

11 Tramlink services

11.1 Where do we want to be?

Tramlink is a public transport success story, operating 2.4 million km and carrying 27 million passengers a year over a network that extends across south London. With the CMC lying at the heart of this network, Tramlink one of the town centres key assets for achieving its ambition to become London's third City.

Tramlink has great potential to provide desperately needed new orbital routes while also the opportunity to relieve congestion along north-south transport corridors within the Borough. Through the enhancement of existing services and extension to new destinations, Tramlink should continue to expand to meet the sustainable travel needs of a growing Metropolitan centre.

With levels of residential, retail and commercial growth predicated to be substantial for the CMC over the next 20 years, increased capacity on Tramlink is required for the sustainable delivery of this growth. Aspirations over this period should therefore be to provide:

- more capacity to reduce existing levels of overcrowding;
- safe and easily accessed stops;
- vehicles designs which are more compatible with on-street running;
- wider choice of local destinations such as to Morden, Mitcham and Crystal Palace;
- strengthened orbital movements through extended routes to Sutton and Bromley; and
- a north-south route to relieve traffic congestion on the A23 and make travel into the CMC less car dependent.

Recent funding priorities placed on TfL suggest that extensions to the network will not be forthcoming in the near future and so short term improvements should focus on service capacity enhancements to reduce overcrowding on the existing network. The potential of Tramlink to unlock the development potential of the CMC ensures that despite these constraints, expansion through local extensions and a new north-south route should form a central part to the longer term aims of this Strategy.

11.2 Where are we now?

11.2.1 Structure

The **provision & level of service** and **performance** of Tramlink can be defined in three ways. 'Network planning' relates to the geographical reach of tram services; 'network capacity' to frequency of tram services; while 'network infrastructure' focuses on junctions, stops and tracks required to ensure tram services can operate efficiently and safely.

Under **performance**, 'network planning' address gaps in the network or destinations not served, while 'network capacity' highlights insufficient service frequency leading to tram overcrowding. 'Network infrastructure' is concerned with the functionality of stops and access routes to them.

Specific issues relating to the performance of the Tramlink services are provided in the 'Issues & Solution' table provided in Appendix D under the Tramlink services.

11.2.2 Provision & level of service

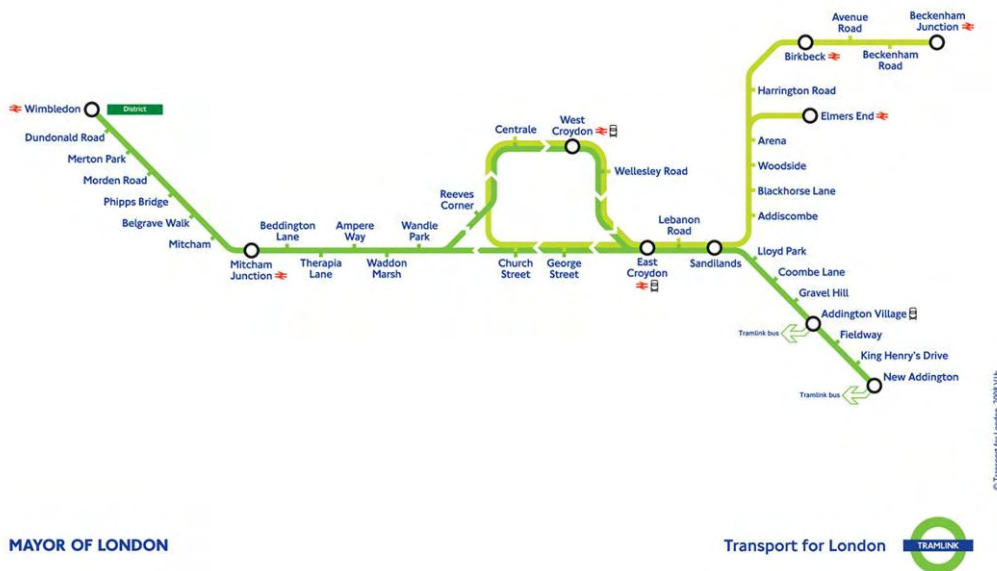
Network planning

There are three routes within the Tramlink network (Figure 11-1), connecting Wimbledon, Elmer's End, Beckenham Junction and New Addington to central Croydon.

- Line 1: Provides a route between West Croydon to Elmers End, a distance of about 15 km and which takes about 35 minutes. The service runs from 0430 to 0100 hrs with a 10 minute frequency.
- Line 2: Provides a route between West Croydon and Beckenham Junction, a distance of 9 km and which takes about 22 minutes. The service runs from 0500 to 0100 hrs with a 10 minute frequency.
- Line 3: Provides a route between New Addington and Wimbledon, a distance of 19 km and which takes about 45 minutes. The service runs from 0500 to 0100 hrs with a 10 minute frequency.

Figure 11-1: The London Tramlink network (TfL map)

London Tramlink network map



Key interchanges on the Tramlink network occur at the following national rail stations which provide linked journey opportunities to many outer and central London destinations as well as those in Kent, Sussex and Surrey:

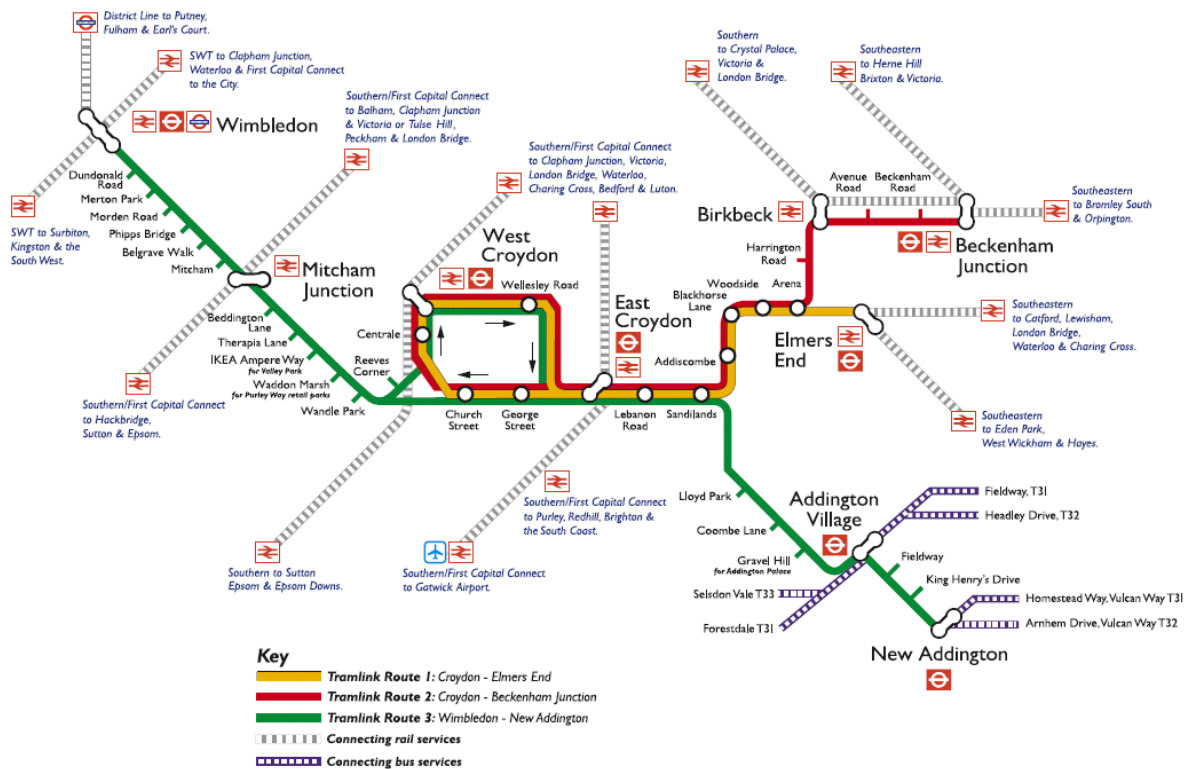
- **East Croydon** for First Capital Connect Thameslink and Southern rail services to central London (London Victoria and London Bridge) or out to destination in Sussex (Gatwick, Haywards Heath, Brighton);
- **West Croydon** for Southern and LORAL East London Line rail services for central London (London Victoria and London Bridge), South London suburban destinations plus those out towards Sutton and Epsom;
- **Mitcham Junction** for First Capital Connect Thameslink rail services towards central London (London Blackfriars) and those stations on the Thameslink loop.
- **Wimbledon** for District Line Underground services or South West Train rail services into central London (London Waterloo) or out to destinations in Surrey.
- **Elmers End** for Southeastern rail services into central London (London Bridge) via Lewisham.
- **Birkbeck** for Southern rail services to Crystal Palace, Clapham Junction and West London destinations via the outer South London Line;
- **Beckenham Junction** for Southeastern rail services to Bromley and Sevenoaks and central London (London Victoria) via Brixton.

The above Tramlink connections with the national rail network indicate the importance of the Tramlink network for rail travel across South London.

Figure 11-2: Tramlink connections map (source: www.croydon-tramlink.co.uk)

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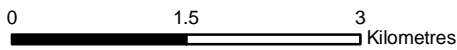
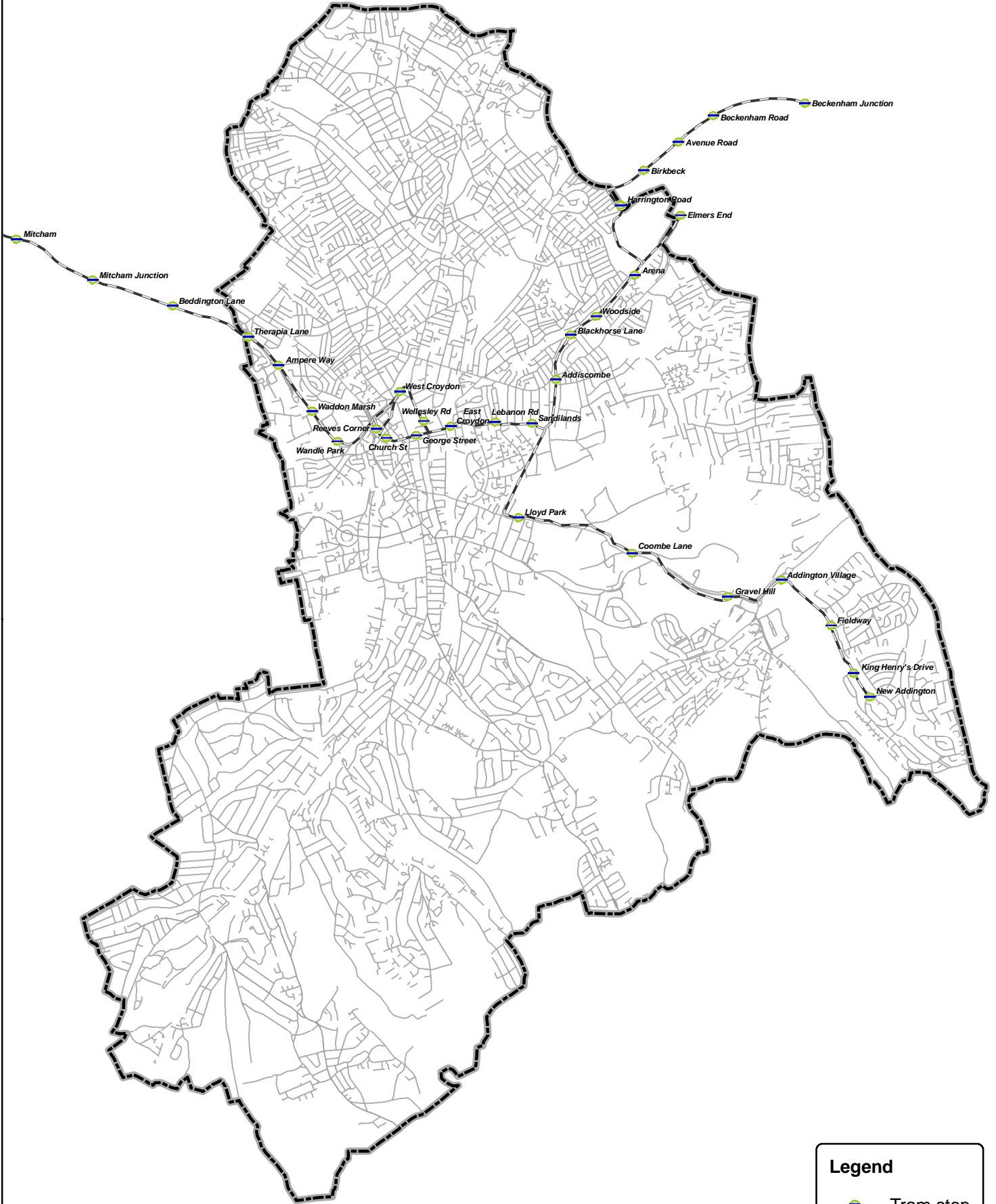
Network capacity

The standard 10 minute frequency is achieved by operating 24 low floor articulated Flexity Swift CR4000 trams which over two car units have a seated capacity of 70 and an additional 138 of standing capacity.



Network infrastructure

The Tramlink network consists of 39 stops of which 23 are located within the Borough (Figure 11-3). All stops have disabled access, raised paving, CCTV, a passenger help point, a passenger information display, ticket machine and shelter with seating.

Key infrastructure components in the network include the Central Croydon loop, the New Addington branch, Beckenham & Elmers End branch and the Wimbledon branch. A full description of these routes can be found on the Unofficial Tramlink Site by Stephen Parascandolo (<http://www.croydon-tramlink.co.uk>).



Legend

-  Tram stop
-  Tramlink

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CROYDON COUNCIL

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Croydon Borough Wide Transport Strategy

Tramlink network in Croydon

Date	May 2010
Scale	1:65,000 @ A4
Drawn By	TH
Checked By	PL
Figure Number	Figure 11-3

11.2.3 Performance

Network planning

Network extension: Numerous Tramlink extensions have been proposed that either formed part of the original Tramlink network (and subsequently dropped for technical/ cost reason) or proposed since Tramlink opened to serve new areas of development or regeneration. These network extensions are discussed in the 'Option for Change' section below.

Network capacity

Track utilisation (track capacity): Track utility information suggests that track capacity is most constrained between East Croydon and the Sandilands stops where the New Addington and Beckenham/ Elmer's End lines overlap. Other sections of track capacity constraint include the single track working within the Central Croydon loop and the single track section between Mitcham and Beddington Lane.

Tram utilisation (overcrowding): A review of patronage reveals some spare capacity on the network only at times outside the hours of commuter travel. During the weekday peak hours, current demand results in occupancies of more than 85 percent of available capacity on the approaches to the CMC. Tramlink data from 2006 suggests that the periods of critical overcrowding occur in the morning peak (0800 – 0900 hrs) on the following sections of the network (see Figure 11-4):

- Beckenham Road and Elmer's End branch westbound between Woodside, Blackhorse Lane, Addiscombe, Sandilands and East Croydon where overcrowding is at its worst between Addiscombe and Sandilands with three passengers standing per m² of standing space;
- Addington branch in the westbound direction along Gravel Hill, Coombe Lane, Lloyd Park and again from Sandilands through to East Croydon;
- Wimbledon branch in the eastbound direction between Mitcham Junction and Beddington Lane; and between Therapia Lane, Ampere Way, Waddon Marsh, Wandle Park through to Reeves Corner; and again on the
- Wimbledon branch in the westbound direction from Belgrave Walk, Mitcham, Phipps Bridge, Morden Road, Merton Park and Dundonald Road on approach to Wimbledon.

Forecasts for 2016 show the westbound section between Mitcham Junction and the Croydon loop will become more crowded. There will be a slight decrease in AM peak passenger crowding between Mitcham Junction and Wimbledon, although passengers will still be standing on this section of the route. The section of line with the greatest crowding is between Blackhorse Lane and Sandilands (westbound) where the existing overcrowding situation worsens.

Current levels of tram (overcrowding) and track utilisation suggest the Tramlink network will only be able to accommodate additional trips generated by the proposed growth scenarios for the CMC with enhancement to both tram and track capacity.

Network infrastructure

TfL took direct control of the Tramlink network in June 2008 and has since been delivering a programme of short-term improvements to enhance the passengers' experience of the tram system. To date they have spent £2m improving the trams and stops which has included refurbished vehicles with new livery, new seat padding and signage, while the stops have received a deep clean, new signage, a re-paint of all furniture and repair of anything broken.

Future investment plans amount to spending a further £54m on maintenance, renewals, upgrades and capacity enhancement up until 2015. TfL is currently preparing 'The Next Steps', a study analysing the case for a range of improvements to Tramlink. From research amongst passengers and close

liaison with the Boroughs, TfL has prioritised improvements that address crowding and improve interchanges.

Some of the key issues affecting the operation of the Tramlink network are listed below.

Central Croydon loop: Key infrastructure issues within the Croydon loop include:

- Difficult passenger interchange between bus and rail services at West Croydon station.
- Bus movements and illegal parking can create congestion on the approach to West Croydon station.
- Poor access routes and facilities at the Wellesley Road stop.
- Higher risk of pedestrian conflicts along George Street, at the southern end of North End and along Crown Hill.
- Tram movements at the junction of Addiscombe Road with Chepstow Road can create road traffic congestion due to the priority calls given to trams at this at-grade crossing.
- Loading restrictions in George Street west of the Wellesley Road junction are often violated and which can cause delay to trams on occasions.

New Addington branch: Key infrastructure issues within this section of the Tramlink network include.

- Person security issues at tram stops and along access routes to tram stops need to be improved as this can discourage bus/ tram interchange.

Beckenham & Elmers End branch: Key infrastructure issues within this section of the Tramlink network include.

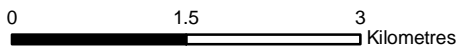
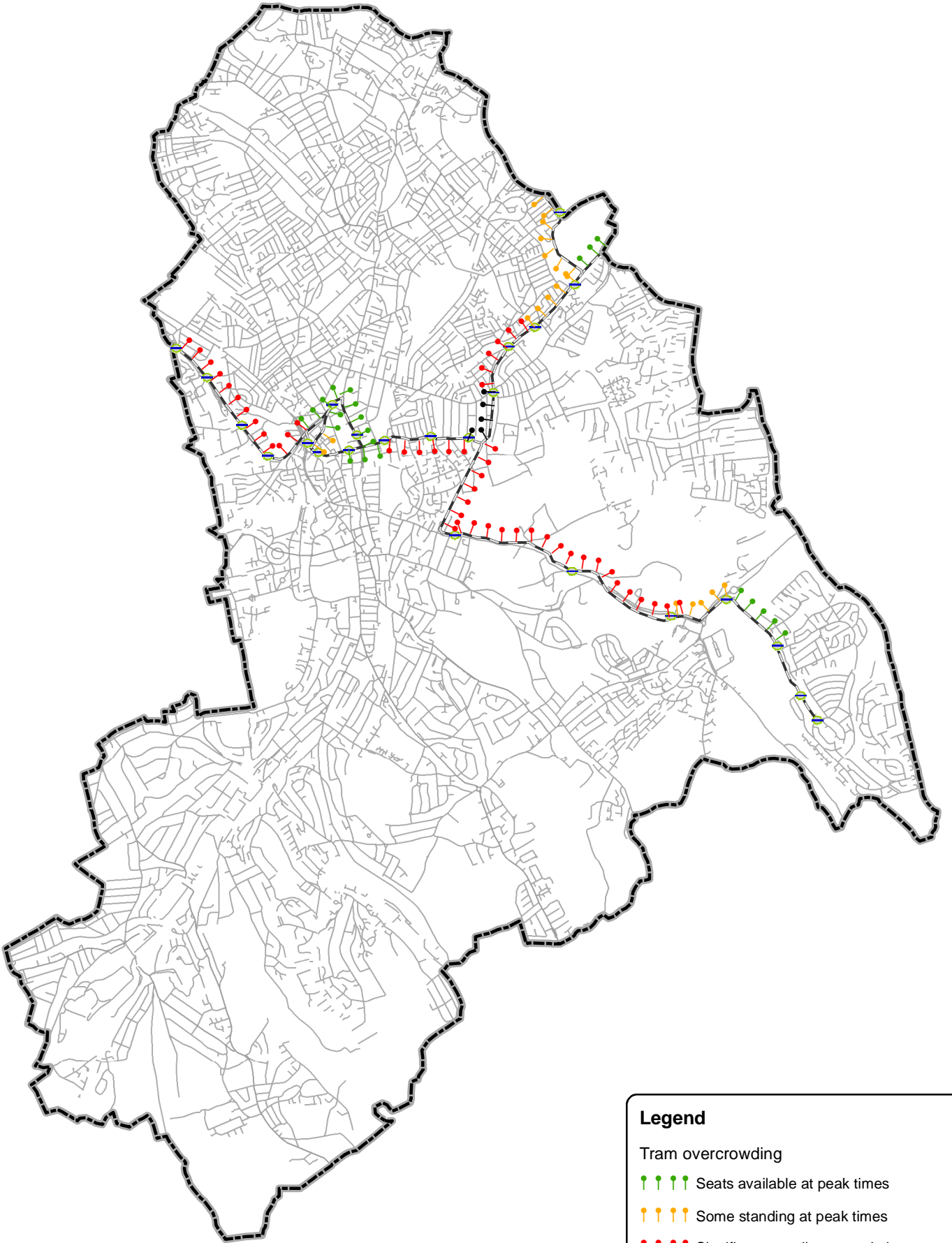
- Single track running between Harrington Road and the terminus at Beckham Junction is an operational constraint which limits tram frequencies;
- With Elmer End a tram entering the main line just prior to the Arena stop the above constraint also makes it difficult to provide even headways between trams along the Arena to West Croydon part of the network.

Wimbledon branch: Key infrastructure issues within this section of the Tramlink network include:

- Single track working between Beddington Lane and Mitcham causes a capacity constraint in the network particularly during peak times.
- Key constraint is the Wandle Park flyover but an upgrading of the viaduct to double track would be a major engineering investment and not planned in the foreseeable future.
- The Wimbledon single platform limits capacity for boarding and alighting passengers and so constrains tram frequencies arriving at this terminus.

Network wide issues: Several network wide issues have been identified during the preparation of this Strategy. They include.

- improve the quality of the environment around tram stops to reduce antisocial behaviour and improve personal safety while waiting for a tram;
- access routes to tram stops can be isolated, lack good crossing points or required step access at some point – this has led to an underutilisation of some bus/ tram interchange opportunities outside the CMC due to the walking routes between the two are of poor quality.



Legend

Tram overcrowding

- ↑ ↑ ↑ Seats available at peak times
- ↑ ↑ ↑ Some standing at peak times
- ↑ ↑ ↑ Significant standing at peak times
- ↑ ↑ ↑ Passenger in excess of capacity (PIXC)

Croydon Borough Wide Transport Strategy

Tramlink network - tram utilisation

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Borough Transport Strategy
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11.3 What are the options for change?

11.3.1 Overview

A number of Tramlink enhancements and extensions have been proposed since Tramlink opened and some of these now form part of TfL's investment plans up to 2015.

The Mayor's draft Transport Strategy [Mayor of London, 2009b] states that beyond the £54M of improvements proposed up to 2015 'consideration will be given to looking at further extensions, with a strong focus on a potential north-south axis, in order to accommodate Croydon's future growth needs, and potentially to improve east-west links to neighbouring Outer London town centres to support improved orbital connectivity'.

Both short extensions to provide local centres better access to Tramlink services and longer extensions opening up completely new routes are being considered. 'Proposal 16 for the MTS states 'The Mayor, through TfL, and working with London Boroughs and other transport stakeholders, will investigate the feasibility of providing extra capacity on the Tramlink network and will review potential benefits of extensions to the system.'

Enhancements to Tramlink can be broadly defined by the following four categories:

- Network infrastructure: maintenance, refurbishment and enhancement of tracks, stops, vehicles and interchange provision.
- Network capacity (trams & tracks): enhancements needed to increase capacity on the existing network.
- Network planning: schemes to extend the existing network to new local destinations or new tram lines along new corridors (new routes).

TfL's current view is that extending Tramlink from the existing branches to reach new destinations including Sutton, Mitcham, and Bromley has a better business case than options to serve new corridors.

11.3.2 Network infrastructure

There is need to improve the waiting environment around some tram stops to reduce the risk of anti social behaviour and improve the personal security [LTL.01]. Access routes to and between bus/ tram interchange stops should also be improved with respect to addressing; a lack of step free access to tram/bus stops (more kerb ramps needed); make walking routes and road crossing points direct as possible, provide signage where clear sightlines cannot be achieved, tackle fear of crime and antisocial behaviour by improving lighting and better vegetation maintenance [LTL.02].

Tramlink has a number of key interchanges with bus and rail services that do not perform as efficiently as they could do. The most obvious example is that at West Croydon where despite the tram stop and station being adjacent to each other the link between services is indirect and the walking environment poor. Issues at East Croydon and Addington Village have also been identified. [LTL.03]

TfL would be supportive of proposals to improve the urban realm of areas alongside the tram tracks. The use of grass beds or new styled power cable poles are possible ways to reduce the impact of tram infrastructure on the streetscape while more extensive development adjacent to the tram tracks may provide an opportunity to remove the poles in favour of building fixings. [LTL.04]

11.3.3 Network capacity

Crowding has an impact on the operational performance of Tramlink as it results in longer journey times due to increased dwell times at stops. The pressure of crowding also reduces the resilience of the service to disruption (such as trams developing faults, traffic incidents, etc.) as there is less ability to absorb delays preventing knock on effects to other services. This is particularly the case for disruption on the Wimbledon branch as there are peak flows in both directions meaning there is even less ability for delayed trams to recover the service on quieter parts of the line.

To ease this overcrowding TfL is proposing to increase the tram fleet size to allow the introduction of a “congestion buster” Line 4 service between Arena and Therapia Lane [LTL.05]. This will require 4 to 6 additional trams which TfL is currently negotiating and considering the best procurement route. In the medium term, TfL is also proposing to double track the single line section between Mitcham Junction Mitcham which will enable the additional vehicles to operate with increased reliability and operational resilience. [LTL.06]

TfL has developed a series of measures that would allow the Line 4 service to be extended from Therapia Lane to Wimbledon. This will include further additional trams and an upgrading of the Wimbledon terminus to either two platforms or adding a layover siding. Options would be to:

- upgrade to a dual platform terminus inside the station
- convert the current single platform into a horseshoe-style terminus where passengers alight from one side and board from the other
- relocate the Tramlink terminus outside the station.

No changes are planned in the short term and medium to long term solutions to be discussed with Network Rail. [LTL.07]

Almost any scheme that increases the frequency of Tramlink services will require some capacity improvements to track, signalling and stops within the Central Croydon loop [LTL.08]. At the same time there are a number of potential development sites within the CMC which could potentially slow trams down (increased signalling, higher passenger boarding & alighting). With journey time reliability being critical to the efficient operation of the Tramlink network any proposal to slow tram speeds within the CMC would need to be accompanied by journey time savings elsewhere on the network. [LTL.09]

A longer terms solution to the track capacity constraints between Harrington Road and Beckham Junction (and knock-on headway impacts for services between Arena and West Croydon) would be to convert the section heavy rail line to Tramlink operation. This would require Network Rail and the Train Operating Company (Southeastern) to agree to pursue a heavy rail closure. [LTL.10]

11.3.4 Network planning

Local & branch extensions

TfL’s current longer term improvements for Tramlink include the following route extensions:

- **Morden extension:** A relatively short extension will provide interchange with the Northern Line Underground services [LTL.11a] and is a precursor extension to Sutton town centre (via Morden Road, Morden and St. Helier). [LTL.11b]
- **Mitcham town centre extension:** Will boost accessibility to an existing town centre which is poorly served by rail (Mitcham Junction through Mitcham Common to Mitcham town centre). [LTL.12]

- **Thornton Heath Ponds extension:** Will serve Mayday Hospital which is a popular destination and support development in the north of the Borough [LTL.13]. Could be a precursor extension to northern destinations like Brixton (via Norbury and Streatham).

The links to Sutton, Morden and Mitcham open up high quality public transport services on corridors which are not particularly well served by bus or, particularly, by rail. This would meet an important objective to improve links between major town centres in South London.

There have also been a number of other proposed expansion plans for the Tramlink network proposed over the years but a preliminary assessment by TfL suggests their justification is less than those listed above. These alternative extension options include:

- **Crystal Palace extension:** The proposal extension aimed to connect 11,000 new homes to the Tramlink network and provide much needed regeneration to parts of Crystal Palace. From Harrington Road the old proposal used a heavy rail alignment which required less land take and utilities diversions. The surrounding land use however does not support intermediate stations so a new proposal starting from Elmers End and using a street running alignment was investigated to provide a better case for intermediate stations. The street-running alignment has engineering challenges with clearance underneath Birkbeck bridge and operational problems with insufficient levels of tram priority. Both alignments suffer from a lack of a strategic destination and duplication of the East London Line. [LTL.14]

The Crystal Palace extension was planned in some detail but dropped in 2008. Although the extension showed a positive business case, the proposals were put into question following recent Mayoral announcements.

- **New Addington spur:** There have been previous proposals linked to increased development in the New Addington to change the current terminus into a one-way loop the better integrates Tramlink services to the adjacent residential areas. [LTL.15]
- **Purley Way business park spur:** Proposals to extend Tramlink into the Business Parks adjacent to the A23 Corridor would help reduce the high dependency on car access to these sites and which has such a significant impact on traffic congestion level in the areas. [LTL.16]
- **Bromley extension:** An extension of Line 2 from Beckenham Junction could create a direct link into Bromley town centre [LTL.17]

Although previous business case studies have suggested that these alternative extensions cannot be justified current work by Croydon Council as part of their Core Strategy for the Local Development Framework will establish the likely growth scenarios across the Borough which may improve the justification other extensions.

More recently TfL have said that any detailed look at expansion of Tramlink would need to be assessed by the sub-regional planning work currently being underway by TfL before it could form part of a new strategic transport plan for the south London sub-region.

New routes along new corridors

These options together would form a new north-south routes aimed at relieving pressure on the local rail network and congestion levels on the A23. The whole route is made of two sections one to the north and one to the south of the CMC.

- **Central Croydon to Purley:** An attractive option would be to extend Tramlink south from the CMC to serve Purley and which could help relieve road and rail routes that are seriously congested. The proposed alignment would be via the A235 Brighton Road (on-street) [LTL.18a] but the A23 Purley Road corridor) could also be a consideration if an appropriate alignment could be found that links sufficiently with new growth areas [LTL.18b]. The route could offer a feeder

service into railway stations in the south of the Borough and replace some bus routes to restore road capacity.

The quantum of future growth planned south of the Borough is not considered large enough to justify the investment required for this extension. Even if the density of development were sufficiently great, an extension scheme of this length would be costly as it will require additional trams and a second depot. This extension is also likely to abstraction passengers from rail and rail services but this could be viewed positively if it helps relieve congestion on these services. More importantly this proposal is unlikely to provide journey time savings for those in Purley commuting to the CMC which would be a major disincentive to travel by tram.

- **Extension to Coulsdon and Gatwick:** There has been some discussion as to whether Tramlink could be further extended through Coulsdon to the M25 or even Horley, Redhill or Gatwick. While technically feasible, competition from faster rail with higher passenger capacities may limit the benefits of what would be a service closer in style to the German interurban TramTrain services. This could be used to incept drivers before they reach congested parts of the A23 road network such as Purley Cross but those using the A23 corridors may be making longer journeys which are not attractive to undertake by tram. [LTL.19]
- **Central Croydon to Brixton via Thornton Heath Pond, Norbury, Streatham Hill and Streatham:** Extending Tramlink northwards has transport interchange benefits with connections to the rail network at Norbury and Streatham but also Victoria Line Underground services from Brixton. North of the CMC, the A235 London Road is again the logical route up to Thornton Heath Pond [LTL.08] which links to the A23 London Road/ Streatham High Road through Norbury, Streatham and onto Brixton. The route northwards would be difficult to achieve without reducing congested road space as there are no obvious off-road corridors. There is however some opportunities for trambaan type segregation between Norbury and Streatham, although Norbury itself is a pinch point. Streatham Station is envisaged to be the most likely northern terminus of the Tramlink extension. [LTL.20]