



### Subway Modernisation - progress update

**Date of meeting** 9 December 2016

**Date of report** 15 November 2016

#### Report by Assistant Chief Executive (Operations)

##### 1. Object of report

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

##### 2. Background

Members will be aware that SPT has made significant progress on the subway modernisation programme and this report provides an update on the key areas of progress since the last written report to the Partnership in December 2015 and the presentation update in June 2016. The Subway Suspension during the summer to facilitate critical infrastructure renewal works was a key marker point in the modernisation timeline this year. Whilst providing operational challenges, the suspension presented significant opportunity for additional works access, which allowed several projects to close out or gain greater production efficiency. The summary of key delivery performance throughout the year is as follows.

##### 3. Progress to date

###### 3.1 Stations and accessibility

The key areas of progress on this workstream are:

- St Enoch Station – At the last update the main refurbishment works had been completed with snagging works continuing. All works are now complete and have been delivered on time and within agreed budget. The last activities undertaken included bringing the south entrance accessible lift into operation during the summer and the installation of additional protection to the glass canopies.
- Buchanan Street Station – All contract works at this station have also been fully completed since the last update, including the travelator box refurbishment, which members will recall, was being delivered by a third party under an agreed commitment of the Buchanan Galleries Development. This last element, which included finishing tie-ins to the main station works, was completed in August allowing the Dundas to Queen Street entrance to re-open and return the station to full normal operation.
- Govan Station – The third and largest of the station refurbishment projects completed since the last update, Govan was also delivered to the agreed programme and budget. Major works have included the completion of all mechanical and electrical system replacements, internal finishes,

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installation of new 'iconic' roof canopy, external finishes, the bus stance redevelopment and redevelopment of the first floor office space. Successfully integrating the re-developed bus stances into the building canopy design, Govan station has undergone a radical transformation both internally and externally to become a new focal point structure and transport hub for the local residents and travelling public in and around Govan. All works were completed by September 2016. The Operations team are due to relocate back to the Govan office space by December 2016.

- Cessnock Station – Works commenced on site in July during the Subway Suspension, ensuring many of the noisy activities were programmed during daytime hours, minimising disturbance to residents. Complaints have been minimal and the contractor has worked proactively with SPT to engage with the residents and deal with issues as they arise. Main works to date have included relocation of the station office to the opposite side of the concourse from the original location, improving sight lines for staff and customers and providing staff with welfare facilities immediately adjacent to the new office space. Historic water ingress issues and drainage problems have also been addressed and all internal fit out works are progressing well. The main contract works are due to complete by the end of this year, with snagging and contractual close out expected early in 2017.
- Kelvinbridge Station – Members will recall that the station had suffered from significant water ingress issues and Advanced Waterproofing works to address these were completed in January 2016. Following an extended monitoring period, where no additional water proofing or management was required, the main station refurbishment works commenced on site in September 2016. With works and access interfaces with two other elements of contracted works - Tunnel Lining Improvements and Escalator Replacements – the site start-up of this station project has been particularly challenging. Good progress has been made and after construction of temporary staff and ticket office accommodation, the main demolition activities are complete and staff moved to the temporary station office in October. Works within the station for mechanical and electrical system replacements and surface finishes continue, with temporary lighting now fitted throughout and the escalator tie-ins completed. Works are programmed to complete on schedule in summer 2017.
- Shields Road and Bridge Street station refurbishment designs were completed earlier this year and are programmed to be issued for tender in early 2017 in order for the first of these to commence on site as work at Kelvinbridge concludes. Both these stations are programmed for site implementation mid-2017 and into 2018.
- Design of the final four stations at St Georges X, Cowcaddens, Kinning Park and West Street will commence early in 2017 with main works tender award expected in advance of works being completed at Shields Road and Bridge Street to allow continuity in the refurbishment programme. St Georges X has a significant water ingress issue. Initial investigations have already been undertaken and target advance works are being planned to treat customer affected areas prior to the main works delivery, planned for late 2018. Accessibility at platform is difficult and further assessment and treatment of water ingress in these areas will be included within the refurbishment work scope.

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- Escalators – Installation of 26 out of 28 new escalators with works on Shields Road station completed in April 2016. Works are underway at the final two escalators at Kelvinbridge (station to Great Western Road street level) and are programmed to conclude and return to service this month (December). This will complete the escalator replacement programme.

## 3.2 Ticketing

Online ticket sales and user account management was successfully rolled out to Subway smartcard users in September 2016 and is proving to be a popular addition to the range of ticketing services on offer. Smartcard continues to grow in popularity with over 140,000 smartcards now in circulation.

Nevis Technologies (NT) (SPT's joint venture with East Kilbride-based technology firm Rambus Ecebs) continues to provide vital back office services to the Subway ticketing platform. As members are aware, Nevis is also a key delivery partner of the new ScotRail franchise holder, Abellio, and continues to support Abellio on achieving their franchise commitments towards smart ticketing roll out.

The joint venture is also currently developing smart ticketing systems for use on bus with Scotland's largest independent operator, McGill's. Negotiations are ongoing with other operators to further extend the benefits of the Nevis smart systems to more passengers.

## 3.3 Infrastructure

Progress on the infrastructure works has continued apace with several of the asset renewal projects completing this year. Key progress made since last update is as follows:

- Tunnel pumping stations

The on-site works for the pumping station upgrades completed in August 2016 with contractual close out achieved in November 2016. The works undertaken since the last update saw the more technically challenging pumping station sites being completed without incident or issue. All 21 major sub surface pumps within the subway tunnel system have now been replaced to modern standards, including replacement of main line pipework, control panels and cabling.

- Sub surface chainage

Members may recall that this contract was awarded in December 2014 and started on site in February 2015. The project output was to create a new and accurate measurement record for each tunnel and track section and permanently mark this out within the tunnel system through installation of standard railway datum plates. These works are now complete and roll out of the new system is planned in the New Year, prior to all original redundant markings being removed. The roll out is being incorporated into other asset management changes planned by Subway Engineering & Maintenance in early 2017.

- Ramps and turnout chambers

The most significant modernisation infrastructure activity achieved this year was the ramps and turnouts renewal project, delivered during the Subway Suspension period. As members will be aware, the scale and complexity of the works required to replace the trackbed, track, switches

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and crossings and point motors in the ramps and turnout areas, necessitated the temporary suspension of the Subway service for an extended period to allow the works to proceed safely. Completed in just over 5 weeks, this was a challenging project to deliver but service was successfully reintroduced on 10 August 2016.

The Operational Plan to provide a replacement service for customers during the Subway suspension (including bus service and customer care proposals) was also successfully implemented. Overall, the service suspension saw delivery teams across SPT working together to ensure customer expectations and requirements were managed and met during the suspension period, whilst also driving forward construction and enhanced maintenance activity to return the Subway back to operational service as soon as possible and with improved on-going availability and reliability.

- Tunnel lining improvements

The tunnel lining improvement project started on site in May 2015. The contract is addressing priority areas of the Subway system and in all, will improve ten of the tunnel sections within an approximate two year period. Works are progressing well and all cleaning, inspection and void grouting activity are now complete across all identified tunnel sections. The additional access during suspension allowed the programme to be bettered for a number of activities and additional spend for 2016/17 on the grouting activities. Lining repairs and water sealing activity is on-going in the majority of the priority sections. Additional works have been identified in some priority areas and contract completion is now forecast towards autumn 2017. These works will complete well in advance of the new trains testing, as per the original strategy.

- Internal infrastructure delivery

In addition, our internal infrastructure team continues to make significant progress on major improvement activities within the system. All enabling activity such as tunnel lining general cleaning works and the removal of redundant cables and fittings are complete. Focus is now on the delivery of the re-railing programme.

The purchase of new check rail baseplates was completed and the first trial installation was completed within the tunnel system during the service suspension. The full checkrail replacement programme will have phased delivery over the next two years. Procurement of new rail delivery equipment required to facilitate and accelerate rail replacement (long welded rail) is also underway with supplier designs on-going and fabrication and full system trial expected by autumn 2017.

Rail replacement work since the last update has continued based on emerging maintenance need but there has also been a targeted programme for geometry improvement across specific areas of the system. The re-rail programme to remove life expired and longer sections of rail from the system is now planned towards the end of 2017, to align with the provision of the new rail delivery equipment.

## 3.4 New Rolling Stock and Control Systems

As members will note, the Manufacturing and Supply Agreement (MSA) contract for the new rolling stock and control systems was awarded to the Ansaldo-Stadler

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(ANSTA) joint venture (JV) on 31 March 2016. Since award the joint venture has been establishing and mobilising its delivery teams and has commenced first stage designs for the various elements to be delivered under the contract. To remind members the contract (in summary) will deliver:

- 17 New Trains (4 car sets)
- A Temporary Manufacturing Depot & Test Track
- New Operational Control Centre (OCC)
- New Integrated Control System (including new signalling & telecoms)
- Platform Screen Doors (PSDs) (to support unattended train operation)
- A Part Automated Depot (stabling & dispatch)
- New Depot Equipment

After the initial period of mobilisation (with part of the JV team co-locating with SPT at Broomloan Depot), the ANSTA JV has progressed the submission of several concept designs for SPT review and acceptance. There has been some challenge raised during these reviews to ensure system integration and maintenance impacts are positively addressed. This has been beneficial as it has allowed the SPT/JV working relationship to develop which will assist in ensuring a clear understanding of expectations and requirements for the future design submissions and site delivery. The first stage of concept design reviews (vehicles, power, signalling, and PSDs) is forecast to close out by the end of the year. The second stage of concept designs reviews (facilities building, control systems, manufacturer depot, depot modifications, depot equipment) are expected in early 2017.

The ANSTA JV is currently appointing its supply chain partners including the key technical componentry suppliers and sub-contracted works for site installation and construction. There will be a phased approach to supply chain appointments to suit the key milestones within the accepted delivery programme.

The Edmiston Drive site has been licensed over to ANSTA as part of the MSA contract, this being the location for the temporary manufacturing depot and test track facility. Site works for the temporary depot & facilities and permanent facilities building are currently forecast to commence in the second half of 2017. The site start date for the temporary manufacturing depot is challenging and the SPT team is working closely with the ANSTA JV to ensure this forecast is robust and achievable.

The option within the MSA contract for delivery of corporate wide CCTV system replacement has now also been exercised, which will see the replacement of all CCTV system hardware (where not to a standard/specification suitable for integration) across all of the SPT estate including, bus, corporate and subway. The design work is expected to be completed in spring 2017, with a staged roll out starting with bus facilities from summer 2017 onwards. The roll out programme for Subway will align with the main works delivery programme.

The Technical Support and Spares Supply Agreement (TSSSA) contract with the ANSTA JV was also awarded on 31 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. This relationship is also pushing to ensure there is early engagement with the delivery supply chain to include TSSSA requirements for maintenance planning purposes. The TSSSA team are also currently providing expert support to the SPT team on asset

management system development (Infor EAM) and depot facilities re-organisation in readiness for embedding the TSSSA team members within the depot maintenance teams during 2017/18. Activities planned in this period will include development of training plans, remodelling of stores for early material delivery and onsite technical support from the TSSSA team.

## 3.5 Programme Budget

The 2016/17 budget for subway modernisation was set at £39.35m at the SPT Partnership meeting of 4 March 2016. The funding comprises £6m ring-fenced contribution from the Scottish Government and £33.35m in specific capital grant awards.

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

In addition, the budget for Subway Infrastructure was set at £14.75m with the funding being provided by a planned contribution from the Subway Fund. It is forecast that there will be some movement in expenditure and matching funding between financial years 2016/17 and 2017/18 due to the number and complexity of infrastructure projects being undertaken this year and the acceleration of some programme works (see 3.3). Additional funding will be provided from the Subway Fund.

## 4. Conclusions

- a challenging but successful year in the subway modernisation history to date. Overall the programme is progressing well and is within the forecast timeline for completion and budget allocation;
- the station refurbishment works are progressing well with works now completed at seven of the fifteen stations with works on-going at Cessnock and Kelvinbridge stations;
- the implementation of new escalators is nearing contractual completion with the final two escalators at Kelvinbridge forecast to return to service in December;
- progress on the infrastructure workstreams continues and several have now completed or are substantially complete, with only Tunnel Lining Improvements and Re-railing activity planned to continue with significant on-going site works in 2017/18 and beyond; and
- the new rolling stock and control systems contracts (MSA & TSSSA) are now live and progressing, with site works planned for commencement in 2017/18.

## 5. Partnership action

The Partnership is recommended to note:

- the progress made since the last written update to the Partnership in December 2015;
- the on-going programme of design and implementation of station improvements including the construction of Cessnock & Kelvinbridge stations, with the intent to award a further two stations (Shields Rd and Bridge St) for implementation in 2017;

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- the conclusion of the escalator replacement, pumping station upgrades, and sub-surface chainage projects;
- the expansion of customer options for smartcard with the release of online (web retail) now available;
- the completion of large scale grouting works on the tunnel infrastructure and the works required now to complete the tunnel lining repairs;
- the completion of the ramps and turnouts main site works and significant efforts made by all SPT teams to deliver operational and opportunity plans during the suspended service period and ensuring an efficient return to operational service;
- the current status of the new rolling stock and controls system design delivery; 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.</i>
Social inclusion consequences	<i>None within this report.</i>
Risk consequences	<i>None within this report. A detailed risk register is available for individual projects.</i>

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