



# Public Private Partnership (PPP) for LUL

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# PPP for London Underground

## Agenda

- **Background to the PPP**
- **Overall PPP performance to date**
- **The PPP – ‘Lessons learnt’**
- **The PPP looking forward – ‘The next 27 years’**





# Background to the PPP



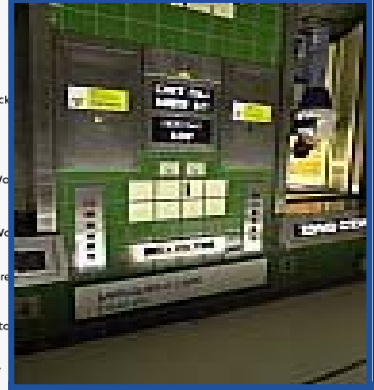
# London Underground



12ª Semana de Tecnologia Metroferroviária



816 km of track



111 Lifts



3 million journeys/day  
1 billion journeys/year  
20 million customers

276 stations



13 depots



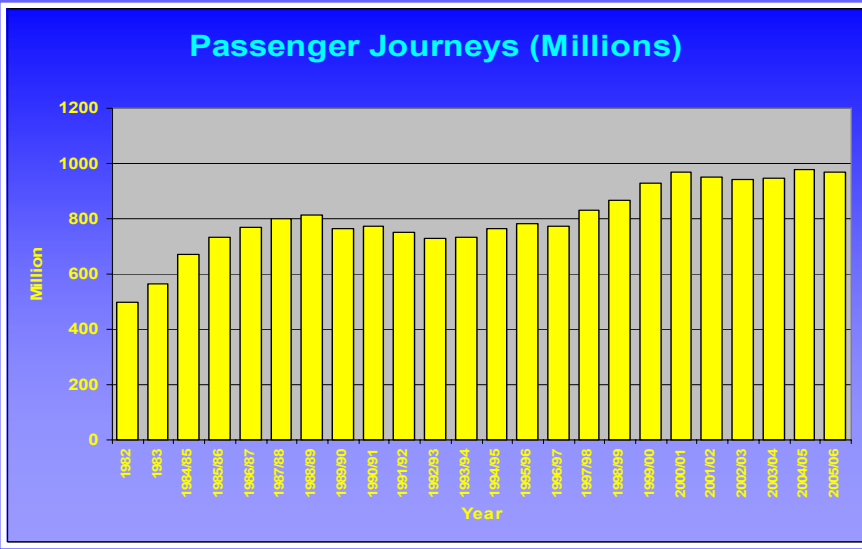
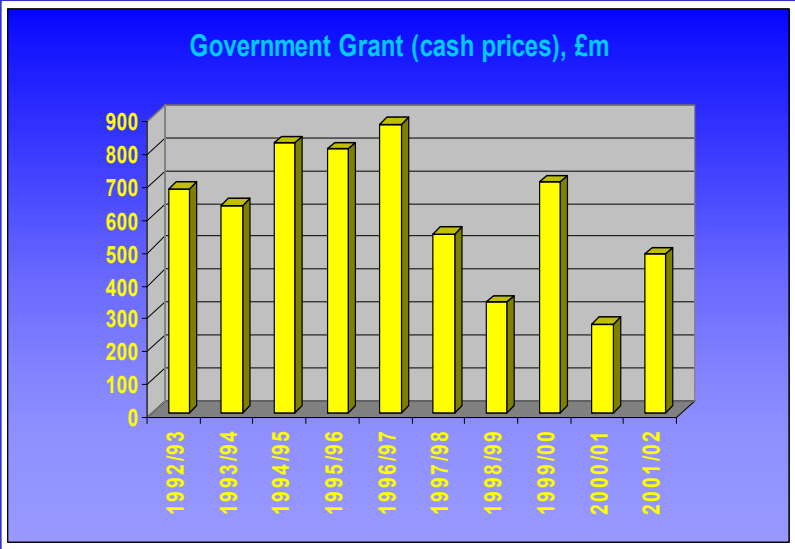
412 escalators





# Why the PPP ?

- LUL needs subsidy
- £1.5 billion investment backlog
- Stop-start funding - very inefficient
- Annual spending limits
- Increased customer demand
- Move to 'whole life asset management'





# London Underground's role

- Infrastructure Controller
- Train Operator
- Station Operator
- Safety Case Duty Holder



- PPP is not a privatisation
- All assets revert to the public sector at the end of the contracts
- Infracos moved to the private sector as going concerns





# Infracos' role

- Provide
- Maintain
- Renew
- Upgrade

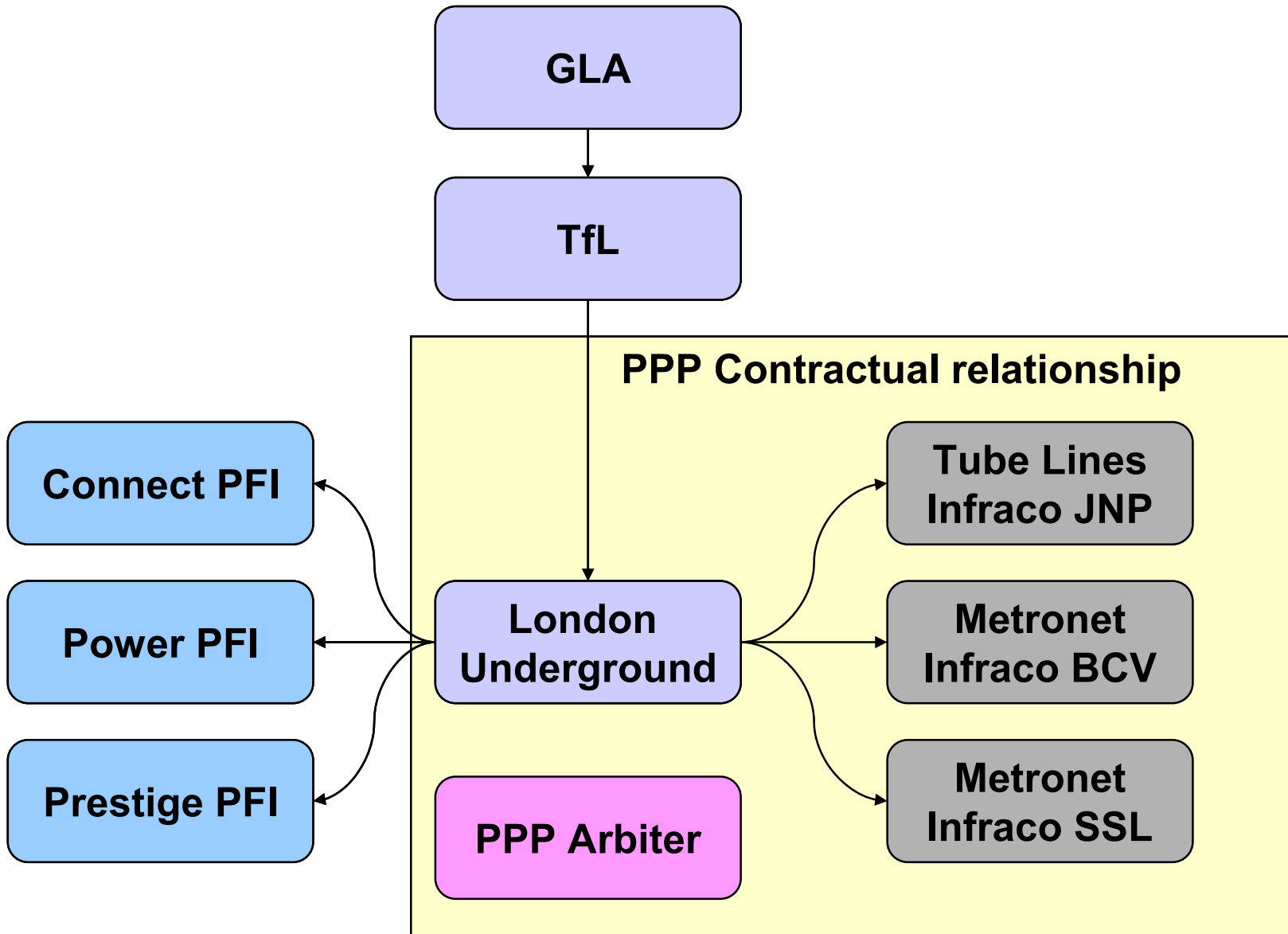
all engineering assets and services (not covered by PFIs)

- Increased capacity through line upgrades





# Structure of the PPP







# Three Infracos



	Deep tube BCV	Deep tube JNP	Sub-surface
Track km	300	370	365
Stations	75	100	95
Trains	170	250	180
Staff	2150	2000	2000
15-year spend	£4.7bn	£6.0bn	£6.1bn

*(15-year spend as per original CFO bids)*



Bombardier  
WS Atkins  
Balfour Beatty  
EDF Energy  
RWE Thames Water

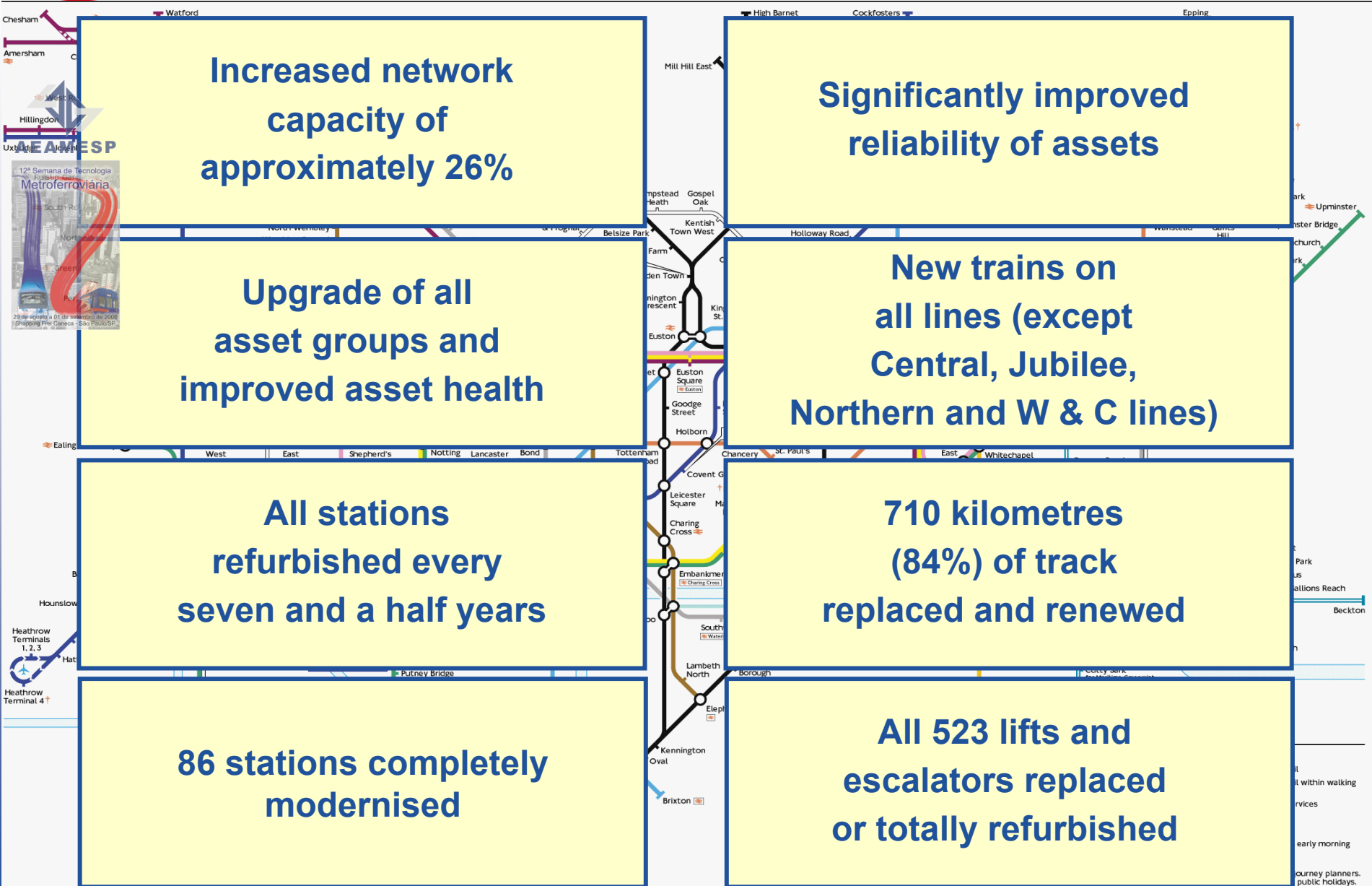


Tube Lines  
To deliver an outstanding Tube for London

Bechtel  
Ferrovial SA (Previously Jarvis  
and Amey)



# What the PPP delivers





# The Line Upgrades



Line	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	Contract delivery date	Journey time improvement	Capacity increase	
Central	[Red bar]																	Mar-06	5%	29%	
Victoria	[Cyan bar]																	Mar-06	5%		
Waterloo & City	[Light Green bar]																	Mar-07	12%	30%	
Jubilee	[Grey bar]																	Dec-09	22%	48%	
Northern	[Black bar]																Jan-12	18%	21%		
Northern SSL	[Magenta bar]																	Mar-12	2%		
Southern SSL	[Green bar]																	Mar-12	1%		
Victoria			[Cyan bar]															Aug-13	16%	35%	
Piccadilly				[Blue bar]														Oct-14	19%	35%	
Northern SSL									[Magenta bar]									Feb-15	17%	19%	
Southern SSL									[Green bar]									Feb-15	2%		
Southern SSL												[Green bar]						Mar-18	13%	19%	
Bakerloo									[Maroon bar]										Mar-20	18%	23%



# The PPP contracts

- Predominantly output based contracts that set out to achieve
  - Upgrade of all assets and increased system capacity
  - Significantly improved asset performance and reliability
  - No compromise to safety
  - Focus on ‘whole life asset management’
  - Optimisation of Capex vs. Opex spends
  - Adequate and commercially sensible risk transfer
  - Value for money





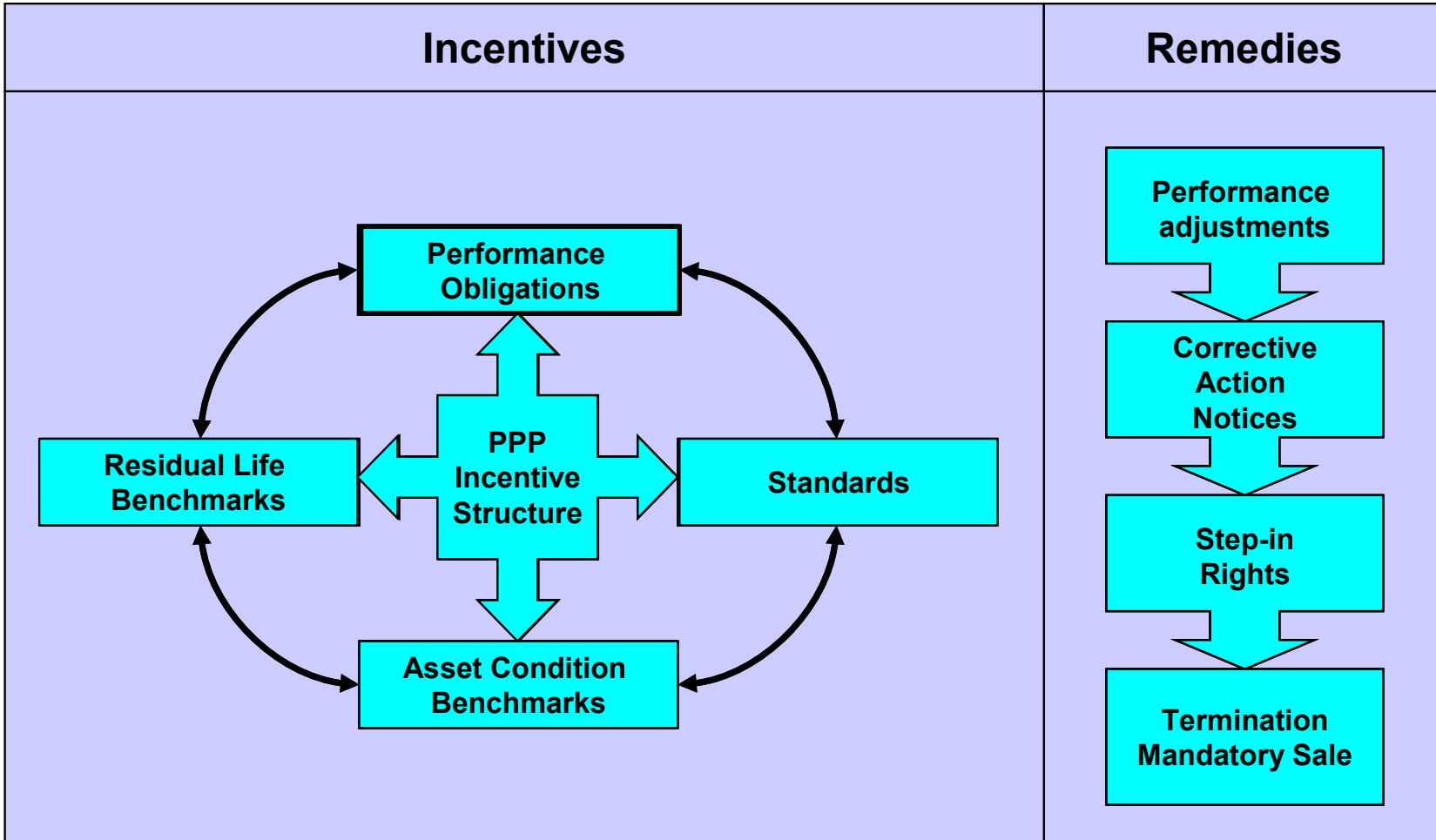
# Thirty year contracts

- Periodic Review every seven and a half years
- LUL opportunity to restate its need
- Proxy 'competition' at Periodic Review to agree obligations / price for remainder of contract period
- If can't agree price - PPP Arbiter will set price
- 'Competition' achieved through Notional Infraco
- Apply 'Economic and Efficient' and 'Good Industry Practice' criteria





# PPP Contractual incentive regime





# PPP Contractual incentive regime



**Performance**

To incentivise Infraco performance for Capability (capacity), Availability (reliability), Ambience, Facilities and Fault Rectification as well as Station Upgrade delivery

**Remedies** - mainly financial adjustments.

**Residual Life benchmarks**

To incentivise amount of life left in the assets at the end of the 30 year contracts

**Remedies** - Failure to meet at expiry date, compensation determined by independent valuer

**Standards**

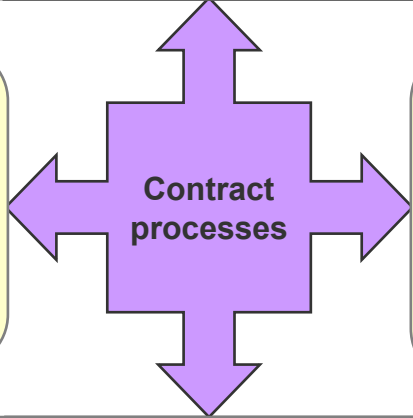
To incentivise Safety, Corporate Identity, Customer Service Delivery, consistency etc.

**Remedies** - CANs, Engineering Notices, Step-in to ultimately Termination

**Asset Condition benchmarks**

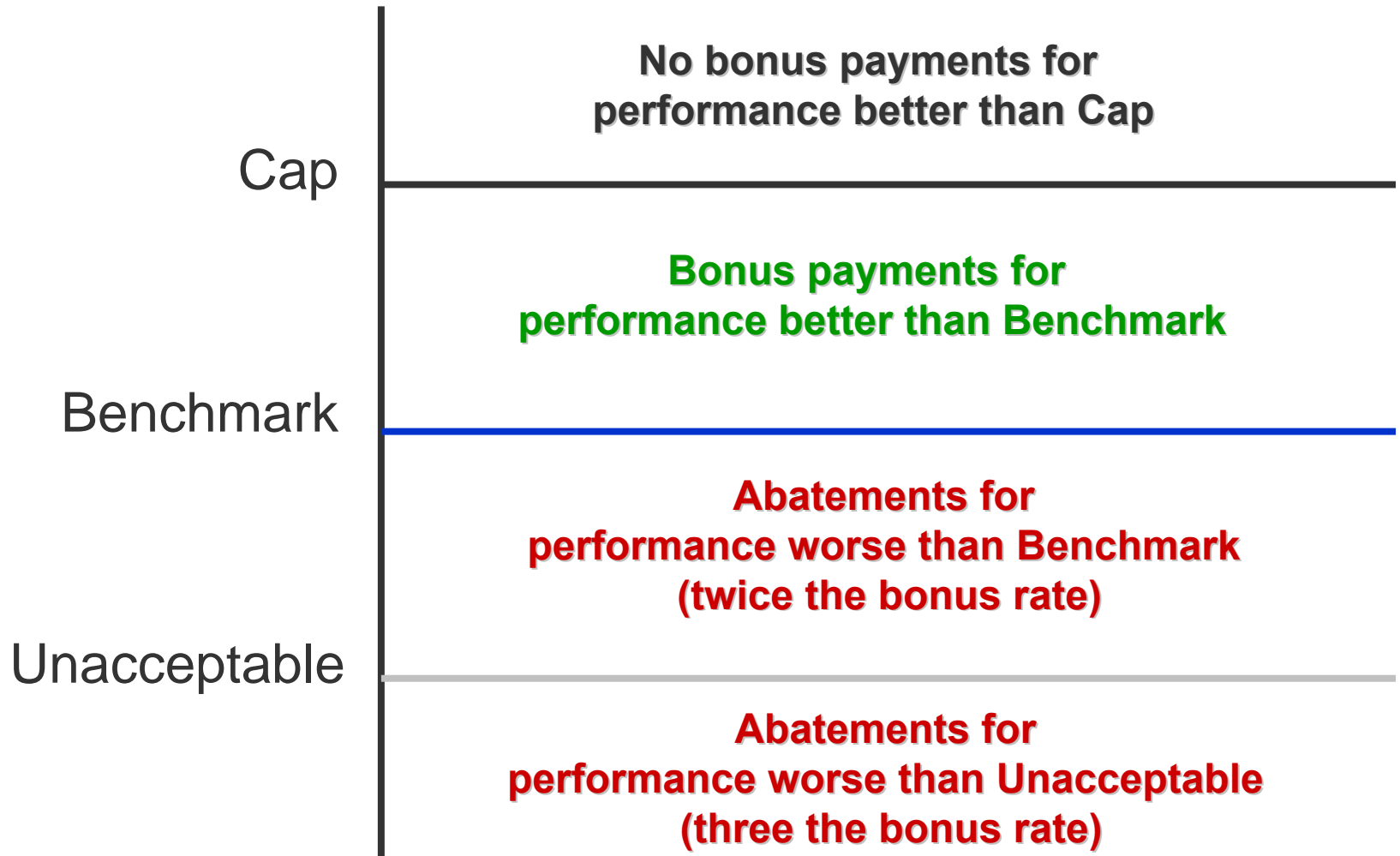
To incentivise the upgrade and renewal of assets (making up the backlog that existed at Transfer)

**Remedies** - LU may withhold from ISC amount equal to estimate of cost of achieving benchmark





# PPP Contractual payment regime



**Bid Infrastructure Service Charge adjusted for levels of performance achieved by the Infracos**





# Overall PPP performance to date





# Overall PPP performance to date

- Have been some areas of good performance and progress in the first three years
  - Availability performance on the Piccadilly and Metropolitan, Circle and Hammersmith & City lines
  - Graffiti initiative on the sub-surface railway
  - Jubilee line 7<sup>th</sup> car project
  - Wembley Park Modernisation and Capacity increase
  - Some examples of significant improvements in asset reliability performance e.g. MDBF of Piccadilly and District lines





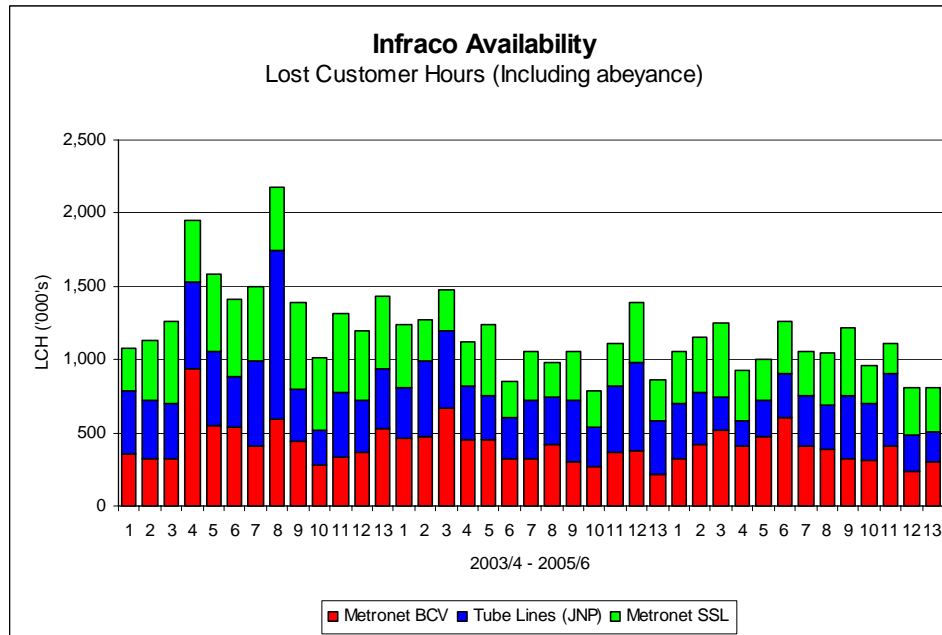
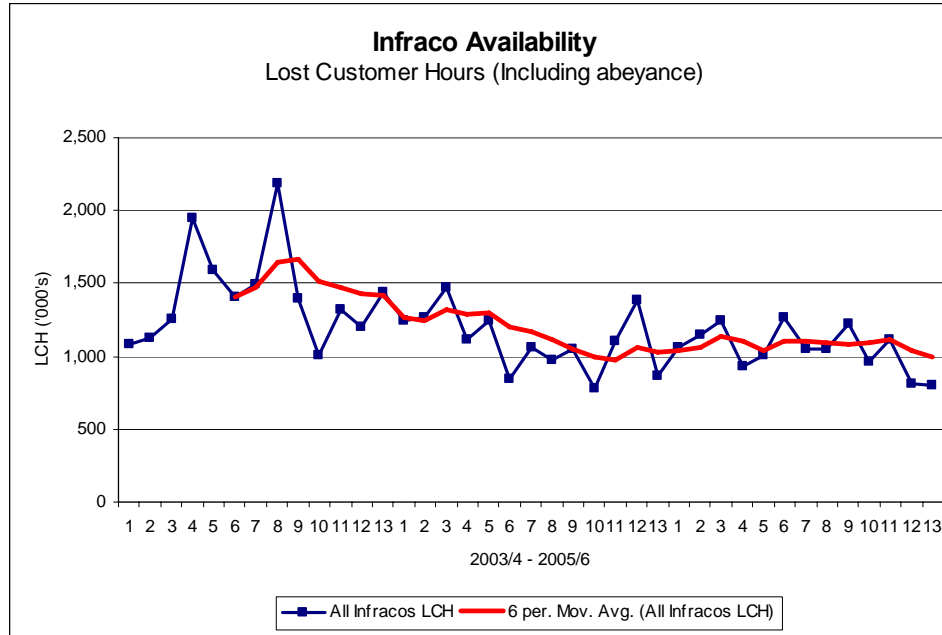
# Overall PPP performance to date

- However, there are also some worrying trends and areas of poor performance
  - Northern line Availability performance
  - Metronet stations upgrade programme
  - Inconsistent and slow progress on asset reliability performance, particularly for train control (signalling)
  - Ongoing high levels of engineering overruns
  - Failure to demonstrate 'whole life asset management' approach
- There is a general shortfall compared with the performance expectations created by bids



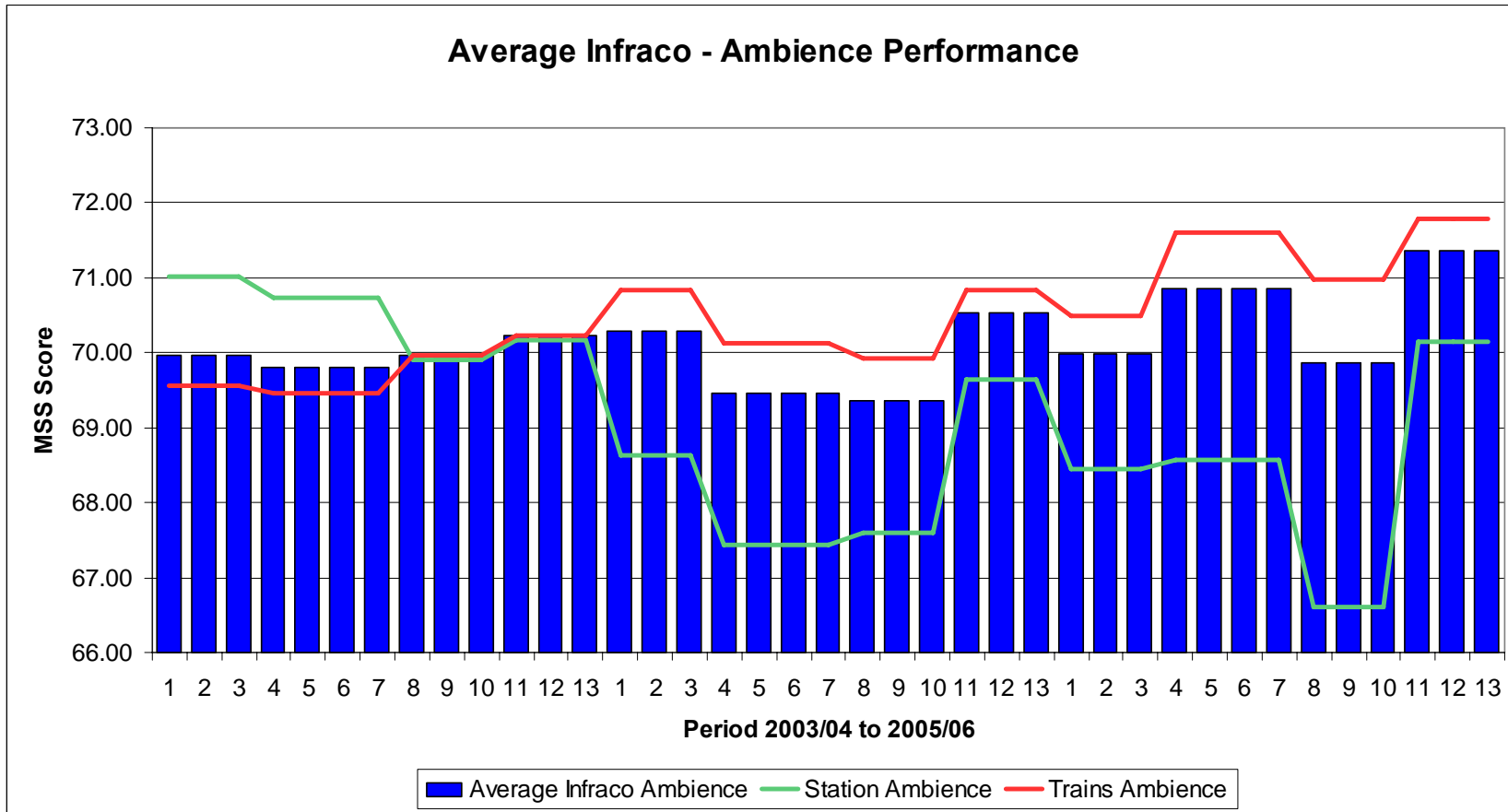


# Availability performance to date



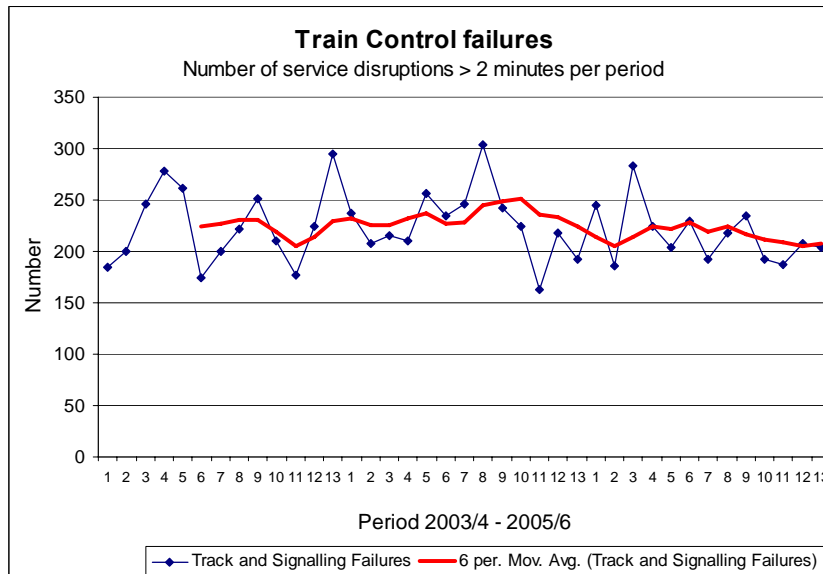
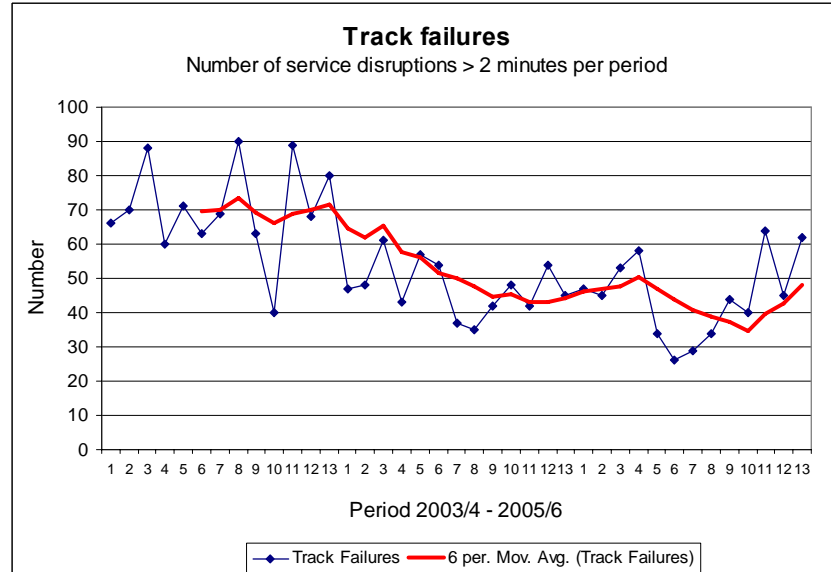
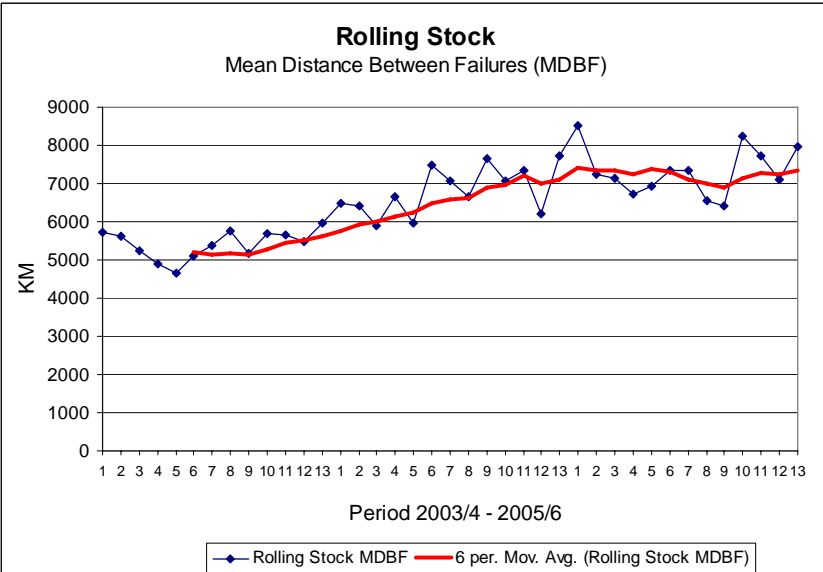


# Ambience performance to date



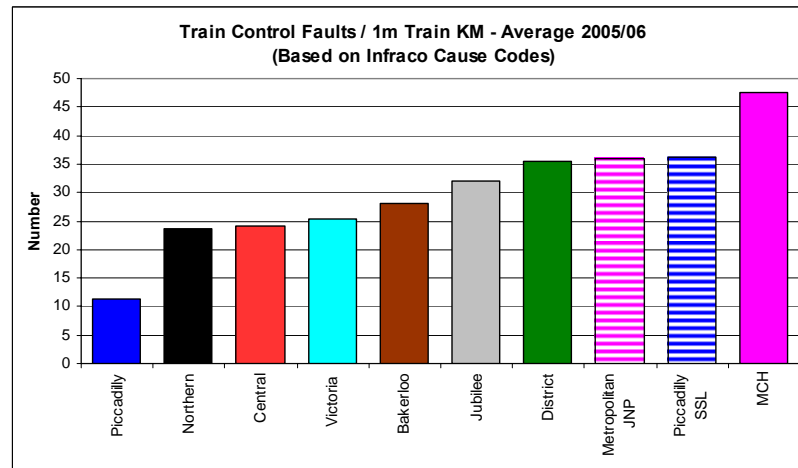
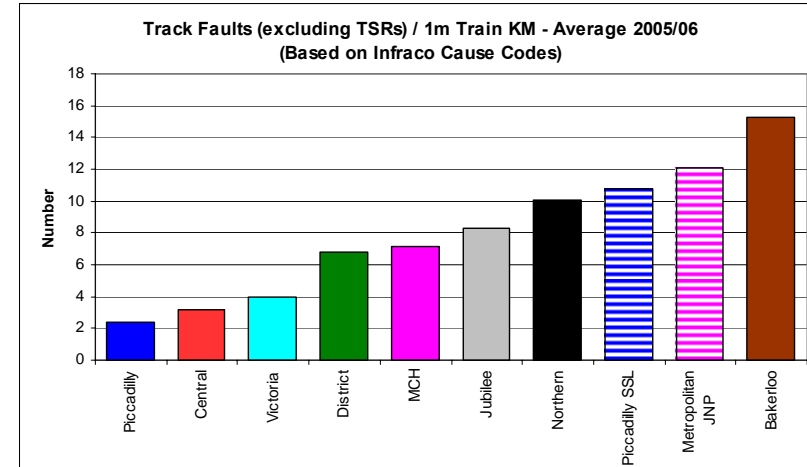
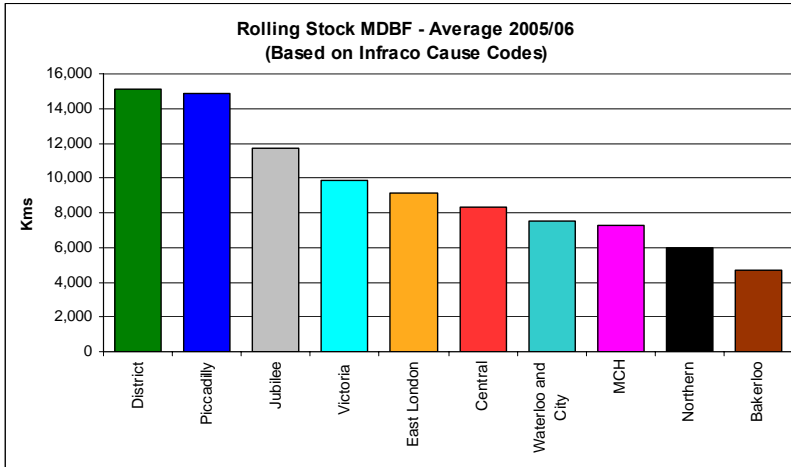


# Asset performance to date

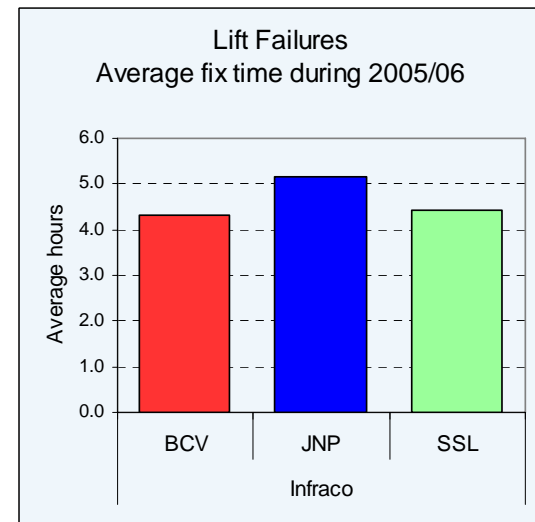
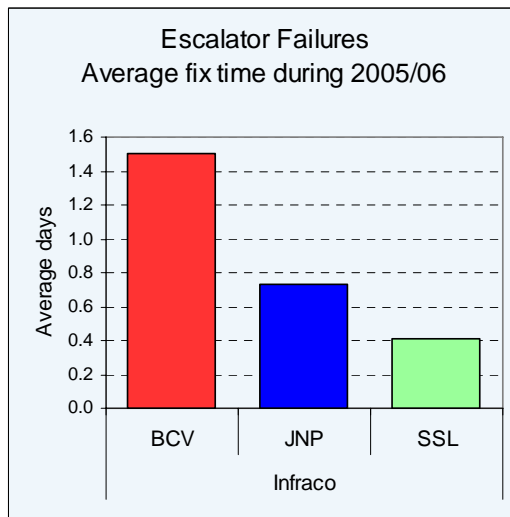
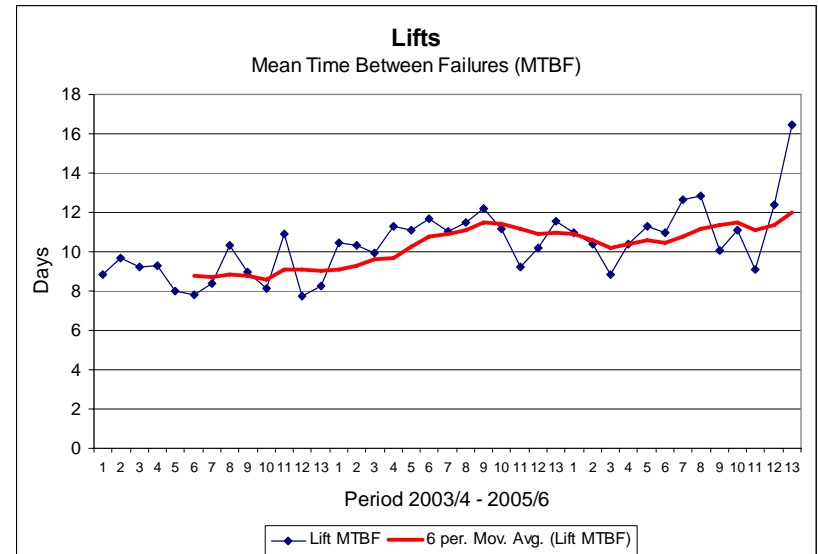
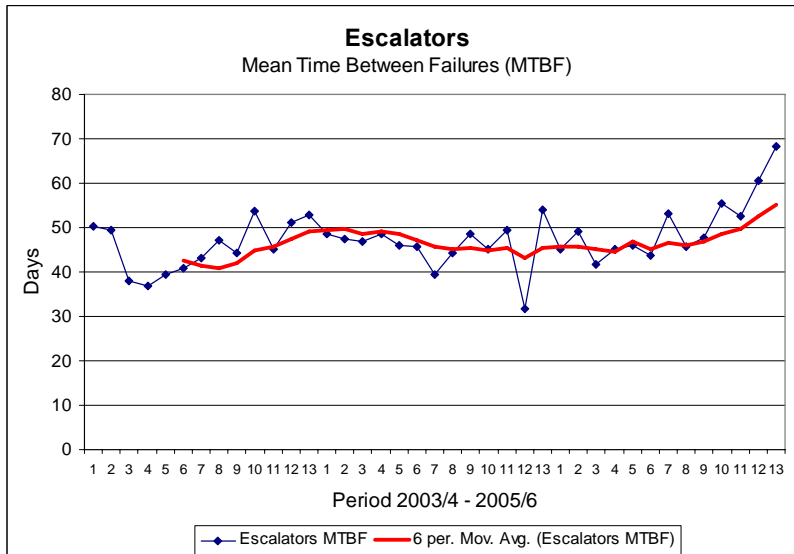




# Asset performance to date



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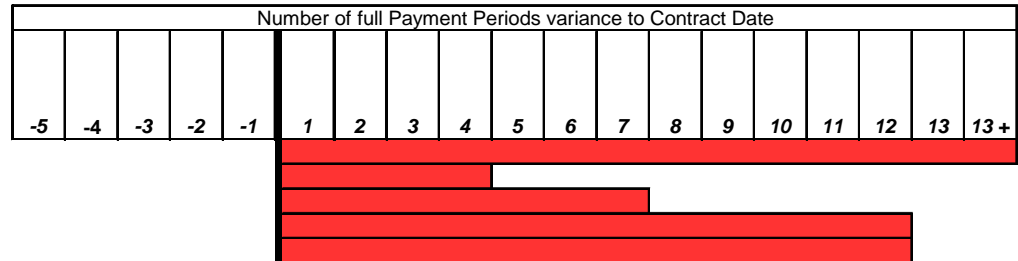




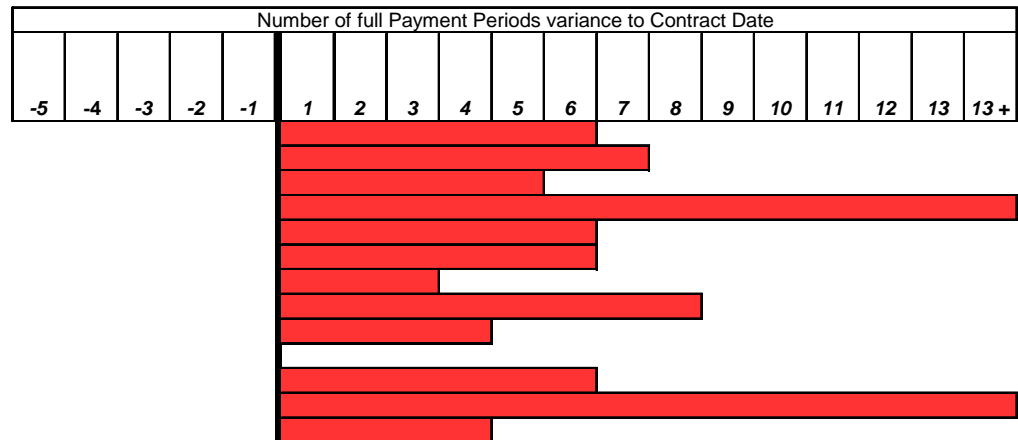


# Station upgrade performance - Metronet SSL

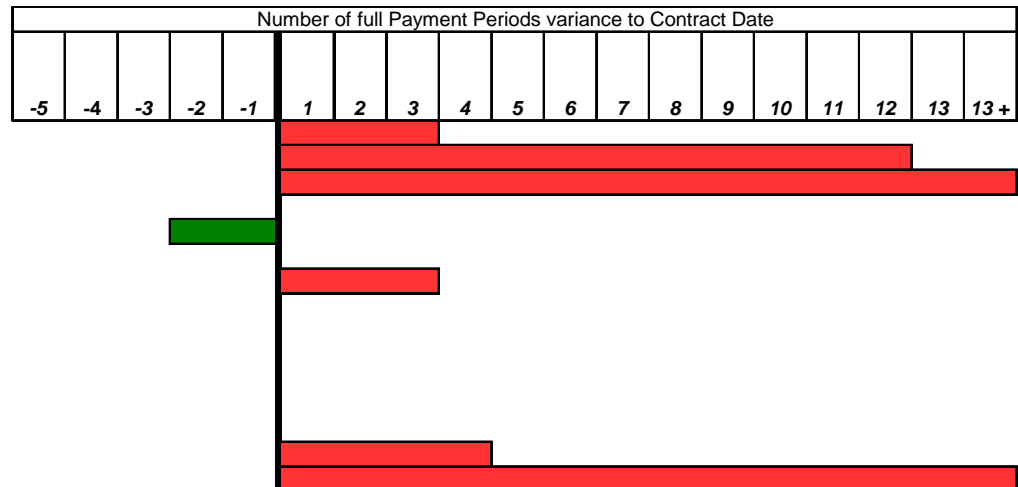
2004/05 Stations	Contract date	Actual / Forecast date	Status
Plaistow ( R )	05/03/05	31/03/06	DIS
North Harrow ( R )	05/03/05	13/07/05	DIS
Bow Road ( M )	05/03/05	05/10/05	DIS
Turnham Green ( R )	05/03/05	03/03/06	DIS
Dagenham Heathway ( R )	05/03/05	24/02/06	DIS



2005/06 Stations	Contract date	Actual / Forecast date	Status
Northwick Park ( R )	23/08/05	24/02/06	DIS
Bayswater ( ER )	20/08/05	31/03/06	DIS
Ruislip Manor ( R )	31/12/05	16/06/06	DIS
Aldgate East ( M )	04/03/06	02/10/07	LATE
Becontree ( ER )	04/03/06	25/08/06	LATE
Dagenham East ( ER )	04/03/06	25/08/06	LATE
Eastcote ( R )	04/03/06	16/06/06	DIS
Great Portland St ( ER )	04/03/06	20/10/06	LATE
Ruislip ( R )	04/03/06	24/06/06	DIS
Shepherds Bush (H&C) ( R )	04/03/06	31/03/06	DIS
Stamford Brook ( R )	04/03/06	15/09/06	LATE
Uxbridge ( R )	04/03/06	30/06/07	LATE
Putney Bridge ( M )	31/03/06	12/08/06	LATE



2006/07 Stations	Contract date	Actual / Forecast date	Status
Pinner ( R )	15/07/06	01/11/06	
Tower Hill (ER)	22/07/06	16/07/07	
Euston Square (ER)	22/07/06	10/06/08	
Chiswick Park ( R )	03/03/07	07/03/07	
Ravenscourt Park ( R )	03/03/07	04/01/07	
Gloucester Road (ER)	03/03/07	16/03/07	
Bromley-by-Bow ( R )	03/03/07	07/06/07	
Elm Park ( R )	03/03/07	14/03/07	
Upminster Bridge ((R )	03/03/07	16/03/07	
Watford ( R )	03/03/07	13/03/07	
Northwood ( R )	03/03/07	16/03/07	
Northwood Hills ( R )	03/03/07	16/03/07	
Preston Road ( R )	03/03/07	17/03/07	
Westbourne Park ( R )	03/03/07	24/06/07	
Farringdon ( M )	03/03/07	04/07/08	





# Station upgrade performance - Tube Lines (JNP)

2004/05 Stations	Contract date	Actual / Forecast date	Status
Northfields (ER)	04/01/05	04/01/05	DIS
South Harrow (ER)	04/01/05	04/01/05	DIS
Amos Grove (ER)	04/01/05	04/01/05	DIS
Burnt Oak (M)	04/01/05	04/01/05	DIS
Tufnell Park (M)	31/03/05	31/03/05	DIS
Borough (M)	04/02/05	04/02/05	DIS
Kennington (M)	30/04/05	30/04/05	DIS
Kilburn (ER)	04/01/05	04/01/05	DIS
West Hampstead(ER)	04/01/05	04/01/05	DIS

Number of full Payment Periods variance to Contract Date																		
-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	13+

2005/06 Stations	Contract date	Actual / Forecast date	Status
St Johns Wood ( M )	07/01/06	07/01/06	Under Review
Sudbury Town ( ER )	28/05/05	20/05/05	DIS
Morden ( M )	07/01/06	07/01/06	Under Review
Golders Green ( ER )	07/01/06	07/01/06	Under Review
Stockwell ( ER )	07/01/06	06/01/06	Under Review
Manor House ( M )	07/01/06	07/01/06	Under Review
Boston Manor ( ER )	07/01/06	07/01/06	Under Review
Sudbury Hill ( ER )	07/01/06	07/01/06	Under Review
Ealing Common ( ER )	07/01/06	07/01/06	Under Review
Caledonian Road ( ER )	07/01/06	07/01/06	Under Review
Turnpike Lane ( ER )	07/01/06	07/01/06	Under Review

Number of full Payment Periods variance to Contract Date																		
-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	13+

2006/07 Stations	Contract date	Actual / Forecast date	Status
Wembley Park ( M )	27/05/06	27/05/06	DIS
Neasden ( M )	27/05/06	27/05/06	Under review
Swiss Cottage ( M )	27/05/06	25/05/06	Under review
Chalk Farm ( M )	27/05/06	25/05/06	Under review
Kentish Town ( M )	27/05/06	25/05/06	Under review
Alperton ( M )	27/05/06	25/05/06	Under review
Knightsbridge ( M )	27/05/06	23/05/06	Under review
Hounslow Central ( ER )	27/05/06	27/05/06	Under review
South Ealing ( ER )	27/05/06	27/05/06	Under review
Park Royal ( ER )	27/05/06	27/05/06	Under review
Holloway Road ( ER )	17/06/06	17/06/06	Contract change
Heathrow T4 ( ER )	17/09/06	17/09/06	

Number of full Payment Periods variance to Contract Date																		
-5	-4	-3	-2	-1	1	2	3	4	5	6	7	8	9	10	11	12	13	13+



12ª Semana de Tecnologia Metroferroviária

23 de agosto a 01 de setembro de 2006 (Shopping Frei Caneca - São Paulo/SP)



# The PPP Contracts 'Lessons learnt'



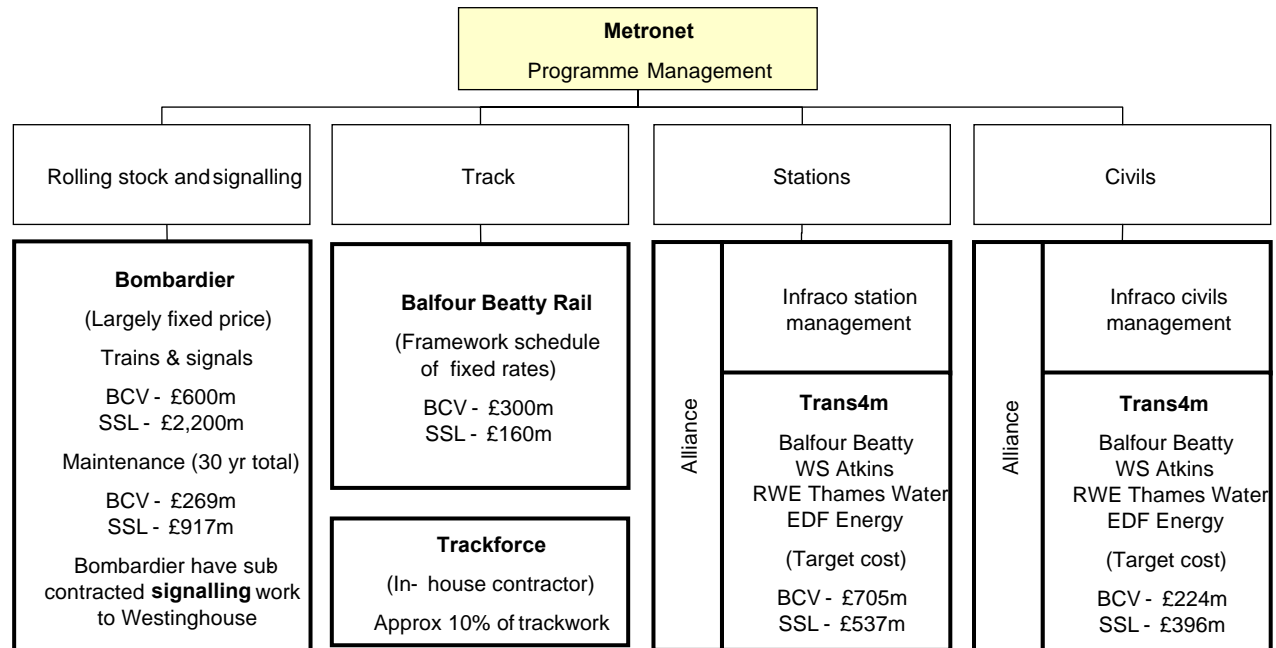
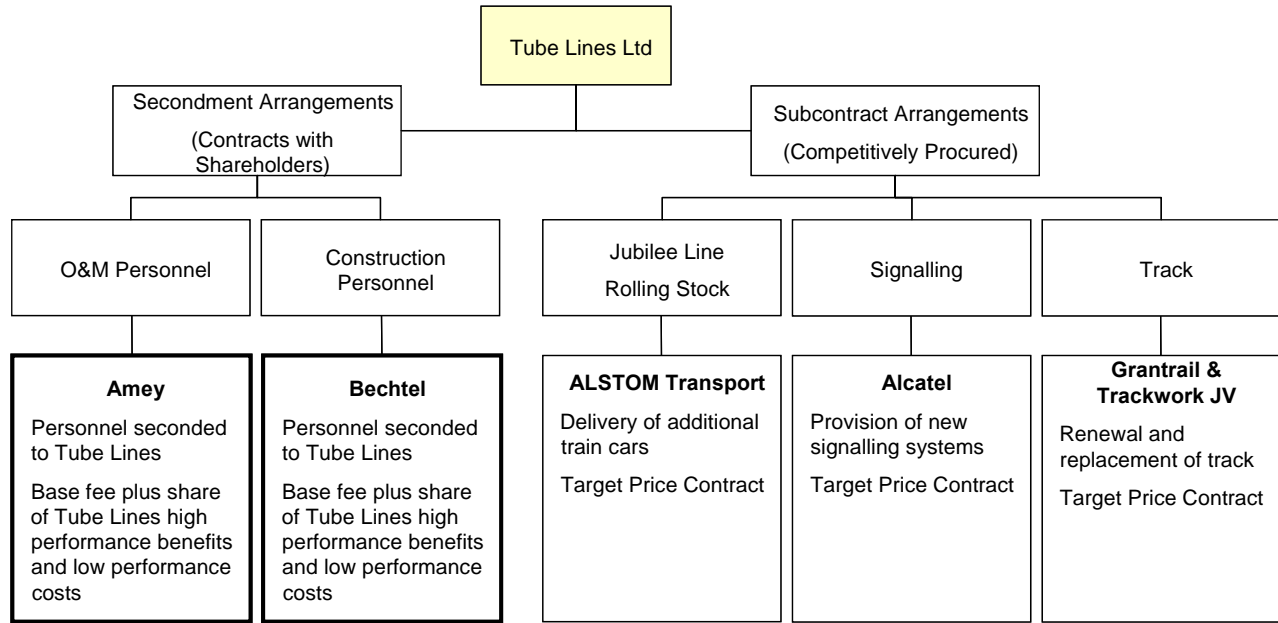
# Lessons learnt – Organisational structure

- The organisational make-up of the two Infracos is different
  - For Metronet BCV and SSL all the work is sub-contracted to the supply chain (who also own the company) through contracts set in place before the PPP went live.
  - For Tube Lines all work is contracted out to third party contractors through competitive tendering.
- This appears to be a major reason for the difference in performance to date
  - Metronet supply chain sub-contracts have large payments not clearly linked to delivery.
  - Contracts not fully back-to-back with the PPP performance and payment regime.
  - Accounting and cost control done by contract and not by asset (line). Does not allow clear understanding of cost/performance/asset condition etc.
- The parent company (Metronet) finds it difficult to bring pressure to bear on the supply chain, who owns Metronet.





# Lessons learnt – Organisational structure





# Lessons learnt – Organisational change

- The first three years have seen a far greater degree of organisational change for the Infracos than was anticipated
  - Tube Lines originally comprised of *Bechtel*, *Jarvis* and *Amey*; then *Jarvis* bought the *Amey* share; and finally *Ferrovial SA* bought the *Jarvis* share (including *Amey*).
  - Metronet have had three Chief Executives in the first three years of the PPP contracts.
- Tube Lines made major organisational changes at the top level of the organisation very early on, whereas Metronet left the top management largely unchanged for the first 2 ½ years
- Metronet have taken a long time to get organised and still not achieving good industry practise
  - Size of the two contracts too large giving Metronet too much ‘power’?.
  - Span of control and accountability too big?
  - Has limited LUL’s options in the case of failure.
- However exit rules very long and complex
  - Need to focus on how to enable Metronet to succeed





# Lessons learnt – Output based contracts

- There are parts of the contract that stray towards being ‘input specified’, but not totally
  - This has resulted in considerable dispute about the scope of works that are required.
- Areas where there would appear, under the PPP contracts, to be sufficient incentive for the Infracos to pursue improvements, but they are reluctant to pursue opportunity or ‘choose’ not to
  - LUL then is ‘forced’ to pay twice should it wish to obtain these improvements in the short term (*only remedy in terms of Economic and Efficient at the Period Review*).
- Frustrations for LUL where it sees Infracos failing, or under performing, but it can not intervene for fear of transferring the performance risk back







# Lessons learnt – Contractual flexibility

- Contracts written with limited scope for variation (intentionally). They do however not deliver all we require (due to affordability constraints at time of contract negotiations)
  - Prudential borrowing allows TfL to fund further requirements, such as accessibility schemes, but very difficult to bring under PPP
- Contracts allows for use of alternative providers in some cases (line extensions, congestion relief schemes etc.) but this does not apply everywhere e.g. Minor Works
  - Not always feasible to use alternative providers due to very high levels of integration and overlap. Issues around ongoing maintenance where alternative providers used.
  - Where not allowed to use alternative providers LUL largely at the mercy of the Infracos with regard to price (*only remedy in terms of Economic and Efficient at the Period Review*).





# Lessons learnt – Whole life asset management

- The incentives for adopting a ‘whole life asset management’ approach are all contractually set around the Periodic Reviews (every 7 ½ years) and at the end of the contracts
  - This has resulted in a greater degree of short term (first contract period) focus on performance rather than strategic long term thinking to optimise performance as well as maintenance / renewal / replacement decisions over the life of the assets.
  - It has also resulted in a degree of not wanting to invest, particularly in new technology, due to the perceived ‘uncertainty’ of future returns of investment after the Period Reviews.
  - Finally, this has also resulted in limited demonstration and application of innovation and adoption of best practice in whole life asset management.





# Lessons learnt – Assurance

- The PPP contracts assume that Infracos would, to a very great degree, be self assuring
  - This resulted in the design of a very lean organisation structure in the LUL Engineering Directorate at the start of the PPP.
  - Experience to date has shown that the Infracos have, in some areas, failed to satisfy LUL that their own assurance processes are always robust and dependable.
  - LUL underestimated the volume of assurance work it would need to do in the Engineering Directorate as a result of the huge volume of work being done on the network (and Infraco failure).
  - LUL also underestimated the importance of an ‘informed’ engineering client, both from an assurance perspective as well as from a knowledgeable procurer perspective.
- LUL has had to significantly grow and develop its own engineering resource and capability





# Lessons learnt – Value for money

- It can not be assumed that putting a balanced incentive regime (adequate bonuses for good performance and severe abatements for poor performance) in place and using private sector contractors will necessarily deliver economy and efficiency
  - This has been clearly demonstrated by Infraco performance on the stations delivery programmes, Metronet significantly late despite suffering very large abatements whilst Tube Lines are largely on programme.
  - Being predominantly output based contracts means the Infracos largely determine the scope and volumes of work required (although they have to meet contractual standards with regard to safety, quality and customer service delivery).
- LUL has had to put in place a significant contract and programme management organisation to ensure the Infracos actually deliver the scope and quality of work required (**and priced for**)





# Lessons learnt – ‘Economy and Efficiency’

- The contractual processes and mechanisms for the Periodic Reviews are untested and this therefore leaves a significant amount of uncertainty with regard to the price beyond the Periodic Review and over the length of the contract
  - Future pricing based on cost and performance of a Notional Infraco, i.e. an Infraco with same contractual obligation being ‘*Economic and Efficient*’ and applying ‘*Good Industry Practice*’.
  - These terms are however not clearly defined (or understood) which is almost certainly likely to result in significant contractual dispute.
  - Lack of visibility of particularly cost information (as mentioned earlier) makes it difficult for LUL to accurately assess Infraco’s Economy and Efficiency
- Pricing for works originally planned, **and priced**, in the first contract period slipping into later contract periods is uncertain.





# Lessons learnt – Other

- LUL has to manage complexities of interfaces between the three PPP contracts, PFI contracts that existed before as well as alternative providers for TfL Investment Plan
- In some areas the significant abatements (penalties) suffered by the Infracos may be proving to be counter productive, resulting in further 'incentive' for the Infraco to cut scope thereby potentially hampering recovery





# The PPP looking forward 'The next 27 years'







End