

TRANSPORT for LONDON

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

Annual Report 2013 – 2014

April 2014

INDEPENDENT INVESTMENT PROGRAMME ADVISORY GROUP

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EXECUTIVE SUMMARY

This, being IIPAG's fourth Annual Report, is based on nearly four years of experience of the development and delivery of TfL's £35bn Investment Programme. In this time IIPAG has participated in more than 150 project reviews and has gained a good understanding of the way that TfL is structured and led to deliver this capital programme.

In its early years IIPAG concentrated on the way that TfL managed the very large capital programme that had been taken on following the demise of the Public Private Partnership (PPP) of London Underground. More recently IIPAG's focus has developed from the delivery of that programme to the preparation and delivery of a new Investment Programme instigated by TfL in line with the Mayor's Transportation Strategy.

TfL is keenly focussed on operating reliable transportation facilities for the public and has earned a good reputation for doing so, as evidenced by its considerable success in delivering reliable transport during the 2012 Olympics. However, the development of a new capital programme, which involves promoting new schemes, comparing options and evaluating meaningful business cases, all within a corporate Business Plan, relies on different expertise.

Future projects currently under consideration or development will result in very large, and complex, schemes and programmes being delivered in both Rail & Underground and Surface Transport organisations. For example, it is estimated that the New Tube for London programme will cost in excess of £7bn whilst both the Northern Line Extension to Battersea and the Silvertown Crossing are £1bn projects. TfL's processes and organisational capabilities for developing such schemes are being seriously tested. Given the scale, complexity and political sensitivity of these programmes IIPAG is commencing a systemic review of the initiation stages of projects to ascertain the extent to which the outcomes are delivered in a thorough and appropriate manner.

IIPAG's focus on gateway reviews of projects with a value greater than £50m has led to considerable savings. This work has naturally led to a wider consideration of more systemic and thematic issues within TfL.

IIPAG reviewed the role of TfL's Project Management Office (PMO) and made a number of recommendations for changes to the structure of this part of the organisation, including that the assurance function should report solely to the Managing Director Finance, and not to the Capital Programmes Director. IIPAG believes that this recommendation should be implemented in order to improve the assurance of projects and hence the quality and reliability of project delivery. IIPAG's view has been supported by comments in a recent KPMG report on the aborted Automatic Train Control (ATC) contract for the Subsurface lines and in another independent report from Turner Townsend. IIPAG believes that, although TfL is reluctant to pursue such a change, full independence of the Assurance function should be paramount.

IIPAG has also reviewed the application of Innovative Contractor Engagement and Early Contractor Involvement (ICE and ECI) in TfL. For ICE, as used on the Bank

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Station Upgrade, IIPAG believes that the approach has resulted in good levels of competition and innovation. Although there remain challenges and risks to successful delivery the project appears well run with a strong relationship between London Underground and its contractor. The ECI projects have been much less successful, possibly because their objectives are not clearly defined. For different reasons they have offered less scope and less motivation to be innovative and the projects have not secured the anticipated benefits.

IIPAG has had considerable input to the ATC programme for the Subsurface lines since TfL negotiated its exit from the contract with Bombardier. The failure of that contract is a serious concern and the scale of the abortive cost and the effect on the timescale for the delivery of the benefits is not yet certain. IIPAG has been working with LU's new programme management team in order to improve the technical work scope and conditions of contract for the re-tendering exercise with the aim of obtaining best value and to better control the risks. A difficult negotiation is in prospect which demands best-in-class skills. IIPAG is providing advice and independent assurance on the range of issues to the TfL Board and this work will continue.

TfL spends several hundred million pounds each year on telecommunications, some of it on building its own network infrastructure, and some of it on buying services from others. For historical reasons TfL's approach to the management of these assets and services is fragmented. IIPAG believes that there are major opportunities for TfL to save significant expenditure whilst improving service, and identified some major problems that arise from the current approach to telecommunications. These are difficult issues to resolve, and efforts are being made within Information Management to quantify the issues and within London Underground to address a technological strategy. IIPAG is concerned that the fragmented approach remains and that opportunities for improving value are still being missed.

TfL has a strong record of delivering operational improvements. In recent years it has also had to develop its own Capital Investment Programme within its Business Plan, at the same time having to identify new sustainable revenue streams to compensate for a reduction in DfT funding. TfL is addressing the challenge of becoming a more self-supporting transportation enterprise.

The new dynamics of funding, budgets and spend, combined with increasing demand and the corresponding growth in the range of potential schemes means that TfL has to demonstrate that the priority and value of investments are fully justified. TfL has recognised this and is working hard to rationalise the business cases for its investments. IIPAG commends this work but agrees with TfL that further development is possible, to achieve better understanding and more rigorous controls particularly through the formative and justification stages of new proposals.

IIPAG recognises that TfL is a well-established operations business providing bus and rail services that are well regarded by the public. For historic reasons there has been little cross-mode interaction between the two in either service provision or project delivery. Since the PPP TfL has acquired the responsibility for capital investment in infrastructure across London. This requires close working with operations in order to limit disruption to public services. In particular, TfL's Rail & Underground business contains a large capital programme delivery unit as a result of the high level of investment that commenced under the PPP; investment that

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continues now and into the future. There is also a capital programme delivery arm in Surface Transport, but it is relatively small.

Future investment plans in TfL include a number of very large investments in rail, underground and surface that require a range of skills and expertise that are not held in abundance in either the Rail & Underground or Surface Transport businesses. IIPAG's current view is that this is an urgent matter for TfL to address and believes that TfL should not build up parallel teams of expertise in the delivery of major capital programmes in both Rail & Underground and Surface Transport.

The challenges ahead for TfL are manifest. London is a successful and growing city and this drives increasing demand for transport. Meanwhile, TfL is wrestling with the ambition to become more self reliant in its approach to business whilst modernising and upgrading the transport infrastructure to provide a world-class service across the city. In order to deliver the most effective and economically beneficial investment for the future IIPAG will work with the business to further improve the processes for developing and prioritising projects through their early stages for inclusion in the Capital Investment Programme, while continuing to support the delivery of the more complex projects and programmes. IIPAG will also wish to support TfL in understanding how best to ensure the most appropriate organisational structure to tackle the challenges over the next 20 years and deliver that Programme.

TfL has responded very positively to the contribution of IIPAG over the last 4 years and this has resulted in a significant improvement in value from the public purse. IIPAG looks forward to continuing to assist TfL in its work to deliver ever better value and services to the travelling public.

1. INTRODUCTION

1.1. 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 a team undertaking 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).

¹ <http://www.tfl.gov.uk/cdn/static/cms/documents/Item08-4-Nov-2010-Board-IIPAG-Terms-of-Reference.pdf>

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This is the fourth Annual Report presented by IIPAG. Earlier reports set out the history of IIPAG's appointment and its terms of Reference in more detail, as well as its progress.

1.2. 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 the first of these requirements and draws out common themes, systemic issues and lessons learnt. The date for the delivery of this document has been brought forward from previous years, and so this report describes IIPAG's work from April 2013 to March 2014.

Section 2 of the report describes the Project Reviews undertaken from April 2013 to March 2014. Examples of good practice within TfL are also identified.

Section 3 outlines the progress that has been made over the last year in addressing systemic issues that were identified across multiple reviews of projects.

Section 4 addresses Asset Management and Benchmarking and Section 5 describes the process being undertaken to consult on IIPAG's workplan and to recommend the level of resource required.

1.3. Meetings and Communication with TfL

The schedule of meetings and the arrangements for communication developed since IIPAG's inception is unchanged from previous years. 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 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 and IIPAG continues to chair the quarterly Benchmarking Steering Group.

IIPAG's formal output to the business is in the form of technical reports relating to either the Integrated Assurance Review of projects or the systemic issue being addressed. These are submitted to senior panels or committees within the business, and set out recommendations to TfL's Board on the specific project or systemic issue. IIPAG presents its views to the relevant panel or committee and the Management Response from the business, which outlines TfL's response to IIPAG's

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recommendations, is also discussed. This approach ensures that IIPAG's recommendations are considered at an appropriate level in the business.

2. PROJECT REVIEWS

2.1. Approach

TfL has a system of Integrated Assurance Reviews that establish the progress and status of capital projects across TfL. Integrated Assurance Reviews (IARs) have superseded the Corporate Gateway Approvals Process (CGAP) previously used. The stages at which reviews take place have been slightly modified in their requirements and definitions. For simplicity IIPAG have used the IAR nomenclature throughout this document. The mapping between the IAR Stages and CGAP Gates is given below:

IAR Stage	CGAP Gate
Initiation	A
Option ²	B
Concept	New Gate
Design	New Gate
Pre-Tender	C
Contract Award	D
Delivery	D+
Close	E
Annual	P

TfL's Programme Management Office (PMO) leads these reviews, taking into account the status of the project with regard to programme, cost, quality and commercial issues, as well as their governance and management. The PMO usually commissions an Engineering Expert (EE) to undertake an independent review. More recently, in around one in eight reviews in the last year, the PMO has appointed an internal peer reviewer. IIPAG commends this practice as it improves knowledge held in-house and helps spread best practice. The PMO also arranges for IIPAG to be involved with reviews of major programmes and projects with a value greater than £50m.

Through the review IIPAG aims to identify relevant issues, present constructive challenge and to make recommendations to help the project teams improve their performance. IIPAG will usually meet the EE at least once to suggest emphasis and to discuss findings. The PMO chairs the formal Gate Review Meeting, which IIPAG attends, and IIPAG then prepares its own independent report.

A list of the Integrated Assurance Reviews in which IIPAG has participated, together with a description of themes apparent in its recommendations, forms section 2.2.

² This stage is sometimes known as Feasibility

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In addition to the Integrated Assurance 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 necessary to enable IIPAG to understand progress and issues. They are broadly based on the Office for Government Commerce approach to project review. The Interim reviews that IIPAG has undertaken are listed in section 2.3.

IIPAG also provides advice to the business on individual projects when requested by the TfL Board or to follow up on issues raised at IARs or Interim Reviews. This advice is described briefly in section 2.4.

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 2.5.

In addition to its involvement in the Reviews IIPAG receives quarterly “dashboards” that set out project progress. Progress on this is described in section 2.6 and recent progress in delivering projects is described in Section 2.7.

2.2. Gateway Reviews

During the last year, members of the group have been involved with Corporate Gateway reviews as noted below:

Integrated Assurance Reviews in which IIPAG has participated: April 2013-March 2014³	Stage
Communications Below Ground	Initiation
Cycling Vision Portfolio	Initiation
Future Ticketing Phase 4	Initiation
Jubilee Line World Class Capacity	Initiation
Surface Intelligent Transport System (SITS)	Initiation
Deep Tube Programme (New Tube for London)	Option
Future Station Capacity Programme	Option
Future Ticketing Phase 3	Option
Northern Line Extension to Battersea	Option
Silvertown Crossing	Option
Silvertown Crossing (Concluding Advice)	Option
Track Plant	Option
Victoria Line World Class Capacity	Option
Bank Bloomberg Place	Pre-Tender
Detection & Enforcement Infrastructure Re-Let	Pre-Tender
Northern Line Extension to Battersea	Pre-Tender
Northern Line Extension to Battersea (Supplementary Report)	Pre-Tender
Structures & Tunnels Investment Portfolio (STIP)	Pre-Tender
Structures & Tunnels Investment Portfolio (STIP), Supplementary Review	Pre-Tender

³ The change in the timing of this report this has resulted in some overlap with IIPAG's 2013 report, which noted reviews undertaken from October 2012 to July 2013

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Integrated Assurance Reviews in which IIPAG has participated: April 2013-March 2014³	Stage
Track Plant (P&C Maintenance & Renewals)	Pre-Tender
London Overground Capacity Improvements Project	Pre-Tender/Contract Award
Bank Bloomberg Place	Contract Award
Bank Station Congestion Upgrade	Contract Award
Future Ticketing Phase 3	Contract Award
London Road User Charging & Traffic Enforcement Notice Processing (LRUC & TENP)	Contract Award
SCOOT (Split Cycle Offset Optimisation Technique)	Contract Award
STIP Hammersmith Flyover Strengthening	Contract Award
92TS Bogie Replacement & Gearbox Repair	Delivery
Baker Street to Bond Street Tunnel Relining Project (BASBOS)	Delivery
Bounds Green	Close
Future Ticketing Phase 1	Close
Jubilee Line Signalling Upgrade	Close
BCV SSR Track Programme	Annual
Croxley Rail Link	Annual
JNP Civils	Annual
JNP Lifts & Escalators	Annual
JNP Track	Annual
Stations Stabilisation Programme	Annual
Surface Asset Renewals Programme	Annual

The number of Gateway Reviews in which IIPAG participates has increased from around 30 in each year in IIPAG's first two years to around 40 in each year in each of the last two years as TfL's investment Programme has increased in both the number and scale of the projects underway.

The balance of the projects between those being delivered and those being initiated or developed remains similar to last year. Some of the projects now in development (New Tube for London, Northern Line Extension to Battersea and Silvertown Crossing) are extremely large (around or more than £1bn) and IIPAG will continue to monitor progress on these particularly carefully.

IIPAG has made many recommendations in its Gateway and Interim Reviews in the last year, and when IIPAG reviews projects at a later stage in their lifecycle IPAG examines whether the recommendations made at earlier stages have been acted upon. IIPAG does not believe that this gives sufficiently rapid feedback on the timely completion of corrective action and has noted that, in some instances, recommendations made by IIPAG (and TfL's Project Management Office) are not satisfactorily addressed. IIPAG suggests that TfL takes a more active approach, with the successful completion of actions reported to PMO and IIPAG.

IIPAG's recommendations are concentrated in four distinct areas, which together comprise around 90% of the total:

Commercial and Contract: Examples are recommendations of the contract form that should be applied, key considerations that should be included in an Invitation to

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Tender or the design of incentivisation within a contract. These issues comprise around a quarter of IIPAG's recommendations. IIPAG continues to monitor the development of Procurement and Commercial expertise in TfL (see section 3.5).

Project Management and Interfaces: IIPAG highlights where insufficient consideration has been given to the delivery of projects, particularly where there are interfaces with other stakeholders such as Network Rail. In addition IIPAG draws attention to instances where planning or documentation is insufficiently rigorous or detailed. Around one quarter of IIPAG's recommendations address these issues.

Requirements and Sponsorship: IIPAG's recommendations in this area have focussed on clear definition of the requirements of a programme, the development of robust business plans and suitable sponsorship to deliver the business plan. Around one fifth of IIPAG's recommendations address these issues. Since its inception, IIPAG has maintained a keen interest in the area of sponsorship and project initiation and continues to monitor the business and help it to develop in this area (see sections 3.2 and 3.11).

Risk: IIPAG has made recommendations to highlight potential risks, with the technical approach selected, for example, that should be mitigated or addressed in more detail. In addition, IIPAG continues to identify projects where risk assessments and controls are not of a sufficiently high standard. Around one fifth of IIPAG's recommendations address these issues.

There is now evidence that those projects ranging between £50m to around £200m are generally being delivered in a more beneficial, cost effective, professional manner, though concern remains about management and staff training over the much larger programmes. Future projects currently under consideration or development will result in very large schemes and programmes being delivered in both Rail & Underground and Surface Transport organisations. For example, the New Tube for London programme will cost many billions of pounds while both the Northern Line Extension to Battersea and the proposed Silvertown Crossing are each £1bn projects. IIPAG remains concerned that, within TfL, there are only limited experienced resources available for projects of this scale.

IIPAG has been disappointed that there appears to be limited progress and a reluctance to sign off total completion of projects as defined with in the TfL Pathway, and previously in its Corporate Gateway process. Although the corporate governance procedures require the close out of snagging, financial settlement, benefits appraisal and business case review, very few of the projects expected to be in that position through 2013-14 have been presented for acceptance. IIPAG believes that this is a reflection, in part, that the Sponsors role has not been fulfilled through to the latter stages of projects and suggests that the business pursues this matter with some urgency.

2.3. Interim Reviews

IIPAG has undertaken Interim Reviews on the following projects during the year:

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IIPAG Interim Reviews from April 2013 to March 2014
Ealing & Upminster Depots Projects
Northern Line Upgrade
Bank Station Congestion Upgrade
Victoria Station Upgrade
Sub surface ATC

The recommendations made for these projects, which are all in their delivery phases, focus on commercial and project management issues.

2.4. Specific Advice to PPP/FPC

In addition to the above reviews, IIPAG has delivered advice on individual projects, either when requested by the Finance and Policy Committee or the Projects and Planning Panel. Advice requested on projects outside of the Gateway and Interim Review processes from April 2013 to March 2013 is set out below:

Other Advice Requested to March 2014	Description
Subsurface Upgrade Programme Signalling	Advice on approach and implementation of retendering of signalling upgrade. Current.
Overheads	Advice on the level of overheads incurred in TfL compared to elsewhere. Ongoing in 2014.
Project Management Capability	Benchmarking the resources and costs absorbed in the project management process as compared to others. Ongoing through 2014.

IIPAG is frequently asked for its advice and believes that this is strong evidence that the TfL Board values its views. IIPAG feels that its relationships with senior management are effective.

IIPAG's largest commitment of effort to these topics in the last year relates to the Subsurface Upgrade Programme Signalling (SUP ATC). IIPAG undertook an interim review of the SUP ATC programme in December 2012 and raised some serious concerns about the delays that had been incurred in the programme, and the risk in the forward plan. In particular IIPAG was not convinced that the plan for software design and approval would be met. London Underground was, however, engaged at the highest level with Bombardier in order to attempt to address the issues and significant changes were made to the management teams at London Underground and Bombardier.

IIPAG had planned to undertake a further interim review in June 2013 but this was deferred at London Underground's request because a fundamental review was underway, led by London Underground's new Programme Director. IIPAG was given outline briefings through autumn 2013 and limited access to some of London Underground's review material. After TfL decided to negotiate the termination of the

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Bombardier contract in December 2013, TfL's Finance and Policy Committee requested that IIPAG be fully involved in the re-procurement exercise.

London Underground appointed KPMG to carry out an independent review and Lessons Learned exercise. The work is on-going and IIPAG's participation has been limited to one interview. Whilst IIPAG has challenged some of the emerging draft conclusions notably regarding contractual arrangements, we believe that the study has been professionally executed within its limited remit. IIPAG also reviewed the work scope and the effects of the Bombardier contract structure and drafting to see what lessons could be learned and highlighted issues in three areas:

- **Prequalification and appointment:** The appointment of a contractor with limited proven track record in the delivery of comparable schemes and the failure to heed the warning signs of a price below the expected range.
- **Management, monitoring and control:** The lack of substantial progress by Bombardier in reaching the initial proving stage, and LU's apparent inability to make Bombardier address it.
- **Appropriate Interim Payment Regime and Contractual protection:** The interim payment regime provided in the Bombardier contract proved to be inappropriate and the absence of effective contractual protection led to a protracted process of termination and exposure to substantial payment for uncertain, but limited, value.

IIPAG has worked with the London Underground team in order to address these areas in the re-tendering exercise. This work continues.

IIPAG believes that, in line with FPC's request for IIPAG to report on lessons learned, more must be done to investigate and better understand the circumstances surrounding the letting of the original contract to Bombardier. IIPAG also considers that the full sum of the abortive cost that has been incurred should be determined. Further to this, IIPAG understands that the sum has been subjected to financial audit.

In February 2014 IIPAG was involved in discussions about the Pre Qualification Questionnaire and the evaluation criteria. IIPAG reviewed drafts and suggested various improvements to the questionnaire, most of which were included. IIPAG agreed that it was important to ensure that only contractors with proven relevant experience should be prequalified.

IIPAG was not involved in the process to review and compare responses to the pre-qualification exercise, but IIPAG supports the process followed and its outcome. IIPAG has some concerns about the next steps and has made recommendations about negotiation, technical interfaces, use of telecommunications, risks and payment milestones, cost estimation and conditions of contract.

A difficult negotiation is in prospect and it is essential that TfL deploys appropriate best-in-class expertise in order to achieve the necessary outcome and to avoid the need for a further significant delay. It is also essential that the scope definition for the fixed price contract is accurately defined.

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IIPAG has enjoyed better co-operation with the programme team and will continue to work with the business to resolve all of these issues over the coming months, providing independent advice to the Programme Team and to the Finance & Policy Committee. The aim, of course, is to ensure that the contract is successful and that the programme delivers demonstrable good value.

2.5. Examples of best practice in TfL

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

Bank Station Congestion Upgrade: Application of Innovative Contractor Engagement (ICE) tender process for procurement of a Design & Build Contractor;

Bank Station Congestion Upgrade: Use of value management to establish weightings between the primary objectives of the project;

Station Stabilisation Programme: Direct procurement and management of Level 3 and Level 4 contractors;

London Highways Alliance Contract (LoHAC): The establishment of area wide road related maintenance and new works for the benefit of TfL and Local Authorities;

Silvertown Crossing: Creation of an Independent Peer Review Group to review engineering and construction safety at an option selection stage;

Jubilee Line Signalling Upgrade: Compilation of the “One List”, summarizing all best practice work;

BCV/SSL Track Delivery: Achieved in excess of 1 million hours worked without a RIDDOR accident;

Future Ticketing Programme: Good management of software development through the Agile process, and a rigorous and lively team; and

Communications Below Ground: Good planning and project controls.

2.6. Quarterly review of project progress dashboards

The new form of dashboard has been in use throughout 2013-14. It remains a document that is considered only quarterly by the Finance and Policy Committee. There are many forms of dashboard in use in the industry. Some give more information than the current TfL form. Few give less. The form that has been adopted contains sufficient data for the Finance and Policy Committee.

The statements made in the dashboards are prone to be optimistic, reflecting the culture of the Rail and Surface managements. They can fail in triggering remedial action and garnering support if early warnings of failings are not explicit.

The dashboards are not adequate for IIPAG’s purposes when conducting Interim Project Reviews. They do not draw attention to trends, particularly if they are adverse. For example in October 2013 the magnitude of the Bombardier issue and its probable effect upon the EFCs and Completion dates for the Sub-Surface Railway Upgrade Programme and the Automatic Train Control Project was not clear from the graphics, the tabular data or the confidence in cost and time indicator.

All of the assurance parties ie. IIPAG, the EEs and the PMO require the same comprehensive level of Dashboard Report as is submitted by the Project Managers to the Capital Projects Director each month.

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IIPAG should receive this detailed dashboard at the same time, for all projects with an EFC of over £50m. IIPAG will then review the dashboards to identify whether an Interim Review of a project is necessary.

2.7. Recent Progress

IIPAG applauds the fact that Rail & Underground has already responded to concerns regarding limited resources by recruiting higher quality experienced staff, especially for the ATC contract, but points out that the new Capital Programme will require more of this type of expertise. Further, this “new breed” of macro project staff are generally “professional project” people who will expect the back-up of a macro-project organisation. It would seem timely to review how such major projects will be handled in the future, which might involve the organisation of a single, pan-TfL, capital programme delivery arm. IIPAG strongly recommends that such a review, and appropriate organisational action, be undertaken.

Given the scale, complexity and political sensitivity of the prospective programmes IIPAG is commencing a systemic review of the initial development stages of projects to ascertain the extent to which the outcomes are delivered in a thorough and appropriate manner (see section 3.11).

3. SYSTEMIC ISSUES

3.1. 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;
- Organisational issues;
- Standards and Specifications;
- Procurement and Commercial;
- External Expert Reviews;
- System Engineering;
- Research and Development;
- Private Capital;
- Telecommunications;
- Early stage project development;
- Innovative Contractor Engagement and Early Contractor Involvement; and
- Cycling.

3.2. Sponsorship

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In addition, IIPAG noted that a 'Sponsorship Capability Improvement Programme' (SCIP) had been established, with representatives from across the business, reporting into TfL's Delivery and Commercial Capability Programme Board.

Project sponsorship is a subject which IIPAG has continually raised, maintaining that strong sponsorship clarifies many fundamental aspects of the project delivery process. Strong sponsorship improves the definition of scope, the financing of a project, the business case, the acknowledgment of change and the appraisal of overall benefits. In IIPAG's 2012/13 report IIPAG noted some improvement in TfL's sponsorship capability, recognising that fewer recommendations had been made regarding projects in implementation than had been the case in previous years. However, IIPAG also highlighted the continuing need for more a consistent approach to sponsorship across TfL, and stressed the particular importance of effective sponsorship during project development.

During 2013/14, both Rail & Underground and Surface Transport organisations implemented changes to their respective Sponsor functions, with the intent of clarifying sponsorship roles and responsibilities. This was in response to one of the key recommendations arising from previous reports into TfL sponsorship capability by IIPAG and also following a report by Turner & Townsend. A pan-TfL "Sponsor Capability Improvement Programme" (SCIP) was initiated under the auspices of TfL's Delivery & Commercial Capability Board in order to implement the agreed management challenges and to harmonise the different approaches. The restructuring of TfL's sponsor functions was a necessary precursor to the remaining SCIP workstreams. Now that the new organisational structure is embedded it is important that those other SCIP workstreams, which are focused on building a more consistent pan-TfL approach to Sponsorship, are rapidly progressed. SCIP includes a structured programme of staff development and training which is to be welcomed, although IIPAG observed that overall, Sponsorship is being tackled in a more effective manner in London Underground than elsewhere in TfL.

IIPAG will continue to monitor progress.

3.3. Organisational Issues

IIPAG spent considerable effort in examining the effectiveness of the TfL Project Management Office, which had been re-organised two years earlier under the Horizon initiative. IIPAG concluded that:

- the existing structure with its dual reporting lines to the Managing Director, Finance of TfL and the Rail & Underground Capital Projects Director was not appropriate as it jeopardised the internal Assurance role of the PMO; and
- there was a gulf, both in desire and mutual understanding, between the Centre of Excellence within PMO and those Project Management personnel delivering projects. This difference was also apparent with those PMO staff engaged in Reporting and Project Controls.

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IIPAG recommended that:

- the Assurance function should be strengthened and separated so as to be directly responsible solely to the Managing Director, Finance;
- the Centre of Excellence should operate as an internal consultancy on project management to ensure that it engaged with and provided valued services to the Projects; and
- Reporting should be delegated to the Projects as far as possible.

Although these recommendations would reduce the size of the PMO, IIPAG believe that the changes would offer many staff a better career path.

IIPAG received TfL's Management response to its report in April 2014, five months after IIPAG's report was delivered to the business. TfL have only partially accepted IIPAG's recommendations. In particular, TfL have not accepted IIPAG's recommendation that the Assurance function be strengthened and separated so as to be directly responsible to the Managing Director, Finance. IIPAG agrees with external companies that separation will demonstrate full independence of the Assurance function.

3.4. Standards and Specifications

Challenging Standards and Specifications in TfL is often a complex issue, which can involve representation from Asset Managers, Sponsors, Procurement, Operations and the Supply Chain.

IIPAG will continue to support TfL in promoting and, where appropriate, simplifying the process of challenge.

Significant opportunities still exist to achieve savings. IIPAG will work with TfL to record and publicise successes as they are achieved, in order to encourage further activity.

3.5. Procurement and Commercial

IIPAG receive six monthly updates on progress from Rail and Underground's Commercial Director. At the most recent update, the following items were highlighted:

- A Technical Competency Framework is now applicable on all commercial roles in LU;
- A programme for talent management and succession management has commenced;
- It has been difficult to attract the right commercial capability at senior level for projects;
- A structured approach to Innovative Contractor Engagement (ICE) is being developed, including selection criteria as to when it is appropriate to apply it. TfL are looking for ways to trial the concept on New Tube for London;
- LU has endorsed a study of delivery and commercial models, which were recently considered by IIPAG;

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- On supplier engagement, there have been a number of organisational changes within TfL which should help to improve the quality and consistency of engagement with the supply chain.

Whilst recognising the initiatives and improvements in commercial management within the Rail and Underground Directorate, IIPAG believe that TfL as a whole would benefit from a greater focus on 'cost', value and contractual matters. This was identified in the IIPAG's 2012/13 Annual Report. IIPAG has subsequently reviewed TfL's PMO (see section 3.3). IIPAG recommended that consideration should be given to the creation of a Commercial Secretariat or a Consultancy Group to review the commercial aspects of those systems embracing business benefits, best value procurement, existing standards, cost management of change, cost control and cost reporting.

There is evidence that suggests that current market prices are significantly below those adopted by TfL in producing initial cost estimates. These initial cost estimates are used to guide the Project Authority Sum and IIPAG has suggested that a proportion of this reduction is retained by the TfL Executive, such that pressure on the Project team is maintained. Subject to further examination, the Executive have expressed support for this.

IIPAG notes the recent formation of a Delivery and Commercial Capability Programme Board and will follow progress in this area with interest.

3.6. External Expert Reviews

IIPAG addressed the subject of PMO's engagement and performance of an External Expert (EE) within IIPAG's Review of the PMO issued in November 2013 (see section 3.3). IIPAG had observed that the performance by the EE was variable, which on occasion is possibly due to the competence of the individuals deployed. The PMO have a responsibility to ensure that the EE is only engaged when appropriate, that their brief addresses the specific risks a project presents, and that the EE is appropriate and that competent individuals are deployed.

3.7. System Engineering

System Engineering is an internationally recognised field of engineering which addresses the design and management of complex engineering systems. It is applied across all forms of engineering in all sectors ranging from Nuclear to Defence, from Aeronautics to Transportation. Within TfL it is applied in limited areas and within London Underground there is a centre of excellence. However it most probable that its principles are not widely understood, in particular by some senior TfL managers, which results in a lack of its application at the initiation stage of a project.

The correct application of System Engineering calls for two activities that must be delivered independently. Firstly there is the requirement for a process to achieve System Integration. This is particularly important when new systems are being procured that have an interface with or a dependency upon an existing system. Crossrail Ltd has an obligation to deliver Crossrail as a complete Integrated system within itself but also one that is in part integrated with existing London Underground

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systems. The second activity is System Assurance that ensures that a system is delivered in compliance with process to enable the end user to confidently adopt the asset and bring it into use. These two activities are already occurring in TfL, but not necessarily in a defined way nor in a consistent manner.

The first step in the application of System Engineering is the capture of requirements. It is the role of the Sponsor to ensure that the functional and performance requirements to support the benefit to the business are defined at the initiation stage of a project. The Project team then produce the system requirements in response to the Sponsor's Requirements. These two documents are then under continuous management throughout the life cycle of a project and thus properly reflect the operational and maintenance requirements of the User at the initial stage. The proper application of System Engineering supports Client and Designer to comply with their obligations under Construction (Design and Management) Regulations (CDM) as well as the various Railway Regulations. It is not surprising that greatest expertise in System Engineering can be found in London Underground's Rail Systems teams. The capture of requirements is also fundamental to the production of a Business Case.

The various TfL Business units have each created their own processes for the application of the principles of System Engineering. A more consistent approach will result from the application of Pathway and more recently the inclusion within Pathway of a defined management process for Requirements Management (E0010 A1). It is important that the application of all aspects of Pathway continues to be actively promoted across all TfL departments.

IIPAG's review of Projects has consistently identified the need for improvement in the definition and capture of requirements through a formal and managed process. This would lead to an improvement in the timely production of a Business Case required to support a project. All this is the responsibility of the Sponsor and occurs at the initiation stage of a project. IIPAG believes that the principles and benefits of the application of System Engineering should be better understood and then promoted by TfL senior management.

IIPAG include System Engineering within the scope of a further IIPAG study of the opportunities for improvement across TfL in the process of Project Initiation. This will be combined with further work to improve the definition and application of the role of Sponsor in the early stages of projects.

3.8. Research and Development

TfL has a small Research and Development team at Acton. Recently TfL organised a Technology Innovation Conference in order to introduce suppliers to TfL's Technology Innovation Portal and to introduce key suppliers to SME's identified by the Government's Technology Strategy Board. IIPAG understands that this initiative was over-subscribed and suggests that TfL should obtain feedback from participants and organise a similar repeat event.

TfL does not have an identified budget or process for active engagement in R&D activities with its' supply chain. IIPAG will work with TfL to obtain best practice in this regard from other sectors, such as utility companies.

3.9. Private Capital

The question of funding and the injection of private capital continues to arise from time to time despite the collapse of the Public Private Partnership (PPP) of London Underground. Given limited public funds and the multi billion pounds scale of some of the programmes currently under development by TfL the provision of potential finance is always a matter for deep consideration. Such programmes can range from upgrading of existing facilities, infrastructure and rolling stock through to, potentially, franchising or concessions on operational routes or the provision of brand new transport infrastructure.

TfL already has a range of contracts with the private sector, which enable the delivery of a wide range of transport facilities for the public. Some are well established and IIPAG would argue that there is little consistency in the manner in which they have been adopted across the various modes. Naturally, given the reputation of the PPP, there is currently little enthusiasm to involve private capital for, say, individual Tube lines. Nonetheless, with a population forecast to continue growing, with increasing demand for public transport and with high ambitions for its delivery, TfL will have to balance the expected expenditure with the raising of financial resources for the extensive transport ambitions.

The development of the scheme for the proposed river crossing at Silvertown has required deep consideration of various options, including the possibility of tolls or further congestion charging, to provide a source of finance necessary in order to progress the scheme. The planned Northern Line Extension will benefit from a considerable financial injection from the Battersea developer. This is a different model but nonetheless, a mix of private and public funds raised for the betterment of the public travel. IIPAG expects to continue to be involved in these discussions.

3.10. Telecommunications

TfL is a major user of telecommunications: TfL depends upon telecoms services at: its control centres; at all of its railway, bus and tram stations and depots; at 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 buses, trams and trains.

TfL spends several hundred million pounds each year on telecommunications, some of it on building its own network infrastructure, and some of it on buying services from others. Many of the projects in TfL's Investment Programme include elements of telecommunications.

For historical reasons TfL's approach to the management of these assets and services is fragmented. IIPAG believes that there are major opportunities for TfL to save significant expenditure whilst improving service. There are also good opportunities for commercial synergy and the development of secondary income from telecommunications.

IIPAG identified some of the major problems that arise from the current approach to telecommunications, which include:

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- A lack of accountability and strategic direction in managing telecoms assets;
- A lack of clarity about what is telecoms and what is IM
- A lack of overall network management and overview of performance & failures;
- Very limited flexibility and reduced resilience;
- Inconsistent approach to network security and uncertainty about what is delivered;
- An unknown, but certainly significant, extent of duplication of infrastructure & services;
- Duplication of design effort across programmes and lack of standardisation;
- Too many suppliers of similar things and a likelihood of suppliers with multiple contracts; and
- Advantages of scale and commercial synergy being poorly exploited.

IIPAG has concluded that the fragmented model for telecommunications at TfL is not fit for purpose, and that TfL should radically simplify its arrangements by establishing a separate business unit to manage all telecommunications. This unit should form a single focal point responsible and accountable for telecommunications asset management, technical and commercial strategy (including commercial exploitation) and the procurement of all telecommunications across TfL.

TfL has now been aware of these issues for some time, and over the last year efforts have been made within Information Management to quantify the issues and within London Underground to develop a technological strategy. However, the fundamental lack of clarity about the demarcation between the different disciplines of Information Management and Telecommunications has not yet been addressed and IIPAG is concerned that the fragmented approach remains and that opportunities for improving value are still being missed.

IIPAG now believes that this difficult problem should be addressed in stages, the first being in Rail and Underground, where the scale of expenditure, the number of telecoms engineers and the criticality of telecoms assets and services are the greatest. IIPAG will work with the business to help achieve a more efficient outcome.

3.11. Early Stage Project Development

It is a widely accepted principle that the success of a project, whether in terms of its delivery to a specified budget and timescale or its ability to deliver the benefits that are anticipated, is determined at its outset. The quality of the processes and the competency of the persons deployed have a significant impact on the probability of success or failure at this point, and any errors that are made can be felt throughout the remainder of the project's life.

The duration of the inception stage may also last for a prolonged period during which requirements need to change as the political issues and societal needs evolve. Even though TfL has processes and individuals of high competence some projects are initiated without sufficient rigour or challenge. IIPAG has identified the need for improvement in performance and application of a more consistent approach to the management of the initiation stage of a project. This would then be seen in a more timely production of a Business Case supported by a formal record of the requirements. The Sponsor plays a key part in this activity.

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IIPAG is supportive of the manner that TfL has at last commenced to address IIPAG's long standing concerns of the need to improve the delivery of the role of a Sponsor. IIPAG's will address the Project Initiation stage in a holistic manner to seek improvement across TfL and particularly in the creation and delivery of its macro projects. This will include understanding:

- ownership and sponsorship for projects in these early stages;
- the development of business cases and the uncertainties in the long term forecasts necessary for infrastructure investments;
- the clarification and management of interfaces and stakeholders;
- identifying the appropriate procurement approach and commercial capabilities required; and
- when the early involvement of contractors is best utilised.

3.12. Innovative Contractor Engagement (ICE) and Early Contractor Involvement (ECI)

2013/14 has seen TfL embrace the pre-contract involvement of contractors in two guises. The first is the continuance of the Bank Station Upgrade Project using ICE, and the second methodology, which is termed ECI, being used for the Bank Bloomberg Project and for the Surface Structures and Tunnels Investment Programme (STIP), among others.

The objective of both methods is to provide an asset that will meet a defined business need at a lower cost and faster than using a conventional procurement. Both Rail & Underground and Surface Capital Projects try to achieve this through the contractor working with the designer pre-contract and directly employing the designer at some point in time.

For ICE, as used on the Bank Station Upgrade, the contractor, Dragados, appointed his own choice of designer and they worked together from the definition of need stage with few constraints. Dragados was in competition with three other contractor-led contractor/designer teams, all of which tendered their unique design solutions and a Target Cost Price. The Contractor teams were paid £200,000 per team as a contribution towards their heavy tendering costs, which were estimated to be between £1,000,000 and £2,000,000. This method allowed TfL to benefit from choosing the best of four well developed but different solutions whilst maintaining competition.

In 2013/2014 Dragados have entered into contract with LU and progressed the detailed design of their scheme, they have planned the project and pursued the most work of production of the Transport and Works Order submission. The Dragados team is co-located with LU and the project is going reasonably well, being only marginally behind programme. It benefits from strong Sponsorship and committed LU management. Dragados and the LU Project Management team believe that

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Dragados should strengthen design management and this comment could apply equally to commercial management.

London Underground bought the rights to the competing teams' designs for a sum believed to be about £1m in total, in order to use them to exemplify the study of alternative options during the TWAO consideration.

The ECI projects have been much less successful. For different reasons they have offered less scope and less motivation to be innovative and the projects have not secured the anticipated benefits.

At Bank Bloomberg, London Underground appointed designers to produce the reference design to be given to tendering contractor-led contractor/designer teams. However, because the station entrance box was already under construction as a part of the Bloomberg office development there is little scope for innovation by LU's contractor. In addition several shortlisted contractors have withdrawn from what is a lengthy tender process. IIPAG believe that a more conventional Design and Build fixed cost contract may be preferable here.

At the STIP Work Package 1 the Designer was appointed some 6 months before the Contractor on the basis that he would be novated to the successful contractor. The initial designs and estimates for business cases were produced by the designer and LU. The successful contractor was selected and contracted on a fee basis to be used in establishing a Target Cost Contract. The contractor was not moved to challenge the designer's solution but he did support a very large increase in project cost. Although IIPAG has intervened to drive the cost down through better contractor/designer sharing of ideas, the powerful force of competition between contractor/designer teams is absent in this procurement.

IIPAG has prepared a paper on "Lessons Learned on the use of forms of Early Contractor engagement."

3.13. Overheads

Throughout its four years, IIPAG has commented upon the differing commercial capabilities of TfL's businesses. Some have a strong commercial attitude to their business whilst others show little understanding of the need to manage expenditure and demonstrate good value. There is little evidence of a pan-TfL attitude to commercial issues, with some staff being fastidious about commercial issues while others believe that their contribution is "free" and that budgets are to be spent.

IIPAG has suggested that a means of addressing this might be the introduction of more widespread use of timesheets through which everyone would become accustomed to accounting for their time. These could then be reconciled with project estimates and budgets.

Following the Annual Benchmarking Report FPC has requested IIPAG to undertake a number of specific reviews to compare the performance of TfL with those of comparative organisations. As part of that request IIPAG will be looking at overheads over the next six months and reporting to FPC in the Autumn of 2014.

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3.14. Cycling

During the year, TfL developed a comprehensive portfolio covering a number of its projects which were related to cycling, from significant infrastructure changes such as better road junctions and the provision of cycle super highways through to safety and promotion marketing campaigns. In general each of the major items of expenditure will be authorised through the appropriate delegations, but the Cycling Vision Portfolio was developed to put all the projects into context and provide the overall justification for them all and to demonstrate the inter-relationship between the projects.

The Vision Portfolio document articulated the contribution that cycling offers in helping to meet the overall transport mix in London following publication of the Mayor's Vision for Cycling in March 2013. It gave an understanding of existing cycling levels in London and the results of modelling work which tried as best possible to demonstrate the impact of improving facilities for cycling. The overall level of expenditure on such projects included in the 2012 TfL business plan was £913m, a significant sum of money, which followed publication of the 2010 Transport Strategy in which the Mayor set a target of cycling having a 5% mode share by 2026.

The initial review of the Portfolio took place in October 2013 and at that point, IIPAG's view was that it was not clear what impact the results of carrying out the work contained in the portfolio had on other road users such as buses, cars and pedestrians. Neither were the safety implications of either doing or not-doing the work clearly articulated and it was difficult to detect the contribution each of the individual projects made towards achieving the 5% target. Enhancements were made to the paper prior to its eventual submission to the TfL Finance and Policy Committee in January 2014, during which period there had been a number of cycling deaths which had received high profile publicity within London, and which had led to further work to look at greater segregation of cyclists.

The Cycling Vision Portfolio comprises many individual projects but it does now provide a framework into which these projects fit. We do have on-going concerns about deliverability issues – the Cycling Superhighways project has not been without its problems and IIPAG will continue to review those individual projects that fall with its remit as they are further developed.

4. ASSET MANAGEMENT

4.1. Background

IIPAG's remit includes providing a commentary upon the Asset Management Plans of London Underground, and IIPAG committed to extending its examination of Asset Management across other areas of TfL in its 2013/14 Workplan. Section 4.2 describes work undertaken to date in fulfilling these commitments.

IIPAG's remit also includes the direction of team undertaking benchmarking in TfL. Section 4.3 describes progress in this area.

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4.2. IIPAG Asset Management Review

Asset Management is widely recognised as the best approach to managing infrastructure and combines technical, financial and organisational approaches to minimise the “whole life” cost of assets. This includes the costs of acquisition, operation, maintenance, disposal and renewal of physical assets, together with the value of risks such as worse reliability and the resulting impact on the business. Done properly it allows limited financial and human resources to be prioritised optimally to deliver specific service levels at acceptable levels of risk.

IIPAG reviewed Asset Management across the London Underground network in the first half of 2013, focussing on Track, Rolling Stock & Depot and Telecoms assets. A draft report was provided to TfL in July 2013. The report included a large number of recommendations, which were summarised in IIPAG’s 2013 Annual Report. The report and its recommendations were discussed with the business over the summer of 2013 and a final report was delivered to the business in November 2013.

Since this time, IIPAG has met with Asset Managers in Docklands Light Railway, London Overground, and Surface Transport. IIPAG has also continued its dialogue with London Underground, examining the prioritisation of capital works on Stations, refurbishments and maintenance of Civils assets such as embankments and tunnels and the maintenance of Signalling assets.

In addition, IIPAG has arranged to meet with London Underground in May 2014 to discuss progress that has been made in addressing the recommendations IIPAG made in 2013. A draft report setting out IIPAG’s views, together with further recommendations, will be shared with the business in the Summer of 2014. This will be finalised and circulated within the business in the Autumn of 2014.

4.3. IIPAG Benchmarking Report

Benchmarking is a subset of Asset Management. It allows businesses to understand how their practices, costs and performance compare to comparators elsewhere. Effort can then be prioritised on areas where it seems, based on these comparisons, that it can have maximum impact. In addition, quantitative comparisons enable businesses to demonstrate to what extent their costs and performance are in line with comparators elsewhere.

IIPAG included its annual benchmarking report as an Appendix to the 2013 IIPAG report. It set out five recommendations for further improvements to the business and a number of recommendations for future benchmarking work.

IIPAG has continued to chair TfL’s Benchmarking Steering Group and has asked the business to focus its efforts on addressing its recommendations of business and benchmarking improvements.

In addition, the business has continued to improve and produce quantitative benchmarking in three areas:

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- International comparisons of buses and metro services. For the first time the Docklands Light Railway is included in these international comparisons⁴;
- Tracking of the costs of “Repeatable Work Items⁵” for capital works in London Underground has been further developed, following their introduction in 2013. These are now used within the business to monitor unit costs throughout the year in some asset areas to understand and improve delivery;
- The costs of maintaining many assets on the tube network, together with their associated reliability, are produced. This work is now in its ninth year, and builds on the work commenced by the PPP Arbiter.

IIPAG will review the benchmarking work undertaken in the last year, together with steps taken to address the recommendations set out in the 2013 IIPAG Annual Report. It will set out its view of actions that should be taken to improve further to the business in June 2014 and anticipates publishing the final document in Autumn 2014.

5. FUTURE WORK PLAN

IIPAG has produced its workplan for 2014/2015 and is currently consulting on its content with TfL and the Secretary of State for Transport prior to submission to the Mayor for approval. IIPAG has reviewed the resource required to deliver its remit and will recommend a budget to the Finance & Policy Committee in due course.

⁴ A summary of the international comparisons is available at <http://beta.tfl.gov.uk/cdn/static/cms/documents/rup-20140411-part-1-item08-rail-and-underground-international-benchmarking-report.pdf>

⁵ For example, the cost per metre of delivering a Ballasted Track Renewal or the cost of tiling a square metre of floor in a station.