



Subway Modernisation - progress update

Date of meeting 14 December 2018

Date of report 26 November 2018

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 & Depot Facilities;
- New Rolling Stock, Signalling and Automated Control Systems; and
- Organisational Change and Employee Relations.

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

This report provides an update on the key areas of progress since the last written report to the Partnership board in June this year.

3. Progress to date

3.1 Stations and accessibility

Members are asked to note that 11 out of a total of 15 stations have now been refurbished, these are; Hillhead, Partick (including the Bus Interchange), Ibrox, Kelvinhall, St Enoch, Buchanan Street, Govan (including the Bus Interchange), Cessnock, Kelvinbridge, Shields Road, and Bridge Street. Refurbishment works at 2 further stations, St Georges Cross and Cowcaddens are ongoing.

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

- The tender process for the refurbishment of the final four stations to be refurbished (St Georges Cross, Cowcaddens, Kinning Park and West Street) was completed successfully and approval to award the contract to Graham Construction Ltd was gained at the Partnership meeting in September 2018. Work commenced on site on two of the final four stations to be refurbished. Work began at St Georges Cross in October, and work in November at Cowcaddens. Both are scheduled to complete by summer 2019.
- A programme of activity to strip out legacy redundant equipment and cabling in all stations is underway. This is to free up further space for new equipment installation and is being undertaken by our internal maintenance teams.
- Interface activity with the new Rolling Stock & Control Systems (RS&CS) contractor to capture any (RS&CS) requirements as part of the station works planning continues. Work is due to begin in various stations to introduce new signalling equipment as part of the new rolling stock and signalling contract.
- Prior to the refurbishment works at St Georges Cross commencing, water sealing works in passenger areas (passageway concourse and fire escape) and at platform level were completed. Given the success of this water sealing methodology, a further tender was prepared and issued over the summer to address similar issues at other stations. A contract was awarded to MacKenzie Construction in September 2018 and water sealing work has now commenced at St Enoch Subway station, with work at further stations planned in Spring 2019.
- Increasing customer demand on Subway parking facilities has led to a reconfiguration of the car park area at Bridge Street station to increase the number of spaces from 158 to 183. This work is being undertaken by Luddon Construction Ltd and is due to complete in early December 2018.

3.2 Ticketing

SPT continues to develop smart ticketing, working with partners to pursue innovation and improve the customer experience.

- Online Subway ticket sales have continued to grow in popularity and have been extensively promoted to customers. Ongoing growth in online sales will continue to be pursued as a key customer benefit, as it allows purchasing at their convenience and at any location, without the need to visit a ticket office or use a ticket vending machine.
- Since April 2018, season tickets purchased online have been priced lower than season tickets purchased in station to encourage online purchase. For the first seven periods of 2018-19, 22.9% of all season ticket weeks have been sold online (up from 6.7% the previous year).
- Trends in cash and card payment at Subway stations are evolving and are being closely monitored. In period 7 of 2018-19, the amount of revenue taken in card payments exceeded cash payments for the first time.
- New ticket products were introduced in April 2018. A child all-day ticket was introduced, in response to customer demand (expressed directly to SPT and through the 2017 Transport Focus passenger survey). A 10-week season ticket was also introduced, available exclusively online. The 10-week ticket has proved popular, with circa £50,000 worth sold to date.
- Subway customers have been trialling the Subway SmartApp, an Android app which emulates a Subway Smartcard for travel. This is the first commercial trial

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of its kind and customer feedback on the app supplied by Nevis is proving extremely useful.

- Nevis Technologies continues to provide services to ScotRail, McGill's, Glasgow SmartZone (Tripper card), Edinburgh SmartZone and Lothian Buses, highlighting the position of SPT and Nevis at the cutting edge of smart and integrated ticketing in Scotland.

The impact of some of these developments, to meet and improve the customer experience, is paying dividends. Overall Subway patronage has increased by more than 4% for the first seven periods of 2018-19. This has been supported by major events where Subway has been promoted as an ideal travel choice, including Pride and Glasgow 2018 European Championships (during which patronage was increased by more than 20% compared to the previous year).

There has also been an observed increase in Subway Park and Ride sites with overall car park usage increased by more than 8% for the first seven periods of 2018-19.

3.3 Infrastructure

Works have continued on the infrastructure workstream with an ongoing focus to complete the key activities and remedial works across tunnel, track and line assets, in readiness for new system and train testing on the system. Key progress made since last update is as follows:

- As previously advised, remedial work was required to close out defects in the Ramps & Turnouts following the renewal works. This remedial work is now complete and full contractual close out is expected by the end of the year.
- Our internal teams continue to progress and close out improvement activities on the track assets within the system, with final assurance and planning on-going in advance of commissioning the new rail delivery plant (long rail carrier) in the coming months.

3.4 Broomloan depot facilities

Work activity to ensure integrity, reliability and longevity of key assets within Broomloan Depot, in conjunction with readiness and preparedness for new asset introduction, is ongoing apace. The key areas of progress on this workstream are:

- The stabling shed roof refurbishment contract, awarded to Clark Contracts Ltd, commenced on site in July 2018. The works will be delivered in 3 phases across the full building structure. The structural repairs, strengthening works and full roof replacement is well underway on the west area of the shed. This has required temporary long-term train stabling and electrical isolation arrangements for two track roads into the shed whilst the works are ongoing. The SPT operational and maintenance teams are managing this constraint well and without any detrimental impact on delivering day to day depot operations. Similar arrangements will be made for other track roads affected as the contractor progresses through the phases of the refurbishment.
- It was previously advised that an alternative to extending the existing stabling shed to accommodate the new train fleet was being progressed by the ANSTA JV. Since the last update the holistic and whole life impact to the depot and yard operation has been further assessed and considered not to present all of the benefit previously envisaged. As such the ANSTA JV have reverted to developing the extension option as the preferred solution. There has been delay experienced in arriving at the preferred option, however work is underway for the

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JV to be ready to commence the extension after the completion of the roof repair works by Clarks.

- The construction of a new Operational Control Centre (OCC) commenced in May 2018 and the foundations and main structure are now complete, with work to complete external walls and roofing ongoing into early 2019. Internal fit out and building services installation will follow in Spring 2019. The construction is being delivered by Graham Construction Limited under sub-contract to ANSTA JV.
- Work is also underway to modify the depot maintenance workshop to accommodate a wheel lathe and lifting jacks as part of maintenance planning for the new rolling stock. Also being delivered by Graham Construction Limited on behalf of the ANSTA JV, the installation of a wheel lathe will enable SPT to perform train wheel maintenance in-house resulting in considerable operational cost saving in the longer term. This work commenced in October 2018 with the internal maintenance team clearing the maintenance areas affected, prior to the contractor taking possession. This proactive activity ensured the contractor was able to have an efficient start to their installation works. Works completed to date include the digging out of new pits and laying foundation supports for the new equipment and reconfiguration of existing storage rooms.
- Final design work by ANSTA JV for the new carriage wash and automatic train inspection equipment is ongoing in preparation for installation within the yard in summer 2019.

3.5 New Rolling Stock and Control Systems

All of the following activity is being delivered by the ANSTA JV and their sub-contract/supply chain.

Manufacture of the new rolling stock is now underway with the first of the new trains unveiled at an industry event in September this year. The industry and public response to the new trains has been very favourable with positive comments on the design, layout, and look of the trains. The first train unit is being held at the Stadler manufacturing facility in Altenrhein, Switzerland as it undergoes final design refinement, system fit out and initial testing, prior to delivery to Glasgow in early 2019. Two further train units are in production and are due to be delivered in summer 2019. On delivery to Glasgow each train will be subject to extensive testing and commissioning by the ANSTA JV prior to staged introduction to service in subsequent years. Whilst progress has been made since the last update, challenges remain with ANSTA JV providing the necessary documentary evidence to the safety argument to show that design risk for the new units have been managed to a level 'As Low As Reasonably Practicable' (ALARP), as required under SPT's Safety Verification Scheme and in line with Railways and Other Guided Transport Systems (Safety) Regulations 2006 (ROGS) requirements. SPT is continuing to work closely with ANSTA JV to close this issue.

Design of the signalling, telecoms and control systems as part of the new integrated system has continued to progress, with initial installation for the new systems due to commence on site by the end of the year. This will involve, working simultaneously in a number of Subway stations to install equipment and cabling in both front and back of house locations. The installation will also require additional equipment kiosks to be installed external to some stations. Given the complexity of the install and potential impacts to the operational and passenger environments from these works, detailed planning and challenge to contractor methodologies is ongoing to ensure these works are well coordinated with day to day operations and also other project and maintenance activity.

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The new CCTV system has now been installed at SPT head office, Seaward Street facility and in bus stations with testing and commissioning about to commence following close out of snagging works. The CCTV install is being delivered by the ANSTA JV as part of the improvement of corporate systems capital investment strategy. Installation of the new CCTV system for Subway will begin next year.

One of the last modernisation milestones is the introduction of Platform Screen Doors (PSD), which has remained in delay since the last update, albeit progress on the design and the necessary platform strengthening works has been made. However, progress to date is not seen as a significant issue as there remains time in the coming year for this ongoing design development prior to the planned construction/installation.

3.6 Manufacturing & Supply Agreement (MSA)

Members will recall, all design, manufacturing, construction, installation and testing/commissioning work delivered by the ANSTA JV is under the Manufacturing & Supply Agreement contract. As evidenced in the preceding sections there has been significant progress made on works being delivered under the MSA contract. As reported at the last update, SPT has been working with ANSTA JV to update their MSA programme forecasts in light of delays and design challenges experienced to date and a re-baselined programme has now been agreed. Key dates were agreed to be changed as part of the re-baselining exercise, with the new control system and rolling stock fleet introduction now approximately 12 months later than the forecast at contract award. The decision to agree to a reforecasting has been taken to ensure that there is a realistic and achievable plan that allows SPT and ANSTA JV to accurately manage and monitor progress through the manufacturing, construction and migration stages of this complex aspect of modernisation delivery. With the revised baseline there have also been a number of cost variations proposed by ANSTA JV. These are currently under review by SPT.

3.7 Technical Support and Spares Supply Agreement (TSSSA)

The Technical Support and Spares Supply Agreement contract with the ANSTA JV continues to progress. Under the TSSSA contract, ANSTA JV will take responsibility for management of the Subway material stores and spares supply. Enabling activity in preparation of this has been commenced with the SPT team clearing and re-organising the upper deck of the existing stores, with this space now handed over to the ANSTA JV for the new storage fit out works, currently under design.

Work has commenced between the ANSTA JV TSSSA team and the SPT Training and Competence Management teams to identify all the training needs and development requirements for the maintenance of the new assets. The selection process for the TSSSA secondment opportunities for SPT staff has also been completed. The testing and interview process was carried out by Stadler on behalf of ANSTA JV with support from the SPT team.

The contract activity and associated payment profile for the TSSSA contract has been impacted by the re-baseline agreement of the MSA contract and there is ongoing activity to agree and accept the revision to the TSSSA forecasts and plans.

3.8 Organisational Change and Employee Relations (including operational readiness)

As previously advised, a key part of our modernisation programme is ensuring operational readiness. Plans are being continually developed and implemented for all internal Operations, Engineering and Maintenance activities required to prepare teams to operate and maintain our new assets safely. A key activity since the last update was

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the commencement of a full review of our business Safety Management Systems (SMS) to ensure our working procedures are capable of supporting future operation.

Open dialogue with staff across all areas of the subway to keep them informed as key work progresses continues. Updates have been given to operational staff groups during Training Weeks and to maintenance staff at workshops held in the summer months. The focus on developing core skills that will enable staff to deliver in their current roles as well as to prepare for the changes to come also continues and is evident in the increasing levels of investment in learning and development across Subway.

Progress updates are given at regular Information and Consultation of Employees (ICE) meetings and through staff briefings highlighting changes to the working environment, such as station refurbishment and changes to the depot, as well as opportunities arising for training and development or new roles aligned with modernisation delivery. Subway operations have continued to train additional flexible operatives as part of the overall plan to increase resilience throughout the critical migration phases for the OCC both to re-control and then migration to Unattended Train Operation (UTO). Up to two SPT staff will be seconded to the TSSSA team from the current maintenance team, providing an excellent opportunity for SPT staff to get directly involved in testing and commissioning activity and to receive specialist training from the ANSTA JV so that they can provide SPT with technical support for the duration of the TSSSA contract.

The Modern and Mature (Adult) apprenticeship schemes launched in January 2018 continue to progress well with good feedback from the apprentices on the programme; a fifth apprentice joined in the summer. They enjoyed the experience of shadowing the 'skilled' maintenance teams on site before embarking on full-time academic learning at college in August. The curriculum for our apprenticeship programme has been aligned with the requirements emerging from the RS&CS prerequisite training plan skills/qualification requirements with a view to improving the likelihood that they can successfully transition from their apprenticeships into the new maintenance technician job roles in the future.

Engagement with the Office of Road and Rail (ORR) has continued on a regular basis. The Safety Certification and Safety Authorisation required to operate Subway was achieved, as planned, in August 2018.

3.9 Further information

The Client Technical Advisor (CTA) contract approved at Partnership in March 2016 is a key support contract to SPT for Subway Modernisation delivery, providing specialist technical advice, support and resources to meet the demands of the MSA contract delivery. This contract was awarded to Atkins and is a reimbursable (time and expenses) form of contract. At the time of award, there was an initial budget estimate of contract value circa £1.9m although this was expected to be highly variable due to a number of unknowns on document quality, timing and locations of the work required in Glasgow and at the ANSTA JV premises. Given the challenges of working with international teams, the quality of submitted documentation and the complexity of arising technical issues, there has been a need for attendance at a greater number of meetings (local and overseas), repeated documentation reviews and commentary, additional independent analysis and co-location of key technical support resources with the SPT team at Broomloan. This has led to the anticipated spend being greater than originally estimated. Given progress and emerging requirements experienced to date, the forward forecast of this contract value has been revised and is now estimated at £4.0m to project completion. As this is a call off contract, this is managed extremely tightly and will continue to be scrutinised in detail to minimise ongoing spend. This remains a necessary support requirement for SPT to fulfil its regulatory and safety obligations and provide the requisite technical challenge and acceptance of the ANSTA JV delivery. This revised forecast is

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included and can be accommodated in the current modernisation programme budget forecasts.

As Partnership Board members will be aware, the ANSTA JV comprise of two organisations (Ansaldo and Stadler) that have their design and production facilities in mainland Europe (including Switzerland, France and Italy). The JV supply chain is predominantly European, but some suppliers are located worldwide.

Since the last update, SPT project, operations and engineering staff, in conjunction with the Client Technical Advisor, have attended a number of design, manufacturing and site visits to aid the project delivery in Switzerland, Germany and France.

This has been necessary to support contract delivery and the progression of the project sign off processes. It has also been beneficial to continue to help our teams gain early first hand early knowledge of the new system particulars, prior to introduction in Glasgow.

Members of the ANSTA JV team remain co-located with the SPT project delivery team at the Broomloan Depot office. The JV continues to grow as more and more site activity commences. In early 2019, it is expected that the JV will re-locate to site based and other new office accommodation. There has been great benefit from being co-located and it is expected that part-time co-location for key resources across both SPT and ANSTA JV teams will be maintained to ensure benefits of this working arrangement continue.

3.10 Programme budget

Within the overall Subway Modernisation budget of £288.7m, the 2018/19 budget was set at £52.935m at the SPT Partnership meeting of 23 February 2018. This will be funded by £52.935m of ring-fenced contribution from the Scottish Government.

Spend to date for 2018/19 as reported to Strategy & Programmes committee is £22.275m. To the end of period 7 2018/19, £126.933m has been incurred against the total budget of £288.7m on the programme.

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

As noted in 3.6, there are cost variations proposed for the MSA contract currently under review. The proposed variations are within the overall budget for the programme.

4. Conclusions

- Good progress continues to be made across a number of modernisation workstreams
- the station refurbishment works continue to progress well with a contract in place to be able to deliver the remaining four stations over the next two years
- the uptake and usage of smart ticketing and the growth of online sales demonstrates that we are meeting and improving customer expectations
- progress on the infrastructure improvements continues as planned
- the improvement plan for facilities at Broomloan Depot is on track with an agreed way forward for the stabling shed extension
- the showcasing of the first train unit at InnoTrans has further demonstrated the quality of train build expected for the new rolling stock fleet and international interest in Subway Modernisation

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- ongoing progress on the rolling stock, signalling and control aspects of the modernisation programme remain the key challenge areas as we move from design into manufacture and install
- a re-baseline of the MSA programme has been required to ensure the ongoing delivery programme is achievable, manageable and realistic
- the TSSSA contract delivery has progressed but has been impacted by changes to the MSA programme of delivery as the programmes must align across the contracts
- following good progress on readiness and engagement activity, there will be continued and growing focus on activity relating to these activities over the upcoming year
- international travel will continue to be a requirement for the project delivery team over the next year
- the subway modernisation capital programme remains within the approved budget of £288.7m and available funding
- the challenges of the MSA delivery have also impacted key SPT support and resource contracts as these will need to be extended/varied to suit the needs of the programme delivery as each contract reaches expiry/agreed limits

5. Partnership action

The Partnership is recommended to note:

- the progress made since the last written update to the Partnership in June 2018;
- the on-going programme of implementation of station improvements, with site works now live at both St Georges Cross and Cowcaddens;
- the ongoing growth and positive public reception of smart ticketing and on-line sales;
- progress on the infrastructure workstream with the next phase of testing for the new rail delivery system in the pipeline;
- ongoing improvements of the facilities at Broomloan Depot continue in readiness for the introduction of the new rolling stock and control systems. Works to refurbish the stabling shed roof, install the new wheel lathe and construct the new OCC building are now well underway;
- the new rolling stock and control systems activity has moved from design into the manufacturer and install phases, though an extended period of time will be required for the necessary testing and commissioning and safety approvals prior to operational use;
- changes to programme forecasts for the MSA contract with some key operational dates moved by approximately 12 months and cost variations are under review and within overall programme budget;
- progress on works and activity under the TSSSA contract and impacts to the TSSSA contract forecasting from MSA contract programme change;
- in-house activity towards operational readiness and staff engagement continues and implementation of identified activity is ongoing;
- the ongoing engagement with the ORR and re-certification achieved;
- the variation to the revised forecast costs to completion of the Client Technical Advisor contract; 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>No significant changes within this report. Though significant changes are expected 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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