

TRANSPORT for LONDON

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

Annual Report 2016 – 2017

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EXECUTIVE SUMMARY

This is the seventh Annual Report delivered by the Independent Investment Programme Advisory Group (IIPAG), which was first set up in May 2010. This report is based on seven years of experience and scrutiny of TfL's Investment Programme, including almost 300 reviews of major projects in this time. Earlier IIPAG Annual Reports give more detail on the way IIPAG operates.

After some years of stability in the way IIPAG was organised and carried out its work, 2016 presented a number of changes to the regime under which IIPAG operates. These involved a new Mayor and new TfL Board Members involved with the approval and monitoring of investment projects, as well as adjustments to TfL's Standing Orders. In late 2016, there were a number of senior management departures from TfL which altered some of the key interfaces. In addition to these changes, there were a number of departures from IIPAG's team.

IIPAG's proposed budget and workplan for 2016 was reduced by over 30% due to budgetary constraints. In October 2016, the Audit and Assurance Committee initiated a review of IIPAG, due to report by the end of March 2017, and at the time of writing, the review report is awaited.

All these changes have had an impact on the operation of IIPAG during the year, with slightly reduced level of coverage of major projects, although all the most significant projects continued to be reviewed. IIPAG performs the third level of project assurance for TfL and works closely with the Project Assurance team located within TfL who provide the second line of assurance. With the reduced availability of IIPAG, greater dependence was placed on this second line group, with part of IIPAG's role being to oversee the work of this group.

IIPAG has responded to its reduced budget by constraining its efforts on issues that don't relate directly to the delivery of current projects. It has reduced the amount of time that it spends attending Board meetings and in meeting and discussing issues with other IIPAG members. It has also greatly reduced the effort that it expends on systemic issues such as telecoms, procurement, commercial issues, asset management and benchmarking.

Finally, changes to the method of operation of the Programmes and Investment Committee (PIC) were introduced at the March 2017 meeting of the committee, and it will take some time for the impact of that to be assessed. The Committee will give Programme and Project Authority for programmes of work each of which comprise a number of specific projects, with specific authorisation for spend delegated in line with TfL's revised Standing Orders. IIPAG will participate with TfL Project Assurance in reviews of these programmes for PIC as well as continue with the more detailed reviews of specific projects for the TfL management groups. IIPAG notes these recent changes and will continue to monitor their outcome and any impact on the delivery of the investment programme.

During the year, TfL has been carrying out a review of its organisational structure and staffing levels with its Transformation Programme. IIPAG has not been involved directly with this, but during the year, the investment programme has continued to be delivered, despite the changes in personnel. Proposals are being developed for a cross TfL Major Projects Directorate for the most significant enhancement projects, a step IIPAG has

recommended for some years, but there have been difficulties in finding someone to lead this group on a permanent basis. With a capital investment programme totalling nearly £1.5bn in 2017/18 alone this is an issue which needs to be addressed.

During the year, IIPAG made some 160 recommendations from its involvement in Integrated Assurance Reviews, around 30% fewer than last year. From an analysis of the grouping of these, the most significant reduction has been in recommendations on commercial and contractual issues. Despite this, IIPAG remains concerned at the approach previously taken on commercial issues, but notes that changes are being made following from the Business Finance Review and some personnel changes. IIPAG will continue to monitor progress in this area.

Most of the major projects that have an Estimated Final Cost around or above £1bn were reviewed during the year. Key ones were the Four Lines Modernisation Automatic Train Control project where we noted that there had been good progress since the review carried out in March 2016, although there had been significant slippage in the design and train fitment works, for which recovery plans were in place. Progress with the Northern Line Extension continues although IIPAG remain concerned as, given the scale and complexity of the project, the potential for cost growth and delay to completion is significant. For the Deep Tube Programme, IIPAG's concerns over the procurement strategy for the signalling and train control strategy are being addressed, and we are continuing to work constructively with the project team to mitigate these concerns. Whilst the Silvertown River crossing project is generally proceeding well we are not satisfied that there has been sufficient assurance of the entire river crossing programme which range from cycle/pedestrian to road/rail schemes.

One systemic issue which continues to concern IIPAG is the actual delivery of an integrated telecommunications network which embraces the bulk of TfL's communications needs. Despite good words on developing such a strategy, progress with implementation is practically non-existent. IIPAG strongly believes there are major cost-savings to be had here if progress were to be made.

IIPAG's role and effectiveness have developed over the six years since the group was established, although there have been no changes to the IIPAG remit during that time. It is now opportune to review that and IIPAG looks forward to the results of the Review which is being undertaken, led by an external chairman, and which is due to report imminently.

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 current Terms of Reference 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.

2016 presented a number of changes to the regime under which IIPAG operates. For the first time since IIPAG was established in 2010 there was a change of Mayor, with the resultant changes in TfL Board Members and those Members involved with the approval of investment projects. In addition, during the year TfL made a number of alterations to the method of working of the newly formed Programmes and Investment Committee, which impacted on the way the assurance regime in TfL operates. Finally, in late 2016, there were a number of senior management departures from TfL which, in association with major changes in its organisational structure, altered some of the key interfaces.

In addition to these changes in external practices, structures and interfaces, IIPAG faced reduced resources. IIPAG's proposed budget and workplan for 2016 was reduced by over 30% due to budgetary constraints and there were changes to its constituents. David James retired as the Chair of IIPAG in May 2016, being replaced by Derek Fryer who resigned in November 2016, being replaced on an interim basis by Colin Porter.

In October 2016, the Audit and Assurance Committee initiated a review of IIPAG, due to report by the end of March 2017, and at the time of writing, the report is awaited.

At present IIPAG comprises six members and an advisor, supported by a personal assistant. All of these positions are part time and commitments range from 1 to 7 days a month per person. Projects and systemic issues are typically reviewed by two people, with one individual nominated to lead a topic. It is supported in this by TfL Project Assurance.

This is the seventh 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 learned.

Section 2 of the report describes the Project Reviews undertaken from April 2016 to March 2017.

Section 3 describes IIPAG's views on a small number of "Major Projects", where projects are particularly high profile and/or where there are material risks to successful delivery.

Section 4 outlines the progress that has been made over the last year in addressing systemic issues that were identified across reviews of multiple projects and Section 5 addresses Asset Management and Benchmarking.

1.3. Meetings and Communication with TfL and its Board

There were some minor changes to the schedule of meetings and the arrangements for communication which had developed since IIPAG's inception. IIPAG met the members of the Commissioner's Leadership Team twice during the year to set out progress and to discuss issues. Members of the IIPAG Team attend the monthly London Underground Board and the Surface Transport All Approvals Board meetings when projects that have been reviewed by IIPAG are discussed.

IIPAG continues to attend relevant Boards, Committees and panels within TfL in support of the corporate governance and approvals process for projects where it has reviewed progress. This is typically for projects with an Estimated Final Cost (EFC) in excess of £50m and also for a small number of projects that IIPAG considers important for other reasons, such as novelty or complexity. IIPAG continues to chair the Benchmarking Steering Group. IIPAG also participated in the induction of the TfL Audit and Assurance and the Programmes and Investment Committees held in February 2017.

IIPAG's formal output to the business is in the form of brief reports related to an Integrated or Targeted Assurance Review (I/TAR) instigated by TfL Project Assurance, an Interim Review of projects instigated by IIPAG or a systemic issue. These are submitted to senior panels or Board committees within TfL to ensure that IIPAG's recommendations are considered at an appropriate level. IIPAG's reports set out its recommendations to TfL's Board on specific projects or systemic issues. IIPAG often presents its views to the relevant panel or committee and the Management Response from the business, which outlines TfL's response to IIPAG's recommendations, is also discussed. IIPAG's reports are also forwarded to the Department for Transport (DfT).

2. PROJECT REVIEWS

2.1. Approach

The TfL Board's committee structure has been modified in the last year. The previous Board's Finance and Policy Committee, to which IIPAG typically reported, has been disbanded and its functions split between the 'Finance Committee' and the 'Programmes and Investment Committee' with the latter focusing on approvals and oversight of the Investment Programme at sub-programme level. Assurance of the Investment Programme and decisions regarding funding its constituent projects and programmes are now made at the Programmes and Investment Committee (PIC). TfL's Investment Programme has been divided into 20 Sub-Programmes and the intention is that there will be an annual review of each of these Sub-Programmes. The first of these sub programme reviews took place in February 2017. These reviews are different in nature to the Integrated Assurance Reviews we have generally dealt with so far, in that they consist of a review of documentation and then a two day panel review of portfolio team members. IIPAG participates in these panels which are led by Project Assurance (PA). Given the number of individual projects within the sub-programmes, these reviews tend to be at a more strategic level. Due to the small number of these reviews, with only two reviews to date, they have been included alongside Integrated Assurance Reviews (IARs) in this report.

TfL's system of IARs that establish the compliance and status of capital projects across TfL is unchanged from previous years. A description of these reviews, which are led by TfL Project Assurance, is given in previous IIPAG reports.

IARs are undertaken at specific points in a project's lifecycle (for example, Initiation and Contract Award) and also, since March 2016, where Continuous Assurance undertaken by TfL Assurance has highlighted an issue with a project. These additional reviews are known as Targeted Assurance Reviews.

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.

In addition to the Integrated Assurance Reviews, IIPAG has initiated a number of Interim Reviews to ensure that major projects are reviewed at appropriate intervals. The Interim Reviews that IIPAG has undertaken are listed in section 2.3.

Section 2.4 describes work that IIPAG has undertaken on Project Dashboards and Section 2.5 sets out how TfL's assurance regime has developed, in particular how TfL's second line of assurance has changed.

2.2. Integrated Assurance Reviews

Members of IIPAG have been involved with Integrated Assurance Reviews (IARs) between April 2016 and March 2017 as noted below:

Project	Stage / Type of Review
Camden Station Capacity Upgrade	Advice
Tottenham Court Road Station Upgrade	Commercial IAR
Workforce Planning Project	Interim IAR
Surface Intelligent Transport Systems (SITS)	Pre-Tender IAR
New Coach Facilities for London	Initiation IAR
Central Line Improvement Project CLIP	Annual IAR

Project	Stage / Type of Review
Workforce Planning	Interim IAR
Cycle Hire Re-Let	Contract Award IAR
Enhanced Oyster Refund & Ticketing App (FTP4)	Contract Award IAR
Crossrail Yellow Plant	Contract Award IAR
Westway STIP 2	Initiation IAR
Brent Cross STIP 2	Initiation IAR
LU Track & Drainage Programme	Annual IAR
STAR (Stratford to Angel Road)	Contract Award IAR
ISP (Integrated Stations Programme)	Interim IAR
Bond Street Station Upgrade	Interim IAR
Mini Hollands	Annual IAR
Wandsworth Gyratory	Annual IAR
Victoria Station Upgrade	Commercial Targeted Review
Crossrail 2	Interim IAR
NTfL Report on Procurement	Procurement Paper
92TS Data Transmission System Replacement Project	Contract Award IAR
92TS Traction Project	Contract Award IAR
Surface Intelligent Transport System Programme (SITS)	Contract Award IAR
LOTRAIN	Interim IAR
Camden Station Capacity Upgrade	Contract Award IAR
Cycle Superhighways	Targeted Assurance Review
Advice on Asset Management in Track & Drainage Programme	Advice
Elephant & Castle Northern Ticket Hall	Option & ITT Integrated IAR
DLR Rolling Stock Replacement	Pre-Tender IAR
Silvertown Project	PQQ & Pre-Tender IAR
London Overground Stations at Old Oak Common	Targeted Assurance Review
Step Free Access Programme	Initiation IAR
Oxford Street Pedestrianisation	Initiation IAR
Rapid Charging Network	Targeted Assurance Review
LU Rolling Stock Renewals Programme	Sub-Programme Review
Healthy Streets Portfolio	Sub-Programme Review

IIPAG has contributed to a total of 37 reviews, of which 28 were reviews at stages in a Project's lifecycle, four were "targeted" reviews to examine an issue arising on a project and three were IIPAG's reviews or advice on a particular topic for a specific project. Two were "sub-programme" reviews. The total number of reviews where IIPAG was involved was around 20% fewer than in previous years. This was due, in part, to a pause in approvals for new projects under the new Mayor and Board as TfL's business plan and priorities were updated. In addition, IIPAG prioritised its involvement to enable it to remain within its reduced budget but to ensure that it remained focussed on projects where it considered that risks were higher.

IIPAG has made around 30% fewer recommendations than in previous years: around 160 compared to 230 in 2015/16. As for previous years these recommendations have been

placed into broad categories to enable IIPAG to understand whether TfL's improvements are affecting the mix of areas where IIPAG makes its recommendations. IIPAG has split its recommendations into five areas, which comprise the great majority of recommendations:

- Commercial and Contract, such as key considerations that should be included in an Invitation to Tender or addressing shortcomings in a Procurement Strategy;
- Project Management and Interfaces, where insufficient consideration has been given to the delivery of projects, particularly where there are interfaces with other stakeholders such as Network Rail;
- Requirements and Sponsorship, such as recommendations to better define requirements, to set out a clear business case and to ensure that suitable sponsorship is in place to deliver the business case;
- Risk, where risks have not been properly identified, quantified or managed; and
- Governance, for example ensuring that proper processes were followed or that an aspect of a project be scrutinised in greater detail at a more senior level.

The table below notes the proportion of recommendations that were made in these areas compared to previous years.

Area	Proportion of Recommendations ¹			
	2013/14	2014/15	2015/16	2016/17
Commercial and Contract	25%	25%	25%	15%
Project Management and Interfaces	25%	15%	15%	20%
Requirements and Sponsorship	20%	15%	20%	20%
Risk	20%	5%	5%	5%
Governance	Unavailable	15%	20%	20%
TOTAL	90%	75%	85%	80%

The main change in the balance between the areas is the significant reduction in the number of recommendations made to address commercial and contractual issues, although IIPAG does not believe that this reduction necessarily indicates an improvement in commercial management. IIPAG's view on progress in this area is set out in Section 4.3.

A greater proportion of IIPAG's recommendations than in recent years have addressed Project Management and Interfaces with external parties. Recommendations on Project Management have typically concerned the *reporting* of the delivery of the project, in particular its costs and its risks, rather than shortcomings in the management itself. IIPAG has previously noted shortcomings in the project Dashboards, which is a related issue, but has had insufficient resources to address this issue in 2016/17.

The proportion of recommendations that address relationships with external parties has increased, albeit this remains less than 10% of the total number of recommendations. IIPAG would note, however, that issues with external parties, for example Network Rail, can cause

¹ to nearest 5%

very material delays or cost increases and remains of the view that more can be done in this area.

As in recent years the setting of clear project requirements, including the setting and tracking of benefits remains the subject of many IIPAG recommendations but risks are now generally well covered. Governance, however, remains the topic of a large proportion of IIPAGs recommendations. This is addressed in Section 4.5.

IIPAG has previously commented that some of its recommendations are not acted upon. A process is now in place to track IIPAG's recommendations: TfL Project Assurance are now tracking the delivery of the recommendations that IIPAG makes in its reports. IIPAG will review progress on delivery of these actions throughout the coming year and report on this in its next annual report.

2.3. Interim Reviews

IIPAG has undertaken only two Interim Reviews in the past year, compared with ten in 2015/16. IIPAG has reduced the number of such reviews to remain within its budget, but has highlighted areas of concern to TfL Assurance such that a Targeted Assurance Review can be undertaken.

IIPAG's Interim Reviews were on the re-signalling of the Subsurface Lines and the Northern Line Extension. IIPAG's views on these projects are set out in sections 3.2 and 3.3, respectively.

2.4. Project Progress Dashboards

IIPAG has not spent time reviewing or contributing to the development of TfL's dashboards. IIPAG's impression, from its reviews of projects, is that dashboards have not progressed greatly. It remains difficult to identify what deliverables have not been delivered and whether a project is ahead or behind schedule. IIPAG does not receive and review the dashboards and the Boards that IIPAG attends do not receive the dashboards for all projects, or for any projects for some Boards. It is unclear to IIPAG what the role of Dashboards is in informing these various Boards.

2.5. Second Line Assurance

During the past year, the TfL Project Assurance department has expanded with new personnel bringing good experience, but it has also suffered the departure of two key members. The department now has an established process to identify the need for project reviews based on an assessment of risk, which is achieving a more focussed and efficient delivery of Level 2 Assurance. IIPAG has also adopted a similar process to ensure that it only reviews those projects it considers appropriate and also deploys the appropriate number of IIPAG members.

However, IIPAG continues to observe a fundamental failing by the project teams to achieve their planned gateways or Assurance Reviews despite the assurance given in TfL's Management Response to similar observations made in IIPAG's 2016 Annual Report. This is a topic that a Project Management Office (PMO) should address within the newly created Major Projects Directorate.

Other IIPAG concerns include:

- reduced use of external experts to produce comprehensive reports on individual projects and programmes;
- the extent of change in the business over the last year;
- reorganisation within the General Counsel's directorate and the ongoing restructuring of TfL.

The ongoing reorganisations and change, combined with the change in TfL Board structure and reporting of assurance, are a result of the TfL Transformation initiative. IIPAG has concerns over the coherence of the whole assurance process, from 1st line (project team) through 2nd line (TfL Project Assurance) to 3rd line (IIPAG). IIPAG plans to conduct a comprehensive review of the overall assurance process for projects and programmes in order to identify any consequential and unintended weaknesses.

TfL has announced that it intends to change the line of reporting for the Head of Project Assurance from the Chief Finance Officer to General Counsel, as part of a new Risk and Assurance directorate, incorporating Project Assurance, Fraud Prevention, Internal Audit and Strategic/Operational Risk. Reporting to the CFO was in line with IIPAG's recommendations, given in its report published in November 2013, following its review of the PMO. IIPAG has yet to see the plan which ensures appropriate separation of Internal Audit from Project Assurance within the new Risk and Assurance Directorate.

Finally, circumstances over the last year have combined to limit IIPAG reviews and reports on three major programmes (Northern Line Extension, 4 Lines Modernisation and Deep Tube Upgrade) and the effectiveness of 1st and 2nd line TfL assurance is therefore even more critical. IIPAG believes that PIC should seek specific TfL assurance on the effectiveness of the internal scrutiny and assurance of these three very high value programmes.

3. MAJOR PROJECTS AND PROGRAMMES

3.1. Approach

TfL's Investment Programme includes a number of projects or programmes that are extremely significant, either in terms of the value of the projects, their complexity or risks or their significance in delivering the Mayor's Transport Strategy. IIPAG has commented upon all projects that TfL is progressing that have an Estimated Final Cost around or above £1bn, as well as smaller projects that have a particularly high public profile. These are:

- Four Lines Modernisation Automatic Train Control (previously known as the Subsurface Upgrade Programme ATC);
- Northern Line Extension (NLE);
- Deep Tube Programme (Previously known as New Tube for London);
- Silvertown Crossing;
- River Crossings Programme: East and West of Silvertown;
- Crossrail 2;
- Cycling Vision;
- Old Oak Common; and
- Step Free Access.

IIPAG's view of these large projects and programmes is given in the remainder of this section.

3.2. Four Lines Modernisation Automatic Train Control

The provision of Communications Based Train Control on the Circle, District, Metropolitan and Hammersmith & City Lines is one of the largest and most complex re-signalling programmes that has ever been attempted anywhere, and in view of this and the difficult history, IIPAG was asked by the former Finance and Policy Committee to conduct regular reviews of the 4LM ATC programme. Due to financial constraints IIPAG reviewed this programme only once in the last year.

The review was held in September and October and found that the Programme was well led and there had been good progress since the previous review in March 2016.

However, there had been significant slippage in the design and train fitment works. The principal causes of this delay had been identified and recovery plans were in place. The delays had consumed some float in the schedule but the public service dates appeared to be still achievable. The programme is complex with multiple interdependencies, and IIPAG recommended that the full impact of the slippage through the remainder of the programme should be closely analysed.

The main contractor was having some difficulty with sub-contracted works and London Underground was assisting in order to help improve efficiency. This type of collaborative behaviour is to be encouraged, but does necessitate amendments to the commercial arrangements between London Underground and the main contractor.

IIPAG made a number of recommendations, all of which were accepted by London Underground. IIPAG will review the progress with these at its next review in May 2017.

3.3. Northern Line Extension (NLE)

In its last Annual Report IIPAG expressed concerns with regard to the Northern Line Extension Project and those concerns remain as, given the scale and complexity of the project, the potential for cost growth and delay to completion is significant. IIPAG has monitored project performance over the past year, principally utilising available project reports. These suggest site progress is reasonable, if slightly behind programme overall, but there remains divergence between respective views of likely outturn cost between TfL and the Contractor which, in part, are caused by differing views with regard to the effect of some changes previously implemented. This is a matter which TfL should look to address as soon as possible and one which will demand IIPAG's attention during the coming year. Further, IIPAG would wish to see TfL make progress in recovery of costs attributable to the changes made by Battersea Power Station Development Company to the design of their development and will also address that matter over the course of 2017.

IIPAG notes and welcomes that there is to be a Level 2 assurance review (by the Project Assurance team) in 2017. IIPAG will participate in that review and will wish to see specific attention paid to those matters which have been of concern to it to date.

3.4. Deep Tube Programme

IIPAG has long-standing and serious concerns about the procurement strategy for the signalling and train control (S&TC) on the Deep Tube Upgrade. IIPAG believes that the current approach, which involves placing a single contract for the four lines, with work spread across many years, may not deliver best value for money and contains serious procurement risks. In addition, there is a fundamental strategic issue which needs to be addressed relating to the number of suppliers that it is preferable for TfL to engage on critical infrastructure, given that the contracts will last for several decades.

The project has been subject to delay to date both with regard to the purchase of new rolling stock and progressing the S&TC contract. There is a critical interface between these aspects of the project, which must be maintained going forward. Each is huge and complex in its own right and so the potential for programme mismatch between them is clear. Fortunately, the delay to the rolling stock contract provided additional time for issues on the S&TC contract to be resolved. However, timescales are pressing and are a cause for concern to IIPAG.

Each aspect of the project, as currently envisaged, involves very significant expenditure in areas which in the past have been subject to considerable cost escalation. IIPAG is in the course of reviewing the current S&TC estimate and will continue to monitor cost management on the project.

Overall the Project is well led and has a committed team which is working with IIPAG to improve understanding of all relevant issues. IIPAG welcomes this constructive approach and will work with the Project Team with the aim of either agreeing a strategy which is efficient, economic and provides value for money or, failing such agreement, provides robust and measurable mitigations which address the risks which are of greatest concern to IIPAG.

3.5. Silvertown Crossing

During the past year IIPAG has witnessed good progress by the Project Team in three key areas of activity. These are:

- seeking of powers through the Development Consent Order (DCO) process;
- further refinement of the scheme; and
- the initiation of the procurement through Public Private Partnership (PPP) for a design, build, finance and maintain contract (DBFM).

IIPAG's involvement has focussed on the procurement process and in association with TfL Project Assurance has participated in two Integrated Assurance Reviews (IAR).

TfL's Pathway process, its Project Product Management Plan, does not call for an independent assurance review at the PQQ stage. However, IIPAG believed that this was necessary as a result of the recent change in EU procurement Regulations and encouraged an IAR to be held both prior to issue of the PQQ and at the subsequent Invitation to Negotiate Stage (ITN). Over the past year the project's programme has been delayed. Initially the Mayor sought a review, resulting in a delay of approximately four months. As a consequence of the review certain changes were made resulting in an increase in the cost of the capital works. More recently the ITN issue date has been deferred due the concurrent timing of DCO activities.

There has been a major increase in the estimate for TfL's own costs, associated mainly with land values. The overall EFC has been maintained due to a revised assessment of the value of risk and inflation. IIPAG is content with all that it has witnessed in the past year.

In March 2017 the Project Team sought an endorsement of its procurement activities from PIC. TfL's gateway process does not require further authority to be sought until June 2018 for contract award. However, due to the Project's high value and unique features IIPAG recommends that:

- the TfL Board, through its Programmes and Investment Committee (PIC), should receive independent assurance on all developments leading up to contract award.
- PIC should be briefed on the outcome of the Examining Authority's (Planning Inspectorate's) report to the Secretary of State in support of the granting of the DCO anticipated in October 2017.
- PIC should be advised on progress on this project more frequently; and
- Silvertown should not be subsumed into an annual update to PIC as part of a Sub-Programme.

3.6. River Crossings Programme - East and West of Silvertown

There have been no independent assurance reviews in the last year of the two schemes previously included within the East of Silvertown River Crossing Programme, which were proposed at Gallions Reach and Belvedere. TfL's Management Response to IIPAG's 2016 Annual Report noted that

Since his election in May, the Mayor has confirmed that he will review his river crossings priorities with a particular focus on air quality, new housing and affordability. The review will consider which options best meet the new priorities. An IAR (with IIPAG) will be arranged once the new priorities are confirmed.

In October 2016, the Mayor outlined his commitment to providing greener and more public transport-focused river crossings in the East and South East of London, and set out a package of new river crossings to be built in the next five to 10 years. As a result of these assumed Mayoral Directives TfL have progressed with the replacement of the Woolwich Ferry, established a project team to develop a new pedestrian and cycle bridge between Rotherhithe and Canary Wharf and developed new schemes east of Silvertown.

IIPAG is concerned that to date there have been neither independent nor internal assurance reviews of the overall strategy for river crossings. This should address how the individual schemes collectively address the Mayoral objectives of a greener and more public transport-focused river crossings in the East and South East of London, to improve travel across the capital while supporting new affordable homes and business opportunities in East London. Meanwhile single solutions are being developed. All this is taking place prior to assurance of the project requirements in terms of functionality and performance in support of a business case.

If TfL sets out to procure suppliers to develop and deliver such schemes it runs the risk of becoming committed to what might later be viewed to be inappropriate solutions. IIPAG agrees that there is certainly a need for additional river crossings but has seen no evidence of robust option selection to be convinced that optimum benefits and value for money will be achieved with the single solutions currently being developed.

3.7. Crossrail 2

During the past year IIPAG has benefitted from a constructive briefing by the Crossrail 2 Project Team, regular updates by TfL Project Assurance on the development of an integrated Assurance Plan, has attended an Integrated Assurance Review (IAR) held in September 2016 and has been briefed about a subsequent Targeted Assurance Review (TAR) held in February 2017.

The Government is set to complete a Project Assessment Review (PAR), in advance of the review of the Business Case by HM Treasury. This review was conducted by the Infrastructure and Projects Authority in March 2017. IIPAG was pleased that TfL Project Assurance was represented on the PAR review team and that it will report its findings to the next meeting of PIC.

IIPAG has long advocated the need for an integrated assurance plan to minimise the demands placed by assurance processes on the project. IIPAG awaits the issue by DfT and TfL of an agreed Integrated Assurance and Approval Plan which describes how the assurance activities of TfL, the DfT and Network Rail will be brought into alignment.

Whilst for many the focus is on the forecast out turn cost of the envisaged scheme and the perceived benefits to be defined in the Strategic Outline Business Case (SOBC), the immediate challenge is to manage the project team's own cost within the currently available funding. A project of this magnitude is subject to external factors which delay progress, resulting in a reduction in planned spend rates that can impact efficiency and cost. In IIPAG's 2016 Annual Report it was noted that the Chancellor had deferred the development funding decision pending publication of the National Infrastructure Commission's (NIC) first report. During the past year, the commencement of the Public Consultation has been deferred at the request of the DfT. This also delays the commencement of procurement of the next phase of design development. The project plan remains to submit the Hybrid Bill in

Autumn 2019 and thus the period of preparation is reduced to a 24-month period, assuming that the Secretary of State for Transport's response to the SOBC occurs at the end of May 2017, although the recent calling of a general election is likely to delay this response.

IIPAG remains of the opinion that the project has to date been well managed. As it enters its next phase of development it is essential that the appropriate resources are deployed, and that project plans and processes are established and applied. IIPAG endorses the recommendations made by the External Expert at the recent TAR.

3.8. Cycling Vision

No specific review was undertaken of this particular portfolio of projects during the year. With the changes introduced as part of the implementation of a revised way of working for the new Programmes and Investment Committee (PIC), this portfolio is now included within the "Healthy Streets" portfolio of projects which was reviewed in January 2017 ready for the March 2017 meeting of PIC. Good progress with implementing the Cycle Superhighways (CSH) was made in 2016 with a number of key achievements meeting the challenging targets set by the former Mayoral team. Early results showing the take-up of the routes are now available and they appear to be making a promising contribution to a greater uptake of cycling in London. One specific CSH, the East-West route, did face a number of difficulties which resulted in increased costs and this specific project was reviewed in November 2016. Some common themes from the review were the difficulties placed on implementation teams when there is undue pressure to meet demanding timescales when the normal project processes are compressed.

Cycling projects largely undertaken by the Boroughs (Cycling Grid, Mini-Hollands and Quietways) made progress, although the rate of progress continues to be behind the schedule set, although this has recently improved. This reflected difficulties faced by the Boroughs in executing the works for a variety of reasons, from consultation issues through to resource problems.

3.9. Old Oak Common

TfL is currently examining potential London Overground stations at Old Oak Common. These would connect with HS2, the Elizabeth Line and the Great Western mainline through new stations on the West London Line and the Northern London Line. While the funds currently committed to this project are small, there is significant potential for the project to result in very high costs and risks to TfL, and for interactions with external stakeholders to result in a costly and sub-optimal outcome both for TfL and the Mayor.

3.10. Step Free Access

The current EFC of the Programme is £251m, of which £197m is to be funded by TfL with the remaining £54m from third parties such as developers or Boroughs. The Programme is intended to address the Mayor's target of making 30 stations step free by 2022. TfL will face significant challenges in delivering this programme within the budget in the time available. There are clear risks to the schedule and cost of the programme and these will need to be addressed rapidly if there is to be any chance of successful delivery. IIPAG will continue to monitor this programme in the next year.

4. SYSTEMIC ISSUES

4.1. Introduction

IIPAG has, in some areas, continued to address a number of issues that have a wide impact on the business performance of TfL. Budgetary constraints have significantly reduced the extent to which this has been possible.

This report notes IIPAG's views on the following topics:

- Telecoms;
- Procurement and Commercial;
- Business and Finance Review;
- Governance.

IIPAG has not undertaken any work on:

- TfL Culture
- Research and Development;
- Commercial Development and Secondary Revenue;
- Standards and Specifications;
- Project Overheads, except for that noted in Benchmarking;
- Carbon footprint; and
- Non-Permanent Labour

4.2. Telecoms

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 over £150m each year to buy in telecommunications services, and spends many millions more on operating and building its own networks.

IIPAG has been critical of TfL's fragmented telecoms management arrangements for a number of years and this has been well covered in previous Annual Reports. In April 2016 TfL's Executive Committee approved a proposal to put an immediate stop to the further proliferation of networks by putting in place the required organisation and governance constructs to control data networks across TfL. In June 2016 a new TfL-wide Telecoms and Data Networks Strategy was approved, setting out in high level terms how many of the issues will be resolved. Both of these steps represent a huge stride forward for TfL and are commended by IIPAG.

TfL has identified some significant savings that can be made, and a lot of effort is now being made to address the issues around the bought-in telecoms, with a major tendering exercise underway. TfL is also now addressing the impending termination of the Connect PFI arrangement on the Underground.

However, it is apparent from recent programme reviews that little difference has yet been made with investment projects. Telecoms network proliferation is still taking place across most of London Underground. New projects still include multiple separate new telecoms networks, and several golden opportunities to create a single integrated telecoms network, to resolve the issues of the past and to save significant costs are being missed.

For example, the 4LM programme will soon start installing its own separate fibre optic and radio networks, the Emergency Services Network programme is currently designing completely separate fibre optic and a new radio network underground, and the Deep Tube Upgrade programme also looks destined to have its own separate fibre optic and radio networks.

This represents a complete lack of adherence to TfL's stated telecoms strategy and whilst it is the case that projects have long gestation periods and some (such as 4LM) already have contractual commitments, others (ESN and DTUP) do not yet have either finalised designs or contractual commitments. It is IIPAG's view that the large sums of money involved warrant a more concerted effort to optimise the works and to share the telecoms infrastructure.

IIPAG believes that TfL should align its investment portfolio with its telecoms and networks strategy as a matter of high priority. More resources are needed in order to create a central team for the management and engineering of telecommunications, and to enable TfL's strategy to be delivered. It appears to IIPAG that the TfL Transformation Programme may have delayed the establishment of this organisation.

This team is urgently required and should include all of the telecommunications activity, including London Underground's engineering assurance and commercial development.

The obvious risk is that if progress towards the establishment of a TfL Telecoms team continues as slowly as it has so far, the once-in-a-generation opportunity to capitalise on the current major investment activity will be missed, and hundreds of millions of pounds of unnecessary expenditure will be made.

4.3. Procurement and Commercial

It has not been possible for IIPAG to undertake a systemic review of TfL's procurement strategy and commercial performance due to budgetary constraints. IIPAG therefore cannot make a definitive comment as to extent to which TfL has addressed IIPAG's long standing concerns.

IIPAG nevertheless notes it has been a time of some upheaval as the previous Commercial Director of Rail & Underground and other senior personnel left the business as part of the TfL's Transformation programme. Mayoral initiatives have also required the replacement of non-permanent labour, which was more material for this area than many in TfL. IIPAG welcomes the appointment of a Chief Procurement Officer covering the whole of TfL and anticipates a much-needed improvement in commercial performance on projects involving significant capital investment.

Based on its reviews of projects over the course of the year the scope for such improvement is vast. Examples include cost projections which are unchanged despite changing events and risks, the ongoing failure of supplemental agreements entered into in relation to station

upgrade projects to deliver anticipated benefits and the continuing risk averse approach to dispute resolution.

IIPAG has noted an evolving change in procurement strategy for the programme for London Underground station capacity improvements. These have moved from a single Design & Construct contract with a single First Tier Supplier to TfL taking design responsibility with delivery procured through multiple single discipline contracts. This has resulted in the appointment of Framework Agreements to manage coordination and integration. The full implementation of this strategy has yet to be confirmed.

TfL is in the midst of major reorganisation while also in the course of undertaking numerous major projects such as the Northern Line Extension, the 4 Lines Modernisation Programme, the Deep Tube Upgrade Programme and the Silvertown Tunnel. These are billion pound plus programmes which would present significant commercial problems even in more stable times. However, the added risks will require TfL's commercial management to be first class if it is not to face the significant cost and schedule overruns of the past.

IIPAG has witnessed individuals within TfL who have the skills and experience to enable such projects to be delivered successfully. Much will be demanded of them going forward and it therefore remains to be seen whether TfL's revised organisational structure will be adequate and will permit them to identify, address and resolve issues as appropriate.

4.4. Transformation Programme

TfL has announced in its Business Plan that it is undertaking the biggest ever overhaul of its organisation. It is doing this through a structured activity entitled the Transformation Programme, previously called the Business and Finance Review (BFR). The objective of this is to drive greater efficiency to achieve the required cost savings, including making a clear distinction between operations and the capital investment programme.

IIPAG sought to participate in the development of nine work streams that constitute the Transformation Programme but this was declined by TfL. Instead the Commissioner proposed that IIPAG participates in the subsequent implementation phase planned for late 2017. It remains to be seen if the 2017/18 budget for IIPAG, following the review of IIPAG's remit, is sufficient to fund this activity. IIPAG remains of the opinion that it would have been more beneficial if TfL had sought independent review from IIPAG during the development of the various workstreams.

TfL has stated that operating and capital cost reductions are being achieved through a wholesale review of every element of their operations. This includes:

- Merging functions to create efficiencies;
- Reducing management layers;
- Cost reductions across areas that support its operational business;
- Less reliance on agency staff;
- Negotiating better deals with its suppliers; and
- Sensible and considered value engineering in delivering its major projects.

In April 2016, the Commissioner announced the rationale for change across TfL and how it would be achieved. This included a major re-organisation of its capital investment

programme with the creation of a Major Projects Directorate and a TfL Engineering Directorate. IIPAG is fully supportive of this initiative, especially as the creation of a Capital Projects Directorate was a key recommendation of IIPAG's first Annual Report published in 2011. The sheer scale of the change programme is immense and for any organisation, particularly in the public sector, the speed of enactment of change is critical to ensure that its institutional culture is not allowed to thwart the objectives being fully achieved.

IIPAG has witnessed the departure of numerous senior managers in the early stages of the Transformation which should achieve greater efficiency by the removal of theoretically unnecessary management layers. However, it will remain a significant challenge to deploy appropriate resources within a new organisational structure to support the cultural change necessary to achieve meaningful improvement in efficiency and economy.

4.5. Governance

TfL's revised approach to approvals, with 20 sub-programme assurance reviews being annually reported to PIC, is a very recent change. The first sub-programme reviews were undertaken in February 2017 and were reported to PIC in March 2017. IIPAG's initial views, based on the few reviews undertaken to date and so subject to change as the process is developed, are that:

The sub-programme reviews are insufficient without the supporting IARs: A typical sub-programme will comprise of a large number of projects with a total budget of £500m to £1bn. The reviews themselves comprise two days of interviews of project directors and managers, together with a review of documents setting out delivery, costs and risks and reports of progress. As such, the sub-programme reviews borrow heavily from the knowledge that TfL Assurance and IIPAG already have of the projects. In IIPAG's case this is gained primarily from previous IARs. Although IIPAG will see the Integrated Assurance Plans to ensure proper coverage at project level, IIPAG believes that it is essential that it continues to be involved in IARs for most of the main projects if its scrutiny is to be substantive.

The level of scrutiny from PIC should be reviewed to ensure that it is sufficient: PIC is currently scheduled to meet quarterly, indicating that it will review five sub-programmes at each meeting. This is a heavy burden, and if sub-programmes are scrutinised in any detail the time available for making other decisions will be very limited. IIPAG is concerned that significant budgets might be authorised with insufficient discussion and would suggest that this be reviewed as the process matures.

Sub-programme reviews are an intensive use of IIPAG resource: Experience to date has indicated that a typical sub-programme review will require 8-10 days of IIPAG time. Given 20 sub-programmes this results in 160-200 days of IIPAG effort for sub-programme reviews per year. As a point of comparison, IIPAG spent a total of 230 days for its IARs, Interim Reviews and ongoing scrutiny of the Northern Line Extension and 4LM modernisation in 2016/17.

IIPAG will report its views on the revised governance and assurance arrangements under review as part of its planned review of the overall assurance process, noted in Section 2.5.

5. ASSET MANAGEMENT & BENCHMARKING

5.1. Background

Asset Management 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. Benchmarking is a subset of Asset Management. It allows businesses to understand how their practices, costs and performance relate to comparators elsewhere.

IIPAG has worked with TfL in benchmarking and Asset Management since its remit was extended in November 2011. As working methods and relationships have matured it has been possible for IIPAG to significantly reduce the time that it has spent in this area. For example, IIPAG’s budget for this area in 2013/14 was 150 days. In 2016/17 this budget was reduced to 55 days. To enable IIPAG to focus its efforts on project reviews and the new Sub-Programme reviews IIPAG has moved effort away from Asset Management & Benchmarking, resulting in only 26 days of time spent on this area in the past year.

This has, naturally, limited the extent to which IIPAG has been able to scrutinise TfL’s work in this area. IIPAG has:

- Undertaken a review of asset management in London Underground’s track programme;
- Continued to keep up to date with the benchmarking work that TfL is progressing;
- Advised on areas where benchmarking should be progressed;
- Challenged results from benchmarking, in particular ensuring that actions are taken as a result;
- Pressed for benchmarking in a small number of areas, particularly on the costs of delivering step free access and the level of indirect costs incurred by TfL.

The remainder of this section sets out IIPAGs views of Asset Management and Benchmarking.

5.2. Asset Management

IIPAG undertook a review of asset management within London Underground’s track programme, acting on a specific recommendation from an Annual IAR. The review of asset management was taken alongside TfL Project Assurance and examined the development of the workbank for track and drainage renewals, including its benefits and optimisation.

IIPAG made three recommendations to improve asset management for track and drainage, all of which were accepted. The key recommendation was that a detailed plan to deliver the cultural and skillset changes required to maintain modern track infrastructure needed to be developed. A move to data-led identification of deterioration with targeted interventions to maintain or renew assets is very different to the visual and highly manual approaches currently in use in London Underground.

Overall, IIPAG was impressed with the quality of Asset Management evidenced in its review of Track and Drainage, which IIPAG last reviewed in 2013. Since that time there has been significant improvement in the robustness and clarity of the processes employed.

5.3. Benchmarking

This year's benchmarking shows that:

- International comparisons for 2015/16, the most recent year for which they are available, show that Tube reliability and unit operating costs have again improved. Reliability is now close to the top quarter of European and North American metros, although operating costs remain higher than average.
- London Underground's trend of improvement on both of these key metrics is impressive and among the best of all international metros, with consistent and sustained improvements in unit costs over the last 5 years.
- Improved reliability is due to further improvements in equipment failures. Delays caused by staff are now the single largest cause of delays on London Underground, and have now remained roughly constant for 4 years. IIPAG understands delays caused by staff have increased further in 2016/17.
- The unit cost of delivering step-free access schemes on overground stations on the London Underground network is more than double that incurred by London Overground or Network Rail for similar stations. Benchmarking has identified a large number of improvements that can be made to reduce costs on London Underground, which are being addressed by the Step Free Access Programme team.
- International comparisons of London's buses with networks in other cities for 2015/16 shows that both operating costs and reliability are in the top quarter of all networks.
- Bus speeds on the network are deteriorating as rapidly as in any other city as a result of increased congestion. In addition, vehicle collisions have increased for the past two years and are now higher than average. London Buses has plans to address these issues and IIPAG will review progress in addressing them.

IIPAG made three recommendations based on benchmarking in its previous annual report. Progress on these is indicated below:

TfL increases its focus on London Underground's "admin and other overheads" costs: TfL's Business and Finance Review and Transformation have addressed this issue directly, focussing on reducing management layers, the use of non-permanent labour and, in many cases, reducing the number of staff at mid and senior levels to deliver a flatter structure. This should reduce these costs significantly in future years.

TfL maintains its focus on delivering the anticipated reductions in train delays caused by staff: IIPAG understands that train delays caused by staff increased in 2016/17. They are now the single largest cause of delays on London Underground. IIPAG understands that the need to return to London Underground's impressive record of steady improvements in reliability is the subject of intense management effort at present, and would stress that this must include efforts to reduce staff delays as a major part of this effort.

TfL maintains its focus on delivering the anticipated reductions in track maintenance unit rates: IIPAG reviewed this via its assessment of asset management for London Underground's track infrastructure. Asset Managers had a clear focus on making progress in this area, and there has been a steady reduction in unit costs in recent years, but as IIPAG notes above radical reductions are dependent on changing the culture and skillset to move to preventative and data-led approaches.

IIPAG will monitor progress on its first two recommendations and will also examine progress on delivering Step Free Access schemes for lower unit costs via its scrutiny of projects and programmes.