

Cost-contained tramways: Low-cost solutions to meet many needs

Scott McIntosh, Tram and Trolleybus Technical Director at Mott MacDonald in Edinburgh, explains how imaginative approaches can offer practical modern transport solutions for cost-critical scenarios.

The worldwide development of modern tramways is impressive, but this rapid growth has tended to obscure the number of smaller, lower-cost tramways that have been introduced over the years.

Many of these are the so-called 'Vintage Trolley' operations; a reinstatement of existing pieces of lines, such as the operations in Kimberley (South Africa) and Bendigo (Australia). Vintage Trolley has certainly caught the imagination in the US with lines such as McKinney Avenue in Dallas; lines continue to grow in size and capacity, resulting in the F Castro Line and the forthcoming E Embarcadero Lines in San Francisco (TAUT 868). In Europe we have ready-made Vintage Trolley lines; the Manx Electric on the Isle of Man, the Soller Tramway in Spain, the Waltersdorfer Strassenbahn in Germany and the hilly routes in Lisbon, Portugal.

Fulfilling multiple roles

Small tramlines can lead to the reinvigoration of downtown districts, combining real transport services with tourist attractions in their own right. Equally exciting are the new lines with no connection to historic tramways. The Tandy Subway in Fort Worth, USA, provided an excellent service from remote park-and-ride sites to a commercial centre for over 40 years, using new car bodies on refurbished PCC traction packages. The more recent Kenosha line in Wisconsin shows how a large brownfield site can be linked to an established 'Downtown' and commuter rail station and, of course, the hugely successful Portland Streetcar (featured in TAUT 862) also comes to mind.

My first TAUT article on 'Vintage Trolley' appeared in 1992. I was a Director of the Bristol Electric Railbus demonstration project, worked on a low-cost tramway to link redevelopments to London's Docklands Light Railway and presented a paper about cost-contained tramways to the 2000 UITP Congress in Melbourne. I am now fortunate to work with Mott MacDonald – a firm with the imagination to bring these ideas forward in a more solid form. We are working on cost-contained tramway concepts and our North American arm – Hatch Mott MacDonald – has successfully delivered the Olympic Line 'Light Rail Taster' in Vancouver. We believe this approach has real potential elsewhere and is likely to be a way forward for the industry, showing that projects can be delivered for a reasonable cost and that there are ways of funding that don't always rely on government grants.

The 'Abbey Line', UK

This line is a historic 10.5km (6.5-mile) single track branch from St Albans Abbey to Watford Junction (just north of London, UK), electrified by British Rail in the late 1980s. Ridership has been rising thanks to efforts of Community Rail and now a more frequent, regular service is needed but a heavy rail passing loop would be expensive and operating costs for the line are relatively high. The modern EMUs being introduced on the line are lovely trains, but they are wasted on a short shuttle and their leasing charges are high.



"Vintage Trolley operations can lead to the reinvigoration of downtown districts, combining real transport services with tourist attractions in their own right."

Above: A small tram system was set up in Houten, Netherlands, in 2001 as a provisional service while double track was installed on the commuter rail service. The 1.9km line was only envisioned to run for three to five years, but ran until the end of 2008.
Arthur Akkermans

Mott MacDonald knows of good-quality recycled high-floor LRVs available in Europe. These solidly-built cars can have many years of life left in them, offer excellent performance and are available at a reasonable price. Most modern tramways need low-floor cars, offering disabled access from low, inconspicuous platforms, but for a railway with raised platforms a high-floor car is ideal. Combining the tram car with tramway operation; line of sight driving and the sort of loops that are in successful operation on London Tramlink would allow a half-hour service at an affordable price.

The Abbey Line project benefits from the support of the UK Department for Transport; the personal interest of the Secretary of State and an imaginative approach from Hertfordshire County Council. It is hoped the project will go out to tender later in 2010 and that operators with experience of tramway operation from UK or elsewhere in the EU will bid to convert, equip and operate the line.

Mott MacDonald continues to have much to offer the project; a wide knowledge of tramway and railway operation and an ability to 'think global - act local'. We are firmly committed to the principles of recycling and we are convinced that there are many similar opportunities across the UK. Such projects could use new, self-contained railcars

(as demonstrated by John Parry in the West Midlands), but by combining cost-contained electrification with recycled, refurbished or new electric cars we could provide attractive, reliable and affordable electric light rail for future generations.

Wirral Waters, UK

As Neil Scales, Director General of Merseytravel said in TAUT 868, the GBP4.5bn Wirral Waters project is one of the largest and most exciting urban regeneration schemes in the UK. The area needs to be connected to the transport network and the upgrading and extension plans for the Wirral Tramway will 'increase the reach of the Metro' by providing rail-quality links to both Merseyrail and ferries. Using refurbished recycled equipment we can keep the cost down and provide a transport service worthy of the spectacular new developments. However, the significant heritage aspect of the tramway is not forgotten as the tramway will become the cord of a 'string of pearls' of tourist draws from the Mersey Ferry to Spaceport.

We at Mott MacDonald are delighted to be working with Merseytravel to develop concepts and alignments as the project evolves – and all at an affordable cost. We can propose a tramway which compliments the development and is not only 'green' in terms of the reuse and recycling of valuable material, but also one that can attract community support and involvement, support Merseytravel's cultural and tourist activities and make transport fun for all.

In the US such systems have now grown in number to over 30 currently, and the same could – and should – happen in the UK and across the EU. This particular scheme will be a showcase project for such developments.

Olympic Line, Vancouver, Canada

In Vancouver, Canada, Bombardier Transportation, in partnership with the City of Vancouver, provided a free



streetcar service for residents, visitors and athletes during the 2010 Olympic and Paralympics Winter Games. Connecting Granville Island, a key entertainment centre, the Olympic Village and the new Skytrain Canada Line, the CAD9m Olympic Line streetcar service extended Vancouver's regional transit network on the 1.8km (1.1 miles) of upgraded rail infrastructure along False Creek.

In 2006 the City of Vancouver Council contracted Hatch Mott MacDonald to provide the preliminary engineering and design of the Downtown Streetcar project. Our work focused on safeguarding and refining a scheme to upgrade the existing heritage line to modern streetcars. With the successful completion of this work the City of Vancouver extended the contract to include the detailed design and construction management for upgrading the infrastructure in order to operate two Bombardier *Flexity* streetcars that would provide a demonstration service during the Olympics. The line opened on time and has operated throughout the Olympics, helping to introduce Vancouverites to the concept of an attractive modern streetcar. **TAUT**

Left: The Tandy Subway – originally the Leonards M&O Subway when it opened in February 1963 – ran 1.1km (0.7 miles) from park-and-ride sites into the Leonards department store in Fort Worth, Texas, later the Tandy Center mall. It was the only privately-owned tramway in the United States. This photograph is one of the last rides in late August 2002. Justin Smith



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