

Date: 23 January 2014

Item 9: New Tube for London Programme – Delivery Stage:  
Design and Specification

This paper will be considered in public

**1 Summary**

- 1.1 This paper summarises the need for additional project authority of £36.2m to a total of £59.1m until March 2016, for the commencement of the delivery stage of the New Tube for London programme, including preparation and issue of an Invitation to Tender (ITT) for procurement of new rolling stock, following the conclusion of the Feasibility project at Gateway B.
- 1.2 A paper is included on Part 2 of the agenda, which contains exempt supplemental information. The information is exempt by virtue of paragraph 3 of Schedule 12a of the Local Government Act 1972 in that it contains information relating to the business affairs of TfL. Any discussion of that exempt information must take place after the press and public have been excluded from this meeting.

**Summary Table**

UIP 1973		New Tube for London programme: Delivery stage		
<b>Financial Authority in Business Plan</b> £3,171m (to 2022/23)	<b>Estimated Final Cost</b> £16,424m (to 2035/36)	<b>Existing Project Authority Granted</b> £22.91m	<b>Additional Project Authority Requested</b> £36.2m	<b>Total Project Authority</b> £59.11m
<b>Authority Approval</b>	An increase in Project Authority of £36.2m to a total of £59.11m to commence the initial stages of the NTfL Piccadilly line upgrade delivery			
<b>Outputs and Schedule</b>	Immediate commencement of procurement for new rolling stock including preparation and issue of an Invitation to Tender (ITT) by early 2015 (ahead of the December 2015 DfT milestone). Preparation of detailed scope, designs and specifications for the remaining infrastructure and railway systems required for the Piccadilly line upgrade by March 2016.			

## **2 Recommendations**

### **2.1 The Committee is asked to:**

- (a) note the intent to publish in due course the conclusions of the New Tube for London Feasibility stage, subject to the endorsement of these findings by the Board at its 5 February meeting; and,**
- (b) recommend that the Board grant additional project authority of £36.2m to a total of £59.1m until March 2016, for the commencement of the delivery stage including specification and design development for the Piccadilly line upgrade.**

## **3 Background and Current Position**

- 3.1 The 'Deep Tube Programme' (DTP) was initiated in 2011 to develop a co-ordinated series of line upgrade schemes for those lines not commenced under the London Underground (LU) Public Private Partnership (PPP) - the Bakerloo, Piccadilly, Waterloo & City (W&C) and Central lines. Now renamed the 'New Tube for London' (NTfL), the programme will form the next generation of LU line upgrades over the coming decade.
- 3.2 Following the completion of extensive preparatory work the Board approved the commencement of the Feasibility stage of the Deep Tube Programme in July 2012, and following confirmation of the strategic priority and funding status of the programme in December 2012 approved its continuation through Gate B with an overall authority, including earlier foundation studies, of £22.9m.
- 3.3 The resulting feasibility studies represent the most thorough and in-depth line upgrade investigation yet undertaken. The comprehensive programme of technical studies, safety analysis, operational design and strategic option appraisal has assessed the optimum scope, sequence and business case for line upgrades delivery.

## **4 Feasibility Stage findings**

- 4.1 The feasibility investigations have confirmed the required scope of infrastructure, systems, organisational and process changes to deliver the NTfL line upgrades. This has been refined through business case analysis to reach a recommended option for further development. The detailed findings of the Feasibility stage are reported in detail in a paper in Part 2 of the agenda; it is the intent that these findings be published in due course, subject to the endorsement of the Board at its 5 February meeting.
- 4.2 In headline terms, a key conclusion of the Feasibility stage has been that the scale of benefits of service frequency and capacity enhancements enabled by the Piccadilly line upgrade is very significant. The benefits are much higher than on the Bakerloo and Central lines, due to the lower demand and crowding levels present on the Bakerloo line, and the relatively high-intensity service currently offered on the Central line. The Piccadilly line upgrade has therefore been prioritised for first implementation in the Business Plan.

4.3 A combination of engineering, strategic and line simulation modelling studies has enabled the following service level conclusions to be reached for each of the NTfL line upgrades:

- a) *Piccadilly line*: a 60 per cent increase in line capacity can be achieved with new generation trains and re-signalling to enable peak services of at least 33 trains per hour (tph) by 2025;
- b) *Central line*: a 25 per cent increase in line capacity can be achieved with new generation trains and re-signalling to operate peak services at 33tph by 2030;
- c) *Bakerloo line*: a 25 per cent increase in line capacity can be achieved with new generation rolling stock and re-signalling to enable a 27tph peak service by 2033; and
- d) *Waterloo & City line*: a 50 per cent increase in line capacity can be achieved through remodelling of the track layout at Waterloo, an increased fleet size of new generation trains and re-signalling to enable a 30tph peak service level by 2032.

## 5 Proposal

- 5.1 It is now proposed to progress the NTfL Programme into Stage C 'Delivery' with initial works to develop the detailed scope, design and requirements specifications necessary for the procurement and delivery of the Piccadilly line upgrade, based on the operating concepts and scope options generated in the feasibility stage.
- 5.2 Further project authority is now sought for £36.2m to progress the initial stages of programme delivery over the next two years. In this period, the NTfL programme team will take steps to commence formal innovative contractor engagement as a precursor to issuing an Invitation to Tender (ITT) for new Piccadilly line trains, tendering and evaluation of responses and the identification of the preferred contractor for the Rolling Stock component of the programme. This delivery schedule will ensure the achievement of the DfT milestone to issue the ITT for the first phase of a new generation of low-energy, high-capacity deep tube rolling stock which would ultimately be applicable to the Bakerloo, Piccadilly and Central lines in 2015.
- 5.3 In the same period the NTfL team will specify and procure the core signalling elements of the programme. In parallel, the control and infrastructure components of civil infrastructure, track, power, cooling and associated construction elements will be developed, specified and incorporated within ITTs ready for procurement.
- 5.4 All of this work will be developed and executed as part of an integrated railway design to ensure that all future contract requirements and interfaces can be effectively managed through delivery. A whole railway system approach will continue to be applied to ensure people, process and asset changes are fully defined and integrated.

- 5.5 Business case analysis confirms a strong case for investing in the NTfL programme of line upgrades, with the overall programme demonstrating a Benefit-Cost Ratio of 4.2 to 1 for the recommended option.

## **6 Commercial and Financial Implications**

### **Commercial**

- 6.1 With over 200 trains in scope for renewal, the NTfL programme presents a unique opportunity to develop an iconic design for a new generation of tube trains for service in London for the next 50 years. The major asset renewal procurements relating to the Piccadilly line upgrade, including rolling stock supply, will be subject to further project and procurement authority which is expected to be sought, under separate authority by early 2015.
- 6.2 In view of the highly integrated nature of line upgrades system design, the procurement of new rolling stock will require concurrent commitment to other major sub-systems including depots, power supplies and train control systems. These procurement authorities will be fully co-ordinated during the next stage.
- 6.3 Rolling Stock procurement timescales for NTfL will be concurrent with those for the acquisition of additional trains for the Northern and Jubilee lines and London Overground. A consistent and co-ordinated approach to the supply market will therefore be applied in the procurement process.

### **Financial**

- 6.4 The total cost of the next stage of programme development to March 2016 is £36.2m inclusive of a risk provision of £4.6m. This will increase the total project authority to £59.1m.
- 6.5 The overall NTfL programme level estimate at 2013 prices is £9.86 bn (£16.42bn at outturn prices with indexation applied up to 2035/36), which includes risk at 15 per cent and optimism bias at 25 per cent.
- 6.6 Prior to completion of the proposed design and specification stage in March 2016, further authority will be sought to progress the major procurements necessary, including rolling stock and signalling, for the Piccadilly line upgrade which has an estimated overall cost of £3.86bn at outturn.

## **7 View of the Projects and Planning Panel**

- 7.1 At its meeting on 9 January 2014, the Projects and Planning Panel noted the proposals in this paper and supported the recommendations to the Committee. Members were informed of the issues raised by the TfL Programme Management Office and Independent Investment Programme Advisory Group in their reports including the management action to address the issues raised.

**List of appendices to this report:**

Exempt supplemental information is included in a paper on Part 2 of the agenda.

**List of Background Papers:**

None

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