

Subway Modernisation - progress update

Date of meeting 23 June 2017

Date of report 24 May 2017

Report by Senior Director

1. Object of report

To provide to the Partnership a progress update on the subway modernisation programme.

2. Background

The subway modernisation programme is the most significant investment and improvement programme to be undertaken in the subway within the last 40 years. The business case for this investment was approved by the Scottish Government in 2012, with an overall aim, once complete, of increasing passenger numbers and usage of the subway whilst at the same time reducing whole life costs. The programme was scoped for delivery under five principle workstreams, namely:

- Stations and accessibility improvements;
- New Ticketing System;
- Renewal and Upgrade of Existing Infrastructure;
- New Rolling Stock, Signalling and Automated Control Systems; and
- Organisational Change and Employee Relations.

A short presentation will be provided at the meeting on 23 June 2017 in order to assist new Partnership members with the background to the subway, its day to day operation and maintenance and further detail on this once in a generation modernisation programme.

As part of the internal governance of the modernisation programme, a formal update is provided to the Partnership board every 6 months in addition to the day to day operations performance which is reported to the Operations Committee.

This report provides an update on the key areas of progress since the last written report to the Partnership board in December 2016.

3. Progress to date

3.1 Stations and accessibility

Members are asked to note that eight out of fifteen stations have been now been refurbished, these include; Hillhead, Partick, Ibrox, Kelvinhall, St Enoch, Buchanan Street, Govan (including the Bus Interchange) and Cessnock.

Escalator and travelator replacements across all stations have also been completed (28 units in total).

The key areas of progress on this workstream since the last update are:

- Kelvinbridge station refurbishment continues apace, with all major structural and functional upgrades complete. Internal fit out and finishing works are on-going and the works are on programme to complete by summer 2017.
- Shields Road and Bridge Street station refurbishment contracts have been tendered and are subject to a separate report for approval at this Partnership. These are programmed to commence on site as work at Kelvinbridge concludes, with a staggered start between each site to minimise impact on Subway operations. These station refurbishments are expected to continue into mid-2018. The scope of works is in line with the refurbishment programme design and engineering standards, with a common material palette, improvement to accessibility and wayfinding, and renewal or replacement of all electrical and mechanical systems. Both stations will be refurbished while the system remains open to passengers at all times.
- A design contract for the final four stations to be refurbished (St Georges Cross, Cowcaddens, Kinning Park and West Street) is currently out to tender via the SPT Design and Technical Services framework. Approval to award the design contract is subject to a separate report submitted at this Partnership meeting. Upon award, it is anticipated this last stage of design will commence in summer 2017 and allow tenders for the refurbishment works at the remaining stations to be awarded to coincide with the completion of Shields Road and Bridge St, allowing continuity in the refurbishment delivery programme.
- Prior to any refurbishment works at St Georges Cross, there has been a requirement to investigate and consider options to address the significant water ingress issue at this station. Scoping investigations have now been completed and tenders for targeted water sealing works in passenger areas (stairs and concourse) are being prepared for site delivery in late 2017. Given the extent of water ingress at platform level, further investigations and trials are required to confirm the scope of work necessary to remediate this section of the station.

3.2 Ticketing

SPT continues to develop smart ticketing and work with partners to develop a fully integrated system for the benefit of passengers.

There are now more than 150,000 Subway Smartcard holders. Smart ticketing in Subway continues to provide a benchmark for other operators. Nevis Technologies, SPT's joint venture with Rambus, plays a key role in the national rail franchise through the provision of smart ticketing service to Abellio ScotRail and will continue to be a vital delivery partner as Abellio seeks to deliver on their franchise commitment to migrate 60% of journeys onto smartcard.

Working in partnership with Abellio ScotRail, we have already delivered an integrated ticket option for those who travel by both Subway and rail as they now have the option of putting both operators' tickets for both forms of travel on either their Subway or ScotRail Smartcard.

McGill's, the largest privately owned bus company in Scotland, now provides Smart ticketing to its customers using Nevis Technologies and this means they also have the option to link with other transport operators as more operators join up to smart ticketing.

Agreement has also recently been reached with Lothian buses, the principle operator in Scotland's capital, to provide smart ticketing systems for their fleet, and a first phase is planned to commence in summer 2017.

In 2015/16 SPT also developed "online top-up" for Subway Smartcard users which offers them the option of topping up their card value, or buying season tickets whenever and wherever it is most convenient for them. The usage of the online system continues to grow.

We are now looking to further develop ticketing options using mobile phone technology to deliver secure mobile ticketing using android smart phones across all mobile networks so travellers can securely select, purchase, download and use their mobile device to tap through the gates on the Subway.

3.3 Infrastructure

Following the completion on site of a number of asset renewal projects towards the end of last year, works have continued on the infrastructure workstream in order to complete the major works prior to the arrival of the new trains for testing on the system. Key progress made since last update is as follows:

- The Tunnel Lining Improvement project has been progressing well on site since the last update period and remains on programme with an expected completion in Autumn 2017, as previously advised. The contract is addressing priority areas of the Subway system and in all, will improve ten of the tunnel sections through repairs to the lining and better managing water ingress. The majority of significant lining repairs are now complete and water sealing and water management activity continues.
- The Ramps & Turnouts Renewal works were delivered during the Subway Suspension last year. Following the return to service and a period of operation, work continues to address various snagging and some non-service affecting defects that have arisen since return to service. These residual activities are forecast to complete in late 2017.
- Our internal infrastructure team continues to make significant progress on major improvement activities within the system. A total of 5.8 Km of baseplates have been replaced which is equivalent to 30% renewal of the system. This renewal work will continue into early 2018. Re-railing works continue at various locations within the system where track is life-expired. Procurement of new rail delivery equipment to facilitate and accelerate rail replacement (long welded rail) has progressed and detail design milestones have been achieved. The supplier is in progress of fabricating a prototype unit and operational instructions and risk assessments are currently being developed to support implementation. Procurement of improved tunnel clearance and geometry measurement equipment and track data software systems have also been completed.

3.4 Broomloan depot facilities

In order to enable and accommodate the expected changes planned by the rolling stock and control systems contract, the existing facilities at Broomloan

have been assessed to ensure integrity, reliability and longevity. The key areas of progress on this workstream are:

- The Stabling Shed roof has not been accessible in recent years due to its poor condition, but structural and water ingress issues were evident. A design contract was awarded to Austin Smith Lord to assess options for repair or replacement of the roof. As part of their investigation and option appraisal, surveys revealed historic structural problems with the building (dating back to the last modernisation) which require structural repairs and improvements to be made to the walls and roof supports before any roof works can be undertaken. The first phase of the structural repairs at the North Gable end of the building was completed in April 2017. The final design for the replacement roof will conclude this summer. A phasing strategy to deliver the remaining structural repair, strengthening works and roof replacement is currently being developed. The replacement works will also ensure safe access is provided for future maintenance. The improvements to the stabling shed are required to be completed prior to a planned extension of the building under the rolling stock and control systems contract.
- The Main Electrical Distribution Board at Broomloan Depot is life expired and not in line with current standards and also does not have the functionality required to operate the Depot once new Rolling Stock is in operation. After a period of investigation and scoping, a contract was awarded in April 2017 to Edmiston Brown to undertake the design and installation of the required electrical equipment replacement. Works are expected to commence on site this summer and will require careful site management given the criticality of the electrical systems to depot day to day operation.

3.5 New Rolling Stock and Control Systems

The Manufacturing and Supply Agreement (MSA) contract for the new rolling stock and control systems was awarded to the Ansaldo-Stadler (ANSTA) joint venture (JV) in March 2016. Since award the joint venture has now established and mobilised its delivery teams and has completed first stage designs for the various elements to be delivered under the contract. The contract in summary will deliver:

- 17 train sets;
- Integrated Control System (Signalling and Telecoms);
- New Operational Control Centre (OCC);
- Platform Screen Doors (PSD);
- Part automated depot (stabling and dispatch);
- New Depot Equipment; and
- Temporary Manufacturing Depot and Test Track.

Following the last update, concept design reviews for the vehicles, signalling, telecoms, PSD and the station management system (iVENCS), have been completed. The detailed design phase for the vehicles is now substantially complete, with the remainder of the detailed designs and many of the final designs scheduled for completion during the current financial year.

ANSTA have also delivered the physical and virtual reality mock ups for the train designs. These have been trialled for use during staff engagement meetings and

a plan for wider engagement with external stakeholders and interested third parties is being prepared.

The civil works designs are now progressing, a dedicated Civil Works manager and additional UK based resource have now been appointed to drive this element of scope forward, with site installation and construction of both the OCC and the temporary Manufacturing Depot now scheduled to commence in early 2018.

ANSTA have also progressed well with surveying and analysis of the track, tunnels and equipment rooms, to allow the design of the Integrated System to take cognisance of installation constraints and establish new equipment locations. Surveys of the platform areas has shown that there are many differences in the platform design (line and level) at each station with no one platform the same, resulting in a bespoke design now being developed for each PSD installation at each station/each platform.

The CCTV Option, which was exercised within the MSA for the replacement of the current SPT wide estate incorporating bus, corporate and subway CCTV and security systems, has progressed to the detailed design phase. It is anticipated that installation of bus station systems will commence in late 2017. The roll out of subway systems will be managed to align with the remaining station refurbishment works.

The Technical Support and Spares Supply Agreement (TSSSA) contract with the ANSTA JV was also awarded in March 2016. Mobilisation and delivery planning is well underway. The TSSSA team have developed a close relationship with the MSA delivery team to ensure design, even from concept stage, has a focus on maintainability and life cycle cost and to support the depot facilities upgrade with a focus on business continuity for maintenance of our existing fleet whilst getting the depot ready to maintain and operate the new assets. The TSSSA team are currently providing expert support to the SPT team on asset management system development (Infor EAM) – first improvements of the asset management system have been completed and changes in team roles to support this are now in place to provide a new and sustained focus on asset management and maintenance process improvements working with the TSSSA. Activities planned in this period include development of training and development plans, remodelling of stores for early material delivery and onsite technical support from the TSSSA team.

3.6 Organisational Change and Employee Relations (including operational readiness)

A key part of our modernisation programme is ensuring operational readiness. As part of this we are conducting a full review of our business Safety and Quality Management Systems (SMS/QMS) for future operation.

We have also begun an open dialogue with staff across all areas of the subway and agreed to keep them informed as key work progresses and is complete. More recently we have commenced initial stages of consultation with trade union representatives on the proposed staffing changes that will be necessary to deliver the new fully automated system, with the first phase focussing on the engineering and maintenance teams, who will be responsible for maintaining this new technology. The detailed changes and revised staffing arrangements required in this area will be brought forward to a future personnel committee for approval.

As part of this overall approach and looking to the future and how our workforce will evolve during this time, early next year we will be launching an apprenticeship scheme offering future engineers and technicians the opportunity to develop and grow with SPT and the Subway's new way of working.

3.7 Programme budget

Within the overall £288m budget, the 2017/18 budget for subway modernisation was set at £61.65m at the SPT Partnership meeting of 10 February 2017. The funding comprises £35.0m ring-fenced contribution from the Scottish Government, £9.5m of grant release (previously received from the Scottish Government) and £17.1m of contribution from the Subway Fund in accordance with SPT's approved Treasury Management Strategy.

Overall, the subway modernisation capital programme remains within the approved budget and available funding.

In addition, the budget for Subway Infrastructure was set at £3.85m with the funding being provided from SPT's General Capital Grant allocation.

4. Conclusions

- overall the programme is progressing well and is within the forecast timeline for completion and budget allocation;
- the station refurbishment works continue to progress with works now completed at eight of the fifteen stations with works on-going at Kelvinbridge stations with Shields Road and Bridge Street about to commence, pending Partnership approval;
- the uptake and usage of smart ticketing continues to grow and the roll out of the technology to other operators is also moving forward;
- all escalator replacements are now complete;
- progress on the infrastructure workstreams is on track with Tunnel Lining Improvements nearing completion and only re-railing activity planned to continue beyond 2017/18;
- works to improve the stabling shed structural integrity and roof condition and modernisation of the main electrical distribution systems at Broomloan have been identified and are underway; and
- the new rolling stock and control systems contracts (MSA & TSSSA) are now live and progressing towards the detailed design phase, with initial site works planned to commence in early 2018.

5. Partnership action

The Partnership is recommended to note:

- the progress made since the last written update to the Partnership in December 2016;
- the on-going programme of design and implementation of station improvements including the on-going refurbishment works at Kelvinbridge station, and the intent to award a further two stations (Shields Rd and Bridge St) for implementation in 2017/18;
- the conclusion of the escalator replacement projects;
- the on-going and planned expansion of customer options for smartcard

- the completion of the majority of lining repairs on the tunnel infrastructure and the works required now to complete the tunnel lining improvements;
- the on-going delivery of internal infrastructure improvements and re-railing;
- the works required to improve the stabling shed and electrical distribution systems in Broomloan Depot in advance of major change under the new rolling stock and controls system contract;
- the current status of the new rolling stock and controls system design delivery;
- the activities in relation to engaging with our employees including the commencement of discussions with trade union representatives on staffing changes with engineering and maintenance;
- the initial stages in the development of the operational readiness plan; and
- the programme is within overall budget and funding.

6. Consequences

Policy consequences	<i>The subway modernisation is a key objective of the Regional Transport Strategy.</i>
Legal consequences	<i>None identified within this report.</i>
Financial consequences	<i>Overall the proposed works remain within the allocated capital and revenue budgets and subway modernisation business case.</i>
Personnel consequences	<i>None within this report although significant changes will be required as the operational readiness programme is developed.</i>
Equalities consequences	<i>None within this report.</i>
Risk consequences	<i>None within this report. A detailed risk register is available for individual projects and the modernisation programme as a whole.</i>

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