



5G Trial Update

Date of meeting 18 June 2021

Date of report 20 May 2021

Report by Assistant Chief Executive

1. Object of report

The object of this report is to provide the Partnership with an update on the progress of the 5G trial project to test 5G signalling within Subway tunnels and to advise that discussions are continuing with the University of Strathclyde to progress to a further stage aimed at reviewing the benefits of 5G to Subway maintenance.

2. Background

As members are aware, SPT is supporting a 5G trial project in partnership with Cisco, the University of Strathclyde and an overseas partner in the South Korean Transport Agency. The trial is being funded by the Department of Digital, Culture, Media and Sport (DCMS) within the UK Government.

The project partners have now completed the 18-month programme of the 5G trial project design stage. Cisco lead on the key partner management and update via a weekly progress meeting including all technical partners with a clear focus on the milestone progress.

The University of Strathclyde has now completed the design, installation, testing and decommissioning with SPT providing railway passenger knowledge, engineering, track access, IT and asset support on design, testing and construction. The wayside equipment was installed within Buchanan Station and the onboard equipment was temporarily attached to a train cab on the trial day.

A user trial was conducted onboard a train on Tuesday 23 March 2021 during the Subway's operational hours. The trial involved testing a live deployment of infotainment mobile services in the Subway rail environment, with the overarching aim of exploring and understanding the potential for augmented and mixed reality over 5G for the marketing and creative industries. The trials were conducted with both mobile handsets and headsets/smart glasses, with the 5G network deployed between Buchanan Street and St Enoch subway stations providing connectivity from platform to/from train.

All partners were fully aware of their responsibilities to ensure that the pilot exercise of the 5G trial did not interfere or disrupt Subway passenger service or the ongoing Subway Modernisation Project.

3. Outline of proposals

SPT involvement in this project is now complete. All equipment installed within the subway has now been decommissioned and removed.

The trial results demonstrated the ability to provide a 5G network within the tunnel and the ability for passengers to interact with commercial product through AR/VR application. Members are reminded that at this stage, while the trial is considering the merits from an infotainment perspective, a successful pilot is also likely to have considerable benefits for SPT in maintenance terms, including the use of digital equipment.

Members are advised that discussions are now underway with the University of Strathclyde and DCMS on the possibility of a further project focused on how the benefits of the first trial can be captured and capitalised upon with more of a focus on the maintenance activities, specifically looking at how a business case to support this could be achieved. Cisco will be sharing the final trial report and development information from South Korea Transport Agency and mutual learning points will be shared.

A budget of up to £80,000 was agreed with the partners to fund any costs incurred by SPT in undertaking the project, and to date SPT has recovered all costs incurred totalling £52,000.

4. Conclusions

Despite the majority of this project being carried out under Covid-19 restrictions and the limitations which resulted, all partners demonstrated a great deal of flexibility and drive to keep the project on track. The project has successfully demonstrated the 5G mobile technology is well suited to providing track-to-train connectivity for underground railway systems and AR-based digital technology has demonstrated potential opportunity for the future.

5. Partnership action

The Partnership is recommended to:

- note the international pilot project to assess the introduction of 5G connectivity within a subterranean environment is now completed and proven to be successful; and
- note discussions are now underway to seek a further project focused on the maintenance benefits of 5G connectivity.

6. Consequences

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| Policy consequences | <i>None at present.</i> |
| Legal consequences | <i>None at present.</i> |
| Financial consequences | <i>None at present.</i> |
| Personnel consequences | <i>None at present.</i> |
| Equalities consequences | <i>None at present.</i> |
| Risk consequences | <i>Risk mitigation considered related to Subway Modernisation.</i> |

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