

Date: 14 October 2014

Item 18: Jubilee Line World Class Capacity

This paper will be considered in public

1 Summary

UIP2260 Jubilee line World Class Capacity				
Existing Financial Authority	Estimated Final Cost (EFC)	Existing Project Authority	Additional Authority Requested	Total Authority
£253m	£253m	£3.195m	£32.429m	£35.624m

Authority Approval: The Board is requested to approve additional budgeted authority of £32.4m increasing total project authority to £35.624m.

Outputs and Schedule: The project will undertake concept design of key workstreams, and design and implementation of power, ventilation and depot enabling works. The concept design stage will be completed by January 2016 and the early implementation items will be in beneficial use by June 2018.

- 1.1 This paper asks the Committee to recommend that the Board grants additional budgeted project authority to commence the design stage of the Jubilee line World Class Capacity (JL WCC) programme. The programme will increase the number of trains per hour (tph) on the Jubilee line from 30tph (current peak service) to 36tph peak service by 2019.
- 1.2 A paper is included on Part 2 of the agenda, which contains exempt supplementary 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.

2 Recommendation

2.1 The Committee is asked to:

- (a) note the paper and the supplemental paper on Part 2 of the agenda; and
- (b) recommend that the Board approves additional project authority of £32.4m increasing total project authority to £35.624m, and procurement authority as detailed in the supplemental paper on Part 2 of the agenda;
- (c) subject to the Committee granting the approvals described in paragraph 2.1(b) above:
 - (i) delegate to the TfL Officers and the Subsidiaries (as described in paragraph 2.2 below) the authority to agree and finalise the terms of

the Contracts;

- (ii) authorise the agreement and execution (whether by deed or otherwise on behalf of TfL or any Subsidiary (as appropriate)) of any documentation to be entered into in connection with the completion and implementation of the Contracts and any of the matters referred to therein (including, without limitation, all agreements, deeds, guarantees, indemnities, property or other licences, announcements, notices, contracts, certificates, letters or other documents); and**
- (iii) authorise TfL Officers and Subsidiaries to do all such other things as they consider necessary or desirable to facilitate the execution and implementation of the Contracts and the matters referred to therein.**

2.2 The following Officers and Subsidiaries shall have delegated authority:

- (a) TfL Officers: the Commissioner, Managing Director Finance, Managing Director Rail and Underground, Commercial Director Rail and Underground and General Counsel; and**
- (b) Subsidiaries: Subsidiaries of TfL including Transport Trading Limited and any other subsidiary (whether existing presently or to be formed) of Transport Trading Limited and any of the directors of the relevant company shall be authorised to act for and on behalf of that company.**

3 Background

- 3.1 Demand for the Jubilee line is continuing to grow with 229 million journeys in 2012/13 (up from 174 million journeys in 2009/10). Even without further expansion of the Jubilee line service beyond 30tph and with the completion of Crossrail, the Railplan transport planning network model forecasts passenger demand growing to 240 million journeys in 2031/32. Future employment is also forecast to grow in the West End, City and Docklands along the route of the Jubilee line, and even with the opening of Crossrail, the crowding levels are expected to continue to be high.**
- 3.2 The Jubilee line has recently been upgraded with the Thales Transmission Based Train Control (TBTC) signalling system which enabled the train service to be increased from 24tph to 30tph for 90 minutes during the peaks through the central section of the line. However, the upgraded signalling system has the capability to support a higher tph, thereby increasing the capacity of the line to reflect the increase in demand. The line is currently constrained to 30tph by the number of trains available and by the current infrastructure, such as stabling and train maintenance facilities, power and ventilation assets.**
- 3.3 A feasibility study has been completed to identify the works required to increase the peak tph on the Jubilee line to either 34.3tph or 36tph, focussing on eight different service options. The study concluded that a 36tph peak service could be delivered within £253m in the Quarter 2 forecast, which will form the basis of 2015/16 Business Plan. Increasing the capacity of the line supports the Mayoral aspirations to retain and enhance London's status as a global city.**

4 Proposal

Preferred Option

- 4.1 The feasibility study and business case analysis concluded that the preferred option is to provide an enhanced train service with the following operating scenario:
- (a) 36tph three hour peak service between West Hampstead and North Greenwich during the morning and evening peaks; and
 - (b) increased off peak service from 24tph to 27tph between Willesden Green and Stratford.
- 4.2 There is a fallback option to deliver a 34.3tph peak service based on a similar scope to the preferred option which can be implemented if it is evident during the next stage of project development that 36tph is likely to be unreliable.

Scope of the next stage

- 4.3 The deliverables of the next stage of the project are as follows:
- (a) completion of concept designs for signalling and train system modifications, Neasden depot enabling works, West Hampstead points renewal and enabling works for overnight stabling at Stratford and Stanmore stations. The concept designs will progress at different rates, according to the complexity of each workstream, but all concept designs will be completed by January 2016;
 - (b) design and implementation of power strengthening works at six substations by June 2018;
 - (c) design and implementation of four cooling ventilation fan upgrades by June 2018;
 - (d) design and implementation of conversion of a cleaning road at Stratford Market Depot into a pit road by December 2016;
 - (e) design and implementation of conversion of Temporary Fit Out Shed at Stratford Market Depot into three stabling roads by January 2019;
 - (f) improved robustness and detail in the cost estimate, phasing and programme; and
 - (g) detailed maintenance and operating concepts, including an assessment of any closures required during the implementation stage.
- 4.4 In addition to the above, the project will assess energy efficiency measures and identify any opportunities to modify the existing Jubilee line train braking performance.
- 4.5 The concept design phase will be complete by early 2016, when a request for additional project and procurement authority for the implementation of the remaining workstreams will be submitted.

Additional Trains

- 4.6 In order to increase the train service, ten additional trains are required. The trains will be Modern Equivalent Trains (METs), which will have the same dimensional

characteristics as the current Jubilee line trains, but will feature modern subsystems, such as traction packages, customer information systems and train management systems. The procurement and delivery of the METs will be managed as a separate project and has been combined with the METs required for the Northern line to support the Northern Line Extension (NLE) and the Northern Line Upgrade 2 (NLU2), although only the costs of Jubilee line trains are included within the £253m EFC.

Cooling

- 4.7 A project authority request to install station cooling at Bond Street was approved by the Board in February 2014. The cooling is being installed as part of the Bond Street Station Capacity project and will be completed by April 2017. The cooling scope in this submission includes upgrading existing ventilation fans to manage the higher temperatures arising from the increased tph.

Benefits

- 4.8 A business case appraisal has been undertaken, based on the annual benefits of reduced average journey time. The benefit cost ratio (BCR) for the preferred option is 7.7:1 and the fall back option is 6.5:1. The preferred option has the highest BCR compared to the other seven options in the feasibility study and an incremental business case analysis has been undertaken to confirm the most cost effective option.

Delivery of Preferred Option

- 4.9 The concept design will be undertaken using internal engineering and project management resources. The ventilation fan upgrades and depot pit road works will be designed internally but delivered using external contractors. The enhancement to the power assets will be delivered via a design and build contract.
- 4.10 This submission requests upfront implementation funding for the depot works to ensure that there is sufficient stabling available prior to the delivery of the METs and to deliver early benefits of an improved maintenance facility. The power implementation costs are requested to enable the works to be delivered as part of a combined design and build package. The cooling implementation costs are requested to enable procurement in 2015 so that the works can be phased with only one fan taken out of service at a time, thereby minimising the impact on the tunnel temperatures during the works. Future implementation funding for the remaining workstreams will be requested following completion of the concept design stage.
- 4.11 Key milestones for the next stage of the project are as follows:

Milestone	Target Date
Completion of all concept designs (excludes MET design)	31 January 2016
Conversion of Road 35 at Stratford Market Depot into a pit road	30 December 2016
Beneficial use of power and cooling works	30 June 2018

4.12 The top five risks for the next stage of the project are as follows:

Risk No	Risk Description	Mitigation Actions
1	The Farringdon stabling project will provide additional stabling facility for S-Stock, however, works are not yet complete and therefore there is a risk to the JL WCC planned stabling at Neasden Depot.	Collaborative working with the Sub surface Upgrade Programme to monitor potential impact on JL WCC scope and programme.
2	Tender returns for implementation works are higher than current estimates.	Early engagement with suppliers.
3	Higher priority projects result in resources being unavailable to support the project.	Resource plans have been shared and agreed with all parties. Any emerging resource constraints will be escalated.
4	Project suppliers are unable to deliver on time.	Early liaison and consultation with all suppliers. Check and confirm workloads and commitments for other projects.
5	Stabling roads at Stratford Market Depot may be in a poor condition after the Train Fit Out Shed is demolished.	Undertake surveys to determine condition of stabling roads as part of the design phase.

5 Financial Implications

- 5.1 The cost estimate has been developed using a detailed resource profile for the internal costs. The implementation estimates have used actual costs incurred in similar past projects as a basis.
- 5.2 The project will result in an increase in operating costs, which are budgeted in the Business Plan. These costs include an increase in power consumption, additional train operators and maintenance costs of new assets.

6 Assurance

- 6.1 The project has successfully passed through Single Option Selection Independent Assurance Review.
- 6.2 A TfL Programme Management Office (PMO) Assurance Review was undertaken by Jacobs, as the external expert, in August 2014. An Independent Investment Programme Advisory Group (IIPAG) review was also undertaken in parallel. There were no critical issues found and four PMO recommendations and two IIPAG recommendations were made, to which management has responded.

List of appendices to this paper:

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

List of background papers:

Reports from the TfL Programme Management Office and the Independent Investment Programme Advisory Group and the management response to those reports.

Contact Officer: David Hughes, Director of Major Programme Sponsorship, Rail and Underground
Number: 020 3054 8221
Email: DavidHughes03@tfl.gov.uk