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REPORT BY THE COMPTROLLER AND AUDITOR GENERAL

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Department for Transport

Progress in the Thameslink programme

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National Audit Office

Department for Transport

Progress in the Thameslink programme

Report by the Comptroller and Auditor General

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Amyas Morse
Comptroller and Auditor General
National Audit Office

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This report examines the Department for Transport's progress in delivering the Thameslink programme. We provide an overview of progress to date, focusing on performance in delivering the first phase of the programme and identifying challenges for future phases.

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Contents

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This report can be found on the National Audit Office website at www.nao.org.uk/Thameslink-2013

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Key facts

£3.55bn
Thameslink programme's budget for infrastructure works, 2006 prices

1,140
new carriages expected to be provided to increase passenger capacity

1.4 to 1
most recent benefit-cost ratio for the programme

£1.6 billion	estimated capital cost of trains and depots funded through PFI
£1.7 billion	cost of the first phase of the infrastructure works, which was £143 million under budget, 2006 prices
£1.8 billion	budget for the second phase of the infrastructure works, 2006 prices
8 years	original duration of the programme from approval in 2007 to completion by 2015
11 years	revised duration of the programme with completion in 2018

Summary

1 The Department for Transport (the Department) is sponsoring a programme to increase passenger capacity on the Thameslink route through central London. It will do this by running higher frequency, longer trains on an expanded network. The Department estimates that the programme will make net present benefits of £2.9 billion through reduced journey times, reduced crowding on trains and quicker interchanges between services.

2 The programme involves the following:

- Improving tracks and stations including extending platforms, reconstructing Blackfriars, Farringdon and London Bridge stations and introducing new signalling technology, expected to cost £3.55 billion (in 2006 prices). Network Rail is doing this work for the Department, funded by the Department's network grant.
- Buying a fleet of new trains and two new maintenance depots, with an estimated capital cost of £1.6 billion, which the Department is financing through a private finance initiative (PFI).
- New franchise arrangements for running the passenger service on the Thameslink route.

3 The programme has a long history with the first proposals to increase capacity made in 1989 and developed by a succession of rail industry sponsors in the 1990s and early 2000s. The Department only became sponsor of the programme in July 2005. The Department has made most progress in implementing the infrastructure project, with the first phase delivered in December 2011 under budget and on time. It has, however, had to revise its plans for delivering the second phase and change the timetable for delivery from 2015 to 2018. The project to buy new trains has taken longer than expected and the award of contract for the new trains has been delayed by more than three years so far. The Department also revised the timetable for the Thameslink franchising project, largely as a result of the pause to the franchising programme after the Department cancelled the InterCity West Coast franchise competition.

Scope of the report

4 This report, our first on the programme, examines the Department's progress to date, focusing on:

- the background for the programme (Part One);
- delivering the infrastructure (Part Two); and
- the impact of the delays to buying the new trains (Part Three).

5 We summarise our audit approach and methods in Appendices One and Two. We will re-examine the buying of new trains once the contract has been awarded. This may be part of other work examining the Department's strategy for securing trains for the network.

Key findings

The case for Thameslink

6 There was and continues to be a robust transport case for the programme. Thameslink services have been consistently among the most crowded London routes in recent years at 2.7 per cent above capacity during afternoon peak times. Passengers travelling on the current Thameslink route are among the least satisfied with space on trains and demand is forecast to increase (paragraph 1.5).

7 There is a clear link between the Department's rationale for the programme and the economic appraisal as reducing overcrowding depends on running more frequent and faster services through central London, which will improve journey times.

- The Department estimates the current benefit-cost ratio at 1.4 to 1, with the main benefits being faster journey times, improved journey ambience and reduced interchanges. The Department has followed best practice in recalculating the benefit-cost ratio at key decision points and has consistently chosen the option with the best ratio out of those which addressed its key strategic objective of reducing overcrowding in the longer term (paragraphs 1.6, 1.10, Figures 2 and 3).
- In our report on High Speed 2 we reported that HS2 Limited found errors in its benefit-cost model, which it subsequently corrected. While we cannot give assurance that the modelling framework underpinning the benefits calculation for the Thameslink programme is error free, no errors have been identified in the modelling of passenger demand which drives much of the programme's benefits. There is also less risk in the Thameslink modelling framework than that for High Speed 2 as it is less complicated and is in a steady state of development. However, the Department has not undertaken its own detailed review of the modelling or its outputs. It has relied on its consultants to do this, which is contrary to best practice (paragraph 1.9).

Delivering the infrastructure project

8 The Department has kept the infrastructure project within the original budget of £3.55 billion (2006 prices) which it agreed with Network Rail in 2007. Planning was immature when the budget was approved, which meant that significant additional effort was needed to control the project later on. Additional unexpected costs in phase one and two brought further challenges (paragraphs 2.3 and 2.5):

- Phase one was completed on time and to budget despite cost pressure arising from scope changes to Blackfriars and Farringdon stations and Blackfriars Bridge being in worse condition than expected. The Department allowed Network Rail to use savings it had identified from other parts of this phase to offset the increased infrastructure costs of £217 million, in accordance with the regulatory protocol agreed between the two parties (paragraphs 1.15, 2.6 and 2.7).

- Phase two needed to be re-planned when detailed planning established that the original design would exceed the budget and would be difficult to deliver. The Department responded well to this challenge by reappraising its options for continuing with the programme and improving its scrutiny of Network Rail's costs. The Department worked with the industry to re-scope plans for the second phase so that estimated costs are now within the original budget. It engaged cost consultants to gain assurance over Network Rail's cost estimates. Passenger benefits measured in the business case, such as crowding relief and journey time savings, remain significant following the change in scope. However, forecast commercial income included in the benefit-cost ratio has been reduced by £0.9 billion following changes to the design of London Bridge station (paragraphs 1.11, 2.9, 2.10, 2.12 and 2.13).

The Department deserves credit for keeping the costs within the original budget through a combination of working closely with Network Rail, approving significant changes to individual budgets and strengthening its challenge of costs for the second phase of the programme. It is also encouraging that the Department has learnt from experience and refined its monitoring approach over time (paragraphs 2.3 and 2.16).

9 The Department was sensible to reset the timetable when it realised the original timetable for the second phase of the infrastructure project was unrealistic. In 2010, the Department extended the timetable by three years to 2018, based on the revised plans for phase two and a more detailed understanding of what delivering the project involved. Our report on cancelling the InterCity West Coast franchise procurement highlighted that unrealistic timetables can create mistakes (paragraphs 1.10 and 2.12).

10 The Department has provided good industry leadership and promoted strong working relationships across the rail industry. This has enabled it to manage a number of specific challenges. These include keeping services running during major infrastructure works and addressing the technological challenges of integrating the systems needed to deliver the new, high-frequency service. Cross-industry collaboration was also important in identifying more deliverable and affordable plans for phase two (paragraphs 2.12, 2.18 and 2.19).

The impact of delays to the train procurement

11 The award of the contract to buy new trains is currently delayed by more than three years. The Department decided in March 2008 to let a complex PFI contract to one supplier to design, build, finance and maintain the new trains. We cannot comment in detail on the reasons for the delay to the procurement until the contract is awarded. However, the delays raise questions about whether the Department underestimated the scale of work, time and skills and capacity it required to negotiate a complex PFI deal (paragraph 3.3).

12 The delays impact significantly on the rest of the programme. The delay in letting the contract for the new trains:

- Adds logistical complexity to the infrastructure project. In particular, there are risks around accommodating the train design with some elements of the infrastructure project (paragraph 3.7).
- Adds complexity to the process of letting a new franchise. Uncertainty around when the train contract will be let makes it more difficult to determine appropriate terms for the franchise agreement (paragraph 3.12).
- Raises questions about the feasibility of delivering the whole programme by 2018. The Department has not yet fully mapped out the programme's critical path based on a revised timetable for delivering the new trains to determine whether 2018 is still feasible or how much contingency is left in the timetable. The Department has been working with its industry partners to do this but cannot complete this until it has let the contract for the new trains (paragraphs 3.13 and 3.14).

13 The delays also affect the Department's plans for the electrification of other parts of the rail network. The delays mean that the Department is currently buying additional trains to meet short-term demand on newly electrified routes elsewhere in the country. The additional procurements raise questions around who bears the risk that the trains will still be needed when the Thameslink procurement is completed, and the Department's role in securing and managing the allocation of trains within the network. We intend to return to this subject in future work, as noted in paragraph 5 of this Summary (paragraphs 3.16, 3.17 and Figure 9).

14 The Department has not focused enough on managing the effect of the delays on other elements of the programme. It is addressing this by revising its programme governance and management structures. It is too early to assess how the new arrangements will work but the steps it has taken appear sensible. Given the scale and complexity of the programme and the amount of public money at stake, it is disappointing that the Department did not seek to address these issues earlier (paragraph 3.15).

The Department's capacity to deliver the programme

15 The Department's team managing the programme is small, which may have impacted on its capacity, for example, to manage the programme as an integrated whole. External reviews of the programme have repeatedly raised concerns about the size of the team compared to the scale and complexity of the programme. The team became particularly stretched following the 2010 Spending Review, which it sought to address through additional recruitment in 2012. However, the size of the team still appears small compared with teams for other complex government projects (paragraph 1.20).

16 The programme has benefited from good continuity at the senior responsible owner level since 2008, which has helped to build strong industry relationships. That post holder has, however, also been stretched at times when he was given responsibility for the £4.5 billion Intercity Express Programme. He will be moving to support delivery of High Speed 2, and a successor has not yet been appointed. While it is understandable that the Department would place its most experienced senior responsible owner on its biggest programme, we are generally worried about the Department's capacity to deliver the number and scale of projects that it is currently involved in (paragraphs 1.18 and 1.19).

Delivering value for money through the franchise

17 The Department plans to transfer a lower level of risk to the Thameslink franchisee for the next seven years to incentivise the operator to support the programme's delivery. The Department feels that an arrangement such as a management-style contract, which transfers lower risk to the franchisee, may be appropriate. This is because the new franchisee will have to successfully deliver major changes to its service, caused by the planned infrastructure works and also work closely with the train provider to bring the new trains into service. This will be the first time that the Department has let competitively a management-style contract (paragraphs 3.10, 3.11 and 3.12).

18 Delivering value for money from the programme depends on the Department letting a longer-term franchise, in around 2021, which incentivises high performance and gives a good return to the taxpayer yet minimises risk. The long-term impact of the programme on taxpayers will depend on the franchise agreement's terms and profitability. This is sensitive to, among other things, the cost of the new trains and passenger demand for the services (paragraph 1.13).

Conclusion on value for money

19 The Department has a clear case for investment in the programme: to increase capacity on an already overcrowded route, which it expects to deliver net present benefits of £2.9 billion. It is too early for us to conclude on value for money, which cannot be demonstrated until after 2021 when the new Thameslink service is running. The Department has so far done well to contain the infrastructure costs within the original budget. However, the delays in agreeing the contract to buy new trains mean that delivering value for money from the programme as a whole is at greater risk than we would have expected at this stage.

Recommendations

To build on the good progress in delivering the infrastructure part of the programme and to deliver value for money, the Department needs to:

a **Ensure it has the capacity to meet the challenges of the next phase by:**

- appointing a new senior responsible owner for the programme with relevant skills and experience to begin immediately after the current one moves on; and
- developing the critical path planning it is currently undertaking to adopt a more strategic approach. It should identify key points in the future where additional departmental resources may be needed to keep the programme on track and also where it might impact on or be affected by other rail projects managed by the Department.

b **Invest sufficient time and resources in considering carefully the details of the seven-year franchise agreement, as it has not previously competitively let a management-style contract.** Our report on cancelling the InterCity West Coast franchise procurement highlighted the importance of allowing sufficient time to fully understand new approaches to letting franchises. The Department will need to consider:

- how to incentivise the franchisee to maintain performance for passengers, grow revenue and support the delivery of the programme; and
- how to set the level and terms of any management fee.

In delivering future major projects, the Department should:

c **Focus on the practicalities of how the project will be delivered from an early stage in the planning process.** The Department should ensure that its industry partners are incentivised to look beyond the early planning or approvals hurdles to deliver plans that are realistic and achievable.

d **Avoid fixing timetables before it has a good understanding of what the project will involve.** The Department should base its timetables on a clear understanding of what needs to be done, including a realistic contingency allowance. Where it is important to announce a timetable early in project development, the Department should be open about the amount of uncertainty that exists to avoid setting itself up for failure.

e **Identify and plan how it will manage the interdependencies between all the key elements of complex projects as it develops its delivery plans.** For rail projects the Department should identify how it will manage the interfaces between infrastructure work, train and franchise arrangements. The Department should identify potential risks that may arise for the whole programme should smaller projects be affected, and have plans in place to manage these from the project's outset.

f **Have a proper understanding of the models that underpin business cases and reduce its reliance on advisers for assurance.**

Part One

Background on the Thameslink programme

1.1 This part of the report sets out the objectives for the Thameslink programme (the programme), its key components, how it has been set up and staffed within the Department for Transport (the Department) and its progress to date.

Programme objectives and key components

1.2 The Department is sponsoring the programme, which has the objective of reducing overcrowding on commuter services north and south of London and on London Underground. The programme requires infrastructure, trains and timetable changes so that:

- Longer trains can run on the route through central London, with improved reliability and frequency.
- Passengers have less need to change trains or use London Underground services to complete their journeys.
- Links with the wider transport network are improved, including Crossrail, the Channel Tunnel rail link at St Pancras, and Luton and Gatwick airports. The route already connects five central London mainline stations and ten Underground stations on nine Underground lines.

1.3 The programme has a long history that predates the Department's sponsorship. The first proposals to increase Thameslink's capacity were made in 1989 and a succession of rail industry sponsors developed these plans in the 1990s and early 2000s. Network Rail obtained planning permission for the infrastructure work in 2006 and the Department became the active sponsor of the programme in July 2005, taking over from the Strategic Rail Authority.

Business case for Thameslink

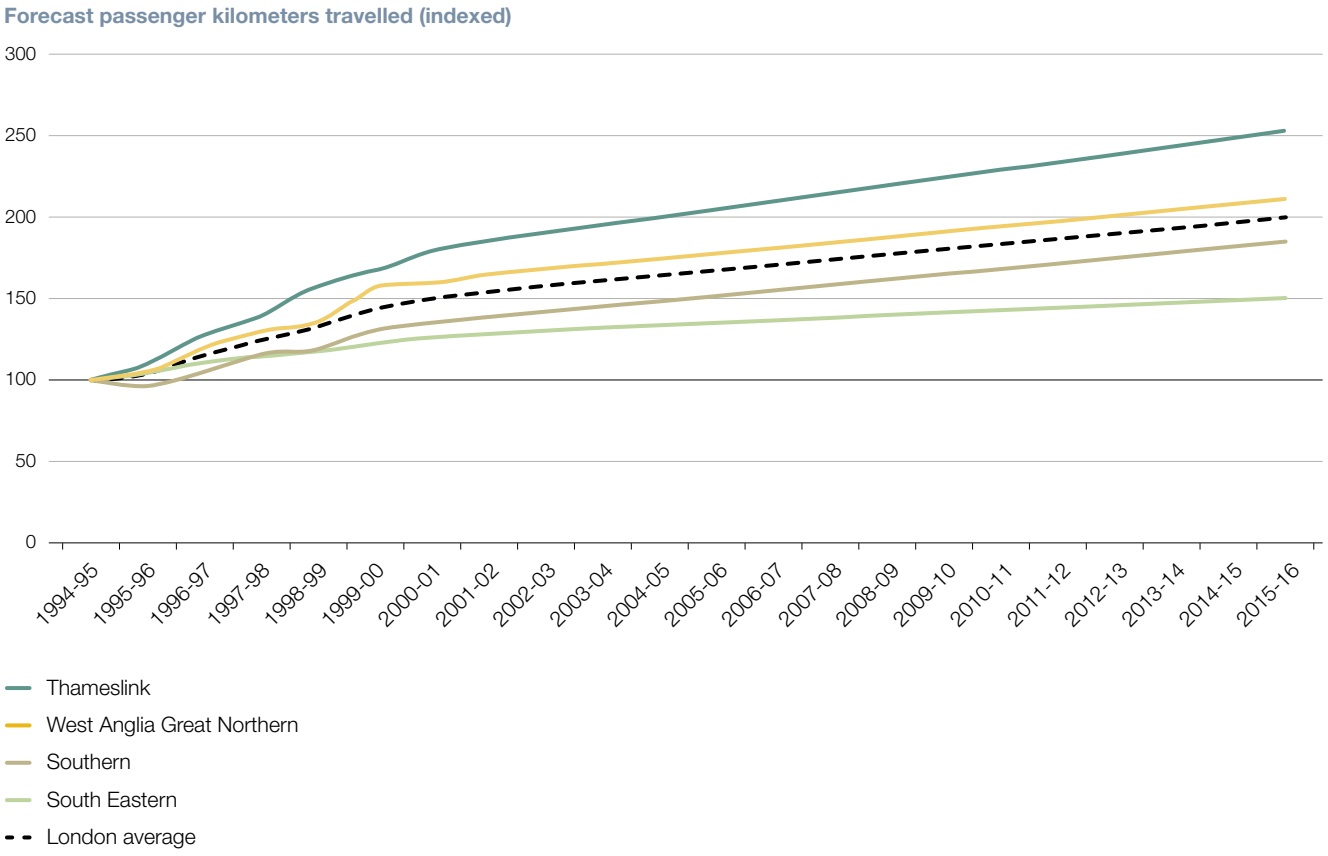
1.4 When the Department began sponsoring the programme it commissioned an updated business case from external advisers, Atkins. This was completed in September 2006, and the Department used it to inform its decision in 2007 to proceed with the programme. In line with the Department's standard approach for appraising its transport projects, the business case examined both the strategic and economic case for the programme.

1.5 There was and continues to be a robust transport case for the programme:

- In 2002, Thameslink had the greatest level of crowding of all commuter services in the afternoon peak, and in 2004 it was the second worst commuting route heading out of central London, with passengers exceeding capacity by 2.7 per cent.
- Forecasts predicted increased passenger demand up to 2016, particularly in areas served by Thameslink, adding to overcrowding (**Figure 1**). Subsequent forecasts produced by Atkins predict higher future demand now than when the Department approved the programme, and growth is expected to continue into the 2030s.
- The latest National Passenger Survey shows continuing overcrowding problems on Thameslink. Passengers travelling on the route from the north are the sixth least satisfied in Britain with space available, and those travelling on Thameslink routes south of London are the second least satisfied.[1]

Figure 1
Increase in passenger demand to 2016

Forecasts predicted increased passenger demand up to 2016, particularly in areas served by Thameslink



Source: Department for Transport

1 Passenger Focus, *National Passenger Survey: Autumn 2012 Main Report*, January 2013.

1.6 The business case sets out the programme's economic case by estimating the benefit-cost ratio, which is currently 1.4 to 1 (**Figure 2**). The programme benefits are predominantly:

- Passenger journey time savings, for example from reduced waiting times due to more trains running and less need to change.
- Improved 'journey ambience and interchange', which includes better facilities at stations and on trains, reduced overcrowding and better transport network links, including with other mainline services and London Underground.
- The Department has also identified wider economic impacts from the programme of £1.3 billion (in 2010 prices), which, in line with HM Treasury guidance, are not included in calculating the benefit-cost ratio. Wider benefits include increased productivity from greater clustering of firms, increasing economic activity and labour market effects.

Figure 2
Summary of the programme costs and benefits

Description	Cost (in 2010 prices) £m
Passenger journey time savings	6,430
Other net passenger benefits	10
Journey ambience and interchange	3,515
Other net benefits	60
Reduced indirect tax revenues because of fall in car use	-293
Net Benefits	**9,722**
Construction costs of new infrastructure	-5,445
Net cost of running and maintaining new infrastructure	-907
Cost of running extra services and longer trains	-2,216
Train operator revenue	2,161
Programme costs met directly by the Department	-426
Net costs	**-6,833**
Benefit-cost ratio	1.4:1

Source: National Audit Office analysis of the Department's data

1.7 The main costs are:

- building and maintaining the infrastructure; and
- operating the new train service, including lease and maintenance payments for the new trains.

These are partly offset by income the train operator receives, which at this stage is estimated using high-level assumptions, for example about ticket income. The Department will undertake a more detailed analysis of projected revenue when it develops plans for letting the future long-term franchise.

1.8 We noted in our report on High Speed 2 that when the decision was made in 2012 to proceed with it there was a disconnect between the strategic case for doing the project and the economic case, which as for all transport projects places a high emphasis on journey time savings.[2] This makes it difficult for the Department to explain to stakeholders why High Speed 2 is necessary. Journey time savings contribute 66 per cent of Thameslink's quantifiable benefits, but this is not a cause for concern in this case because they more closely reflect the programme's strategic objectives. The journey time saving benefits are derived from providing a faster, more frequent train service, which is designed to deliver the programme's strategic objective of reducing overcrowding by increasing the route's capacity.

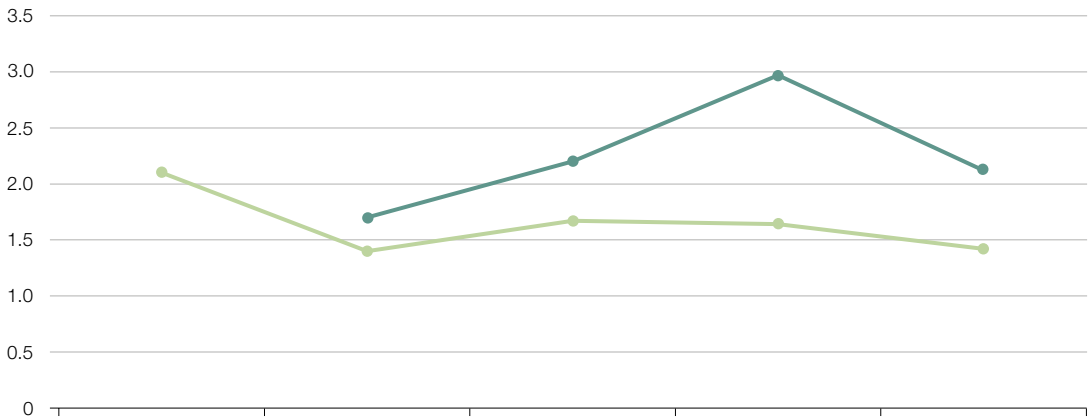
1.9 We also commented in our report on High Speed 2 that passenger demand modelling had contained errors, which have since been identified and corrected by HS2 Limited. No errors have been identified in the modelling framework for Thameslink, which has existed since the late 1980s and is used to estimate how changes in timetables and capacity will affect passengers' choice of route into central London. Although this does not mean that errors could not exist, there is less risk attached to the Thameslink modelling framework than to that for High Speed 2. The Thameslink model is less complicated and is in a steady state, having not changed since 2009 (whereas the High Speed 2 model is still under development, reflecting the stage that that project is at). When new data are entered into the model the results are sense-checked by Atkins to make sure these are reasonable. However, contrary to best practice, the Department has not undertaken its own detailed review of either the model or its outputs.

2 Comptroller and Auditor General, *Department for Transport: High Speed 2: A review of early programme preparation*, Session 2013-14, HC 124, National Audit Office, May 2013.

1.10 The Department has followed good practice in recalculating the benefit-cost ratio at key decision points. When appropriate it has also assessed alternative options and calculated the ratio for these, which it has used as one factor informing decisions about how the programme should proceed. In line with HM Treasury guidance these decisions are primarily based on the 'investment case' ratio, which excludes money already spent on a project, although again in line with guidance the Department also provides decision-makers with the 'business case' ratio, which includes all costs. The Department has consistently chosen the option with the highest ratio and which addresses overcrowding in the longer term, its key strategic objective. In 2010, the Department considered several options as part of the Spending Review, and the chosen option involved extending the programme timetable. The Department considered that this was both the most realistic in terms of delivery, and it helped to reduce demand on the Department's finances by shifting more work into the next spending review period, while keeping overall costs within budget. **Figure 3** shows that both the investment case and business case ratios of the chosen option have been positive throughout the programme.

Figure 3
Change in benefit-cost ratio

Both the investment case and business case ratios of the chosen option have been positive throughout the programme



	2007 – decision to implement the programme	2009 – decision to issue the rolling stock ITT	2010 – Comprehensive Spending Review decision	2012 – preparation to award the rolling stock contract	2013 – start of second phase of infrastructure works
Investment case		1.70	2.20	2.97	2.12
Business case	2.10	1.40	1.67	1.64	1.42

Source: National Audit Office analysis of the Department's data

1.11 All economic cases are based on assumptions, which need to be reviewed and updated regularly. It is normal for benefit-cost ratios to change during a project. The most significant fluctuations for Thameslink result from the type of changes to assumptions we would expect to see:

- Changes to transport user benefits have been driven mainly by the forecast increase in passenger demand resulting from updated government forecasts for GDP growth and employment rates in central London, and by revised assumptions about service patterns once the new franchise has been let.
- Net costs have risen, mainly due to a fall in forecast revenue by train operators because the model now includes a more detailed assessment of the impact on fare income of a range of standard and saver tickets prices, whereas initially an average ticket price was used. Forecast commercial income has also been reduced by £0.9 billion following changes to the design of London Bridge station.

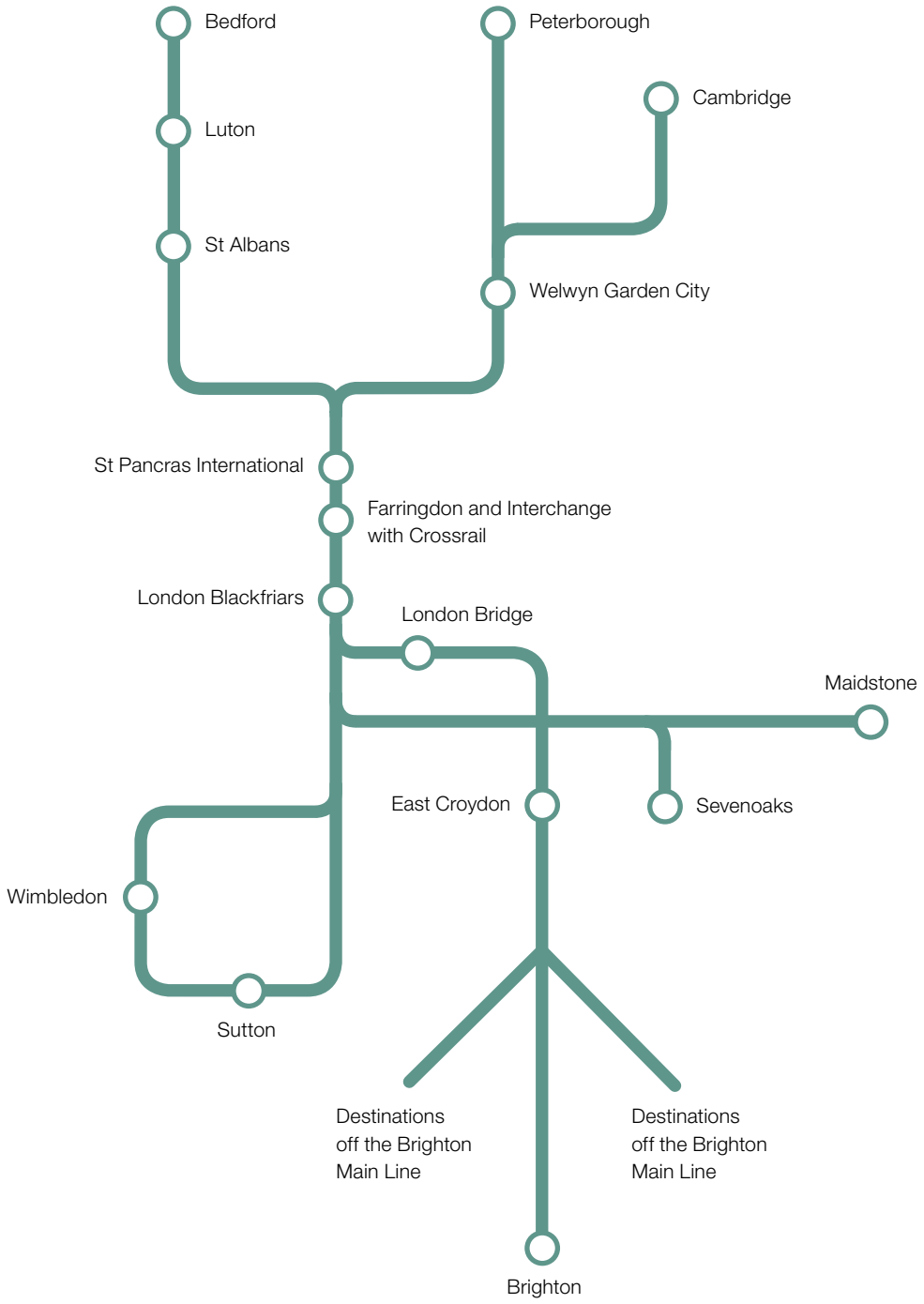
There were two errors in earlier versions of the ratios, with the programme costs met directly by the Department being omitted and the fall in tax revenue from motorist switching to trains being understated. However, these are now included and the ratios remain positive.

Programme set up

1.12 The programme consists of three interrelated projects:

- Improvements to rail infrastructure, including longer platforms, redesigned track layout, a new signalling system and station upgrades. The budget for this is £3.55 billion, which the Department is funding through its Network Grant payments to Network Rail.
- Buying a fleet of longer, more reliable trains and building maintenance depots to support them. The Department has chosen to finance this through PFI and estimates the initial capital cost will be £1.6 billion. The supplier will recover the costs through lease payments from the franchise holder once the trains are in operation.
- Redesigning and reletting the Thameslink franchise to deliver the new timetable. The existing Thameslink route connects Bedford to Brighton through central London, and provides some services to south London and Kent. This will be expanded to incorporate the Great Northern, Southern and part of the South Eastern franchises, bringing all services running on the route under one franchisee (**Figure 4** overleaf).

Figure 4
Indicative map of the Thameslink network after the programme is completed



NOTE

1 Routes that could potentially be served via the Thameslink London core. As at March 2013, exact service patterns for the Thameslink, Southern and Great Northern franchise are under discussion. This diagram cannot be used to infer routing or stopping patterns of future services.

Source: Department for Transport

1.13 The Department plans to let an interim franchise that will run until the programme is completed, followed by a longer-term franchise beginning around 2021. Delivering value for money from the programme depends on the Department establishing terms for this later franchise that incentivise high performance and give a good return to the taxpayer yet minimise risk. The programme's long-term impact on taxpayers will depend on this franchise's profitability. This is sensitive to, among other things, the cost of the new trains and passenger demand for the new services.

1.14 The programme is highly complex. It involves resources from across the Department's rail group and several external organisations, including Network Rail, train operating companies, Transport for London, the preferred bidder and the Office of Rail Regulation. **Figure 5** overleaf sets out the Department's structure for delivering the programme and links with the main delivery organisations.

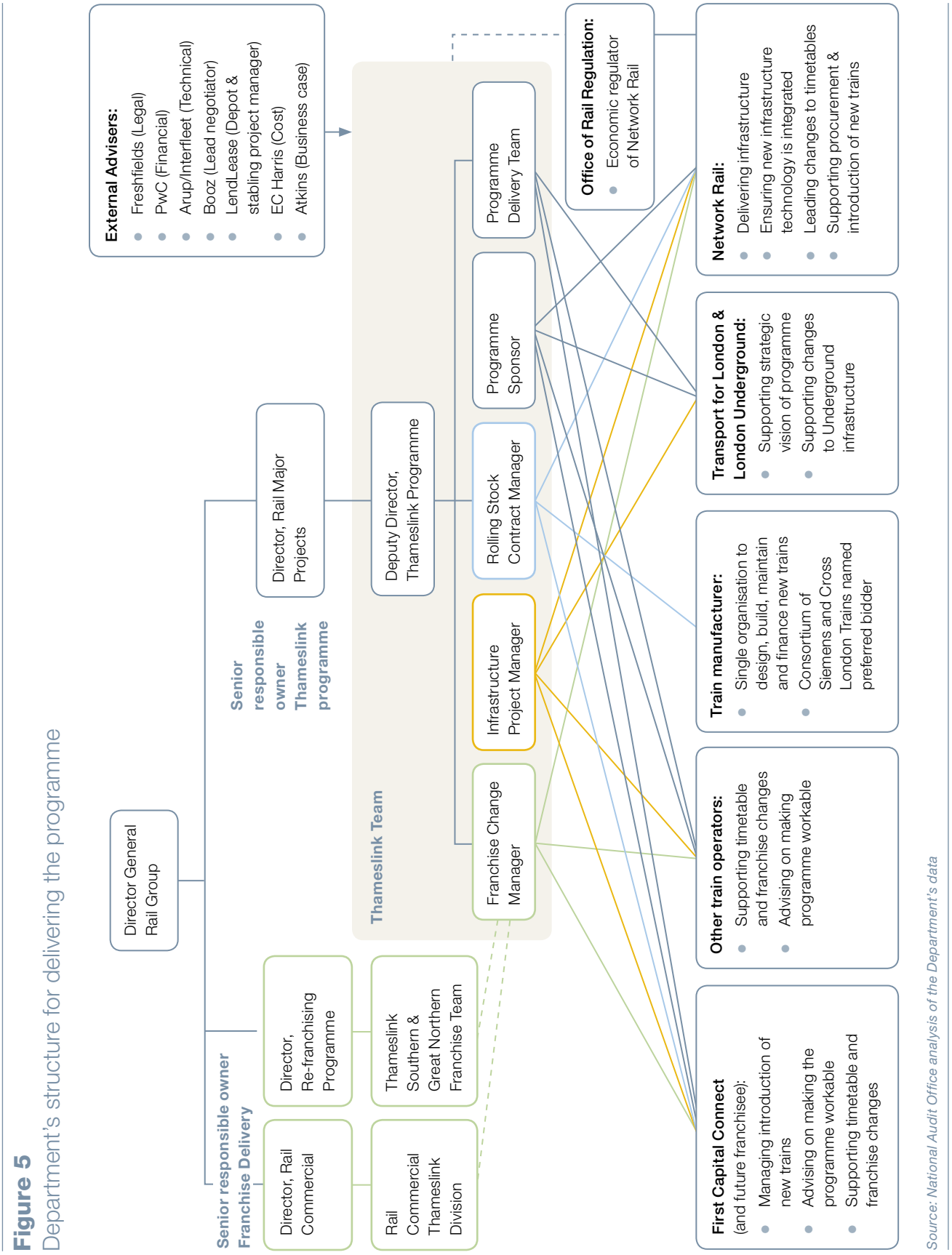
1.15 Usually the Department specifies the outputs of infrastructure projects within a five-year period as part of its High Level Output Specification. Network Rail then delivers them, overseen by the Office of Rail Regulation, the economic regulator. However, because of the programme's complexity, the Department agreed a bespoke 'regulatory protocol' with Network Rail defining how they would work together to deliver it. The protocol gives the Department a more direct project monitoring role, and was designed to reduce the Department's financial exposure to the risk of the programme overrunning. The Department has subsequently agreed a similar protocol for Crossrail but for no other projects.

1.16 At various stages of the programme the Department has sought external advice. For example, legal and financial consultants have advised on the commercial aspects of buying new trains throughout that project as part of an integrated team. The Department has also worked hard at engaging the industry and involving them in the programme's development. For example, it involved industry representatives at all levels in the system of committees that oversee the programme. Both these aspects of the programme contrast with what we, and the Committee of Public Accounts, found in the cancellation of the InterCity West Coast franchise competition.[3] There, we identified that insufficient use of external expertise and poor industry engagement were contributory factors to its failure.

1.17 The franchising team is separate from the Thameslink team. A September 2012 gateway review of the re-franchising project criticised the lack of a formal linkage between the programme and the Department's wider re-franchising programme. The Department has since appointed a franchise change manager to liaise between them (Figure 5).

3 Comptroller and Auditor General, *Department for Transport: Lessons from cancelling the InterCity West Coast franchise competition*, Session 2012-13, HC 796, December 2012. HC Committee of Public Accounts, *Department for Transport: Lessons from cancelling the InterCity West Coast franchise competition*, Thirty-first Report of Session 2012-13, HC 813, February 2013.

Figure 5
Department's structure for delivering the programme



Source: National Audit Office analysis of the Department's data

1.18 The programme has benefited from having stability of senior management. The Department has had a senior responsible owner for the programme since becoming its sponsor in 2005. The current post holder, in position since 2008, has had the longest involvement with the programme and has been integral in its progress. However, he is due to move off the team in 2013 to work on High Speed 2.

1.19 It is understandable that the Department would choose to place its most experienced senior responsible owner on its biggest programme. However, a successor has not yet been appointed for the Thameslink senior responsible owner as the programme enters its most complex phase. As we said in our report on High Speed 2, we are more generally concerned about the Department's capacity to carry out such a large number of major projects.

1.20 The Department has found it difficult to staff the team sufficiently. Several early reviews noted that the team was small, and a gateway review in 2009 concluded that the team was sometimes under-resourced for a programme of this magnitude. When the Department was restructured in 2010 the team was given additional responsibility for the £4.5 billion Intercity Express Programme. However, the Department identified that this had placed too much pressure on resources across the two programmes, and since summer 2012 it has sought to boost capacity for the Thameslink programme. It has separated responsibility for Thameslink and the Intercity Express Programme again and has brought in new staff with the greater range of skills needed to deliver Thameslink going forward. A new deputy director, responsible for shifting focus on to programme integration has been appointed, and a new programme sponsor and a train contract manager are now in place. However, the team remains small compared with those delivering similarly complex programmes in other departments, such as at the Department of Energy and Climate Change for its smart meter and carbon capture and storage programmes.

Progress in delivering the programme

1.21 The Department has made most progress in delivering the programme's £3.55 billion infrastructure project, which is discussed more fully in Part Two. Due to the scale of the work, the infrastructure project is split into two:

- The first stage cost £1.704 billion, and was delivered on time and £143 million under budget. It provides the infrastructure to allow up to 16 twelve-car trains per hour through a core route between St Pancras and Blackfriars by linking services that previously terminated to the north and south of it. It included remodelling Blackfriars and Farringdon stations, extending station platforms between Bedford and Brighton, power supply and signalling upgrades, providing stabling facilities for trains and removing a bottleneck in Borough.

- The second stage, which has a £1.849 billion budget, is intended to complete the infrastructure to support new train technology and higher peak frequency of 24 trains per hour through central London. Work started in May 2013. It includes reconstructing London Bridge station, upgrading power and signalling, further platform extensions, and new depots for storage and maintenance. The new services are scheduled to start in December 2018.

1.22 The projects to provide new trains and relet the franchise have been delayed significantly. The Department originally planned to announce its preferred bidder for delivering the new trains in October 2009 and to sign the contract by March 2010. However, the Department selected its preferred bidder, a consortium of Siemens and Cross London Trains, in June 2011, some 20 months later than originally planned. The Department has not yet let the contract, bringing the overall delay to more than three years so far.

1.23 The successful bidder for the new franchise was expected to be announced in May 2013, but the Department has not yet issued the invitation to tender. There are two reasons for this. Firstly, the Department recommended to ministers in September 2012 that they should delay the issuing of the invitation to tender for the franchise until the contract to buy new trains was resolved. It was further recommended that the position be reviewed if the contract had still not been let by the end of 2012. In October, however, the Department put on hold its whole franchise programme after cancelling the InterCity West Coast franchise competition, pending the Brown Review into its wider franchising policy. The Department has now resumed the competition and announced that an interim seven-year franchise will start in September 2014 with a new longer-term franchise due to start in 2021. We examine the wider implications of delays in Part Three.

Part Two

Delivering improvements to rail infrastructure

2.1 This part examines how the Department for Transport (the Department) is delivering the infrastructure required for the programme, focusing on: planning; managing Network Rail's delivery of infrastructure works; cost management; and working with the wider industry.

Planning the project

2.2 The timing of the Department's decision to approve the programme in June 2007 was influenced by two issues:

- The Department inherited plans for the programme in 2005 that had been prepared primarily to secure planning permission rather than detailing how the infrastructure would be delivered. In December 2006, the Department approved funds of £30 million for Network Rail to develop the budget and refine the cost estimate, which Network Rail told the Department would run out by September 2007. Without further funding Network Rail would have curtailed its development of the programme.
- The Department's timing was also influenced by its announcement of wider rail policy and funding in the White Paper *Delivering a Sustainable Railway* in July 2007, which included the programme as a specific commitment.[4]

The Department approved the programme in the knowledge that the plans, particularly for the second phase, had not been fully worked up.

2.3 The Department approved the start of the programme based on Network Rail's proposed costs for the infrastructure works of £3.55 billion. This budget was confirmed in February 2008 when the Department agreed the protocol (outlined in paragraph 1.15) with Network Rail. The Department commissioned an independent review of costs for the redevelopment of Blackfriars, a major component of the first phase, which concluded that these were in line with expectations. Since setting the overall budget, the Department and Network Rail have worked hard to ensure costs remain within it, including using a change control process to examine requests to move money between budgets controlled by the Department and those controlled by Network Rail.

4 Department for Transport, *Delivering a Sustainable Railway*, Cm 7176, July 2007.

2.4 The protocol set the budget for the first phase at £1.847 billion. This included a budget to cover provisional costs and risks not directly related to construction, including compensation for disruption to train and Underground services. The remaining £1.705 billion was for the second phase, including a budget for risks and provisional costs.[5] The Department recognised the uncertainty in the cost estimates for the second phase of infrastructure works, accepting that Network Rail would use its own project development and costing process to refine costs later in the programme's lifetime.

2.5 Once the project was under way Network Rail developed its plans for both phases and identified that significant changes were needed to deliver the project. Construction work started before Network Rail had identified the full scope of the infrastructure work. An Office of Rail Regulation review in May 2010 found that programme milestones for the first phase were developed before there was a sufficiently full understanding of the scope and complexity of what was involved and were subject to optimistic planning with insufficient contingency or float.

Managing costs for phase one

2.6 During the first phase emerging cost pressures were identified, particularly because of changes to the scope of work at Blackfriars and Farringdon stations and because signalling works were more expensive than anticipated. By September 2009, these pressures meant that costs for the first phase of infrastructure work had increased by £217 million. This included an extra £158 million for Blackfriars station needed in part because Blackfriars Bridge was in worse condition than Network Rail expected.

2.7 Despite the increased costs of some infrastructure works, overall the first phase was delivered £143 million under budget at £1.704 billion, and the key outputs, enabling 12-car trains to run from December 2011 and the introduction of a new timetable in May 2012, were delivered on time. In accordance with the protocol the Department allowed Network Rail to offset cost increases for station works at both Farringdon and Blackfriars by transferring savings it had made in other parts of the project. These savings included changes to the track and signalling works, reduced programme management costs, and the reallocation of part of the budget for compensation as there was less disruption to train services than had been anticipated at the design stage.

2.8 The Department used the protocol to apply financial incentives and penalties to encourage Network Rail to deliver to time and budget (**Figure 6**). Incentives to deliver to time appear to have been effective. Network Rail fully met two protocol milestones, partially met two others, and was late in another resulting in it receiving payments of £17.4 million out of a possible £25 million. In accordance with the protocol, the Department and Network Rail could agree either to make incentive payments under the target cost regime at the end of each delivery phase, or alternatively only once when the programme has been completed. They have chosen the second option, because the Department prefers to manage costs for the programme as a whole and the Department has therefore allowed Network Rail to increase its baseline budget for phase two by the amount of the phase one underspend (£143 million) to keep the total costs of the infrastructure works within the £3.55 billion budget.

5 This budget was later increased to £1.849 billion, explained in paragraph 2.8.

Figure 6
Incentive and penalty arrangements

Incentives to deliver the infrastructure take two forms:

1 **Cash incentives** for the timely completion of works based on delivering eight key milestones by specific dates and to the required standard:

- The total cash incentives available are £50 million, with Network Rail potentially paying up to £25 million if milestones are missed.

2 A **target cost regime** to incentivise Network Rail to remain within budget:

- Potential benefit by up to £60 million being added to the value of its asset base following each project phase if it delivers the works for less than the price agreed with the Department.
- Potential penalties if it overspends. For the first phase, the maximum penalty is £100 million.
- Network Rail risks forfeiting any benefit from savings achieved in the first phase should the overall budget for the infrastructure works be exceeded.

Source: National Audit Office analysis of the Department's data

Managing potential cost increases for phase two

2.9 Following further planning in 2009, Network Rail established that it could not deliver the original design for the second phase of infrastructure within the planned time frame or budget because these works were more complicated than anticipated and posed significant delivery challenges. The forecast overspend peaked in December 2009, when Network Rail estimated costs were £527 million (31 per cent) above the original budget with 2020 cited as a possible end date. The most significant items of projected overspend were London Bridge, stabling facilities for trains and the new signalling technology.

2.10 The Department responded well to these challenges, as it reconsidered its options and then worked with industry to tackle the rising costs. Between summer 2009 and summer 2010 it considered a range of options, including:

- continuing with the programme by seeking to contain costs within the original budget;
- developing a more cost-effective interim scheme for the next phase (such as achieving 20 trains per hour), and implementing 24 trains per hour at a later date; and
- continuing with the programme as planned by securing additional budget.

2.11 The Department concluded that it could not stop the programme as this would merely delay renewals that would have to happen anyway (such as signalling works and station redevelopment at London Bridge). In addition, stopping the programme at the end of the first phase would have incurred significant costs but delivered few benefits, as reflected in a benefit-cost ratio of 0.4 to 1.

2.12 The Department decided that its objectives would be best met by delivering the originally planned capability while remaining within the budget. To identify how this could be achieved, it:

- worked closely with industry, including Network Rail and train operators, to explore different options to deliver the capability at lower cost and reduce the delivery challenges associated with the design;
- reset the timetable for the infrastructure to make it more feasible, accepting that delivery would be in 2018; and
- increased its emphasis on cost control, putting pressure on Network Rail to deliver the desired capability within the target cost. This included appointing a consultant, EC Harris, to provide challenge and assurance on Network Rail's cost estimates, independently validate the figures, advise on areas that could be de-scoped and identify potential financial impacts on the programme.

2.13 As a result, Network Rail has revised and developed its plans, which it is confident can be delivered. It has simplified designs for London Bridge by removing the requirement for the redevelopment to be above the tracks, so allowing an under-track concourse to be used, which reduces delivery risk. The London Bridge redevelopment remains significantly more expensive than originally anticipated in 2007. The Department was insistent that cost increases in one area needed to be offset by savings and efficiencies elsewhere in order to remain within budget. Network Rail has done this by:

- simplifying the track layout at London Bridge, which also reduces the amount of signalling and communications equipment required. The estimated cost is now £216 million less than forecast in 2009; and
- drawing up more detailed plans for the overnight stabling facilities for trains, which has reduced forecast costs by £88 million.

As the plans have developed and there is now greater certainty about costs, Network Rail has reduced the contingency budget in accordance with its standard methodology for calculating contingency. This is now £285 million less than in 2009.

2.14 In accordance with a process set out in the original protocol, a revised version was agreed between the Department and Network Rail in December 2012. This set the overall budget for the second phase works, which remains within the total budget of £3.55 billion agreed in February 2008. It also sets the incentive and penalty arrangements for the second phase.

2.15 We noted in paragraph 1.11 that the redesign of London Bridge station has affected the benefit-cost ratio by reducing expected commercial income. However, passenger benefits identified in the business case, such as crowding relief or journey time, remain significant following this redesign.

2.16 It is welcome that the Department succeeded in keeping the costs within the original budget through a combination of working closely with Network Rail, approving significant changes to individual budgets and strengthening its challenge of costs for the second phase of the programme. It is also encouraging that the Department has learnt from experience and refined its monitoring approach over time.

2.17 While current forecast costs for the second phase are now back within the original cost estimate, there are some areas of uncertainty. The Department and Network Rail have agreed a target cost of £1.849 billion for the second phase, but a small proportion remains provisional until after the train contract is awarded. This covers items such as access for construction, provision of signalling and control equipment, improved passenger information and compensation costs.

Working with industry

2.18 The scale and complexity of the infrastructure project is significant. The works cover a wide geographic area that includes an existing tunnelled section between St Pancras and Blackfriars. The route overlaps with other rail routes that are currently run by different train operators (paragraphs 1.12 and 1.13). The Department and the rail industry have to manage a number of specific challenges including:

- **Minimising the passenger impact.** Network Rail and train operators need to work together to plan construction and track closures so that services remain running and passenger disruption is minimised, taking into account timetabling, route changes, station access and linkages to Underground stations.
- **Technical challenges.** Many systems which fall under the control of different organisations, including signalling, infrastructure and train design, need to be integrated to enable the new, high-frequency service. Thameslink will also be the first UK mainline railway to use Automatic Train Operation (ATO), controlling acceleration and braking in the central London section, combined with the European Train Control System (ETCS), a signalling, control and train protection system.

2.19 The Department has worked hard and has built successful relationships between Network Rail and other industry bodies such as train operators and London Underground. It created cross-industry forums, such as a Programme Delivery Group, to lead on developing scope, reviewing progress and costs, and providing assurance on delivery. The Department has set up another group, the System Level Technical Authority, which comprises representatives from the Department, Network Rail, First Capital Connect and parties involved in delivering the new trains to provide technical assurance to the Programme Delivery Group. This collaborative approach has and will continue to be particularly important in addressing problems and identifying solutions, for example around managing the engineering and operational challenges that come with introducing new trains and higher-frequency services. **Figure 7** illustrates how Network Rail and the train operator worked together to maintain services at Blackfriars during construction.

Figure 7
Case example – working together

Works undertaken at Blackfriars to maintain services during construction

During the closure of Blackfriars Underground station, Network Rail and the train operators decided it was important to maintain a national rail service for access to the Blackfriars area and planned the construction works accordingly. Network Rail and First Capital Connect temporarily reconfigured the station layout (including temporary footbridges, walkways and ticket gate lines) to provide a working station throughout most of the first phase. Blackfriars closed for just 12 weeks, during which period passengers were encouraged to use the nearby City Thameslink station.

Source: National Audit Office analysis of Network Rail data

Part Three

The impact of the delays to the new trains

3.1 This part of the report looks at the delays to buying new trains and how these have affected the rest of the programme. It also examines how the Department for Transport (the Department) is managing the dependencies between the projects in light of these delays and the wider implications for its plans for the rest of the network.

The delays to the project to buy new trains

3.2 In addition to completing the infrastructure project, the Department also needs to deliver the projects to buy new trains and let a new franchise. There are complex interfaces between the three projects, which the Department needs to manage carefully to deliver the whole programme to time and cost. Delays to one project can delay significantly or complicate delivery of other parts of the programme. For example, the Department's original timetable was based on the contract for new trains being in place before:

- construction of new depots starts. These will house and maintain the new trains and are to be provided by the train provider, but the construction programme needs to be planned well in advance with train operators and allow sufficient time for the depots to be completed before the first of the new trains are due to arrive;
- Network Rail completes some infrastructure work as the train design may impact on some platform and station layout;
- Network Rail puts new signalling in place to allow integration and testing with the automatic train operating system; and
- the new Thameslink franchise is let because the contract terms will require the franchisee to manage the introduction of the new trains into operation. This includes providing the training needed for drivers and station staff so that the higher-frequency services can run.

3.3 As we state in paragraph 1.22, the project to buy new trains and two new depots has taken more than three years longer than expected so far. **Figure 8** shows where and why delays have occurred, and the revised dates which were announced after the spending review. At this high level it seems that protracted commercial negotiations are the main reason for the delay, although the 2010 Spending Review held the process up by six months. As the contract has not yet been awarded, we are not able to examine in detail the reasons for delay or assess whether the contract represents value for money. We intend to report separately on these aspects of the procurement once the contract has been let. The delay raises questions about whether the Department underestimated the scale of work, the time it would take and the skills and resources it needed to negotiate a deal of this complexity.

Figure 8
Key procurement dates

Key programme milestone	Planned delivery (set in the ITT)	Revised delivery (set 2010)	Actual delivery	Delay from original date (and reasons where available)
Invitation To Tender issued	November 2008	–	November 2008	None
Closing date for bids	April 2009	–	June 2009	2 months (bidders requested an extension to allow more time to develop the financial side of the bid)
Preferred bidder announcement	October 2009	March 2010	June 2011	20 months (6 months' delay caused by the Spending Review. During this period the Department also issued five sets of supplementary instructions to bidders)
Financial close and contract award	March 2010	October 2011	Expected Spring 2013	3 years, 1 month as at 26 April 2013 (Commercial close achieved in December 2012)
First new train in service operating at 16 trains per hour	First half of 2012	July 2015	–	3 years
All new trains in service operating at 24 trains per hour	December 2015	December 2018	–	3 years

Source: National Audit Office analysis of the Department's data

3.4 In our report *Lessons from PFI and other projects* we identify that while private finance deals can deliver benefits, they are inherently complex to arrange and this can add to timescales and reliance on advisers.[6] The Department's decision in March 2008 to use a private finance-style contract with one supplier to design, build, finance and maintain the new trains was in part due to its policy at that time not to finance new trains upfront. It also wanted to transfer a high level of performance and financial risk to the train provider to incentivise the level of reliability required to run high-frequency services. This requires a complex contract structure with incentive and penalty mechanisms to ensure that trains are available to meet the performance and reliability levels needed to run 24 trains an hour.

The impact of delays on the timetable to deliver new trains and depots

3.5 Despite the delays in signing the contract the Department still hopes to meet the delivery schedule for the new trains set in 2010 (Figure 8). The Department expects to let a contract shortly which will still require Siemens to deliver the first trains by December 2015 and the last trains by 2018. This would require Siemens to deliver the first trains within less than two years and seven months of contract award. Until the contract has been signed we cannot examine whether this time frame is realistic, although Siemens and Cross London Trains have told us they are confident it is. However, we note that this is a tighter timetable for delivery of the trains than was envisaged when the invitation to tender was issued. The Department's original assumption was that three years and three months would be needed between contract award and delivery of the first trains on the network.

3.6 The Department has tried to minimise the impact of delays on the timetable for delivering the trains by entering into an Advance Works Agreement. This allows Siemens to carry out some construction work on maintenance depots at Hornsey and Three Bridges before contract award. These depots need to be completed before the new trains are brought into service. There are restricted windows in which some work can be carried out without disrupting existing passenger services so protecting the depot build timetable is important to avoid significant delays to the overall programme.

6 Comptroller and Auditor General, *Lessons from PFI and other projects*, Session 2010–2012, HC 920, National Audit Office, April 2011.

Impact on the infrastructure project

3.7 Delay in signing the contract also adds logistical complexity to delivery of the infrastructure project as more detailed design assumptions have to be made about the interface between the infrastructure and the new trains. The technical interfaces should be clearly defined in the terms of the contract to buy new trains when it is signed. However, the Department's systems integration team and Network Rail have identified that there remains a residual and significant risk of changes to infrastructure being required to resolve issues resulting from the train design.

Impact on the franchise project

3.8 The original timetable for delivering the new trains also drove the Department's timing for letting the seven-year Thameslink franchise. In March 2011, the Department decided to exercise its option to terminate its existing franchise agreement with First Capital Connect and let a new franchise in 2013, so that the new franchisee would be in place one year before the first trains were to be delivered.

3.9 The Department continued to work to this timetable during 2012, even though the contract to deliver the new trains had not been signed and it was unclear when negotiations would be concluded. In September 2012, the Major Projects Authority Review reported that the franchise programme was at significant risk because of the delays to buying new trains. The Department was due to issue the invitation to tender in October 2012 but decided not to at the end of September 2012.

3.10 The Department's aim to have a new franchisee in place in 2013 constrained its options for the type of franchise contract it could use. In July 2012, the Department considered and dismissed using a 'management contract' partly because it did not fit with the wider policy that franchisees should be responsible for generating revenue growth, and partly because there was not enough time to develop a new type of contract. Under a management-style contract the Department would transfer less performance and revenue risk to the franchisee than in its usual arrangements.

3.11 The pause in the franchising programme following the cancellation of the InterCity West Coast franchise competition has given the Department more time to consider its approach. In January 2013, the Brown Review recommended that a management-style contract might be suitable for the Thameslink, Southern and Great Northern Franchise.[7] The Department is now exploring this option more fully. It feels that an arrangement that transfers less risk to the franchisee may be appropriate because the new franchisee will face major and sustained disruption due to infrastructure works and will have to work closely with the train provider to bring the new trains into service.

7 Department for Transport, *The Brown Review of the Rail Franchising Programme*, Cm 8526, January 2013.

3.12 Continuing delays in awarding the contract for the new trains will make determining the appropriate terms of the management contract more difficult. This will be the first time that the Department has run a competition for a management-style contract. The Department will need to decide how to:

- structure the contract to incentivise the franchisee to maintain performance for passengers through the disruption, grow revenue and support technical programme delivery; and
- set the level and terms of any management fee. This will include clarifying the franchisee's role in receiving and managing the new trains.

Managing the impact of delays on the Thameslink programme as a whole

3.13 As shown in paragraph 3.5 on page 31, it is not clear whether the programme can still be delivered by 2018. The Department has not yet fully mapped out the critical path of the programme as a whole based on a revised timetable for the delivery of the new trains to determine whether 2018 is still feasible or how much contingency remains in the timetable.

3.14 The Department has been working with industry to do this and plans to complete it once it has let the contract for the new trains. In the meantime the Department is embedding arrangements to facilitate this. It is too early to assess how the new arrangements will work in practice but the steps it has taken appear sensible:

- To update its critical path plans: the Department is increasing the size of its programme and systems integration group in anticipation of the award of the contract to buy new trains. The group's role, staffed by advisers, will draw together technical, operational and schedule issues to ensure that systems are compatible with, and can support delivery of, the plan's objectives.
- To assess the feasibility of the 2018 timetable and the available contingency: the Department's schedule and benefits group has met periodically since February 2013 to bring industry together to assess whether December 2018 is still the optimal delivery date, using techniques such as scenario planning.

3.15 The Department also recognises that it needs to manage more actively the interdependencies between the infrastructure, train and franchise projects. It is establishing an 'interface steering group' to manage internal, departmental interfaces and expects its expanded systems integration team to play a more active role in programme management. This group will be staffed by Network Rail, to manage risks, issues and finances more actively. This is a welcome development but it is disappointing that the Department did not devote more attention to managing the interdependencies earlier given the scale and complexity of the programme and that external reviews of the programme since 2007 highlighted the challenges and risks around the complex interdependencies between the projects.

Impact on the wider network

3.16 The delay in delivering the trains for Thameslink also has implications for the Department's plans for the wider network. An expected incidental benefit of the programme was the release of electric trains, currently used by Southern and First Capital Connect, to replace ageing and less efficient diesel trains elsewhere. The combination of developments in the Department's plans to electrify other parts of the network and the fact that the Thameslink trains cannot now be delivered in 2013 means that the old trains will not be available at the times they are needed for some electrification projects. The Department has initiated additional procurements, shown in **Figure 9**, to bridge the gap in train availability.

3.17 The Department expects that these trains will have a future use elsewhere on the network after the delivery of the new Thameslink trains, although it has not yet determined where. These additional procurements raise many questions, for example about who is bearing the risk that the trains will still be required when the Thameslink procurement is completed, whether procuring trains through changes to existing franchises provides value for money and the Department's role in securing trains and managing their allocation within the network. We intend to return to this subject in a future piece of work.

Figure 9
Additional train procurements

Date contract awarded	Number of trains	Procured by	Supplier	Reason for procurement	Cost[1]
December 2011	130 vehicles	Southern	Bombardier	To increase train service capacity in Southern's December 2013 timetable given that the anticipated cascade of vehicles from First Capital Connect was no longer possible due to the delay to buying new trains for Thameslink.	£40 million
December 2012	40 vehicles	Southern	Bombardier	To increase capacity on selected Southern services in the London area and to ensure the early release of other electric vehicles for deployment on newly electrified routes as and when they are completed.	£10 million
Procurement process started December 2012. Planned to complete summer 2013	116 vehicles	Southern	Not yet determined	To support Thameslink services in the short term until new trains are available and provide electric trains for newly electrified routes in the longer term.	Not yet determined

NOTE

1 This is the Department's estimate of the incremental costs arising from delays to the Thameslink procurement. This estimate reflects the implementation costs and anticipated operating charges including maintenance and lease costs that will be incurred until the end of the current franchise.

Source: National Audit Office analysis of the Department's data

Appendix One

Our audit approach

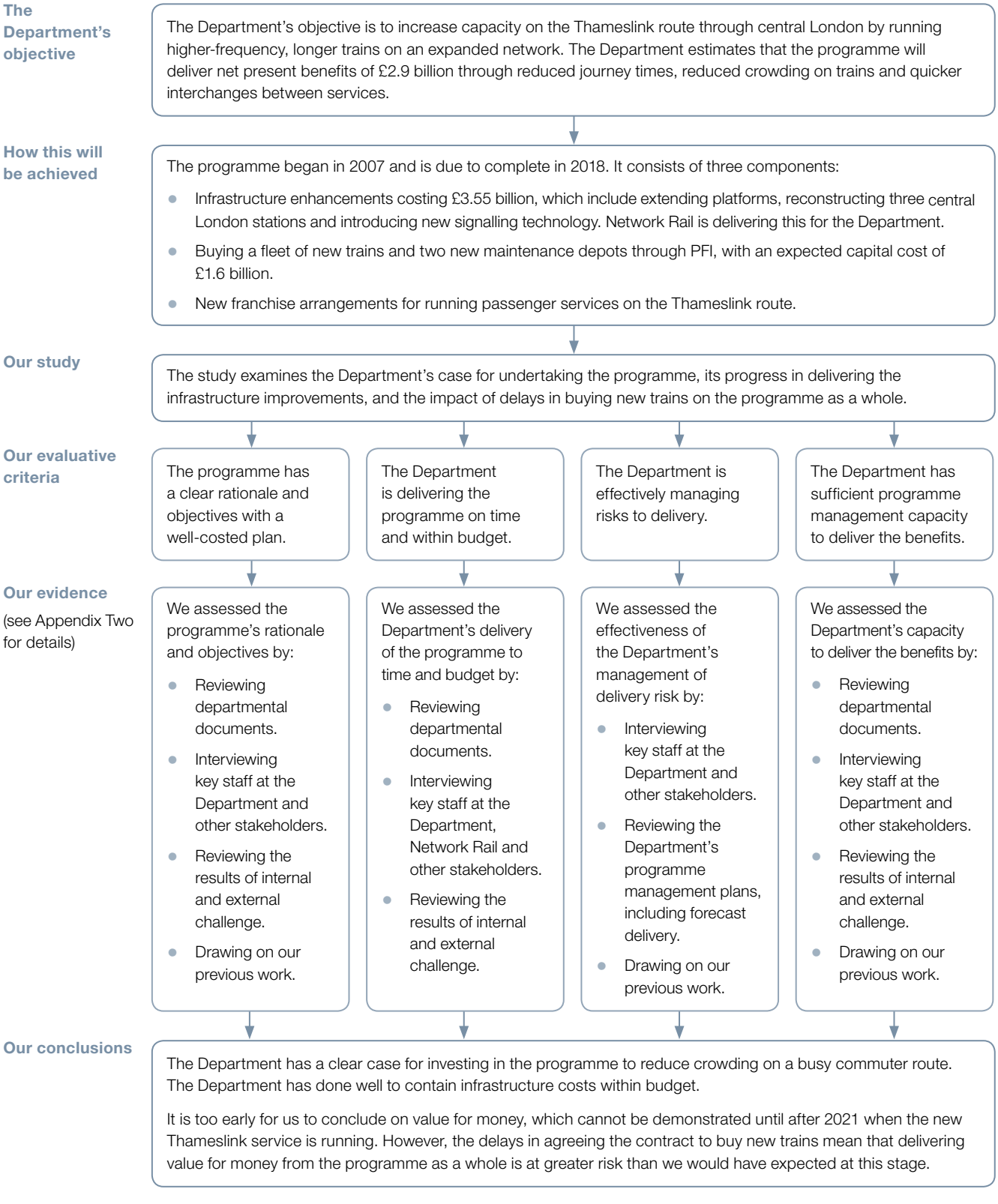
1 This report examines the Department for Transport's progress in delivering the Thameslink programme. We provide an overview of progress to date, focusing on performance in delivering the first phase of the programme and identifying challenges for future phases.

2 We reviewed:

- the Department's case for the programme and its assessment of the programme's costs and benefits;
- the Department's progress in delivering infrastructure improvements including its planning, relationship with delivery partners and implementation; and
- the impact of delays in buying new trains on the programme as a whole.

3 Our audit approach is summarised in **Figure 10** overleaf. Our evidence base is described in Appendix Two.

Figure 10
Our audit approach



Appendix Two

Our evidence base

1 Our independent review of the Thameslink programme was completed following analysis of evidence collected between June 2012 and April 2013.

2 We applied an evaluative framework to consider whether the Department has a clear case for undertaking the programme, has achieved its delivery milestones to date and is managing the risks to delivery going forward. Our audit approach is outlined in Appendix One.

3 We reviewed the Department's clarity of objectives and the rationale for the programme:

- We reviewed departmental documents to understand how the business case had been developed and approved; and assessed the case against good practice.
- We reviewed the Department's documents to assess how cost estimates had been produced and risks to affordability.
- We reviewed submissions to the board and other departmental decision-makers for clarity of rationale and purpose.
- We carried out semi-structured interviews with key staff at the Department and its advisers to obtain further information about the business case and confirm our understanding from the documentation.
- We interviewed representatives from Passenger Focus to ascertain their views on the programme's objectives and delivery to date.
- We assessed the analysis sitting behind the Thameslink economic case to understand how cost and benefit estimates had been produced, and checked the Department's approach against HM Treasury guidance. We did not directly review or test the passenger demand models on which the economic case is based.
- We reviewed quality assurance arrangements, and the results of internal and external challenge to establish whether findings and recommendations regarding the programme's rationale and objectives had been acted upon.

4 We assessed progress in delivering the programme to time and budget:

- We assessed progress against target dates and budgets, and reviewed the timetable going forward, including assessing the possible impact of delays in buying new trains on the programme as a whole.
- We reviewed budgets and forecast outturn costs for the infrastructure work over time to establish how and why these had changed.
- We carried out semi-structured interviews with key staff at the Department and Network Rail, and other stakeholders (the Office of Rail Regulation, Transport for London and train operating companies such as First Capital Connect, Southeastern and Southern) to understand their involvement and seek their views on management capacity and challenges.
- We reviewed meeting reports and minutes from relevant governance groups such as its Programme Board, Programme Development Group and Infrastructure Development Group.
- We reviewed the results of internal and external challenge to examine whether their findings and recommendations regarding delivery of the programme were being acted upon.

5 We assessed whether risks to delivering the next stage of the programme are being managed effectively:

- We reviewed and assessed the programme's project management plans.
- We reviewed papers submitted to the Department's main boards and its executive and commercial and investment subcommittees.
- We interviewed key staff at the Department, including the senior responsible owner and members of the programme team, train procurement and franchising teams to understand their plans for the next stage. We reviewed documented plans where available.
- We identified key risks to the successful delivery of the programme.
- We drew on our past work on PFI deals to inform our assessment of the Department's approach to buying new trains.

6 We reviewed programme management arrangements:

- We reviewed and assessed the Department's programme management documents, including risk registers, expenditure and progress reports and project management plans.
- We reviewed key governance documents to assess clarity and coverage.
- We reviewed the results of internal and external challenge to examine whether their findings and recommendations regarding programme management were being acted upon.
- We interviewed key staff at the Department on plans to reform its programme management structures.
- We drew on our past work, for example our study on *Lessons from cancelling the InterCity West Coast franchise competition*.

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