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Engineering Challenges for Transport in London

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EVERY JOURNEY MATTERS

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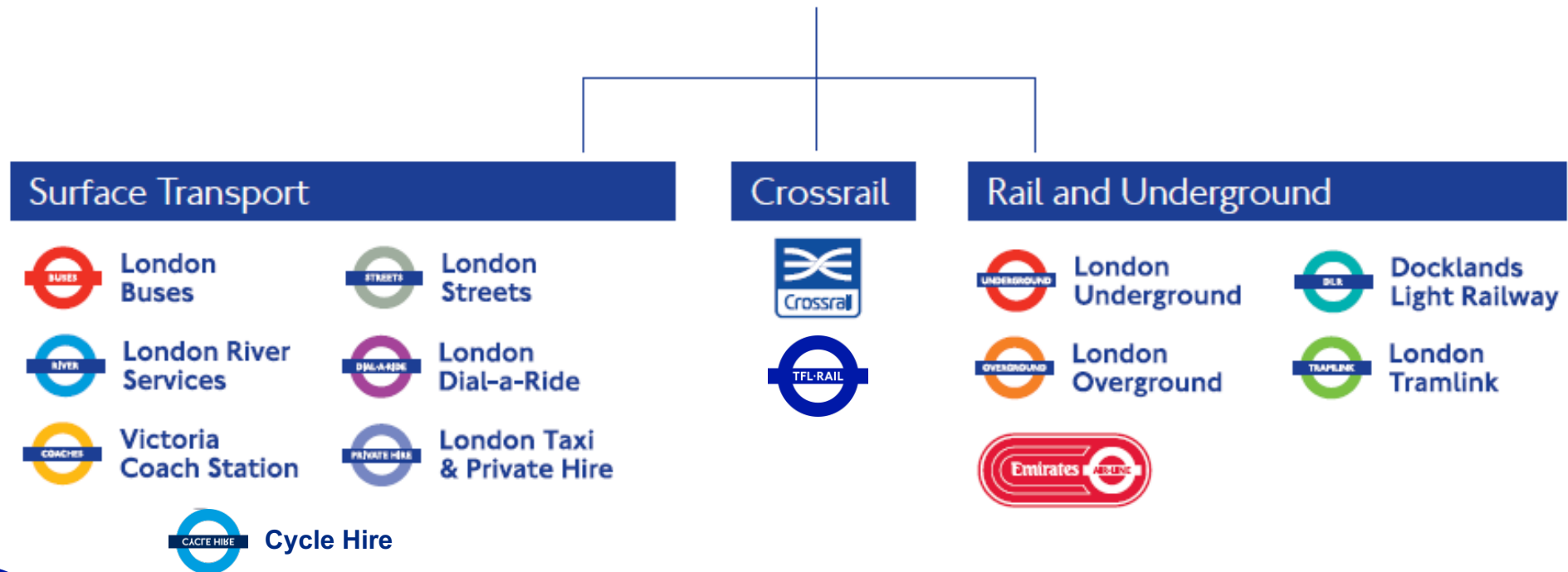
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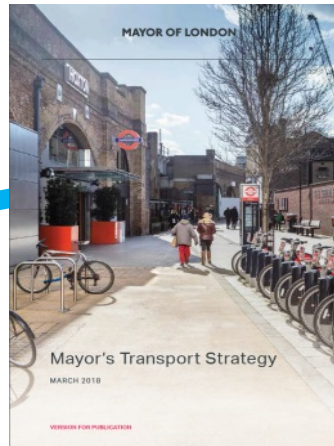


Introduction to TfL

Public transport lies at the heart of life in London, stimulating jobs and growth across the Capital



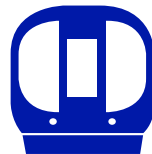
London Mayor's Transport Strategy



1. Healthy Streets and healthy people



“Creating streets and street networks that **encourage walking, cycling and public transport use** will reduce car dependency and the health problems it creates”



2. A good public transport experience



“An easy to use and accessible public transport system is an essential part of the Healthy Streets Approach as it gives people **alternatives**”



3. New homes and jobs



“Planning the city around walking, cycling and public transport use will **unlock growth in new areas** and ensure that London grows in a way that benefits everyone”



Transport for London Business Plan

We are working with the boroughs on hundreds of schemes across London that make it easier to walk, cycle or use public transport.

Cycle Superhighways ●

Camden, Ealing, Greenwich, Hammersmith & Fulham, Hounslow, Kensington & Chelsea, Lewisham, Southwark and Westminster



Clear and safe segregated routes across London

Vauxhall Gyratory ●

Wandsworth



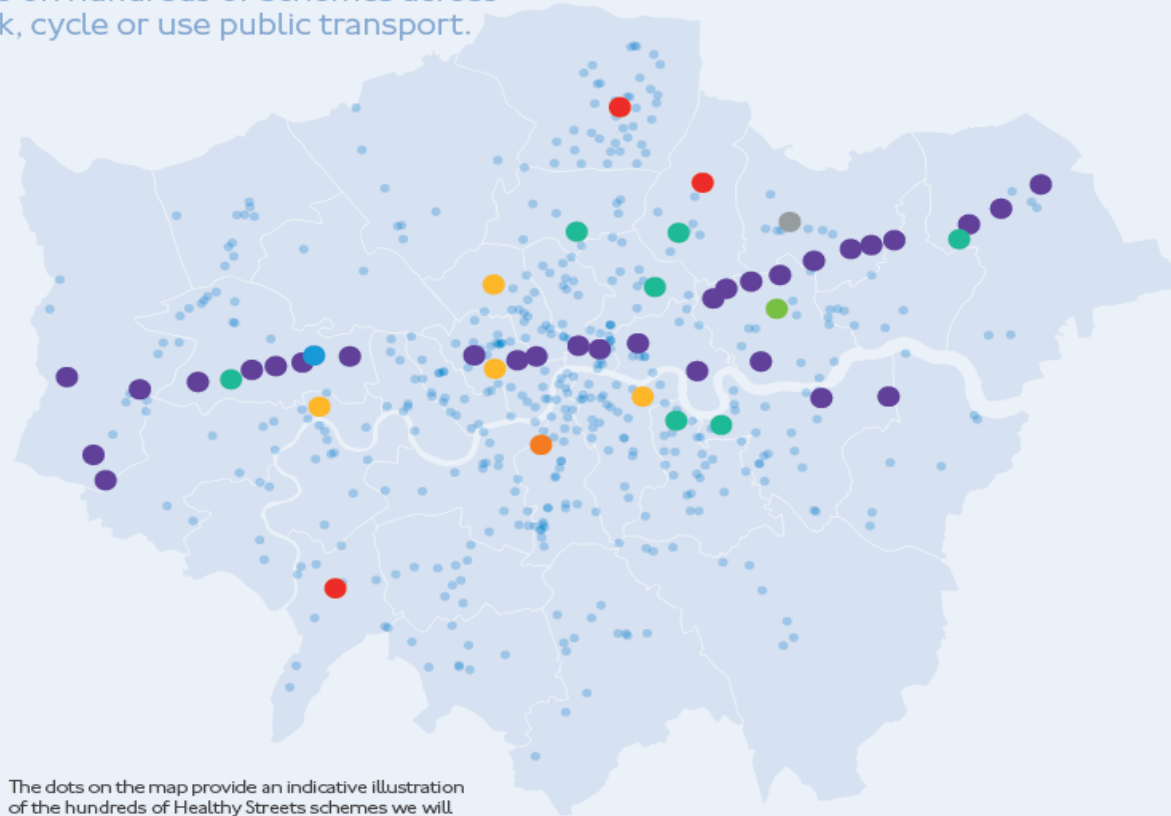
Returning to two-way roads for better walking and cycling

Charlie Brown's Roundabout ●

Redbridge



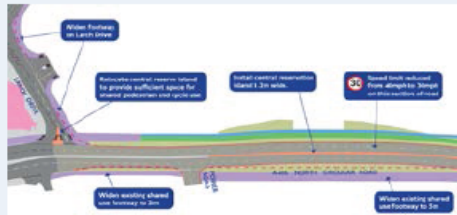
New pedestrian and cycle crossings, and fewer delays to traffic and buses



The dots on the map provide an indicative illustration of the hundreds of Healthy Streets schemes we will be delivering over this Business Plan period.

Gunnersbury Avenue ●

Hounslow



Major street improvements for safer for walking and cycling

Mini-Hollands ●

Enfield, Kingston and Waltham Forest



Three outer boroughs with a network of cycle routes

Elizabeth line ●

Brentwood, Ealing, Greenwich Havering, Hillingdon, Islington, Newham, Redbridge, Tower Hamlets and Westminster



Improved public areas and interchanges outside 18 outer London Elizabeth line stations

Liveable Neighbourhoods programme ●

Ealing, Haringey, Waltham Forest, Hackney, Havering, Greenwich and Lewisham



Grant funding for borough schemes to reduce car trips, improve health and air quality

Stratford Town Centre ●

Newham



A safer, more attractive town centre for people to spend time in



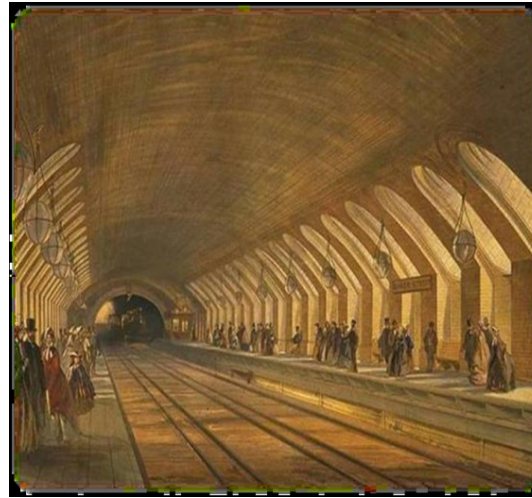
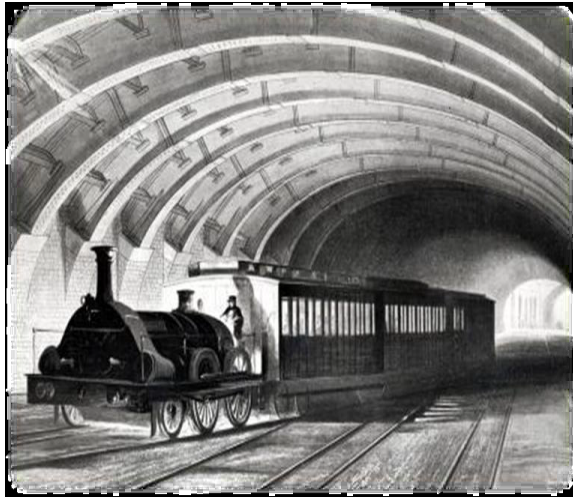
Our Challenges



**TRANSPORT
FOR LONDON**

EVERY JOURNEY MATTERS

We have a rich history to build on...



1863

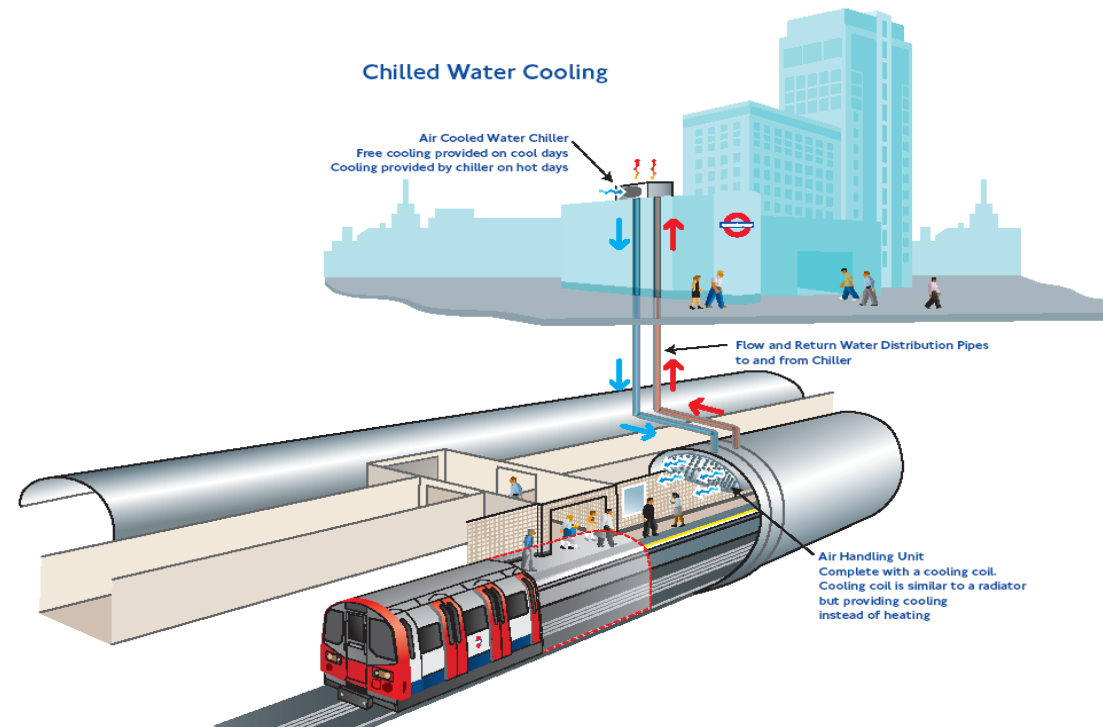


2018



Cooling the tube – solutions delivered to date

- Air conditioned rolling stock – S-Stock fleet
- Groundwater cooling
- Fans installations
- Fan and mid-tunnel ventilation upgrades
- Chilled water system
- Borehole cooling system
- Supply MTVSs complete with cooling coils



Trials & research

In Train Hybrid Cooling

Regenerative Braking & Train

Optimisation

Under Platform Exhaust Systems

Evaporative Cooling


Air Handling Unit – design development



TfL Document Classification: TfL: Restricted (Part 1: Non Personal Data)



Engineering Skills – Matching the demand

- Transport Infrastructure Skills Strategy – 2016
- Strategic Transport Apprentice Task Force – 2017 
- Estimated annual shortfall of 59000 Engineers and Technicians
- Target 20000 extra apprenticeships by 2020
- Need a Diverse and inclusive workforce

BUT:

- Only 26% of young girls even look at a career in STEM

Transport needs engineering skills across all disciplines (Electrical, Mechanical, Civil, Software...) New and Legacy Technologies, to meet the challenges of moving millions of people around a World Class City



Working to address the challenge – Future Engineers

Who they are:

STUDENTS
(year 9)

STUDENTS
(year 11)

GRADUATES
(STEM / non)

SWITCHERS
(STEM / non)

**Especially
that
untapped
potential:
Women and
under-
represented
skills sets**

Choices they're making:

Choosing GCSE subjects

Choosing A levels,
apprenticeship subject or
first job leaving school

Choosing first job or
further education

Considering whether to
switch job

Important influencers for our main audiences

PARENTS
(of students /
grads)

TEACHERS
(including careers
role)

RECRUITERS
(agency and in-
house)



TRANSPORT TARGETS

2.3% workforce
starting an
apprenticeship each
year

20% Technology and
Engineering
apprentices women by
2020

Parity with the
working population
by 2030***

20% increase in BAME
candidates undertaking
an apprenticeship



ENGINEERING
TAKE A CLOSER LOOK

FUTURE
ENGINEERS

Gallery opens 19 October 2018



Thank you

