



Transport for London



Telecommunications Commercialisation Project Tender

Annex 1 - Connected London (Summary of the Telecommunications Commercialisation Opportunity)

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TfL Telecommunications Commercialisation Project

1. Notices

This document forms part of the suite of documents issued by Transport for London (TfL) during the standard selection questionnaire (**SSQ**) phase of the Telecommunications Commercialisation Project (**TCP**) (the **SSQ Document Pack**). For the avoidance of doubt, Paragraphs 2.2, 2.3, 2.5, 2.6, 2.7, 9.3, and 9.4 of the TCP SSQ apply to this document, together with any other provisions of the SSQ Document Pack which apply by implication.

2. Overview of the opportunity

TfL is seeking to appoint a suitably experienced commercial partner (the **Concessionaire**) to commercialise certain of its assets for the purposes of providing telecommunication services.

The Concessionaire will be responsible for developing all aspects of the TCP including designing, financing, installing, operating and maintaining the telecommunications infrastructure and delivering the service requirements as set out in the concession agreement, as well as commercialising the service.

TfL will be seeking a share of the revenue generated by the concession, which it intends to re-invest in its transport network.

It is currently envisaged that the concession will be for a period of twenty years with an option to extend for a further five years. The concession will be awarded under a concession agreement, through a competitive tendering process.

Experience of building and operating substantial Distributed Antennae System (**DAS**) neutral host solutions together with experience in deploying fibre-optic cable networks is essential. A background in utilising streetscape assets to support small cell deployment would also be desirable as would delivering public Wi-Fi services. The Concessionaire will also be expected to demonstrate a proven record in monetising DAS and fibre optic networks.

3. Background to the opportunity

Throughout the world, cities are engaged in fibre infrastructure builds to provide city-wide hyper connected environments to enhance communications. The primary purpose for such investments is to bring about a digital revolution of faster, cheaper and ubiquitous broadband services and internet access for its citizens and businesses alike.

In 21st century London, both professional and personal lives are increasingly served by interconnectivity to a vast online world of digital services delivered through ubiquitous access to high speed internet services. People are spending more hours online for business and leisure purposes, and with the prevalence of mobile broadband and the upgrade to 5G imminent, the needs for connectivity will only increase.



This online, digitalised world provides an opportunity for TfL to add a new dimension to its mission of 'Keep London Moving' – not only in the literal, physical space but in a figurative 'virtual' world too.

TfL and the Mayor of London have committed to bringing mobile coverage to the London Underground and to using TfL's assets to improve connectivity to the city.

Building a fibre network and delivering mobile phone coverage on the London Underground is a great opportunity to address London's wider infrastructure needs. This network will provide a valuable resource to London, through its potential to be used for municipal and community purposes, and the opportunity to generate commercial revenue. Department for Culture Media and Sport funding, through a Local Full Fibre Network (**LFFN**) grant, will provide a local access network to public sector buildings. By further investing in this network the Concessionaire can provide commercial services connecting back to the core network at Tube stations. The way forward will be to reach into London using the TfL's estate. This will support digital innovation across wide areas of London by providing connectivity services and therefore improving productivity and supporting innovation.

4. TfL's aims

The Mayor of London has prioritised the improvement of electronic connectivity to support the sustainable economic growth of London. TfL is in a unique position to support these aims increasing connectivity using the new data network, by partnering with the private sector.

TfL aims to support improvements to electronic connectivity by:

- enabling public cellular communications in all areas of the network (including in tunnels on the London Underground);
- delivering a new high speed fibre network through the tunnels of the London Underground and using other TfL assets to provide easy access to high speed fibre and new flexible data services;
- improving access to street assets to support the roll out of 5G and add capacity for 4G services;
- improving the London Underground Wi-Fi service to deliver services to all customers; and
- supporting the Home Office in the delivery of the new Emergency Services Network (**ESN**).

5. Key activities covered by the concession

5.1. Mobile coverage on the London Underground

The London Underground is one of the highest profile mobile 'not spots' in the world. Whilst it carries in excess of 4 million passengers each day, there is currently no coverage in tunnels and Wi-Fi is only available in stations and platforms. The UK's mobile network operators (**MNOs**) support TfL in its strategy of procuring a



Concessionaire to invest in neutral host infrastructure to deliver a service available for use by all MNOs.

The recent Waterloo and City Line and Jubilee Line trials have confirmed that 4G LTE services can be deployed within London Underground without impacting operational systems or public Wi-Fi.

The opportunity is to deliver a state of the art neutral host active DAS solution suitable for use by all of the UK's MNOs, supporting 4G LTE and other technologies as needed. This network can be commercialised by providing access to the MNOs, and connecting their equipment at base station hotels across the capital. This will give their customers on the London Underground direct access to their services.

5.2. A new fibre backbone for London

Fibre is the platinum standard when it comes to modern communications systems, due to its ability to transmit very large amounts of data securely over long distances with high reliability. It is a flexible medium supporting a wide range of applications and is scalable to support nearly unlimited capacity and speed. In the 21st century, it is considered a critical infrastructure, similar to water, road, rail and electricity and has a lifespan of up to 50 years. One of the main impediments to improved consumer broadband is access to cost effective high speed services.

The Concessionaire will be able to use TfL's extensive tunnel and ducting network to lay fibre and use stations as the points of presence on that network. This provides a cost effective and agile delivery method. Tube stations are often located at the heart of the economic and development areas of London, and therefore provide ideal points of presence to wholesale the service or build access networks to serve nearby businesses.

5.3. Supporting 5G and enhancing existing 4G networks

The next generation mobile networks, known as the "5G" networks, are anticipated to roll-out over the next few years. This next generation of mobile technology will rely heavily on fibre optics.

To provide the capacity and coverage the technology is capable of delivering, requires fibre to be rolled out within 100 – 300 metres of end users. If London is to have better 5G and 4G coverage with high speed mobile broadband everywhere, then small cells will be essential. Small cells have three requirements: a good location (preferably high up); power; and high speed connectivity (ideally fibre). TfL is in a unique position to be able to facilitate all three of these requirements across London, in areas where there are high densities of people. It is envisaged that the Concessionaire will be able to support the MNOs in their 4G and 5G rollouts, providing an income stream and speeding up the rollout of small cells that will increase mobile broadband speeds across London. TfL has many assets throughout the city which it is in a position to make available for use by the Concessionaire, including 35,000 lighting columns often on red routes with high densities of people and traffic.



5.4. Improved Wi-Fi on the London Underground

TfL anticipates that the scope will include the Concessionaire improving Wi-Fi by adding a new free usage model as well as supporting the existing EAP-SIM service. This new service is intended to allow all users access to the current Wi-Fi service via a straightforward login.

5.5. The Emergency Services Network

The ESN will be the new communication system used by the three emergency services and other public safety users in the UK. TfL and the Home Office are cooperating to improve the communication systems for the emergency services on the London Underground. The new ESN will be based on the standard 4G network provided by the mobile network operator EE. Specified infrastructure installed for ESN may be made available to TfL's Concessionaire to support public cellular, subject to confirmation at ITT stage. The Concessionaire will be required to deliver the ESN service management services (alongside other related activities) if required by TfL.

5.6. Local Full Fibre Network Challenge Fund

The LFFN programme aims to stimulate commercial investment in full fibre networks across the whole of the UK landscape, including rural and urban locations in England, Scotland, Wales and Northern Ireland, by demonstrating approaches that encourage additional private investment and by making sustainable commercial deployments viable. TfL led a consortium of eight London Boroughs and the Oak Common Park Royal Development Corporation to bid for LFFN funds. TfL was successful and is currently undertaking the steps necessary to confirm the funding. It is currently envisaged that once the funding is confirmed, TfL will require the Concessionaire to deliver the scope of the bid, funded by the LFFN grant. The funded infrastructure would become part of the concessionary assets.

5.7. Additional Assets

It is anticipated that some London Boroughs and TfL related parties (e.g. GLA, London Fire Commissioner etc.) may also access the concession, through the contribution of assets and/or funding for fibre networks which subsequently are incorporated into the concession.

6. Revenue Opportunities and Investment Summary

TfL's studies have shown that this package offers an outstanding investment opportunity as fibre is essential in all elements. Fibre presents a significant business opportunity, as optical networks have become a critical component of business, and fibre to the home is becoming the standard across the world. London is lagging behind cities in the UK and abroad, this makes the opportunity both important strategically for London and a significant business opportunity. London Boroughs have identified better fibre provision as a key component of their local development strategies and are putting in place a range of supporting policies to ensure a smooth rollout.

TfL is expecting its Concessionaire to invest appropriately to deliver a great customer experience for London businesses and citizens.