

Appendix H

Northern Depot Site Assessment Study

Department for Transport

**Thameslink Rolling Stock Project -
Depots and Stabling**

**Northern Depot Site Assessment
Study**

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Appendices

Appendix A

Site Assessment Matrix

Appendix B

Marlin Plans

Abbreviations/Acronyms

Existing Base Scheme – refers to the current proposal for a 3-road maintenance depot at Coronation Sidings, Hornsey.

FCC:	First Capital Connect
DfT:	Department for Transport
UFC:	Underframe Cleaning Facility
NR:	Network Rail
GPDO:	General Permitted Development Order
CTRL:	Channel Tunnel Rail Link
TMM:	Thameslink Rolling Stock Manufacturer and Maintainer
DFO:	Depot Facility Operator
TOC:	Train Operating Company
HLOS:	High Level Output Specification
IEP:	Intercity Express Programme
ECS:	Empty Coaching Stock
CET:	Controlled Emission Toilet
GBRf:	GB Railfreight
NXEA:	National Express East Anglia
CNFE:	Cambridge Northern Fringe East
SCDC:	South Cambridgeshire District Council
DPD:	Development Plant Document
PPTC:	Primary Public Transport Corridor

Executive Summary

The study provides a reassessment of the outcomes of previous site selection work undertaken during 2008-2010 to determine the most suitable location(s) for train maintenance facilities for the new Thameslink Programme rolling stock fleet of up to 1200 new vehicles.

Following the initial site selection process, two depots were recommended and in 2009 planning approval was sought for a depot with a 6-road maintenance shed on Coronation Sidings, Hornsey and for a depot with a 3-road maintenance shed at Three Bridges. The Three Bridges scheme was approved but the Coronation Sidings scheme was the subject of an Article 4 Direction which removed the Permitted Development Rights for the scheme.

Since then, some of the project assumptions have changed including the Thameslink train service pattern. In addition, modelling undertaken by Interfleet has demonstrated that eight roads, rather than nine, are required across the two sites to maintain and repair the fleet.

A decision was taken to develop plans for a 5-road depot at Three Bridges, for which planning approval is currently being sought. Accordingly, this report investigates the preferred site for the second 3-road depot.

A short list of potential sites has been drawn up, based on the previous work but also including some additional sites. The selection criteria included a consideration as to whether the site was within railway ownership. The scope of the search is limited to north of the Core route through London, on the basis of the conclusions of the Thameslink depot strategy which requires the Thameslink fleet to have one depot south of the Core and one to the north in order to ensure a balanced maintenance regime and robust operations in the event that the Core route is closed or blocked, and to mitigate the risk of units left stranded on the wrong side unable to reach a depot. The scope of the search was further limited to the Thameslink routes in order to minimise the empty train mileage moving to/from the depot. Hornsey depot is located on the Great Northern route which will be connected into the Thameslink routes at St Pancras via the Canal Tunnels to be completed under the Thameslink programme of works. Some sites just off the network were additionally considered if they appeared to offer some benefits.

The assessment criteria adopted for the study were largely based upon those utilised during the previous site selection work, to ensure consistency. These are listed in Table 1 of this report.

A total of 18 sites were shortlisted for assessment based on the findings of the previous site selection work and industry knowledge. The sites are listed in Table 3 of this report.

The 18 sites have been assessed for their suitability, and the conclusions are summarised in the Site Assessment Matrix shown in Appendix A of this report. The matrix shows a 'traffic light' summary, indicating in red any location that does not meet the assessment criteria. Any sites showing red are considered unviable and will not be subject to further scrutiny. The following three sites do not show red and therefore bear further consideration:

- Hornsey Option 1(i) - Existing Base Scheme (Coronation Sidings)

- Hornsey Option 1(ii) - New depot adjacent to existing Hornsey Depot, including upgrade of Coronation Sidings to provide stabling
- Cambridge Option 7(ii) - Chesterton

Of these three sites, two have significant negative impacts identified which could compromise the development and operation of a depot (shown in pink on the matrix):

- Hornsey Option 1(ii) – Both Operational Performance and Stabling are identified as having a significant negative impact on this site.
- Chesterton Option 7(ii) – Operational Performance and Cost are identified as having a significant negative impact on this site.

The negative impacts identified on these two sites are considered significant enough to preclude them from further consideration. More detailed discussion of the negative impacts at these sites is given in section 3.2 of this report.

In summary, the assessment of the shortlisted sites confirms the outcome of the previous site selection work, by confirming that the Existing Base Scheme (Hornsey, with maintenance depot on Coronation Sidings) remains the most appropriate site option for the northern maintenance depot facility. When all the criteria are considered and assessed, this site scores better than any other.

The study therefore is able to conclude that the findings of the previous site selection work remain valid and that the Existing Base Scheme remains the most viable option for the delivery of the maintenance depot facilities to meet the Thameslink Programme requirements.

A schematic summary showing the relative site locations, their viability (using the same colour coding as the matrix in Appendix A), and the number of trains per hour through each section is shown below. The number of trains per hour is relevant because a site with a higher density of train movements is preferable.

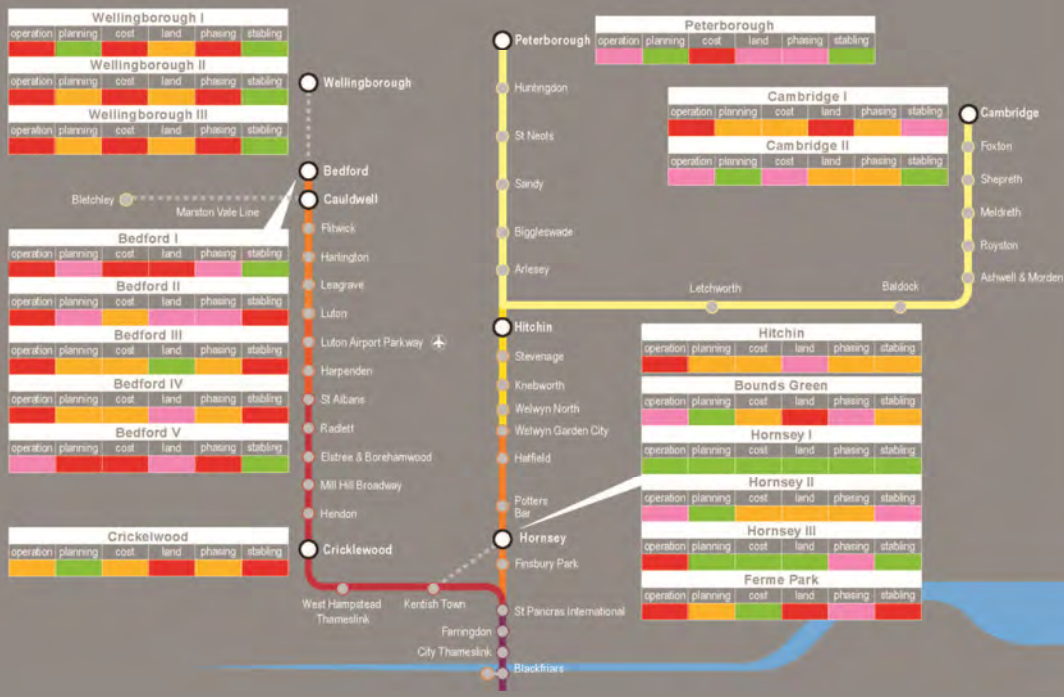
Assessment of potential northern depot locations

Key

Train services for purpose of depots feasibility study only. TSS development ongoing

	2 trains/hr		8 trains/hr		16 trains/hr
	4 trains/hr		12 trains/hr		18 trains/hr
	6 trains/hr		14 trains/hr		24 trains/hr

	potential depot		good		neutral		poor		bad
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This map is a summary of the Recommended Depot Strategy Report, May 2008 (ref 124437-04-05-008)

Figure 1

1 Introduction and Background

1.1 Introduction and Background

Arup was appointed in September 2007 to provide the Department for Transport (DfT) with technical, operational and business case advice in relation to the rolling stock fleet for the proposed Thameslink project. Part of this has involved advising on the depot strategy to maintain the new fleet, and identifying the new depot site(s).

Following a review of the depot strategy and a site selection process, two new depots were recommended with one at Three Bridges in Crawley on the southern part of the Thameslink network and the other close to First Capital Connect's existing depot at Hornsey in north London. Schemes for the depots were developed which were submitted for planning approval in August 2009 (under Part 11 of the General Permitted Development Order).

The Three Bridges scheme, including a 3-road maintenance depot and associated facilities, was approved by Crawley Borough Council in November 2009 (planning permission reference: CR/2009/0371/CON).

The Hornsey scheme, which comprised a 6-road maintenance depot and associated facilities, however, was the subject of an Article 4 Direction confirmed by the Government Office for West Midlands. This Direction removes Permitted Development Rights (under Parts 11 and 17 of the General Permitted Development Order) with respect to the proposed scheme and existing railway operational facilities.

Following this decision and some changes to the Thameslink Programme itself, the depot strategy was reviewed. This concluded that a depot with a 5-road maintenance shed should be developed at Three Bridges for which planning permission is being sought. In addition, a depot with a 3-road maintenance shed should be built on the northern part of the Thameslink network.

1.2 Purpose of Report

This report describes the site selection process for the northern Thameslink depot, updating the work that was undertaken previously. It explains the overall depot strategy and defines the facilities that are required to maintain the fleet. It then assesses the potential sites against a number of criteria before recommending a preferred site.

1.3 Structure of Report

The structure of this report is as follows:

- Chapter 2 describes the approach to the northern depot site selection assessment and the assumptions that underpin the study;
- Chapter 3 provides a summary of the sites assessed;
- Chapters 4 to 21 set out the detailed assessment of each site; and
- Chapter 22 presents the conclusions and recommendations.

2 Assessment Methodology

2.1 Working Group

A working group was established to agree the assessment criteria and undertake the assessment, comprising:

- Arup (engineering, stabling, and town planning);
- First Capital Connect (FCC);
- Network Rail; and
- DfT.

2.2 Assessment Criteria

The assessment criteria adopted for the study were largely based upon those utilised during the previous site selection work, to ensure consistency. The criteria are set out in Table 1.

Table 1 Site Selection Criteria

Category	Measure
Operational Performance	Ability to deliver the required train service
	Rail access routes to/from the site
	Connections to the Thameslink network
	Ability of site to accommodate required facilities
Planning & Environment	Compliance with planning policy
	Site planning history
	Environmental considerations
	Adjoining land uses
Cost	Likely cost of depot development. Note that schemes haven't been costed in any detail, but rather a comparison with the Existing Base Scheme has been made
Land	Land availability
	Ownership
	Control
	Vacant possession
	Need to re-locate existing users/occupiers
Programme and Phasing	Timescales required to develop the site (and achieve consents) in advance of contract award (31 st October 2011) and to construct the facility to support the Thameslink Programme (August 2014)
Stabling	Impact on the Thameslink Programme stabling requirements

Each of the six performance categories/criteria has been given an equal weighting, because they are reasonably considered to be of equal importance.

Each site was assessed using the criteria and scored on the following basis:

- Red = Major Significant Negative Impact - not possible to mitigate so as to avoid significant negative impacts
- Pink = Significant Negative Impact - unlikely to be possible to mitigate so as to avoid significant negative impacts
- Yellow = Moderate Negative Impact - possible to mitigate so as to avoid significant negative impacts
- Green = Neutral or Minor Negative Impact - possible to mitigate so as to avoid significant negative impacts and moderate negative impacts

Impacts have been considered in their various forms, including positive and negative, temporary and permanent, short and medium and long-term.

If a site scored a Red against one of the criteria, then it was concluded that this site was unsuitable for a Thameslink depot. Satisfactory compliance with each and every one of the six performance categories/criteria is essential for a site to offer a truly viable option when considered holistically.

2.3 Assumptions

A number of assumptions were adopted for this study, based on the current proposals for the new fleet of Thameslink trains and the required maintenance regime. The broad assumptions are as follows:

2.3.1 Fleet Size and Consist

Since the last site selection exercise, the assumed Thameslink service pattern has changed and an indicative train service specification has been developed (referred to as version 3.1). This is summarised in Table 2 and is currently being worked up into a detailed timetable.

The new fleet of up to 1200 vehicles will be configured in fixed car formations of either 12 car or 8 car units. It is assumed that there will be 106 train units in service each weekday (of which 52 are 12-car and 54 are 8-car) with additional units for maintenance and reliability cover. The project assumption is that a 12-car unit will be 240m in length, for depot design purposes.

With an objective to minimise fleet size, it is considered important that the depots be located close to the core. This will ensure a good balance of fleet size and ECS movements, so an efficient regime can be supported by the depot location.

Table 2 Indicative Thameslink Train Service Specification (version 3.1)

Service group	1a	1b	2a	2b	3a	3b	4a	4b	5	6	7	8
unit length	12 car	12 car	12 car	12 car	12 car	8 cars	8 cars	8 cars	12 cars	8 cars	12 cars	8 cars
Trains per hour	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph	2 tph
			peak only	peak only	peak only							
Bedford	Bedford	Bedford	Bedford	Bedford	Luton	Luton	St Albans	St Albans	Peterborough	Welwyn GC	Cambridge	Welwyn GC
Flitwick	Flitwick	Leagrave	Leagrave	Flitwick	Luton Airport	Luton Airport	Radlett	Radlett	Huntingdon	Hatfield	Royston	Hatfield
Harlington	Harlington	Luton	Luton	Harpenden	Harpenden	Harpenden	Elstree	Elstree	St Neots	Potters Bar	Baldock (optional)	Welham Green
Leagrave	Leagrave	Harpenden	Harpenden	Harpenden	St Albans	St Albans	Mill Hill Broadway	Mill Hill Broadway	Biggleswade	Hadley Wood	Letchworth GC	Brookmans Park
Luton	Luton	St Albans	St Albans	Radlett	Radlett	Hendon	Hendon	Sandy	New Barnet	Hitchin	Potters Bar	
Luton Airport	Luton Airport			Elstree	Elstree	Brent Cross (new)	Brent Cross (new)	Arlesey	Oakleigh Park	Stevenage	New Barnet	
Harpenden	Harpenden			Mill Hill Broadway	Mill Hill Broadway	Cricklewood	Cricklewood	Hitchin	New Southgate	Finsbury Park	Finsbury Park	
St Albans	St Albans			Brent Cross (new)	Brent Cross (new)	West Hampstead	West Hampstead	Stevenage	Finsbury Park			
				West Hampstead	West Hampstead	Kentish Town	Kentish Town	Finsbury Park				
St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL	St Pancras LL
Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon	Farringdon
City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL	City TL
Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars	Blackfriars
London Bridge	London Bridge	London Bridge	London Bridge	London Bridge	London Bridge	Elephant & Castle	London Bridge	Elephant & Castle	London Bridge	London Bridge	London Bridge	Denmark Hill
East Croydon	East Croydon	Orpington	East Croydon	Orpington	Denmark Hill	New Cross Gate*	Denmark Hill	East Croydon	New Cross Gate*	East Croydon	East Croydon	Peckham Rye
Gatwick Airport	Gatwick Airport	Sevenoaks	South Croydon	Sevenoaks	Peckham Rye	Norwood Junction	Peckham Rye	Coulsdon South	Norwood Junction	Purley	Bromley South	Bromley South
Three Bridges	Haywards Heath	Hildenborough	Sanderstead	Hildenborough	Catford	East Croydon	Nunhead	Merstham	East Croydon	Coulsdon South	St Mary Cray	St Mary Cray
Balcombe	Wivelsfield	Tonbridge	Riddlesdown	Tonbridge	Bellingham	South Croydon	Crofton Park	Redhill	South Croydon	Merstham	Swanley	Swanley
Haywards Heath	Burgess Hill	High Brooms	Upper Warringham	Paddock Wood	Beckenham Hill	Purley Oaks	Catford	Gatwick Airport	Purley Oaks	Redhill	Otford	Otford
Brighton	Hassocks	Tunbridge Wells	Woldingham	Marden	Ravensbourne	Purley	Bellingham	Three Bridges	Purley	Earlswood	Borough Green	Borough Green
	Preston Park		Oxted	Staplehurst	Shortlands	Kenley		Crawley	Kenley	Salfords	West Malling	West Malling
	Brighton		Hurst Green	Headcom	Bromley South	Whyteleafe		lfied	Whyteleafe	Horley	Maidstone East	Maidstone East
			Lingfield	Pluckley	Bickley	Whyteleafe South		Faygate	Whyteleafe South	Gatwick Airport		
			Dormans	Ashford Int	St Mary Cray	Caterham		Littlehaven	Caterham	Three Bridges		
			East Grinstead		Swanley			Horsham				
					Eynsford							
					Shoreham (Kent)							
					Otford							
					Bat & Ball							
					Sevenoaks							

*Service group 4a calls at New Cross Gate and service group 6 at Norwood Junction, or vice versa.

2.3.2 Two Depot Strategy

The Thameslink routes are diverse and spread over much of the southeast of England. However, it has a central Core route across London, through which all trains travel. Network Rail's current operational assumption is that the Core route may require a 'white period' for maintaining each night and weekends. If a single depot strategy is adopted this would mean that some units requiring maintenance might be unable to go through the Core to/from the single depot and be left stranded on the wrong side. In such circumstances, alternative stabling would need to be provided and the units in question may not be available for service the next day.

One option considered to reduce this risk was to provide an alternative route across London. Whereas there are possibilities to/from the East Coast Main Line, currently there is no secondary electrified route to/from the Midland Main Line, and this risk would largely remain unless there was investment in electrifying one route.

While there are economies of scale in developing a single depot, the larger area of land required in London and the southeast is likely to prove to be difficult to find and result in a less than optimally positioned location for the Thameslink services. Having one depot also means that there could be high mileage in moving empty units to/from the depot for maintenance and particularly for unscheduled repairs.

For these reasons it is concluded that the Thameslink units will require two depots, and that one should be north of the Core route and one to the south.

Further it is concluded that both depots should be capable of maintaining 12-car units. If one depot could only service 8-car units, then this would restrict cycling of units for maintenance through one depot only, and this would restrict operational flexibility and/or increase empty train mileage. There would also be a risk that a 12-car unit would fail on the wrong side of the Core and be left stranded if the Core route was blocked.

A third depot is deemed unnecessary and the substantial cost associated with building a depot makes it an unviable option. For the reasons identified above, it is believed that a two depot strategy is the most efficient and cost effective solution.

2.3.3 Southern Thameslink Depot

It is assumed that the southern Thameslink depot will be located at Three Bridges and will include a 5x12-car maintenance shed, a UFC and a 12-car wheel lathe. This is currently the subject of a planning application.

2.3.4 Maintenance Regime

The fundamental principle of the maintenance and stabling of the rolling stock must be to effectively support the functionality required of the fleet and to allow the service levels to efficiently transition between demand requirements.

As part of the wider assessment of depot requirements, DfT instructed Interfleet in December 2009 to reappraise the Thameslink Programme maintenance

requirements and the impact of these requirements on depot sizing. The Existing Base Scheme (the subject of the August 2009 planning submissions) assumed a total requirement of 9 maintenance roads (with 6 proposed at Hornsey and 3 proposed at Three Bridges). This was based on assumed unit maintenance periodicities of 12,000 and 20,000 miles, which required the 9 maintenance roads. Since this time, the two remaining bidders in the competition to manufacture the trains and build the maintenance depots have confirmed their intention to maintain units at intervals at or above 20,000 miles, which has led to a reduction in the total number of maintenance roads required from 9 to 8.

With the assumption that there is a 5-road maintenance shed at Three Bridges, this means that a depot with a 3-road maintenance shed is required north of the Core section.

2.3.5 Northern Thameslink Depot Specifications

The size of the basic single-ended depot (excluding any administration, staff and warehousing facilities) is assumed to be 280m x 23m (3 road depot). This will be large enough to maintain 12-car units.

The following associated facilities are needed to satisfy minimum operational requirements:

- Wheel lathe facility with a minimum of 500m of clear track to accommodate 12-car units and a building of dimensions 52m x 12m, available for use 24 hours a day;
- Train wash (ideally a single pass unit) housed in a building of dimensions 50m x 6.5m;
- Underframe cleaning facility (UFC) to be located within a separate facility (260m x 7m), which will be isolated from the other operations within the depot;
- Stores and warehousing with a minimum footprint of 700m²;
- Offices and staff facilities;
- Car parking;
- At least 2x12-car sidings for holding units awaiting repairs;
- Stabling sidings to hold up to 15% of the fleet, or as close to that as possible;
- Arrival roads ideally at both ends of the depot site to reduce the impact of an incident / blockage into, or out of, the site;
- Each arrival road would accommodate a 12-car unit (245m unit);
- Signal system controlled from production office (complex depots may need a substantial control panel); and
- An independent power supply so that off-depot isolations do not impact on power supply.

3 Shortlisted Sites

3.1 Potential Sites

The Thameslink network is diverse and covers a number of routes (refer to schematic in the Executive Summary), with both inner and outer London services. In searching for a suitable depot site north of the Core section, the working group restricted themselves to potential sites on the Thameslink network itself. The rationale for this was to minimise the amount of empty train movement mileage, both to minimise operational cost and to maximise the available time for units to be maintained in the depot whilst not in service, hence minimising the number of units needed for maintenance cover.

We have concentrated on sites currently within railway ownership given that this accords with Government planning policy as it reuses railway land rather than taking brown or green field land into the railway operational estate and there are likely to be fewer issues with adjoining uses and occupiers given that the sites currently have tradition of railway use on them. In addition, the programme for delivery of depots and the train service dependent on them could not accommodate the purchase, possibly via a Transport and Works Act submission, the purchase of green field land into the railway estate. We have therefore concentrated on the existing railway operational land.

An exception to this principle is Wellingborough. This site is located on the Midland Mainline 15 miles north of Bedford where the Thameslink network ends. It was included in the early stages of the project because it was known that land was potentially available and because there was some consideration to extending Thameslink to Wellingborough. Whilst this extension is now no longer under consideration, the potential sites at Wellingborough have remained in the short list.

Chesterton, located two miles north of Cambridge has also been included in the shortlist. It was discounted in previous site selection work because of its potential for a depot for the Intercity Express Programme. However, this requirement has receded which opens it up as a possible site for a Thameslink depot.

The working group produced a shortlist of potential sites, some of which had a number of options. In addition, as a result of changes to the original project assumptions, three further sites (Cambridge, Peterborough and Hitchin) were included. All the potential sites are listed in Table 3.

Table 3 Shortlisted Locations and Options

Location	Option	
1. Hornsey	(i) Existing Base Scheme (Coronation Sidings). (ii) New depot adjacent to existing Hornsey Depot. (iii) Utilisation of existing Hornsey Depot.	
2. Bounds Green		
3. Ferme Park		
4. Cricklewood		
5. Bedford	(i) Cauldwell Walk (including adjacent Industrial Estate). (ii) Cauldwell Walk (excluding adjacent Industrial Estate). (iii) Bedford Carriage Sidings. (iv) Bedford Engineers Sidings. (v) Forders Sidings (Marston Vale).	
6. Wellingborough	(i) Neilson's Sidings. (ii) Down Goods Loop Yard. (iii) Land south of Neilson's Sidings.	
7. Cambridge	(i) Up Sidings to the east of the station (ii) Chesterton	* *
8. Peterborough	(i) New England Sidings	*
9. Hitchin		*

All the sites above have been retained from previous assessments, with the exception of those denoted with *. The sites denoted with * are being assessed for the first time.

Sites that have been previously assessed and excluded from this study are as follows:

- Bedford Station (unviable from previous assessment based on Planning, Cost and Land criteria)
- Bedford Old Locomotive Shed Site (unviable from previous assessment based on Operations, Planning, Cost and Land criteria)
- Bedford Cut Throat Lane (unviable from previous assessment based on Planning criteria)
- Bedford North of River Ouse (unviable from previous assessment based on Planning criteria)

3.2 Preferred Options

As outlined in the Executive Summary, the 18 shortlisted sites have been assessed for their suitability, and reduced to three sites which are considered potentially viable and bear further scrutiny:

- Hornsey Option 1(i) - Existing Base Scheme (Coronation Sidings)
- Hornsey Option 1(ii) - New depot adjacent to existing Hornsey Depot, including upgrade of Coronation Sidings to provide stabling

- Cambridge Option 7(ii) - Chesterton

Of these three sites, two have significant negative impacts identified which could compromise the development and operation of a depot (shown in pink on the matrix):

- Hornsey Option 1(ii) – Both Operational Performance and Stabling are identified as having a significant negative impact on this site.

Building a new maintenance shed adjacent to the current shed at Hornsey scored well on some criteria. However, this would lead to complex operational interfaces with the existing FCC depot impacting on the operation and efficiency of the two depots. For example, shunting units in and out of the shed would have to be co-ordinated and there would be more dead-end sidings. Servicing the depot by road would be problematic and car parking would be restricted. Building the new shed without adversely impacting FCC's operations would present major challenges. Finally, overall there would be fewer sidings (even including building new ones at Coronation Sidings) and extra sidings would need to be built elsewhere.

- Chesterton Option 7(ii) – Operational Performance and Cost are identified as having a significant negative impact on this site.

Chesterton, just north of Cambridge, is a good site but suffers from being located beyond the end of the Thameslink network. Moving units to/from the depot will involve high empty train mileage and will reduce the length of available windows of opportunity for unit maintenance and repair. A depot here does not support interpeak stabling and so reduces the opportunity for daytime maintenance and repair. There would also be a significant cost in buying out the freight leases and rearranging existing facilities into a masterplan to suit all site uses.

The negative impacts identified on these two sites are considered significant enough to preclude them from further consideration, leaving Hornsey Option 1(i) as the preferred site.

The following chapters set out the assessment of each option in Table 3 based on the criteria discussed in Chapter 2. A full site assessment matrix is provided in Appendix A.

4 Option 1(i) –Coronation Sidings (Existing Base Scheme)

4.1 Scheme Description

The Option 1(i) site is located within operational railway land between Harringay and Alexandra Palace stations, to the north of Finsbury Park, on the East Coast Main Line.

The site can be broadly split into two locations; the existing Hornsey Depot area to the south of Turnpike Lane (see Appendix B1a), and Coronation Sidings to the north of the site (see Appendix B1).

This option is referred to as the Existing Base Scheme and comprises locating a new 3-road train maintenance depot on Coronation Sidings to the north of the Hornsey Station footbridge, with train stabling provision adjacent to the existing Hornsey Depot to the south.

A variation of this scheme, for a larger 6-road maintenance depot on Coronation Sidings, was submitted to LB Haringey in August 2009 under Part 11 Class A of the Town and Country Planning (General Permitted Development) Order 1995 (as amended) (the ‘GPDO’).

4.2 Assessment

4.2.1 Operational Performance

The Existing Base Scheme has been demonstrated to meet the operational requirements for Thameslink, through the detailed development of the scheme in advance of the planning submission.

It has good access on and off Great Northern route from both the northern and southern directions. A third of the fleet pass the depot whilst in service, so empty train mileage to and from the depot will be relatively low.

Being located close to the Central Core (5 miles away) has two advantages. The depot is accessible from the southern Thameslink network. It is also a good location for stabling peak only units during the day thus providing some opportunity for daytime maintenance and repair.

There are three options for moving failed units from the Midland Main Line to Hornsey for repair:

- Run through the Core and then round via the North London Line (taking about 2 hours and subject to train path availability);
- Reverse units at St Pancras via the Canal Tunnels (once this route is electrified and subject to platform capacity); and
- Loco haul the unit by using translator vehicles that are compatible with the new rolling stock, via Carlton Road Junction (as was done during the CTRL blockade in 2004).

The site provides sufficient space for a 3-road dead-end maintenance depot, UFC (dead-ended) and train washer (through facility) as well as for the other required facilities. The existing (newly constructed) wheel lathe can be shared between the existing Hornsey Depot and the new Thameslink facility, thus eliminating the need to construct a new facility.

4.2.2 Planning

An application under Part 11 of the GPDO was made in 2009 for a 6-road maintenance depot on Coronation Sidings with train stabling provision adjacent to the existing Hornsey Depot. LB Haringey sought an Article 4 Direction which was confirmed by the Secretary of State in November 2009 and modified in September 2010. This removes Permitted Development Rights in relation to *“the provision of new railway track including sidings and railway track associated with any railway/train maintenance depot”* for an area of operational railway land stretching between Alexandra Palace station to Turnpike Lane, thereby requiring a planning application to be submitted for any proposed maintenance depot in this location.

The site is within an Ecological Corridor local policy designation, although it is noted that the policy confirms that development for operational transport needs in green corridors may be acceptable if it can be shown that there are no alternative locations and there is an essential need for development.

The site lies within the Haringey Heartlands Comprehensive Regeneration area for which comprehensive mixed-use redevelopment is sought. Coronation Sidings lies within the Eastern Utilities Lands for which the creation of a mixed-use urban quarter is sought, although the Development Framework excludes Coronation Sidings from the specific regeneration aspirations and identifies the site as being required for ongoing railway-related operational uses.

Also of relevance is an outline planning application submitted by National Grid and the London Development Authority in 2009 for residential development immediately to the east of Coronation Sidings (Clarendon Square). While this application has yet to be determined and may not be implemented, consideration has been had of the proximity of this proposed residential development (and existing residential developments to the west of the main line).

Since the 2009 depot application, significant scheme redesign has been undertaken to address the issues raised by LB Haringey. This has led to a smaller 3-road maintenance depot proposed at Coronation Sidings (width reduced from 40m to 25m, height reduced from 13m to 11m), which is considered to fit well with the surrounding urban context and planning policy framework, whilst also taking into account the existing operational railway use of the site. Given the existing operational rail use at Hornsey, it is considered that planning would not preclude the development of a rail depot in this location.

4.2.3 Cost

The cost of providing a maintenance depot at this location has been accounted for within the wider Thameslink Programme budget.

The existing (newly constructed) wheel lathe can be shared between the existing Hornsey Depot and the new Thameslink facility, thus eliminating the need to construct a new facility.

Connecting the depot into the main lines is efficient, building on the existing connections to Hornsey. There are additional efficiencies from sharing train crew and train cleaning facilities with FCC, and making best use of sidings freed up when FCC units are displaced by the new Thameslink units.

Empty train mileage will be relatively low, reducing operational costs and improving fleet efficiency.

4.2.4 Land

The site is within Network Rail's operational land and the title to the land has been secured. There are no other competing demands for the land.

4.2.5 Programme and Phasing

No land acquisition is required for the construction of the Existing Base Scheme option and the Coronation Sidings site does not contain any existing users who would need to vacate the site.

The works required to upgrade the stabling sidings adjacent to the existing Hornsey Depot for use by the new Thameslink fleet will have an impact on existing operations at Hornsey and phasing of this work will need to be carefully considered. An initial phasing plan has been drawn up with FCC to demonstrate that the depot can be constructed in the required timescales.

4.2.6 Stabling

The stabling provided at Hornsey fits in well with the overall Thameslink Programme stabling strategy. There is space for seven units to be stabled here overnight (3x12-car and 4x8-car units) which can all be used effectively.

4.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Green
Planning	Green
Cost	Green
Land	Green
Programme and Phasing	Green
Stabling	Green

This site is viable. The assessment of the Coronation Sidings site (the Existing Base Scheme) shows that the site meets all of the requirements. Issues raised with the 2009 application have been dealt with through a significant re-design of the depot proposals and issues raised during consultation can be mitigated.

5 Option 1(ii) – New depot adjacent to existing Hornsey Depot.

5.1 Scheme Description

The site for Option 1(ii) is the same as per Option 1(i) but with a reconfigured scheme layout with a new train maintenance depot adjacent to the existing Hornsey Depot, to the south of the Hornsey Station footbridge (see Appendix B1a), and stabling sidings located on Coronation Sidings to the north.

The option was previously considered in detail during the initial site selection exercise and was originally considered as the preferred option (refer to the Thameslink Recommended Depot Strategy, November 2008). Further assessment in the form of site appraisals and desk studies (covering ground conditions, highway layout, civil engineering works and existing structure and railway connections) was then undertaken and a number of layout options were developed, comprising the depot adjacent to the existing Hornsey Depot or the depot on Coronation Sidings. These options were then the subject of interdisciplinary review (covering depot design disciplines, permanent way engineering, town planning, ecology, acoustics, depot operations, rail operations, transportation, and civil engineering), at which point it was confirmed that locating the train maintenance depot at Coronation Sidings would be more suitable for a number of operational and non-operational reasons.

It is felt that the reasons for rejecting this option during the initial site selection process remain valid, as set out in more detail in the following sections.

5.2 Assessment Summary

5.2.1 Operational Performance

This option allows for a 3-road through-depot, dead-ended UFC and through train washer. However, there are significant operational constraints associated with construction of a maintenance depot in this location, in particular in relation to the existing operations at the Hornsey Depot which would need to continue as normal during the construction of the new Thameslink facility.

Locating a new depot in this location would also lead to conflict of responsibilities between the Thameslink Rolling Stock Manufacturer and Maintainer (TMM), the Depot Facility Operator (DFO), and the Train Operating Company (TOC), which could create safety and operational issues.

Siting the maintenance shed next to the existing FCC shed will mean that the current through sidings at Hornsey will be replaced by new sidings on the Coronations Sidings site. These new sidings will be dead-end resulting in a loss of operational flexibility for moving units between facilities within the depot.

The site constraints associated with locating the new depot building between the existing operational depot and running main line also presents problems in relation to road access requirements for deliveries and servicing.

Finally, it is unlikely that sufficient staff car parking for the adjacent facilities would be able to be provided on the site.

5.2.2 Planning

In response to the previously proposed maintenance depot scheme at Coronation Sidings (refer to Section 4.2 above), LB Haringey sought an Article 4 Direction which was confirmed by the Secretary of State in November 2009 and modified in September 2010. This removes Permitted Development Rights in relation to “*the provision of new railway track including sidings and railway track associated with any railway/train maintenance depot*” for an area of operational railway land stretching between Alexandra Palace station to Turnpike Lane. While the Direction does not cover the location of maintenance depot building in this option, it would be necessary to locate stabling sidings on Coronation Sidings (within the Article 4 Direction), thereby requiring a planning application to be submitted for this option.

Planning policy does not preclude a maintenance depot in this location. The site is within an Ecological Corridor local policy designation, although it is noted that the policy confirms that development for operational transport needs in green corridors may be acceptable if it can be shown that there are no alternative locations and there is an essential need for development.

While the location of the proposed depot is not within the Haringey Heartlands Comprehensive Regeneration area, the required stabling sidings on Coronation Sidings would lie within the Eastern Utilities Lands for which a mixed-use urban quarter is sought. However, the Development Framework excludes Coronation Sidings from the specific regeneration aspirations and identifies the site as being required for ongoing railway-related operational uses.

The location of the maintenance depot building in this location would require the provision of stabling sidings on Coronation Sidings. This is expected to lead to increased external impacts for existing and future residential properties due to the open nature of stabling facilities and the operational requirement for servicing and tanking activities to be carried out throughout the night. This would lead to increased more noise and light issues than would be the case in Option 1(i).

However, given the existing operational rail use at Hornsey, it is considered that planning would not preclude the development of a rail depot in this location.

5.2.3 Cost

Compared to the Existing Base Scheme (Option 1(i)), additional costs will be required for:

- More complicated construction phasing to fit round FCC’s operations;
- A permanent bridge over Penstock footpath to provide access from the mainline to the north of Coronation Sidings;
- Additional train presentation and accommodation facilities at Coronation Sidings to service the units stabled there.

The existing (newly constructed) wheel lathe can be shared between the existing Hornsey Depot and the new Thameslink facility, thus eliminating the need to construct a new facility.

Land

Additional land will need to be bought for bridging over the Penstock footpath.

Programme and Phasing

Phasing of the works will be complicated by the existing operations at Hornsey Depot and the requirement to continue existing maintenance activities in relation to the residual fleet, whilst constructing the new Thameslink facilities. It is envisaged that Coronation Sidings would need to be utilised early in the construction process to allow the phased construction of the new facilities.

5.2.4 Stabling

Although new sidings will be built on the Coronation Sidings site, the overall stabling capacity will be smaller than for option 1(i). As a result, this option has insufficient stabling capacity and additional sidings will therefore need to be built elsewhere.

5.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Pink
Planning	Green
Cost	Amber
Land	Amber
Programme and Phasing	Amber
Stabling	Pink

This site is potentially viable. However, there are particular concerns with the operational performance and overall stabling capacity of this option.

6 Option 1(iii) – Utilisation of existing Hornsey Depot

6.1 Scheme Description

This option seeks to utilise the existing Hornsey Depot site (see Appendix B1a), which is currently leased to First Capital Connect (FCC) for the operation and maintenance of Great Northern trains.

In previous site selection work, it was proposed that up to three roads in the existing maintenance shed could be utilised for the Thameslink fleet, and that the shed and roads could be extended to accommodate 12 car Thameslink trains. It was anticipated that the adjacent sidings could be reconfigured to suit, and the provision of associated maintenance facilities (e.g. UFC) could be accommodated within the existing yard.

However, this was subject to confirmation of the numbers of roads required by FCC for their existing fleet, and the timings of relocation through implementation of related programmes (e.g. HLOS, IEP). With the revised project assumptions, a larger residual fleet is now envisaged to operate on Great Northern which would limit the number of depot roads available for Thameslink.

6.2 Assessment Summary

6.2.1 Operational Performance

There are significant operational constraints associated with the joint use of the existing Hornsey Depot between the residual and new Thameslink fleets. The maintenance requirements of the two fleets are likely to differ significantly and it will be necessary to expand the existing depot building (in length and width) in order to provide additional maintenance capacity.

It is clear that expanding the depot building, and making the necessary upgrades to associated facilities, will be a complex matter, especially as the existing operations will need to continue throughout the duration of the construction works.

Locating the new Thameslink fleet within the existing depot would also lead to conflict of responsibilities between the Thameslink Rolling Stock Manufacturer and Maintainer (TMM), the Depot Facility Operator (DFO), and the Train Operating Company (TOC), which could create safety and operational issues.

Finally, it is unlikely that sufficient staff car parking for the shared facility could be provided on the site due to insufficient space.

6.2.2 Planning

In response to the previously proposed maintenance depot scheme at Coronation Sidings (refer to Section 4.2 above), LB Haringey sought an Article 4 Direction which was confirmed by the Secretary of State in November 2009 and modified in September 2010. This removes Permitted Development Rights in

relation to “*the provision of new railway track including sidings and railway track associated with any railway/train maintenance depot*” for an area of operational railway land stretching between Alexandra Palace station to Turnpike Lane. While the Direction does not cover the location of maintenance depot in this option, it would be necessary to locate stabling sidings on Coronation Sidings (within the Article 4 Direction), thereby requiring a planning application to be submitted for this option.

Planning policy does not preclude a maintenance depot in this location. The site is within an Ecological Corridor local policy designation, although it is noted that the policy confirms that development for operational transport needs in green corridors may be acceptable if it can be shown that there are no alternative locations and there is an essential need for development.

While the location of the proposed depot is not within the Haringey Heartlands Comprehensive Regeneration area, the required stabling sidings on Coronation Sidings would lie within the Eastern Utilities Lands for which a mixed-use urban quarter is sought. However, the Development Framework excludes Coronation Sidings from the specific regeneration aspirations and identifies the site as being required for ongoing railway-related operational uses.

The location of the maintenance depot building in this location would require the provision of stabling sidings on Coronation Sidings. This is expected to lead to increased external impacts for existing and future residential properties due to the open nature of stabling facilities and the operational requirement for servicing and tanking activities to be carried out throughout the night. This would lead to increased more noise and light issues than would be the case in Option 1(i).

Utilising the existing Hornsey Depot will lead to less external impacts than building an entirely new facility. However, it is not clear whether an expanded depot facility in this location would be acceptable given the proximity of residential properties on Wightman Road and the likely increased environmental impacts caused by utilising Coronation Sidings for open stabling sidings.

However, given the existing operational rail use at Hornsey, it is considered that planning would not preclude the development of a rail depot in this location.

6.2.3 Cost

Utilising the existing depot facility may appear to offer cost savings on the current Existing Base Scheme proposal, although there would be costs associated with upgrading facilities within the depot and extending the facility to provide the necessary number of maintenance roads for the residual and new fleets.

However, construction costs may be higher due to complex construction issues arising as a result of continued operation of existing depot facility.

The existing (newly constructed) wheel lathe can be shared between the existing Hornsey Depot and the new Thameslink facility, thus eliminating the need to construct a new facility.

6.2.4 Land

The site is within Network Rail's operational land and the title to the land has been secured, so no land acquisition is required for this option.

6.2.5 Programme and Phasing

Although no land acquisition is required, phasing of the works would be complicated by the existing operations at Hornsey Depot and the requirement to continue existing maintenance activities in relation to the residual fleet, whilst making any changes required to the existing depot building, the reconfiguration of the adjacent sidings, and the provision of associated maintenance facilities. It is envisaged that Coronation Sidings would need to be utilised early in the construction process to allow the phased construction of the new facilities.

6.2.6 Stabling

This option fits in well with the overall Thameslink Programme stabling strategy as long as the same amount of stabling capacity can be provided on site as in the Existing Base Scheme option 1(i).

6.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Green
Cost	Green
Land	Green
Programme and Phasing	Pink
Stabling	Green

This site is not viable. While this option scores well across a number of criteria, including cost, land, and stabling, the operational constraints (in particular during construction of the new facilities, but also during operation) would make this option unfeasible for the successful maintenance and stabling of the new Thameslink fleet. There are also concerns about viability resulting from Programme and Phasing.

7 Option 2 – Bounds Green

7.1 Scheme Description

Bounds Green is located to the north of Alexandra Palace Station on the East Coast Main Line (see Appendix B2). The site comprises the existing Bounds Green Traction and Rolling Stock Maintenance Depot currently operated by East Coast Main Line Company to service their East Coast fleet. This option would seek to utilise the existing depot (internal and external), with upgrades as required (such as stabling at Coronation Sidings).

7.2 Assessment Summary

7.2.1 Operational Performance

The site is well located with good access to the East Coast Main Line and has potential to access the Midland Main Line via the Haringey link, although this route is not presently electrified.

However, overall, the site does not score well in terms of operational performance. A desk top study (shown below) has demonstrated that whilst all the facilities can be accommodated on the site and the existing shed is large enough for Thameslink use, train movements within the depot would be very restricted and require some use of the Up Goods or Up Carriage Line which would impact trains in service. This would reduce operational performance and flexibility and increase the risk of delays.



Figure 2

7.2.2 Planning

In response to the previously proposed maintenance depot scheme at Coronation Sidings (refer to Section 4.2 above), LB Haringey sought an Article 4 Direction which was confirmed by the Secretary of State in November 2009 and modified in September 2010. This removes Permitted Development Rights in relation to “*the provision of new railway track including sidings and railway track associated with any railway/train maintenance depot*” for an area of operational

railway land stretching between Alexandra Palace station to Turnpike Lane. While the Direction does not cover the location of maintenance depot in this option, it would be necessary to locate stabling sidings on Coronation Sidings (within the Article 4 Direction), thereby requiring a planning application to be submitted for this option.

Planning policy does not preclude the use of the Bounds Green site for Thameslink maintenance purposes. The site is within an Ecological Corridor local policy designation, although it is noted that the policy confirms that development for operational transport needs in green corridors may be acceptable if it can be shown that there are no alternative locations and there is an essential need for development. The site is located immediately to the north of a Conservation Area and the Haringey Heartlands Development Framework area. The site is also in close proximity to residential properties to the east and west.

The location of the maintenance depot building in this location would require the provision of stabling sidings on Coronation Sidings. This is expected to lead to increased external impacts for existing and future residential properties due to the open nature of stabling facilities and the operational requirement for servicing and tanking activities to be carried out throughout the night. This would lead to increased more noise and light issues than would be the case in Option 1(i).

Utilising the existing Bounds Green depot building and facilities would reduce external construction impacts, but the impact of open stabling on Coronation Sidings is likely to have a detrimental impact on existing and proposed residential properties due to the servicing and tanking activities which will need to be carried out throughout the night and likely light spill at night.

However, given the existing operational rail use on the Bounds Green, it is considered that planning would not preclude the development of a rail depot in this location.

7.2.3 Cost

The site would need to be reconfigured for Thameslink which is likely to involve some demolition and reconstruction costs. Although the main shed might be retained, it is likely that the interior would have to be remodelled to suit track intervals. The overall cost is therefore assessed as being higher than the Existing Base Scheme proposal at Hornsey/Coronation Sidings.

7.2.4 Land

The site is currently operated by East Coast Trains to service their fleet, and will be used more heavily by them from May 2011 onwards. If the site is to be used by Thameslink, then East Coast Trains would have to be re-located elsewhere, and there is no obvious alternative site. It is therefore concluded that this site is not available for Thameslink.

7.2.5 Programme and Phasing

There would be significant phasing constraints associated with relocating existing operations on the site.

7.2.6 Stabling

The site is unlikely to have sufficient space for all the stabling required. The desk top study suggested that 5x12-car sidings could fit which would mean that additional sidings would need to be located elsewhere, probably on Coronation Sidings.

7.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Pink
Planning	Green
Cost	Amber
Land	Red
Programme and Phasing	Pink
Stabling	Amber

This site is not viable. While the site contains an existing train maintenance depot and provides good route connections, it would need to be rebuilt for Thameslink and the small size of the site would severely restrict train movements within the depot. More importantly, though, the site is currently used by East Coast Trains and there is no identified alternative site for re-locating their operations.

8 Option 3 – Ferme Park Sidings

8.1 Scheme Description

Ferme Park Sidings are located on the west of the East Coast Main Line to the north of Finsbury Park, between Harringay Station and Hornsey Station (see Appendix B3).

The site is currently used by GB Railfreight for stabling sidings. There is also a new concrete batching facility on site that is operated by London Concrete.

8.2 Assessment Summary

8.2.1 Operational Performance

Due to the site's location on the western side of the main line, there are significant rail access issues due to difficulties of access from the Up-side and the complexity of providing the required exit south-bound. This would be a particular problem for 'peak only' units that stable in the depot after the morning peak and then depart to form southbound evening peak services from London.

London Concrete Ltd's approved (at appeal) concrete batching plant located partly on Ferme Park Sidings will see the regular use of part of the sidings for the delivery of aggregates to the concrete batching plant by rail, and includes the removal of sidings 11, 12 and 13, and part of siding 15. This raises significant operational complications due to the needs of different users on adjoining sites.

The available land is considered to be too small for a 12-car maintenance shed and for all of the other depot facilities.

8.2.2 Planning

In response to the previously proposed maintenance depot scheme at Coronation Sidings (refer to Section 4.2 above), LB Haringey sought an Article 4 Direction which was confirmed by the Secretary of State in November 2009 and modified in September 2010. This removes Permitted Development Rights in relation to "*the provision of new railway track including sidings and railway track associated with any railway/train maintenance depot*" for an area of operational railway land stretching between Alexandra Palace station to Turnpike Lane. While the Direction does not cover the location of maintenance depot in this option, it would be necessary to locate stabling sidings on Coronation Sidings (within the Article 4 Direction), thereby requiring a planning application to be submitted for this option.

Planning policy does not preclude the use of Ferme Park Sidings for Thameslink maintenance purposes. The site is within an Ecological Corridor local policy designation, although it is noted that the policy confirms that development for operational transport needs in green corridors may be acceptable if it can be shown that there are no alternative locations and there is an essential need for development. The site is also immediately adjacent to, although not within, a defined employment area and an Ecologically Valuable Site (Borough Grade II) (the Stroud Green Embankment).

To the east of the site, planning permission was granted in 2006 at appeal for a concrete batching plant including transport of aggregates by rail. A number of issues were considered during the appeal; in particular, traffic and highways, noise, dust, and ecological impacts and a unilateral planning obligation was required to deal with these concerns. It is felt that locating a train maintenance depot and associated facility in this location could exacerbate these environmental impacts and the cumulative environmental impacts would need to be assessed further to confirm whether appropriate mitigation could be implemented.

8.2.3 Cost

It is not expected that costs would be significantly different from the Existing Base Scheme proposal at Hornsey/Coronation Sidings.

8.2.4 Land

The site is wholly with Network Rail's operational land. However, part of the land is leased to London Concrete for their batching plant. In addition, East Coast Trains, Grand Central and Hull Trains will be making greater use of the sidings for stabling from May 2011 onwards. It is therefore concluded that this site is not available for Thameslink.

8.2.5 Programme and Phasing

There are expected to be complex phasing issues due to the need to relocate existing operations and interfaces with the adjacent concrete batching plant which would require continued rail access to the site during construction of the Thameslink depot.

8.2.6 Stabling

There would be insufficient space for the required stabling capacity at Ferme Park. Additional sidings would therefore have to be provided nearby. Whilst there may be some space in Hornsey, it is likely that additional sidings would need to be built at Coronation Sidings. Moving units between the depot and these sidings would require the use of the Ferme Park flyover and add restrictions to the overall operation of the Thameslink depot.

8.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Green
Land	Red
Programme and Phasing	Pink
Stabling	Red

This site is not viable. Significant operational constraints, the fact that the site is not large enough, operational conflict with existing users, and the requirement to build stabling sidings elsewhere all represent major negative impacts. Also, the cost and time of securing vacant possession of the land is unacceptable in this case.

9 Option 4 – Cricklewood

9.1 Scheme Description

The potential Cricklewood site is located six miles to the north of St Pancras Station on the Midland Main Line and is the site of a former maintenance depot which was closed on the late 1980s after the re-opening of the Snow Hill tunnel and the introduction of the Class 319 fleet maintained at Selhurst. The residual stabling sidings were closed in the early 1990s as they were only used in the inter-peak. The site remains in railway ownership and is now once again used for carriage stabling and for freight services.

This option would comprise a new train maintenance depot located on the existing Brent Terrace sidings to the north of the current Cricklewood Station (see Appendix B4).

9.2 Assessment Summary

9.2.1 Operational Performance

The location of Cricklewood is seen as ideal in terms of its fit with the operational requirements of the Thameslink fleet particularly being on the route north of London with the majority of services (16 trains per hour) and also the relative ease with which trains may connect with the East Coast Main Line and Midland Main Line if necessary.

However, with the proposed development on the land (see Figure 3 below), the available land is limited in size. A desk top study has been undertaken as shown below and this demonstrates that whilst all of the depot facilities can fit, there is no space for the sidings. These sidings would therefore need to be provided at an alternative location nearby, probably at Coronation Sidings. Moving units between the depot and Coronation Sidings would incur extra ECS mileage and would be severely restricted by the availability of train paths on congested routes.



Figure 3

9.2.2 Planning

The site is located within the Cricklewood, Brent Cross and West Hendon Regeneration Area. The potential depot site is designated as 'rail related employment land' within which the Council will require: the provision of developments for business (B1), industrial (B2) and warehouse uses (B8); a rail freight transfer facility and associated uses; and rail-linked waste transfer and materials recycling facilities.

A major outline application was approved in October 2010 for comprehensive mixed-use redevelopment of the Brent Cross Cricklewood regeneration area. The approved scheme includes new stabling sidings for FCC services on the site of the potential maintenance depot facilities. It is therefore unclear whether a new maintenance depot and associated facilities would fit with the aspirations of the wider consented regeneration scheme. Stabling sidings have been allocated in this location and their environmental impact on new development, in particular in relation to the housing proposed within the Brent Terrace area, have therefore been assessed and acknowledged.

The location of the maintenance depot building in this location would require the provision of stabling sidings on Coronation Sidings (Hornsey). This is expected to lead to increased external impacts for existing and future residential properties due to the open nature of stabling facilities and the operational requirement for servicing and tanking activities to be carried out throughout the night. This would lead to more noise and light impacts for which further assessment would be required as to whether the impacts could be effectively mitigated.

However, given the existing and approved operational rail use on the Cricklewood site, it is considered that planning would not preclude the development of a rail depot in this location.

9.2.3 Cost

There is likely to be a significant costs associated with re-providing stabling sidings currently allocated to this site in the Thameslink Programme stabling strategy. Some of these sidings would be built at Coronation Sidings, but the rest that support the weekday start-up of Thameslink services from Luton and St Albans would need new sidings at an alternative site which has not been identified.

The potential impact of the proposed depot facilities on land allocated for stabling for other TOCs would also have significant cost implications.

9.2.4 Land

The area of land set aside for Thameslink use in Network Rail's Development Agreement is not large enough on its own for a new depot, and a depot will only fit if East Midlands Trains' operation is also re-located. However, this combined site is still not large enough to include stabling sidings.

In considering whether the additional land required to develop a depot could be made available within the Development Agreement, the following assessment was made:

- Network Rail is compelled by their Development Agreement to dispose of the land subject to Network Change;
- The Office of Rail Regulation has formally agreed to the disposal subject to Network Change;
- Release of the land is subject to the industry accepting Network Change. The industry process is that Network Change consultation only starts after GRIP 4 level design certainty is achieved. This is not due to start for a further year and is dependent on the developer who is outside of the Thameslink Programme.

Given this assessment, the Thameslink Programme could not assume in 2009 or now that sufficient land could be secured for the development of the northern maintenance depot.

9.2.5 Programme and Phasing

There are expected to be significant interface issues with the current operations, although it may be possible to develop the site without impact on services. Phasing of the construction of the depot facilities with the construction works associated with the wider regeneration (includes works to nearby stations) are also likely to impact on phasing.

9.2.6 Stabling

The current Thameslink Programme stabling strategy includes provision for 4x12-car sidings and 11x8-car sidings at Cricklewood. The strategy also includes additional sidings at Cricklewood for use when engineering possessions on the main line prevent units from reaching Bedford. Cricklewood is therefore a key location for stabling Thameslink units.

The use of this site for a maintenance depot would require the relocation of this proposed stabling and this is expected to lead to significant additional costs due to the current lack of suitable and available sites for stabling the Thameslink fleet. The potential impact on stabling provision for East Midlands Trains is also a significant constraint.

9.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Amber
Planning	Green
Cost	Amber
Land	Red
Programme and Phasing	Amber
Stabling	Red

This site is not viable. This conclusion arises from the lack of space available for a 12-car depot and required associated facilities, and the significant negative impact on the Thameslink Programme stabling strategy, as well as impact on stabling provision for other TOCs.

10 Option 5(i) – Bedford Cauldwell Walk (including adjacent Industrial Estate)

10.1 Scheme Description

Cauldwell Walk Depot was commissioned in 2004 for FCC to maintain Class 319s primarily during the blockade of the Core route through central London, but also to provide a much needed second maintenance facility to enhance existing arrangements. The depot was extended by an additional maintenance road in 2009 to provide extra capacity for the maintenance of the new (and temporary) Class 377 fleet operating on Thameslink until the new rolling stock are introduced.

Between the depot and the main lines there is an industrial estate. This option looks at the possibility of acquiring this land to build an extended Thameslink depot.

The site is located more than a mile to the south of Bedford station (see Appendix B5).

The following facilities exist on the Cauldwell Walk Depot site:

- 5 x 4-car maintenance shed;
- 3 x 12-car sidings; and
- Carriage washer, CET, 110V electrical supply, rubbish disposal, and staff accommodation.

10.2 Assessment Summary

10.2.1 Operational Performance

It might be possible to build a new depot or extend the existing structure on the site to accommodate 12-car trains but it would be very tight. Land made available by re-locating the adjacent industrial estate would be used for sidings, car parking and warehousing. However, the site is not long enough to accommodate the wheel lathe.

During previous site selection work, it was considered that the provision of new Thameslink maintenance facilities at Cauldwell Walk would suffer from significant operational constraints. It is felt that this is still the case. A new, enlarged, depot would further exacerbate the situation that currently exists. The existing depot suffers from a significant operational restriction. It is connected to the main line railway at the southern end and only has a south-facing connection. The depot site can only be accessed when a gap is available on the main line. With an increased service frequency operating to/from Bedford Station, the available windows to access the site will be further reduced. Access could be further constrained when the Thameslink service frequency increases from 4 to 8 trains per hour.

Extension of both the reception road and the headshunt would be required to make the depot work well operationally. If this is not done, then the fixed train units

(12 car formation) could not access, or move around, the depot and problems would occur with trains arriving into the depot due to the reception road only being 8 cars long.

The southern only access would further exacerbate the situation that currently exists with trains travelling between the station and the depot, as an increased amount of time would be required for the driver to change cabs on a longer train formation, as well as any other factors such as cab shut down and start up times. The operation of the depot would therefore always rely on the single point of access being operational.

Network Rail have plans to install a cross-over that would aid access to the site; however, access to the site also inhibits access to the station, potentially resulting in operational delays to service.

A potential solution to improved access would be to provide a northern connection into the depot from the station. However, trains would have to reverse in the station which would be an operational constraint by inhibiting access to the station and potentially resulting in delays to trains in service. The access would also require alterations to the Kempston Road bridge as well as a new bridge over the River Great Ouse.

The site is also constrained by substantial variations in ground level with the existing depot site being located higher than the adjacent industrial estate.

10.2.2 Planning

In order to secure the additional land required for this option, it is expected that a Transport and Works Act Order would be required to compulsorily purchase non-operational land. This presents considerable cost and time delays to this option and introduces planning risk.

While the site contains an existing rail maintenance depot, there are a number of surrounding sensitive uses, including residential properties along Edward Road, Cauldwell Lower School, Peter Pan Nursery and a Sure Start Nursery on the playing fields of the school. A substantial noise barrier was required as part of the mitigation provided under the approval for the existing depot and it is not clear whether significantly expanded maintenance operations would be acceptable in terms of external impacts.

The site (at the time under-used railway sidings, small scale industrial units and overgrown vacant land), was allocated in the 2001 Local Plan as a Mixed Use Opportunity Site within which the Council sought developments to improve the image of the site and incentivise investment in the town. Since this time, the existing Cauldwell Walk Depot has been built on part of this land; however, the policy designation remains.

The site is immediately adjacent to a Wildlife Corridor (the Midland Main Line) where proposals for development which would have an adverse impact will be resisted unless satisfactory alternative provision can be agreed or it is demonstrated that there are reasons for the proposals which outweigh the need to safeguard this network.

To the east and west of the site are key employment sites. Within the eastern employment site, a major planning application was submitted in 2008 for large-

scale residential/office/hotel development. Although this application was refused, it provides an indication of potential adjoining uses in line with Council policy.

The site is within the flood plain of the River Great Ouse and would therefore need to be designed to ensure that no flood risk issues are created by developing the site.

It is therefore considered that planning would not support the development of a maintenance depot and associated facilities in this location.

10.2.3 Cost

Due to the requirement to purchase the adjoining industrial estate, the need to provide rail access from the north and a new reception road, and likely works to the Kempston Road Bridge, it is expected that the cost of this option would be significantly higher than the Existing Base Scheme proposals.

There would also be significant costs associated with levelling the site to provide an even platform for the new depot facility.

Proposed stabling sidings within the area currently occupied by the industrial estate would all be dead-ended but suitable for 12-car units. Due to the adverse vertical levels in this area however, these sidings would be 'terraced' resulting in the need for significant retaining structures.

10.2.4 Land

Previous exercises into the suitability of this site's capacity to accommodate a depot for 12-car fixed formation units have shown that whilst the site is severely constrained, a suitable depot building could be possible. However, even with the acquisition of the adjacent industrial estate, there may be a requirement to extend the site's length, which may require the acquisition of land that forms the rear gardens of properties on Edward Road. It is worth noting that the acquisition of the adjacent industrial estate would likely require a compulsory purchase order and thus would not be straightforward.

To be able to construct the required reception road and headshunt extensions, additional non-operational land would need to be acquired to the south of the existing reception road.

Detailed surveys are also likely to confirm that an additional bridge span may be required on the adjacent Kempston Road Bridge. Additionally, the general track gradient in this area is in the region of 1 in 150 resulting in challenging vertical design throughout the reception road and depot facility.

10.2.5 Programme and Phasing

This option introduces significant programme risks to the wider Thameslink Programme due to the need to acquire land within the adjacent industrial estate. It is expected that a Transport and Works Act Order would be required to acquire this land, which is expected to take somewhere in the region of 24-28 months to complete.

There are also significant phasing constraints associated with relocated existing operations on the site.

10.2.6 Stabling

The site would be large enough to accommodate the 8x12-car sidings that are required here as part of the Thameslink Programme stabling strategy.

10.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Pink
Cost	Red
Land	Red
Programme and Phasing	Pink
Stabling	Green

This site is not viable. This is due to the lack of space for a wheel lathe, prohibitive costs for the necessary northern rail access and land purchase of the industrial estate. Further concerns about viability result from the significant planning issues, the challenging vertical levels of the site, and the consequent impacts of these issues on the programme.

11 Option 5(ii) – Bedford Cauldwell Walk (excluding adjacent Industrial Estate)

11.1 Scheme Description

This option is the same as Option 5(i), with the exclusion of the Cauldwell Walk Industrial Estate (see Appendix B5). The scheme would therefore be wholly within operational land.

11.2 Assessment Summary

11.2.1 Operational Performance

The same operational constraints apply to this option as they do to Option 5(i); in summary:

- Limited space (lengthways) to construct a depot for 12-car fixed formation units;
- Access restricted to the southern end of the site only (unless a northern access is constructed which would be very expensive);
- Reliance on single access point;
- Increased time required for trains to enter the depot (e.g. in relation to driver/depot handover); and
- Access to the site also inhibits access to the station.

Additionally, due to the available space constraint, associated facilities such as warehousing, offices and car parking could only be provided if stabling is removed.

11.2.2 Planning

While the site contains an existing rail maintenance depot, there are a number of surrounding sensitive uses, including residential properties along Edward Road, Cauldwell Lower School, Peter Pan Nursery and a Sure Start Nursery on the playing fields of the school. A substantial noise barrier was required as part of the mitigation provided under the approval for the existing depot and it is not clear whether significantly expanded maintenance operations would be acceptable in terms of external impacts.

The site (at the time under-used railway sidings, small scale industrial units and overgrown vacant land), was allocated in the 2001 Local Plan as a Mixed Use Opportunity Site within which the Council sought developments to improve the image of the site and incentivise investment in the town. Since this time, the existing Cauldwell Walk Depot has been built on part of this land; however, the policy designation remains.

The site is immediately adjacent to a Wildlife Corridor (the Midland Main Line) where proposals for development which would have an adverse impact will be resisted unless satisfactory alternative provision can be agreed or it is

demonstrated that there are reasons for the proposals which outweigh the need to safeguard this network.

To the east and west of the site are key employment sites. Within the eastern employment site, a major planning application was submitted in 2008 for large-scale residential/office/hotel development. Although this application was refused, it provides an indication of potential adjoining uses in line with Council policy.

The site is within the flood plain of the River Great Ouse and would therefore need to be designed to ensure that no floor risk issues are created by developing the site.

It is therefore considered that planning would not support the development of a maintenance depot and associated facilities in this location.

11.2.3 Cost

Assuming that providing a northern rail access is prohibitively expensive, it is still expected that costs would be higher than the Existing Base Scheme proposal at Hornsey/Coronation Sidings, for potential changes to Kempston Road bridge in order to fit in the 12-car maintenance shed and land purchase for the new reception road. There would also be additional costs associated with re-providing stabling sidings currently allocated to this site in the Thameslink Programme stabling strategy, for which no alternative site has been identified.

11.2.4 Land

Previous exercises into the suitability of this site's capacity to accommodate a depot for 12-car fixed units have shown that whilst the site is severely constrained, a suitable depot building could be possible. However, there may be a requirement to extend the site's length which may require the acquisition of land that forms the rear gardens of properties on Edward Road.

To be able to construct the required reception road and headshunt extensions, additional non-operational land would need to be acquired to the south of the existing reception road.

Detailed surveys are also likely to confirm that an additional bridge span may be required on the adjacent Kempston Road Bridge. Additionally, the general track gradient in this area is in the region of 1 in 150 resulting in challenging vertical design throughout the reception road and depot facility.

11.2.5 Programme and Phasing

There are significant phasing constraints associated with relocated existing operations on the site. If any additional land is required to accommodate the length of the required depot, this could further delay the programme.

11.2.6 Stabling

The current Thameslink Programme stabling strategy includes provision for 8x12-car sidings at Bedford Cauldwell Walk. The use of this site for a maintenance

depot would therefore require the relocation of this proposed stabling for which no practical alternative site has been identified.

11.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Pink
Cost	Amber
Land	Pink
Programme and Phasing	Pink
Stabling	Red

This site is not viable. This is due to the lack of space available for a wheel lathe and stabling, and operational constraints for access in and out of the depot. Further concerns about viability result from the significant planning and land issues, and the impact of these on the programme.

12 Option 5(iii) – Bedford Carriage Sidings

12.1 Scheme Description

The carriage sidings are located immediately to the south of Bedford Station and are bounded to the west by the Midland main line, the east by the Engineers Sidings (see Chapter 13 below), and to the south by the River Great Ouse (see Appendix B5a). The site is an existing railway site and is currently used for stabling and maintaining existing Thameslink Class 319 and 377 units.

12.2 Assessment Summary

12.2.1 Operational Performance

The site is well located in terms of starting services on the outer suburban on the Midland Main Line; although less well located for the inner suburban services and for Great Northern services.

Trains accessing the site would have to reverse from Bedford Station, which would be an operational constraint and would inhibit access to the station. This is the current situation, but it would be made worse by increased movements from the depot and would potentially result in delays to service.

More significantly, the carriage sidings are only 8-cars long and cannot be extended for 12-car use because of the adjacent River Great Ouse. The site is therefore not large enough for a 12-car depot.

12.2.2 Planning

Planning policy does not preclude a depot in this location and the site's historic rail use and surrounding rail activity may be supportive. However, the urban context of the site and the close proximity of residential properties, means that the impact of a large train maintenance facility at this location may not be acceptable.

The site is constrained on both sides by Wildlife Corridors where proposals for development which would have an adverse impact will be resisted unless satisfactory alternative provision can be agreed or it is demonstrated that there are reasons for the proposals which outweigh the need to safeguard this network. The site is also covered by a Biodiversity policy which seeks to conserve and enhance biodiversity especially along river and rail corridors.

The site also falls within the Bedford Town Centre Area Action Plan area. While there do not appear to be any site-specific policies for the proposed depot site, the plan seeks the creation of a new office quarter, new housing and new transport interchange to the north of Ford End Road bridge and the masterplanning of this area “*may also identify the potential for the site to extend south of Ford End Road*”.

Further assessment would be required as to whether the likely impacts of the proposed depot scheme on the Great River Ouse (flood risk zone) and wildlife and biodiversity planning policy designations could be effectively and appropriately mitigated.

12.2.3 Cost

It is not expected that costs would be significantly different from the Existing Base Scheme proposal at Hornsey/Coronation Sidings, although there be additional costs associated with re-providing stabling sidings currently allocated to this site in the Thameslink Programme stabling strategy, for which no alternative site has been identified.

12.2.4 Land

The site is currently used by FCC but will become available for Thameslink use once FCC’s units are displaced by the new Thameslink units.

12.2.5 Programme and Phasing

There is likely to be a significant impact on current operations while the depot is constructed. The existing sidings are currently occupied by FCC who would need to be relocated prior to construction work commencing, thus increasing phasing problems.

12.2.6 Stabling

The current Thameslink Programme stabling strategy includes provision for 14x8-car sidings at Bedford Carriage Sidings. The use of this site for a maintenance depot would therefore require the relocation of this proposed stabling and it is expected to lead to significant additional costs due to the current lack of suitable and available sites for stabling the Thameslink fleet.

12.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Amber
Land	Green
Programme and Phasing	Amber
Stabling	Red

This site is not viable. This is due to the constrained site, which could not be enlarged to accommodate a maintenance depot for 12-car fixed formation trains. The site also suffers from significant operational constraints and would displace sidings required for Thameslink stabling.

13 Option 5(iv) – Bedford Carriage Sidings, Engineers Sidings and surrounding Network Rail land

13.1 Scheme Description

This option looks to see whether all of the Network Rail land that includes the Carriage Sidings and Engineers Sidings is suitable for a depot.

Bedford Engineers Sidings are located to the northeast of the Carriage Sidings, to the south of Bedford Station (see Appendix B5a). Five new 12-car sidings are being constructed here for early Thameslink use during Key Output One.

There is additional land in Network Rail ownership that includes Bedford Engine Shed. However, Network Rail have recently (February 2011) applied for Regulatory Consent to dispose of this land as part of a wider urban regeneration residential led mix use development, in conjunction with the adjacent two land holdings delivering approximately 40 residential units on Network Rail's land. It is expected that a planning application will be submitted by the end of the first half in 2011 which should take 12-18 months to be determined and the disposal 6 months after that.

13.2 Assessment Summary

13.2.1 Operational Performance

The site is well located in terms of starting services on the outer suburban on the Midland Main Line; although less well located for the inner suburban services and for Great Northern services.

The Bletchley line crosses the site and effectively divides it into two parts. From observation, it is unlikely there would be enough space for the maintenance shed and UFC without severing the Bletchley line, and there is no room for a wheel lathe. Whilst the existing 14x8-car sidings could probably remain, there is likely to be room for just 1x12-car siding which would be insufficient for holding 12-car units waiting for maintenance or repairs.

Trains accessing the site would have to reverse from Bedford Station, which would be an operational constraint and would inhibit access to the station potentially resulting in delays to service.

13.2.2 Planning

Planning policy does not preclude a depot in this location and the site's historic rail use and surrounding rail activity may be supportive. However, the urban context of the site and the close proximity of residential properties, means that the impact of a large train maintenance facility at this location may not be acceptable.

The site is constrained on both sides by Wildlife Corridors where proposals for development which would have an adverse impact will be resisted unless satisfactory alternative provision can be agreed or it is demonstrated that there are

reasons for the proposals which outweigh the need to safeguard this network. The site is also covered by a Biodiversity policy which seeks to conserve and enhance biodiversity especially along river and rail corridors.

The site also falls within the Bedford Town Centre Area Action Plan area. While there do not appear to be any site-specific policies for the proposed depot site, the plan seeks the creation of a new office quarter, new housing and new transport interchange to the north of Ford End Road bridge and the masterplanning of this area “*may also identify the potential for the site to extend south of Ford End Road*”.

Further assessment would be required as to whether the likely impacts of the proposed depot scheme on the Great River Ouse (flood risk zone) and wildlife and biodiversity planning policy designations could be effectively and appropriately mitigated.

13.2.3 Cost

It is not expected that costs would be significantly different from the Existing Base Scheme proposal at Hornsey/Coronation Sidings, although there be additional costs associated with re-providing stabling sidings currently allocated to this site in the Thameslink Programme stabling strategy, for which no alternative site has been identified.

13.2.4 Land

As noted above, the land of the Engineers Shed is the subject of an application for disposal. In addition, FCC’s operations due to start in December 2011 on the Engineers Sidings would need to be re-located to an unidentified alternative site.

13.2.5 Programme and Phasing

Re-locating FCC’s operations during depot construction will adversely impact the programme.

13.2.6 Stabling

The current Thameslink Programme stabling strategy includes provision for 5 x 12-car sidings at Bedford Engineers Sidings. The use of this site for a maintenance depot would therefore require the relocation of this proposed stabling and this is expected to lead to significant additional costs due to the current lack of suitable and available sites for stabling the Thameslink fleet.

13.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Amber
Land	Pink
Programme and Phasing	Amber
Stabling	Red

This site is not viable. With the Bletchley Line crossing the site, there is not enough space for a depot on this site. In addition, it would mean re-locating the 5x12-car sidings currently being built on Engineers Sidings for Thameslink use.

14 Option 5(v) – Forders Sidings (Marston Vale)

14.1 Scheme Description

Forders Sidings are located within the Marston Vale, to the south of Bedford (see Appendix B5b). The site forms part of the former Stewartby brickworks and provides access to the Bedford to Bletchley line which is currently not electrified.

14.2 Assessment Summary

14.2.1 Operational Performance

The site is located off the core Thameslink route and would therefore require a large number of ECS (Empty Coaching Stock) moves (approximately four miles of running from the depot to access the Thameslink route).

The need to feed trains into Bedford station to enter service is not ideal. It may be necessary to reconfigure the arrangements in the station area to facilitate operations or provide a new connection to the Midland Main Line from where the Bedford to Bletchley line passes beneath it.

It is not considered that there would be any space constraints to developing a depot in this location.

The site has all the advantages of Bedford providing a suitable and robust connection to Bedford station can be delivered. However, a potential risk is the possible reinstatement of through services to Oxford via Milton Keynes as part of the East West Rail proposition, although there is no firm commitment to delivering this aspiration as yet.

14.2.2 Planning

The site is located with the Marston Vale growth area which seeks provision of housing and jobs and improvements to the environment (identified in the Milton Keynes & South Midlands Sub-Regional Development Framework).

As part of large scale regeneration aspirations, an outline planning application was submitted in 2008 for the comprehensive redevelopment of the brickworks, immediately adjacent to Forders Sidings, which includes provision for 1,200 residential units, mixed-use retail, employment, education, and leisure facilities. The application has yet to be determined but it provides a clear indication, along with the planning policy framework, of the future development of this site. The planning history of the surrounding area also reveals significant residential-led development proposals.

The site is also located within the Forest of Marston Vale policy area where development proposals are expected to incorporate the aims of the project and is designated as land liable to flood.

It is therefore considered that planning would not support the development of a maintenance depot and associated facilities in this location.

14.2.3 Cost

Utilisation of Forders Sidings for Thameslink would require significant infrastructure investment including electrification of the branch line to Bedford, as well as re-doubling of the chord line.

There would also be significant land acquisition costs due to the site falling outside the limits of Network Rail's operational land.

14.2.4 Land

The site is outside of Network Rail's operational land and would therefore require land to be purchased or compulsory acquired.

14.2.5 Programme and Phasing

Due to the requirement to acquire land from a third party and the need to electrify a stretch of the Bedford to Bletchley line, there are significant programme risks to the Thameslink Programme.

14.2.6 Stabling

There is no impact on the stabling strategy as it currently stands.

14.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Pink
Planning	Red
Cost	Red
Land	Pink
Programme and Phasing	Red
Stabling	Green

This site is not viable. This is due to significant planning, cost and programme constraints. Further concerns about viability result from operational performance and land constraints.

15 Option 6(i) – Wellingborough – Neilson’s Sidings

15.1 Scheme Description

Neilson’s Sidings are located to the northeast of Wellingborough, adjacent to the Finedon Road Industrial Estate, on the London-Sheffield main line (not electrified). The site is adjacent to the Up- and Down-Slow line and is currently occupied by GB Railfreight (GBRf) who operate a modern and established material handling site comprising cranes and sidings (see Appendix B6).

15.2 Assessment Summary

15.2.1 Operational Performance

Assuming that GB Railfreight activities are relocated from the site, this option offers sufficient space to develop a 3-road ‘through’ depot, with all required associated facilities (UFC, washer and stabling comprising of 5x12-car and 4x24-car sidings).

However, there are rail capacity constraints in this area with bottlenecks due to freight and East Midlands Trains.

The site is also far from the core Thameslink route (approximately 70 miles), and would require significant ECS movements.

15.2.2 Planning

Planning policy does not preclude the development of a maintenance depot on Neilson’s Sidings, with the land designated in the Wellingborough East Development Framework for employment and distribution uses based primarily on activities involving transport by rail. However, the site is within the floodplain of the River Ise and policy requires consideration to be taken of flood risk impacts.

The planning history of the site and surrounding area appears supportive given the recent development of the GB Railfreight facility (aggregates rail depot), and the fact that the site is wholly within Network Rail’s operational land and has an established rail use.

There do not appear to be any sensitive adjacent land uses with the site lying within the railway corridor and surrounded by warehousing and industrial uses.

15.2.3 Cost

There are significant cost implications of locating the depot at Neilson’s Sidings, in particular in relation to the need to electrify the stretch of the line from Bedford up to the depot (15 miles approximately).

Two options were considered in 2009:

- Electrify Slow lines - £87.1m;
- Electrify Fast lines - £54.1m.

While electrifying the fast lines only is cheaper, for operational reasons it is preferable to both electrify the existing slow lines and provide a new additional electrified line.

15.2.4 Land

The proposed site offers a large area for the construction of the depot for 12-car fixed formation trains and the required associated facilities, and allows for a ‘through’ depot arrangement. However, the use of the Neilson’s Sidings site for the Thameslink depot requires the current occupiers to be relocated.

The land is within rail ownership and is currently occupied by GB Railfreight and DB Schenker, who currently lease 75% of overall site (125 year lease) from Network Rail. The freight facility covers approximately 40% of the area.

15.2.5 Programme and Phasing

The required electrification and doubling of the slow lines could not be done before the introduction of the new rolling stock (the predicted duration of this work is 38 months). The need to relocate the existing GB Railfreight operations also presents a significant programme/phasing risk.

It is therefore considered that the site would not be ready for commissioning and maintaining the new fleet as currently programmed.

15.2.6 Stabling

There is no impact on the stabling strategy as it currently stands.

15.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Green
Cost	Red
Land	Amber
Programme and Phasing	Red
Stabling	Green

This site is not viable. Neilson’s Yard was not considered to be a suitable site due to its remoteness from the Thameslink network and the requirement for extensive electrification of tracks, which would introduce significant programme delays and cost.

16 Option 6(ii) – Wellingborough – Down Goods Loop Yard

16.1 Scheme Description

The Down Goods Loop Yard site is located to the south of Neilson's Sidings, to the south of Finedon Road, on the west side of the London-Sheffield main line (see Appendix B6a and B6b).

16.2 Assessment Summary

16.2.1 Operational Performance

Whilst there would be sufficient space for a 3-road depot, there is insufficient space for the required associated facilities.

There are significant operational constraints associated with providing a maintenance depot in this location. The site is only accessible off the Down Fast or Goods lines both of which would cause operational conflicts between the proposed depot and the operational line.

There are rail capacity constraints in this area with bottlenecks due to freight and East Midlands Trains.

The site is also far from the core Thameslink route (approximately 70 miles), and would require significant ECS movements.

16.2.2 Planning

Planning policy does not provide clear support for a depot facility on this site. The site is within an area designated for mixed-use development in the Wellingborough East Development Framework, with a minimum of 300 dwellings expected to be delivered.

However, given the site's location with Network Rail operational land, a rail use may be deemed acceptable providing there are no significant external impacts on adjacent residential properties and existing environmental conditions.

16.2.3 Cost

There are significant cost implications of locating the depot at the Down Goods Loop Yard, in particular in relation to the need to electrify the stretch of the line from Bedford up to the depot (15 miles approximately).

Two options were considered in 2009:

- Electrify Slow lines - £87.1m;
- Electrify Fast lines - £54.1m.

While electrifying the fast lines only is cheaper, for operational reasons it is preferable to both electrify the existing slow lines and provide a new additional electrified line.

16.2.4 Land

The site is within Network Rail's operational land but appears to have some areas being leased to third party operators which would need to be secured, and existing operations would need to be relocated. It is envisaged that this would be possible.

16.2.5 Programme and Phasing

The required electrification and doubling of the slow lines could not be done before the introduction of the new rolling stock (the predicted duration of this work is 38 months).

It is therefore considered that the site would not be ready for commissioning and maintaining of the new fleet as currently programmed.

16.2.6 Stabling

There is no impact on the stabling strategy as it currently stands.

16.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Red
Land	Amber
Programme and Phasing	Red
Stabling	Green

This site is not viable. The Down Goods Loop Yard is not considered to be a suitable site for the depot due to its remoteness from the Thameslink network, the lack of space for associated facilities, and the requirement for extensive electrification of tracks, which would present significant programme delays and cost.

17 Option 6(iii) – Wellingborough – Land south of Neilson’s Sidings

17.1 Scheme Description

This site is located on the east side of the London-Sheffield main line, to the east of the Down Goods Loop Yard and to the south of Neilson’s Sidings (see Appendix B6c).

17.2 Assessment Summary

17.2.1 Operational Performance

From observation, the site might be big enough to provide sufficient space for the maintenance shed and associated facilities. However, there would be a single connection to the depot’s Reception line which would be an operational risk.

There are significant operational constraints associated with providing a maintenance depot in this location. There are rail capacity constraints in this area with bottlenecks due to freight and East Midlands Trains. The site is also far from the core Thameslink route (approximately 70 miles), and would require significant ECS movements.

17.2.2 Planning

Planning policy does not provide clear support for a depot facility on this site. The site is within the core area of the Wellingborough East Development Framework area, designated for mixed use development purposes based primarily on housing and retained employment uses.

However, given the site’s location with Network Rail operational land, a rail use may be deemed acceptable providing there are no significant external impacts on adjacent residential properties and existing environmental conditions.

17.2.3 Cost

There are significant cost implications of locating the depot on the land south of Neilson’s Sidings, in particular in relation to the need to electrify the stretch of the line from Bedford up to the depot (15 miles approximately).

Two options were considered in 2009:

- Electrify Slow lines - £87.1m;
- Electrify Fast lines - £54.1m.

While electrifying the fast lines only is cheaper, for operational reasons it is preferable to both electrify the existing slow lines and provide a new additional electrified line.

There will be a cost associated with buying out third party leases (see 17.2.4 below).

17.2.4 Land

The site is within Network Rail's operational land and is currently occupied by a factory and storage unit which are ex-railway buildings leased to third party operators.

17.2.5 Programme and Phasing

The required electrification and doubling of the slow lines could not be done before the introduction of the new rolling stock (the predicted duration of this work is 38 months). The requirement to relocate existing leaseholders also presents a programme delay risk.

It is therefore considered that the site would not be ready for commissioning and maintaining of the first sets of the new fleet as currently programmed.

17.2.6 Stabling

There is no impact on the stabling strategy as it currently stands.

17.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Red
Land	Amber
Programme and Phasing	Red
Stabling	Green

This site is not viable. The Land South of Neilson's Yard is not considered to be a suitable site due to its remoteness from the Thameslink network and the requirement for extensive electrification of tracks, which would introduce significant programme delays and cost.

18 Option 7(i) – Cambridge – Up Sidings

18.1 Scheme Description

This option is to build a depot on the derelict reception roads and sidings immediately east of the station plus the land currently occupied by National Express East Anglia (NXEA)’ s stabling yard (see Appendix B7 and B7a). FCC sub-lease some of the sidings from NXEA to stable their own units.

Network Rail are currently building a new island platform at Cambridge and NXEA will be electrifying two of the reception roads to expand their stabling operation. This work will remove some of the available land.

18.2 Assessment Summary

18.2.1 Operational Performance

From observation, the site is not large enough for the depot. As shown below, the maintenance shed might just fit on the derelict land, but there is no obvious space for the UFC, wheel lathe, car parking etc.

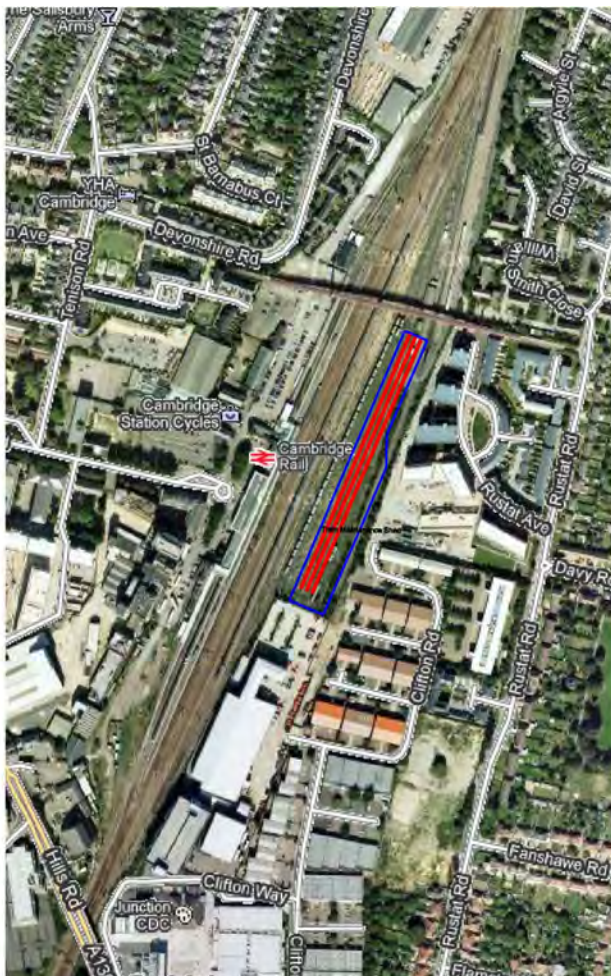


Figure 4

Cambridge is at the end of one of the Thameslink routes (56 miles from the Core section), and only 3x12-car Thameslink units are stabled overnight here. This means that moving units for maintenance or repair will involve high ECS mileage, especially for 8-car units which will probably have to move empty from Welwyn Garden City (35 miles away).

The site also does not support interpeak stabling with no units stabling at Cambridge during the day. This will hamper daytime maintenance and repair operations.

18.2.2 Planning

The majority of the sidings are designated as an Area of Major Change in the Cambridge City Local Plan with aspirations for the regeneration as a high density mixed-use (mainly residential) district built around an enhanced transport interchange. The 2004 Station Area Development Framework includes the sidings and states that *'longer-term development opportunities exist on the Network Rail land to the east of the main railway lines. This land is currently operational but may be released in the future.'*

The site is also immediately adjacent to the Central Conservation Area, the Grade 2 Listed Station Building and a number of Buildings of Local Interest, therefore requiring any development of the sidings to preserve or enhance the character of the area.

The land to the south of the sidings is designated as a Protected Industrial/Storage Site which seeks to prevent development that will result in the loss of floorspace within Use Classes B1(c), B2 and B8.

In 2008, a major outline planning application was approved for the comprehensive redevelopment of the Station Area covered by the Station Area Development Framework, although excluding the sidings. Various reserved matters submissions have since been approved.

It is therefore considered that the development of a train maintenance depot and associated facilities is unlikely to conform to Council policy aspirations although the site remains operational railway land.

18.2.3 Cost

Compared to the Existing Base Scheme (Option 1(i)), there will be additional costs associated with providing extra sidings at Hornsey for Thameslink interpeak stabling, and for re-locating NXEA stabling operations.

18.2.4 Land

Currently there is insufficient space for a depot on this site. Network Rail are building a new island platform at Cambridge, and NXEA are electrifying reception roads 3 and 4 to be used as sidings. NXEA and FCC would have to re-locate all their existing operations, and even then there may not be enough space for a depot.

18.2.5 Programme and Phasing

The re-location of NXEA and FCC operations would result in complex phasing and add risk to the programme for construction of the depot.

18.2.6 Stabling

Assuming that Thameslink units could be accommodated in the new depot, there would still be significant impacts on NXEA and FCC’s residual Great Northern fleet, for which a new site would need to be provided.

18.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Amber
Land	Red
Programme and Phasing	Amber
Stabling	Pink

This site is not viable. The site is not big enough for a depot, and not well located for Thameslink operations. Relocating NXEA and FCC would be very difficult and still may not solve the problem of space.

19 Option 7(ii) – Cambridge – Chesterton

19.1 Scheme Description

Chesterton is located two miles north of Cambridge where there is a large plot of land in Network Rail ownership (see Appendices B7b and B7c). Some of it is used by freight operators, and there have been several studies looking at how to develop the rest of the land, including possible use by the Intercity Express Programme (IEP) and the Thameslink Programme for stabling. IEP's interest has now disappeared.

The Cambridgeshire guided busway will go across the land. There has also been discussion on the possibility of a new railway station at Chesterton.

19.2 Assessment Summary

19.2.1 Operational Performance

Being located north of Cambridge, this site is beyond the end of the Thameslink network (58 miles from the Core section), and only 3x12-car Thameslink units are stabled overnight here. This means that moving units for maintenance or repair will involve high ECS mileage, especially for 8-car units which will probably have to move empty from Welwyn Garden City (over 35 miles away), resulting in significant operational costs with less time available for maintenance.

The site doesn't support interpeak stabling, resulting in more empty movements and less time available for daytime maintenance.

However, the site is large enough to accommodate a depot. A desk top study (shown below) suggests that all buildings and 10x12-car sidings with CET can fit with plenty of room for car parking. This takes into account two possible freight operations (yards A and B), and provision has been made for the potential new station.

One downside would be having to share the site with freight operations. The dust etc. generated could adversely impact the exterior of Thameslink units.

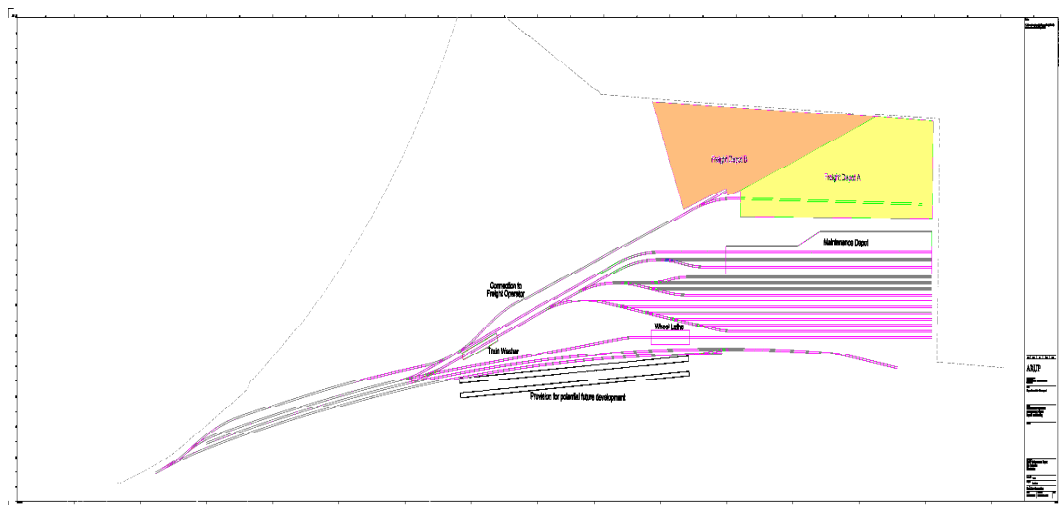


Figure 5

19.2.2 Planning

Planning policy does not preclude the development of a maintenance depot in this location. Chesterton Sidings are located within the Cambridge Northern Fringe East (CNFE), for which Cambridge City Council and South Cambridgeshire District Council (SCDC) have long held aspirations for extensive redevelopment and regeneration. However, SCDC's Site Specific Policies DPD (January 2010) confirms that the redevelopment potential of this and other land has been investigated and found to be unviable or undeliverable. Furthermore, the DPD identifies land at Chesterton Sidings to be retained by Network Rail for operational railway uses, together with adjacent plans for a new railway station and interchange facility to tie into the Cambridgeshire guided busway.

Immediately to the west of the site, Cambridge City Council's Local Plan and draft Core Strategy Issues and Options Report designate a large area to be developed for high density mixed use development in connection to the proposed new railway station. To the east and north-east of the site is Green Belt land (currently under review) while the southwest of the site is bounded by Cambridge City Local Plan policies protecting Open Space and Sites of Local Nature Conservation Importance.

It is therefore felt that planning policy and history, together with the continued operational railway nature of the site, would provide support for the development of a maintenance depot facility at this location.

19.2.3 Cost

Compared to the Existing Base Scheme (Option 1(i)), there will be additional costs associated with providing extra sidings at Hornsey for Thameslink interpeak stabling.

There would also be a significant cost in buying out the freight leases and rearranging existing facilities into a masterplan to suit all site uses.

19.2.4 Land

The site is on operational land but the lease would need to be secured from a third party. The Cambridgeshire guided busway is also being built on part of the site which would need to be accommodated.

19.2.5 Programme and Phasing

Although there would need to be co-ordination with the freight operators, it is considered to be possible to build a depot on this site within the Thameslink programme. The requirement to negotiate the release of leases and to relocate people as required must be considered.

19.2.6 Stabling

The extra sidings needed for Thameslink at Cambridge would now no longer be required. However, there would need to be additional sidings for interpeak Thameslink stabling at Hornsey or Ferme Park.

19.3 Conclusion

Assessment Criteria	Scoring
Operational Performance	Pink
Planning	Green
Cost	Pink
Land	Amber
Programme and Phasing	Amber
Stabling	Green

This site is potentially viable. Chesterton performs well against some categories, e.g. planning and stabling, but there are significant concerns about operational performance and costs which raise questions about the viability of this site. It is located beyond the end of the Thameslink network which will significantly restrict time for unit maintenance and repairs, and will drive relatively high empty train mileage.

20 Option 8 – Peterborough (Spital Sidings and New England Sidings)

20.1 Scheme Description

Network Rail have advised that there are two possible plots of land for a depot at Peterborough: Spital Sidings and New England Sidings (West Yard) (see Appendices B8, B8a, B8b, B8c).

20.2 Assessment Summary

20.2.1 Operational Performance

Like Cambridge, Peterborough is located at the end of a Thameslink route making remote from the other routes. In particular, no 8-car units are stabled overnight at Peterborough which means that 8-car units would have to run empty from Welwyn Garden City (56 miles away). These moves will incur significant operational costs and result in less time being available for maintenance/repair at the depot.

The site does not support interpeak stabling of Thameslink units, resulting in more empty movements and less time available for daytime maintenance/repair.

A desk top study suggests that a depot could be built on this site (see Figure 6 below). The maintenance shed would be located on the West Yard with a UFC and 6x12-car stabling sidings. Additionally there would be 6x12-car stabling sidings on Spital Yard. A wheel lathe is also provided although there might be restrictions on the number of roads that could fit under the overbridge.

However, there is no obvious washer location, and moves in and out of the depot/stabling/wheel lathe would impact on the mainline Arrival and Departure lines.

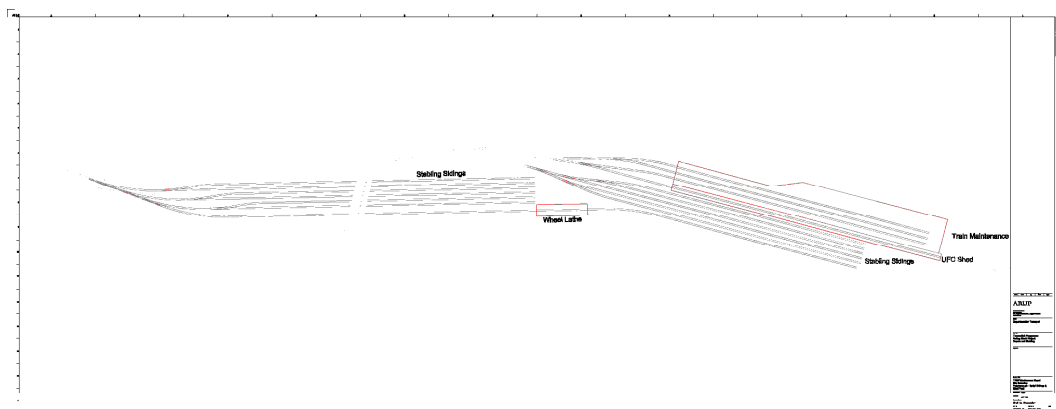


Figure 6

20.3 Planning

Planning policy does not preclude the development of a maintenance depot and associated facilities on the New England Sidings. The site is designated a General Employment Area within which planning permission will be granted for B1 (business), B2 (General Industrial) and B8 (Storage or Distribution) uses. Immediately to the east of the site, the A15 (Bourges Avenue) is allocated as a Primary Public Transport Corridor (PPTC) which is to be protected from development that would prejudice the implementation bus priority measures and improvements for bus passengers.

There do not appear to be any sensitive adjacent land uses with the site lying within the operational rail corridor and surrounded by warehousing, retail and industrial uses. The nearest residential properties are to the east of the A15.

The existing operational rail use of the site, and the lack of any extant planning permissions for alternative uses, ensures that the planning history provides support for a maintenance depot at New England Sidings.

20.3.1 Cost

The existing freight leases on the land would need to be bought out at considerable cost. There is significant uncertainty involved since the existing freight operators are not likely to support the release of these leases.

In addition, extra sidings would need to be built at Hornsey or Ferme Park for Thameslink interpeak stabling.

20.3.2 Land

The site is wholly on operational land that is owned by Network Rail, although used by freight operators with long leases (100 years).

20.3.3 Programme and Phasing

There are risks to the programme associated with re-locating existing freight users from the site.

20.3.4 Stabling

There is no significant impact to the Thameslink overnight stabling strategy. 8-car units allocated to stabling on Coronation Sidings in the Existing Base Scheme would be transferred to the depot at Peterborough (albeit with increased ECS mileage), and it is assumed that there would be space at Hornsey for the remaining 3x12-car Thameslink units (if not, then new sidings might be needed on Coronation Sidings).

Extra sidings would need to be provided to support interpeak stabling at Ferme Park or Coronation Sidings.

20.4 Conclusion

Assessment Criteria	Scoring
Operational Performance	Pink
Planning	Green
Cost	Red
Land	Pink
Programme and Phasing	Pink
Stabling	Green

This site is not viable. Peterborough, like Chesterton, performs well against some categories (i.e. planning and stabling), but there would be significant costs and programme risks in securing the leases from and re-locating operations of existing freight operators. Further concerns about viability result from operational restrictions associated with being located at the end of one of the Thameslink routes.

21 Option 9 – Hitchin

21.1 Scheme Description

There are two possible sites at Hitchin, either side of the main line where there are existing yards. There is an Up Yard on the eastern side which connects to another yard next to the station. There is also a Plant Maintenance Depot on the western side to the north of the station (see Appendix B9).

21.2 Assessment Summary

21.2.1 Operational Performance

The western site is not long enough to accommodate a 12-car depot. In addition, access in and out of a depot here would require crossing over the main lines for some of the moves (for example, departing southbound) and is not considered to be practical.

The land on the eastern side is potentially large enough for a 12-car depot. However, access would again be a problem for certain moves: trains departing to Peterborough would have to cross over the main lines and trains entering from the south would have to use the new Hitchin flyover and turnround on the Cambridge branch.

21.3 Planning

Planning policy does not preclude the development of a maintenance depot and associated facilities at Hitchin. There are no site specific policies. However, development of the site would need to take account of adjacent planning policy designations, including Landscape and Open Space Pattern designation (in particular Walsworth Common to the north east of the site) where development proposals must not have a detrimental effect on the character, form, extent and structure of the pattern, and Employment Provision sites.

To the north of the A505 and to the east of the rail corridor is a pocket of land off Nightingale Road allocated in the Local Plan (and SPG10) for residential purposes (site HS2). However, there are no extant planning permissions for alternative uses on this site.

There are potentially sensitive receptors in close proximity to the site. Recently constructed residential properties on Sharp's Way are immediately adjacent to, and look directly upon, the railway corridor. Furthermore, there is an existing 2009 planning application currently being determined for the demolition of existing industrial units on Cook's Way and the construction of 9 houses and 23 flats, many of which will be directly adjacent to operational rail corridor and the potential maintenance depot site.

Land to the west of the railway corridor is designated for residential purposes, although there are no extant planning permissions or current development proposals within this area.

21.3.1 Cost

Compared to the Existing Base Scheme (Option 1(i)), there will be additional costs associated with providing extra sidings at Ferme Park or Coronation Sidings for Thameslink interpeak stabling.

There would also be additional costs associated with buying out third party leases and rearranging existing facilities into a masterplan to suit all site uses.

21.3.2 Land

Insufficient space on the western site for a 12-car depot, and although the eastern site is potentially large enough, neither of the sites are currently available since they are leased to third parties shown on the Marlin Plan attached (see Appendix B9). Further investigation would be required to confirm this.

21.3.3 Programme and Phasing

Securing the lease for the land and providing alternative facilities for the lease holders would add risk to the Thameslink programme.

21.3.4 Stabling

Additional sidings for interpeak stabling would need to be provided at Ferme Park or Coronation Sidings.

21.4 Conclusion

Assessment Criteria	Scoring
Operational Performance	Red
Planning	Amber
Cost	Amber
Land	Pink
Programme and Phasing	Amber
Stabling	Amber

This site is not viable. The Plant Maintenance Depot site to the west of the main lines is too small for a depot and has very poor rail access. The site to the east is large enough but is not available and again suffers from poor rail access particularly to Peterborough.

22 Conclusions and Recommendations

22.1 Conclusions

This Northern Depot Site Assessment Study has provided a reassessment of the outcomes of the previous site selection workstream, to confirm whether Hornsey (Coronation Sidings) still remains the preferred location or whether, with updated assumptions, there is now a better location for the northern Thameslink train maintenance depot.

The assessment of the short-listed sites, together with the summary matrix contained in Appendix A, demonstrates that the selection of Hornsey (Coronation Sidings) remains valid. Table 4 below provides a summary of the site assessment scores ranked in order of preference, starting with the preferred option, and then ranking between sites based on the least number of red scores, then the least number of pink scores, and then the least number of amber scores.

Table 4 Depot Assessment Summary

Option		Red	Pink	Amber	Green
1(i)	Existing Base Scheme (Coronation Sidings)	0	0	0	6
7(ii)	Chesterton	0	2	2	2
1(ii)	New depot adjacent to existing Hornsey Depot	0	2	3	1
1(iii)	Utilisation of existing Hornsey Depot	1	1	0	4
9	Hitchin	1	1	4	0
2	Bounds Green	1	2	2	1
8	Peterborough Spital Sidings & West Yard	1	3	0	2
4	Cricklewood	2	0	3	1
5(iii)	Bedford Carriage Sidings	2	0	3	1
5(iv)	Bedford Carriage & Engineers Sidings & Engine Shed	2	1	3	0
7(i)	Cambridge Up Sidings	2	1	3	0
5(ii)	Bedford Cauldwell Walk (excluding Industrial Estate)	2	3	1	0
6(i)	Wellingborough – Neilson’s Sidings	3	0	1	2
6(ii)	Wellingborough – Down Goods Loop Yard	3	0	2	1
6(iii)	Wellingborough – Land south of Neilson’s Sidings	3	0	2	1
3	Ferne Park Sidings	3	1	1	1
5(i)	Bedford Cauldwell Walk (including adjacent Industrial Estate)	3	2	0	1
5(v)	Forders Sidings (Marston Vale)	3	2	0	1

22.2 Recommendation

Based on the findings of this study, it is recommended that the Existing Base Scheme at Hornsey and Coronation Sidings continues to be considered the most appropriate site for the northern Thameslink Programme maintenance depot.

Appendix A

Site Assessment Matrix

Project Title:	Thameslink Programme Depots and Stabling
Document Title:	Assessment of potential northern depot locations
Date:	02/03/2011

Northern Depot Site Assessment Study
 Requirement: 3 x 12-car maintenance shed, UFC, wheel lathe & associated facilities and sidings

Site		Criteria					
Location	Option	Operational Performance	Planning	Cost	Land	Programme and Phasing	Stabling
1. Hornsey	(i) Existing Base Scheme (Coronation Sidings)	Meets operational requirements for delivery of Thameslink Programme maintenance regime. Good location for having units to cycle through site. 33% of the Thameslink fleet pass it on the GN route, and its close proximity to the Central Core provides good access from the other routes. It is also located for interpeak stabling, which means units can be cycled during the day thereby facilitating unit maintenance. There is good rail access into and out of the depot in both north and south directions. Site is of sufficient size to provide all required facilities (whilst maintaining embankment and associated ecology).	Article 4 Direction removes Permitted Development Rights for a depot building at Coronation Sidings, therefore requiring a planning application to be submitted. However, the scheme works from both planning and environmental perspectives. While the site is within an Ecological Corridor, policy states that operational transport needs within such corridors may be acceptable if the need is justified. Issued raised with the 2009 application have been dealt with through a significant redesign of the previous depot proposals and issues raised during consultation can be mitigated.	Cost has been accounted for within wider Thameslink budget. No need to provide new wheel lathe (existing facility can be shared). No additional infrastructure required on the main line (other than connectors into depot). Operationally efficient (reduced ECS moves and mileage, supporting cycling of units, shared train crew & cleaning facilities with FCC). Optimal use of stabling (using space freed up by those FCC units that are substituted by the new rolling stock).	Site is wholly within Network Rail land and the title has been secured. No other competing railway demands for use of site.	No impact on programme from land acquisition (none required). No requirement to relocate other parties. Construction phasing will be needed to maintain existing operations at Hornsey Depot during reconfiguration of sidings. Initial phasing programme has indicated this will not impact overall Thameslink programme.	Fits in well with overall Thameslink Programme Stabling Strategy.
	(ii) New depot adjacent to existing Hornsey Depot - including upgrade of Coronation Sidings to provide stabling	Significant operational constraints associated with construction and operation adjacent to existing depot facility. Conflict between TMM / DFO responsibilities: access to/from shed roads would have to be coordinated, shunting moves could place constraints on each others activities. Access to the existing wheel lathe would be restricted. Depot building location difficult to serve by road and limited space for car parking provision. Construction over 4 year period will adversely impact operational performance of FCC during that time. More dead-end sidings make operation of depot more difficult.	Article 4 Direction removes Permitted Development Rights for stabling sidings at Coronation Sidings, therefore requiring a planning application to be submitted. The scheme is deemed acceptable in relation to planning policy, while the site is within an Ecological Corridor, policy states that operational transport needs within such corridors may be acceptable if the need is justified. However, provision of open stabling sidings on Coronation Sidings is expected to lead to increased environmental impact (noise and light) for which further assessment would be required as to whether the impact could be effectively mitigated.	Higher cost than existing base scheme (Option 1(i)). Construction costs may be higher due to complex construction issues arising as a result of continued operation of existing depot facility, e.g. road access for heavy construction equipment. Will need to permanently bridge over Penstock footbridge to provide northern rail access from all roads in coronation sidings. Additional cost for separate train presentation operations and accommodation facilities at Coronation Sidings.	Site is wholly within Network Rail land and the title has been secured. However, need extra land take for bridge over Penstock footpath.	Complex phasing due to requirement to maintain existing operations at Hornsey Depot during construction of Thameslink depot.	Although new sidings will be built on the Coronation Sidings site, the overall stabling capacity will be smaller than in option 1(i) above. This means that additional sidings will be required elsewhere.
	(iii) Utilisation of existing Hornsey Depot and extension of 3 roads to 12 car length in main shed	Insufficient capacity to maintain both fleets (there will still be a significant FCC residual fleet). There will be significant disruption during construction. Significant operational constraints associated with sharing the same depot facility, with potential conflict between TMM / DFO responsibilities. Depot building location difficult to serve by road and limited space for car parking provision.	Article 4 Direction has removed PD Rights (planning application will be required). Modification to existing depot will have more adverse impact on residents to south and east. Planning policy does not preclude a depot in this location, although the site is within an Ecological Corridor and adjacent to housing, so environmental impact would need to be assessed. Utilising the existing depot would reduce external impacts when compared to the construction of an entirely new facility. However, provision of open stabling sidings on Coronation Sidings is expected to lead to increased environmental impact (noise and light) for which further assessment would be required as to whether the impact could be effectively mitigated.	Utilising the existing depot would bring about significant cost savings on the current base scheme (Option 1(i)), although there would be costs associated with extension and modification of the depot for Thameslink use. No need to provide new wheel lathe (existing facility can be shared).	Site is wholly within Network Rail land and the title has been secured.	Complex phasing - can't maintain existing operations at Hornsey Depot during construction of Thameslink depot.	No impact on Thameslink Programme Stabling Strategy, providing stabling allocated in the base scheme (Option 1(i)) can be reprovided on Coronation Sidings (it is likely that there is room to provide more stabling capacity than the base scheme).
2. Bounds Green	Utilisation of site currently occupied by East Coast Trains depot.	Existing depot would need to be re-configured. A desk top study suggests that all facilities can fit on the site along with 5x12-car sidings. However, because of the lack of space on the site, units moving between facilities within the depot would have to do so via the Up Goods/Up Carriage lines which would adversely impact trains in service.	Planning policy does not preclude a depot in this location, although the site is within an Ecological Corridor and in close proximity to residential properties. Furthermore, provision of open stabling sidings on Coronation Sidings is expected to lead to increased environmental impact (noise and light) for which further assessment would be required as to whether the impact could be effectively mitigated.	Demolition & reconstruction costs needed with a new layout.	Site currently occupied by East Coast Trains as a maintenance facility which they will use more heavily from May 2011. There is no obvious alternative site for East Coast Trains.	Complex phasing due to need to relocate existing operations (East Coast Trains).	There is not enough capacity for stabling units on site, so would likely have to build new sidings on Coronation Sidings.
3. Ferme Park Sidings		Poor connections to main line and significant access restrictions - difficult to provide east to southbound as site is located on the wrong side of the track (can only get in from the south and out to the north). This would make serving the pm peak services very troublesome. Site is too small to provide 12-car maintenance facility. Insufficient land for provision of required additional facilities.	Planning policy does not preclude a depot in this location, although the site is within an Ecological Corridor and immediately adjacent to Ecologically Valuable Site (Borough Grade II). The planning history of the adjacent cement batching plant policies that transport and environmental impacts would need to be mitigated. Cumulative impact of depot with cement batching plant and existing warehouse uses would need to be considered. However, the requirement to provide open stabling on Coronation Sidings will create noise issues for nearby residents due to the servicing and tanking activities which will need to be carried out throughout the night and there will be more light spill at night. These impacts will be difficult to mitigate for Clarendon Square residents who overlook from a high level.	No significant cost variation from existing base scheme (Option 1(i)).	Site currently partially utilised by London Concrete for concrete batching plant. There will be increased presence in the sidings of East Coast / Grand Central / Hull Trains units from May 2011 onwards.	Complex phasing due to need to relocate existing operations and interface with adjacent concrete batching plant.	Insufficient space to provide required stabling provision at Ferme Park Sidings. It is likely that additional sidings would have to be built on Coronation Sidings for Thameslink units. However moves from these sidings to/from depot would be restrictive as they would have to use the flyover.
4. Cricklewood		Good location for Thameslink services and for supporting the delivery of the Thameslink Programme maintenance regime. Good location for having units to cycle through the site: 67% of services pass it on the Midland Mainline route, and its close proximity to the Central Core provides good access from the other routes. However, the site is not big enough to fit in stabling sidings, so units will have to stable elsewhere (probably Coronation Sidings) which will require additional ECS train paths on congested routes.	Planning policy does not preclude a depot in this location - land is designated 'rail related employment land' and is within an area allocated for train stabling as part of the approved Cricklewood, Brent Cross and Hendon regeneration area. However, it is not clear whether a maintenance depot in this location fits with overall aspirations of consented regeneration scheme - site currently designated for stabling sidings for which environmental impacts on new development are acknowledged. Mitigation is likely to be required due to close proximity of future residential uses. However, provision of open stabling sidings on Coronation Sidings is expected to lead to increased environmental impact (noise and light) for which further assessment would be required as to whether the impact could be effectively mitigated.	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be significant cost associated with relocation of planned stabling sidings and additional ECS mileage to access them.	Although there is enough space to provide maintenance depot and associated facilities, they will replace about 11x24 car length sidings. This would require the relocation of East Midlands trains and there would be no stabling capacity for Thameslink. In considering whether the additional land required to develop a depot could be made available within the Development Agreement, the following assessment was made: - Network Rail is compelled by their Development Agreement to dispose of the land subject to Network Change. - The Office of Rail Regulation has formally agreed to the disposal subject to Network Change. - Release of the land is subject to the industry accepting Network Change. The industry process is that Network Change consultation only starts after GRIP 4 level design certainty is achieved. This is not due to start for a further year and is dependent on the developer who is outside of the Thameslink Programme. Given this assessment, the Thameslink Programme could not assume in 2009 or now that sufficient land could be secured for the development of the northern maintenance depot.	Likely to be interface issues with current operations but site will largely be developed without impact on services.	Loss of significant stabling capacity - if move some units to new sidings at Coronation Sidings then will likely be problems with finding suitable train paths. Use of Cricklewood for units unable to reach Bedford during morning maintenance possessions is severely constrained.
5. Bedford	(i) Bedford Cautwell Walk (including adjacent Industrial Estate)	Significant operational constraints that exist for access in and out of current depot facility would be made worse by new and larger Thameslink depot. Rail access is from the south only. There is not enough room for a wheel lathe.	Likely that a TWA would be required to compulsorily purchase non-operational land. Existing adjoining uses are potentially sensitive to an expanded depot operations (primary school, nursery and housing). Planning policy designates the site, and surrounding area, as an Opportunity Area and it is not clear whether a depot facility would meet the Council's development aspirations. Comprehensive redevelopment of the adjoining site for residential, hotel and office uses has been proposed (although refused).	Significant costs associated with: - Land purchase of Industrial Estate and for new reception road. - Possible changes to Kempston Road Bridge to the north of the site to fit in 12-car length sidings. - Civils works required to level the site.	Site is constrained in terms of length required for a 12-car depot and may require additional land that forms the back gardens of adjacent property. Challenging vertical gradients across the site.	Significant programme delays due to requirement to acquire Industrial Estate (TWA Order envisaged). Need to acquire non-operational land for extension to reception road. Complex phasing due to need to relocate existing FCC operations.	Site should be large enough to incorporate the 6x12-car sidings required for stabling.
	(ii) Bedford Cautwell Walk (excluding adjacent Industrial Estate)	Significant operational constraints that exist in and out of current depot facility would be made worse by new Thameslink depot. Rail access is from the south only. There is not enough room for a wheel lathe. Stabling sidings would be removed to provide space for car parking, warehousing and offices.	Existing adjoining uses are potentially sensitive to an expanded depot operations (primary school, nursery and housing). Planning policy designates the site, and surrounding area, as an Opportunity Area and it is not clear whether a depot facility would meet the Council's development aspirations. Comprehensive redevelopment of the adjoining site for residential, hotel and office uses has been proposed (although refused).	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be significant cost associated with relocation of planned stabling sidings. Further costs also associated with potential changes to Kempston Road Bridge and land purchase for new reception road.	Site is constrained in terms of length required for a 12-car depot and may require additional land that forms the back gardens of adjacent property.	Need to acquire non-operational land for extension to reception road. Complex phasing due to need to relocate existing operations.	Loss of proposed 6x12-car Thameslink Programme sidings, with no alternative stabling site identified.
	(iii) Bedford Carriage Sidings	Well located for starting/ending suburban services on Midland Main Line, although less good for inner suburbs and for services on East Coast Main Line. Significant operational constraints associated with access to the site - trains would have to reverse from Bedford Station - potentially resulting in service delays. Site is too small for a 12-car depot and a wheel lathe.	Planning policy does not preclude a depot in this location and site's historic rail use and surrounding rail activity may be supportive. Site lies within Bedford Town Centre Area Action Plan area, although no site-specific designations. Further assessment would be required as to whether the impacts on the adjacent river (flood risk zone) and green corridor/biodiversity designations could be effectively mitigated.	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be cost associated with relocation of planned stabling sidings.	The site is currently in use by FCC but will be freed up once units are displaced by new Thameslink units. It cannot be extended because of River Ouse.	Complex phasing due to need to relocate existing operations.	Loss of most of proposed 14x6-car Thameslink Programme sidings, with no alternative stabling sites identified.
	(iv) Bedford Carriage Sidings, Engineers Sidings and all surrounding Network Rail land (up to the Post Office building)	Well located for starting/ending suburban services on Midland Main Line, although less good for inner suburbs and for services on East Coast Main Line. Significant operational constraints associated with access to the site - trains would have to reverse from Bedford Station - potentially resulting in service delays. The Blatchley line crosses the site and effectively divides it into two parts. From observation, it is unlikely there would be enough space for the maintenance shed and UFC without severing the Blatchley line, and there is no room for a wheel lathe. Whilst the existing 14x6-car sidings could probably remain, there is likely to be room for just 10x12-car siding which would be insufficient for holding 12-car units waiting for maintenance or repairs.	Planning policy does not preclude a depot in this location and site's historic rail use and surrounding rail activity may be supportive. Site lies within Bedford Town Centre Area Action Plan area, although no site-specific designations. Further assessment would be required as to whether the impacts on the adjacent river (flood risk zone) and green corridor/biodiversity designations could be effectively mitigated.	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be cost associated with relocation of planned stabling sidings.	Bedford Carriage sidings is currently in use by FCC but will be freed up once units are displaced by new Thameslink units. It cannot be extended because of River Great Ouse. New 6x12-car sidings are being built on Bedford Engineers Sidings for Thameslink use. They would have to be re-located to an unidentified location. Network Rail have recently applied to dispose of the land of the Engineers Shed.	New sidings are currently being built here for Dec 2011 timetable operations. Although not all sidings are required until Key Output 2, these operations will need to be relocated whilst the depot is constructed.	Loss of proposed 6x12-car Thameslink Programme sidings, with no alternative site identified.

Northern Depot Site Assessment Study							
Requirement: 3 x 12-car maintenance shed, UFC, wheel lathe & associated facilities and sidings							
Site		Criteria					
Location	Option	Operational Performance	Planning	Cost	Land	Programme and Phasing	Stabling
	(v) Forders Sidings (Marston Vale)	Site is off the core route (significant ECS moves) and would require significant movements through Bedford Station to enter/exit service.	Site is within Marston Vale growth area which seeks provision of housing and jobs and improvements to environment. Major application for new town (c1200 homes, employment, schools, open space) has been proposed for Stewarby Brickworks immediately adjacent to the site. Site is within the flood zone and forms part of the Forest of Marston Vale where development will be required to incorporate the aims of the project.	Electrification of branch line required as well as re-doubling of chord line. Land acquisition is likely to be expensive (site is outside of operational land).	The site is not within operational land (as indicated by Martin - Feb 08) and would therefore need to be acquired.	Significant programme delays due to requirement to acquire land from a third party and the need for electrification of part of Bedford to Bletchley line.	No impact on Thameslink Programme Stabling Strategy (Forders Sidings not allocated for stabling).
6. Wellesborough	(i) Nelson's Sidings	Rail capacity constraints - bottleneck due to freight and ECS trains (4 tracks down to 3 tracks north of Sharnbrook Jn). The site is also far from the core Thameslink route and would require significant ECS movements.	Planning policy does not preclude a depot in this location - land is designated for 'employment and distribution uses based primarily on activities involving transport by rail'. Planning history is supportive given recent development of GB Rail freight depot facility and site is within existing rail operations area. There do not appear to be any adjacent sensitive land uses.	Would need to electrify route from Bedford up to the access of the depot. (15miles approx). Two options were considered. Electrify Slow lines - £37.1m Electrify Fast lines - £54.1m Electrifying fast lines is cheaper however electrifying and doubling slow lines is preferable operationally.	The site offers a large area to work and allows a 'through depot' arrangement. However, existing operations would need to be relocated.	Significant programme delays due to need for electrification and doubling of the slow lines. Complex phasing due to need to relocate existing operations.	No impact on Thameslink Programme Stabling Strategy (Nelson's Sidings not allocated for stabling).
	(ii) Down Goods Loop Yard	Only accessible from Down Fast or Goods lines both of which would cause operational conflicts. Rail capacity constraints - bottleneck due to freight and ECS trains (4 tracks down to 3 tracks north of Sharnbrook Jn). Whilst the site is large enough for the main 3x12-car shed, there is not enough room for other required facilities. The site is also far from the core Thameslink route and would require significant ECS movements.	Planning policy does not appear to support a depot in this location - land is designated for 'mixed development purposes based primarily on housing and retained employment uses'.	Would need to electrify route from Bedford up to the access of the depot. (15miles approx). Two options were considered. Electrify Slow lines - £37.1m Electrify Fast lines - £54.1m Electrifying fast lines is cheaper however electrifying and doubling slow lines is preferable operationally.	The site is within Network Rail's operational land but appears to have some areas being leased to third party operators which would need to be secured, and existing operations would need to be relocated.	Significant programme delays due to need for electrification and doubling of the slow lines.	No impact on Thameslink Programme Stabling Strategy (Down Goods Loop Yard not allocated for stabling).
	(iii) Land south of Nelson's Yard	Rail capacity constraints - bottleneck due to freight and ECS trains (4 tracks down to 3 tracks north of Sharnbrook Jn). The site is also far from the core Thameslink route and would require significant ECS movements. Single connection to Reception line would be an operational risk.	Planning policy does not appear to support a depot in this location - land is designated for 'mixed development purposes based primarily on housing and retained employment uses'.	Would need to electrify route from Bedford up to the access of the depot. (15miles approx). Two options were considered. Electrify Slow lines - £37.1m Electrify Fast lines - £54.1m Electrifying fast lines is cheaper however electrifying and doubling slow lines is preferable operationally.	Land is currently occupied by a factory and storage unit which are railway buildings leased to third party operators. A 3x12-car shed may allow for provision of other required facilities, although the site size is constrained.	Significant programme delays due to need for electrification and doubling of the slow lines.	No impact on Thameslink Programme Stabling Strategy (Land south of Nelson's Sidings not allocated for stabling).
7. Cambridge	(i) Up Sidings to the east of the station	Only 3x12-car TL units start at Cambridge in v3.1 unit diagrams. This means that 8-car units would have to run empty from Welwyn Garden City (35 miles) with less time available for maintenance. Located 58 miles from Core, so not well located for moving units requiring repairs. The site is not large enough. It might just be possible to build the main shed on the Up Sidings, but there would not be room for the other facilities (UFC, washer, wheel lathe etc), probably not even if NXEA and FCC vacated their sidings. Site doesn't support interpeak stabling resulting in more empty movements and less time available for daytime maintenance.	Site is in existing operational railway use. However, the site forms part of the Cambridge Station Area of Major Change with aspirations for regeneration as a high density mixed-use (mainly residential) district built around an enhanced transport interchange and is immediately adjacent to conservation areas, listed buildings and buildings of local interest. Development of a maintenance depot in this location is not likely to conform to Council policy aspirations.	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be cost associated with extra sidings needed to be built at Hornsey for interpeak stabling and re-locating NXEA stabling operations.	Insufficient space - Network Rail are building a new island platform at Cambridge, and NXEA are electrifying reception roads 3 and 4 to be used as sidings. NXEA and FCC would have to re-locate all their existing operations - and even then there may not be enough space for a depot.	Complex phasing due to need to relocate existing operations.	Significant impact - would need to provide alternative locations for any displaced NXEA and FCC residual units.
	(ii) Chesterton	Only 3x12-car TL units start at Cambridge in v3.1 unit diagrams. This means that 8-car units would have to run empty from Welwyn Garden City (35 miles) which will incur significant operational costs with less time available for maintenance. Located 58 miles from Core, so not well located for moving units requiring repairs. Site is large enough for all facilities and about 10x12-car sidings. However, it is not ideal because it would be shared with existing freight operation which could adversely impact the exterior of units. Site doesn't support interpeak stabling resulting in more empty movements and less time available for daytime maintenance.	The site is within an area proposed for extensive regeneration, although these plans account for NR's requirement to retain land for operational rail (stabling) purposes. The site is adjacent to Green Belt land and proposed high-density mixed use redevelopment in connection to the new Chesterton Station, interchange facility and guided busway.	No significant cost variation from existing base scheme (Option 1(i)) in terms of depot construction, but likely to be cost associated with extra sidings needed to be built at Hornsey for interpeak stabling. There would be a significant cost in buying out the freight leases and rearranging existing facilities into a masterplan to suit all site uses.	The site is on operational land but the lease would need to be secured from a third party. The guided busway to St Ives is also being built on part of the site which would need to be accommodated.	No impact on programme from land acquisition (none required), however it is a requirement to negotiate the release of leases and to relocate people as required.	Additional TL stabling facilities at Cambridge now no longer needed. Will need to provide some interpeak stabling at Hornsey or Ferme Park.
8. Peterborough	Spital Sidings and West Yard	No 8-car units start at Peterborough in v3.1 unit diagrams. This means that 8-car units would have to run empty from Welwyn Garden City (58 miles) which will incur significant operational costs and result in less time being available for maintenance. Located 76 miles from Core, so not well located for moving units requiring repairs. Site doesn't support interpeak stabling resulting in more empty movements and less time available for daytime maintenance.	Planning policy does not preclude a depot in this location - land is designated for employment purposes. There do not appear to be any sensitive adjacent land uses and the site is in existing operational railway use with no extant planning permissions for alternative uses.	The existing freight leases on the land would need to be bought out at considerable cost. There is significant uncertainty involved since the existing freight operators are not likely to support the release of these leases. In addition, extra sidings would need to be built at Hornsey or Ferme Park for Thameslink interpeak stabling.	The site is wholly on operational land that is owned by Network Rail, but is used by freight operators with long leases (i.e. 100 years).	Likely to have a significant adverse impact from having to re-locate existing users.	No significant impact. Transfer 8-car stabling from Hornsey to Peterborough, and assume that Hornsey can accommodate remaining 3x12-car Thameslink units that were allocated to Coronation Sidings.
9. Hitchin		The western site is not long enough to accommodate a 12-car depot. In addition, access in and out of a depot here would require crossing over the main line for some of the moves (for example, departing southbound) and is not considered to be practical. The land on the eastern side is potentially large enough for a 12-car depot. However, access would again be a problem for certain moves - trains departing to Peterborough would have to cross over the main line and trains entering from the south would have to use the new Hitchin flyover and turnaround on the Cambridge branch.	Planning policy does not preclude a depot in this location; however, the proximity of protected open space designations would need to be considered. Land to the west of the rail corridor is designated for residential purposes, although no proposed development has come forward. However, recent and future proposed residential development immediately to the east of the site (Cook's Way) could lead to potentially significant environmental impacts that would need to be mitigated.	Compared to the existing base scheme (Option 1(i)), there will be additional costs associated with providing extra sidings at Ferme Park or Coronation Sidings for Thameslink interpeak stabling. There would also be additional costs associated with buying out third party leases and rearranging existing facilities into a masterplan to suit all site uses.	According to the Martin Plan (see Appendix B9), neither of the sites are currently available since they are leased to third parties.	Securing the lease for the land and providing alternative facilities for the lease holders would add risk to the Thameslink programme.	Additional sidings for interpeak stabling would need to be provided at Ferme Park or Coronation Sidings.

Criteria	
Operational Performance	Ability to deliver the required train service
	Rail access routes to/from the site
	Connections to the Thameslink network
Planning & Environment	Ability of site to accommodate required facilities
	Compliance with planning policy
	Site planning history
	Environmental considerations
Cost	Adjoining land uses
	Likely cost of depot development. Note that schemes haven't been costed in any detail, but rather a comparison with the Existing Base Scheme has been made.
Land	Land availability
	Ownership
	Control
Programme and Phasing	Vacant Possession
	Need to re-locate existing users/occupiers
Stabling	Timescales required to develop the site (and achieve consents) in advance of contract award (31st October 2011) and to construct the facility to support the Thameslink Programme (August 2014).
	Impact on the Thameslink Programme stabling requirements

Colour Key	
Green	Neutral or Minor Negative Impact - possible to mitigate so as to avoid significant negative impacts and moderate negative impacts
Amber	Moderate Negative Impact - possible to mitigate so as to avoid significant negative impacts
Pink	Significant Negative Impact - unlikely to be possible to mitigate so as to avoid significant negative impacts
Red	Major Significant Negative Impact - not possible to mitigate so as to avoid significant negative impacts