Programme: HS2
Project: Overground station at Old Oak Common

Document reference:

London Overground station at Old Oak Common
Option Assessment Report

Prepared by
Peter Moth
Project Manager

Signature  Date
09/09/2014

Approved by
Michael Colella
Project Manager

I confirm that this deliverable meets the requirements of the relevant TFL Pathway Product Description and that all consultation comments have been addressed to the satisfaction of consultees.

15/09/2014

Distributed to

Document History

<table>
<thead>
<tr>
<th>Revision</th>
<th>Date</th>
<th>Summary of changes</th>
</tr>
</thead>
<tbody>
<tr>
<td>v 1.0</td>
<td>08092014</td>
<td>Version for public consultation website</td>
</tr>
</tbody>
</table>
# Contents

<table>
<thead>
<tr>
<th>Section</th>
<th>Description</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part 1</td>
<td>Purpose and Introduction</td>
<td>3</td>
</tr>
<tr>
<td>1.1</td>
<td>Purpose</td>
<td>3</td>
</tr>
<tr>
<td>1.2</td>
<td>Introduction</td>
<td>3</td>
</tr>
<tr>
<td>Part 2</td>
<td>Phase 1: Option generation</td>
<td>4</td>
</tr>
<tr>
<td>2.1</td>
<td>Governance</td>
<td>4</td>
</tr>
<tr>
<td>2.2</td>
<td>Option gathering</td>
<td>4</td>
</tr>
<tr>
<td>2.3</td>
<td>List of options</td>
<td>4</td>
</tr>
<tr>
<td>Part 3</td>
<td>Phase 2: Option sifting</td>
<td>18</td>
</tr>
<tr>
<td>3.1</td>
<td>Criteria used</td>
<td>18</td>
</tr>
<tr>
<td>3.2</td>
<td>Option sifting</td>
<td>18</td>
</tr>
<tr>
<td>Part 4</td>
<td>Phase 3: Further option Assessment</td>
<td>19</td>
</tr>
<tr>
<td>4.1</td>
<td>Further feasibility</td>
<td>19</td>
</tr>
<tr>
<td>4.2</td>
<td>Further option</td>
<td>19</td>
</tr>
<tr>
<td>4.3</td>
<td>Naming convention</td>
<td>19</td>
</tr>
<tr>
<td>Part 5</td>
<td>Subsequent development</td>
<td>20</td>
</tr>
<tr>
<td>5.1</td>
<td>Further feasibility study</td>
<td>20</td>
</tr>
<tr>
<td>5.2</td>
<td>Next steps</td>
<td>22</td>
</tr>
</tbody>
</table>
Part 1 Purpose and Introduction

1.1 Purpose

1.1.1 This note sets out the process of option assessment undertaken by TfL in selecting a shortlist of options for a new station on the London Overground network at Old Oak Common (OOC). The note is produced in accordance with DfT Guidance as defined in the note ‘Technical Guidance for Project Managers’¹. Further assessment of these shortlisted options is required at the next stage of assessment, with a single preferred option to be identified at this stage.

1.2 Introduction

1.2.1 A number of options exist for linking the London Overground to Old Oak. These are very wide ranging in scope, and it was therefore essential to carefully document the process undertaken to enable a shortlist of options to be drawn up.

1.2.3 This note sets out the process undertaken, including:

• Options generation
• Option sifting, and
• Option assessment.

1.2.4 It is important that decisions made on discarded options have been recorded, along with supporting evidence. The rest of this note sets out the process in more detail.

Part 2  Phase 1: Option generation

2.1  Governance

2.1.1  A working group was formed in mid 2012 to establish feasible options for an Overground station at OOC. The group was commissioned by HS2 Ltd, with key input from TfL and Network Rail on instruction from the DfT following pressure from TfL to include an Overground station as part of the HS2 plans. The study was led by HS2 Ltd with key input from TfL and Network Rail.

2.1.2  A long list of around 40 options was compiled for the purpose of developing an Overground station. All reasonable options were considered ranging from an Overground station directly above the HS2 complex, to a cable car linking the HS2 complex to Willesden Junction station.

2.2  Option gathering

2.2.1  This option gathering process involved:

- comprehensive site visits, including rail-side tours of North Pole and The First Great Western OOC depots
- workshops involving Network Rail, HS2 Ltd, DfT and TfL
- definition of project requirements

2.2.2  A list of 27 distinct options were drawn up, and are outlined below.

2.3  List of options

2.3.1  Option 1: New Overground station directly above Crossrail platforms; impact on Wormwood Scrubs.

Figure 1: Illustration of Option 1
2.3.2 Option 2: New Overground station to the south of North Pole depot, with through running.

Figure 2: Illustration of Option 2

2.3.3 Option 3: Two new Overground stations: to the south of North Pole depot, and on the North London Line.

Figure 3: Illustration of Option 3

2.3.4 Option 4.1: Improve links to Willesden Junction – via a new tunnelled pedestrian link
2.3.5 Option 4.2: Improve links to Willesden Junction – via a new tunnelled cable car link

Figure 4: Illustration of Option 4.1

2.3.6 Option 5.1: Two new Overground stations directly beneath the HS2 platforms.

Figure 5: Illustration of Option 4.2
2.3.7 Option 5.2: Two new Overground stations directly beneath the HS2 platforms.

2.3.8 Option 6: New Overground station beneath Crossrail depot, to the north of HS2 station.
2.3.9 Option 7: New Overground station directly above Crossrail platforms served by West London Line (WLL) and North London Line (NLL); no direct impact on Wormwood Scrubs.

2.3.10 Option 8.1: New Overground station on North London Line, with new connection to West London Line
2.3.11 Option 8.2: New Overground station on North London Line, with new connection to West London Line over Wormwood Scrubs

2.3.12 Option 10: New Overground station on North London Line only
2.3.13 Option 11: New Overground station on the North London Line, directly above the Central Line.

2.3.14 Option 12: New Overground station directly above GWML / HS2 station
2.3.15 Option 30.1: New Overground station on the West London Line at Hythe Road with a tunnelled link to HS2

Figure 14: Illustration of Option 12

Figure 15: Illustration of Option 30.1
2.3.16 Option 30.2: New Overground station on the West London Line at Hythe Road with a raised link to HS2

Figure 16: Illustration of Option 30.2

2.3.17 Option 31.1: New Overground station on a realigned West London Line, with a tunnelled link to HS2.

Figure 17: Illustration of Option 31.1
2.3.18  Option 31.2: New Overground station on a realigned West London Line, with a raised link to HS2.

Figure 18: Illustration of Option 31.2

2.3.19  Option 32: New Overground station on existing West London Line at Mitre Bridge

Figure 19: Illustration of Option 32
2.3.20 Option 33.1: New Overground station directly above HS2 station and North Pole depot (at a height of 32m AOD)

Figure 20: Illustration of Option 33.1

2.3.21 Option 33.2: New Overground station directly above HS2 station and North Pole depot (at a height of 37m AOD)

Figure 21: Illustration of Option 33.2
2.3.22 Option 33.3: New Overground station directly above and parallel to HS2 station

Figure 22: Illustration of Option 33.3

2.3.23 Option 33.4: New Overground station directly above and parallel to Crossrail station

Figure 23: Illustration of Option 33.4

2.3.24 Option 34: New Overground station above the North Pole depot, with construction over Wormwood Scrubs
2.3.25  Option 35.1: New Overground station directly above and perpendicular to Crossrail and HS2 platforms

2.3.26  Option 35.2: New Overground station directly above and perpendicular to Crossrail and HS2 platforms (direct route through Wormwood Scrubs).
2.3.27 Option X: New Overground station on the existing North London Line, with West London Line services re-routed around the South West Sidings
Part 3 Phase 2: Option sifting

3.1 Criteria used

3.1.1 A seven-point multi-disciplinary criteria was developed to enable a high level assessment of the long list of options. The seven agreed criteria were:

- Alignment quality
- Interchange quality
- Impact on HS2
- Benefits to passengers
- Impact on key stakeholders
- Impact on operational railway
- Regeneration impacts

3.1.2 Environmental considerations were captured in the “impacts on key stakeholders” criterion.

3.2 Option sifting

3.2.1 Following initial conversations with the DfT, HS2 Ltd and Network Rail, any options that:

- added substantial delivery risk to the HS2 project
- involved construction over the Crossrail depot
- involved substantial construction over the North Pole depot

were eliminated by inspection. Options that involved substantial permanent land take within Wormwood Scrubs were also eliminated at an early stage.

3.2.2 The options considered in Chapter 2 were individually assessed by TfL, HS2 Ltd and Network Rail.

3.2.3 Using the sifting criteria above, the long list was reduced to short list of five options. These were taken through the next stage of assessment and consisted of:

- Option 2
- Option 3
- Option 8.1
- Option 8.2
- Option X
Part 4 Phase 3: Further option Assessment

4.1 Further feasibility

4.1.1 The shortlisted options were subjected to a more detailed assessment process in 2013 using the following tools:

- strategic assessment framework (linked to the Mayor’s Transport Strategy objectives)
- demand modelling forecasts produced by the TfL Railplan\(^2\) model
- further engineering and operational feasibility assessment, using the Network Rail project development GRIP\(^3\) process
- capital and operating costs estimates
- high level environmental assessment

4.1.2 This evaluation identified two feasible solutions, based on the feasibility and operability of the options. Options 2, 3 and 8.1 were eliminated at this stage, for the following reasons:

- Option 2 – overly intrusive impacts on Wormwood Scrubs; involves new station directly above North Pole depot; access to the station involves constructing on Wormwood Scrubs
- Option 3 – very low passenger benefits; Clapham to Stratford services would be substantially reduced in order to serve new station
- Option 8.1 overly intrusive impact on Wells House Road residents; no acceptable vertical alignment was found to be possible

4.1.3 leaving the following options

- Option 8.2 – new viaduct along the northern edge of Wormwood Scrubs
- Option X – reverse West London Line services at new station at Old Oak Common Lane

4.2 Further option

4.2.1 Following dialogue with key political stakeholders, a further option was added to the shortlist. This option involved merging two earlier options (as described in Chapter 2 above). Option 10 and 30.1 were combined to give a two station option. This option is shown below under the title Option C, in Figure 30.

4.3 Naming convention

4.3.1 Following the feasibility study outlined above, the three shortlisted options were given new names, to simplify public engagement. The options carried forward therefore became known as:

- Option A – formally Option 8.2
- Option B – formally Option X
- Option C – a combination of Options 10 and 30.1

\(^2\) Railplan is a strategic public transport model used as standard by TfL for strategic rail assessment

\(^3\) The Network Rail GRIP process is explained fully at [http://www.networkrail.co.uk/aspx/4171.aspx](http://www.networkrail.co.uk/aspx/4171.aspx)
Part 5 Subsequent development

5.1 Further feasibility study

5.1.1 A shortlist of three options were taken into a feasibility design process equivalent to the Network Rail project development GRIP 3\(^4\) assessment. This study will assess the three options below against the following disciplines:

- Engineering feasibility
- Operational feasibility
- Station operations
- Passenger demand
- Environmental impacts
- Consents
- Stakeholder engagement

5.1.2 The options to be taken forward to this next level of assessment are described below in more detail:

- **Option A** (known previously as Option 8.2 in the initial assessments) – a new viaduct running to the north of Wormwood Scrubs, allowing WLL trains to join the NLL, just south of Acton Wells Junction, with a new station on the NLL adjacent to Old Oak Common Lane.

---

\(^4\) The Network Rail GRIP process is explained fully at [http://www.networkrail.co.uk/aspx/4171.aspx](http://www.networkrail.co.uk/aspx/4171.aspx)

---

*Figure 28: shortlisted Option A*
• Option B – (known previously as Option X in the initial assessments) – WLL trains would use the existing South West Goods lines to a new station on the NLL adjacent to Old Oak Common Lane, where they would reverse and use the NLL to continue to Willesden Junction.

Figure 29: shortlisted Option B

• Option C (a merger of two options (Option 10 and Option 30.1) in the initial assessments) – two separate stations, one on the NLL adjacent to Old Oak Common Lane, and another on the WLL adjacent to Hythe Road with pedestrian links to OOC HS2 station.

Figure 30: shortlisted Option C
5.2 Next steps

5.2.1 The results from this GRIP 3 assessment process will be compiled in late 2014, and, together with public consultation results, will culminate in a single preferred option selection.