JRC PRESENTATION TO TCF
22ND SEPTEMBER 2021

Rebuilding effective and sustainable public transport - smart ticketing in and around London

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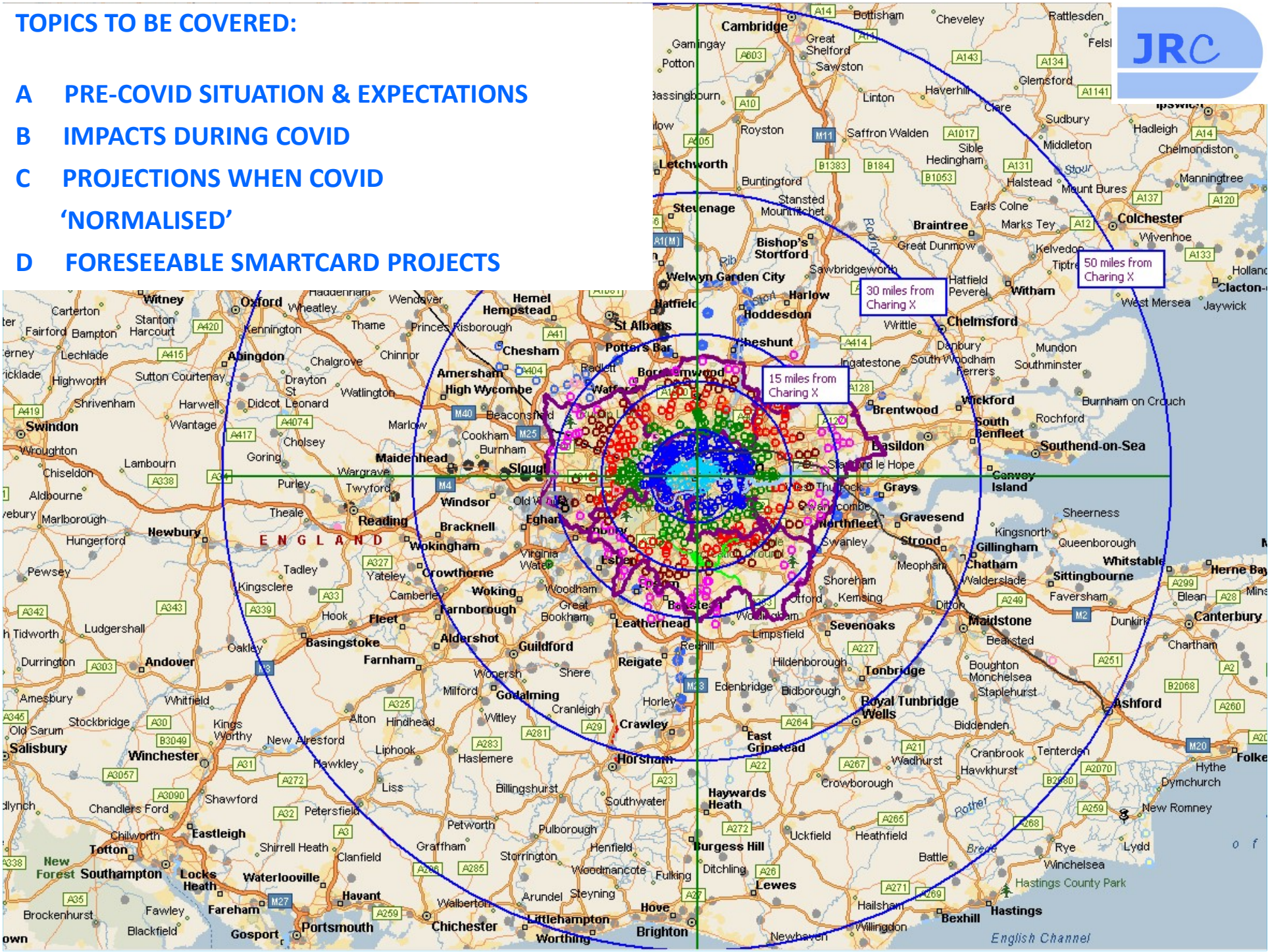
TOPICS TO BE COVERED:

A PRE-COVID SITUATION & EXPECTATIONS

B IMPACTS DURING COVID

C PROJECTIONS WHEN COVID 'NORMALISED'

D FORESEEABLE SMARTCARD PROJECTS



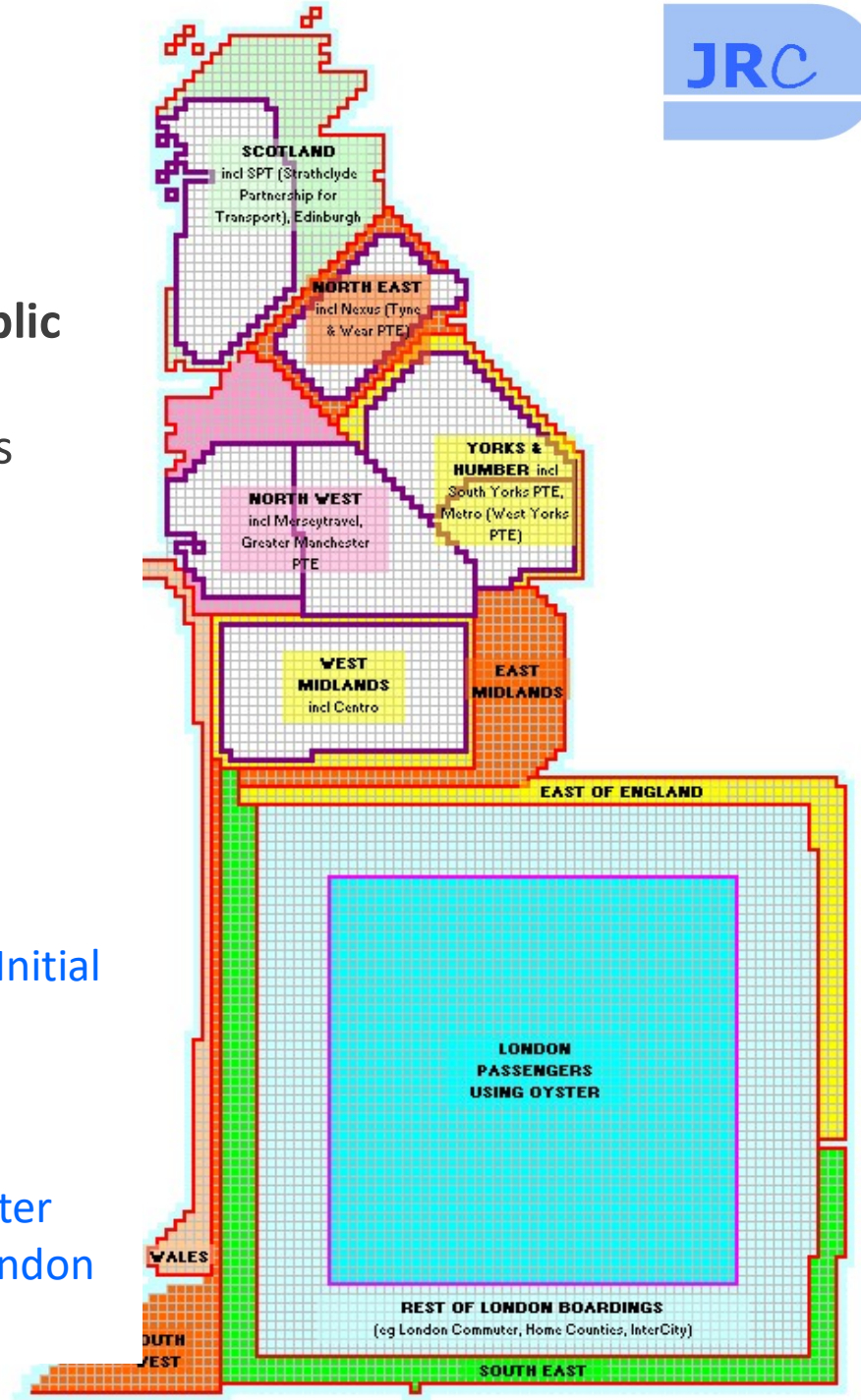
A PRE-COVID SITUATION & EXPECTATIONS

A1 PRE-COVID GB PASSENGER VOLUMES ~ 2005

- **Public transport geography: histogram of proportional number of public transport boardings**
  including ferries but excluding taxis, planes
  - Note: PTE / ITA areas in white within each larger region

- **Greater London boardings ~49% of 7 billion public transport journeys**
  (3,390 million of 6,945 million)

- Source: JRC review of 2005 DfT, ORR,LUL data. Initial introduction of Oyster foreseen with:
  - ~50% of London area boardings by 2007 as shown in **blue**
  - ~70% of London area boardings by 2010 after adoption by National Rail TOCs for intra-London travel



A2 PRE-COVID PASSENGER VOLUMES ~ 2019

- **Within TfL-sponsored smartcard networks**: (Source: TfL)
  - **Over 10 million transactions** across network per weekday
  - **~4.4 billion journeys p.a.** on multiple modes & networks: (2019)
    - Buses 2.1 bn
    - Tubes 1.4 bn
    - National Rail in London 500m
    - TfL Rail (pre-Xrail), Lon.Overground 300 m
    - Docklands Light Rail 100 m
    - Other (Tram/River/Emirates) 30 m
- **600 m journeys p.a. on London, East & SE rail networks:**
  (Mar.19-Feb.20, excl. NR in London)
  - Former NSE to Weymouth/Salisbury, Anglia to Ipswich & Kings Lynn, GW Pewsey, HS1, MML to Corby (Source: JRC analysis of ORR data)
- **2 bn journeys p.a. on <u>all</u> English buses** (non-London):
  884 m in met areas, **1.13 bn** in non-mets
  - Outside London, local bus usage saw highest rides per head in Brighton & Hove (167), Reading (137) and Nottingham (131).
  - Lowest incl Windsor & Maidenhead (9) (Source: DfT Annual Bus Statistics 2019)

- **Effective commuting distances expanded** in recent decades – motorways / trunk roads, intercity / commuter rail:
  - Well beyond historic LPTB zone (Slough-Hitchin-Tilbury-Horsham)
  - M25 and other corridors had stimulated large-scale non-radial flows
- Rail commuter **high dependence on season tickets**, but:
  - Reducing share of journeys to work, more diverse travel pattern
  - Emerging tendency for fewer days of week in a fixed location
- Despite smartcards and integrated ticketing, **conventional bus travel in London losing users**, with congested roads (most met and shire buses also losing volume)
- **Travel patterns becoming more polycentric**

A3 PRE-COVID CONTEXT

- High value workers increasingly choosing when / where they work, so off-peak qualities more relevant to attract passengers to public transport, not just peak services
- Demand and preference for more flexible ticketing options, fitting on-demand and more 24/7 lifestyles
- Total quality of convenience and consistently trusted offer becoming more important
- Sustainability and decarbonisation, and less reliance on car, becoming dominant delivery issues for future decades, and for future development plans adding traffic loads to networks

A4 PRE-COVID FORWARD PROJECTIONS

- **TfL:** (from Nov. 2019 and Jan. 2020 TfL Board papers)
- Continuing transformation programme to slim opex + capex while pressing on with better output quality, efficiency and travel standards

- Budgeting for zero revenue growth with economic outlook, however journeys were at upper end of budgeted range on Underground and buses

- Paddington-Abbey Wood Crossrail not expected until mid-2021, needing further £400-650m funding charge. A full Crossrail might be mid-to-late 2022

- Crossrail 2 continued to be assessed jointly with DfT

A4 PRE-COVID FORWARD PROJECTIONS

- In Dec.19 the Finance Committee approved the latest TfL 5-year Business Plan and the Capital Strategy

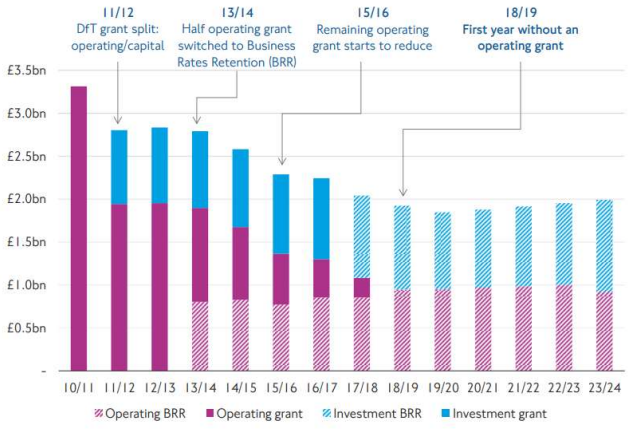
- Key elements shown on following two slides

A4 PRE-COVID FORWARD PROJECTIONS

TfL 5-year Business Plan 2020-21 to 2024-25

We are still adjusting to the loss of government grant

Changes in TfL's funding

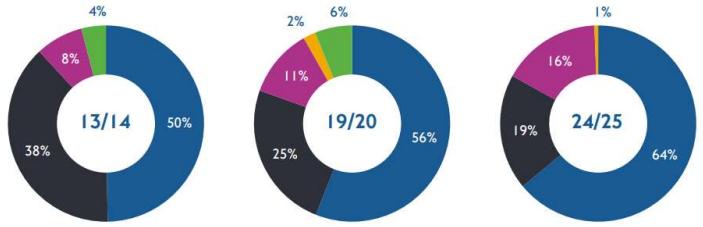


Excludes one-off / exceptional grants e.g. Metronet, Crossrail, Overground

We will diversify and grow our income

Fares will play an increasingly important role. We are growing our commercial income to diversify our revenue sources

Sources of funding (excluding Crossrail)



Fares
Fares will grow from half to two thirds of income – making us more exposed to changes in the economy

Business Rates and Other Grants
Loss of General Grant already reflected in 2019/20. Reduction in 24/25 owing to other specific grants

Other income
Commercial income doubles in importance to us

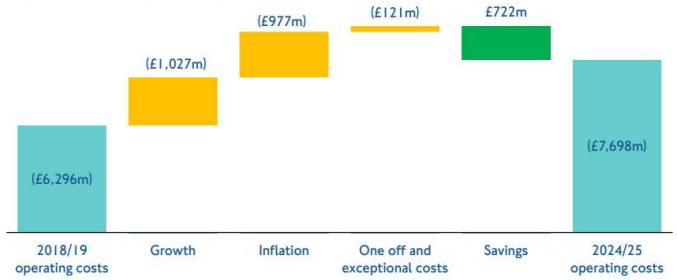
Property/assets
Sales of property assets to be re-invested in our housing development programme

Borrowing
23/24 is first year TfL is not planning to borrow.

Going further in our cost reduction

Our operating costs grow over the plan, a result of growth in our services – Elizabeth line, ULEZ and Streets initiatives – and strong inflationary pressures from operators' contracts and wages.

Changes in TfL's operating cost: 2018/19 to 2024/25



Growth

ELIZABETH LINE

Revenue generating services
- Elizabeth line
- ULEZ introduction and expansion to North/South Circular

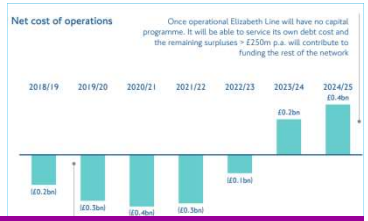
Savings

£722m mitigate 74% inflation

Our targets are designed to achieve long-term financial sustainability

- Combined subsidy of £850m to cover indirect and critical capital cost
- Double surplus from Property
- Cover in full its critical capital requirements
- Affordable capital plan with sufficient renewals
- Cover own critical spend
- Elizabeth line to open
- 30% reduction in back office cost

A4 PRE-COVID FORWARD PROJECTIONS



TfL 5-year Capital Strategy 2020-21 to 2024-25

A disciplined capital plan

We prioritised our capital programme to protect our existing performance levels as well as progress the most-pressing MTS outcomes

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Categorising projects:

Critical	Needed to maintain current safety, reliability, capacity or asset condition; or legally required	c.60% of Plan
Central	Projects that are financially positive or improve MTS outcomes that require short-term action, e.g. safety, reliability, capacity	c.20% of Plan
Desirable	Projects that improve MTS outcomes that require long-term action, e.g. unlocking homes, active travel	c.20% of Plan
Deprioritise	Projects with weaker business cases or that are more discretionary in nature	Negligible

£1.3bn
Average annual new capital investment over Business Plan

£670m
Average annual capital renewals over Business Plan

Our 2019 Capital Strategy

Our Capital Strategy quantifies the costs to deliver the MTS over 20 years

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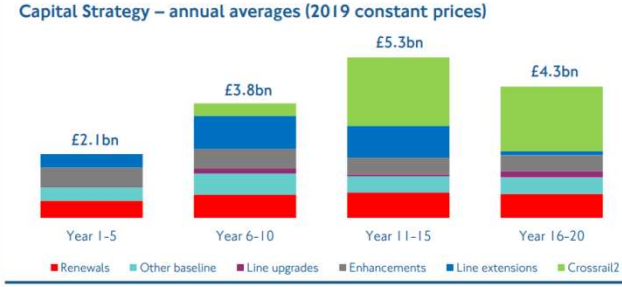
CROSSRAIL SURPLUS



£1.4bn Average annual investment required after this Business Plan to maintain existing performance – our Baseline

£3bn Additional average annual investment required after this Business Plan to improve performance, grow our network and achieve the MTS

Evolved our methodology to define our long-term capital requirement

Our Baseline is what is needed to maintain today's performance and asset condition. Beyond this, Enhancements improve and grow the network

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	BASELINE		ENHANCEMENTS	
Categories	Renewals	Rolling stock and signalling replacements*	General enhancements	Line extensions / CR2
Examples	Track replacement Bridge strengthening Road resurfacing Rolling stock overhauls Drainage replacement Tech renewals	New trains New signalling systems Enabling works for these	Healthy Streets Station upgrades Accessibility Air Quality Metroisation Tech and Data	Crossrail 2 Bakerloo extension DLR Thamesmead Sutton Link West London Orbital
These link to our prioritisation categories	**Critical** Necessary to maintain today's level of safety, reliability, capacity and asset condition	**Central** Deliver improvements against MTS outcomes that require short-term action, like safety, capacity, reliability and air quality	**Desirable** Deliver improvements against outcomes that require long-term action, like stimulating housing and shift to active travel	

*While the majority of spend for replacements is part of Baseline (as it involves replacing life-expired assets), an element delivers capacity improvements. This is categorised as Line Upgrades and constitutes an Enhancement rather than Baseline.

£1.4bn p.a. baseline at a glance

This chart shows estimated annual averages for major assets each year after this Business Plan

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LU	New trains, incl. enabling work	Trains / signals	£410m	■■■■■■■■■■■■■■■■■
LU	Fleet renewals	Renewals	£190m	■■■■■■■■■
LU	New signalling	Trains / signals	£140m	■■■■■■■
LU	Track	Renewals	£120m	■■■■■■
Pan-TfL	Technology	Renewals	£120m	■■■■■■
Streets / Buses	Highways	Renewals	£70m	■■■■
Rail	General Rail renewals	Renewals	£70m	■■■
LU	Stations / civils	Renewals	£60m	■■■
Streets / Buses	Major structures	Renewals	£40m	■■
Rail	New DLR trains/Trams	Trains / signals	£30m	■■
LU	Signalling renewals	Renewals	£30m	■■
LU	Lifts and escalators	Renewals	£30m	■■
Other	Other pan-TfL	Renewals	£20m	■
Rail	Power, cooling, energy	Renewals	£20m	■
Streets / Buses	Streets/Buses other	Renewals	£10m	■

■ = £20m. Annual ave... in 2019/20 constant ...

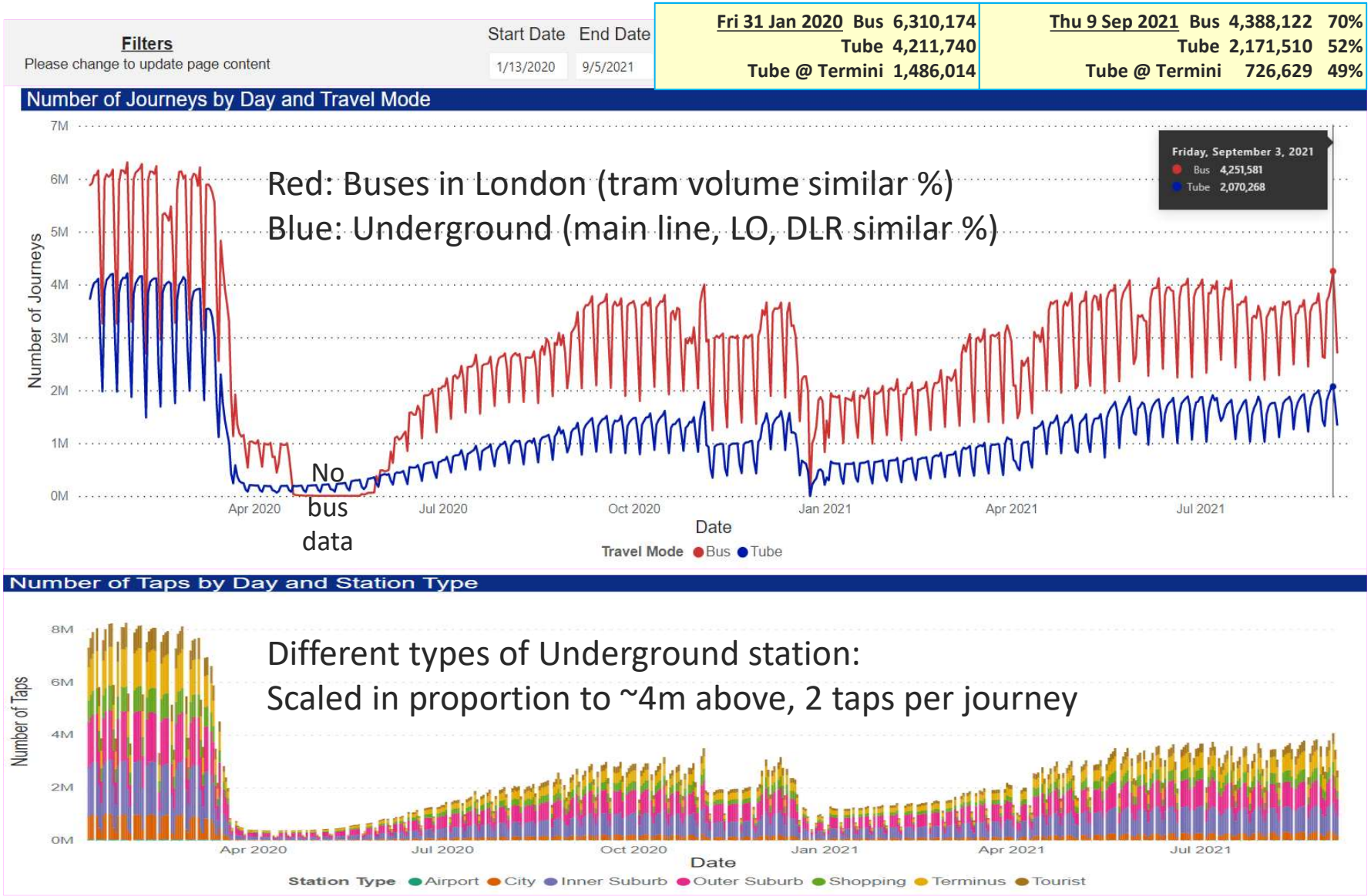
B IMPACTS DURING COVID

B1 IMPACTS DURING COVID - NEW ISSUES & PRIORITIES

- **Transport safety**: Proximity risks to passengers and staff, enhanced cleaning & security, capacity much reduced
- **Travel preferences, new economic geography**: Distrust of public transport, more cycling, suburbs win over city centres
  - Greatly increased scale of working remotely and from home
- **Public transport economics**: Higher unit operating costs, most revenue lost, Government dictates public transport £
  - Periodic funding agreements with Government for basic opex and capex survival. All expenditure subject to severe scrutiny
- **Crossrail**: Full funding gap rises to over £1 bn, further scheme delays, date when Crossrail profitable put back
  - Longer term investments mothballed eg Crossrail 2, Bakerloo extn.

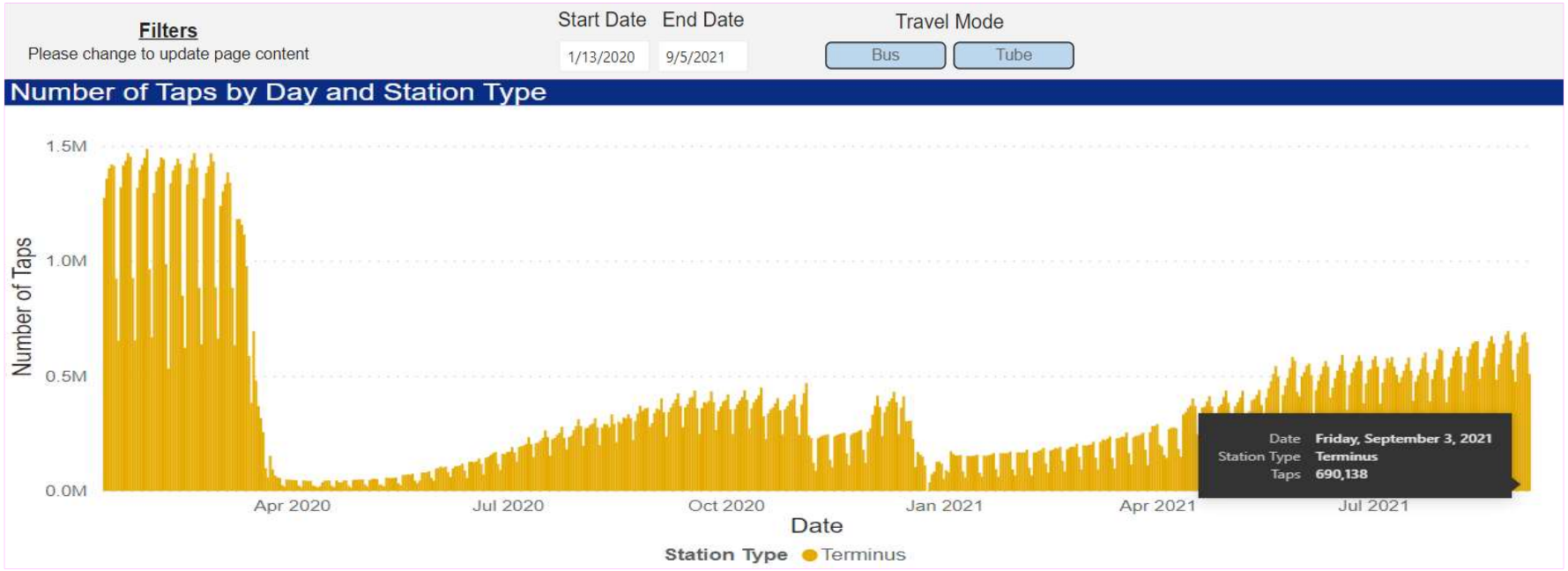
B2 IMPACTS DURING COVID - TRAVEL VOLUMES

- TfL Covid passenger volumes illustrated below (screen link):



B2 IMPACTS DURING COVID - TRAVEL VOLUMES

- LUL usage at main line termini tube stations (screen link):



Stations included:

Blackfriars	
Cannon Street	London Bridge
Charing Cross	Marylebone
Euston LU	Moorgate
King's Cross St. Pancras	Paddington
Liverpool Street	Victoria
Liverpool Street LU(Broadgate)	Waterloo

- https://app.powerbi.com/view?r=eyJrIjoiMjZjMmQwYTktZjYxNS00MTIwLTg0ZjAtNWIwNGE0ODMzZGJhIiwidCI6IjFmYmQ2NWJmLTVkZWYtNGVlYS1hNjkyLWEwODljMjU1MzQ2YiIsImMiOjh9

B3 IMPACTS DURING COVID - OPPORTUNISTIC CHANGE

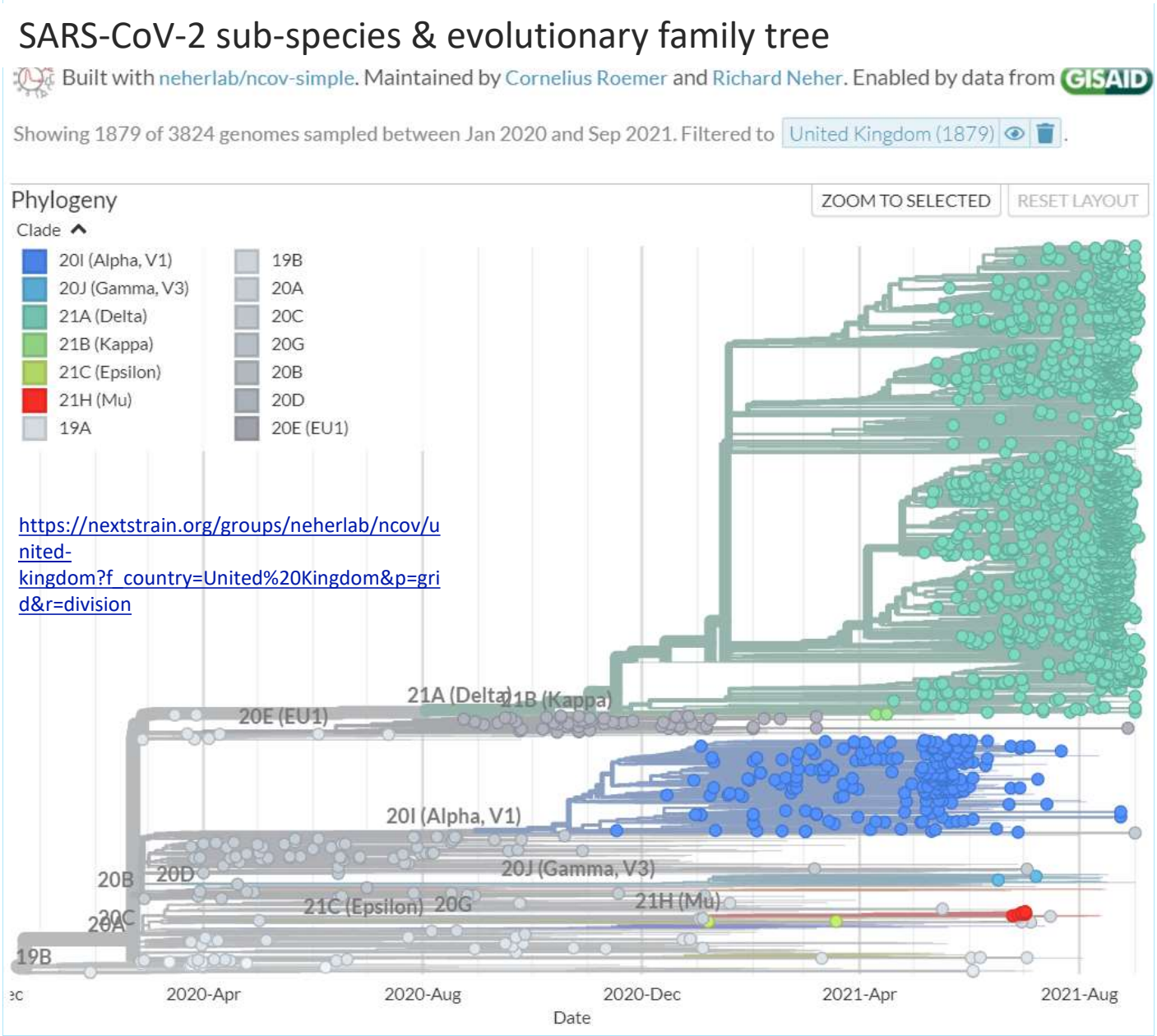
- TfL rescue financial packages have strings attached
  - e.g. Requirement to study automated tube lines
- Mirroring packages to bus, PTE, local authorities and wider rail industry –
  - Service levels under strict review
- Government and rail industry took opportunity to achieve some changes with less pain / complexity. Examples include:
  - Action on franchising – really changes to contract terms & conditions
  - Moves to new national railway structure (Great British Railways)
  - First steps to simplification of ticketing
  - New part-week season tickets / carnets for part-month travel
  - Acceleration of some railway capital works with less inconvenience

C PROJECTIONS WHEN COVID 'NORMALISED'

C1 PROJECTIONS WHEN COVID 'NORMALISED' - WHAT IS COVID UP TO?

Current timeline and lifecycle of different Covid strains is illustrated by this screen capture (UK data)

Shows current and recent dominance of Delta family of variants in UK



C2 PROJECTIONS WHEN COVID 'NORMALISED' – WHAT DOES THIS MEAN FOR US AND FOR PUBLIC TRANSPORT?

- **Covid is evolving at similar rates to other virus**
  - It is early in its life, so has a higher probability of developing successful mutations - it is evolving fast at this stage
- **Eradication will not occur**
  - Covid is becoming the 5th endemic human coronavirus (after 229E, NL63, OC43 and HKU1)
- **Immunity improving** (vaccination, infection or both over time)
  - Further impact on society will reduce, but human society having to adapt with consequences for human & economic geography
- **Impacts on communities / individuals?** Quantitative & qualitative:
  - Mixes of perception and realism, and public interest and self-interest
- **A big unknown:** resilience of European form of democracy
  - and related economic activity, including transport
- **Public transport relevance & attractiveness is one facet**

C2 PROJECTIONS WHEN COVID 'NORMALISED' – WHAT DOES THIS MEAN FOR US AND FOR PUBLIC TRANSPORT?

- **Trends already evident pre-Covid have been accelerated:**
  - More flexibility by many employers, more home and remote working, greater adoption of independent lifestyle and more leisure time
  - = Indicative pointers for responses in travel volumes during recovery period & for travel product and marketing priorities
  - Do new lifestyles represent foundations for the new economy?
  - The pandemic will <u>have</u> to be paid for by taxes and solid growth

- **TfL and others must respond to negative factors** generated by Covid - such as distrust of public transport:

- **Scope for Govt, DfT & GBR:** London area inputs in section D

C2 PROJECTIONS WHEN COVID 'NORMALISED' – WHAT DOES THIS MEAN FOR US AND FOR PUBLIC TRANSPORT?

- Ranges of demand projections are out there, still large uncertainties. Two examples from TfL and rail industry:

- From TfL 28 July 2021 supplementary board paper:

> 4.3 The Revised Budget reflects the latest modelling which predicts passenger demand by the end of 2021/22 will only recover to 76 per cent of the pre-pandemic levels of 2018/19. There is still a great deal of uncertainty around passenger demand and revenue, and our scenario modelling indicates a range of +/- £200m for this financial year which supports the case for continuation of the revenue true-up mechanism beyond the end of the current funding agreement.
>
> 4.4 The latest view of the funding support requirement expected over 2021/22 to 2022/23 as compared to our March 2021 Budget is:
>
> (a) 2021/22: The funding support requirement has reduced from £2.7billion as set out in the March 2021 Budget to £1.9bn. This is largely due to operating efficiencies and capital savings and deferrals, as well as an assumed use of our own cash.
>
> This means we will need an additional £500m after our funding expires on 11 December to the end of the financial year, which increases to £550m if Active travel and Healthy Streets (including borough funding) are to be restored to a level broadly in-line with last year.

C2 PROJECTIONS WHEN COVID 'NORMALISED' – WHAT DOES THIS MEAN FOR US AND FOR PUBLIC TRANSPORT?

- From April 2021 Network Rail West Anglia draft medium term study:

To reflect the potential economic and behavioural impacts as a result of the Covid-19 pandemic, high-level industry scenarios have been tested to dampen long-term pre-pandemic forecasts as described in 5.1. The scenarios include:

- **'Covid – Low Rail Demand'**: Forecast demand is reduced by approximately 35%;
- **'Covid – Medium Rail Demand'**: Forecast demand is reduced by approximately 20%, and;
- **'Covid – High Rail Demand'**: Forecast demand is reduced by approximately 5%.

Forecast demand arriving at London Liverpool Street and Stratford in the high peak hour is expected to be between 15% lower (based on the 'Covid – Low Rail Demand' scenario) and 26% higher (based on the 'Covid – High Rail Demand' scenario) in 2031 when compared with 2016 levels of demand.[24]

[24] Note, 2016 is used to align with the Railplan base year and Autumn 2016 count data. Growth rate calculations with a base year between 2016 and 2026 are not able to be accurately determined due to the additional Meridian Water–Stratford services being included in the timetable after the completion of the West Anglia Capacity Enhancements scheme in 2019. These additional services are not included in the 2016 base year but are in the next base year of 2026. Interpolating 2020-based growth will be misrepresented due to this mismatch.

C3 PROJECTIONS WHEN COVID 'NORMALISED' - MOVING FROM GUESSTIMATES TO DELIVERY

- **TfL Revised Plans at July 2021**

Current Passenger Demand

Post step 3 in the Government's Roadmap, passenger demand is now at 44% of pre-covid demand for Tube and 62% for buses. Journeys in Period 3 saw limited growth on the prior period following the delay in easing of restrictions in Step 4 of the Government's Road Map.

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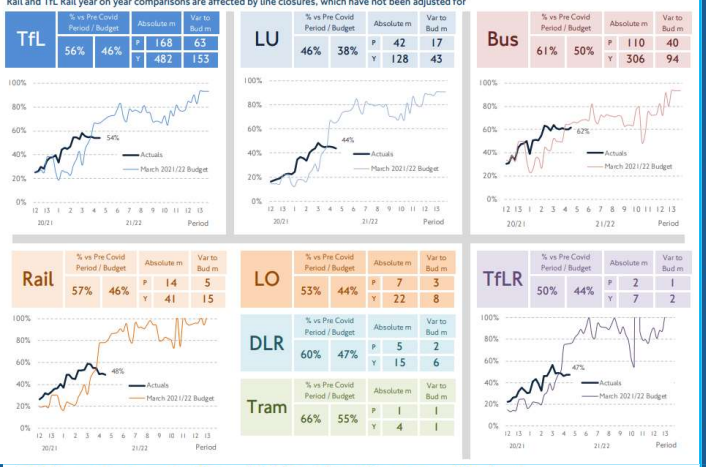
Period 3 Passenger journeys (measured against March 2021/22 Budget)

Journeys compared to pre-pandemic baseline (adjusted 2018/19 journeys). Charts include 3 weeks of Period 4 journey data to 17 July 2021.
Target is March 2021/22 budgeted demand against this baseline; 'P' denotes latest period; 'Y' denotes year-to-date performance
Rail and TfL Rail year on year comparisons are affected by line closures, which have not been adjusted for

	% vs Pre Covid Period / Budget		Absolute m	Var to Bud m
TfL	56%	46%	P 168	63
			Y 482	153
LU	46%	38%	P 42	17
			Y 128	43
Bus	61%	50%	P 110	40
			Y 306	94
Rail	57%	46%	P 14	5
			Y 41	15
LO	53%	44%	P 7	3
			Y 22	8
DLR	60%	47%	P 5	2
			Y 15	6
Tram	66%	55%	P 1	1
			Y 4	1
TfLR	50%	44%	P 2	1
			Y 7	2



Funding gap for 2021/22

The draft Revised Budget includes c.£300m of operating savings as required in the funding settlement but still requires a further £0.5bn of funding support post 11 December.

The limited and short-term funding deal restricts our ability to plan, commit and deliver active travel funding this year.

We need certainty on additional funding before December to guarantee our ability to deliver more – and this needs to be additive to the funding already required to balance the budget.

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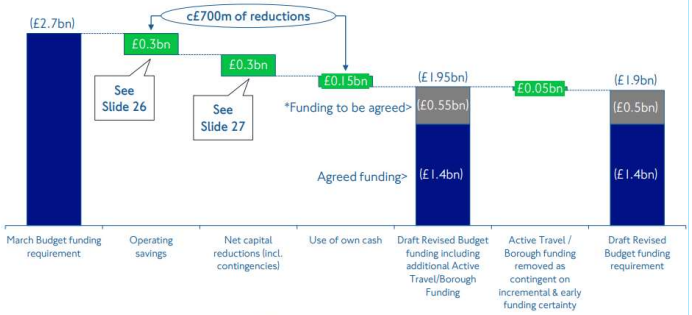

- There are risks inherent in achieving the c£300m of operating savings
- Further funding support of c£0.5bn required beyond the end of the current funding period – **this will need to include a continued revenue true up mechanism as part of the overall support package**
- The limited and short-term funding deal restricts our ability to plan, commit and deliver TfL Active Travel and Borough travel schemes this year. **We need certainty on additional funding before 11 December to guarantee our ability to deliver more schemes.**
- **Incremental Active Travel funding of c£50m would be additive to the £0.5bn of additional funding already required to balance the budget.** This would allow us to restore Healthy Streets and Borough funding to a level broadly in-line with last year.
- No allowance is made for a potential Crossrail funding shortfall. **This will need to be resolved as part of any future Crossrail funding discussions.**

* Size of funding shortfall will be dependent on passenger revenue projections

Demand recovery remains uncertain and as we are so dependent on fares revenue, this significantly impacts our financial forecasts

Our scenario modelling indicates a range of +/- £200m for this financial year which supports the case for continuation of the revenue true-up mechanism beyond the end of the current funding agreement

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TfL latest forecast in line with March board approved Budget

TfL	Variance to March approved Budget £m			% demand vs 18/19	
	P9 YTD	FY 21/22	FY22/23	P3 21/22	P13 21/22
	+£112m	(£33m)	+£44m	56%	76%

Key Driver: Demand Recovery

TfL RESTRICTED

Risks and Opportunities

We are assuming passenger income is protected in any future funding deal but we still have significant non fares income risks linked to ridership, uncertainty on business rates retention and pressure on costs

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Risks and opportunities for remainder of 2021/22 and next two years

Income:

- Our passenger income is modelled using four core variables: Economic recovery, timing of Step 4 in the Government Roadmap, the % of Office workers at the end of 21/22 and a reduction in demand over the winter period.
- We have flexed these variables to produce three scenarios with a range of +£0.2bn to (£0.2bn).
- There is significant uncertainty around ULEZ expansion on the volumes and compliance levels

Operating costs:

- Risks include an ambitious savings programme and maintenance costs due to capital deferrals
- As with other rail industry pension schemes, there is pressure on on-going service cost and deficit repair

Capital investment:

- Ability to invest in property developments and generate a future income stream is dependent on market conditions for asset sales
- Deliverability of our capital programme

C3 PROJECTIONS WHEN COVID 'NORMALISED' - MOVING FROM GUESSTIMATES TO DELIVERY

- **TfL 'must haves'**: Crossrail + greater operational efficiency

- **Crossrail (Elizabeth line)** must open as soon as it can
  - Delivers 10% more travel capacity within and across London, with scope for faster economic recovery, and more elbow room
  - Crossrail *should* still be profitable (needs Central London recovery).
  - Starts to pay for its cost over-runs, contributes to TfL's future 'critical' and 'central' investments. Other projects can then be afforded

- **Greater operational efficiencies** are also critical.
  - **Efficiencies create headroom** for a cycle of renewal and upgrading, with greater benefits for London and passengers
  - **Improved ticketing is essential**: TfL's early smartcard infrastructure requires replacement with lower cost, more flexible capabilities to integrate with other transport systems, especially Home Counties rail
  - Responsive ticketing and pricing structures can be cause & consequence

D FORESEEABLE SMARTCARD PROJECTS

D1 FORESEEABLE SMARTCARD PROJECTS - TfL SMART TICKETING UPGRADE

- **Changes to TfL ticketing structures:**
- *Project Proteus:* TfL's proposed renewal and upgrading of its smart ticketing systems.

- **It could take four years** to procure and implement
  - Then more years for some system upgrades, within an outline £1.1 bn contract
    - This is because it is intended to replace the existing supply contract with Cubic, which ends in August 2025

- TfL's proposals are summarised in a linked on-line article, and the start of European OJEU procurement:

https://www.theregister.com/2020/11/11/transport_for_london_looks_for/

https://ted.europa.eu/udl?uri=TED:NOTICE:541858-2020:TEXT:EN:HTML

D1 FORESEEABLE SMARTCARD PROJECTS - TfL SMART TICKETING UPGRADE

- Practical implications of the project
  - Particularly passenger-facing: Oyster ‘brand’ vs Oyster ‘technology’

- Covid may have taken 5-10 years off the commercial life of some ticket types such as seasons.
  - Uncertainty of new public transport demand to fill the transport supply gap - though service levels might not be as before
  - In London, passengers’ preference to use season tickets declined from around 50% in the mid-2010s to around 30% by 2019. Covid is expected to lower that to around 20%

- Expanded guarantees of weekly / monthly / annual caps on products such as smartcards may signal demise of season tickets for London, and for other big cities if those could be integrated across all modes as they are within London

- Other ticketing also subject to change. In London, use of printed material has halved from about 15% to 8%
  - It might need a rail industry contactless programme and use of digital and QR ticketing to eliminate magnetic stripe media
- About 25% of users loyal to original Oyster.
  - TfL has long planned to re-assign those to improved Oyster platform
  - Needs new readers and expansion of back office coding
- Contactless is the TfL success story in recent years. It relies on generic EMV technology allied to strong fraud checks.
  - Use on TfL has grown from 0% to 35% of travel sales pre-Covid, and (with higher caps for Covid), is probably nearer 45% now. Contactless is generic, so is preferred for use across wider bus and rail networks

D2 FORESEEABLE SMARTCARD PROJECTS - DfT AND GBR ENGAGEMENT WITH TfL

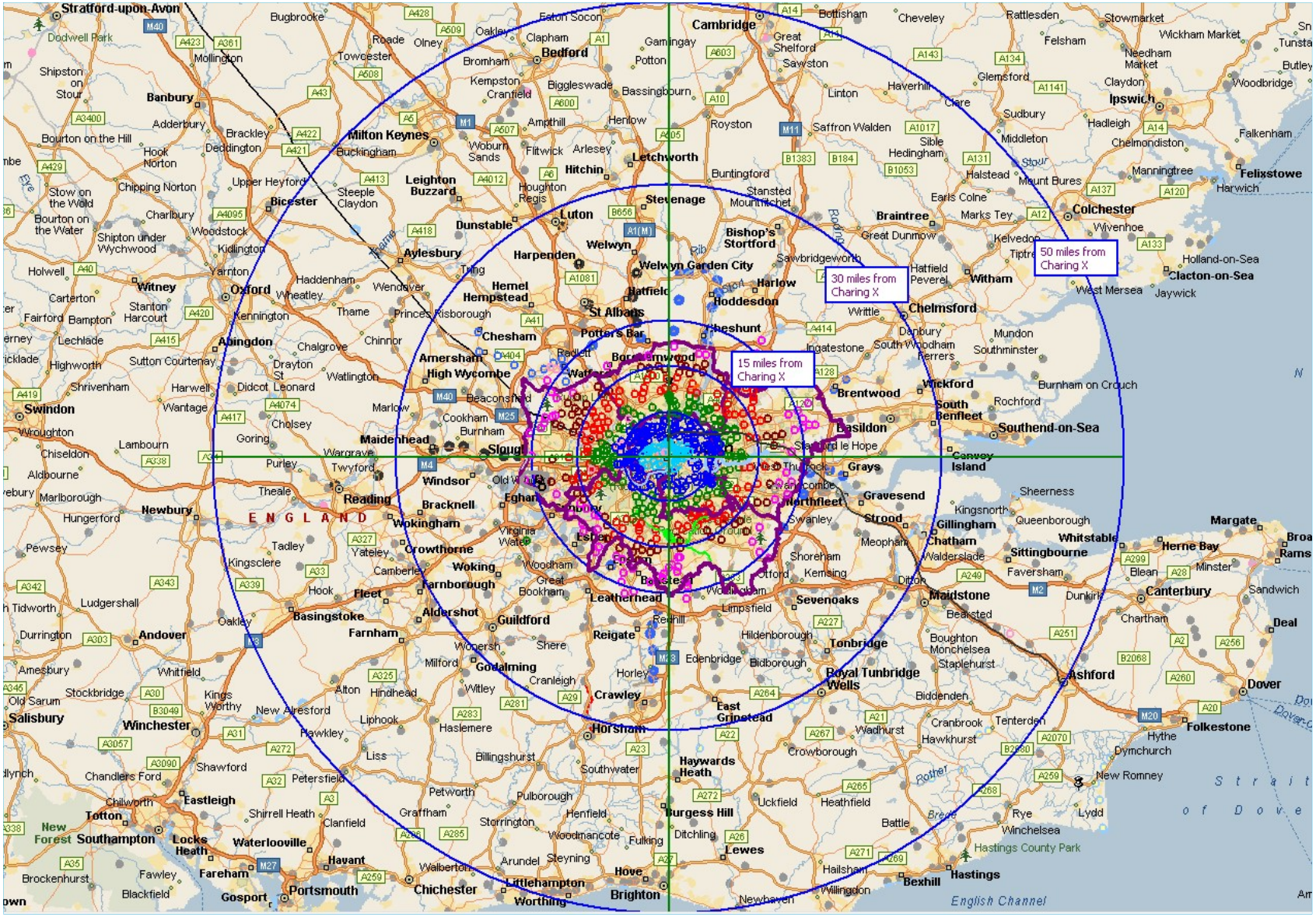
- December 2019 General Election included Conservative manifesto commitment:
  - "We will extend contactless pay-as-you go ticketing to almost 200 more stations in the South East, meaning that 50 per cent of all rail journeys and almost all London commuter journeys can be completed using a contactless bank card"
- Policy objective is to deliver this by the end of 2024
- Only practical way to achieve this quickly and reliably, is to work in close concert with TfL's PAYG system
  - PAYG is already in place on the TfL network. It is now extended prior to Crossrail, as far as Reading, Luton Airport and Welwyn Garden City
- DfT hosted a market sounding event on 7 September 2021
  - Interested suppliers have until 25 September to respond to DfT

D2 FORESEEABLE SMARTCARD PROJECTS - DfT AND GBR ENGAGEMENT WITH TfL

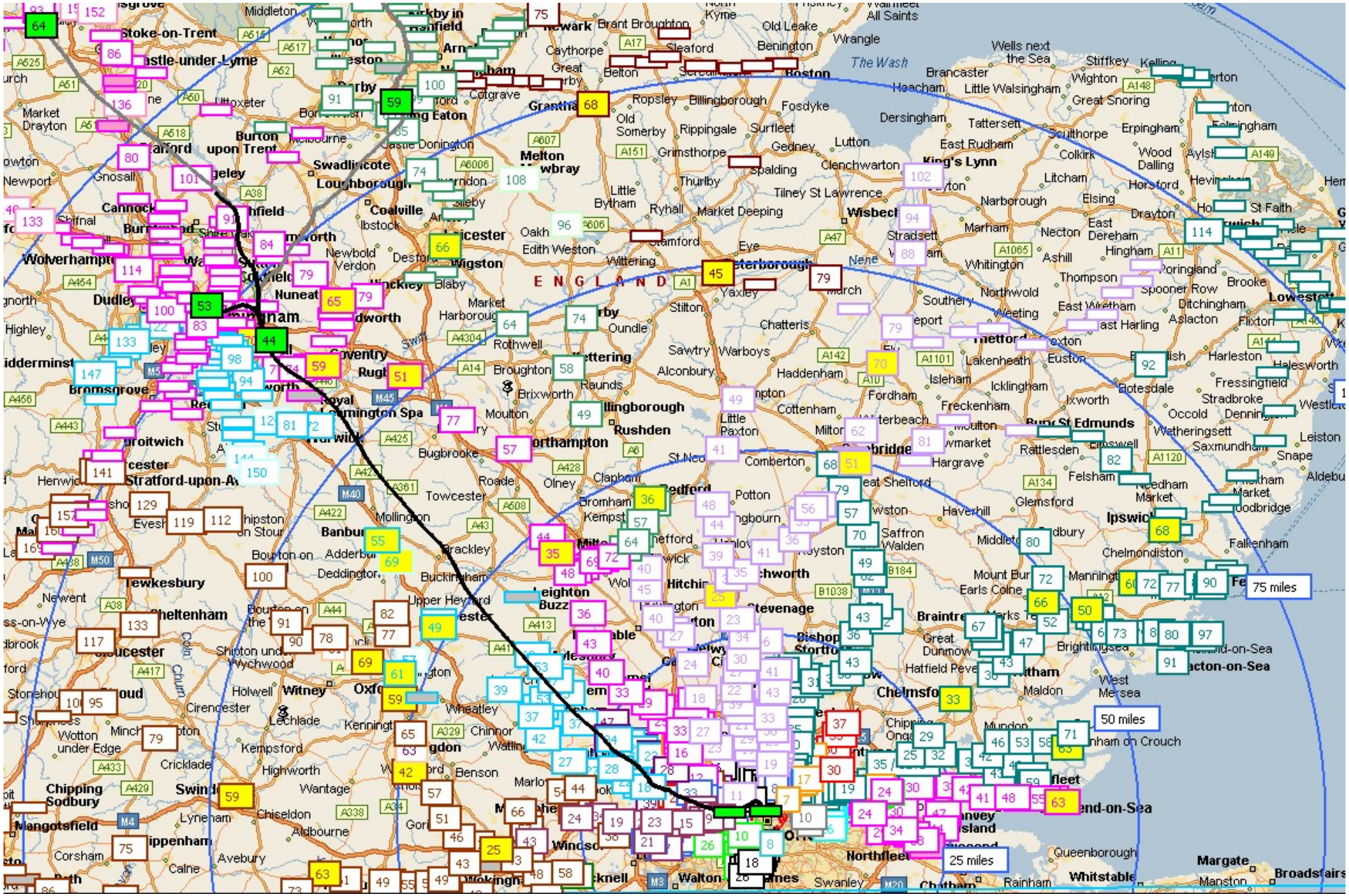
- JRC map shows the potential scale of expanded PAYG catchment. Depending on corridors chosen, new network could be:
  - Intensive within 30 mile radius
  - Looser with only some preferred corridors extending up to 50 miles
  - Combination of the two depending on sub-regional geography

- Alternative viewpoint is effective journey time from London, and/or travel-to-work-area:
  - 70 minutes shown in second JRC analysis map (2016 journey times)
  - Average fastest times from London terminus in PM peak period ('Southern Electric' network not illustrated)
  - Contrast times to Anglia vs times to West Midlands with LNW / HS2

D2 FORESEEABLE SMARTCARD PROJECTS
- DfT AND GBR ENGAGEMENT WITH TfL



D2 FORESEEABLE SMARTCARD PROJECTS
- DfT AND GBR ENGAGEMENT WITH TfL



D2 FORESEEABLE SMARTCARD PROJECTS - DfT AND GBR ENGAGEMENT WITH TfL

- In policy terms, DfT would normally prefer generic rather than proprietary ticketing solutions
- In the case of wider London PAYG project, TfL's CPAY system already fit for purpose, with generic EMV interface
- Is it worth the cost, and risks of delays and technical impacts, of stimulating a competition for a different PAYG supplier?
  - Operator would need to co-ordinate with TfL's CPAY
  - Consistency of pricing and useability is vital
- Not guaranteed that a different supplier would then succeed in being preferred for proposed national rail PAYG system
  - PAYG supported by Williams + Shapps, RDG developing it

D2 FORESEEABLE SMARTCARD PROJECTS - DfT AND GBR ENGAGEMENT WITH TfL

- RDG work focussed around retail & ticket modernisation
  - Considerable timescales for development & specification, then procurement and installation
- Large funding and logistical exercise, with costs and timescales of installing relevant equipment, cabling and readers at many national rail stations
- Merit in getting on with TfL CPAY installation in wider London and Home Counties region
  - Subject to open book pricing and potential mini-competitions, eg for supply of technical installations in expanded smart ticketing area
  - PAYG project can't be delayed if it is to avoid conflict with the timescale of TfL's Project Proteus contracts and implementation
  - PAYG project may require acceleration of TfL card reader upgrade

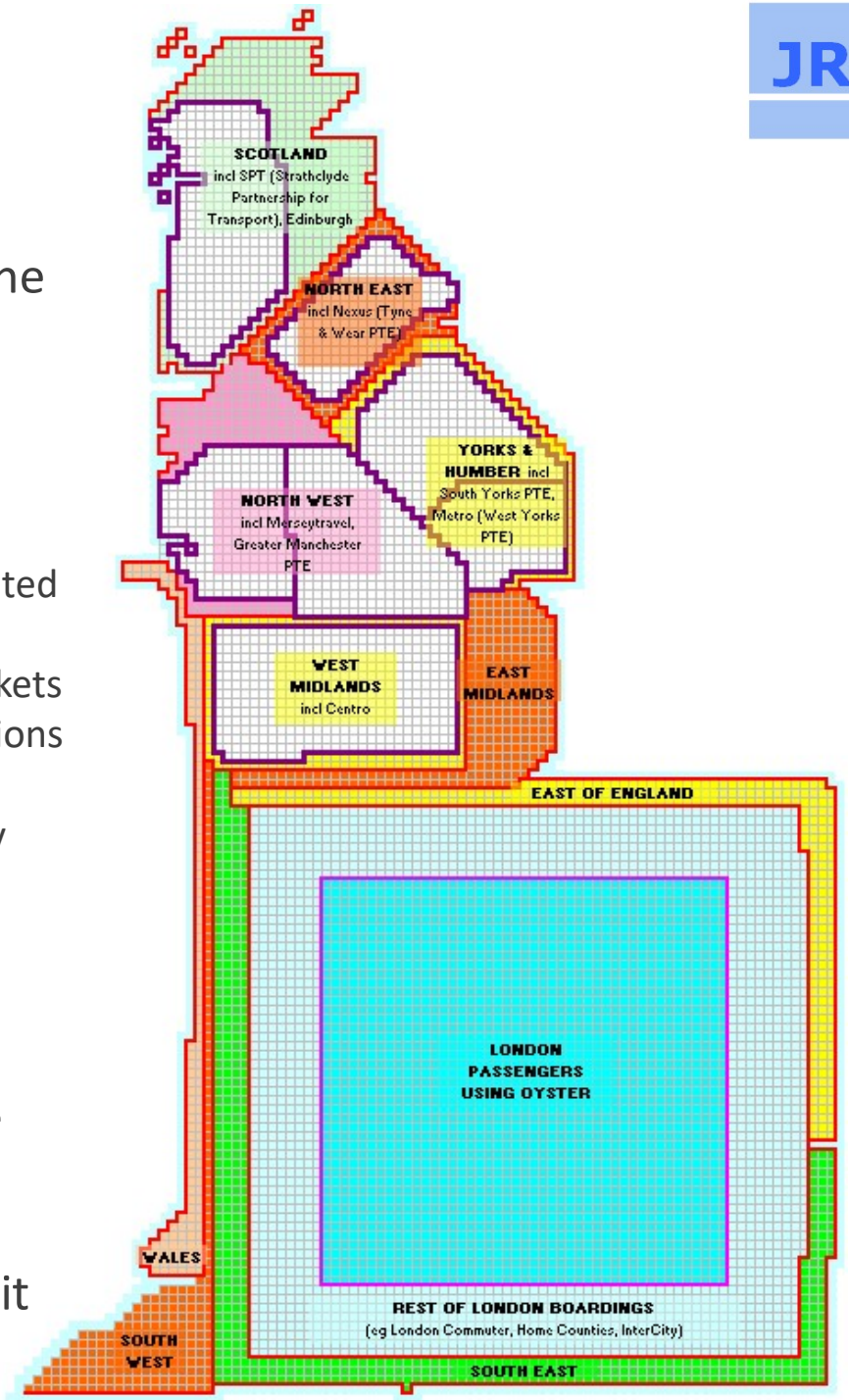
D3 FORESEEABLE SMARTCARD PROJECTS - MEDIUM-TERM ISLANDS AND BRIDGES

In medium term, histogram highlights the scope, with the right inter-linked PAYG technology, for ticketing ‘Islands’ and ‘Bridges’:

- **City region / PTE-ITA / London zone** integrated network cards
- **Inter-city and inter-urban** main corridor tickets and pricing linked with origins and destinations in city zones
- **Shire and rural area pricing**, linked with city and inter-city elements as required

Given large passenger PAYG volumes already being handled by upgraded TfL system, how many more systems do we need in addition?

TfL reported at its July 2021 Board that it was in discussion with DfT



D4 FORESEEABLE SMARTCARD PROJECTS - KNOCK-ON OPPORTUNITIES

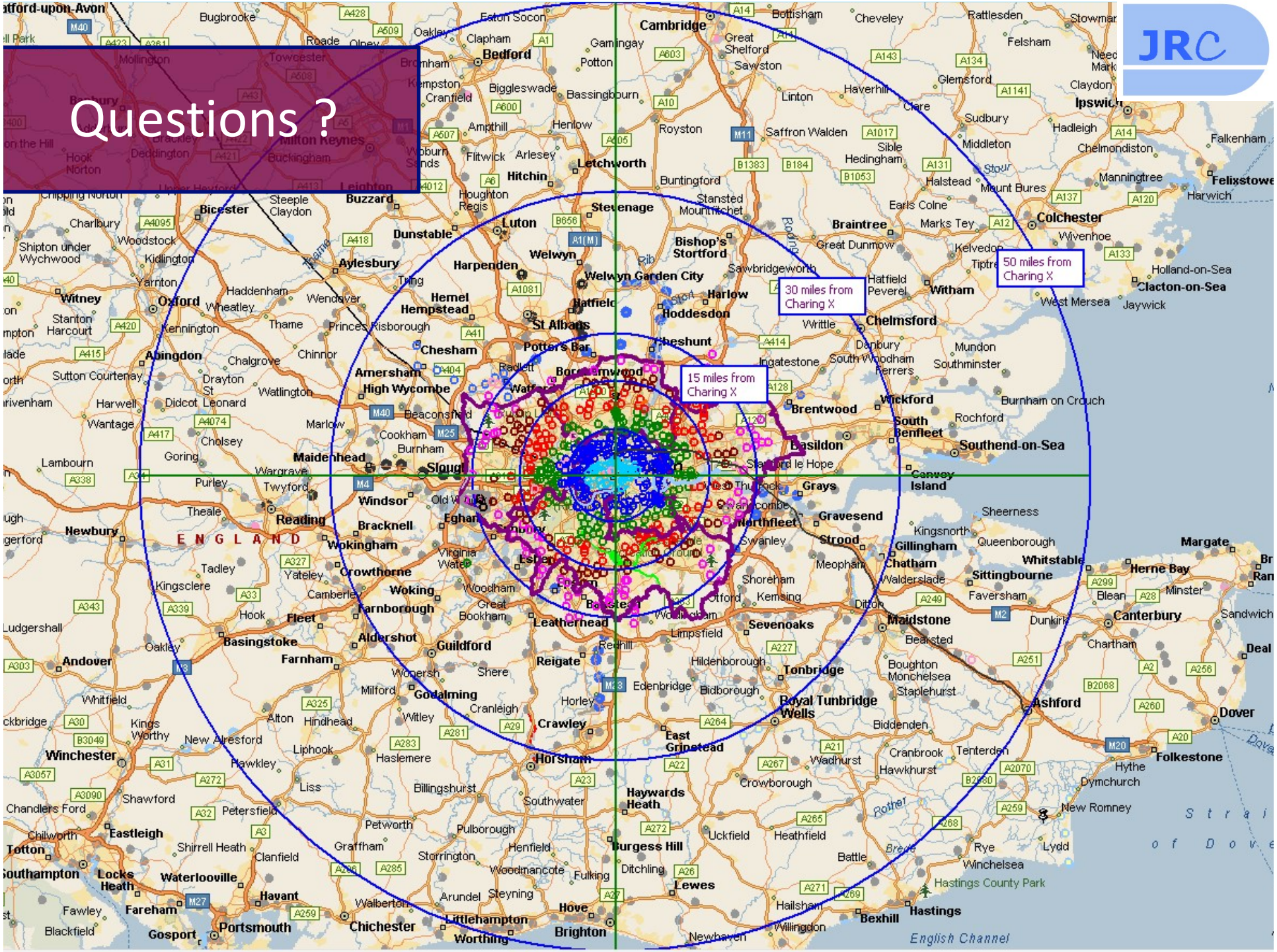
- Consistent and coherent London & Home Counties regional contactless ticketing & pricing gives strong marketing asset

- This and other applications nationally will be important, with policy need for strengthened public transport to help address the ~~30~~ 29 year decarbonisation target

- Integration with local bus networks and other modes (eg taxis, trams) should generate more public transport travel
  - London with its regulated buses could adjust networks to avoid duplication with Crossrail and to feed to main railheads
  - Significant London commuting towns (eg Reading, Woking) could benefit from combined mode ticketing using contactless
  - Public transport 'poor' areas eg Windsor & Maidenhead could gain from integration with Crossrail

SUMMARY OF PRESENTATION

- London continues to be a leader in smart ticketing and pricing systems.
- TfL was pushed to the financial edge by Covid, alongside all the human and economic pains of the pandemic
- Smartcards, particularly a modernised Oyster and Contactless with PAYG, are part of recovery and growth solutions to overcome many problems highlighted by Covid
  - Upgrading and expansion is a core part of new efficiency gains
- London's smart systems can be adapted and expanded straightforwardly, to become a *de facto* standard for national rail in the neighbouring Home Counties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