



National Audit Office

Report

by the Comptroller
and Auditor General

Department for Transport

Update on the Thameslink programme

Key facts

£5.5bn

cost of Thameslink infrastructure works (2017 prices)

£1.7bn

lease costs of new Class 700 trains manufactured by Siemens (present value, 2017 prices)

£0.3bn

lease costs of train depots at Three Bridges and Hornsey (present value, 2017 prices)

£474 million infrastructure budget increase (9.4%) from 2012 budget (2017 prices)

10 new platforms at London Bridge station completed and open to the public

45 number of new Class 700 trains in passenger service on the Govia Thameslink franchise (as of September 2017)

1 year deferral to the introduction of the final services, to better manage the risks of each service change

24 maximum number of Thameslink trains planned to run through central London in each direction during peak hours from December 2019

£900 million estimated extra maintenance and renewals funding needed to improve the reliability of Network Rail assets such as track and signalling across the Govia Thameslink network (cash prices, not included in infrastructure works costs)

£300 million amount of the £900 million maintenance and renewals work that will be carried out before April 2019

13% proportion of services cancelled and delayed by more than 30 minutes caused by the failure of Network Rail track and signalling between July 2015 and March 2017 on the Govia Thameslink network

Summary

1 The Department for Transport (the Department) is sponsoring the Thameslink programme (the programme), a complex investment in rail infrastructure and new trains, and a significant change to services. The objectives of the programme are to increase passenger capacity on the Thameslink route by running higher frequency, more spacious trains on an expanded network. The Department estimates that the programme will achieve net passenger benefits of £1.9 billion (2010 prices) through reduced crowding, relief of congestion on London Underground, reduced journey times through quicker interchanges, and more frequent services for passengers on major routes in the region.

2 The programme involves:

- two phases of infrastructure works carried out by Network Rail at a total cost of £5.5 billion (2017 prices);
 - phase one included the redevelopment of Blackfriars and Farringdon stations, and was completed to time and budget in 2011. It cost £2.4 billion; and
 - phase two began in 2013, and included redeveloping London Bridge station and introducing new track and signalling technology in central London. These are expected to enable up to 24 trains an hour through central London in each direction. It has a budget of £3.1 billion;
- a fleet of 115 new trains, with lease costs of £1.7 billion (present value, 2017 prices), and two new maintenance depots to service them, with lease costs of £0.3 billion (present value, 2017 prices). These are delivered through a contract similar to a private finance initiative with a consortium of Cross London Trains (who have financed the trains) and Siemens (who manufacture and maintain the trains, and financed and built the depots); and
- the combined Thameslink, Southern and Great Northern (TSGN) franchise, to maintain passenger services on the Thameslink routes during disruption from the infrastructure works, bring the new trains into service and develop and introduce a new timetable for the extended Thameslink route network. The Department awarded the franchise to Govia Thameslink Railway Ltd (Govia Thameslink).

3 We have previously reported on the programme: in June 2013 we published *Progress in delivering the Thameslink programme*; and in July 2014 we reported on the procurement of the new Class 700 trains in our report *Procuring new trains*.

Scope of this report

4 This report focuses on the Department and Network Rail's management of the remaining elements of the programme as it nears completion. It examines:

- the background to the programme and what has been achieved since we last reported (Part One);
- the causes of the increase in infrastructure costs and delays to the new trains (Part Two); and
- the challenges the programme faces in delivering all of its benefits (Part Three).

We summarise our audit approach and methods in Appendices One and Two. We also detail our approach for reporting the costs of the programme in Appendix Three.

5 This report does not examine the TSGN franchise. We will publish a report on the TSGN franchise in early 2018.

Key findings

6 **There has been significant progress on the programme since we last reported, and the infrastructure and rolling stock elements of the programme are broadly on schedule.** Network Rail has rebuilt and brought into use 10 platforms at London Bridge station, and opened two-thirds of the new street level concourse. Network Rail has also brought into use tunnels at King's Cross, allowing the East Coast Mainline to connect to the Thameslink network. Govia Thameslink has accepted 64 out of the 115 new trains, 45 of which are now in use by passengers. Siemens has built the two maintenance depots. Provided Network Rail successfully completes the London Bridge works scheduled for Christmas 2017, the infrastructure to enable connections between a number of key routes will be in place (paragraphs 1.9, 1.11, 3.3 and 3.4).

Infrastructure delivery

7 **Network Rail has kept the infrastructure works to schedule in a challenging environment, although there has been planned and unplanned disruption to passengers.** While Network Rail carries out work to support the upgrade throughout the year, new infrastructure can only be brought into use at London Bridge station during bank holiday periods, when the station can be closed. Failing to complete planned works during these closures would set the programme back by as much as a year, because of the sequence the works need to be carried out in, and the need to wait until another suitable bank holiday. Network Rail has so far avoided such a delay and only one more set of critical works remains in Christmas 2017. Work to develop and test the new signalling technology is also on schedule. The works have caused passenger disruption. A combination of asset failures and problems introducing a new timetable caused disruption in 2015. Although these had significant effects on passengers at the time, the Thameslink programme has accounted for a small overall proportion of direct route delays since this time (paragraphs 2.3 to 2.7).

8 The total budget for Network Rail's infrastructure works has increased by £474 million (9.4%) to £5.5 billion. The budget for phase two increased by 18.0% from £2,629 million to £3,103 million, and was largely associated with the works at London Bridge. As Network Rail developed its detailed design and accessed the site, it found that conditions at London Bridge were not as expected, requiring changes to the design, additional work, and acceleration of other works to keep to schedule. Network Rail's processes were not set up to deal with the volume of design change needed, and became inefficient in delivering these changes. Network Rail also decided not to pursue a proposed national programme to introduce technology to assist signallers in making decisions. The Thameslink programme had depended on this, meaning Network Rail then had to purchase a separate system for it (paragraphs 2.8, 2.9, 2.11 and Figure 2).

9 Since the budget re-forecast in May 2015, Network Rail has kept its infrastructure budget stable and has improved its financial control of the programme. Network Rail has introduced measures to improve the way it manages design changes and has used more sophisticated cost forecasting techniques. Network Rail is confident that it now has sufficient contingency in place to cover its assessment of future cost risks. It has also taken steps to improve the programme's cost control following cost increases resulting from the impact of design changes at London Bridge which reporting by the main contractor, Costain, and Network Rail's contract management, did not immediately bring to light. Network Rail has subsequently revised the terms of the contract, and adopted closer working relationships with its contractors, to better incentivise efficient change management as well as transparency and alignment of cost reporting. The revised budget includes contingency which can be released as risks reduce. Network Rail is intending to release £23 million from Thameslink to the remainder of its infrastructure projects. The cost of stabling for the new trains in the wider network, managed by the Department, is currently estimated to be higher than initially forecast (paragraphs 2.10 to 2.16 and 2.23).

Delivering new trains

10 The acceptance of the new trains is currently behind schedule, but efforts are being made to recover lost progress. Siemens had difficulties finalising the on-board software for the new trains, which delayed Govia Thameslink's acceptance of the first train. This meant that Govia Thameslink introduced the first train into passenger service just over three months later than initially planned. Further technical issues emerged when the trains were brought into service. Siemens have sufficiently addressed these issues to allow Govia Thameslink to accelerate its acceptance of trains to make up for lost time. If current progress continues, Siemens will have caught up to the original acceptance schedule by December 2017. Govia Thameslink is currently carrying out testing to determine what infrastructure adjustments Network Rail will need to make to fully deploy the trains on the Thameslink network. The new trains currently make up all Thameslink services through central London, and have been introduced on Great Northern and the Wimbledon Loop as well as services to Sevenoaks and between Bedford and Brighton (paragraphs 2.17 to 2.22, Figure 3).

Delivering the benefits of the wider programme

11 The wider rail network cannot yet reliably support the Thameslink programme's new services. Between July 2015 and March 2017, 13% of all attributed cancellations and delays of more than 30 minutes on the franchise have been due to failure of track and other Network Rail assets such as signalling systems. In 2016, Network Rail estimated that an investment of up to around £900 million (cash prices) of maintenance and renewal work was needed to achieve the resilience needed to run the new services on the Thameslink network reliably, in addition to infrastructure investments already planned in that area. Limits on access to the railway means that Network Rail has prioritised a £300 million programme of work in its South East and London North Eastern routes to improve particularly vulnerable parts of the network. These works have been funded by a £250 million grant from the Department, with the remainder being reprioritised from its existing maintenance budget. The remaining work is being considered by Network Rail for inclusion in its plans for the period 2019 to 2024, which are currently being developed (paragraphs 3.11 to 3.16).

12 The Department and Network Rail did not initially make adequate arrangements to manage the introduction of the new services and there is limited time remaining for planning to be completed. Managing the introduction of the new services requires new arrangements for signalling, management of passengers at stations and use of technology. It will be challenging for Govia Thameslink and Network Rail to finalise and test plans in the time remaining. Development of these plans also requires a high degree of collaboration across the rail industry, and clarity over who has the authority to make decisions on how the rail network operates. The Department's arrangements for managing the delivery of the infrastructure and trains, such as Network Rail's protocol agreement, have been broadly effective in focusing industry partners to collaborate in delivering the individual parts of the programme. However, the Department and Network Rail did not fully consider what arrangements they would need to manage the transition to bringing the enhanced services into use. In late 2016, the Department and Network Rail established the Industry Readiness Board, consisting of a wide range of industry representatives, to oversee collaborative planning for the new services. In mid-2017, the Department also took steps to better define accountabilities for operational service on the programme (paragraphs 3.5 to 3.10, 3.17 to 3.21).

13 The Department is deferring the full introduction of the new services by up to a year, in order to improve their ability to manage the risks of each service change. The Department and Govia Thameslink had initially planned for a number of services from Sussex and Kent, the Midland Mainline, the East Coast Mainline and Great Northern line to be connected through central London, in May 2018, with more services to be connected from December 2018. The Department requested options from Govia Thameslink to reduce the risks of passenger disruption from introducing too much change on the network at any one time. In October 2017, the Department approved a proposal it had requested from Govia Thameslink to introduce the new services planned for 2018 more gradually, with the final increase in services occurring in December 2019. The Department expects that this will allow Network Rail and operators to learn and implement lessons from each service change (paragraphs 3.22 and 3.23).

Conclusion on value for money

14 The Thameslink programme is now delivering benefits to passengers through station improvements and more spacious trains. The infrastructure work in central London is nearing completion and costs are now stable, after a 9.4% increase in 2015. There is the potential for further significant benefits to be realised from introducing greater connectivity across London and the South East. Overall, we consider that the programme has a realistic prospect of delivering value for money.

15 Our conclusion is informed by the Department's recent decision to introduce new services more gradually than originally planned, deferring the full benefits of the programme by one year. This is nevertheless a sensible step to protect value for money and passengers from further disruption, and which draws on lessons learned from other major programmes. Challenges remain: the Department and Network Rail did not ensure that efforts began early enough to build the readiness to deliver the new services; and the poor state of the rail network in the South East could undermine passenger benefits. The late schedule change also introduces operational and commercial issues which must be resolved. The Department and Network Rail will need to carefully manage these uncertainties and risks as the programme draws to a close.

Recommendations

16 With regard to the Thameslink programme, the Department and Network Rail should work with industry stakeholders to:

- a** establish a clear set of readiness criteria for each timetable change and prepare contingency plans in case these criteria are not met.
- b** maintain effective engagement once the new services are in place, so that future changes across the Thameslink network can be collaboratively controlled.
- c** develop a communications strategy for the deferral of the new services to explain the reasons to passengers. This should emphasise how these will aid their smoother introduction.

17 With regard to future major programmes, the Department and Network Rail should:

- d** put in place commercial arrangements that incentivise major programme contractors to provide clear visibility of emerging cost risks.
- e** develop detailed plans for bringing major programmes into use, ensuring these are clearly visible as part of the programme critical path.
- f** carry out an assessment of the ability of the existing infrastructure to support planned enhancements, and ensure that renewals and maintenance are aligned with this throughout their lifespans.
- g** ensure that the governance arrangements encourage collaboration to the degree needed by the nature and complexity of the programme, and provide clarity over decision-making authority. These should be flexible to allow them to be adapted at different stages as the programme matures.