

TRANSPORT for LONDON

**INDEPENDENT INVESTMENT PROGRAMME
ADVISORY GROUP
(IIPAG)**

Annual Report 2012 – 2013

August 2013

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

Contents

1. EXECUTIVE SUMMARY	3
2. INTRODUCTION	6
2.1. Background.....	6
2.2. Purpose and structure of this report.....	7
2.3. Meetings and Communication with TfL	7
3. PROJECT REVIEWS	8
3.1. Approach	8
3.2. Gateway and Independent Assurance Reviews	9
3.3. Interim Reviews	13
3.4. Examples of best practice in TfL.....	13
3.5. Quarterly review of project progress dashboards	14
4. SYSTEMIC ISSUES	14
4.1. Introduction	14
4.2. Sponsorship	15
4.3. Commercial culture	16
4.4. Blockades and possessions.....	17
4.5. Risk	18
4.6. Organisational issues.....	18
4.7. Standards and specifications	18
4.8. Management advice.....	18
4.9. Systems engineering.....	18
4.10. Business Cases	19
4.11. Telecoms	19
4.12. Vision	20
5. ASSET MANAGEMENT	20
5.1. Background.....	20
5.2. IIPAG Asset Management Review	21
5.3. IIPAG Benchmarking Report.....	23
6. FUTURE WORK PLAN	24
6.1. Project Reviews	24
6.2. Systemic Reviews.....	24
6.3. Asset Management and Benchmarking	25
6.4. IIPAG Input Estimate	25
Appendix 1 - Benchmarking Report	27

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

1. EXECUTIVE SUMMARY

London is an increasingly successful, vibrant city and the continuing growth in its population has a considerable impact on its transportation strategy, driving a rapid increase in demand.

Over the last decade or so the emphasis at Transport for London (TfL) has been on a capital programme to increase capacity, in an attempt to catch up with demand following historically lower levels of investment. Much of this was initially managed through the PPP by Metronet and Tube Lines and is now either complete or is well on its way through implementation, managed by TfL.

An extensive programme of investment is now underway to replace some very old infrastructure and to address current and future transport needs with new track, trains and signalling systems being provided as well as new transit lines and extensions to stations. Renewals and enhanced maintenance will improve the quality and condition of the infrastructure and more modern plant and equipment will facilitate changes to outdated working practices. In addition, TfL is undertaking considerable investment into other forms of transport, notably new buses and cycling, all in accordance with the Mayor's Transportation Strategy.

Investments being contemplated and developed will shape the future of transport provision in the capital and support the continued development and expansion of London. As it continues to develop complex capital programmes TfL faces the challenge to identify, promote and prioritise schemes that are backed by a sustainable Business Case, are worthy of national backing and support the Mayor's Strategy.

However, whilst growth is encouraging investment, so pressures on the economy are limiting the availability of funds for transport infrastructure. The Government's Comprehensive Spending Review has imposed further financial constraints, which places TfL in a very challenging position to meet the growth in demand whilst finding efficiencies. There will be greater reliance on fare box and secondary revenues arising from its many assets and TfL will have to become more commercially focussed. TfL's Business Plan takes these matters into account and promotes a number of schemes to enhance London's transportation with proposals for committed regular funding that will enable the programme to be delivered in a consistent and predictable manner. This, in turn, will provide a basis for continued employment of experienced staff and supply chains, and as a result, deliver better value. Prioritisation of investment is key and the development of Asset Management Plans and scheme business plans to encourage spend according to priority and best value is essential.

2012 was a particularly successful year for TfL, with its performance in delivering transportation for the Olympics being a great highlight. Public expectations are high and this performance will have to be maintained and even improved if they are to be met.

The Independent Investment Programme Advisory Group (IIPAG) was created in 2010 by the Mayor of London and the Secretary of State for Transport. IIPAG provides independent assurance and expert advice to the Mayor on the economy, efficiency and value for money of Transport for London's Investment Programme.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

Since its inception, IIPAG has had an increasingly positive impact in the business, helping to save money, to drive cultural change and to encourage the appointment of high quality staff. During its third year, the relationship has matured and is good, open and co-operative. The earlier highly project-orientated emphasis has now become broader, giving greater benefit across the business. IIPAG has continued to provide constructive challenge through programme and project reviews and has worked with the business on several systemic issues. IIPAG has also addressed Asset Management at London Underground, and has directed benchmarking across TfL. This, our third annual report, summarises the year's work and describes in outline what we propose to do next year.

The results have been positive with:

- improved project management performances;
- improved commercial performance; and
- considerable financial benefit to the point that TfL has now released the £500m of contingency identified in last year's report back into its anticipated Investment Programme.

In addition, TfL has appointed industry-recognised individuals of the highest quality in recognition of the scale and complexity of the Capital Programme. IIPAG is pleased that TfL has been able to attract such high calibre staff, having set out its concerns on this topic in its first annual report. Rewards packages for senior staff have been reviewed and now generally match those available in the open market. There is still work to be done in attracting more of the best talent at the less senior levels.

In its review of projects in development phases IIPAG observed that business cases are often not sufficiently developed and explained, procurement strategies are not always appropriate given the intended level of design that TfL intends to undertake and there needs to be greater emphasis on stakeholder management. Furthermore the planning and management of schemes through their early stages is not always as rigorously controlled as it should be, which IIPAG believes is primarily a result of the often low-key role of the Sponsor and the traditionally more dominant role of the Operator.

IIPAG's review of projects in their implementation phases made further recommendations on the role of the Sponsor, which it had previously identified as a systemic issue. IIPAG welcomes TfL's increased focus on Sponsorship, which it believes to be of paramount importance for sound project development and delivery. IIPAG also made recommendations about the Commercial culture and recognises that positive steps have been taken and that more attention is now being given to it by TfL. Following the significant changes in contractual format, which TfL introduced rapidly, the progress in staff training and recruitment will necessarily be more gradual. IIPAG continues to emphasise the importance of high standards in project management, controls and their associated documentation.

The review of projects at closing stages has revealed a tendency to attempt to formally close projects before commercial closure has been achieved, and before an assessment has been made to confirm that the business case benefits have been fully delivered and are being realised. Lessons learned need to be consistently captured so that they influence future projects. IIPAG noted that a number of

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

talented individuals had left TfL, and has recommended that TfL reviews its process for identifying and nurturing talent.

Through its involvement in Integrated Assurance Reviews (IARs), IIPAG will continue to work with the business to improve the position on all of these issues in the coming year.

Projects such as Bank Station and the Sub-Surface Upgrade Programme (SUP) are very complex, at the leading edge of technology and are not without risk. They are attracting some of the best talent within the industry and IIPAG will keep these projects under close review.

IIPAG has commended best practice on a number of projects including: the Victoria Line Upgrade Programme, where reliability levels are among the best in Europe and North America; LU's track programme where a very good safety record has been achieved, and on the Station Upgrade project at Bank Station, where an innovative procurement process has been successfully used to increase the benefits delivered while reducing the estimated cost.

IIPAG examined how London Underground struck the balance between short-term pain to customers and the benefits of blockades. IIPAG concluded that producing and publishing a Best Value analysis and using strong, early publicity gave the best results.

The management of Telecommunications was identified as an area where there is considerable scope for significant cost reductions and improved service. TfL have made some proposals for change and IIPAG will keep developments under review.

TfL recognises that the huge investment in its assets demands the increased application of Asset Management principles, in order to make the right investment choices and to manage the assets in a way that optimises value. The condition of the Tube's aged and upgraded assets is generally well understood, as a result of work initially undertaken under the PPP. The momentum generated over the past decade has continued at TfL, with London Underground and Tube Lines making good progress in developing Asset Management and preparing new capital investment.

Asset Management is worth doing well, as it will greatly assist TfL in its difficult task of achieving reductions in costs with increases in reliability. Asset Management should allow the impact of current cash constraints to be evaluated and to allow the prioritisation of resources to be demonstrably optimised. It should allow TfL to demonstrate to its stakeholders that it is making sensible investment choices and that it is delivering overall good value for money. Further development is necessary to ensure that this is delivered.

IIPAG has also been directing TfL's Benchmarking activity, with the aims of identifying and spreading best practice and of comparing costs. Benchmarking has shown that the cost and performance of London Buses is amongst the best in the world, and that London Underground is expensive to maintain but is improving, and has reliability that compares well with European and North American metros.

This improved cost and reliability is being achieved partly as a result of investment in new assets. However, London Underground still has a large proportion of heritage track comprising old bullhead rails on timber sleepers and sets of air-operated points fabricated from bullhead rail. London Underground also has a large proportion of

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

very old signalling equipment and this will continue to reduce overall performance and increase costs relative to its peers until it can be replaced in modern form.

IIPAG will continue to direct this benchmarking work to ensure that it becomes an integral part of TfL's capital programme assurance and business case process.

The initiative of the Mayor and the Secretary of State to create IIPAG has had a positive impact in TfL. There is still much to do, with considerable scope for further engagement and greater benefits to be accrued.

The mix of travel demand, the transport vision, the development of new schemes, the Business case in particular, the environmental aspirations, the availability of funding, the means of procurement and many more issues make this a fascinating and challenging set of problems for the Mayor, the Commissioner and TfL to consider and resolve. Transportation is a key component in the success of London and this is a very exciting period in which to work in infrastructure.

IIPAG looks forward to continuing to make its contribution, by supporting TfL in its increasingly successful and efficient delivery of services to the capital's travelling public.

2. INTRODUCTION

2.1. Background

The Mayor of London, Boris Johnson and the then Secretary of State for Transport, Lord Adonis originally established an Investment Programme Advisory Group in May 2010. It was renamed as the Independent Investment Programme Advisory Group (IIPAG) in November 2010, when its remit was increased.

IIPAG's Terms of Reference¹ include maintenance, renewals and line upgrades as well as major projects for both Rail and Surface businesses. They also include the direction of Benchmarking across TfL and commentary upon the draft Asset Management Plans of London Underground, but they specifically exclude operational issues and the activities of Crossrail Limited.

IIPAG currently comprises five members and two advisors, and is supported by a personal assistant. All of these positions are part time and commitments range from 2 to 8 days a month. Projects and systemic issues are typically reviewed by two people, with one individual nominated to lead a topic. IIPAG meets monthly to discuss its findings, identify topics or projects for further study and to set out its reviews for the coming months. It is supported in this by TfL's Project Management Office (PMO).

This is the third Annual Report presented by IIPAG. The first two^{2,3} set out the history of IIPAG's appointment and its terms of Reference in more detail, as well as its progress.

¹ www.tfl.gov.uk/assets/downloads/corporate/Item08-4-Nov-2010-Board-IIPAG-Terms-of-Reference.pdf

² www.tfl.gov.uk/assets/downloads/corporate/iipag-annual-report-2010-11.pdf

³ www.tfl.gov.uk/assets/downloads/corporate/iipag-annual-report-2011-12.pdf

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

2.2. Purpose and structure of this report

IIPAG's remit requires it to:

- Publish an annual report on TfL's delivery of its Investment Programme from its work during the year;
- Review the level of resource required to undertake the planned future activities; and
- Consult with the Mayor and the Secretary of State for Transport and propose a work plan for the year.

This report addresses these requirements; setting out work undertaken in the year and confirming agreed resource requirements to the end of March 2016.

Section 3 of the report describes the Project Reviews undertaken in the last year. Examples of good practice within TfL are also identified.

Section 4 outlines the progress that has been made on addressing systemic issues that were identified across multiple reviews of projects and on other general issues that have become more apparent to IIPAG over the last year.

Section 5 addresses Asset Management and Benchmarking.

Section 6 sets out IIPAG's work plan to March 2016 and the necessary resources.

2.3. Meetings and Communication with TfL

The schedule of meetings and the arrangements for communication developed since IIPAG's inception are working well. The Chair of IIPAG and the Commissioner meet monthly to discuss and agree topics that IIPAG and the business consider important and IIPAG meets the members of the Commissioner's Leadership Team twice each year to set out progress and to discuss issues. Members of the IIPAG Team attend the regular monthly Rail and Underground Board and the Surface Board meetings.

IIPAG continues to attend relevant Boards, Committees and panels within TfL in support of the corporate governance and approvals process for projects typically in excess of £50m.

IIPAG continues to chair the quarterly Benchmarking Steering Group.

IIPAG also continues to meet those parts of the TfL organisation that deal with the on-going projects and those charged with dealing with the systemic issues. Generally, IIPAG's formal output to the business is in the form of technical reports relating to either the Independent Assurance Review of projects or the systemic issue being addressed. These are submitted to senior panels or committees within the business, where IIPAG presents its findings and recommendations. As relationships have matured IIPAG continues to find that more beneficial time is being spent with project teams on mentoring and technical support discussions relating to value and to progress.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

3. PROJECT REVIEWS

3.1. Approach

The Corporate Gateway Approval Process⁴ enables TfL to establish the progress and status of capital projects across TfL. The reviews are led by TfL's Programme Management Office (PMO) who consider project progress in programme, quality and commercial/cost terms, as well as their governance and management. The PMO commissions an Engineering Expert (EE) to undertake an independent review, and also arranges for IIPAG to be involved on major programmes and projects with a value greater than £50m.

The reviews allow IIPAG to present constructive challenge and to make recommendations to remedy any shortcomings in projects, thus helping project teams to improve their performance. IIPAG is given the opportunity to meet the EE and discuss the findings of their report, and usually participates in the formal Gate Review meeting chaired by the PMO. IIPAG then prepares its own independent report.

IIPAG sometimes takes a leading role at project reviews, helping to steer the PMO and Engineering Experts towards an objective and disciplined outcome. Agreement is usually reached and IIPAG's recommendations are generally accepted in full, but even where they are not there is usually some benefit in having considered another point of view from a wider perspective.

IIPAG attaches sufficient importance to the recommendations that it makes in Gateway Review Reports to believe that their enactment and completion should be recorded within the Assurance process. IIPAG therefore recommends that the PMO should routinely enquire of the Project Management as to the status of the recommended tasks and report progress on Project dashboards. This would be followed by formally addressing their completion at subsequent Gateway Reviews.

A list of the Corporate Gateway Reviews that IIPAG has undertaken forms section 3.2, and IIPAG has also identified certain recurring issues at each of the different phases of projects.

In addition to the Corporate Gateway Reviews, IIPAG has initiated a number of Interim Reviews to ensure that major projects are reviewed regularly, typically every six months during the implementation phase of a project. These are undertaken by IIPAG alone, focus on the major projects and involve the minimum of project resources. The Interim reviews that IIPAG has undertaken are listed in section 3.3.

As well as identifying areas where improvement is necessary IIPAG has noted a number of instances of best practice within TfL. These are highlighted in section 3.4.

⁴ The Corporate Gateway Approvals Process (CGAP) has now been superseded by Integrated Assurance Reviews (IARs), and the stages at which reviews take place have been slightly modified in their requirements and definitions. For simplicity IIPAG have used the CGAP nomenclature throughout this document.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

In addition to its involvement in the Reviews described above IIPAG has worked with the business to improve its regular reporting of project progress via “dashboards”. Progress on this is described in section 3.5.

3.2. Gateway Reviews

3.2.1 Projects in development phases

In its first two years many of IIPAG’s recommendations related to the implementation phases of projects. In the last year there has been greater focus on the earlier project development phase, at Gate A. In these early stages options are identified and compared and business cases are developed. These formative stages benefit from the wider perspective and constructive challenge offered by IIPAG and a greater number of recommendations have been made this year.

During the last year, members of the group have been involved with Corporate Gateway reviews in the development phases of the projects and programmes noted below:

IIPAG Participated Corporate Gateway Reviews from October 2012 to July 2013 (Development Phases)	Gate
Bank Station Capacity Upgrade Project	Various
Better Junctions Programme	Gate A
Cycle Hire Transition	Gate A
Future Station Capacity	Gate B
Future Ticketing - Phase 3	Gate A
LOCIP	Gate A
LRUC (London Road Users Contract) Re-Let	Gates A-B
Northern Line Extension to Battersea	Gate B
Structures & Tunnels Investment Portfolio (STIP)	Gate A+

IIPAG has identified three recurring themes in its reviews of projects in development phases:

- *Business cases:* IIPAG believes that business cases are not consistently robust and projects are not always subjected to sufficient identification and assessment of options and financial analysis. IIPAG also made a number of recommendations on this topic for the delivery phases of projects, where the business case should be regularly revisited and reviewed. This has been identified by IIPAG as a systemic issue and is addressed in section 4.10;
- *Procurement strategies:* IIPAG has noted a number of occasions when the procurement strategy was not appropriate for the amount of design work that TfL intends to undertake.
- *Stakeholder management.* IIPAG believes that there should be greater emphasis on the management of both internal and external stakeholders. Risks associated with these issues should be included in the Quantitative Risk Assessment. IIPAG

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

also noted this issue in the delivery phases of projects but additionally recommended that the solutions be recorded in the Project Execution Plan.

IIPAG believes that the latter two issues arise because the planning and management of schemes through their early stages is not as rigorously controlled as it could be. IIPAG has noted a number of instances where basic project documentation, in particular the identification and quantification of risks, has not been kept up to date as requirements and scope have changed. Diligent management of such issues is essential to developing a well defined and comprehensive business case. Clarification and strengthening of the Sponsor role will assist in resolving these issues.

Much of the project development work takes place before the PMO and IIPAG get formally involved at Gate A reviews, and hence the opportunity to bring a wider perspective at these important early stages is often missed. IIPAG will explore with the business how to maximise its impact in these early stages prior to Gate A. For example, in the case of future major tube projects, now that the capacity enhancement schemes are being delivered TfL are examining the likely requirements in the longer term for travel over at least the next fifty years. This is already requiring considerable investment in research and development in order to decide on the appropriate infrastructure and rolling stock best suited to London. IIPAG welcomes this initiative but notes that the current approach is based on several projects and believes that the creation of a focussed unit would be more cost efficient.

3.2.2 Projects in implementation phases

During the last year IIPAG has been involved with Corporate Gateway Reviews on implementation phases of the projects and programmes noted below:

IIPAG Participated Corporate Gateway Reviews from October 2012 to July 2013 (Implementation Phases)	Gate
92TS Bogie Replacement & Gearbox Repair	Gate D+
Baker Street-Bond Street Tunnel Relining	Gate D
Bank Bloomberg Place	Gate C
Bank Station Capacity Upgrade Project	Various
Bond Street Station Upgrade	Gate D+
Croxley Rail Link	Gate C
Cycle Hire Expansion & Intensification (CHEI)	Gate D+
Cycle Superhighways – Routes 5 & 2	Gate C
Future Ticketing - Phase 2	Gate D+
LOCIP	Gates C-D
LOCIP-NLL Element	Gate D
LRUC (London Road Users Contract) Re-Let	Gate C
New Bus For London	Gate D
Nimbus Project	Gate C
Paddington Station	Gate D+
Stations Stabilisation Authority Programme	Gate P

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

IIPAG Participated Corporate Gateway Reviews from October 2012 to July 2013 (Implementation Phases)	Gate
SUP Power Upgrade Package	Gate D
TLRN Capital Renewals 2013-14	Gate P
Tottenham Court Road Station Upgrade	Gate D

Three key areas where recommendations have been made are:

- *The role of the Sponsor:* This has been previously identified by IIPAG as a systemic issue and is addressed in section 4.2.
- *Commercial Culture:* This has been previously addressed by IIPAG as a systemic issue and is addressed in section 4.3.
- *Project management controls:* IIPAG made many observations regarding the importance of high standards of project management, controls and associated documentation. Two specific issues that IIPAG noted were in the control of costs and the accuracy of the Estimated Final Cost (EFC). These two related issues are described below.

TfL financial systems and controls are extensive and robust. However, although it is far less evident than in 2010, in IIPAG's opinion TfL's culture is surprisingly accepting of cost escalation. This perhaps stems from TfL's historic approach, when it was generally accepted that all of a project authority should be spent rather than to view it as a target that must be beaten. Suppliers are highly motivated to increase their sales and a corresponding top-down pressure on cost control is necessary at TfL in order to achieve best value. IIPAG believes that this necessitates a cultural change, including less aversion to risk, which should be driven by revised staff incentives.

TfL will need to ensure that innovative solutions, such as those proposed at Bank station, are supported by all parts of the business during project delivery. Engineers who are responsible for setting standards and approving delivery will need to ensure that these are adapted in good time to allow emerging technology to be safely deployed and hence allow projects to be delivered to time and budget.

IIPAG also believes that all staff should complete daily timesheets in order to allow full cost allocation and hence to engender a better commercial understanding of cost.

IIPAG often finds it difficult to have confidence in a project EFC. This is usually because of the absence of a suitably rigorous and up-to-date quantified cost and schedule risk assessment. Although this will be re-assessed as the project proceeds, a consequence of this uncertainty is that the Project Authority may be set at a level which might be higher or lower than the project warrants, meaning that funds might be allocated inefficiently.

While TfL's approach to risk and its management has improved greatly, IIPAG believes that there is scope for further saving and that greater downward pressure on cost control is required in order to allow funds to be saved and used elsewhere. For example, the drawdown of project risk allowance should be under strict control

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

and IIPAG has asked for a historical review to determine the effectiveness of the controls on all completed projects in the last two years.

3.2.3 Projects in closing phases

During the last year, members of the group have been involved with Gateway Reviews on closing phases of the projects and programmes noted below:

IIPAG Participated Corporate Gateway Reviews from October 2012 to July 2013 (Closing Phases)	Gate
A 406 Bounds Green	Gate E
ELL Phases 1a & 2	Gate E
Jubilee Line Signalling	Gate E
Jubilee Line Signalling Upgrade	Gate E
ORN Junctions & Carriageways Project	Gate E
Victoria Line Upgrade Gate	Gate E

There are four recurring themes in IIPAG's reviews of projects in their closing stages:

- *Reviews of the project against its original business case:* IIPAG has noted that few projects sufficiently test whether they have achieved the original business case, in particular whether the benefits delivered have materialised to the extent forecast;
- *Lessons learned:* IIPAG has made recommendations for the capture of lessons learned so that they are available both to future projects and Gateway Reviewers engaged on similar projects;
- *Identifying and nurturing talented people:* IIPAG has noted that a number of project and commercial managers that it considered had performed particularly well are no longer with TfL. IIPAG recommended that TfL reviews how it identifies and retains such people; and
- *Readiness for review:* In contrast to other reviews, particularly in the implementation phases, Gate E submissions are often not ready for the review. Supporting documentation is often not available or the delivery team are endeavouring to close out the project whilst too many issues remain outstanding.

IIPAG considers that the discipline of a CGAP gateway review should be upheld: projects should not pass a final completion gate until they are complete. It is not acceptable for projects to pass a final gate with a long list of further actions to be undertaken.

IIPAG has suggested that an additional gate should be considered, to mark the *practical completion* of a project. This would allow time for commercial close out and benefits evaluation to take place prior to the final completion gate. TfL is taking action on this recommendation.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

3.3. Interim Reviews

Based upon the Office for Government Commerce approach, IIPAG has undertaken Interim Reviews on the following projects during the year:

IIPAG Interim Reviews from September 2012 to July 2013	Gate
Green Park Station	Gate E
Northern Line Upgrade	
River Crossings	Update
Sub-Surface Lines Upgrade Programme	
Sub-Surface Railway Upgrade ATC	Interim
Sub-Surface Upgrade Programme (SUP) S8 Infrastructure	Gate D+
Sub-Surface Upgrade Programme Rolling Stock	Gate D+
TCMS 2 (Traffic Control Equipment Maintenance)	Gate
Tottenham Court Road Upgrade	Gate D+
Victoria Station Upgrade	

IIPAG has undertaken fewer interim reviews than planned, primarily due to the integration of interim reviews into the Gateway Review process. For some projects, notably the Deep Tube Programme and Bank Station Capacity Upgrade Project, IIPAG's involvement has taken place via greater involvement with the project teams rather than via formal interim reviews. A small number of interim reviews have also been deferred in agreement with TfL.

3.4. Examples of best practice in TfL

During the reporting period IIPAG have identified a number of examples of best practice including:

3.4.1 Victoria Line Upgrade Programme

Since completion of the upgrade, the performance that has been achieved on the line has improved significantly and now is among the most reliable in Europe and North America.

3.4.2 BCV/SSR Track Programme

The safety record on BCV/SSR Track Programme is very good: the team has exceeded 1 million man-hours without a reportable accident.

3.4.3 London Highways Alliance Contract

This is a standard form of contract awarded to four contractors each assigned a specific region of London for application on the capital renewals programme and other related projects. The Local Boroughs are encouraged to use their local LoHAC Contractor resulting in greater economies. The collaborative approach used to involve stakeholders from the London Boroughs on the steering group during the development of the concept is a good example of early and effective stakeholder involvement.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

3.4.4 Commercial Engagement

On the A406 Bounds Green Project, IIPAG was very impressed with the performance of the commercial team in arriving at an agreement with Skanska, moving from a claim of some £6.7m to a mutually accepted sum of £1.4m.

3.4.5 Croyley Rail Link

IIPAG was impressed with the professionalism of the TfL Project Team in planning the project process and dealing with the Transport and Works Act Order for the Croyley Rail Link project.

3.4.6 Procurement: Innovative Contractor Engagement (ICE)

The major innovation by the Capital Projects Directorate was the use of ICE on the Station Congestion Upgrade project at Bank Station. This is described in greater detail in section 4.3.3.

3.4.7 Asset Management and Benchmarking

Areas of good practice highlighted by IIPAG's work on Asset Management and benchmarking are described in section 5.

3.5. Quarterly review of project progress dashboards

Good progress has been made this year in developing improved reporting of project progress via quarterly dashboards. This has resulted from collaboration between IIPAG and PMO. The developments have centred on the recommendations made in the last IIPAG report.

The dashboards are in the final stages of refinement and are being produced using information provided directly from the projects. Following feedback from members of TfL's Planning and Policy Panel, adjustments are being made to present a more user friendly and usable presentation for all.

The dashboards should become TFL's primary monthly management reporting tool.

4. SYSTEMIC ISSUES

4.1. Introduction

Through its project and Asset Management review work IIPAG has identified a number of issues that have a wide impact on the business performance of TfL. IIPAG is addressing these systemic issues with TfL separately in order to achieve the necessary focus, and some have been the subject of specific IIPAG reports.

IIPAG has pursued the following systemic issues in the last year:

- Sponsorship;
- Commercial Culture;
- Blockades and possessions;

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- Risk;
- Organisational issues;
- Standards and Specifications;
- Management advice;
- Systems engineering;
- Asset Management and benchmarking;
- Strategy and Prioritisation; and
- Future investment proposals.

IIPAG has also identified some new issues:

- Business cases;
- Telecommunications; and
- Vision.

4.2. Sponsorship

It is essential that a suitably senior individual acts as Project Sponsor, to own the scheme business case and hold the project team accountable for delivering the benefits. Sponsors should have executive independence and be competent, enabled, strong and independently minded enough to hold project delivery to account for delivering the best value whole-life outcome. Common principles of sponsorship should be adopted across TfL.

IIPAG still feels that this is not consistently achieved across TfL. However, IIPAG has made fewer recommendations for improvement in this area for projects in the implementation phases than in previous years. IIPAG has also noted projects where sponsorship has been strong. In IIPAG's view the main challenge for Sponsorship now lies in the project development, rather than the project implementation phase.

During the year TfL has improved its sponsorship capability. The sponsorship function is being integrated across TfL, and a new Director of Major Programme Sponsorship for London Underground and London Rail was appointed in April. His task will include integrating Tube Lines systems and processes with LUL. His remit also includes the development of the sponsorship function pan TfL, building on previous reports by both IIPAG and Turner & Townsend. To this end, a 'Sponsorship Capability Improvement Programme' (SCIP) has been established, with representatives from across the business, reporting into TfL's Delivery and Commercial Programme Board. The key emerging SCIP themes are to:

- Ensure clear and common principles of Sponsorship across TfL;
- Clarify executive level sponsorship responsibilities;
- Ensure TfL management systems and governance process align with agreed sponsorship principles; and
- Develop an ongoing programme to assess and develop sponsor competence.

This is an on-going exercise and IIPAG will maintain a keen interest in its progress.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

4.3. Commercial culture

In previous years IIPAG has made large numbers of recommendations regarding inadequacies in commercial management. IIPAG remains concerned about the commercial performance of TfL, and believes that the commercial capability at senior level in some areas serving capital programmes is not as good as it should be.

TfL is now giving serious attention to this issue. TfL has established a Delivery and Commercial Capability Programme Board, which has identified the areas of weakness and introduced a programme to strengthen the commercial capability of senior staff across TfL.

TfL will measure the success of this initiative by monitoring the change of project costs from the initial budget to the outturn cost, and by benchmarking. To ensure this does not become another admin and cost burden IIPAG recommended that progress be monitored twice yearly.

4.3.1 Commercial resources

Recruitment of suitable people has taken place, but it has been difficult to find high calibre candidates for the senior positions. This is probably because of competition from Crossrail, Thameslink, HS2 and other infrastructure projects in London and the South East. As for project management, TfL will need to keep its rewards packages under review and continue to promote the attractiveness of its project portfolio to compete for the best talent. Where projects have an urgent need for senior expertise TfL is taking steps to ensure that it can get sufficient resources.

4.3.2 Commercial organisation

IIPAG has been concerned at the lack of external commercial control and commercial oversight of the projects. This is improving, as the roles and relationships between project managers and their commercial managers have been clarified. The traditional need for both operational and functional reporting lines is recognised.

The management of Tube Lines projects through the Capital Programmes Directorate (CPD) is a sensible development and should assist with the alignment of commercial reporting lines.

4.3.3 Innovative Contractor Engagement

IIPAG has worked closely with the TfL Bank Station Upgrade Project Team to influence and support their innovative approach to procurement, known as Innovative Contractor Engagement.

ICE proved to be a successful procurement process and has achieved a better design solution, for a lower Target Cost Price and promises faster delivery than the conventional Design and Construct method.

The principle of ICE is to obtain competing offers to deliver an asset that will meet a defined outcome. It is not new in so far as it was the basis of many PFI products. However, the Project Team was faced with many issues new to them, including:

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- What and how to communicate to tenderers.
- How to maintain confidentiality of ideas.
- How to influence the contactors' designs.
- How to evaluate the contractors' offers in terms of Target Cost, Benefits and Risk.
- What contract conditions should apply.
- How to measure the value of the competing designs.

IIPAG worked closely with the Team and constructively challenged their initial ideas on these and other issues. The debate was co-operative and sometimes lively, and has led to better procurement. The project team trialled and proved a system to identify the best value option, taking account of whole-life monetary and non-monetary benefits.

IIPAG will remain engaged with the project and hope to contribute to the success in delivery of the Bank Project.

In addition IIPAG will seek to influence the application of ICE on other large projects in which construction method will be a dominant influence on the design solution. Large buried structures on urban sites such as underground stations are particularly well suited and can justify the high tendering costs of the industry.

4.3.4 Supplier Engagement

TfL is improving its interaction with suppliers through its Supplier Relationship Management Programme. Inevitably given its unique position TfL has to deal with sole source providers from the supply chain and IIPAG remains concerned about the relationships with major long-term suppliers, of signalling and rolling stock in particular. IIPAG believes that TfL should develop a more collaborative relationship with this class of strategic suppliers and would recommend the application of the principles in BS 11000: Collaborative Business Relationships.

4.4. Blockades and possessions

IIPAG reviewed the arrangements for determining whether major closures of the underground can be justified for certain engineering works and summarised its findings in a report in October 2012. Following this London Underground contacted other international metros to understand the extent to which they undertook works outside of engineering hours and is now liaising with New York, the only other metro in the CoMET and Nova group that undertakes material amounts of work during closures, to share best practices.

Balancing the short-term pain to customers against the long term benefits and cost savings of blockades can be better achieved where a good, demonstrable Best Value analysis has been produced. IIPAG recommended that this should become standard practice, as it would deflect much of any criticism from stakeholders.

IIPAG emphasised the importance of strong early publicity and travel advice to the travelling public as was proven at Paddington and Bayswater and subsequently through the Olympic Games. TfL should consider making communications a more strongly weighted factor in its evaluation of blockades and possessions. The public may well prove to be more resilient than the current process appears to favour.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

London Underground is making good progress in achieving greater volumes of work within engineering hours, in improving the planning of closures and in getting better utilisation of blockades.

4.5. Risk

IIPAG's review of risk has been undertaken via its Corporate Gateway Reviews. As described in section 3.2, IIPAG does not believe that the Quantified Risk Analysis currently undertaken by TfL is always sufficient to give appropriate credibility to the Estimated Final Cost, but this situation is improving.

4.6. Organisational issues

IIPAG has discussed its views on organisational issues with senior management in TfL, typically via its regular meetings, drawing on its experience and delivering an independent perspective. There is some concern within IIPAG that the integration of Tube Lines into London Underground could result in the loss of some of Tube Lines' strengths. TfL has clearly stated that it will ensure that the best performing processes, whether in Tube Lines or London Underground, will be retained in order to deliver an overall improvement throughout the business.

IIPAG is currently reviewing the effectiveness of TfL's Programme Management Office following its reorganisation in 2011.

4.7. Standards and specifications

IIPAG has continued to encourage TfL to rationalise its suite of standards. On London Underground, the initiative to reduce the number of bespoke standards is an essential element of the Sub Surface Upgrade signalling works. This will also be essential on the Deep Tube Programme. Recommendations stemming from IIPAG's Benchmarking and Asset Management work have supported initiatives to move to risk-based standards more widely for rolling stock maintenance in London Underground and IIPAG has suggested that this is also implemented on buses.

4.8. Management advice

IIPAG continues to work closely with TfL senior management and with project delivery teams. Contact occurs formally through Committee meetings, Board meetings and project reviews, and less formally through many contacts with the business.

IIPAG has extensive industry experience and increasingly, a broad understanding of TfL. IIPAG's independent position and non-executive role enables it to contribute impartial advice and guidance, and to present constructive challenge.

4.9. Systems engineering

IIPAG has considered systems engineering in its review of Asset Management and also via its reviews of the Deep Tube Programme. The issue has also been

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

addressed in a number of Corporate Gateway Reviews, particularly during the project development stages.

4.10. Business Cases

A good project development process should expose the assumptions and mechanisms of the business case to scrutiny. TfL's business case requirements are based upon the national Department for Transport requirements, which are set out with the aim of comparing the validity of schemes across the country. Although the TfL method of calculation reflects some of the unique features relevant to London, many of the parameters such as passenger preferences and values, were established in the 1980's and almost certainly are not accurate for today's situation. TfL recognises these limitations and IIPAG understands that work has begun to examine whether or not its approach and weightings should differ from national guidelines and are currently appropriate

IIPAG believes that the influence of thorough business case examination will be more important to TfL as it becomes more commercially focussed. Widespread demand growth will inevitably generate competition between potential projects and IIPAG believes that business cases are the primary component of ranking projects within an overall programme.

Often there has been a lack of clear definition of the needs of the business, expressed in terms of objectives and a requirement that includes performance, operations and maintenance and measurable outcomes. These should then define the project scope, which are then supported by a business case narrative. This shortcoming is often due to the lack of a well-defined and suitably senior Sponsor to ensure that the Project will meet the needs of the business and is affordable.

IIPAG remains concerned that the full cost of overheads does not always appear to be attributed to business cases and projects. IIPAG will work with the business to better understand whether the limitations can be removed.

4.11. Telecoms

IIPAG undertook a review of the provision of telecoms across TfL and produced a systemic report in March 2013.

TfL is a major user of telecommunications: TfL depends upon telecoms services at all of its control centres; at all of its railway, bus and tram stations and depots; at all of its railway signalling and electrical control locations, at all of its offices and data centres; at all of its traffic lights; congestion charging sites and cycle hire points and on all of its trains, buses and trams. TfL spends more than £150m per year on telecoms operating costs and has an investment plan that includes hundreds of millions of telecoms investment.

However, the management of telecoms at TfL is fragmented and inefficient. There is no effective co-ordination, no overall network management and only limited development of opportunities for secondary income. Consequently, costs are much higher than they need to be.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

IIPAG recommended that a single team should be created, with the authority and responsibility to manage all of TfL's telecoms assets and services, to drive down costs, improve performance and develop commercial synergy.

TfL is now preparing a strategy to address the issues and have staff specifically appointed to the task set by a Board mandate. However, TfL currently proposes to establish a Network Services Steering Group rather than the separate business unit that IIPAG recommended. IIPAG has seen an outline programme for the resolution of the issues raised and will take a keen interest in its progress.

4.12. Vision

It is clear that the current infrastructure will be unable to accommodate the needs of the capital in 40 years time. TfL continues to make a case for increased capacity, through the upgrade of existing services such as the Deep Tube Programme or through the construction of new infrastructure such as the Northern Line Extension and Crossrail 2. IIPAG wholeheartedly supports TfL's drive to meet future capacity requirements.

However, IIPAG remains concerned that TfL does not inadvertently handicap its future actions by the solutions that it delivers.

IIPAG believes that TfL should:

- develop a technical strategy that sets out what will be required, feasible and deliverable by 2050;
- develop a migration plan to deliver the 2050 solution, which is authorised and monitored by the Board; and
- incorporate future proofing into the current capital investment programme as necessary to ensure that future increased capacity is not handicapped by current actions.

5. ASSET MANAGEMENT

5.1. Background

IIPAG's remit includes examination and commentary on the Asset Management Plans of London Underground. During 2012/13 IIPAG carried out a review of Asset Management in LUL and Tube Lines. Asset Management is a broad topic that integrates many of the issues that IIPAG has previously identified, including:

- Systems engineering;
- Strategy and Prioritisation;
- Future investment proposals; and
- Benchmarking.

IIPAG has produced reports on Asset Management and Benchmarking, where its remit includes the direction of benchmarking across TfL. The benchmarking report is provided as Appendix 1 to this report, and the Executive Summaries are included below.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

5.2. IIPAG Asset Management Review

Asset Management is widely recognised as the best approach to managing critical infrastructure. Asset Management seeks to minimise the total cost of acquisition, operation, maintenance, disposal and renewal of physical assets, and done properly it allows limited financial and human resources to be prioritised optimally to deliver specific service levels at acceptable levels of risk.

Both London Underground and Tube Lines are certified to PAS 55, the Publically Available Specification for Asset Management, and IIPAG's remit includes examination and commentary on the Asset Management Plans (AMPs) for the Tube network.

IIPAG structured its analysis around the Institute of Asset Management's Conceptual Model of Asset Management and, in view of the broad scope, this year's work was focussed on three asset areas within LU and Tube Lines: Track; Rolling Stock & Depots and Telecommunications.

In forming its opinion, IIPAG has reviewed the principles that are used to develop the AMPs, the processes used to make decisions, the asset information used by the business and how the Asset Management capabilities of the business are developed.

Overall, London Underground's Asset Management Plans have improved significantly over the last 5 years and are:

- well constructed, and significant effort has clearly gone into making them robust, relevant and well evidenced;
- consistent with the policies and strategies that support the AMPs, with a clear line of sight between documents.

However:

- Striking the right balance between affordability constraints, strategic objectives and whole life costs in prioritising investment decisions is complicated and TfL makes great efforts in its Business Planning to optimise the choices made, which do appear to be sensible ones. IIPAG has not yet seen clear documentary evidence to support this process and will continue to work with the business to ensure that its investment decisions are demonstrably optimal;
- Whilst London Underground has made good progress in developing a competence model for Asset Management, it has not yet completed the process of assessing the competencies of its staff or defining the competence requirements of its roles, and so cannot fully demonstrate that it has the necessary Asset Management competencies; and
- The business has several programmes in place to make improvements to the Asset Management System. These should be accorded a high priority and be more clearly communicated, with visible support at Board level.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

For track assets:

- There is substantial planned investment in track; IIPAG considers that continued development will demonstrate the need for significant investment in modern track renewal plant and facilities, including new access points and plant for the improvement of railhead profile together with associated rail defect management and these will further contribute to reduced whole life costs ;
- IIPAG commends the initiative to trial new track forms and technologies in the tube environment such as those at Angel and Earls Court and the “Fast Clip” on the Sub Surface lines, and believes that a greater focus on research and development in this area would be fruitful;
- There is good use of modelling to assess deterioration, to prioritise renewals and to develop plans.

In rolling stock & depots:

- There is good progress on maintenance optimisation, reducing costs of maintenance while improving reliability;
- There is an opportunity on Deep Tube Programme to innovate in a controlled way, and good progress is being made.

In telecoms:

- Asset Management of telecoms is much less developed than in other asset areas on the Tube and falls well short of best practice. Asset Management principles have not really been applied.
- There needs to be a clear and comprehensive definition of the asset class, and a clear distinction between the physical assets and the services and software that run over them.
- A dedicated organisation is needed to manage the telecoms assets in order to reduce costs, increase revenue and improve the service delivered to the business.

Asset Management is worth doing well, as it will greatly assist TfL in its difficult task of achieving reductions in costs with increases in reliability. Asset Management should allow the impact of current cash constraints to be evaluated and to allow the prioritisation of resources to be demonstrably optimised. It should allow TfL to demonstrate to its stakeholders that it is making sensible investment choices and that it is delivering overall good value for money. London Underground and Tube Lines have made good progress in introducing Asset Management, not least in achieving Certification to PAS 55, which sets out the essential framework for good Asset Management. However, compliance alone does not ensure that a business is expertly managing its assets and minimising whole life costs. London Underground recognises that a lot more needs to be done in order to get the full potential benefit of the Asset Management approach.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

5.3. IIPAG Benchmarking Report

TfL uses benchmarking to identify best practice and to improve value for money. Around two thirds of TfL's expenditure is currently benchmarked under direction from the Independent Investment Advisory Group (IIPAG), and the proportion is growing. Benchmarking has helped TfL to develop plans to deliver over £800m of savings between 2009/10 and 2021/22.

Whilst it is often difficult to make like for like comparisons, especially internationally, given the age of the Tube's assets and the complexity of the network, IIPAG has sought to highlight areas where benchmarking shows that improvements can be made in London.

This year's benchmarking shows that:

- Staff and passenger safety on the Tube remains good;
- The reliability of the Tube continues to improve and overall, it compares well with most European and North American metros;
- The proportion of trains delayed by staff on the Tube is greater than anywhere else;
- The cost of maintaining the Tube is reducing, but is still 28% higher than average;
- The cost of operating the Tube has improved and is now less than average;
- The cost of delivering infrastructure projects on the Tube is reducing, in some cases significantly, but track renewal costs remain high;
- The cost and performance of London Buses compares well with international comparators.

The cost of maintaining and renewing track in London remain high, and IIPAG believes that there is a case to invest significant sums in new plant, processes and technology to improve productivity, reduce renewal and maintenance costs and improve reliability. However, it is essential that such investment be combined with a radical change in working practices.

TfL has made good progress on the recommendations for business improvement that were made by IIPAG in last year's benchmarking report, and the scope of benchmarking directed by IIPAG has been increased as planned.

This year, IIPAG has made five main recommendations for further improvements in the business:

- To ensure that staff-caused train delays on the Tube are reduced, in order to be in line with international norms;
- To increase investment in the mechanisation of track renewals;
- To accelerate automation and change working practices in track maintenance;
- To maintain the current approach on bus service provision and monitor the international market for best practice; and
- To set out a strategic direction for signalling and telecoms.

IIPAG has also made recommendations for future benchmarking work.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

Good progress continues to be made in reducing costs and improving reliability on the Tube. The delivery of cost savings in investment and maintenance whilst improving reliability is a challenging task but TfL has delivered to date and there is every indication that this will continue.

6. FUTURE WORK PLAN

6.1. Project Reviews

IIPAG will continue to undertake project reviews in accordance with TfL's programme and will undertake interim reviews as IIPAG believes appropriate. IIPAG will also continue to review the dashboards for adverse movements, which might prompt an Interim Review.

Early engagement will be maintained by IIPAG on schemes relating to River Crossings, the Deep Tube Programme and Extension of the Northern Line and IIPAG will seek earlier involvement in other schemes.

IIPAG currently plans to undertake the following interim reviews to July 2014:

IIPAG Planned Interim Reviews
SSR Rolling Stock
SSR Infrastructure
SSR Signalling Immunisation
Victoria Station Upgrade
River Crossings
Tottenham Court Road Station
Bank Walbrook Square
Jubilee Line Upgrade
Victoria Line Upgrade
Ealing Common and Upminster Depots
Sub-Surface Upgrade Programme ATC
Bank Station Capacity Upgrade Project
Northern Line Upgrade
Deep Tube Programme
Sub-Surface Upgrade Programme

6.2. Systemic Reviews

IIPAG will continue to pursue the systemic issues that it has identified and will work with the business to resolve the issues raised. IIPAG will continue to identify recurring issues for further investigation.

IIPAG currently anticipates pursuing the following issues:

- Blockades and possessions;
- Organisational issues;
- Standards and specifications;
- Commercial culture and contractor relationships;
- Systems integration;

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- Research and development; and
- Private capital.

6.3. Asset Management and Benchmarking

IIPAG will undertake three tasks in 2013/14:

- IIPAG will review the business' progress in addressing the recommendations that it has made;
- IIPAG will examine Asset Management in other asset areas in London Underground and Tube Lines; and
- IIPAG will examine Asset Management in other areas of TfL, focussing on Roads, London Overground and the Docklands Light Railway.

The specific forward plans for benchmarking are covered in section 6 of the Benchmarking report (Appendix 1). In summary these are focused on:

- The increased use of benchmarking in capital projects for assessing value for money;
- Understanding and monitoring costs and performance of the London Highways Alliance Contracts (LoHAC);
- Investigating what comparisons can be made across Rail and Underground other than for the Tube;
- Investigating what benchmarking of road structures can be undertaken.

6.4. IIPAG Input Estimate

IIPAG has a wide brief and it has to be flexible about the extent of work required in the areas it pursues. IIPAG will continue to work within its budget. Work for 2013/14 will be within the £500k estimate of cost, which was provided in 2011 and confirmed in the Autumn of 2012.

IIPAG currently expects the breakdown of work required to be as follows:

		Days Apr 2013 - Mar 2014	Days Apr 2014 - Mar 2015	Days Apr 2015 - Mar 2016
1	Gateway Reviews	30	30	30
2	Interim Reviews	40	40	40
3	Dashboards	20	15	15
4	Risk	5	5	5
5	Blockades and Possessions	2	2	2
6	Organisational Issues	10	10	10
7	Standards and Specifications	2	2	2
8	Management Advice	15	15	15
9	Commercial Culture/Contractor Relationships	35	30	30
10	Systems Integration	20	20	20
11	Asset Management	90	85	80

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

12	Benchmarking	60	55	50
13	Research and Development	10	10	10
14	Private Capital	15	15	20
15	Management	36	36	36
16	Formal Meetings and Annual Report	24	24	24
Total Days		414	394	389

IIPAG's forecast resource for April 2013 to July 2014 (when current contracts expire) of less than 35 days per month is slightly lower than for 2012/13, due to IIPAGs increased familiarity with the business' approaches. Asset Management now includes work on Strategy and Prioritisation.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

Appendix 1 Benchmarking Report: July 2013

Table of Contents

1	EXECUTIVE SUMMARY	28
2	BACKGROUND	29
3	KEY FINDINGS FROM BENCHMARKING THIS YEAR	29
3.1	Tube Reliability	29
3.2	Tube Service Operations Costs	30
3.3	Tube Capital Programme Costs	30
3.4	Tube Maintenance Costs	32
3.5	Tube Safety	34
3.6	Bus costs and performance	34
4	PROGRESS IN LAST 12 MONTHS	34
4.1	Business progress	34
4.2	Benchmarking Progress	36
4.3	Impact of benchmarking	37
4.4	IIPAG view of progress	37
5	KEY RECOMMENDATIONS	37
6	FUTURE BENCHMARKING WORK	38
7	CONCLUSIONS	38

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

1 EXECUTIVE SUMMARY

- 1.1 TfL uses benchmarking to identify best practice and to improve value for money. Around two thirds of TfL's expenditure is currently benchmarked under direction from the Independent Investment Advisory Group (IIPAG), and the proportion is growing. Benchmarking has helped TfL to develop plans to deliver over £800m of savings between 2009/10 and 2021/22.
- 1.2 Whilst it is often difficult to make like for like comparisons, especially internationally, IIPAG has sought to highlight areas where benchmarking shows that improvements can be made in London.
- 1.3 This year's benchmarking shows that:
 - Staff and passenger safety on the Tube remains good;
 - The reliability of the Tube continues to improve and overall, it compares well with most European and North American metros;
 - The proportion of trains delayed by staff on the Tube is greater than anywhere else;
 - The cost of maintaining the Tube is reducing, but is still 28% higher than average;
 - The cost of operating the Tube has improved and is now less than average;
 - The cost of delivering infrastructure projects on the Tube is reducing, in some cases significantly, but track renewal costs remain high;
 - The cost and performance of London Buses compares well with international comparators.
- 1.4 The cost of maintaining and renewing track in London remain high, and IIPAG believes that there is a case to invest significant sums in new plant, processes and technology to improve productivity, reduce renewal and maintenance costs and improve reliability. However, it is essential that such investment be combined with a radical change in working practices.
- 1.5 TfL has made good progress on the recommendations for business improvement that were made by IIPAG in last year's benchmarking report, and the scope of benchmarking directed by IIPAG has been increased as planned.
- 1.6 This year, IIPAG has made five main recommendations for further improvements in the business:
 - To bring staff-caused train delays on the Tube in line with international norms;
 - To increase investment in the mechanisation of track renewals;
 - To accelerate automation and change working practices in track maintenance;
 - To maintain the current approach on bus service provision and monitor the international market for best practice; and
 - To set out a strategic direction for signalling and telecoms.
- 1.7 IIPAG has also made recommendations for future benchmarking work.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- 1.8 Good progress continues to be made in reducing costs and improving reliability on the Tube. The delivery of cost savings in investment and maintenance whilst improving reliability is a challenging task but TfL has delivered to date and there is every indication that this will continue.

2 BACKGROUND

- 2.1 The Independent Investment Programme Advisory Group was formed in May 2010 and its remit was expanded to include the direction of a team undertaking benchmarking across TfL in November 2010. A TfL report on benchmarking was published in June 2012, which included IIPAG's view on areas that the business should prioritise, in order to make its costs and reliability compare well with the best in the world.
- 2.2 This report is provided for the TfL Board and TfL's stakeholders. It draws on benchmarking work undertaken by TfL in the last twelve months and describes the key findings from benchmarking that have informed IIPAG's opinion. It sets out IIPAG's recommendations for the steps that TfL should take to further improve its reliability and reduce its whole life costs.
- 2.3 Benchmarking is a valuable tool and properly used, it is a good guide for developing the long-term business plans and Asset Management strategies that are necessary to improve value for money. High level benchmarking can also help give stakeholders an overall view of value for money. Whilst it is often difficult to make like for like comparisons, especially internationally, and it can be necessary to make adjustments to correct for the various differences between cities, metros and businesses, IIPAG has sought to highlight areas where benchmarking shows that improvements can be made in London.
- 2.4 Section 3 of the report describes IIPAG's view of the main benchmarking findings in: Tube reliability, Tube operating costs, Tube capital programme costs, Tube maintenance unit costs, Tube safety and Bus costs & performance. IIPAG has selected a few areas where it believes TfL should prioritise action to improve.
- 2.5 Section 4 describes progress that has been made in the last year, both in addressing the areas for business improvement that were highlighted by IIPAG in the June 2012 report and in developing benchmarking across the business.
- 2.6 Section 5 summarises IIPAG's recommendations to the business, Section 6 describes the proposed focus of benchmarking in the next 12 months and Section 7 sets out IIPAG's conclusions.

3 KEY FINDINGS FROM BENCHMARKING THIS YEAR

- 3.1 Tube Reliability
- a) *The rate of improvement of reliability on London Underground is one of the best in the world and the overall reliability of London Underground is comparable to most European and North American metros*
- Reliability increased by 10.6% between 2010 and 2011, the latest year for which international comparisons are available, continuing a five year trend of improving reliability. London has moved from being among the very

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

least reliable metros to being 9th of 13 in Europe and North America, with very similar levels of reliability to a number of other cities.

- b) *Staff cause a greater proportion of delayed trains on London Underground than on any other metro*

The number of delayed trains caused by staff is similar to the *total* number caused by track, signalling and train failures. The most prominent cause is delay due to drivers not being available.

If the proportion of delayed trains caused by staff was brought in line with international norms, a reduction of some 70% from 2011 values, then there would be 25% fewer delayed trains on the Tube. Achieving even this average performance would, whilst not being world class, go a long way towards meeting the Mayor's target of a 30% reduction in delays.

London Underground is introducing a series of initiatives to address this issue, which includes the consistent application of improved management processes at all depots (where the drivers are based) and a depot performance league table. Analysis and follow-up of staff errors, improved staff training and prioritisation of resources to reduce train service impact are also being introduced. As a result, the number of staff-caused train delays has been reduced by 30% between 2011/12 and 2012/13. LU forecasts a further reduction of 8% in the year to 2013/14.

The Deep Tube Programme has a key intent to introduce fully automatic train operation. IIPAG welcomes this development and expects that in the longer term fully automatic train operation in selected areas should improve railway performance, safety and capacity, whilst reducing whole life costs. The business case and feasibility work is underway, with completion expected in October 2013.

IIPAG recommends that TfL closely monitors the results of LU's drive to bring staff-caused Tube delays in line with international norms. Reducing the incidence of delays caused by LU's own staff must be a very high priority and staff caused delays should be reduced to levels consistent with international norms by April 2015.

3.2 Tube Service Operations⁵ Costs

- a) *Tube Service Operations costs are now lower than average*

LU's service operations costs per car kilometre in 2011, the most recent year that international comparisons are available, were 6.1% lower than the average of the other metros, an improvement from 2010 when LU was 2% higher than average.

3.3 Tube Capital Programme Costs

- a) *The cost of delivering infrastructure projects on LU is reducing, in some cases very significantly*

57% of investment in the Tube is now benchmarked, and the vast majority

⁵ Service Operations costs include the costs of drivers, station staff and line controllers, for example. They do not include the costs of responding to asset failures, which are captured as a maintenance cost.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

of Repeatable Work Items that are benchmarked will cost less to deliver in the future than historically. In some cases the reductions are very large, for example track drainage costs are forecast to reduce by 30%.

The most notable step change is the new pan-TfL approach to escalator renewal. This will reduce up-front costs of renewals by between 42% and 74%, depending on the size of the escalator, and yet will require less maintenance and will be more reliable. The whole life costs of escalators are forecast to reduce by 30%.

- b) *The cost of delivering infrastructure projects is broadly in line with the Arbiter's view of expected costs, but more work is needed to get good external comparisons*

Forecasts of costs are generally around or better than the Arbiter's determination, a notable exception being track renewals which are still 10% higher than his view (This issue is addressed in section 3.3). There are currently few comparators other than the Arbiter and more needs to be done in the coming year to get more and better external comparators.

IIPAG recommends that TfL develops more and better external comparators for its Tube capital programme by July 2014.

- c) *Benchmarking is increasingly being used to inform investment decisions*

The business should use benchmarking to assess and demonstrate that investments are good whole life value. The business recognises this and on the Deep Tube Programme is developing benchmarking to ensure that it learns lessons from London and elsewhere in order to get the system design and procurement right, and to ensure that it has suitable information to assess the costs, performance and reliability of potential approaches at the appropriate time.

The business intends to spend £4.8bn on station capacity increases, maintaining station condition and on lifts and escalators. While lifts and escalators have been the subjects of previous work less benchmarking of stations upgrades has been undertaken. Initial findings in the past year give some confidence that costs are broadly in line with elsewhere and more detailed comparisons would give better confidence in the value of work being undertaken.

TfL intends to incorporate benchmarking into its project assurance process.

IIPAG recommends that TfL continues to develop benchmarking on the Deep Tube Upgrade to a point where it can be used to demonstrate the value for money of decisions made for all the main items of expenditure.

IIPAG recommends that further, more detailed, benchmarking of the Stations Capital Programme, involving more external comparison, be undertaken by July 2014.

IIPAG recommends that by August 2013 TfL's project assurance process should include a requirement to use benchmarking at appropriate stages, in order to better inform decision makers in the evaluation of proposed investments.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

3.4 Tube Maintenance Costs

- a) *The cost of maintaining London Underground is reducing rapidly but is currently 28% higher than the average of other metros*

Maintenance costs per car km reduced by 7% in 2011, the most recent year that international comparisons are available⁶ and by 18% since their peak in 2006/07, but remain 28% above average. These high costs are primarily a result of high infrastructure (which comprises mainly track and signalling) maintenance costs. Infrastructure maintenance costs are 80% higher than the average, while rolling stock costs are in line with other metros.

- b) *High wage rates in London explain 40-50% of the difference between London's high infrastructure costs and those of low cost metros*

Wage rates across the whole of London are around 80% higher than the average of the cities where other CoMET and Nova metros operate. LU has recently completed a detailed study of signalling and track maintenance costs with a sub-set of CoMET and Nova metros. Wage rates across London are the highest of the cities where track and signalling benchmarking has been undertaken in detail. This factor alone accounts for around 32% of the difference between London's current track maintenance costs and the lowest cost metros. It accounts for around 56% of the difference between London's current signalling maintenance costs and the lowest cost metros.

- c) *Access to London Underground's deep tube sections is difficult*

34% of LU's routes are in small-bore single-track tube sections, which are more difficult to access than the sub-surface and surface double-track sections in London and in most other cities. The time available for engineering, when no trains run, is comparable to other metros but available productive time is further reduced by London's 4th rail traction power system.

- d) *London Underground employs more workers to maintain each kilometre of track than comparable metros*

London Underground still has a large proportion of heritage track comprising old bullhead rails on timber sleepers and sets of air-operated points fabricated from bullhead rail. London Underground also has a large proportion of very old signalling equipment. London Underground's detailed study of track maintenance indicates that around 20% of its track maintenance costs are due to these effects.

The number of workers engaged in maintaining each kilometre of London Underground's track is comparable to low-wage cities in South America and parts of Asia. In order to compare favourably with similarly high-waged cities a radical improvement is necessary. This will involve significant investment to replace track and signalling in a more modern form, and to provide new plant for the automation and mechanisation of track maintenance and renewal. It will also involve significant changes to working

⁶ Maintenance costs per car km have fallen by a further 2.3% in 2012/13, the most recent data for comparisons within London

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

practices.

- e) *This combination of factors provides an incentive for radical change*

High maintenance costs are driven by the constraints of access and high wage costs (amongst other things) and the incentive for change this presents has existed for a long time. It is clear that there is great scope for improvement in London.

- f) *It is possible to provide new equipment and systems to improve the maintenance of existing infrastructure and make it less labour intensive*

The business has started to mechanise maintenance and to monitor asset condition remotely (see 4.1, below) but the older type of track and other infrastructure limits the extent to which this is possible. The rate of change is also limited by the speed at which changes to working practices are being introduced.

IIPAG believes that the rate of change should be accelerated and that investment in new technologies should increase and working practices should be changed as improved types of track are delivered.

- g) *It is possible to provide new equipment and systems to make the renewal of track less labour intensive*

The cost of renewing track has come down significantly through better commercial arrangements and some innovation but renewal of ballasted track remains 10% higher than the costs allowed by the Arbiter (see 3.2, above)

LU plans to spend £2.2bn on track renewals in the next ten years, and £58m on additional plant and equipment to improve productivity. IIPAG believes that given the scale of the planned renewals there is scope to improve overall value by significantly increasing investment in plant and innovation.

LU has a strategy for the provision of track plant but it needs more development in order to make the case for greater investment in the plant, depots, rail and road/rail access and process changes that are necessary to deliver a step change in track renewal and maintenance costs. Such investment would also allow a reduction in the amount of closures required and reduce the impact on customers, or an improved type of track to be delivered more rapidly.

IIPAG recommends that TfL increases its planned investment in the mechanisation of Tube track renewals, creating radical new methods (for London) based on adapting modern plant, providing more effective access and improving commercial arrangements, with delivery of new plant underway by July 2014, in order to significantly reduce track renewal unit rates from 2015.

- h) *To get the best value it is necessary to increase the automation of maintenance and condition monitoring, and to change to working practices*

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

The introduction of modern track and the use of remote and automated monitoring creates the opportunity for radical improvement in maintenance performance. This necessitates radical changes to maintenance regimes, staffing skill requirements and staff numbers. If the Tube's track maintenance regime could be brought in line with the lowest cost of the high wage metros then annual savings of over £50k/track km, around £65m p.a., could be delivered. It will be important to co-ordinate renewals and working practice changes to ensure that uneconomic "islands" of old technology and working practices do not remain.

IIPAG recommends that TfL focuses on the delivery of its plans to deliver changes to its working practices and increase the automation of maintenance and condition monitoring, taking advantage of its significant investment in track renewals, in order to reduce track maintenance unit rates further than currently planned from 2015.

3.5 Tube Safety

- a) *Staff and customer safety remain good compared with other metros*

London has had a notable reduction in fatalities caused by illegal activity in recent years. Action has been taken by LU and British Transport Police to reduce the incidence of trespassing and cable thefts and this may be a contributory factor.

3.6 Bus costs and performance

- a) *Bus costs and performance compare well with international comparators*

Costs and performance are better than median for all main measures and top quartile for most. The franchising approach appears well developed and TfL has a good understanding of the underlying costs and how these compare between providers. A rolling programme of competition enables regular analysis of costs and drivers of costs.

IIPAG recommends that the current approach to delivering bus services is maintained, including the engagement with the International Bus Benchmarking Group, which should be kept under review for new initiatives elsewhere.

4 PROGRESS IN LAST 12 MONTHS

4.1 Business progress

In the 2012 Annual Benchmarking Report IIPAG identified six priorities for TfL. Progress on these is summarised briefly below:

- a) *Maintain and increase levels of investment in new infrastructure, taking full account of whole life costs:* The main programme under development is the Deep Tube Programme, a major upgrade of the Piccadilly, Central and Bakerloo lines. TfL has incorporated benchmarking into its approach for this upgrade to ensure that lessons are learned from within London and from other metros. The business is addressing maintainability of the upgrade at this early stage, which is an essential component of good whole life planning.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- b) *Increase levels of automation in train control:* Projects underway, or recently completed, will result in almost 80 per cent of journeys undertaken on the tube being on trains with automatic train operation. However, no trains are under fully automatic operation, and there are no firm plans for the introduction of fully automatic train operation. The main vehicle for future change in this area is the Deep Tube Programme and good progress has been made in identifying and evaluating the various constraints to the introduction of fully automatic train operation.
- c) *Increase automated inspection, remote condition monitoring, mechanised maintenance and renewals:* London Underground has installed remote condition monitoring on certain points and point heaters on the network, which should result in a reduced number of service delays. An automated track monitoring system (ATMS) is now under trial operation on the Victoria Line, and is being installed on passenger trains across the network. The introduction of ATMS is unfortunately running around 9 months behind schedule, and is now expected to be complete early in December 2014. ATMS will provide a much more frequent and comprehensive monitoring service, enabling greatly improved knowledge of track condition and facilitating a significant reduction in the number of visual track inspections.

In order to maximise the benefits of ATMS there will need to be change in the skills and numbers of staff, with more emphasis on analysis and targeted interventions. These changes in skill and resource levels do not yet appear to be incorporated into future plans.

- d) *Reduce the variety of equipment in use:* Line upgrades, particularly of the SSL lines, will result in an improvement. However, the signalling system being deployed is different to those recently installed on the Jubilee and Northern Lines, and on the Victoria line, and from those in various depots, and a new telecommunications system is also being provided. A technology strategy for signalling and telecommunications should be finalised in 2013 and key aims should be to consolidate networks and to prevent any further proliferation in signalling and telecommunications systems.

The main area where a revised approach is apparent from benchmarking is in the new pan-TfL whole life escalator contract, as described in section 3.2.

IIPAG recommends that TfL finalises its technology strategy for signalling and telecommunications in 2013, clearly setting out the strategic direction and taking into account the implications of further proliferation of systems on whole life costs including for example, its maintenance practices, depots, driver training and maintenance and renewals plant.

- e) *Improving working methods and productivity:* LU is currently undertaking trials of risk-based maintenance intervals for most of its rolling stock fleets. This is a sensible development, which will save costs and improve performance. It should be extended to all fleets. However, the benefits will only be realised if staff can be redeployed or the headcount can be

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

reduced, and a keen focus is necessary in order to ensure that this happens once trials are completed, currently scheduled by September 2013.

- f) *Significantly reduce track maintenance costs:* TfL is addressing this issue by a combination of improved maintenance technologies and processes (see (c), above) and investment in improved types of track. IIPAG has focussed on this topic in section 3.4, above.

4.2 Benchmarking Progress

- a) 63% of TfL's spending is now benchmarked and coordinated via a Benchmarking Steering Group (BSG), chaired by IIPAG. This proportion has increased from 34% in 2012. Most of the increase is due to the inclusion of TfL surface areas (Buses and Roads) within the BSG, with the remainder due to increased coverage of Capital Programmes in the Tube. The breakdown of TfL's spending that is now benchmarked via the BSG is depicted in Figure 1, below.

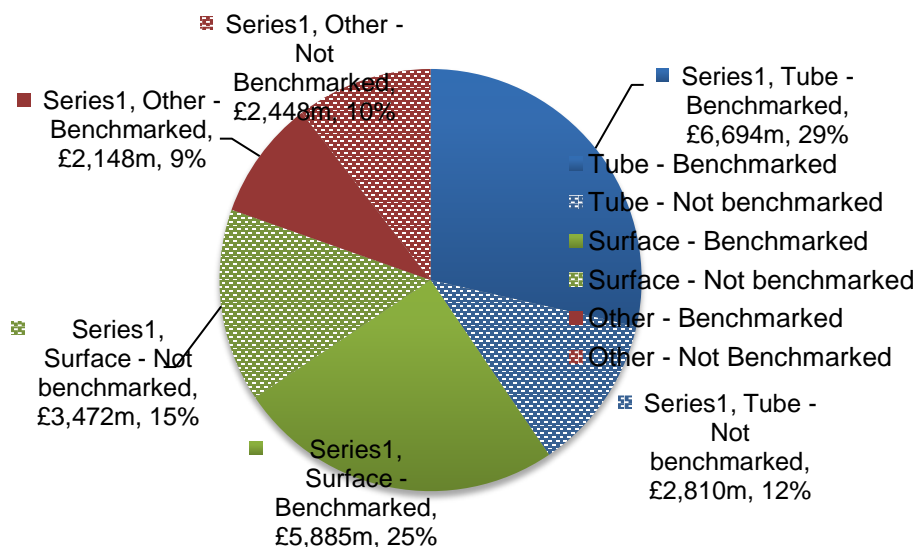


Figure 1: Benchmarking of spending across TfL

- b) The reporting of benchmarking has now been divided clearly between the business and IIPAG. TfL has produced reports setting out comparisons between London Underground and international metros, London Buses and bus networks in other international cities, capital programme benchmarking and maintenance unit rates and reliability. While IIPAG has commented upon drafts of these reports they are owned by the business. This report has been written by IIPAG with support and comment from the business.
- c) The BSG coordinates and approves the benchmarking work undertaken, and captures recommendations from studies of specific areas of interest (for example, approaches to access). The delivery of these recommendations, and their impact, is monitored by the BSG.
- d) The emphasis placed on benchmarking in authorising investment has increased, and benchmarking will soon become a required component of TfL's corporate project assurance process (see section 3.3).

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

4.3 Impact of benchmarking

- a) Benchmarking has assisted the business in identifying ways to achieve the large cost reduction targets set by TfL in 2009/10. Recommendations from benchmarking in 2011/12 have resulted in over £500m of benefits being included in the business plan to 2021/22. Recommendations from previous years have contributed a further £325m.
- b) Some of these values can be directly associated with benchmarking studies, for example changes in rolling stock maintenance regimes following comparisons between fleets. Others are indirect, such as the support that knowledge of costs elsewhere has given to negotiations with suppliers.

4.4 IIPAG view of progress

- a) TfL has made good overall progress in delivering the actions recommended by IIPAG in last year's report. TfL has, however, had some difficulty in demonstrating specific progress in some areas and to facilitate a clearer future outcome IIPAG's recommendations this year are time-bound, specific and measurable.
- b) Progress in developing benchmarking has been good. The scope of work coordinated by the BSG has been widened across TfL and the emphasis on benchmarking in investment appraisals has increased. The way of working between the business and IIPAG has improved, with a better definition of responsibilities.

5 KEY RECOMMENDATIONS

5.1 IIPAG has made five recommendations to TfL of areas to prioritise. IIPAG recommends that:

- 1. TfL closely monitors the results of LU's drive to bring staff-caused Tube delays in line with international norms. Reducing the incidence of delays caused by LU's own staff must be a very high priority and staff caused delays should be reduced to levels consistent with international norms by April 2015.**
- 2. TfL increases its planned investment in the mechanisation of Tube track renewals, creating radical new methods (for London) based on adapting modern plant, providing more effective access and improving commercial arrangements, with delivery of new plant underway by July 2014, in order to significantly reduce track renewal unit rates from 2015.**
- 3. TfL focuses on the delivery of its plans to deliver changes to its working practices and increase the automation of maintenance and condition monitoring, taking advantage of its significant investment in track renewals, in order to reduce track maintenance unit rates further than currently planned from 2015.**
- 4. The current approach to delivering bus services is maintained, including the engagement with the International Bus Benchmarking Group, which should be kept under review for new initiatives**

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

elsewhere.

5. ***TfL finalises its technology strategy for signalling and telecommunications in 2013, clearly setting out the strategic direction and taking into account the implications of further proliferation of systems on whole life costs including for example, its maintenance practices, depots, driver training and maintenance and renewals plant.***

6 FUTURE BENCHMARKING WORK

- 6.1 IIPAG has set out four areas for improvement in this report, which are focussed on increasing the number and quality of comparators for the Rail & Underground capital programme. IIPAG recommends that:
 1. ***TfL develops more and better external comparators for its Tube capital programme by July 2014.***
 2. ***TfL continues to develop benchmarking on the Deep Tube Upgrade to a point where it can be used to demonstrate the value for money of decisions made for all the main items of expenditure.***
 3. ***Further, more detailed, benchmarking of the Stations Capital Programme, involving more external comparison, be undertaken by July 2014.***
 4. ***By August 2013 TfL's project assurance process should include a requirement to use benchmarking at appropriate stages, in order to better inform decision makers in the evaluation of proposed investments.***
- 6.2 In addition, IIPAG considers that there are three further areas for improvements in benchmarking, on which it proposes that TfL focuses in 2013/14:
 - a) Understanding and monitoring costs and performance under the London Highways Alliance Contracts (LoHAC), which were let in April 2013 to become the approach to delivering much of the road renewals and maintenance in London;
 - b) Investigating what comparisons can be made across Rail and Underground other than for the Tube; and
 - c) Investigating what benchmarking of road structures can be undertaken.
- 6.3 IIPAG will continue to monitor the delivery of improvements in costs and reliability in TfL.

7 CONCLUSIONS

- 7.1 Benchmarking is a useful tool in improving value for money, and has helped the business develop plans to deliver over £800m of savings between 2009/10 and 2021/22.
- 7.2 IIPAG has highlighted a small number of areas where it believes that TfL should take action to make a material difference to reliability, costs and the confidence of stakeholders in authorising investment.

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

- 7.3 Good progress continues to be made in reducing costs and improving reliability on the Tube, and benchmarking has shown that London's Buses are among the best in the world. The delivery of savings in the cost of delivering investment and maintenance while improving reliability is a very challenging task, but the business has delivered to date and is confident that it will continue to deliver in the future.
- 7.4 London's costs for maintaining and renewing track remain high, and IIPAG is convinced that the business should not shy away from investing significant sums to improve productivity, reduce renewal and maintenance costs and improve reliability. However, it is essential that such investment be combined with a radical change in working practices.
- 7.5 IIPAG's focus for benchmarking in the next year will be to increase the influence of benchmarking in the evaluation of investment decisions.