

Fort Worth: A bargain in the basement

Growth in new 'big' tramways often takes attention away from the small systems that perform a vital local function. Scott McIntosh looks at the Fort Worth Subway, a system that served the city for 40 years.

Marvin and Obadiah Leonard owned a long-established and respected department store in central Fort Worth, Texas (USA), that opened in 1918 and eventually covered six blocks. However, like many US businesses in the 1960s it had been suffering the common problem of increased motor car use taking customers to the large suburban malls that were springing up across the nation, rather than encouraging them to patronise downtown stores.

To counter this issue, in 1955 Leonards began a free bus shuttle from a new car park for customers, yet the bus was not an attractive option for automobile users and the buses were frequently caught in traffic congestion. By 1961 the store owners wanted to renovate and expand their store and they decided that a tramway with a short subway into the basement of their new shop would be just the thing to draw the customers back.

Coincidentally, 1962 marked the end of streetcar operation in Washington DC; this unfortunate event released a large amount of serviceable equipment and technical know-how.



Benefitting from system closures

In setting up its new line (the first privately-owned subway operation in the USA), five PCC cars were acquired, as well as technical expertise from ex-Washington engineers. Much of the tramway's design was undertaken by Leonards' own staff, under the direction of experts from Washington.

The cars were heavily modified; one set of leaf doors was moved from the front to the rear and all doors were raised to match car floor-level platforms. Spare sets of control equipment were bought from Washington and the cars made double-ended by the building of a cab at the former rear end of the car.

The cars were air-conditioned, completely refitted internally and stainless steel sheathing was applied to the exterior below the waist rail. The first five cars cost a total of USD10 000 and rebuilding amounted to five times this

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the overhead line was a mix of recycled parts from other tramways and new equipment. Close clearances in the subway meant the wire height was set at approximately 13ft 6in, low by modern standards but adequate for a predominantly segregated tramway with only a limited number of level crossings.

The traction power was provided in a substation at the terminus in the basement of Leonards' store. It consisted of two 600V dc war surplus submarine generators coupled to an AC motor linked to the local electricity supply – another example of recycling and can-do engineering. Recognising the public fascination with machinery, the subway's powerplant was open to view behind a large window at the end of the terminal platform.

Simple yet effective Infrastructure

The maintenance facility was a modest steel-framed and steel-clad structure, with twin tracks each capable of holding two cars. It is interesting to note that construction of the subway commenced on 27 May 1962 and it was opened to the public on 12 February 1963 – the total cost of the 1.1km (0.7-mile) line was approximately USD500 000.

Operation was left-handed with cars running non-stop from the outer car park station to the store terminal; returning they stopped at two intermediate stations, picking up and setting down passengers. Pedestrian underpasses ensured segregation of the inbound 'express' track, but passengers crossed the stopping track at grade. End-to-end running time on the stopping track was 3.5 minutes.

The stops were perhaps the least satisfactory part of the system, with raised platforms and an all-over roof and side walls in corrugated metal on a metal frame. Maybe the war surplus design ethic was carried too far here, but at least all passengers were sheltered from sun and rain; far better than the usual 'designer' shelters provided today.

The subway remained free for the entirety of its operation, and services began at 07.30, 90 minutes before Leonards Department store opened for business, and closed well after the store. The subway thus provided a free transit service for the benefit of other downtown businesses on a seven day a week schedule, with cars running as often as every three minutes. A separate exit from the store permitted users to bypass Leonards when the store was closed.

The subway was a massive success as during trading hours store footfall increased considerably, with business



Above right: A commemorative postcard showing the refurbished Washington PCC cars on the original Leonards Subway.



Right: This view from 2002 shows the tunnel portal that led into the terminus in the store's basement. J. Bell

Below: The end of the line at Stop 3. The construction of the stops was rudimentary, but they served their purpose well – and for over 40 years. J. Smith



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increasing by nearly 10% in the first year of operation. It was so successful in fact that demand for the service grew to such a level that the original car park eventually expanded to a 24-acre site along the flood plain of the Trinity River, with accommodation for 5000 cars.

In 1967 Leonards sold the store to the Tandy Corporation, originally a general mail order company but subsequently best known for its Radio Shack electronics stores.

Tandy instituted a number of major improvements to the subway and demolished the department store buildings and built the Charles D. Tandy Center on the site (two 20-storey office towers, one of which housed Tandy headquarters) with an indoor shopping mall and an indoor ice skating rink.

In 1978 Tandy built a magnificent three-track, part-underground terminal, with direct access into the foyer of the Tandy Center in place of Leonards cramped single-track terminal. The new terminal showed that 'cost contained' need not mean 'cheap and nasty'.

The original rolling stock was beginning to show its age so Tandy rebodied the cars. The new bodies were boxy in shape, but were said to be designed to be reminiscent of the Tandy personal computers sold at the time! The original chassis and PCC bogies and traction equipment were retained and the new bodies were supplied as metal sections. The entire job of stripping down the cars, erecting the body, fitting out and commissioning was undertaken in the depot – proof that a can-do spirit still survived on the subway.

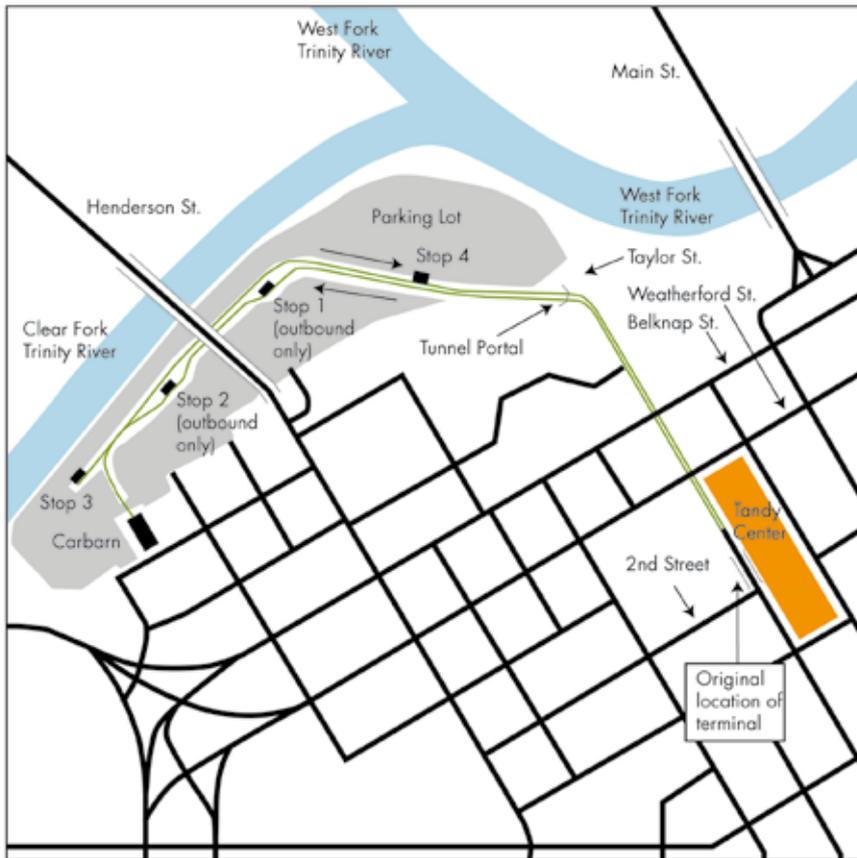
The subway primarily served patrons visiting the mall at the base of the Tandy Center, which also linked to the Fort Worth Central Library. However, the anchor tenant moved out in 1996 and footfall declined. It was rebranded the Fort

Above: Although looking slightly dated, the fully refurbished interior offered plush seating and air conditioning. J. Bell

Right: The modest depot and maintenance facility saw at least two full rebuilds of the cars during the subway's 40 year history. J. Smith

Right (below): The park and ride for the free subway meant it was well patronised, right up until closure in August 2002. J. Bell





This map shows both the track layout of the Leonards/Tandy subway and the original terminal location.

Worth Outlet Square, with a collection of discount stores. Throughout all these changes the subway continued to provide the vital link between the car parks and the mall.

Early in 2002 Radio Shack announced it would build a new headquarters campus, to open in 2005. It would no longer need the subway, and in fact would have to use some of the parking lot as a staging area for construction. The subway ran for the last time on 30 August 2002.

There is at least one car still in operation; it was converted for streetcar use that actively services the McKinney Avenue Transit Authority vintage trolley route in Dallas.

Lessons to be learnt

So, what lessons can be learnt from this short subway?

The first is that it is possible to build successful cost-contained tramway operations using recycled equipment; what is needed is the can-do attitude shown by the Leonard brothers, coupled with the solid know-how and imagination of experienced tramway experts.

The second is that operations do not require huge, elaborate depots; maintenance can be done from a modest facility and indeed cars can be rebuilt and modernised using bought-in components – both new and recycled – in such a facility.

Thirdly, modest lines can boost the economic performance of downtown shops and offices and in turn help regenerate city centres; we do not have to surrender to out of town shopping malls as long as efficient, convenient sustainable transport is provided to the customer. **TAUT**



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