

TRANSPORT FOR LONDON

RAIL AND UNDERGROUND PANEL

SUBJECT: TRAMLINK OPERATIONS

DATE: 12 JULY 2011

1 PURPOSE

- 1.1 Tramlink is one of London's transport success stories. It is highly regarded by its customers and stakeholders, consistently achieving Customer Satisfaction scores in the mid 80s and operating in excess of 98 per cent of scheduled kilometrage on most days. Tramlink has seen ridership grow from 18 million in its first full year of operation to 28 million in 2010/11 without any significant increase in service levels and capacity since opening.
- 1.2 This paper has been produced to provide the Panel with a brief overview of the development of Tramlink, the nature of the network and the current management arrangements underpinning the delivery of the Tramlink services. The paper also provides further information as to the challenges and opportunities faced by Tramlink over the course of the Business Plan.
- 1.3 The Panel is asked to note this paper.

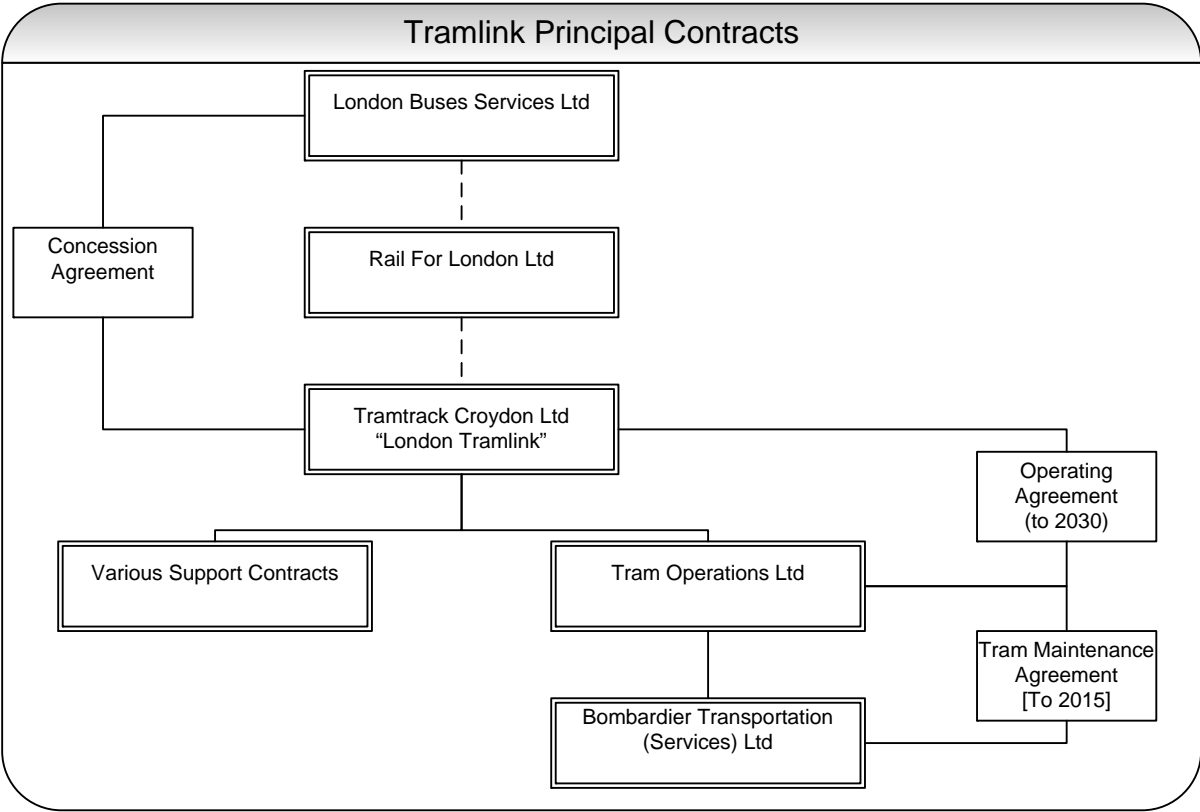
2 BACKGROUND

- 2.1 The construction of the Croydon Tramlink network was authorised in 1994 by the Croydon Tramlink Act which was jointly promoted by London Regional Transport (LRT) and the London Borough of Croydon. In November 1996, a 99 Year Concession Agreement was let by LRT to Tramtrack Croydon Limited (TCL). TCL was a special purpose vehicle put together by the private sector to design, build, operate, maintain and finance the network under the Private Finance Initiative.
- 2.2 Under the terms of the Concession Agreement, TCL assumed all construction, operating and revenue risks with LRT providing guarantees relating to fares policy. TCL undertook to construct Tramlink for £205m, of which £125m was provided by means of ring fenced grant from LRT and the remainder from private sector equity and borrowing. The project was delivered without recourse to additional public funds.
- 2.3 The Tramlink network opened in May 2000, although the full timetable specified by LRT was not introduced for a further 15 months due to ongoing issues with the construction of the system.

- 2.4 Due primarily to over-optimistic revenue forecasts, TCL ran into financial difficulties in 2001 which led to agreement of a refinancing package with its banking group in 2004. Litigation between TCL, its suppliers and TfL aimed at strengthening TCL’s financial position followed. By 2007 it had become apparent that the Concession Agreement would not be viable financially for TfL or TCL going forward and that TCL as a private company was neither willing nor able to deliver the levels of performance and safety required without significant additional public funding. Following extensive negotiation and financial assessment, the TfL Board authorised the purchase of TCL in 2008.
- 2.5 On 1 April 2008, London Trams was transferred to the London Rail directorate of TfL. The activities of London Trams and TCL were merged under the name London Tramlink (LT), the current trading name of TCL.
- 2.6 Despite operating under a relatively low yield bus fares structure, Tramlink is currently expected to be in a position to self fund its operating, overhead and routine capital investment costs within the life of the existing TfL Business Plan.

3 CONTRACTUAL STRUCTURE

3.1 When the Concession Agreement was let in 1996 an extensive suite of supporting contractual agreements was also put into place to enable TCL and LRT to fulfil their respective functions. A major factor influencing the equity purchase of TCL was the need to keep these contracts in place and the significant risk to the operation of Tramlink of dismantling the legal and commercial framework.



- 3.2 The Concession Agreement and Performance Specification remain in force although these are now only actively used in circumstances where TfL wishes to introduce changes to the system. In these circumstances, the change mechanisms within the Concession flow through the suite of contracts and allow TfL to bring about change, while having the benefit of the pricing and performance protections offered by the contracts.

Operations

- 3.3 The Tramlink network is operated by Tram Operations Ltd (TOL), a subsidiary of First Group, under a 30 year Operating Agreement between LT and TOL. The relationship between LT and TOL is good with ongoing positive collaboration and partnership working to improve the performance and safety of the network.

Tram Maintenance

- 3.4 The trams are maintained by Bombardier Transportation (Services) Ltd (BT(S)) under a 15 year Tram Maintenance Agreement between TOL and BT(S). An option exists to extend the Tram Maintenance Agreement by a further 15 years.

Infrastructure Maintenance

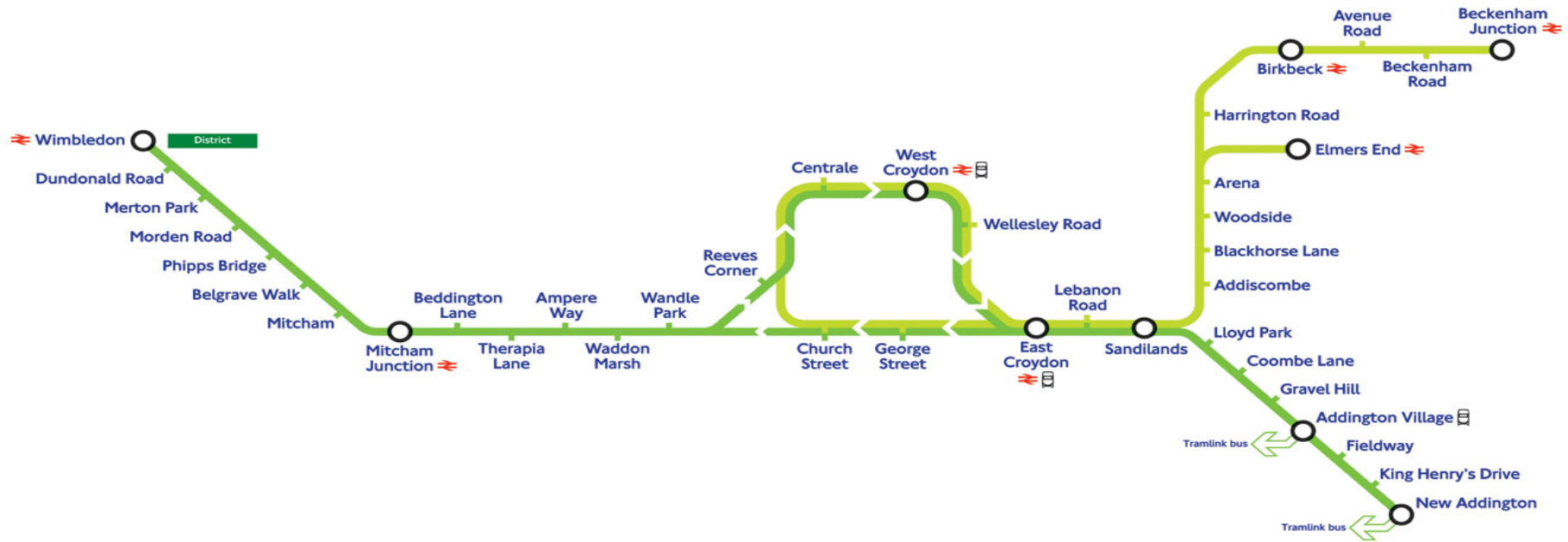
- 3.5 Originally, infrastructure maintenance was carried out by AMEC and, since 2002, by Carillion Rail. In January 2011, the Carillion contract was terminated and the infrastructure maintenance team was TUPE transferred into LT.

Renewals and Upgrades

- 3.6 Since 2008, all renewal and upgrade works have been carried out by the private sector under contract to LT following competitive tender.

4 DESCRIPTION OF THE NETWORK

- 4.1 Tramlink is a modern light rail system with 39 stops and 24 vehicles, all fully accessible in accordance with the Rail Vehicle Accessibility (Non Interoperable Rail System) Regulations 2010.
- 4.2 The network is powered at 750v DC from 13 substations owned by LT via the overhead line electrification (OLE).
- 4.3 Tramlink is 28 kilometres long and has three branches radiating from a central loop around Croydon town centre. The network has a ruling gradient of eight per cent (up/down) and nine per cent down and a minimum operating curvature for rails of 25 metres.



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Figure 1 – Tramlink Map

- 4.4 Tramlink operates at speeds up to 80 km/h on the “line of sight” principle. Signalling is only provided to regulate the movement of trams at junctions and at single line sections. All street running signalling is controlled by the highway traffic signal controllers provided by London Streets. Off street signalling follows highway principles and is managed by LT’s Engineering team.
- 4.5 The control room, located in the Tramlink Depot at Therapia Lane, has facilities to allow TOL’s operators to monitor the location of and communicate with the trams. The control room staff can lock off street signals at stop and input a remote phase request to all signals. The control room cannot otherwise change the aspect of signals or set routes for trams.

Infrastructure

- 4.6 The Wimbledon Branch runs from Wimbledon Station to Reeves Corner (Jubilee Bridge) and re-uses the alignment of the former Wimbledon to West Croydon Railway for the majority of its length. New single track viaducts were provided at Wandle Park and Mitcham Junction to allow the tramway to cross National Rail at these locations.
- 4.7 The Beckenham Branch runs from Sandilands junction along the former alignment of the Woodside and South Croydon and the Beckenham to Addiscombe Railways to Arena. At Arena, the line splits and a one kilometre branch follows the former Addiscombe Branch alignment to the terminus at Elmers End. From Arena to Love Lane curve (Harrington Road), the tramway runs on a new alignment through South Norwood Country Park to run finally alongside the Crystal Palace to Beckenham railway to the terminus at Beckenham Junction.
- 4.8 The New Addington Branch commences at Sandilands Junction and follows the former Woodside and South Croydon Railway (W&SCR) alignment to Lloyd Park, from where it runs along a purpose built new alignment to the terminus at New Addington. The three tunnels constructed in the 1880s for the W&SCR have been reused on this route.
- 4.9 The Central Croydon loop, between Sandilands and Reeves Corner, runs principally within the highway, either in tram only lanes or mixed with other traffic. Unlike the rest of the network, the track on the loop is made up of tram rail embedded within the highway surface to allow the free passage of pedestrians and other vehicles across and along the tramway.

Tramstops

- 4.10 The system opened with 39 tramstops of which 37 were purpose built for Tramlink. All tramstops are fully accessible from the street the majority have open access to the street and in many cases form part of existing or newly established public footways.
- 4.11 All stops are designed to have a platform height 315 mm above rail level and are provided with ticket machines, passenger help points, real time passenger information displays and shelters and seating. The stops at Wimbledon and Elmers End re-use former heavy rail platforms and are accessed through the station gatelines.

- 4.12 An additional stop, Centrale, was constructed in 2005 with funding from London Trams and the developer of the Centrale shopping centre. The Centrale and Fieldway stops are both shared with London Buses.

Trams

- 4.13 Tramlink operates a fleet of 24 partially low floor Bombardier Flexity Swift trams, 22 of which are required for service Monday to Saturday. The trams are bi-directional with four double doors on each 30 metres long articulated unit.
- 4.14 The trams are fully accessible to passengers in wheelchairs and are fitted with visual and audio next stop information as well as passenger alarms and a passenger to driver intercom.
- 4.15 The trams have a maximum operating speed of 80 km/h and are fitted with regenerative brakes, a mechanical parking brake and a revocable electromagnetic track brake for hazard braking. The trams are fitted with automatic obstacle deflectors to prevent individual involved in road traffic collisions passing under the wheels on highway sections.

5 2008 – IMMEDIATE CHALLENGES

- 5.1 One of the factors influencing the decision by TfL to take ownership of TCL in 2008 was the lack of investment in the infrastructure since opening and concerns about the continued safety of the operation and deterioration in relationships between the principal duty holders.
- 5.2 LT's management team has worked closely with TOL and BT(S) to rebuild relationships. It has introduced a number of initiatives through the development of the Integrated Management System to ensure that TOL and BT(S) are fully engaged with, and consulted on, all decisions affecting the operation, maintenance and development of the network.

Programme of Immediate Improvements

- 5.3 Immediately following the transfer of control of Tramlink, LT commenced a programme of small scale improvements to the network, which included:
- (a) deep cleaning, re-upholstering and refurbishing tram interiors;
 - (b) repair of damage to tram exterior and re-livery;
 - (c) deep cleaning and repainting of tramstops and replacement of life expired tramstop furniture;
 - (d) introduction of enhanced evening services on lines 1 and 2 (from two to four trams per hour);
 - (e) replacement of life expired 25 metre curve and interlaced trackwork at the Eagle Curve; and
 - (f) replacement of life expired switches and crossings at East Croydon and realignment of trackwork to reduce future wear.

Asset Improvements

- 5.4 No reliable information was available following the acquisition of Tramlink on the number, location and condition of the assets owned by TCL. In conjunction with the East London Line project, LT introduced SAP AMIS to track and manage the condition of the fixed assets and has implemented a rolling programme of asset identification and condition surveys.
- 5.5 An extensive programme of gauge corner restoration coupled with street track replacement and off street stabilisation has considerably improved the performance of the infrastructure with the number of engineering speed restrictions having fallen from a peak of 37 in 2007 to none in period 2 of 2011/12.
- 5.6 The Tramlink control systems are mostly now obsolescent and increasingly unreliable. Commencing with the replacement of the Tram Management System (including control room workstations etc), LT plans to replace all of the control and communication systems between 2011 and 2015.

6 2011 – CHALLENGES TODAY

- 6.1 Tramlink has since it opened seen a significant increase in ridership with its busiest ever day being experienced in December 2010, when 118,000 people used Tramlink as it was the only public transport service operating at near normal levels during the heavy snowfall.
- 6.2 Significant crowding now exists on the network during peak periods with passengers being left behind on the Wimbledon line and on the Beckenham line between East Croydon and Arena. As well as a general increase in demand for Tramlink services, further high levels of demand are expected to be generated as the major New South Quarter development (adjacent to Waddon Marsh and Wandle Park stops) is occupied and Croydon's town centre regeneration plans are realised.
- 6.3 The network has extensive single line sections from Beddington Lane to Morden Road, Elmers End to Arena and between Harrington Road and Beckenham Junction. The increase in dwell times arising from higher levels of patronage leads to trams passing out of position with consequent knock on delays awaiting access to the single line sections.
- 6.4 The platforms at Elmers End and Wimbledon are single track bays at the end of single line sections. The ability of LT to operate additional services is constrained by the layout of these stops and the extensive single line sections of route.
- 6.5 LT currently operates a service pattern that provides 20 trams per hour through the Croydon loop and between six and eight trams per hour on each of the branches. This requires BT(S) to make 22 of the 24 trams available for service six days per week.
- 6.6 Further enhancement of peak service levels to relieve crowding and meet future forecast demand cannot be achieved within the constraints of the existing fleet size and operational restrictions imposed by the infrastructure.

- 6.7 Customer Satisfaction, while it fell in the latter part of 2010/11, remains strong, although there is a clear desire from both customers and stakeholders to see further investment in the existing network and the extension of the network in to adjacent towns.

7 FUTURE PLANS

Off Peak Service Enhancements

- 7.1 Shortly after taking over the network in 2008, TfL increased evening services which were as infrequent as two trams per hour, to a minimum of four trams per hour, which represents the minimum frequency for any sort of 'turn up and go' service.
- 7.2 Early evening services on the Wimbledon line are crowded and on 31 May LT introduced an enhanced evening service on Line 3 (Wimbledon to New Addington), which increases the early evening service from four to eight trams per hour service through to 21:00 on Monday to Saturday nights. After a build up period, this increase in service levels is expected to be self funding.
- 7.3 Investigations are currently being carried out to assess the case for running additional services on Sundays between 10:00 and 16:00 to serve the central Croydon and Purley way retail developments.

Additional Trams

- 7.4 In January 2011, TfL commenced procurement of six additional trams with the intention that these would be brought into service before the end of the current financial year. A new line 4 will be introduced running from Therapia Lane to Elmers end, so increasing frequencies on the busiest sections by up to 50 per cent. Bids were received from Stadler and from City of Edinburgh Council / CAF. These bids are currently being evaluated and negotiations with the preferred bidder are expected to commence towards the end of June 2011.
- 7.5 An agreement has been reached with the London Borough of Croydon for it to contribute £3m towards the cost of the trams. This funding is expected to be paid to TfL in June 2011.

Mitcham – Mitcham Junction Twin Tracking

- 7.6 Plans are also being developed, subject to funding, for the twin tracking of this section which has been identified as the most urgently required to allow for future enhancement of services between Therapia Lane and Wimbledon. The twin tracking will also serve to improve the reliability of the line 3 service. The twin tracking is also a necessary precondition to the construction of a new "Willow Lane" tramstop, which is desired by the London Boroughs of Merton and Sutton as part of the Willow Lane and Wandle Valley regeneration plans.

Tramlink Extensions

- 7.7 TfL Group Planning has been reviewing the case for extensions to Tramlink within the context of the south London sub-regional plan. A long list of extensions has been examined and further consideration has been given to a number of incremental projects including
- (a) Harrington Road – Crystal Palace;
 - (b) Wimbledon – Tooting;
 - (c) Morden Road – Morden – Sutton;
 - (d) Mitcham Junction – Mitcham – Tooting; and
 - (e) Beckenham – Bromley.
- 7.8 In March, the Mayor announced his intention to progress the extension of Tramlink to Crystal Palace. Accordingly LT and Group Planning are working together to review the plans for the extension that were mothballed in 2007 with a view to bringing forward in Quarter 2/3 of 2011/12 a proposal for the delivery of the extension, which is not funded in the current Business Plan.

8 RECOMMENDATION

- 8.1 The Panel is asked to NOTE this paper:

9 CONTACT

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