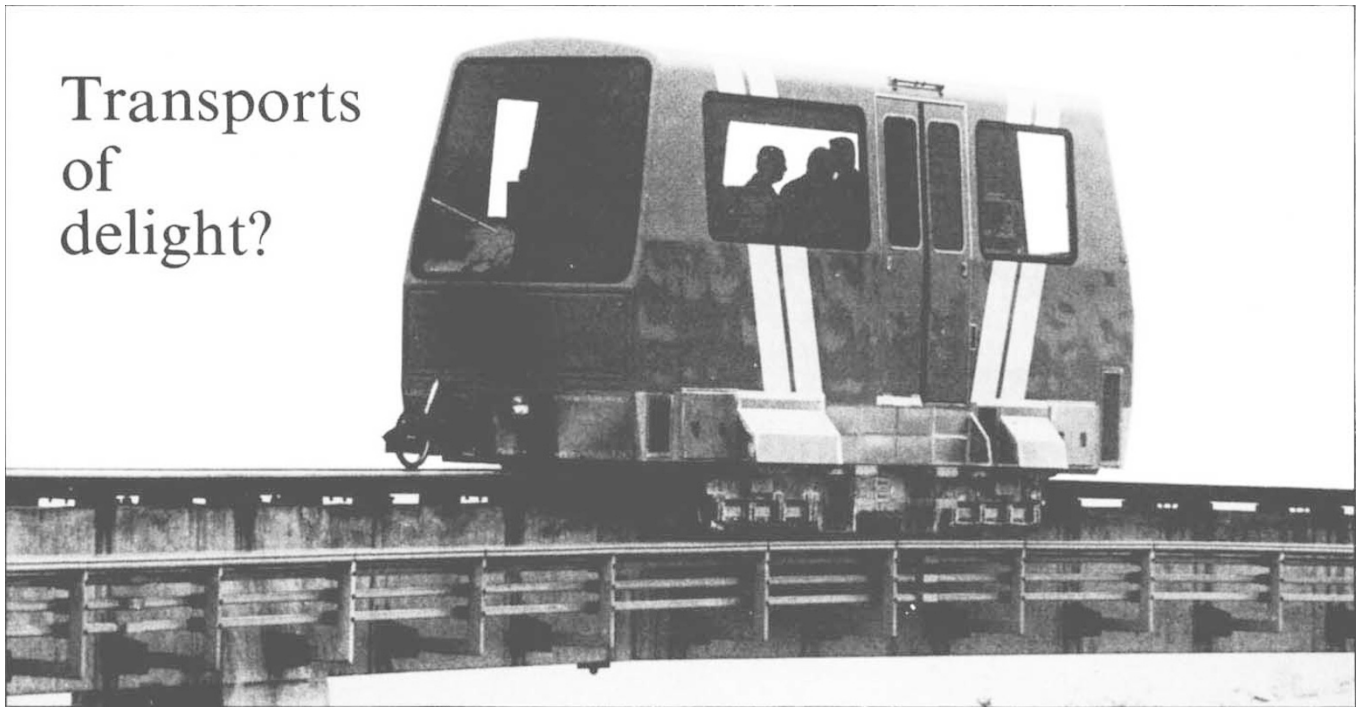


Transports of delight?



The two-car family on a half-acre plot in an isolated suburb is no longer considered ideal in Canada, where there is new thinking on the inter-relationship between transport and a better life. Angela Croome reports.

INNOVATIVE transport is at the heart of urban planning. If anyone doubts this it is not Canada's metropolitan authorities. In particular the richest and fastest growing province, Ontario, has put its money (half a billion Canadian dollars since 1971, and an estimated \$1.3 billion over a ten-year period) on this approach to achieving better living. Furthermore, there is confidence that by pioneering a new type of urban transit system and the urban planning philosophy on which it is based, Canadian concerns will soon be supplying most cities of America (North, South and Central) and will acquire for Canada a major new industry and sphere of expertise.

Last year more cars than babies were produced in Canada. At the same time the country is 'urbanising' at a rate of 4% a year, so that if present trends continue, 73% of the population will be concentrated in 12 metropolitan areas by the end of the century. A combination of the need for economies in the use of space and energy and an increasing dissatisfaction with suburban commuter living based on the car has endorsed a radical change in urban planning policy. This was initiated by the Ontario government as far back as 1969 but was underscored in 1971 by a now historic decision to cancel an urban throughway (for motor traffic) in favour of investment in better public

transport. In 1973 the Ontario government succeeded in pegging public city transport fares while improving services by offering local authorities massive subsidies to promote re-equipment and replacement (75% of cost) and reimbursing 50% of the losses on public transport operations. This move has already been reflected in increased public transport 'ridership' figures in most communities.

The problem is seen as "planning better communities with built-in mobility and closer jobs for everyone". "The two-car family on a half-acre plot in an isolated suburb is seen less and less as the good life". Thus says the eloquent and busy F. W. Foley, President of the Urban Transportation Development Corporation based on Toronto. Mr Foley spends much of his time putting across the new thinking on the inter-relationship between transport and a better life in cities. Toronto, the provincial capital, is the focus of these experimental developments. This is appropriate enough, as it has the reputation of being one of the most attractive and best-run of large American cities—and it is at the centre of a region of almost frighteningly rapid growth. It could get itself into the kind of jam that has long since engulfed New York and may be sampled on a smaller scale on the London-Essex margin of the Thames.

Toronto is set to be the demonstration city where the new approach can be tested in practice and where people may come and see for themselves. (The need to keep public reaction in step at every stage is wisely not lost sight of.) Already it has introduced a dial-a-minibus service in outlying districts

Krauss-Maffei TUO-3: withdrawn

where the travelling public is too small to justify a fixed-route service or an underground rail connection. Staggered working hours have already been introduced in city centre offices with excellent results. For some time a city task force has been taking an overview of Toronto's urban planning and transport situation, and involving the public in decision-making. The large Exhibition Park on the city's lakeshore has been picked for the demonstration of the unconventional intermediate transit system labelled "GO-urban" that is at the centre of the planners' thinking. With a track circling the park it will provide links for visitors between the various exhibition halls while at the same time testing elevated track, in-tunnel operations, driverless running, computer control, 'ride' comfort and the public reaction to all these elements.

The most significant step, however, has been the recent establishment with a Toronto headquarters of the Ontario Urban Transportation Development Corporation (UTDC) with a national and international remit. It is a body without parallel in Canada, and perhaps anywhere else. It is a business institution created by special Act of the Ontario legislature enabling provincial investment to be made in research, design, development and production of public transport systems on a commercial basis. Its role combines that of a think-tank in the transport field with an investment and licensing business somewhat analogous to Britain's National Research and Development Corporation (NRDC). Its immediate object is, simply, to produce "new

transit technology". Provincial Ontario's investment in transport equipment in the next decade alone is forecast officially at over \$1,000 million Canadian dollars; it is already spending nearly \$10 million a year on technology and operational research in this field. The federal government in Ottawa is watching the Ontario initiative and its UTDC with close attention. The province of Alberta has already invested in the corporation.

The key element in the transformation of urban living that the Ontario authorities seek to achieve is the intermediate transit system, using unconventional design. Broadly the object is to obtain the speed and accessibility of an underground (subway) system, but in an overground context with the greater comfort associated with medium density travel—20,000 to 30,000 people in each direction each hour—without the environmental blemishes of noise, fumes and massive land use, and at a fraction of the cost per mile of tunnelling or motorway construction. A world-wide investigation of the state of the art in rapid transit development was completed in 1972 and eight systems were identified for follow-up.

The Krauss-Maffei "Transurban" and Hawker-Siddeley Canada concept (with collaboration from two British companies) were taken up as detailed projects and the Krauss-Maffei system was chosen in Spring 1973. A kilometre-long test track with curves and gradients was completed at the Krauss-Maffei facility at Munich while preliminary site work was started at the Exhibition Park in Toronto. The investment was worth \$30 million but with tough 'break' conditions.

In parallel with these moves by the province of Ontario, Ottawa's Federal Ministry of Industry, Trade and Commerce secured the seven-man linear motor design team from Cambridge, UK, when Tracked Hovercraft Ltd (one of the firms originally associated with Hawker-Siddeley Canada's project) was closed down by the British government. They went to work for the Toronto company SPAR, specialising in advanced technology and space vehicle systems, and the federal government has made a \$2 million industrial development grant to it for work on linear induction motors. SPAR was obviously going to be the major contender for the motor contract for GO-urban propulsion when things got that far. A test track for running a motor palette in various configurations up to 70 miles an hour is now ready at SPAR's Toronto site. This initiative well illustrates the fundamental approach of the Canadian authorities—a deliberate and massive effort to absorb and vitalise a new technology and make it a national asset.

A back door into the supposedly lush US market for unconventional rapid transit systems (its urban and automobile problems being similar) opened last autumn when the giant McDonnell Douglas aerospace company of California announced a licence from Krauss-Maffei to market the GO-Urban system in the USA and its territories, and a collaborative agreement with Ontario's UTDC to participate in the technology and development of the Toronto demonstrator.

Very recently the line-up of interests and participants has changed fairly radically with the announcement that Krauss-Maffei was pulling out of the Toronto GO-urban demonstrator project.

Under the cancellation terms Krauss-Maffei paid \$1,800 million immediate cash compensation to Ontario's UTDC, which in addition has the use of the Munich test track and a number of German technicians for two years, together with outright transfer of the accumulated technology, a royalty-free licence for Canada and a non-extensive licence for the rest of the world.

If anything the withdrawal of Krauss-Maffei has put the Canadians in an even stronger position astride the unconventional rapid transit business at least in North America. A question that British experts have been asking for many months is why did the assessors for the Toronto demonstrator plump for a maglev system. The pause may provide just the opportunity to

move to another combination of drive and suspension while reserving rights in maglev technology for other applications. At the speeds envisaged (up to 50 miles an hour) rubber-wheeled carriages propelled by linear induction motors would be equally quiet and non-polluting. They would also make less demands in electricity (for the levitating magnets have a separate supply). It is noteworthy that a combination of advanced linear motor propulsion with rubber wheel guidance and suspension is the type of palette that SPAR, focally placed in Toronto, is currently concentrating on.

The province of Ontario is spending far more on redesigning its public transport than is being spent nationally anywhere else. Its fundamental 'systems approach' must be admired, if not copied. It will provide a blueprint for other industrial countries with growing urban problems. Whether the pre-occupation with new technology to solve the intermediate capacity urban rapid transit problem will be justified remains to be seen; certainly there is no existing vehicle or system that fulfils the specifications set out. There appears little likelihood of lifting the urban scene out of the doldrums and freeing the citizen from the predominance of the car without dedicated central thinking and action, and here Ontario and Toronto in particular have done the world a service and growing cities everywhere would do well to study these developments. □

Eight developers of promising systems representing a range of new technologies were invited by the Ontario Transport Ministry to make technical submissions. The eight systems provide a good indication of world-wide trends in the use and application of new surface transport technology. Only a Japanese submission is lacking—the Japanese have concentrated their effort and investment on high-speed inter-city links.

System Name	Design concept	Automatic command/control	Suspension	Propulsion
Alden "StaRRcar" (USA)	PRT*	Yes	Rubber tyres	Rotary a.c. motors, hydrostatic drive
Ford "ACT"	Line-haul or PRT	Yes	Rubber tyres	Rotary d.c. motors
Transportation Technology inc. (USA)	PRT	Yes	Air cushion	Linear induction motors
Uniflo (USA)	PRT	Yes	Air cushion	Linear air turbine
Bertin "Aerotrain" (France)	Line-haul	Optional	Air cushion	Rotary or linear induction motors
Urba "30/100" (France)	Line-haul	Optional	Negative-pressure air cushion	Linear induction motors
Hawker-Siddeley Canada (Canada)	Line-haul with off-line stations	Optional	Rubber tyres	Linear induction motors
Krauss-Maffei "Transurban" (Germany)	Line-haul or PRT	Yes	Electro-magnetic	Linear induction motors

* Personal rapid transit.