

Chesterfield Borough Council,  
Chatsworth Settlement Trustees &  
Rhodia Ltd

**HS2 Infrastructure Maintenance  
Depot (Staveley)**

**High Level Option Appraisal**

Issue | 30 January 2014

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

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## Executive Summary

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The purpose of this report is to understand and evaluate the potential impact of the proposed High Speed Rail 2 (HS2) Infrastructure Maintenance Depot (IMD) on the Staveley Works Area (the site), and to explore alternative layouts accordingly.

There is a strong need for redevelopment of the site. This is due to the fact that it is a large brownfield site (c.200 hectares) which currently negates the regeneration of a wider area with high levels of multiple deprivation (i.e. high unemployment, poor health and low educational attainment/skills).

As such, the Chesterfield Core Strategy (adopted in 2013) prioritises the site for redevelopment, making it the only Strategic Allocation in the Borough and providing for a Staveley and Rother Valley Corridor Area Action Plan (AAP) to address site-related issues and provide for residential and employment uses.

However, the implementation of the AAP Masterplan would be severely frustrated by the current layout of the proposed IMD-which would negate the delivery of the critical Chesterfield to Staveley Regeneration Route (CSRR – a spine road) through the site.

Chesterfield Borough Council, Derbyshire County Council, The Chatsworth Settlement Trustees and Rhodia Ltd have therefore commissioned a suite of studies to consider key issues and inform HS2 Consultation responses.

This report confirms that the current layout of the proposed IMD will have a significant negative impact on the delivery of the (AAP) Masterplan and thereby harm the viability of redevelopment and regeneration in the area.

However, this report also shows that a minor relocation of the IMD footprint to the north and adjacent to the minerals railway line (“Scenario 4”) should create sufficient space for the CSRR to be delivered, thus maintaining the viability of the redevelopment of the site in line with the Core Strategy. Some minor modifications to the internal configuration of the IMD and the alignment of the CSRR may also be required.

At a meeting on 7 January 2014, HS2 Ltd confirmed it understood the issues affecting the delivery of the AAP Masterplan, and will now review the IMD layout in line with Scenario S4 so as to help deliver the AAP.

As such, it is understood that HS2 Ltd will explore the potential for the relocation and reconfiguration of the IMD footprint, and seek to amend it to form part of the preferred HS2 scheme to be published in due course.

# 1 Introduction

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This report has been prepared by Arup on behalf of Chatsworth Settlement Trustees (CST), Chesterfield Borough Council (CBC) and Rhodia Ltd (Rhodia). The purpose of the report is to help to understand and evaluate the potential impact of the proposed High Speed Rail 2 (HS2) Infrastructure Maintenance Depot (IMD) on the Staveley Works Area site (the site), evaluate whether the current IMD proposal represents the optimal solution and explore alternative layouts relative to key site issues.

The structure of the report is as follows:

- Section 2 describes the context and background to the study;
- Section 3 defines the approach and methodology used to assess each of the scenarios;
- Section 4 provides a brief description of the proposed IMD development;
- Section 5 provides an assessment of two baseline scenarios (i.e. with and without the IMD) and defines the impact of the IMD on the Site;
- Section 6 presents the alternative scenarios considered and assesses the impact of each scenario;
- Section 7 presents a discussion of the potential to reconfigure the internal layout of the IMD;
- Section 8 provides a conclusion to the report and recommendation for a preferred scenario.

## 2 Context

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This section of the report sets out the context and background to HS2, the Staveley Works Area and relevant local planning policies and local interests.

### 2.1 HS2

HS2 is the Government's proposed high speed rail network linking London with Birmingham (Phase One) and beyond to Manchester and Leeds (Phase Two).

In January 2012, the then Secretary of State for Transport, Justine Greening MP, announced that she had decided to proceed with HS2 Ltd's recommended route for Phase One. Broader recommendations for Phase Two were also accepted. HS2 Ltd is currently producing legislation for submission to Parliament, comprising an Environmental Statement on the Phase One route and a Hybrid Bill<sup>1</sup>.

In January 2013, the current Secretary of State for Transport, Patrick McLoughlin MP, announced the initial preferred routes for Phase Two, comprising a western branch of the high speed rail network connecting Birmingham and Manchester (via Manchester Airport); and an eastern branch connecting Birmingham with Leeds via a new East Midlands Hub at Toton and a new station at Sheffield Meadowhall. A public consultation on the routes, stations and depots for Phase Two is currently underway and will conclude at the end of January 2014.

It is anticipated that Phase Two of the scheme alone would provide a total of 1,400 permanent jobs, with up to 10,000 jobs created during the busiest part of construction. Additionally the scheme would be expected to support some 49,700 jobs and 5,350 new houses through its enhancement of the development potential around stations along the route<sup>2</sup>.

Critical to the operation and maintenance of each phase of HS2 is the provision of an IMD, with a depot proposed on each leg of Phase Two. This report considers the impact of the construction of an IMD to serve the eastern leg of Phase Two at a brownfield site in Staveley, Chesterfield.

The IMD is required for use in maintaining the railway infrastructure on the eastern leg of Phase Two. It may also serve as a 'rail head' (i.e. construction depot to support the building of the HS2 line). A detailed description of the proposed depot is presented at Section 4.

The current indicative proposed timeline for Phase Two is understood to be as follows:-

- 31 January 2014 – Public consultation ends;
- End of 2014 – Final decision on proposed route, station and depot options for Phase Two;
- 2015 – Consultation on safeguarding of chosen route;
- Post May 2015 – Phase Two hybrid bill brought forward;

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<sup>1</sup> High Speed Rail London to the West Midlands and Beyond: HS2 Technical Appendix, HS2 Ltd, 2009

<sup>2</sup> HS2 Phase Two Initial Preferred Scheme: Sustainability Summary, HS2 Ltd, 2013

- 2016 – Phase Two Exceptional Hardship Scheme replaced by statutory measures;
- 2024 – Construction of Phase Two begins;
- 2031 – Completion of construction and testing of route; and
- 2032/33 – Opening of Phase Two.

## 2.2 Staveley Works Area

The Staveley Works Area (the site) consists of approximately 200 hectares of mainly derelict land west of Staveley. The site was formerly used for a range of industrial and other activities which formed the focus of employment for residents in the surrounding area (in particular the settlements of Staveley, Barrow Hill and Hollingwood). The decline in traditional industries and loss of economic activity on the site has contributed to socio-economic decline in the local communities.

The Barrow Hill Super Output Area (in which the majority of the site falls) ranks within the bottom 10% locally, and nationally, in terms of indices of multiple deprivation, with particular problems associated with employment, education, skills and health. Moreover, the continued presence of a large derelict site between the settlements of Staveley, Barrow Hill and Hollingwood is a major eyesore in the area, and thereby negates the wider regeneration of the communities of Staveley and Barrow Hill in particular.

There is a pressing need to alleviate deprivation within the communities around the site. The Staveley Works Area offers a major strategic regeneration opportunity, unique within Chesterfield Borough, for new development to bring benefits to existing local communities, the Borough as a whole and the North Derbyshire sub-region beyond.

The site's potential to accommodate a large amount of residential, employment and other development on a brownfield site, in an area particularly hard hit by a decline in traditional employment has been acknowledged within local planning policy.

## 2.3 Local Planning Policy – Core Strategy

Redevelopment of the Staveley Works Area is one of the top priorities of Chesterfield Borough Council. The Chesterfield Local Plan: Core Strategy (adopted in 2013) identifies the Staveley Works Area as a Strategic Allocation (the 'Staveley and Rother Valley Corridor'). This is the only Strategic Allocation in the Borough. The Core Strategy prioritises the redevelopment of the site accordingly.

Securing redevelopment of the site is central to achieving the overall Spatial Vision of the Core Strategy, many of its Strategic Objectives and its Spatial Strategy.

Core Strategy Policy CS1 'Spatial Strategy', for example, directs 26% of the Borough's housing requirement within the plan period (2011 – 2031) to the site (around 2,000 dwellings). The policy also confirms the site as a key area for employment uses.

Reflecting its importance, the Core Strategy includes a specific policy for the site – Policy PS5 ‘Staveley and Rother Valley Corridor’. This affirms that the Council will publish an Area Action Plan *‘demonstrating how the area will be comprehensively redeveloped to create a sustainable urban extension in a landscape setting through a masterplanned approach’*. The objectives of the masterplan will include:

- Delivery of a range of new housing opportunities (up to 2,000 dwellings);
- Creation of employment opportunities (up to 50ha);
- Provision of a new local centre to serve new development and existing local communities (Barrow Hill and Hollingwood);
- Enhanced landscape quality and green infrastructure;
- Delivery of access and transport improvements;
- Improved water management; and
- Conservation and enhancement of the historic environment.

CBC has consulted on a Community Infrastructure Levy (CIL) Draft Charging Schedule (November 2013). CBC’s CIL proposals identify a number of infrastructure improvements that would help deliver regeneration within the site. It is proposed that CIL receipts from development across the Borough would be used to help deliver these improvements, underlining the strategic importance of redevelopment of the site to the Borough as a whole.

## 2.4 Local Planning Policy – Area Action Plan

In view of the acknowledged priority for redevelopment of the site, CBC along with partners prepared evidence to support the consideration of development options, leading to ‘Issues and Options’ consultation in 2009. The resulting technical reports and initial masterplanning confirmed the Staveley Works Area to be a complex site.

Following consideration of the feedback on the initial draft options, CBC consulted on the Staveley and Rother Valley Corridor Area Action Plan (AAP) Development Plan Document (Preferred Option) in 2012. This preceded publication of the HS2 Phase 2 proposals. The draft AAP served to inform, and was itself informed by, preparation of the Core Strategy.

Consistent with the Core Strategy, including Policy PS5, the AAP outlines the importance of the Staveley Works Area as a strategic redevelopment opportunity, the regeneration of which will lead to wide ranging social, economic and environmental benefits to the local community, the Borough (of Chesterfield) and the region.

The AAP contains regeneration proposals for the former industrial land and an indicative Masterplan, which demonstrates how the area will be comprehensively redeveloped to create a ‘Sustainable Urban Extension’ to Chesterfield. It aims to *‘awaken the potential of the area by providing a framework for its redevelopment’*. It also provides a guide for co-operation between landowners and other interested parties and to help make decisions on development proposals within it. The AAP provides a ‘blueprint’ for comprehensive development to make the area a safe and attractive place to live, work and invest in.



The AAP sets out a number of objectives, which attempt to achieve the vision for redevelopment, including:

- Regeneration – the delivery of new, accessible job opportunities;
- Housing – the delivery of up to 2,000 dwellings;
- Economy – the delivery of up to 50 hectares of employment land; and
- Connectivity – the provision of the A619 Chesterfield - Staveley Regeneration Route through the Site, intended to facilitate development along the corridor, along with providing relief to the congested A619 link, and a strategic link between Chesterfield and the M1.

These objectives have informed the assessment within this report of the strategic policy fit of each scenario in order to ensure that the site delivers benefits not only within the confines of the site, but also to the wider sub-region.

Masterplanning commissioned by CST<sup>3</sup> informed preparation of the AAP and the Core Strategy.

At the point that the AAP was developed, the potential for HS2 to impact upon the Site had not emerged. However, the flexibility that is inherent within the AAP Masterplan will help to ensure that it can be adapted to take account of the impact of the IMD and maximise the opportunities that HS2 presents for the area.

CBC is looking to produce an updated draft AAP (revised Preferred Options) DPD this Summer that will respond to and seek to accommodate the IMD proposal. Flexibility on the part of HS2 and clarity in respect of its requirements for the IMD will help to ensure the AAP emerges as a responsive and effective policy and development tool so as to maximise the opportunities for securing much needed regenerative development on the site.

## 2.5 Local Interests

Given the strategic need for the regeneration of the Staveley Works Area site, a range of partners have been working on related planning, development and transport capacity issues since 2006. These include:

- Chesterfield Borough Council (CBC) – as Local Planning Authority;
- Derbyshire County Council (DCC) – as Local Highways Authority;
- Chatsworth Settlement Trustees (CST) – as landowner of the majority of the site;
- Rhodia Ltd (Rhodia) as tenant of CST and landowner of a small part of the site.

In view of the potential impact of the proposed HS2 IMD on related interests, these partners have formed an informal consortium to commission a suite of inter-related studies to consider key issues and inform respective responses to the HS2 Consultation. These studies are:

- HS2 Infrastructure Maintenance Depot (Staveley) - High Level Option Appraisal (Arup) funded by CBC, CST and Rhodia;

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<sup>3</sup> Staveley Works Area Regeneration Masterplan, Capita Symonds, 2012

- HS2 Infrastructure Maintenance Depot (Staveley) - High Level Appraisal of Impacts on A619 Chesterfield - Staveley Regeneration Route (URS) funded by DCC; and
- HS2 Infrastructure Maintenance Depot (Staveley) High Level Appraisal of Economic Impacts (Volterra) funded by DCC and CBC.

It is anticipated that all the responses by the representative parties above will be both consistent and also informed by the respective pieces of evidence outlined above.

## 3 Approach

In order to evaluate the potential impact of the proposed IMD on the site, it is necessary to firstly establish the impact of the Local Plan (AAP) policy on the site (the baseline scenario 'B1'), and then secondly to establish the impact of the IMD proposed at the site (termed scenario 'B2'). If this results in an unfavourable evaluation of the IMD on Staveley, then it will be necessary to explore (and evaluate) further alternative solutions, as appropriate.

However before any such evaluation can be undertaken, it is necessary first of all to define the qualitative and quantitative criteria by which these different solutions can and should be evaluated. The study brief is presented at Appendix A.

### 3.1 Study Area

The study area includes the full extent of the AAP Masterplan boundary. Although the IMD will only directly impact upon part of the AAP Masterplan (that to the east of the River Rother), the subsequent changes to the A619 Chesterfield - Staveley Regeneration Route and the uses and layout within the Masterplan have the potential to affect the wider AAP Masterplan area.

### 3.2 Quantitative Criteria

Three quantitative assessment criteria have been defined as follows:

**1) Development area** – the AAP Masterplan has been analysed to provide a measurement of the total developable area that is provided within it. The approximate area of development in the AAP Masterplan is 87 hectares. This equates to approximately 44% of the overall AAP Masterplan. The non-development areas of the Site within the AAP Masterplan include landscaping and open space, watercourses and water bodies.

**2) Jobs** – the number of potential jobs created within each scenario has been estimated using the Homes and Communities Agency "Employment Densities Guide"<sup>4</sup>, developed in 2010. The guide provides a means of estimating the number of jobs generated by a development based upon typical "employment density" ratios. These ratios are expressed as the number of square metres per employee, and vary by land use type, (for example, for a warehouse one job per 70m<sup>2</sup> is created, whilst for an office development one job per 12m<sup>2</sup> is created). The guide is widely used in planning, appraising and evaluating economic development and regeneration projects.

The indicative masterplan presented in the AAP (which sub-divides these land-use types) has been used as a basis upon which to estimate the number of jobs created. As stated previously, the AAP Masterplan for the area is only indicative at this stage. There is, therefore, no detailed schedule of land uses to provide areas upon which to estimate job creation. In the absence of that information, **Table 1** of the CST Masterplan (which informed and influenced the AAP Masterplan) has been used to proportionally split the quantum and type of employment land provided within the AAP Masterplan. An extract from this table is provided below:

<sup>4</sup> Employment Densities Guide:2<sup>nd</sup> Edition, Homes and Communities Agency, 2010

**Table 1 Indicative Land Use Types**

Development type	Total area
Community Mixed Uses (including local retail, health centre)	25,000m <sup>2</sup>
Employment (including offices, manufacturing, distribution, canal related)	245,000m <sup>2</sup>
Commercial (including food retail, drive through restaurant, petrol filling station)	15,000m <sup>2</sup>
Leisure (including public house, restaurant, hotel)	15,000m <sup>2</sup>
Primary school	15,000m <sup>2</sup>
<b>Total</b>	<b>315,000m<sup>2</sup></b>

The descriptions provided in **Table 1** are still not sufficiently detailed to allow the number of jobs to be estimated. These land uses have therefore been redefined using the descriptions in the HCA guide in order to estimate the job creation potential of the AAP Masterplan.

It has been assumed that the net area of employment uses will be 33% of the gross area. This net to gross area ratio has been provided by CBC and was used to inform the AAP. The HCA employment density ratios have then been applied to the net floor area of each land use type. Although the resulting employment forecasts are reliant on a range of assumptions, these assumptions are constant across all scenarios and thus allow a meaningful and robust comparison to be made.

**Table 2** provides a summary of the employment generating land uses in relation to the HCA definitions. **Table 2** also sets out the employment density and resulting job creation of each land use.

**Table 2 Job Creation Calculations**

Development type	Gross Area	Net Area	Employment Density	Jobs Created
B1 Light Industry	31,500m <sup>2</sup>	10,395 m <sup>2</sup>	47	221
B2 General Industry	74,000m <sup>2</sup>	24,420m <sup>2</sup>	70	349
B8 General Warehousing	125,000m <sup>2</sup>	41,250m <sup>2</sup>	36	1,146
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	19	452
Restaurants and Cafes	25,500m <sup>2</sup>	8,415m <sup>2</sup>	18	468
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	70	144
<b>Total</b>	<b>312,500m<sup>2</sup></b>	<b>103,125m<sup>2</sup></b>	<b>-</b>	<b>2,779</b>

The total number of jobs created by the Site in accordance with the AAP Masterplan is therefore approximately 2,800. This falls within the range provided for the Site by CBC in their employment topic paper of 2,000-2,900.

Employment created either directly by the IMD itself or indirectly by the supply chain has not been considered in this report. Volterra has been commissioned by DCC to examine this issue. Their report, entitled “Economic Impact of IMD at Staveley”<sup>5</sup> has investigated the potential number of jobs directly and indirectly created relating to the IMD. For the purpose of the comparison between

<sup>5</sup> Economic Impact of IMD at Staveley, Volterra, 2013

alternative scenarios, the number of jobs created by the IMD will be constant in any case.

**3) Number of dwellings** – it is estimated that the AAP Masterplan area will include up to 2,000 dwellings within its boundary. The total area of residential development within the AAP Masterplan has been measured as approximately 552,000m<sup>2</sup> (or 55.2 hectares). Using this area, the housing density of the AAP Masterplan is estimated at approximately 36.2 dwellings per hectare. For each of the scenarios, the same housing density has been applied to the remaining residential plots in order to calculate the number of dwellings provided.

### 3.3 Scoring of Quantitative Criteria

Each of the quantitative criteria has been ranked on a scale of 1-3 using the following bands:

- Less than 20% loss of area/jobs/dwellings caused by the IMD compared to the baseline scenario – score of 3/3;
- Between 20% and 50% loss of area/jobs/dwellings caused by the IMD compared to the baseline scenario – score of 2/3; and
- More than 50% loss of area/jobs/dwellings caused by the IMD compared to the baseline scenario – score of 1/3.

### 3.4 Qualitative Criteria

A number of additional, qualitative criteria have been used to aid the comparison of the options. Five qualitative assessment criteria have been defined as follows:

**4) Infrastructure cost implications** – no cost estimates have been prepared at this stage. Therefore a qualitative assessment of the infrastructure cost implications of each scenario has been undertaken. Scenarios that will require significant additional infrastructure compared to the baseline (e.g. new bridges, additional highway junctions, longer roads) have been awarded a low score with scenarios requiring similar scales of infrastructure to the AAP Masterplan awarded a high score.

**5) Phasing Implications** – the AAP Masterplan will be delivered on a phased basis. The first phase of the development will be focussed around the clock tower and create a new destination with later phases providing the link road through the Site. Scenarios that would jeopardise this phasing have been awarded a low score with scenarios that can be phased as per the AAP Masterplan awarded a high score.

**6) Deliverability and Risk** – scenarios that are considered to increase the risk to the landowner or developer being able to deliver the AAP Masterplan have been awarded a low score with scenarios that do not increase the risk (compared to the AAP) awarded a high score.

**7) Design Complexity** - scenarios that are considered to require potentially complex engineering solutions to address or overcome constraints have been awarded a low score with scenarios that do not require a complex solution being awarded a high score.

**8) Strategic Policy Fit** – the main strategic policy drivers that underpin the AAP are considered to be the provision of up to 2,000 dwellings, the provision of regeneration benefits to the local area, the provision of employment land and increased sub-regional strategic connectivity. Scenarios that threaten the ability of the Masterplan to deliver these benefits are considered to represent a poor strategic policy fit and have been awarded a low score. Those scenarios that help to deliver these strategic policy benefits are awarded a high score.

### 3.5 Scenario Assessment Criteria Summary

In order to provide a comparison between scenarios, a scoring matrix has been developed. The matrix provides a score of 1-3 (with 3 being most beneficial/least detrimental) for each of the quantitative and qualitative criteria described previously. Each score provided is relative to the B1 baseline scenario of the AAP Masterplan. **Table 3** outlines the scoring methodology applied to each scenario.

**Table 3 Scenario Assessment Criteria**

Criterion	Score		
	3	2	1
<b>Development area</b>	Less than 20% loss	20-50% loss	More than 50% loss
<b>Jobs</b>	Less than 20% loss	20-50% loss	More than 50% loss
<b>Houses Delivered</b>	Less than 20% loss	20-50% loss	More than 50% loss
<b>Infrastructure Cost implications</b>	Unlikely to be significant cost increase compared to Scenario B1	May be some increase in costs compared to Scenario B1	Likely to be significant cost increase compared to Scenario B1
<b>Phasing Implications</b>	Masterplan can be delivered as planned	Some risk of delay or phasing restrictions	Planned phasing cannot be delivered
<b>Deliverability and Risk</b>	Masterplan can be delivered as planned	Increased risk of Masterplan not being delivered	Significant risk of Masterplan being undeliverable
<b>Design Complexity</b>	No complex issues	Some complex issues but within “normal” design parameters	Major complexity requiring innovative solution
<b>Strategic Policy Fit</b>	In line with AAP	Some deviation from AAP	Major risk to AAP

### 3.6 Constraints and Limitations

Due to the location of the Site and the previous land uses of the Staveley Works site, there are a number of potential constraints to development. The Environment Agency’s current Flood Zone Map shows parts of the Site at a high risk of flooding, although the extent of the Site at risk has recently been revised down.

In each of the Scenarios considered, the extent of the developable area of the Site is assumed to remain as defined in the AAP Masterplan. The extent of the developable area has not been increased in order to replace development land within the footprint of the IMD. This reflects the constraints imposed by flood risk

and ground contamination, as well as other issues such as requirements relating to the provision of landscaping and open space.

On the basis of previous studies, it is understood that highway capacity issues also have the potential to constrain development at the Site. Without improvements to site access routes and local junctions, additional development will have negative impacts, through increased travel demand and congestion. In each of the scenarios assessed it is assumed that the A619 Chesterfield - Staveley Regeneration Route must be in place, in order for the highway network to be able to accommodate the full AAP Masterplan development.

The presence of the IMD within the Site will present a wide range of constraints and opportunities relating to appropriate adjoining land-uses that were not considered in the AAP Masterplan. These may be either positive (e.g. opportunities for supply chain and complementary uses close to the IMD) or negative (proximity of the IMD to areas proposed for residential use). It is not within the scope of this study to revise the AAP Masterplan, however, where it is considered that previously proposed land-uses are no longer likely to be appropriate, alternative land-uses have been suggested.

In terms of job creation, the number of jobs created either directly or indirectly by the IMD has not been taken into account. As the number of jobs will be constant across all scenarios, this will not affect the comparison between scenarios. Similarly, it is not within the scope of this study to assess the effect of the IMD on the commercial viability of individual land uses or the Masterplan as a whole. This has not therefore been taken into account within this study. The accompanying study by Volterra will consider these issues.

The precise alignment of the A619 Chesterfield - Staveley Regeneration Route has not yet been defined. The route shown in the AAP Masterplan has been used and a 20m wide road corridor used in each scenario. URS has been commissioned by DCC to undertake further studies relating to the alignment of the A619 Chesterfield - Staveley Regeneration Route.

### **3.7 Liaison**

A meeting was held with the HS2 Phase 2 team at the HS2 offices in London on 7 January 2014. This meeting provided an opportunity to share the emerging findings of the study with HS2 and to ask specific questions regarding the layout and potential for relocation and/or reconfiguration of the IMD. This is discussed at Section 7.4.

## 4 Infrastructure Maintenance Depot Development Description

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A single IMD would serve the Birmingham to Leeds section of HS2. The IMD would provide a base from which engineering activities to maintain and renew the track and other elements of fixed infrastructure, such as electrification systems are undertaken.

HS2 Ltd propose to locate the IMD for this section of the route at Staveley, within the Site and to the south of the existing Chesterfield to Rotherham railway. This line forms the principal freight route between the Midlands and the North of England and has a junction with a branch to Seymour Junction that is currently out-of-use. The depot would occupy approximately 11 hectares of land within the Site. Some of the key reasons behind the choice of the site of the IMD are understood to be its proximity to the freight route and highway network, the previous industrial uses on the site, high unemployment levels in the area, and its strategic location approximately halfway along the route between Birmingham and Leeds.

High speed rail access would be via flat junctions off the mainline onto curves leading toward the depots. These curves would merge and run into the eastern end of the depot. Access from the existing rail network would be near the existing sidings at Barrow Hill, using Seymour Junction for access into the depot. Within the HS2 proposals, road access to the site was envisaged to be from Works Road. It is understood that the intensification of the use of Works Road by HGVs would not be acceptable to the local highways authority. Discussions with HS2 Ltd have established that this proposed highway access is to be confirmed and this access may not be appropriate.

The IMD would primarily be used as a maintenance and response facility for the western leg of HS2 to stable and service/maintain a variety of On Track Plant and Engineering Supply Train equipment. It would also provide strategic engineering material stores. There would be no intention for ballast or rail to be stored at the IMD, and all ballast and spoil wagons would need to be able to run on and off the existing rail network, bringing supplies.

The HS2 consultation documents recognise the potential contamination and flood risk issues that relate to the site.

The HS2 Technical Specifications<sup>6</sup> provide the following details on the requirements of the depot:

- The depot will be accessible to 400m long trains;
- At least one siding must be 775m in length to allow for the storage of the 'Track Renewal Train';
- The Site would be available from an early stage of the Phase Two development, forming a key construction site/depot for the construction of the line;
- The Site will be level throughout;

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<sup>6</sup> High Speed Rail: London to the West Midlands and Beyond, HS2 Technical Appendix, HS2 Ltd, 2009



- The depot will be accessible by rail at all times; and
- The depot will require good road access and connectivity to arterial routes for the delivery of spare parts and consumables.

The footprint of the IMD as presented on the HS2 Phase Two consultation documents has been overlaid on the AAP Masterplan in order to understand the impact on the development proposals. As a result of one or more of the scenarios considered, there may be a requirement to seek to reconfigure the internal layout of the depot. For the purposes of this report, it is assumed that the specification of the operational aspects of the depot footprint cannot be amended. However, there are a number of elements of the depot that may be able to be repositioned whilst still meeting HS2's operational requirements. This is discussed in more detail in Section 7.

At this stage, the plans for the internal configuration of the depot are not publically available. The potential for reconfiguration of the layout is therefore based upon the detailed layout drawing of the depot at Calvert within Phase One of HS2. Discussions with HS2 Ltd were held in January 2014, which have further informed the feasibility of reconfigurations of this layout. Potential amendments to the layout are discussed in further detail at Section 7.

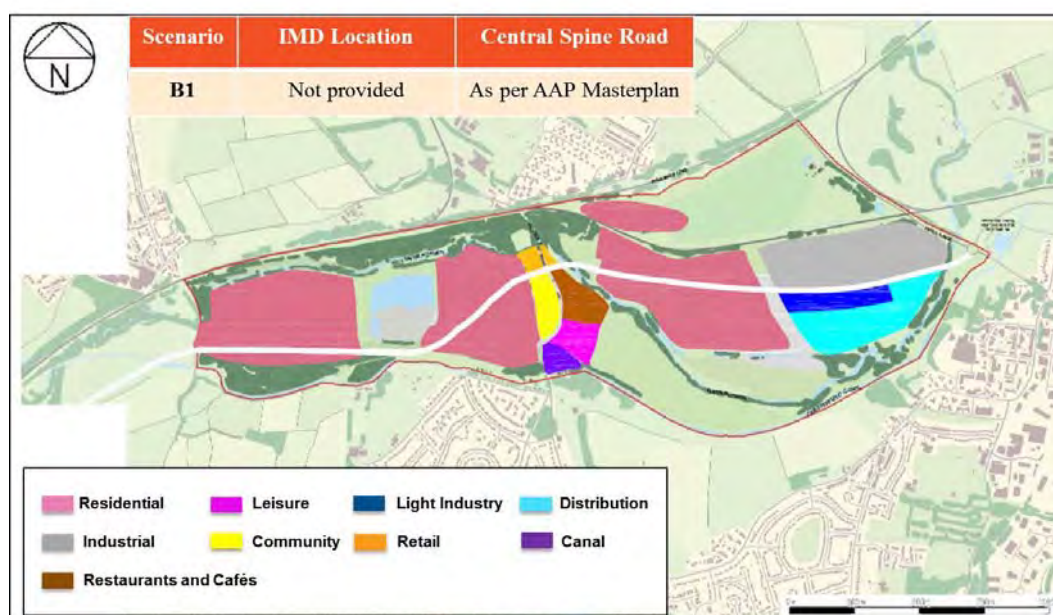
## 5 Defining the Impact of the IMD

Defining a baseline position will enable a greater understanding of the impact of the proposed IMD on the AAP Masterplan. Two baseline scenarios have been established, as described below. By comparing the two baseline scenarios, it is possible to identify the scale of the potential impact of the IMD upon development area, jobs creation and provision of housing within the Masterplan area.

Once these baseline scenarios are defined and understood, the impact of a range of alternative scenarios related to the IMD can be investigated.

### 5.1 Scenario B1

Scenario B1 consists of the development of the Staveley site in accordance with the AAP Masterplan. This scenario assumes that there is no IMD within the Site. An indicative plan of the Site in Scenario B1 is shown below and is also presented in Appendix B.



The methodology described in Section 3.1 has been used in order to estimate the amount of development, jobs and housing that could be provided by the scheme. This scenario also contains a link road through the Site, the 'A619 Chesterfield - Staveley Regeneration Route'.

Based on the proposed development at the Site, it is anticipated that this scenario would generate the following totals of development:-

- 2,779 jobs;
- 2,000 dwellings; and
- 87 hectares of development land.

This scenario provides a number of strategic benefits to the wider area as described in the AAP. The A619 Chesterfield - Staveley Regeneration Route will

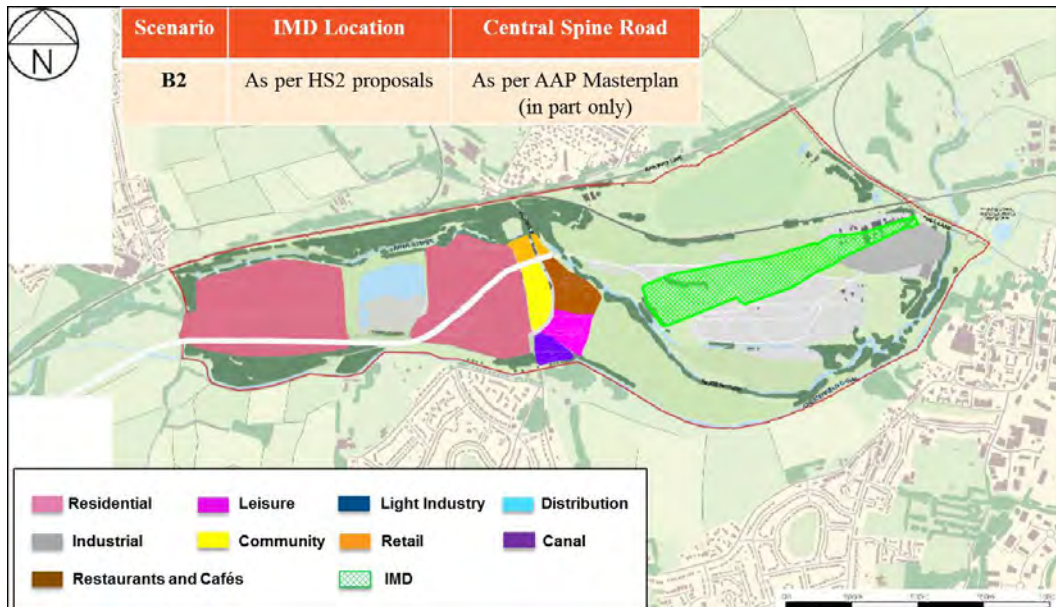
relieve pressure on the nearby Works Road, a number of surrounding junctions and the A619. The proposed route provides a new link between Chesterfield, Staveley, and further afield to the M1, and would ensure that good accessibility to and from the Site is provided.

**Table 4 Scenario B1 Impact Assessment**

Criterion	Comment	Score
Development Area Provided	No reduction in area compared to AAP masterplan	3
Jobs Created	No reduction in jobs compared to AAP masterplan	3
Houses Delivered	No reduction in houses compared to AAP masterplan	3
Infrastructure Cost Implications	The overall cost of infrastructure is as per AAP masterplan	3
Phasing Implications	Phasing as per AAP masterplan	3
Deliverability and Risk	There are no increases to the risks or challenges on deliverability compared to AAP Masterplan	3
Design Complexity	Same design as AAP masterplan	3
Strategic Policy Fit	Masterplan is as per AAP	3
<b>Total Score</b>		<b>24</b>

## 5.2 Scenario B2

This scenario assumes the construction of the IMD at the Site as per the HS2 Consultation Proposals. The AAP Masterplan is assumed to be delivered as far as is practical around this location but with no changes to the A619 Chesterfield - Staveley Regeneration Route alignment. This layout is presented below and also at Appendix C.



It is anticipated that IMD would prevent the delivery of large parts of the AAP Masterplan at the Site in this scenario and would prevent the delivery of the A619 Chesterfield - Staveley Regeneration Route. Due to constraints on highway

capacity in the area without road in place, it is assumed that only Phases 1 and 2 of the development could be physically brought forward in this scenario. As such, this would have a major adverse impact upon the viability of the scheme.

In particular, the majority of the AAP Masterplan development to the east of the River Rother was to be delivered within Phase 3 of the development. As a result of the A619 Chesterfield - Staveley Regeneration Route not being provided, it is assumed that the highway network cannot support Phase 3 and therefore these land uses are considered to be undeliverable.

There is a section of Phase 2 of the development that fronts onto Hall Lane. It is assumed that this part of the AAP Masterplan could be delivered; however, the extent of the area that could be delivered is reduced to that which lies outside the footprint of the IMD.

Based upon these assumptions, the extent of the AAP Masterplan that it is considered could still be delivered is shown in **Table 5** and Appendix C.

**Table 5 Scenario B2 Development Proposals**

Development Type	Gross Area	Net Area	Jobs Created
Housing	1,196 dwellings	N/A	N/A
Light Industry	0m <sup>2</sup>	0m	0
General Industry	44,000m <sup>2</sup>	14,520m <sup>2</sup>	403
General Warehousing	0m <sup>2</sup>	0m	0
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	452
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	144
Restaurants and Cafes	25,500m <sup>2</sup>	8,415m <sup>2</sup>	468
<b>Total</b>	<b>126,000m<sup>2</sup></b>	<b>41,580m<sup>2</sup></b>	<b>1,466</b>

The main impact observed in this scenario when compared to Scenario B1 relates to the loss of employment land and potential jobs created. This scenario would potentially generate:

- 1,466 jobs, (1,313 less than Scenario B1);
- 1,196 dwellings (approx. 800 less than Scenario B1);
- 46 hectares of development land (41 hectares less than Scenario B1)

**Table 6** summarises the performance of this option.

**Table 6 Scenario B2 Impact Assessment**

Criterion	Comment	Score
Development Area Provided	Development Area decreases by 47%	2
Jobs Created	No. of jobs reduces by 47%	2
Houses Delivered	No. of houses reduces by 40%	2
Infrastructure Cost Implications	The overall cost of infrastructure is likely to be lower than in B1 due to the fact that only part of the A619 Chesterfield - Staveley Regeneration Route would be delivered	3
Phasing Implications	Only the first 2 phases can be delivered,	1

	Phase 3 assumed to be undeliverable	
Deliverability and Risk	There are no significant increases to the risks or challenges on deliverability of what is left of the Masterplan	3
Design Complexity	No complex engineering solutions are likely to be required	3
Strategic Policy Fit	The remaining Masterplan will fail to deliver the wider strategic benefits to connectivity, the economy and regeneration.	1
<b>Total Score</b>		<b>17</b>

### 5.3 Scenario B1 and B2 Comparison

The assessment presented above provides an estimate of the potential impact of locating the IMD, as per the HS2 Consultation Proposals, on the AAP. The loss of development, jobs and housing with the IMD in place and no changes to the AAP Masterplan (i.e. Scenario B2) is shown in **Table 7**.

**Table 7 Baseline Option Comparison**

	Scenario B1	Scenario B2	Difference
Development Area Available	87Ha	46Ha	- 47%
Potential Jobs Created	2,779	1,466	-47%
Potential Dwellings Built	2,000	1,196	-40%

This assessment is based upon the assumption that the Masterplan would not be revised in order to adapt to the opportunities and challenges presented by the IMD. In reality, it will be necessary to revisit the AAP Masterplan at a high level to understand how the AAP Masterplan and/or the IMD can be reconfigured to maximise the benefits to the Site and to HS2.

**Based on the above assessment it is clear that the delivery of the IMD (without any revision to the AAP Masterplan), would result in the significant loss of development area, jobs and dwellings, restricting the potential benefits development of this site could bring. As such, the AAP Masterplan, in its current form, would be undeliverable.**

It is therefore considered that alternative proposals for the AAP Masterplan and the IMD should be explored. A number of potential alternative scenarios have been assessed, and a high level assessment of these scenarios is presented in the following section of this report.



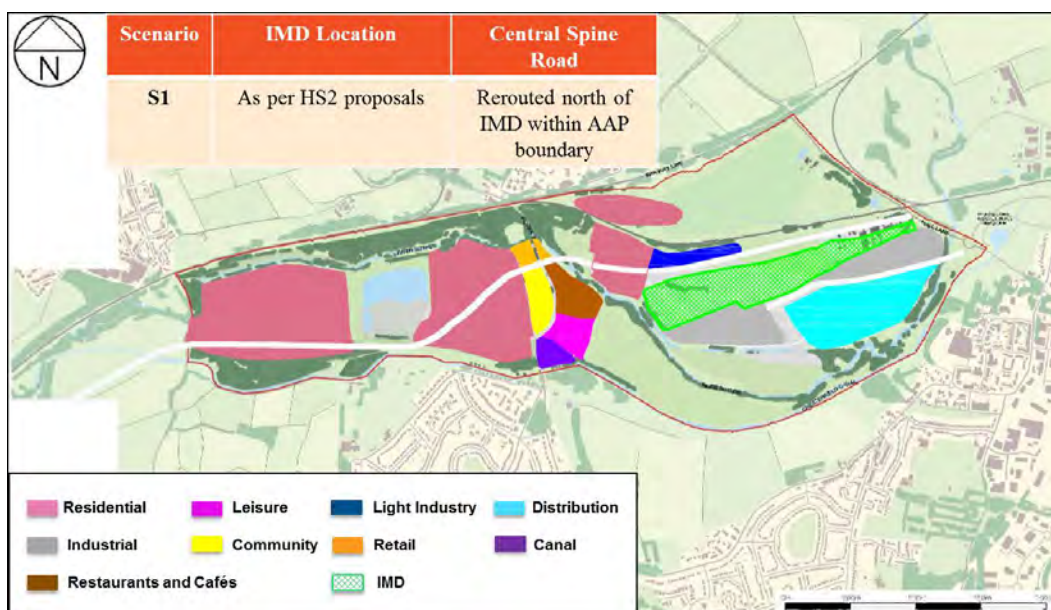
## 6 Potential Solutions

In view of the fact that the IMD would significantly restrict development at Staveley, it is necessary to consider reasonable alternatives which would help to minimise the impacts of the IMD on the Site and capitalise on the opportunities that it could bring to the area. These scenarios are defined as follows:

- S1 – IMD remains in proposed location and a re-aligned A619 Chesterfield - Staveley Regeneration Route is provided to the north of the depot;
- S2 – IMD remains in proposed location and a re-aligned A619 Chesterfield - Staveley Regeneration Route is provided to the south of the depot;
- S3 – IMD is located further north within the Site to completely avoid the proposed A619 Chesterfield - Staveley Regeneration Route;
- S4 – IMD is moved slightly to the north within the Site and the A619 Chesterfield - Staveley Regeneration Route is realigned to pass to the south of the depot;

### 6.1 Scenario S1

Scenario S1 considers the impact of rerouting the A619 Chesterfield - Staveley Regeneration Route along a revised corridor to the north of the IMD. Due to the inclusion of the A619 Chesterfield - Staveley Regeneration Route in this scenario, it is assumed that the local highway network could accommodate the full extent of the AAP Masterplan development. The proposed industrial and warehousing land within the AAP Masterplan to the south of the IMD would, however, require an additional access road to be provided. This is assumed to run along the route of the original A619 Chesterfield - Staveley Regeneration Route and be accessed via the existing roundabout junction with Hall Lane. This is presented below and also at Appendix D.



The width of the corridor between the IMD and the minerals railway is limited, especially once the 20m wide road corridor is rerouted within it. As a result, a

limited amount of development could be delivered to the north of the IMD in the form of the westernmost plot. As this plot is located between the IMD and the minerals railway line, it is considered appropriate to change it from the proposed residential use within the AAP Masterplan to light industrial use.

The AAP Masterplan plots to the south of the IMD would be segregated from the mixed-use and residential plots elsewhere on the Site by the IMD. The plots close to the River would only be accessible through the proposed industrial and warehousing plots that front onto Hall Lane. It is therefore considered appropriate to change the residential and light industrial use plots to the south of the IMD to industrial use, to match the character of this area of the Site.

The proposed development on the Site in this scenario is detailed in **Table 8** and Appendix D.

**Table 8 Scenario S1 Development Proposals**

Development Type	Gross Area	Net Area	Jobs Created
Housing	1,500 dwellings	-	-
Light Industry	15,500m <sup>2</sup>	5,115m <sup>2</sup>	109
General Industry	96,000m <sup>2</sup>	31,680m <sup>2</sup>	880
General Warehousing	97,000m <sup>2</sup>	32,010m <sup>2</sup>	457
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	452
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	144
Restaurants and Cafes	25,500m <sup>2</sup>	8,415m <sup>2</sup>	468
<b>Total</b>	<b>290,500m<sup>2</sup></b>	<b>95,865m<sup>2</sup></b>	<b>2,509</b>

Based on the amount of development on the Site, this scenario will provide:

- 2,509 jobs;
- 1,499 dwellings;
- 70 hectares of development land

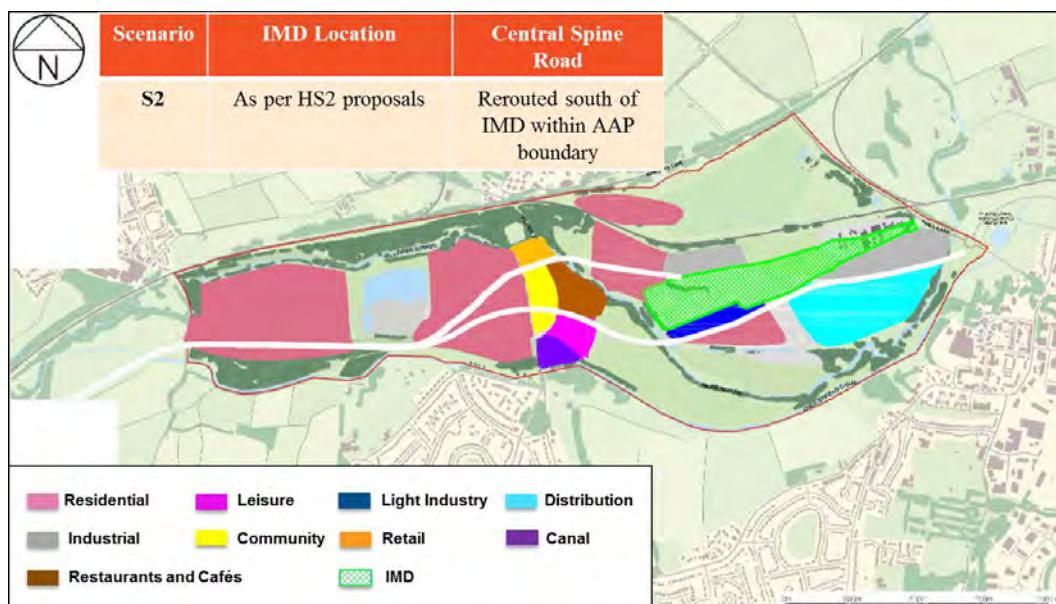
**Table 9 Scenario S1 Impact Assessment**

Criterion	Comments	Score
Development Area Provided	Development Area decreases by 19%	3
Jobs Created	No. of jobs reduces by 10%	3
Houses Delivered	No. of houses reduces by 25%	2
Infrastructure Cost Implications	Additional road construction will be required to serve the area to the south of the IMD. There would also need to be two junctions provided onto Hall Lane. Both of these would increase the infrastructure costs.	1
Phasing Implications	The phasing of the Masterplan should be largely as per Scenario B1; however, overall viability may be negatively affected.	2
Deliverability and Risk	The requirement to utilise land in the area between the IMD and the minerals railway may increase the risks to delivery, particularly if land within this area is required by HS2 during construction.	2
Design Complexity	The restricted corridor width between the IMD and the minerals railway will mean that any engineering solutions for the road and plots along the road may be more complex.	2
Strategic Policy Fit	This scenario has a good strategic fit with the Masterplan, in terms of the amount of development provided, however the reduction in proposed housing does have implications on the achievement of AAP objectives.	2
<b>Total Score</b>		<b>17</b>

## 6.2 Scenario S2

Scenario S2 considers the impact of rerouting the A619 Chesterfield - Staveley Regeneration Route along a revised corridor to the south of the IMD. Due to the inclusion of the A619 Chesterfield - Staveley Regeneration Route in this scenario, it is assumed that the local highway network could accommodate the full extent of the AAP Masterplan development. As the road would be rerouted to pass to the south of the IMD, a spur road would be required to serve the parcel of land between the River Rother, the IMD and the mineral railway. This would require an additional bridge crossing. This layout is presented below and also at Appendix E.





The width of the corridor to the north of the IMD is again limited, but less so than in Scenario S1 as it would not include the 20m wide A619 Chesterfield - Staveley Regeneration Route corridor. As a result, a limited amount of development could be delivered to the north of the IMD in the form of the westernmost plot. As this plot is located between the IMD and the minerals railway line, it is considered appropriate to change it from the proposed AAP Masterplan residential use to industrial.

The plots to the south of the IMD would be located along the rerouted A619 Chesterfield - Staveley Regeneration Route. It is therefore considered appropriate to retain the AAP Masterplan uses in this area.

The proposed development on the Site in this scenario is detailed in **Table 10** and Appendix E.

**Table 10 Scenario S2 Development Proposals**

Development Type	Gross Area	Net Area	Jobs Created
Housing	1,598 dwellings	-	-
Light Industry	22,500m <sup>2</sup>	7,425m <sup>2</sup>	158
General Industry	70,500m <sup>2</sup>	23,265m <sup>2</sup>	646
General Warehousing	75,000m <sup>2</sup>	24,750m <sup>2</sup>	354
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	452
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	144
Restaurants and Cafés	25,500m <sup>2</sup>	8,415m <sup>2</sup>	468
<b>Total</b>	<b>250,000m<sup>2</sup></b>	<b>82,500m<sup>2</sup></b>	<b>2,221</b>

This scenario will provide:

- 2,221 jobs;
- 1,598 dwellings;
- 69 hectares of development land

This scenario would provide approximately 80% of the development land, jobs and housing proposed in the AAP.

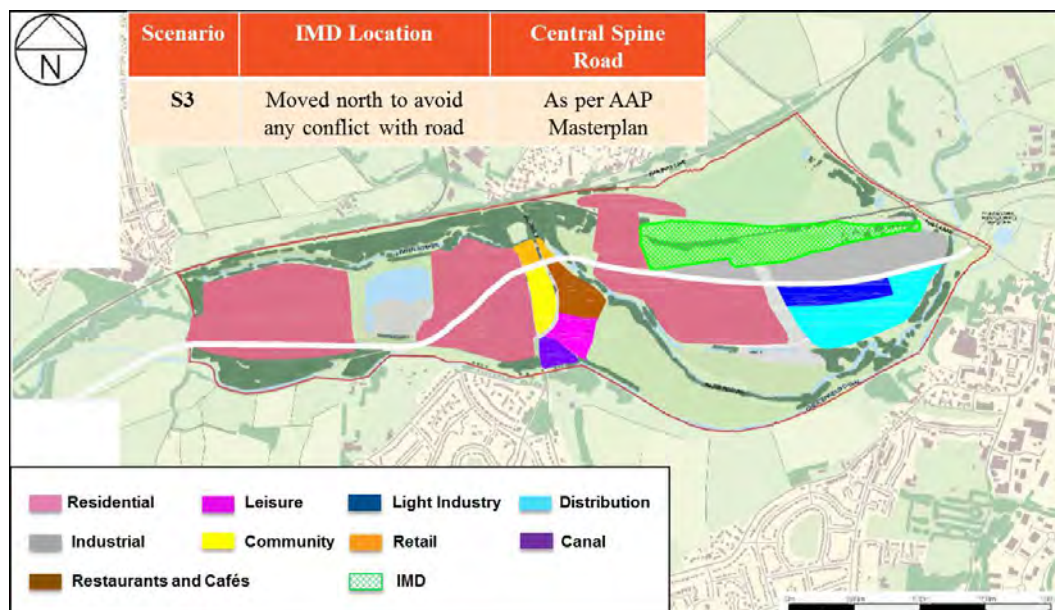
**Table 11 Scenario S2 Impact Assessment**

Criterion	Comments	Score
Development Area Provided	Development Area decreases by 20%	2
Jobs Created	No. of jobs reduces by 20%	2
Houses Delivered	No. of houses reduces by 20%	2
Infrastructure Cost Implications	Additional road construction will be required to serve the area to the north of the IMD, including a new bridge crossing.	2
Phasing Implications	The phasing of the Masterplan is constrained by the need for a further bridge crossing. The first phase of development of the Masterplan around the Clock Tower will be impacted upon by the rerouting of the A619 Chesterfield - Staveley Regeneration Route.	1
Deliverability and Risk	The requirement to utilise land in the area between the IMD and the minerals railway may increase the risks to delivery, particularly if land within this area is required by HS2 during construction. An additional bridge crossing will be required.	2
Design Complexity	The restricted corridor width between the IMD and the minerals railway will mean that any engineering solutions for the road and plots along the road may be more complex. An additional bridge crossing will be required.	2
Strategic Policy Fit	This scenario has a limited strategic fit with the Masterplan, with the most notable loss being in terms of the number of jobs provided.	2
<b>Total Score</b>		<b>15</b>

## 6.3 Scenario S3

Scenario S3 considers the potential to relocate the IMD further north than is proposed by HS2, in order to ensure that it completely avoids the proposed route of the A619 Chesterfield - Staveley Regeneration Route. The A619 Chesterfield - Staveley Regeneration Route would remain in its previously proposed alignment as per the AAP Masterplan. This layout is presented in below and also at Appendix F.

Assuming that this could be achieved, the majority of the AAP Masterplan could be delivered as a result. However, there are several constraints and limitations associated with this scenario, which are likely to restrict its viability.



In order for the IMD to completely avoid the A619 Chesterfield - Staveley Regeneration Route corridor, it would be necessary to locate it so far north as to require a change to the alignment of the minerals railway line that runs from east to west towards the north of the AAP Masterplan boundary. Parts of the area of land immediately to the north of the minerals railway line is understood to be a landfill. Realigning the railway in this manner could potentially result in a wide range of design issues and risks.

It is considered that based upon the potential risks associated with the landfill, the impact upon programme and design complexity, this scenario could potentially be considered unacceptable by HS2.

The proposed development on the site in this scenario is detailed in **Table 12** and Appendix F.

**Table 12 Scenario S3 Development Proposals**

Development Type	Gross Area	Net Area	Jobs Created
Housing	1,850 dwellings	-	-
Light Industry	31,500m <sup>2</sup>	10,395m <sup>2</sup>	221
General Industry	93,500m <sup>2</sup>	30,855m <sup>2</sup>	857
General Warehousing	74,000m <sup>2</sup>	24,420m <sup>2</sup>	349
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	452
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	144
Restaurants and Cafés	25,500m <sup>2</sup>	8,415m <sup>2</sup>	468
<b>Total</b>	<b>281,000m<sup>2</sup></b>	<b>92,730m<sup>2</sup></b>	<b>2,490</b>

This scenario is forecast to provide:

- 2,490 jobs;
- 1,845 dwellings;
- 79 hectares of development land

Despite the relatively positive impact on housing and jobs in this scenario, the impacts of relocating the IMD to the north of the Site have the potential to be highly complex in design and deliverability, and as such costly. These impacts would need to be considered further by HS2 and may be deemed to be unacceptable.

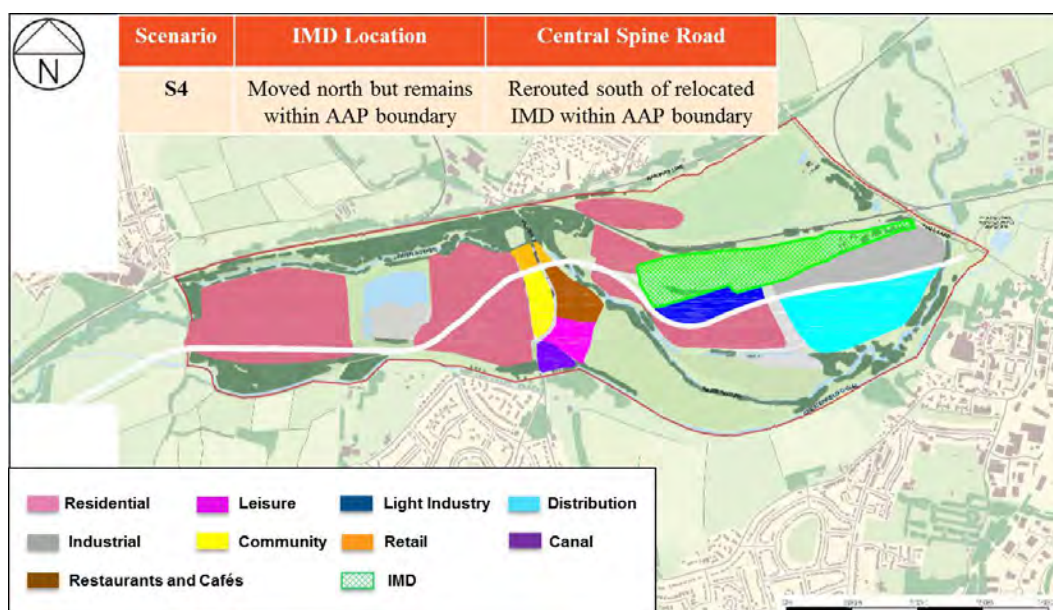
**Table 13 Scenario S3 Impact Assessment**

Criterion	Comments	Score
Development Area Provided	Development Area decreases by 9%	3
Jobs Created	No. of jobs reduces by 10%	3
Houses Delivered	No. of houses reduces by 8%	3
Infrastructure Cost Implications	The scenario requires the realignment of the minerals railway through an area understood to be a landfill. This is likely to significantly increase infrastructure costs	1
Phasing Implications	The phasing of the Masterplan is constrained by the need for to achieve the relevant approvals and design of realignment to the railway and issues relating to the landfill are likely to affect programme.	1
Deliverability and Risk	The requirement to utilise the landfill site will significantly increase risks and uncertainty over delivery.	1
Design Complexity	The need to realign a railway and affect a landfill will significantly increase design complexity.	1
Strategic Policy Fit	The end Masterplan is largely similar to that in Scenario B1, representing a good strategic policy fit.	3
<b>Total Score</b>		<b>16</b>



## 6.4 Scenario S4

Scenario S4 considers the potential to relocate the IMD to the northern boundary of the Site alongside a rerouting of the A619 Chesterfield - Staveley Regeneration Route so that it passes between the relocated IMD and the River Rother. Based upon the available information, it is considered that there is sufficient physical space to accommodate a road link between a relocated IMD and the River. However, there also needs to be sufficient space and flexibility to allow for an alignment that meets the highway authority's requirement for a strategic route. This flexibility could be provided by revisions to the internal configuration of the IMD. This layout is presented below and at Appendix G.



Based upon the revised location of the IMD, no development could be accommodated to the north of the depot as it would be tight against the minerals railway line. Development to the south of the IMD could however be delivered in line with the AAP Masterplan, with access to this part of the development provided by the A619 Chesterfield - Staveley Regeneration Route. As such, much of the industrial, warehousing and office land proposed in the AAP Masterplan is retained in this scenario.

This scenario relies upon the ability to relocate the IMD. The ability to do so will require agreement from HS2. A meeting with HS2 Ltd on 7 January 2014 was held to discuss the potential for relocation and/or reconfiguration of the depot. At this meeting, HS2 indicated a willingness to consider relocation of the depot. A high-level P-Way rail engineering review has been undertaken by Arup and no significant reasons why this relocation would not be feasible in rail engineering terms have been identified.

For the purposes of this assessment, it is assumed that the footprint of the IMD will remain as shown in the HS2 proposals. The footprint has simply been rotated clockwise to push it further north at its western end. There may also be the potential to reconfigure the internal layout to ease the revised road route around the IMD. These issues are explored further in Section 7.

The breakdown of development at the Site is shown in **Table 14** and Appendix G.

**Table 14 Scenario S4 Development Proposals**

Development Type	Gross Area	Net Area	Jobs Created
Housing	1,650 dwellings	-	-
Light Industry	31,500m <sup>2</sup>	10,395m <sup>2</sup>	221
General Industry	71,500m <sup>2</sup>	23,595m <sup>2</sup>	655
General Warehousing	101,500m <sup>2</sup>	33,495m <sup>2</sup>	479
High Street Retail	26,000m <sup>2</sup>	8,580m <sup>2</sup>	452
Leisure	30,500m <sup>2</sup>	10,065m <sup>2</sup>	144
Restaurants and Cafes	25,500m <sup>2</sup>	8,415m <sup>2</sup>	468
<b>Total</b>	<b>286,500m<sup>2</sup></b>	<b>94,545m<sup>2</sup></b>	<b>2,418</b>

This scenario is forecast to provide:

- 2,418 jobs;
- 1,649 dwellings;
- 75 hectares of development land

**Table 15 Scenario S4 Impact Assessment**

Criterion	Comments	Score
Development Area Provided	Development Area decreases by 14%	3
Jobs Created	No. of jobs reduces by 13%	3
Houses Delivered	No. of houses reduces by 18%	3
Infrastructure Cost Implications	Additional road construction will be required as a result of the realignment. The cost of the section of road between the IMD and the River may also increase costs due to the additional design complexity.	2
Phasing Implications	The phasing of the Masterplan should be largely as per Scenario B1, assuming that an early agreement is reached with HS2 to realign the IMD.	3
Deliverability and Risk	The requirement to utilise a narrow corridor between the IMD and the River may increase the risks to delivery, particularly if land within this area is required by HS2 during construction.	2
Design Complexity	The restricted corridor width between the IMD and the River will mean that any engineering solutions for the road and plots along the road may be more complex.	2
Strategic Policy Fit	This scenario has a good strategic fit with the Masterplan.	3
<b>Total Score</b>		<b>21</b>

## 6.5 Scenario S5

Following the issue of the first draft of this report, the potential to consider an additional scenario (S5) was raised by the steering group. Information obtained by Rhodia indicated that not all of the area to the north of the minerals railway line had been used for landfill. Scenario S5 was therefore to consider the potential for the IMD to be relocated midway between the locations presented in Scenario S3 and Scenario S4, resulting in a less extensive realignment of the minerals railway than that shown in Scenario S3, such that it only affected the area to the west of the site (which was understood not to contain landfill). The plan showing the extent of landfill within this part of the site is presented at Appendix H.

The western part of the site (Cells 4A and 4B) is indicated as ‘proposed’ landfill on this plan, and it was suggested that, despite it being proposed, these cells may not actually have been used for landfill. A relatively minor realignment of the railway line could therefore have been achieved by using Cells 4A and 4B but not any of the other Cells (1, 2A, 2B, 3A, 3C). This would have helped to achieve the positive aspects of Scenario S3 (i.e. more development and a wider corridor to route the A619 Chesterfield - Staveley Regeneration Route) whilst minimising the negative aspects (i.e. cost, deliverability and risk).

However, a subsequent site inspection by Rhodia has confirmed that Cells 4A and 4B appear to have been used for landfill. This would need to be verified by site investigations. On the basis that these cells contain landfill, the opportunity to realign the minerals railway line without impacting upon the landfill would be significantly reduced. Scenario 5 has therefore not been taken any further at this stage. However, should site investigations demonstrate that these cells do not contain landfill, this may be an option that is worthy of further investigation.

## 7 Internal Reconfiguration of the IMD

Details of the internal configuration of the IMD at Staveley have not yet been made publically available. A meeting with HS2 Ltd was held on 7 January 2014. One of the key items on the agenda at this meeting was to gain a better understanding of the rationale behind the footprint and assumed internal layout of the IMD and what potential (if any) exists to undertake minor changes to this.

Additionally, in order to gain an understanding of the potential benefits that might be achieved through reconfiguration of the IMD, the details of the HS2 Phase One depot at Calvert have been reviewed<sup>7</sup>. Detailed plans of this IMD are available as Phase One is more advanced than the proposals for Phase Two. The general arrangement for the Calvert Depot is presented at Appendix I, and these details have been used to inform the likely land requirements and therefore potential flexibility for re-aligning the IMD at Staveley.

### 7.1 Shortening the IMD

It is understood that a key requirement for the IMD is to have six 775m long sidings. These, along with approximately 300m of track fan connecting them should preferably be on a straight alignment. These requirements are likely to impose a minimum length of the depot footprint of just over 1km. This is approximately the same length as the footprint shown on the HS2 proposals for the Staveley IMD. At the meeting with HS2 Ltd on 7 January 2014, the general specification for the IMD was confirmed to be as follows:

- An approximate 1km x 0.25km site;
- A site that is flat, long and straight;
- Ideally located approximately halfway along the eastern leg of Phase 2;
- Close to both the conventional railway and the high speed network; and
- A site which offered environmental & regeneration benefits

Shortening the IMD is therefore likely to result in shorter sidings which would impose a significant operational restriction on HS2 that is likely to be considered unacceptable. It is therefore assumed highly unlikely that it will be acceptable to HS2 to shorten the IMD by any significant amount. However, it may be possible to achieve a slight reduction in length by reconfiguring the non-track elements of the IMD. HS2 Ltd has agreed to explore this potential reconfiguration following the end of the public consultation on 31 January 2014.

### 7.2 Narrowing the IMD at its Western End

Based upon information presented by HS2 Ltd on the 7 January 2014, six 775m-long sidings will be required at the site, along with six shorter 400m-long sidings. Adjacent to these sidings will be storage and lay-down areas, a fuelling point and a crippled wagon stabling siding.

At the Calvert depot, the total width of these three elements of the IMD is approximately 150m. The IMD footprint as shown on the Staveley HS2 plans is

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<sup>7</sup> High Speed 2 Infrastructure Maintenance Depot, Arup, 2010



approximately 175m wide at its western end. There may therefore be potential to narrow the IMD footprint at its western end by relocating some of the other elements of the depot further east. These elements are likely to have greater flexibility in where they can be located in relation to the long sidings. These elements include:

- Car parking;
- Covered Maintenance Sheds;
- Office buildings;
- Access roads;
- Helicopter landing pad.

By moving some or all of these elements further east or south (i.e. away from the pinchpoint between the IMD and the River), the flexibility relating to the design of a realigned Scenario S4 A619 Chesterfield - Staveley Regeneration Route around the IMD will increase.

There may be a further opportunity to relocate other non-critical elements of the layout further to the east including the fuelling point and crippled wagon stabling siding. This would further increase the ability and flexibility to re-route a A619 Chesterfield - Staveley Regeneration Route around a relocated IMD.

The principle of rearranging these elements of the IMD was discussed with HS2 Ltd at the meeting on 7 January 2014. HS2 Ltd has agreed to review the layout and configuration of the IMD and explore opportunities to reduce the landtake of the IMD in the area identified in this report as a potential pinchpoint for a road alignment.

### **7.3 Relocating the Sidings**

The current layout presented by HS2 Ltd shows 775m sidings in the southern part of the site and miscellaneous sidings/other in the northern part of the site. However, if these two components were changed ('flipped') so as to be the other way around, it may be possible to reconfigure the internal layout of the IMD in such a way as to facilitate the CSRR. This possibility was discussed with HS2 Ltd on 7 January 2014. HS2 Ltd agreed to consider this possibility.

### **7.4 Adjusting the Route of the CSRR**

It has already been demonstrated that a new strategic road (the A619 Chesterfield to Staveley Regeneration Route (CSRR)) is needed through the site so as to deliver its redevelopment and the wider regeneration of the area; it has also been demonstrated that the route for this CSRR should run to the south of the IMD. However, it is also the case that the operational requirements of the IMD are such that, even when relocated, the IMD footprint could necessitate a quantity of landtake that severely restricts or even negates the delivery of the CSRR at the south-western tip of the IMD footprint. In effect there is therefore a "pinch-point" in terms of the needs of HS2 Ltd and those of both the landowners (CST, Rhodia) and the local authorities (CBC, DCC) concerned. A key issue therefore for HS2 Ltd to consider is how best to accommodate the route of the A619 CSRR in the immediate area by the south-western of the IMD.

Drawing TRA001 presents a number of potential highway solutions to address the pinchpoint conflict identified in this report, and thus provide a scheme that is acceptable to all parties. The drawing shows three possible alternatives for the route of the A619 CSRR in the vicinity of the south-west corner of a suitably relocated IMD. These routes take into account the 40mph design speed alignment developed by URS on behalf of DCC.

The easternmost (pink) route represents the most advantageous alignment from a purely highway-design perspective. This route is furthest from the River Rother, thus minimising the potential risks that could arise from constructing a new road adjacent to a watercourse. These risks include (but are not limited to) flooding, increased complexity of design and increased construction costs. However, the pink route would require the largest change to the footprint of the IMD. On the basis of discussions with HS2 it is considered that the resulting footprint would be too short to meet HS2's operational requirements for the depot. It is likely that the extent of reconfiguration required within the IMD to accommodate this route would impose a significant constraint on the operation of HS2 and would therefore be unlikely to be acceptable.

The westernmost (blue) route would have the least impact upon the layout of the IMD. Indeed, there may be sufficient space for this route to completely avoid a (relocated) IMD. However, it is considered that this alignment would be unlikely to be acceptable to the highway authority as there is insufficient space and flexibility within the corridor to ensure its delivery. In particular, its proximity to the river would result in a higher level of risk and related infrastructure costs than would otherwise be the case.

The central (red/orange) route seeks to address the concerns of the highway authority regarding the deliverability of the road, whilst minimising the need for the reconfiguration of the IMD and respecting HS2's operational requirements. It is considered, therefore, that this indicative route represents a solution and that HS2 Ltd should explore the potential to relocate and reconfigure the IMD footprint accordingly.

## 7.5 Liaison with HS2 Ltd

In scoping the alternative solutions there were a number of assumptions that have been made over the potential for the IMD re-configuration. These assumptions were discussed further with HS2 at the meeting on 7 January 2014 in order to confirm the feasibility of these reconfigurations and to better understand HS2's operational requirements in this regard. Notes of the meeting are presented at Appendix J.

The willingness of HS2 to consider a relocation of the IMD was explored at the meeting held on 7 January 2014. This has helped to provide confirmation that Scenario S4 is potentially viable. In order to maximise the potential of this solution and provide a more acceptable highway alignment to DCC, some minor modifications to the internal configuration of the IMD may be beneficial. Again, this was discussed with HS2, who have confirmed that this is something that they are willing to consider.

HS2 Ltd have confirmed that they will review the layout of the IMD with a view to accommodating the AAP as far as is practical, in line with Scenario S4.

However, the layout of the IMD will still need to maintain some flexibility in its design at this stage as the maintenance regime for HS2 has yet to be finalised.

At the meeting, the steering group outlined the interim findings of this study, along with studies undertaken by URS and Volterra, outlining the benefits to the Staveley Works Area of relocating the IMD along with reconfiguring the internal layout of the IMD with a view to narrowing the western end of the footprint by relocating non-critical elements of the layout further east. This would allow an improved road alignment to be provided adjacent to the River Rother, easing the pinch-point in Scenario S4.

HS2 Ltd confirmed that based upon the information presented at the meeting, they understand the issues affecting the delivery of the AAP Masterplan proposals. HS2 Ltd confirmed that they would explore the potential for both a relocation and reconfiguration of the depot footprint, and, subject to these changes being acceptable, the footprint of the IMD will be amended accordingly in the plans that will be published in late 2014 as the preferred route.

## 8 Conclusion

On the basis of the work undertaken, it is concluded that the current proposals for the IMD will have a significant negative effect on the AAP Masterplan for the site. The IMD would negate the overall viability and deliverability of the AAP, prejudicing the benefits that associated regenerative development would bring to the area. . It is therefore concluded that an alternative solution should be explored.

**Table 16** presents a comparison of the alternative scenarios considered within this report. It should be noted that the overall total score for each scenario assumes an equal weighting or importance for each of the criteria. This may not necessarily be the case and therefore the total scores are intended to act as a guide only.

**Table 16 Scenario Comparisons**

Criterion	Scenario					
	B1	B2	S1	S2	S3	S4
Development Area provided	3	2	3	2	3	3
Jobs created	3	2	3	2	3	3
Houses delivered	3	2	2	2	3	3
Infrastructure Cost Implications	3	3	1	2	1	2
Phasing Implications	3	1	2	1	1	3
Deliverability and risk	3	3	2	2	1	2
Design Complexity	3	3	2	2	1	2
Strategic Policy Fit	3	1	2	2	3	3
<b>Total</b>	<b>24</b>	<b>17</b>	<b>17</b>	<b>15</b>	<b>16</b>	<b>21</b>

Based on the assessment of each of the scenarios in this report, it is considered that S4 represents the preferred scenario for the Site in a ‘with-IMD’ world. This scenario is likely to maximise the developable area of the site and still deliver the majority of the benefits arising from Scenario B1, including the Strategic Policy Fit. This scenario would require HS2 to agree to a minor relocation of the IMD.

In order to provide a highway alignment that is acceptable to the highways authority, it may also be necessary to reconfigure the internal arrangement of the depot, particularly around its south-west corner. Drawing TRA001 shows that, in order to achieve an alignment that meets the highway authority’s desired route for the road (i.e. further away from the river) it will be necessary to consider a reconfiguration of the south-west corner of the IMD footprint. An indicative route (red/orange-route) represents a solution that is considered meet the needs of all parties and deliver the redevelopment of the site and regeneration of the wider area.

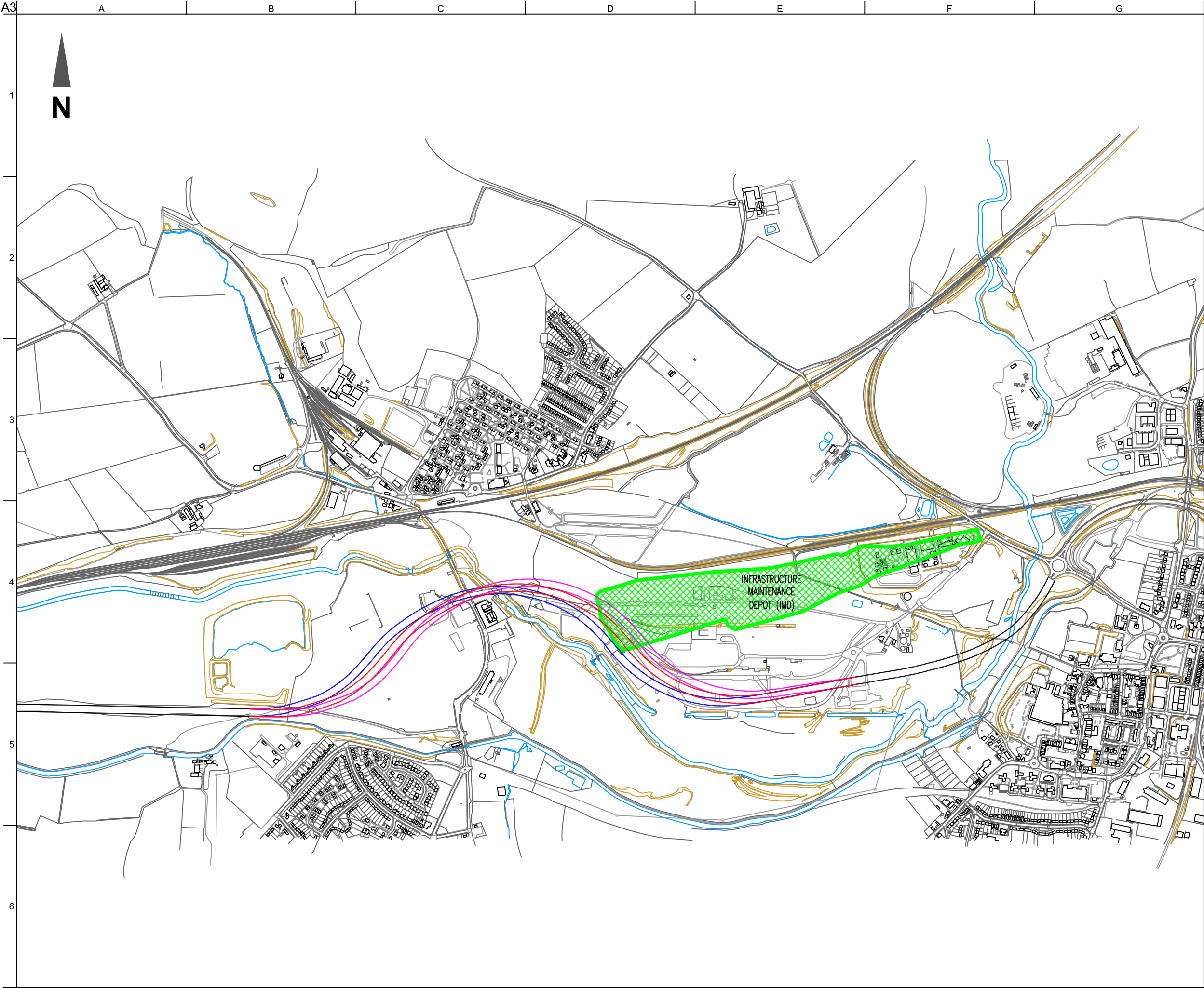
A meeting with HS2 Ltd was held on 7 January 2014 to confirm their willingness to consider a change to the IMD footprint. HS2 Ltd have confirmed that following the end of the current public consultation period (i.e. after 31 January 2014) they will review the layout of the IMD with a view to accommodating the AAP as far as is practicable, in line with Scenario S4. HS2 Ltd confirmed that based upon the information presented at the meeting, they understand the issues affecting the delivery of the AAP Masterplan proposals. HS2 Ltd confirmed that they would explore the potential for both a relocation and reconfiguration of the depot footprint, and, subject to these changes being acceptable, the footprint of the IMD will be amended accordingly in the plans that will be published in late 2014 as the preferred route.

## Drawings

---

## Drawing TRA001 – Indicative Road Alignment Options





## NOTES

1. IMD location is based upon Scenario S4 in Arup report
2. Road alignments are based upon URS design for Derbyshire County Council for 40mph design speed
3. Alignments are shown as indicative-only and would need further investigation into their feasibility

P1	28/01/14	PW	PW	RB
For Information				
Issue	Date	By	Chkd	Appd

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Oxford Street, Manchester, M1 6EL, UK  
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Client  
Chesterfield Borough Council,  
Chatsworth Settlement Trustees  
& Rhodia Ltd

Job Title  
HS2 Infrastructure Maintenance  
Depot (Staveley)

Drawing Title  
Indicative Road Alignment Options

Scale at A3  
1:10,000

Plot ID

Drawing Status  
**Preliminary**

Job No <b>234106-00</b>	Drawing No <b>TRA01</b>	Issue <b>P1</b>
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# Appendix A

## Study Brief

# HS2 DEPOT (STAVELEY) OPTIONS STUDY

## PROJECT BRIEF

### INTRODUCTION

The proposed High Speed Two (HS2) depot at Staveley will have a significant adverse impact on the regeneration of the area unless minor adjustments are made to maintain the redevelopment of the Staveley Works Strategic Site and the restoration of the Chesterfield Canal respectively.

As such, Derbyshire County Council (DCC), Chesterfield Borough Council (CBC) and landowner the Chatsworth Settlement Trustees (CST) are seeking to undertake a series of related projects to inform their respective HS2 consultation responses and influence HS2 accordingly in due course.

As such, Chesterfield Borough Council wants to hire a suitable consultant to study the impact of the HS2 depot, evaluate possible alternatives and identify the most preferred option concerned. [NB: DCC is looking to undertake a sister-study looking at the canal and related economic impacts.]

This brief identifies related components to enable consultancies to submit fee proposals accordingly.

### CONTEXT

Staveley Works is a brownfield site (c.170Ha) located to the north-east of Chesterfield. The regeneration of this site forms the main thrust of CBC's adopted Core Strategy (2013), which identifies it as a strategic site for the delivery of a considerable amount of housing to 2015. CST owns c.135 Ha of the land concerned (and most of the related land east of the River Rother). DCC has long since protected strategic routes to and from the site to facilitate regeneration, which in turn is predicated on the delivery of the Chesterfield-Staveley Regeneration Route (CSRR) in due course.

However, the footprint of the proposed HS2 depot at Staveley will negate the delivery and operation of the intended route of the CSRR, and thereby obviate the regeneration of the site as a whole. In addition, the intended route of the HS2 line into the proposed depot will have a significant adverse impact on the levels needed for the restoration of the Chesterfield Canal (which in turn forms a key part of the regeneration of the site as a whole).

As such, there is a need for a technical study to look at the impact of the proposal and the feasibility of alternatives so as to inform/influence HS2 AND inform CBC's draft Area Action Plan (AAP).

### PROCESS

In view of the foregoing, a consultant **with rail expertise** is needed to evaluate various scenarios at Staveley and advise partners accordingly. Although the consultant will need to set out the scope of work required, it is likely that the process and key tasks - in order - will include:

Stage1: Definition of the Impact of HS2: Baseline Position (Nov 2013)

- Establish baseline scenario B1 (ie development of the Staveley site in line with draft AAP Masterplan 2013 without HS2)
- Establish baseline scenario B2 (ie development of Staveley site in line with HS2 proposal, thereby obviating the comprehensive redevelopment of the site, including the canal)
- Establish net effect of HS2 proposal

Stage 2: High Level Appraisal of Potential Solutions (Nov/Dec 2013)

- Develop/evaluate Solution S1 (HS2 depot remains in currently proposed location but the CSRR is realigned and provided to the north)
- Develop/evaluate Solution S2 (HS2 depot remains in currently proposed location and CSRR is realigned to cross the river by the Devonshire Business Centre and provided to the south)
- Develop/evaluate Solution S3 (HS2 depot is relocated to the north within the AAP area and the CSRR is provided along the route currently prescribed in the draft AAP)
- Develop/evaluate Solution S4 (HS2 depot is relocated slightly to the north and the CSRR is realigned slightly to pass to the south of the depot)

#### Stage 3a: Selection and development of Preferred Option (Dec 2013)

- Present/discuss findings to date to client and select preferred option
- Develop preferred option in more detail (ie drawings), taking into account need for changed level to facilitate restoration of the canal

#### Stage 3b: Liaison with HS2 (Dec/Jan 2013)

- Meet with HS2 to present findings, influence HS2 and glean reactions

#### Stage 4: Preparation of Final Report (Jan 2013)

- Prepare final technical report for client review
- Advise client on consultation response (to OBJECT to scheme as proposed but prepared to SUPPORT scheme if preferred option is adopted)

NB: It is hoped that the successful consultant will undertake further work with HS2 after submission. However, fee proposals should only provide indicative rates for time thereafter.

### OUTPUTS

Outputs will comprise those as identified above in Stages 1 to 4 (see PROCESS), including:

- Draft technical report of issues and options covering Stages 1 & 2 (Nov 2013)
- Presentation of findings to date to client (Nov 2013)
- Detailed technical drawings of preferred option (Dec 2013)
- Presentation of findings to date to client/HS2 (Dec/Jan 2014)
- Draft Final technical report covering Stages 3 & 4 (Jan 2014).

### COSTS

The client will only consider fee proposals submitted on a fixed fee basis upto £20,000 plus VAT. It is essential therefore that consultants consider related risks carefully from the outset, and ensure that the tender submitted provides a comprehensive and prescriptive way of securing objectives.

### PROPOSALS

Proposals should be accompanied by a covering letter (one side maximum) and comprise: tender (five sides maximum); appendices (five sides maximum.) The information provided should include:

- understanding of the brief/CST objectives
- intended approach/methodology/process/outputs/timescales for meeting the brief
- team (and confirmation of availability)
- relevant qualifications, experience, expertise and skills of individuals assigned to project
- specific experience of consultancy/team in the field tendered for (eg 3 relevant case studies)
- indicative breakdown of involvement of team members
- information on the consultancy's financial turnover during the last 3 years

- confirmation that the level of necessary insurance cover is in place
- a clearly identified fixed fee sum
- a signature by a director of the consultancy.

Fee proposals will be evaluated according to the following criteria:

- cost and best value for money
- understanding of brief and key issues/ideas
- robust approach, methodology and process for securing CST's aims
- clear outputs to secure objectives
- suitability of consultancy and team (ie related experience and expertise).

In preparing proposals, it is possible to contact Alan Morey at CBC. However, no questions will be answered that might provide a competitive advantage to any party.

Tenders should be emailed to Alan Morey and posted in duplicate (two hard copies) to:

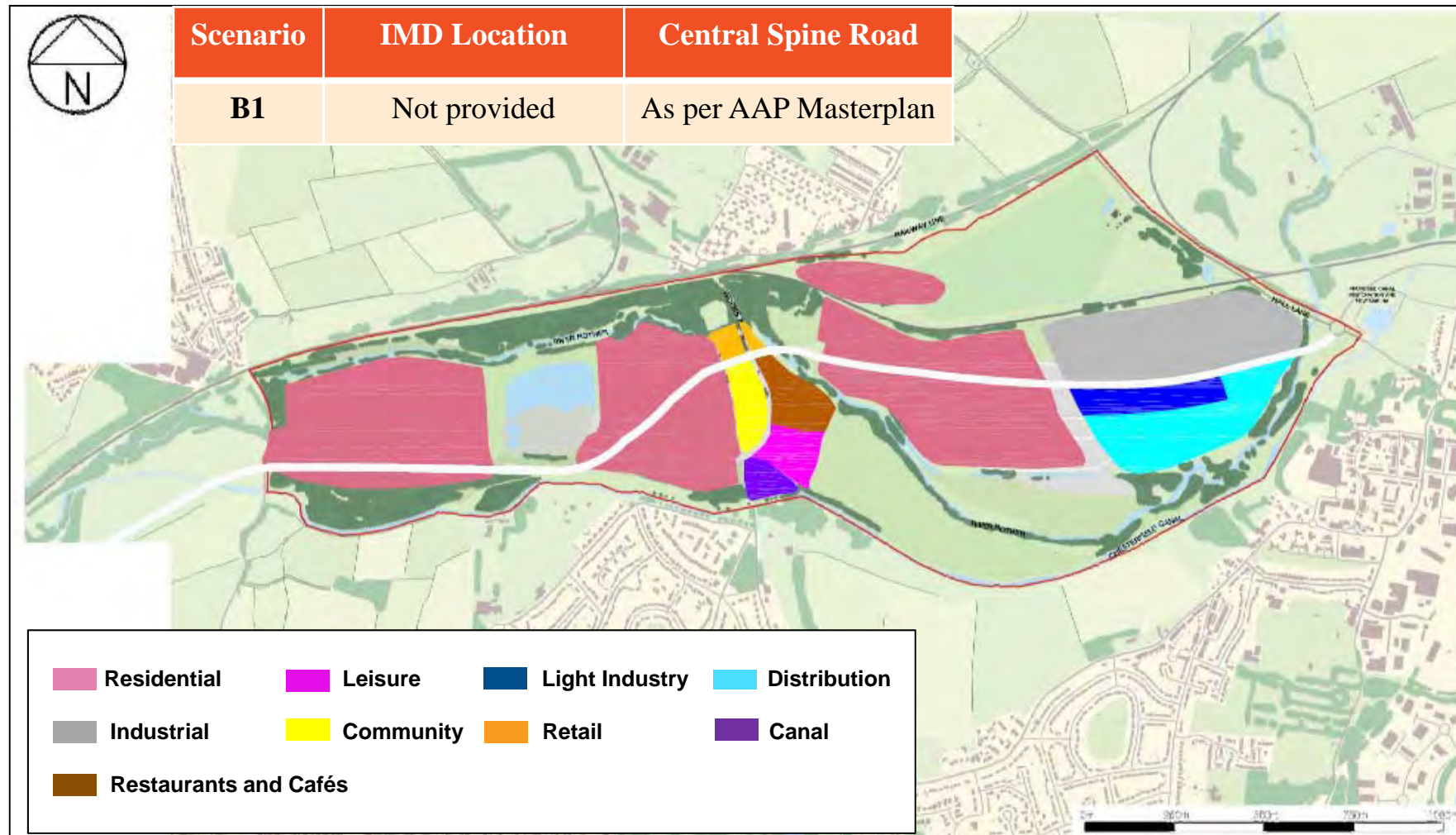
Alan Morey  
Planning Services  
Chesterfield Borough Council  
Town Hall  
Rose Hill  
Chesterfield  
Derbyshire S40 1LP

Tenders should be submitted by the closing date, which is: **12noon, 15<sup>th</sup> November**

## Appendix B

### Scenario B1 Layout

# Scenario B1

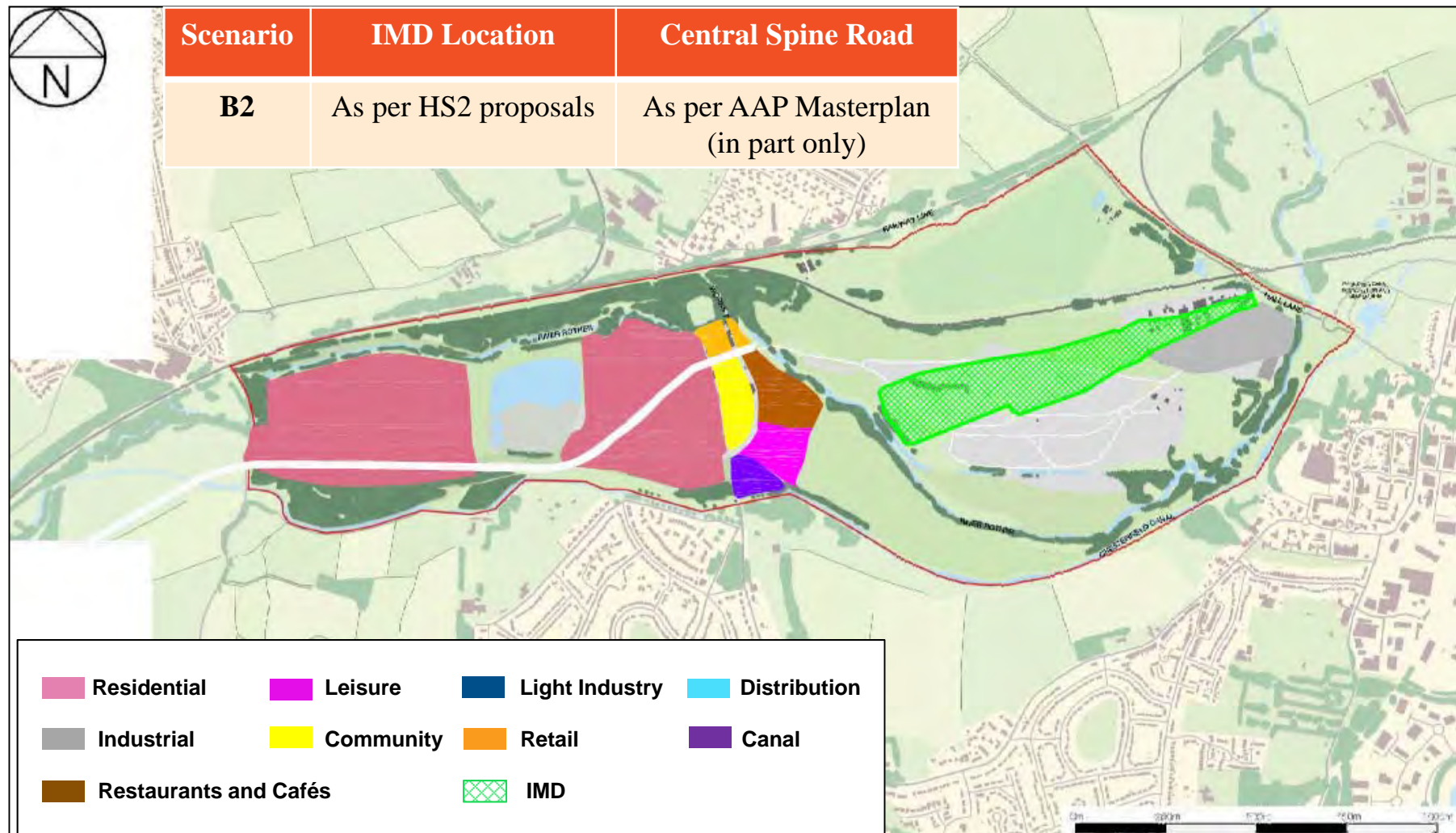


## Appendix C

### Scenario B2 Proposed Layout



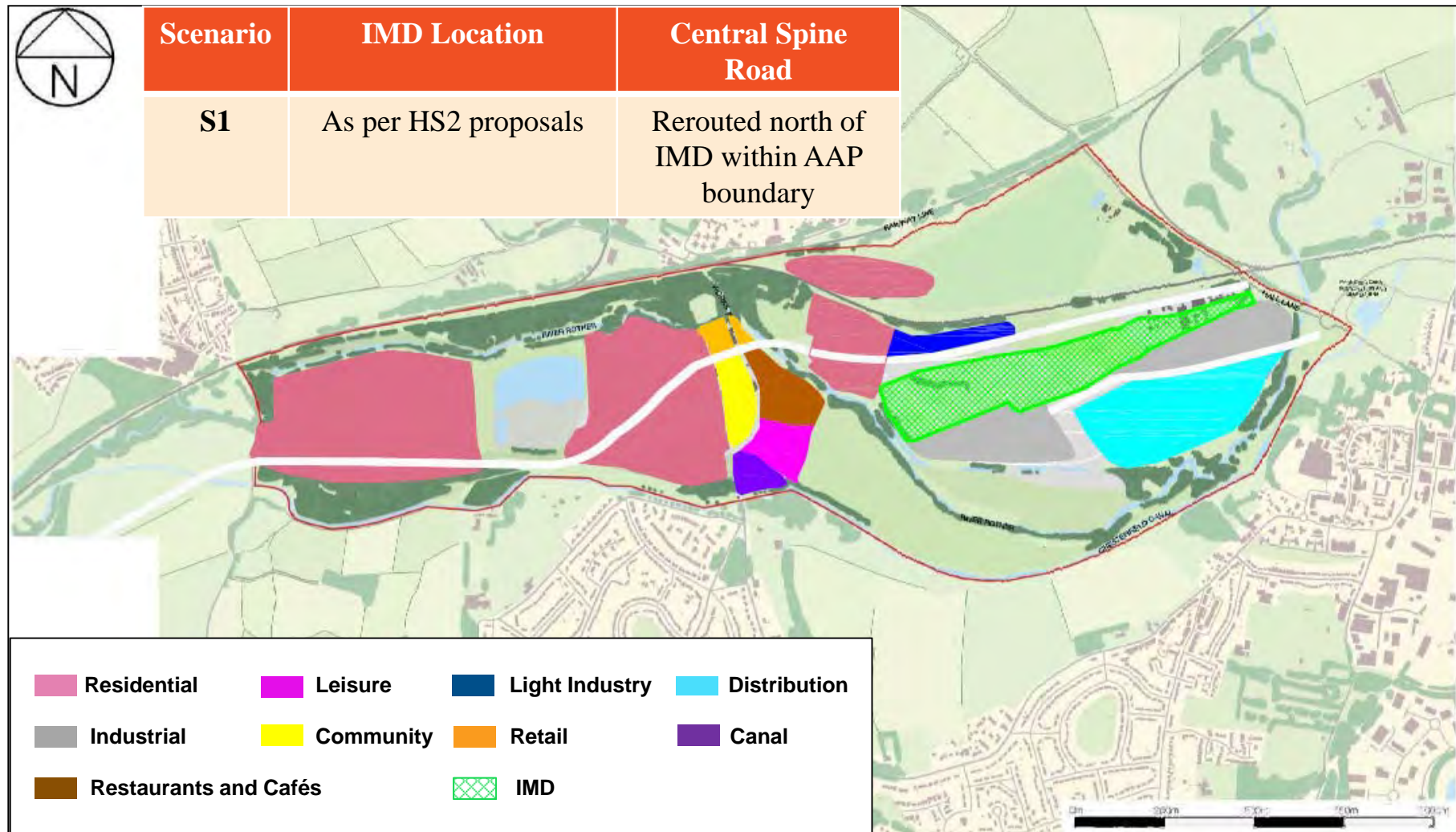
# Scenario B2



## **Appendix D**

### **Scenario S1 Proposed Layout**

# Scenario S1

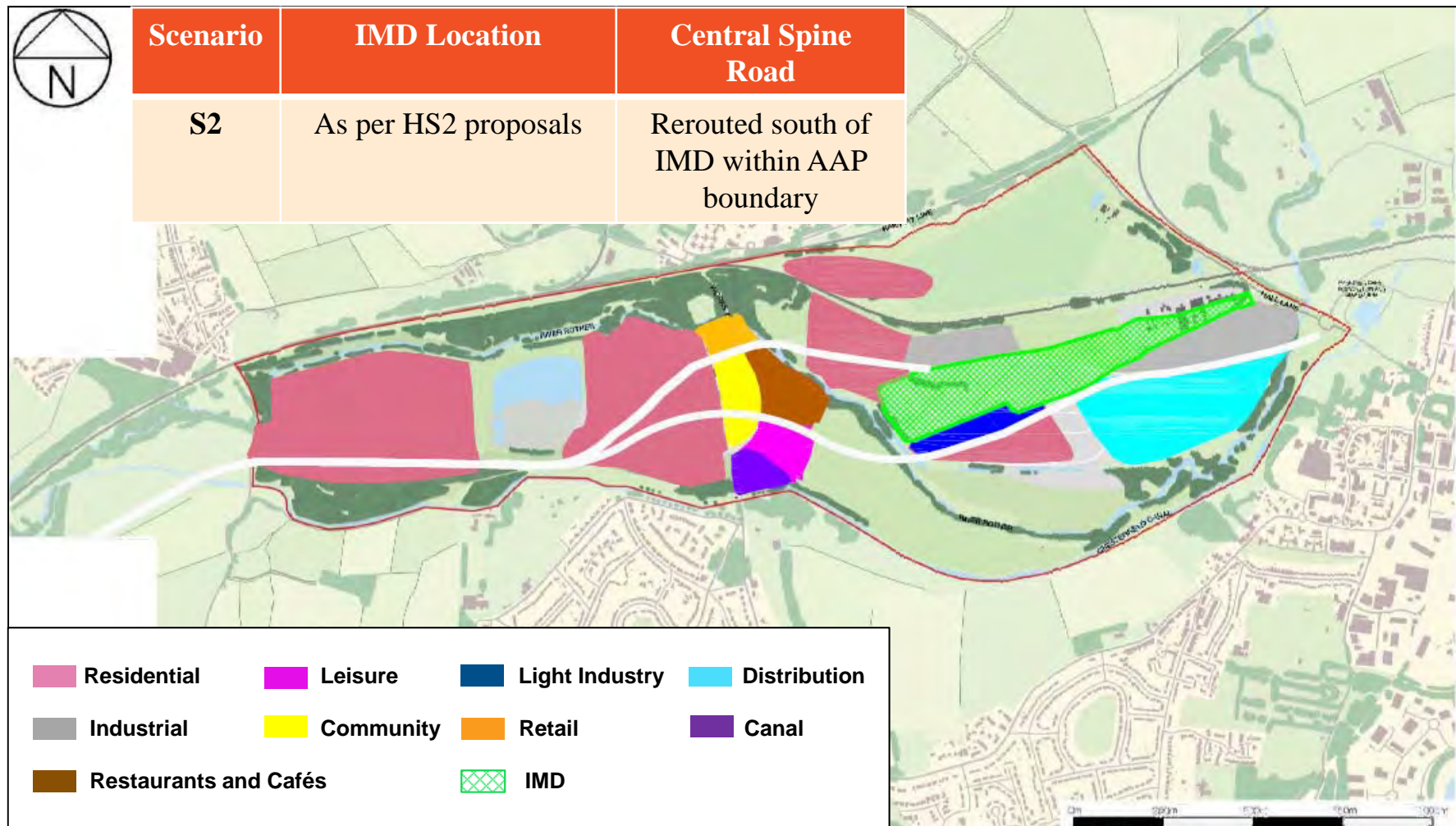


## Appendix E

### Scenario S2 Proposed Layout



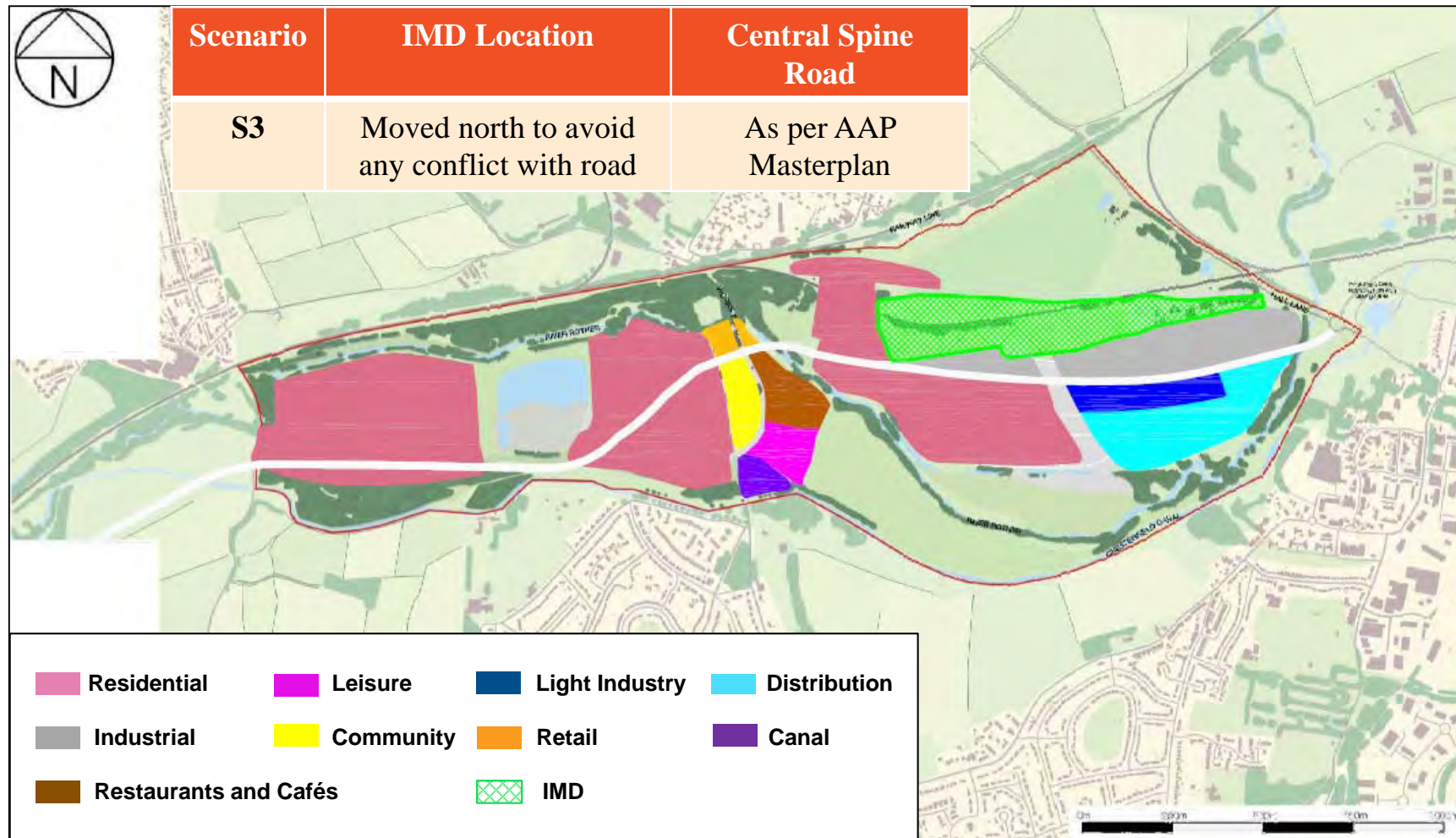
# Scenario S2



## **Appendix F**

### **Scenario S3 Proposed Layout**

# Scenario S3

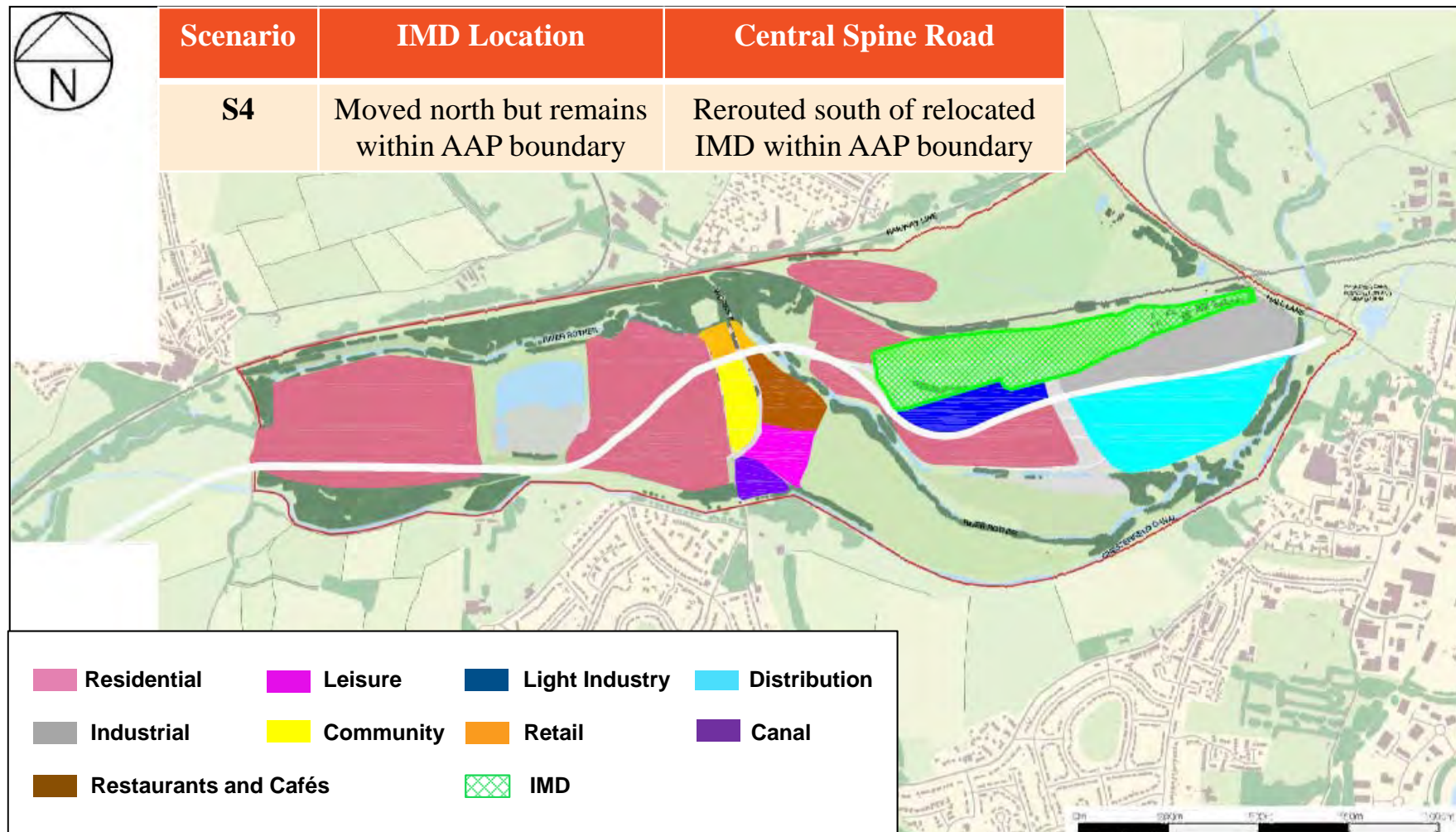




## **Appendix G**

### **Scenario S4 Proposed Layout**

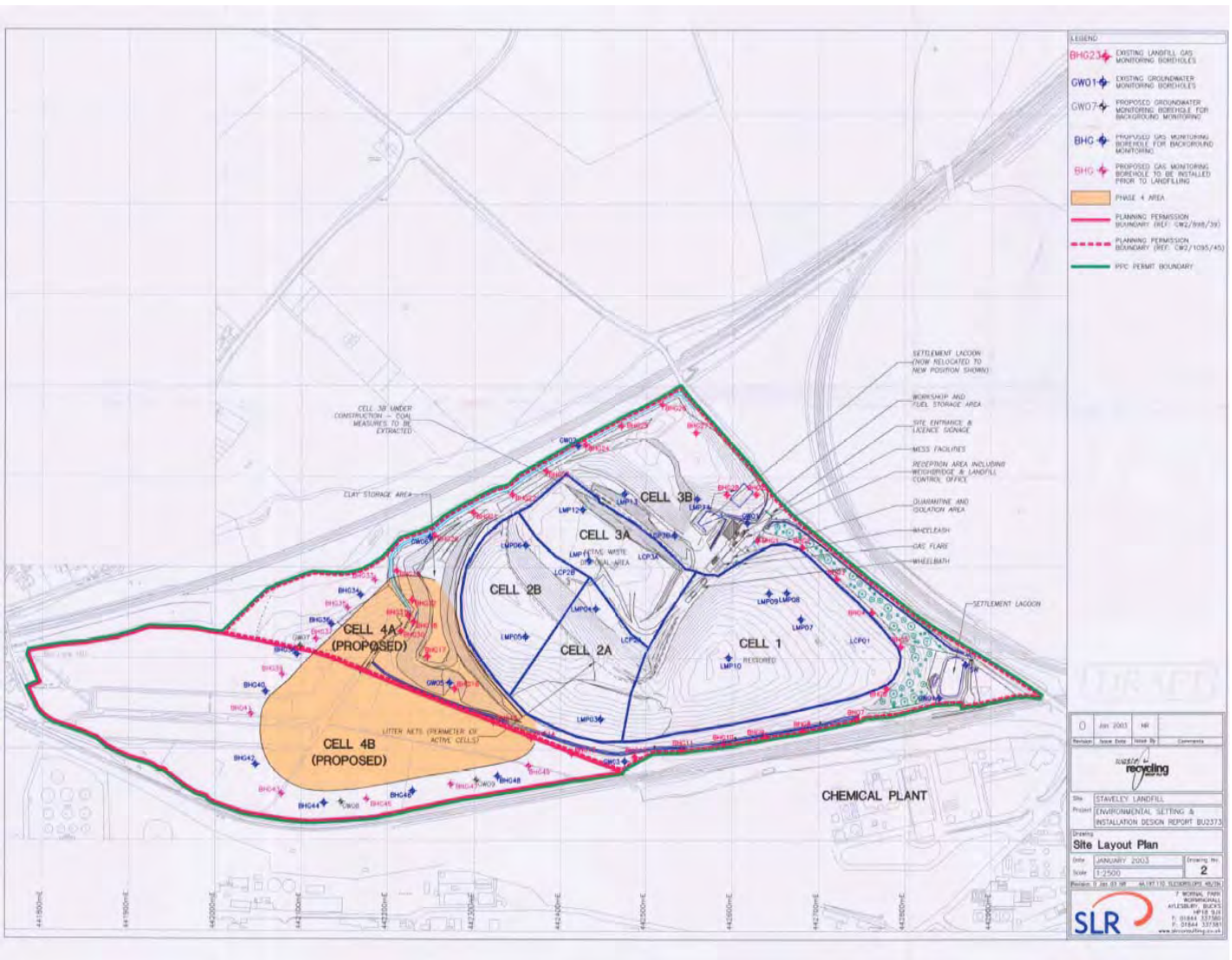
# Scenario S4



## **Appendix H**

### **Staveley Landfill Plan**

## Schedule 2 - Site plan



## **Appendix I**

### **Calvert Infrastructure Maintenance Depot Layout**





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### Legend

- |                                    |                               |                    |
|------------------------------------|-------------------------------|--------------------|
| Listed buildings                   | Special Areas of Conservation | National Parks     |
| Area of Outstanding Natural Beauty | Special Protection Areas      | Flood Risk Zones   |
| RAMSAR                             | National Nature Reserves      | Railway Cutting    |
| World Heritage Site                | Parks and Gardens             | Railway Embankment |
| SSSI                               | Scheduled Ancient Monuments   | Highway Cutting    |
|                                    | Historical Battlefields       | Highway Embankment |

3.0	19/01/12	CO	MP	CL
Approved				
2.0	05/01/12	LW	MP	CL
Approved				
Issue	Date	By	Chkd	Appd

Client



Job Title  
High Speed 2  
Feasibility Study

Scale at A1  
1:2500  
Discipline  
Rail

ARUP

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Drawing Title  
Proposed Post Consultation Route  
Infrastructure Maintenance Depot

Drawing Status <b>Approved</b>	Job No <b>209742-00</b>
Drawing No <b>HS2-ARP-00-DR-RW-05302</b>	Issue <b>3.0</b>

## **Appendix J**

### **Notes of Meeting with HS2 Ltd**



Project title	HS2 Infrastructure Maintenance Depot (Staveley)	Job number 234106-00
Meeting name and number	HS2 Meeting 1/14	File reference 9-02-04
Location	Eland House, London	Time and date 13:00 7 January 2014
Purpose of meeting	To Discuss Layout and Location of Staveley IMD	
Present	Victoria Wallace, HS2 Ltd Alasdair Hassan, HS2 Ltd Andrew Wood, HS2 Ltd John Woodhouse, HS2 Ltd Will Kemp, Chatsworth Settlement Trustees (CST) Steve Cannon, Derbyshire County Council (DCC) Alan Morey, Chesterfield Borough Council (CBC) John Moorhouse, Rhodia Ltd (Rhodia) Richard Bickers, Arup Peter Webster, Arup	
Apologies		
Circulation	Those present	

Action

## 1. Introduction

RB thanked HS2 for agreeing to meet and outlined the background to why the meeting had been called.

The interests of CBC/DCC/CST/Rhodia were outlined by the respective representatives. The studies being undertaken by Arup (on behalf of CST/CBC/Rhodia), URS (on behalf of DCC) and Volterra (on behalf of DCC) were briefly explained.

CBC highlighted that their Core Strategy, including proposals for the Staveley site, has been formerly adopted in July 2013. DCC ([Highways] highlighted their obligation to promote the “Regeneration Route” [new road) to improve connectivity with Chesterfield and alleviate congestion on existing routes.

Prepared by Peter Webster  
 Date of circulation 09 January 2014  
 Date of next meeting N/A

# Minutes

Project title

Job number

Date of Meeting

HS2 Infrastructure Maintenance Depot (Staveley)

234106-00

7 January 2014

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Action

## 2. Consultation Proposals

VW provided a summary of the current timeline as follows:

- Initial route proposals were published in January 2013
- A period of 'informal engagement' followed
- 2 main changes arose as a result of this engagement, neither of which are relevant to the IMD
- Public consultation has been underway since July 2013 and will finish at the end of January 2014 – this is an 'information gathering' phase for HS2 Ltd
- There will then follow a 'period of reflection' with a revised route announced towards the end of 2014
- A Hybrid Bill and safeguarding for Phase 2 is then envisaged to commence in 2015

## 3. Depot Location Selection

AW provided a brief summary on how the proposed IMD location at Staveley had been arrived at with reference to a depot specification that required:

- a) An approximate 1km x 0.25km site
- b) A site that was flat, long and straight
- c) Ideally located approximately halfway along the eastern leg of Phase 2
- d) Close to both the conventional railway and the high speed network
- e) Site which offered environmental & regeneration benefits

The sifting process that was then used to reduce the long list of 25 locations down to 2 (including Staveley) was then explained. Staveley was then selected as the preferred location.

Three sites within the Staveley area were assessed; the current proposed location, to the west of Works Road (considered too small), and to the north of the minerals railway (environmental concerns over landfill).

The current proposal for road access is via Works Road although HS2 acknowledge that there are issues over the suitability of these arrangements given the nature of this road.

## 4. Depot Layout

AW presented a plan showing the initial layout for the IMD which showed the reasoning behind the current proposed footprint. The following were described as the key elements of the depot:

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Action

- a) 6 no. 775m long sidings
- b) 6 no. 400m long shorter sidings
- c) Covered maintenance shed
- d) Helipad
- e) 50% of sidings to be accessible by vehicle
- f) Access onto the mainline from both directions (preferred)
- g) Straight sidings (preferred)

## 5. Initial Findings of Technical Study

PW presented a series of plans showing the current conflict between the current location of the IMD and the strategic road link (40mph) through the site. The different options considered were explained in outline. It was explained that the provision of a road link through the site to the west of the IMD was essential and that from the initial work undertaken, this could be best achieved by moving the proposed footprint of the IMD north to sit tight against the minerals railway line. However, this would still result in a tight pinchpoint at the south-west corner of the IMD and therefore, any internal reconfiguration of the depot that reduced the landtake requirements in this area would be beneficial, especially as issues relating to vertical alignment and other constraints have not yet been considered in detail.

WK explained the importance of maintaining the alignment of the road to the west of the IMD in order to maintain the existing crossing point of the River Rother and to maintain the proposed town planning aims and objectives of the local centre around the listed buildings at the heart of the scheme.

JM presented a plan showing the extent of the landfill to the north of the railway line and the potential to realign part of the minerals railway (avoiding the landfill) was discussed. It was suggested that this should be included within the consultation response(s) to allow HS2 to consider it further.

There was a general discussion regarding phased delivery of the masterplan & timing. Current thinking is that the first area to be developed would be the central area which can be accessed off Works Road. Construction could start around 2018. Following this, the western area could be progressed – the new road may be required to service the later part of this development. The eastern site (location of the IMD) is likely to be the final phase of development and would require the new road for access. It was commented that HS2 construction works might start in approximately 2023.

## 6. Changes to the Plans

HS2 confirmed that based on the information presented they understood

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7 January 2014

Action

the issues affecting the delivery of the masterplan caused by the IMD. It was confirmed that would be willing to explore both a relocation and reconfiguration of the depot footprint in order to resolve these. There is likely to be flexibility on the depot footprint, however, the consultation responses submitted must provide the justification for any changes in order to support this. HS2 will then review the consultation response and consider the current depot design.

AH noted that the depot would need to maintain some flexibility in its design as the maintenance regime for HS2 has yet to be finalised.

AH confirmed that the plans published at the end of 2014 will provide a similar level of detail to those published for the consultation. HS2 will consider the potential to accommodate the requested changes to the footprint and, subject to these being acceptable, the footprint in the plans published in the next set of documentation (late 2014) will be amended accordingly.

## 7. Next Steps

VW confirmed that, as things stand, after the current consultation ends there will be no further dialogue with HS2 until the route is published at the end of 2014. However, this is still subject to confirmation and there may yet be further opportunity for dialogue on some basis. VW will confirm via CBC/DCC if this changes.

AW/AH stressed that there will still be opportunity for further dialogue and limited design changes after this, once the route is published.

WK confirmed that the intention was for all parties to submit separate consultation responses but to refer to/append the Arup/URS/Volterra studies to all.

## 8. AOB

RB asked whether consideration had been given to the potential to use the depot as a construction hub with an associated larger footprint. AW stated that this had not been looked at as yet but that depots were typically used as rail heads for Phase 1. The site may therefore be used as a rail head but likely to be within the same footprint. It was suggested that HS2 may wish to consider constructing part of the access road to provide construction access to the IMD site. The detail of this would follow in due course. Construction of Phase 2 is currently likely to start in 2021 at the earliest. It is likely to be towards the end of 2015 before HS2 has a firm view on any enabling works that might be possible through a Paving Bill.

## Executive Summary of the studies appended to this bid

- **URS Study – Impact of HS2 on the A619 Regeneration Route** – commissioned by Derbyshire County Council (DCC), assesses the impact of the (IMD) on proposals for the A619 Chesterfield Staveley Regeneration Route (CSRR). It looks at alternatives and suggests possible adjustments to the IMD location together with a feasible alternative route satisfying the concerns of interested parties.
- **Volterra Study – Economic Impact of HS2 Infrastructure Maintenance Depot at Staveley** – commissioned by (DCC) with support from Chesterfield Borough Council (CBC) to look at the economic impact of the proposed depot.
- **Arup – HS2 Infrastructure Maintenance Depot (Staveley) High Level Option Appraisal** – commissioned by Chatsworth Settlement Trust (CST) to identify the potential for adjusting the site boundaries to provide a better fit with current and potential development opportunities.

There are long-standing proposals for the provision of major highway infrastructure in this corridor. A scheme originally known as the Brimington- Staveley By-Pass, but later as the CSRR, has been safeguarded for some considerable time. A series of changes including a new Junction 29a on the M1 and the preparation of an Area Action Plan led to the County Council recognising the need to re-examine the alignment of the route. The URS study assesses the impact of the proposed HS2 IMD and the route proposals from CST and CBC contained in the Staveley and Rother Valley Corridor Area Action Plan [SRVCAAP] along with the feasibility of adopting an alternative alignment that provides a better fit with emerging proposals.

Traffic congestion along the A619 corridor remains a major problem affecting local communities and is the primary source of emissions resulting in the inclusion of the corridor in Air Quality Review and Assessment procedures. The new route would provide the strategic link from Chesterfield to the M1 (J29a) reducing congestion and also having potential to assist in bringing a large area of derelict land into productive use. The growing role of the Chesterfield Canal in leisure, accessibility and biodiversity and the support it provides for the regeneration of the area could also feature in the consideration of an alignment.

The URS report concludes that a route to the south of the IMD could deliver each party's requirements and suggests the parties should investigate whether some of the proposed route could be built at an early date in order to facilitate construction of the IMD, as road access to the site should come from the CSSR and not from any other existing roads.

The Volterra study considers the potential economic benefits and impacts of HS2's IMD, although the most relevant comparator for the IMD in the UK is the depot at Singlewell in Gravesham, Kent, which supports the same functions for High Speed One.

The report suggests that construction of the IMD could support around 70-75 full time equivalent jobs and once operational the IMD could employ 200-250 full time equivalent workers. Furthermore, if the IMD is used as a construction site for HS2 it might support a further 260 jobs. It is also estimated that around 20-25 indirect jobs could be supported locally by the IMD, or 100-125 jobs regionally. Therefore it estimates that the total impact of locating the IMD at Staveley could be in the region of 540-580 direct jobs, or up to 710 including indirect jobs at a wider spatial level.

An appropriate commuter catchment for the site was identified and the skill levels of the local community considered. The area has a relative abundance of lower qualified residents, who strongly resemble the description of a 'skilled blue-collar workforce' and the report concludes that it could be a beneficial employment generator for the local community.

The Volterra report concludes that "the IMD will have a positive impact on the area and should be supported but it is important to undertake further work and continue discussions with HS2 Ltd in order to ensure that it is made as compatible as possible with the existing regeneration plans". Which fortunately the Arup study undertook to address through a High Level Option Appraisal to understand and evaluate the potential impact of the proposed IMD on the redevelopment of the Staveley Works Area and to explore alternative layouts accordingly.

There is a strong need for redevelopment of the Staveley Works Area supported by the fact that it is a large brownfield site (c.200 hectares) which currently negates the regeneration of a wider area which has high levels of multiple deprivation (i.e. high unemployment, poor health and low educational attainment/skills). The Chesterfield Core Strategy (adopted in 2013) prioritises the site for redevelopment, making it the only Strategic Allocation in the Borough and providing for a SRVCAAP to address site-related issues and provide for residential and employment uses. The implementation of the original masterplan would be severely frustrated by the potential layout of the proposed IMD and would negate the delivery of the critical CSRR through the site. However, this report also shows that a minor relocation of the IMD footprint to the north and adjacent to the minerals railway line should create sufficient space for the CSRR to be delivered, thus maintaining the viability of the redevelopment of the site.



Environment and Infrastructure Ltd

# STUDY – IMPACT OF HS2 ON THE A619 REGENERATION ROUTE

January 2014



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Rev	Date	Details	Prepared by	Checked by	Approved by
FINAL	30.1.2014	Final document	JC	MD	MG

## **IMPACT OF HS2 ON A619 REGENERATION ROUTE**

### **1. EXECUTIVE SUMMARY**

- 1.1 The current HS2 proposals include provision for an Infrastructure Maintenance Depot (IMD) at Staveley.
- 1.2 This study assesses the impact of the IMD on proposals for the A619 Chesterfield – Staveley Regeneration Route (CSRR). It looks at alternatives and suggests possible adjustments to the IMD location together with a feasible alternative route that could satisfy the concerns of interested parties. Derbyshire County Council (DCC) is fully committed to joint working with all groups including Chesterfield Borough Council (CBC), landowners such as Chatsworth Settlement Trustees (CST) and Rhodia Ltd and HS2 Ltd to achieve a satisfactory solution for all parties.

## **2. INTRODUCTION**

- 2.1 The proposed route of HS2 through North Derbyshire includes provision for an IMD at Staveley. The proposed site conflicts with CBC proposals for housing and employment development and, in places, with plans for the restoration of the Chesterfield Canal. DCC, with support from CBC, has commissioned a study of the economic impact of the proposed depot from Volterra partners. CST have commissioned a study from Ove Arup and Partners (Arup) to identify the potential for adjusting the site boundaries to provide a better fit with current and potential development opportunities. HS2 Ltd has indicated that whilst they have a strong preference for this location there is some flexibility in the site boundaries.
- 2.2 There are long-standing proposals for the provision of major highway infrastructure in this corridor. A scheme originally known as the Brimington-Staveley By-Pass, but later as the Regeneration Route, has been safeguarded for some considerable time. A series of changes including a new Junction 29a on the M1 and the preparation of an Area Action Plan led to the County Council recognising the need to re-examine the alignment of the route. This study is required to assess the impact of the proposed IMD and the proposals from CST and CBC contained in the Staveley and Rother Valley Corridor Area Action Plan [SRVCAAP] for the route and the feasibility of adopting an alternative alignment that provides a better fit with emerging proposals.
- 2.3 Given the limited time available the study concentrates on establishing the impact of the current proposals on the indicative SRVCAAP route and the viability of any alternative alignments, together with an assessment of the associated risks. The report has been informed by a meeting held by Derbyshire County Council, Chesterfield Borough Council and Chatsworth Settlement Trustees with HS2 Ltd on 7th January 2014.

### 3. CONTEXT

- 3.1 The CSRR is needed to relieve congestion on the A619, provide a strategic link between Chesterfield and the M1 [Junction 29a] and support regeneration of the Staveley area.
- 3.2 The proposed HS2 IMD will occupy land suggested for an alternative alignment to the current Regeneration Route within the emerging SRVCAAP. That alignment would maximise the potential for regenerative benefits from comprehensive redevelopment of the area and avoid or mitigate negative impacts that would be associated with the currently protected alignment.
- 3.3 The Volterra report concludes that “the IMD will have a positive impact on the area and should be supported but it is important to undertake further work and continue discussions with HS2 Ltd in order to ensure that it is made as compatible as possible with the existing regeneration plans.”

#### The Route

- 3.4 The new route is a long standing infrastructure objective for both CBC and DCC. An alignment was protected within the adopted Replacement Chesterfield Borough Local Plan (2006). This protection has been ‘carried over’ to the Chesterfield Local Plan: Core Strategy (adopted 2013). However within the Core Strategy it has been recognised that the currently protected alignment would not maximise regeneration benefits and an alternative route, such as shown within the emerging SRVCAAP is now preferred.
- 3.5 The route is also supported by the local highway authority and is named in the Derbyshire Local Transport Plan (LTP3). See the attached Technical Note at Appendix A for full details.
- 3.6 Traffic congestion along the A619 corridor remains a major problem affecting local communities and is the primary source of emissions resulting in the inclusion of the corridor in Air Quality Review and Assessment procedures. The new route would provide the strategic link from Chesterfield to the M1 (J29a) reducing congestion and also having potential to assist in bringing a large area of derelict land into productive use. The growing role of the Chesterfield Canal in leisure, accessibility and biodiversity and the support it provides for the regeneration of the area must also feature in the consideration of an alignment.

## **Infrastructure Maintenance Depot**

- 3.7 HS2 Ltd made the site their preferred location for the IMD because it fits the standard depot specification including;
- It is approximately midway between Birmingham and Leeds (the eastern leg of Phase 2).
  - It is around 1km long by 0.25km wide and is flat and straight.
  - It is close to conventional rail and the proposed high speed network.
  - It is a 'brownfield' site that offers environmental and regeneration benefits.
  - There is a good link to the M1 motorway.

## **4. APPROACH AND METHODOLOGY**

- 4.1 The report that CST commissioned from consultants Arup has been produced four different development scenarios within the SAAP. From these alternatives the two that least affected the development area were selected as the basis for the alternative routes below. These are referred to as scenarios S1 and S4 in the Arup report.
- 4.2 Derbyshire County Council has already compromised on the route within the SRVCAAP. The proposed alignment is now a dual purpose one, acting as both a strategic route and yet providing access to development. This has meant a lower design speed than normally expected for a 'strategic route' and there has been an acceptance that the route is less short and direct than originally envisaged. However the route must still meet DCC strategic objectives of design speed and directness and be able to serve as the principal road in the corridor - and these have now been stretched to their fullest extent.
- 4.3 Route A, based on Arup scenario S1, passes to the north of the proposed depot and route B, based on Arup scenario S4, passes to the south. Both routes have a 40mph design speed. The southern route is achieved by relocating the area of proposed IMD further north and even then it slightly impinges on the IMD. See enclosed plans no 47068060/HS2/A619/1 and /2 at Appendix B. A corridor of land 20 metres wide is shown.

## Potential Solutions

- 4.4 Route A leaves the existing Hall Lane roundabout at Staveley in a north-westerly direction and then turns west to run parallel to the current railway line before joining the proposed SRVCAAP alignment to the east of Works road and its roundabout junction. There is a minimum radius curve to the alignment

requiring super elevation to enable the route to turn west and the vertical alignment would need careful consideration as it crosses the proposed IMD near Hall lane, requiring a bridge structure. Where it closely parallels the mineral railway there may be requirements for safety fencing/ protection to the railway. Access to the IMD site could come from the new route, although this does not allow access to development land to the south of the IMD and a separate access road would be needed.

- 4.5 The southern route (B) leaves Hall Lane roundabout in a south-westerly direction following the line of the original regeneration route for a short distance before turning west to take a line parallel to the south edge of the resited proposed IMD location and then skirting the west side to join the existing SRVCAAP route at Works Road. A roundabout junction would be required as it crosses Works Road. A bridge crossing of the River Rother would be needed, but otherwise this is a relatively straightforward alignment. However the route still passes through the south/west boundary of the IMD site and hence there is a pinch point at this location. To enable room for this route it would be necessary to move the IMD to the north and east and/or shorten the site length. However the route could be examined to slide the alignment slightly west, not sufficient to entirely remove it from the IMD footprint but possibly to enable the road to pass adjacent to a slightly modified IMD boundary. This would depend on further examination of the ground conditions, flood issues and the detailed alignment of the route. Access to the IMD should come from the east of the site, possibly off Hall Lane, or along the new SRVCAAP/regeneration route, to avoid traffic using unsuitable minor roads.

- 4.6 The alternative alignments considered have similar route lengths and likely structure requirements. The northern route has horizontal and vertical alignment issues from the Hall Lane roundabout for several hundred metres west. This makes it unattractive both from a cost and technical viewpoint. In addition there would need to be a completely separate access road to enable development of land to the south. The southern route will only be suitable if

the IMD is relocated and /or shortened. At this stage there is no reason to rule out either option from a purely highways perspective. However both routes come with extra costs in comparison to the original proposals through the SRVCAAP site.

- 4.7 The risk of developing one of these alternatives is mitigated by the fact that both solutions exist within the current SRVCAAP boundary. However as the area is 'Brownfield' land there may be as yet unforeseen costs involved with its development such as for remediation. There is also the need to mitigate any flood risk concerns that the Environment Agency may have.

## **5. CONCLUSIONS**

- 5.1 The currently planned IMD proposals make undeliverable the alignment shown for the CSRR in the SRVCAAP. However there are options available that can make it work. In particular a route to the south of the IMD, based on a variation of option B, could deliver each party's requirements. HS2 Ltd should be urged to review the location and internal layout of their site with a view to facilitating provision of the CSRR and development proposals for the area. The parties should also investigate if some of the proposed route should be built at an early date in order to facilitate construction of the IMD, as road access to the site should come from the newly built A619 and not from any other existing roads.



## **6. APPENDICES**

**APPENDIX A – TECHNICAL NOTE**

**APPENDIX B – PLAN DRAWING NUMBER 47068060/HS2/A619/1 - ROUTE A.**

**PLAN DRAWING NUMBER 47068060/HS2/A619/2 - ROUTE B**

# **APPENDIX A**

# **TECHNICAL NOTE**

## **Technical Note: December 2013**

### **Impact of HS2 on A619 Regeneration Route**

#### **Introduction**

The current HS2 proposals include provision for an Infrastructure Maintenance Depot (IMD) at Staveley. The proposed site conflicts with Chesterfield BC proposals for housing and employment development and, in place, with plans for the restoration of the Chesterfield Canal.

The purpose of this note is to summarise the objectives of the regeneration route in terms of the local plan policy and current Derbyshire Local Transport Plan (LTP3).

#### **Chesterfield Borough Council Local Plan (Core Strategy)**

Chesterfield Borough Council adopted the Local Plan (Core Strategy) at a meeting of the full council on the 24th July 2013. This followed successful examination of the Core Strategy and its supporting documentation in early 2013. As such, the Core Strategy is a recent and robust planning document, which has been accepted by both the national planning inspectorate and local council members.

The Core Strategy sets out the strategy for development across the borough until 2031 and identifies which broad areas are suitable for development. As per prevailing legislation (including the Localism Act), the Core Strategy has been the subject of extensive consultation, including with the public of Chesterfield Borough, neighbouring local authorities, and the Highways Agency.

The Core Strategy states at paragraph 5.95 that:

“A number of major transport routes have been safeguarded in the local plan and identified in the Derbyshire County Local Transport Plan (LTP). The most significant of these is the Chesterfield-Staveley Regeneration Route.”

The Core Strategy also specifically safeguards the Chesterfield-Staveley Regeneration Route at Policy CS21.

#### **CS21 Major Transport Infrastructure**

The council will safeguard land for major new transport infrastructure including:

- Chesterfield-Staveley Regeneration Route
- Staveley Northern Loop Road Phase 2
- Chesterfield Town Centre Relief Road
- Rail Halt at Barrow Hill
- Rail Terminal at Markham Vale

The purpose of the Chesterfield-Staveley Regeneration Route is to support the redevelopment of the Staveley and Rother Valley Corridor (which in turn is expected to generate employment in the local area) and provide relief to the existing A619 corridor through Brimington. The Core Strategy states at paragraph 6.19:

“The Staveley and Rother Valley Corridor is the largest regeneration opportunity within Chesterfield Borough (covering approximately 150 ha) and, consequently, is the one ‘strategic site’ in the Core Strategy.”

The importance of the Staveley and Rother Valley Corridor is also set out in Policy PS5:

### **PS5 Staveley and Rother Valley Corridor**

The borough council will publish an Area Action Plan for the Staveley and Rother Valley Corridor demonstrating how the area will be comprehensively redeveloped to create a sustainable urban extension in a landscape setting through a masterplanned approach.

The objectives of the masterplan will be to:

- a) Deliver a range of new housing opportunities (up to 2000 dwellings) focussed on the centre and western end of the corridor
- b) Create employment opportunities (up to 50ha) focussed on the Hall Lane end of the corridor and around Works Road
- c) Provide a new local centre to serve both the development itself and adjacent communities of Barrow Hill and Hollingwood
- d) Develop a sustainable community including on-site energy generation where possible and practicable.
- e) Enhance the quality of and access to the landscape and green infrastructure, particularly the Chesterfield Canal and River Rother waterways
- f) Deliver access and transport improvements, emphasising sustainable transport
- g) Improve water management on site
- h) Provide for the remediation and re-use of contaminated and unstable land where possible and practicable
- i) conserve and enhance the quality of the historic environment, taking account of designated and non-designated heritage assets within and closely related to the site.

Development proposals must be brought forward as part of a comprehensive masterplan for the area and must demonstrate how they will deliver the objectives of the Area Action Plan.

As stated on the Chesterfield Borough Council website, policies from the **2006 Replacement Chesterfield Borough Local Plan** have been retained until the adoption of the Local Plan (Sites and Boundaries) document. One such policy is TRS3 which is re-produced below:

### **TRS 3 CHESTERFIELD-STAVELEY REGENERATION ROUTE**

THE DETAILED DESIGN OF THE CHESTERFIELD-STAVELEY REGENERATION ROUTE AND THE LOWGATES LINK MUST TAKE FULL ACCOUNT OF:

- (a) EITHER THE PROPOSED NEW JUNCTION 29A AND OTHER ROAD IMPROVEMENTS ASSOCIATED WITH THE MEGZ (MARKHAM VALE) DEVELOPMENT OR, IN THE ABSENCE OF A SIGNED CONTRACT FOR THE CONSTRUCTION OF THE PROPOSED NEW JUNCTION 29A, THE IMPACT OF TRAFFIC ON JUNCTION 30 AND THE A61;
- (b) THE EXISTING CHARACTER OF THE ROTHER VALLEY AND CHESTERFIELD CANAL AND MINIMISE ANY IMPACT ON THEIR NATURAL ENVIRONMENT;
- (c) THE POTENTIAL FOR ENHANCING THE RIVER AND CANAL CORRIDOR, IN PARTICULAR THE RESTORATION OF THE CANAL FOR NAVIGATION;
- (d) THE POTENTIAL FOR THE CREATION OF GREENWAY ROUTES TO REPLACE EXISTING RIGHTS OF WAY AFFECTED BY THE SCHEME;
- (e) THE AMENITY OF RESIDENTS IN THE NEIGHBOURING AREA.

PLANNING PERMISSION WILL ONLY BE GRANTED PROVIDED THAT THE SCHEMES ACCOMMODATE ANY DISTURBANCE TO THE RESTORED CANAL AND THE TRANS PENNINE TRAIL BY REPLACING THE FACILITIES TO AN EQUIVALENT OR IMPROVED STANDARD.

### **Derbyshire Local Transport Plan (LTP3)**

The transport infrastructure within Chesterfield is the responsibility of Derbyshire County Council. The Derbyshire County Council Local Transport Plan (2011 to 2026 sets out the strategy for the management and improvement of the transport network). Within this document, the A619 Staveley – Brimington Bypass (Chesterfield to Staveley) is identified as being a scheme which the County will pursue in association with land-use developments.

As such, the A619 Staveley-Brimington Bypass (Chesterfield to Staveley) is fully supported by the local highway authority. *[ Now known as Staveley Regeneration Route]*

### **Summary**

The proposed HS2 IMD will occupy land intended for the Chesterfield-Staveley Regeneration Route and the redevelopment of the Staveley and Rother Valley Corridor.

Both these related schemes have a long history within relevant planning documentation, including in the recently adopted Chesterfield Local Plan (Core Strategy) and its immediate predecessor, the 2006 Replacement Chesterfield Borough Local Plan. These documents were approved and adopted in 2013 following extensive consultation and review by the relevant planning authorities.

The Chesterfield-Staveley Regeneration Route is also supported by the local highway authority, and is a named scheme in the Derbyshire Local Transport Plan.

**APPENDIX B**

**PLAN DRAWING NUMBER**  
**47068060/HS2/A619/1 –**

**ROUTE A**

**PLAN DRAWING NUMBER**  
**47068060/HS2/A619/2 –**

**ROUTE B**

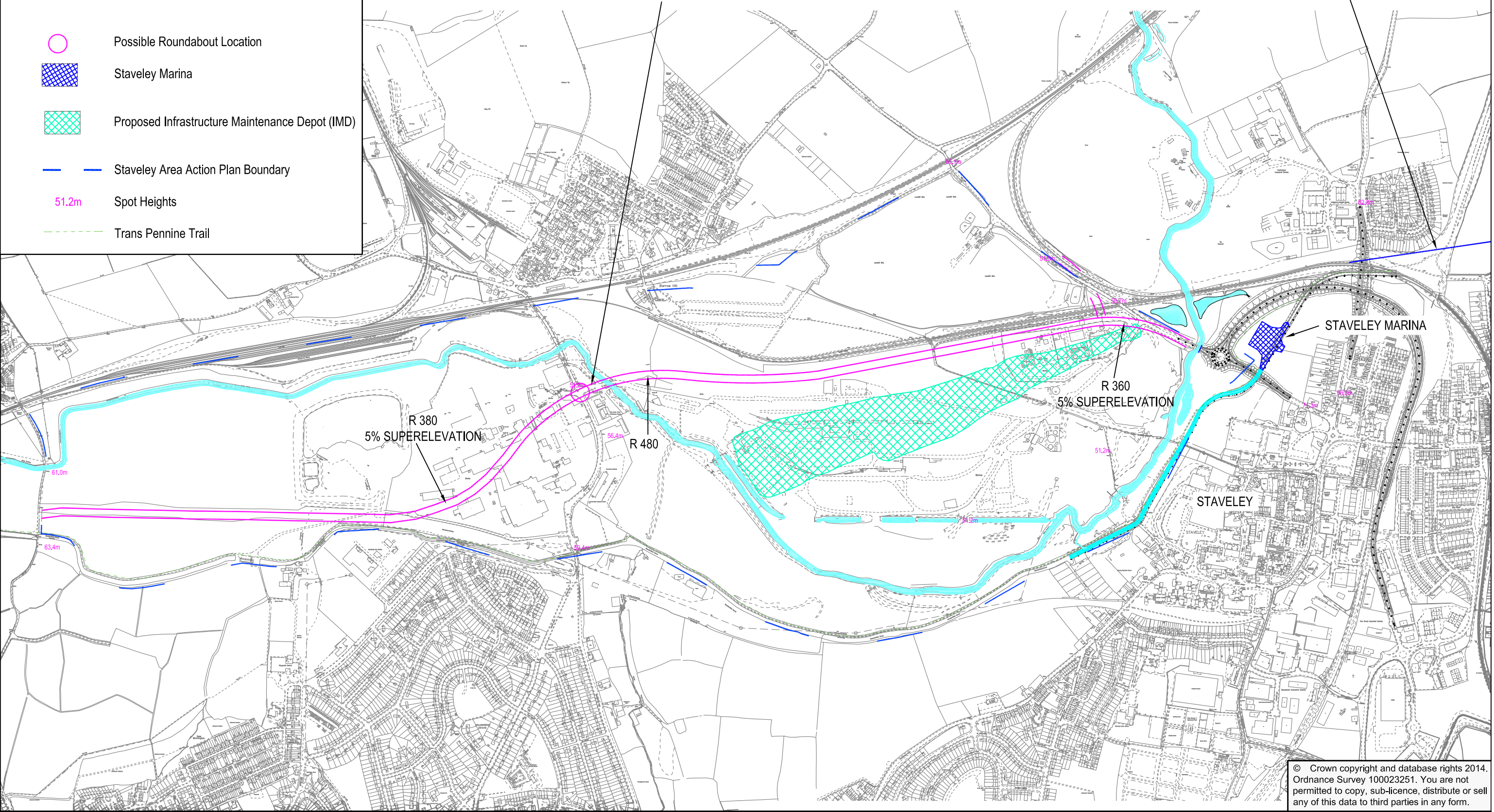
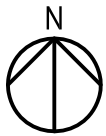


NOTES

1. Length of Proposed Route Within Staveley Area Action Plan Boundary = 3045m
2. 40MPH Design Speed

- Possible Roundabout Location
- Staveley Marina
- Proposed Infrastructure Maintenance Depot (IMD)
- Staveley Area Action Plan Boundary
- 51.2m

Spot Heights
- Trans Pennine Trail



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New Route Title	JPH JC	28/01/14	C
DCC Title Changed	JPH MD	24/01/14	B
Minor Amendments	SA MD	16/01/14	A
Revision Details	By Check	Date	Suffix



MIKE ASHWORTH  
Strategic Director – Economy, Transport and Environment

Client	Project & Drawing Title
	HS2 - A619 Staveley Regeneration Route Options ROUTE A TO NORTH OF IMD

Purpose of issue				
FOR INFORMATION				
Designed JC	Drawn SA	Checked MD	Approved JC	Date JAN 14
URS Internal Project No. 47068060		Suitability		
Scale @ A3 N.T.S.		MOU Number 3247		







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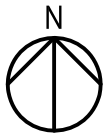
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NOTES

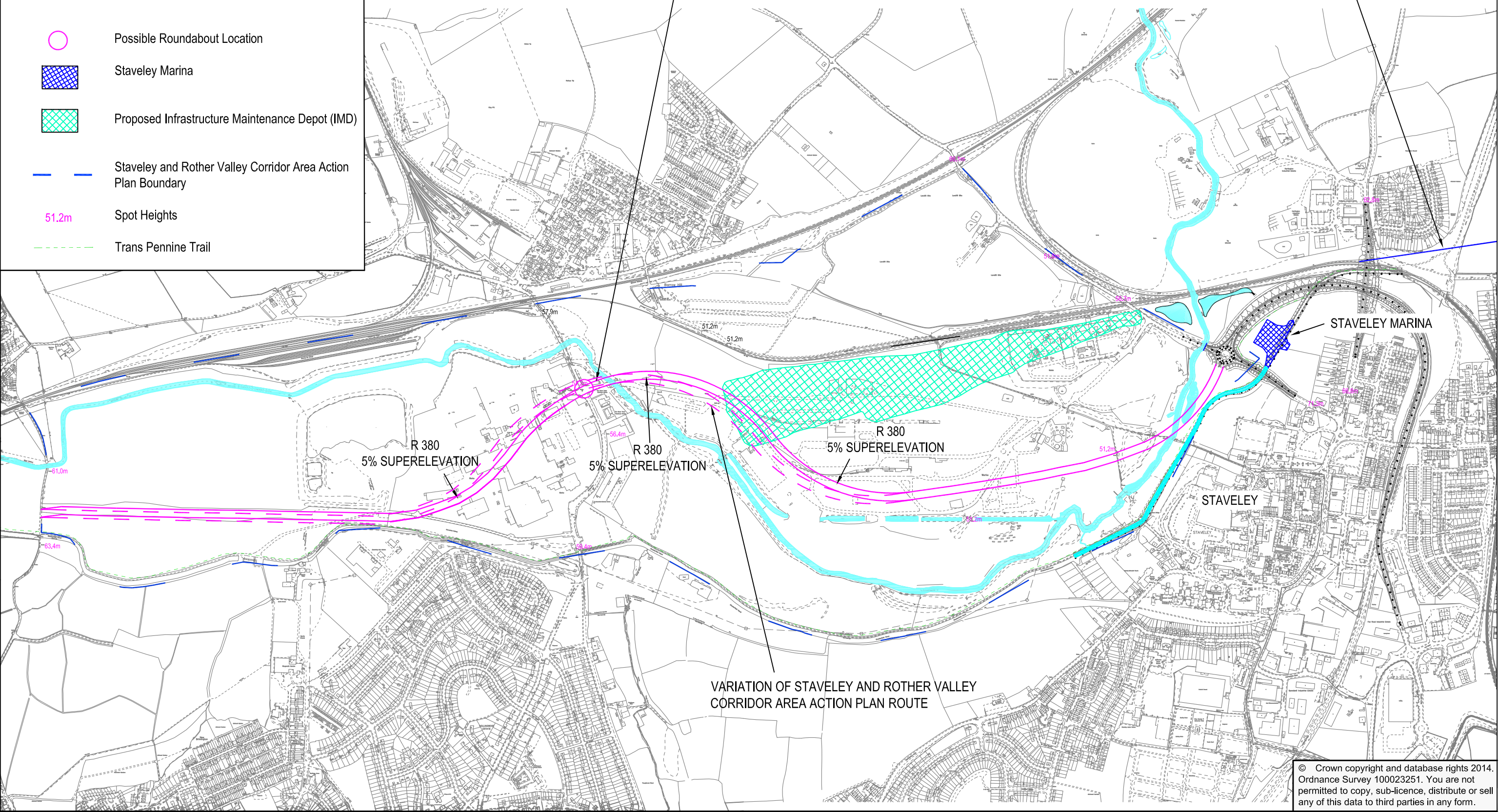
- 1. Length of Proposed Route Within Staveley Area Action Plan Boundary =3300m
- 2. 40MPH Design Speed

-  Possible Roundabout Location
-  Staveley Marina
-  Proposed Infrastructure Maintenance Depot (IMD)
-  Staveley and Rother Valley Corridor Area Action Plan Boundary
-  Spot Heights
-  Trans Pennine Trail



PROPOSED HS2 RAIL ACCESS


STAVELEY AND ROTHER VALLEY  
CORRIDOR AREA ACTION PLAN ROUTE



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Added variation on route	SA MD	28/01/14	C
DCC Title Changed	JPH MD	24/01/14	B
Minor Amendments	SA MD	16/01/14	A
Revision Details	By Check	Date	Suffix

Client



**DERBYSHIRE**  
County Council  
*Improving life for local people*

MIKE ASHWORTH  
Strategic Director – Economy, Transport and Environment

Project & Drawing Title

HS2 - A619 Staveley  
Regeneration Route Options  
ROUTE B TO SOUTH OF  
REPOSITIONED IMD

Purpose of issue

FOR INFORMATION

Designed JC	Drawn SA	Checked MD	Approved JC	Date Jan 14
URS Internal Project No. 47068060		Suitability		
Scale @ A3 N.T.S.		MOU Number 3247		

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# **Economic Impact of HS2 Infrastructure Maintenance Depot at Staveley**

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**Derbyshire County Council**

**FINAL REPORT**

**Prepared by Volterra Partners**  
January 2014

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## 1. Executive Summary

- 1.1 This study considers the potential economic impacts of HS2's proposed Infrastructure Maintenance Depot (IMD), situated in the Staveley and Rother Valley Corridor (SRVC). More specifically the site of the IMD will be just south of the Chesterfield-Rotherham railway line, at the former Staveley Works chemical plant.
- 1.2 As part of HS2, there will be three IMDs. One will be situated on the London to Birmingham route for Phase One and there will be two on Phase Two, on the western and eastern legs. Staveley is the proposed site for the IMD on the eastern leg of Phase Two. The site is located in the borough of Chesterfield and the county of Derbyshire.
- 1.3 The IMDs will be used as bases from which to carry out engineering activities to inspect, maintain and renew the railway's infrastructure. The most relevant comparator for the proposed HS2 IMDs in the UK is the depot at Singlewell in Gravesham, Kent, which supports the same functions for High Speed One.
- 1.4 In this report we estimate the economic impacts of the proposed IMD at Staveley. This includes the likely job creation, considering both direct and indirect jobs, along with estimates of how these jobs might be disaggregated across occupations. In addition, the extents to which the depot would fit with skill levels in the local area, as well as with existing regeneration plans, are also discussed.
- 1.5 We conclude that construction of the depot could support around 70-75 full time equivalent jobs; once operational the depot could employ 200-250 full time equivalent workers; and if the depot is used as a construction site for HS2 it might support a further 260 jobs. Furthermore, it is estimated that around 20-25 indirect jobs could be supported locally by the depot, or 100-125 jobs regionally. This means that overall we estimate that the total impact of locating the IMD at Staveley could be in the region of 540-580 direct jobs, or up to 710 including indirect impacts and at a wider spatial level.
- 1.6 Considering just the full time jobs that would be supported at the IMD itself, an estimate of the occupational disaggregation was based on the situation at the comparator IMD at Singlewell. This analysis led to the conclusion that there could be between 25 and 30 managers based at Staveley IMD; between 65 and 80 elementary positions; and 115 to 140 employees in process, plant and machine occupations. Hence the majority, over 50 per cent of employees, would be operatives.
- 1.7 An appropriate commuter catchment for the site has been identified and we have then considered the skill levels of that local community. The methodology in deciding whether the local area around Staveley IMD would be suitable was to compare its characteristics with those of the catchment area of Singlewell IMD. We conclude that the skill levels of the local community around Staveley are well suited to the proposed IMD. The area has a relative abundance of lower qualified residents, who strongly resemble the description of a 'skilled blue-collar workforce'. We therefore conclude that it could be a beneficial employment generator for the local community.
- 1.8 Having reviewed the current regeneration plans for the area, we conclude that using the site for an IMD would disrupt the existing plans to some extent. At a high level, and based upon the land size and location of the IMD, we estimate that the land assigned to the IMD might displace around 255 dwellings and 10,000 sq m of proposed commercial

floorspace which, using high level assumptions about densities, could accommodate around 209 jobs. In addition it would also displace a negligible amount of proposed green space. Our analysis of the displacement of activity is based on a very high level consideration of the proportion of land planned for regeneration that would be lost to the depot. In reality the current location of the depot falls in the middle of the regeneration area and therefore it is likely that the disruption would be higher than this, as it could be difficult to rework regeneration plans to fit around the IMD. The Arup study considers in more detail how different potential layouts of the IMD could minimise the disruption to the regeneration plans.

- 1.9 There is a consensus that the depot site at Staveley would be used as a construction site for HS2. Based on conservative estimates about construction job creation in the area and associated expenditure patterns we estimate that the influx of construction workers would generate revenues for the local area, over the entire construction period, of between £1 million and £1.2 million.
- 1.10 There is potential for the Staveley commuter catchment to enhance the importance of transport and storage as an employment generator. In Singlewell's catchment 12 per cent of employees are based in the sector, compared with 4 per cent in Staveley's catchment. This suggests that there is scope for growth and specialisation in this sector in and around Staveley.
- 1.11 Our estimates suggest that the net benefit of the IMD, when comparing the direct employment once the IMD is operational against the employment planned as part of the regeneration of the area, would be -9 to 41 direct jobs set against a loss of land for dwellings. Arup's study suggests that the displacement of potential regeneration activity could be larger than this, due to the exact location of the IMD. However the IMD provides a definitive employment prospect, of appropriate skill levels for the local community, and brings with it associated benefits through the construction period of both the IMD itself and HS2 more widely.
- 1.12 In addition to the quantifiable job impacts of the proposed IMD, there are some further impacts that it could have, both positive and negative. Over recent years there has been significant investment in the canal, and future plans envisage 75 miles of continuous navigable canal waterways. These plans are aimed at enhancing it and making it an area that locals can be proud of. The current route for HS2 would cross the canal several times, disrupting these plans for the canal restoration. HS2 Ltd is currently in discussions with the Chesterfield Canal Trust in order to try to find potential solutions.
- 1.13 The location of the IMD would be on land which requires comprehensive remediation work. For this reason it would be likely to form a later phase of development and, as such, the IMD may be a very appropriate use for this site. Furthermore, planned improvements to the road infrastructure could potentially be made more viable, and thus possibly be brought forward, if the IMD is built at Staveley.
- 1.14 There is potentially scope that, with some realignment of the IMD site accompanied by re-planning of the regeneration masterplan, the loss of dwellings could be minimised and other proposed uses could still be accommodated. Arup have investigated a scenario in which the IMD is moved northwards slightly and the central spine road is realigned so as to pass to the south of it. They conclude that this option is the most optimal in terms of being in line with current regenerative objectives as set out in the SRVCAAP Preferred

Option. The loss of activity resulting from the IMD would be minimised under this scenario.

- 1.15 We therefore conclude that the IMD will have a positive impact on the area and should be supported but it is important to undertake further work and continue discussions with HS2 Ltd in order to ensure that it is made as compatible as possible with the existing regeneration plans.

## 2. Introduction

- 2.1 This study considers the potential economic impacts of HS2's proposed Infrastructure Maintenance Depot (IMD) at Staveley. Job creation is considered, as well as the extent to which the depot would fit with existing regeneration plans for the Staveley Works and Rother Valley Corridor (SRVC). We also consider the extent to which the opportunities provided by the IMD would match the skill sets of the local community.
- 2.2 Chesterfield Borough Council (CBC) and Derbyshire County Council are working closely together along with the principal landowner, Chatsworth Estate, in order to find an optimal solution. Put simply this involves finding a solution that maximises the benefits of the depot whilst minimising any adverse impacts. Volterra has produced this report for Derbyshire County Council, and complementary reports have been prepared by Arup<sup>1</sup> (on planning) and URS (on highways), who are also reporting on the potential impacts of the depot.
- 2.3 The primary purpose of this study is to consider the job creation and economic impact of the proposed IMD at Staveley and how compatible this is with the local population and their skill levels. We have also considered at a high level the extent to which this could fit with existing regeneration plans for the area but this report does not consider alternative layouts for the depot which could minimise the disruption to the regeneration plans. The Arup study considers this aspect in much more detail. We refer to the Arup study in this report when it is relevant to consider the findings of that study alongside this one.

## The Site and Surrounding Area

- 2.4 This report makes reference to both 'Staveley Works' and the 'Staveley and Rother Valley Corridor' (SRVC). For clarity, 'Staveley Works' is the term generally applied to the agglomeration of foundries, chemical plants and collieries that once operated in the study area. The SRVC is the term applied to the area subject to an emerging Area Action Plan, currently being prepared by CBC, i.e. a defined policy area. In broad terms, the most significant recent land uses were a pipe works on land to the west of Works Road and a chemical works on land to the east of Works Road and west of Hall Lane, north of the River Rother. Historic land uses are more fully described in the SRVCAAP Preferred Option (CBC, November 2012).
- 2.5 The SRVC is a former industrial hub situated in the north east of Derbyshire. From early ironworks the corridor grew to become an extensive network of collieries, foundries and chemical works. The settlements of Barrow Hill and Hollingwood were created to serve these heavy industries and the canal and rail lines were created to provide transport. The SRVC provided both a social and economic focus for the surrounding communities. The decline in traditional industries has resulted in the cessation of the majority of activities on the site, depriving the area of jobs and income. This economic decline has been accompanied by increasing levels of deprivation – the LSOA in which most of the SRVC is located features in the top decile (top 10%) nationally in terms of overall deprivation. As a result, regeneration of the area is one of the key priorities for CBC.

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<sup>1</sup> Chatsworth Settlement Trustees: HS2 Infrastructure Maintenance Depot (Staveley) High Level Option Appraisal, January 2014



## Economic Impact of IMD at Staveley

- 2.6 CBC published the SRVCAAP Preferred Option in November 2012. This followed publication of a 'Regeneration Masterplan' (Capita Symonds, March 2012) by Chatsworth Settlement Trustees. Both documents recognise that regeneration of the SRVC offers significant opportunities to the local area and the Borough as a whole but must be undertaken comprehensively if these benefits are to be maximised. This regeneration will be a long-term project, perhaps taking up to 20 years to complete. This is due to extensive work that needs to be carried out regarding remediation to deal with ground contamination, as a result of the site being used for heavy industry. So far, no major restoration work has been accomplished, and this is likely to be heavily influenced by funding issues. The site has however been largely cleared in readiness for preparatory works. For instance, above-ground structures have been cleared, including the removal of the 2,000m radius hazard notification zone previously associated with a chemical works on the site.
- 2.7 The SRVCAAP Preferred Option was published before proposals for the IMD were made public. CBC intends to publish a revised SRVCAAP Preferred Option, which seeks to accommodate an IMD, later in 2014.

## HS2's proposed Infrastructure Maintenance Depots

- 2.8 As part of HS2, there will be three IMDs. One will be situated on the London to Birmingham route, at Thame Road in Buckinghamshire, for Phase One. There will be another on the western leg of Phase Two, at Crewe, with a further one at Staveley, which is located in the borough of Chesterfield and the county of Derbyshire, for the eastern leg. More specifically the proposed depot at Staveley would be built at Staveley Works, which is a brownfield site.
- 2.9 The IMDs will be used as bases from which to carry out engineering activities to inspect, maintain and renew the railway's infrastructure. Currently the construction period for the depot remains uncertain.
- 2.10 The most relevant comparator for the proposed HS2 IMDs in the UK is a depot at Singlewell in Gravesham, Kent. Morgan Sindall was awarded the contract to design and construct the depot and it was completed in 2007. It comprises office, workshop and maintenance buildings together with a rail spur off the main line, access road, car parking and hardstandings. The purpose of the depot is to support the onerous maintenance regime of Britain's first high speed railway and provides a maintenance facility with an administrative and records base, workshops and stores to maintain track vehicles, which is independent of existing railway facilities. The maintenance of the railway is undertaken from vehicles running along the tracks, which they access from Singlewell. The rail vehicles have a range of modules that can be attached to undertake the activities required and their day to day maintenance is managed on site. The depot is to the north of the Channel Tunnel Rail Link (CTRL). Other works within the depot include sidings, fuelling facility, training area, laydown area, and car parking.

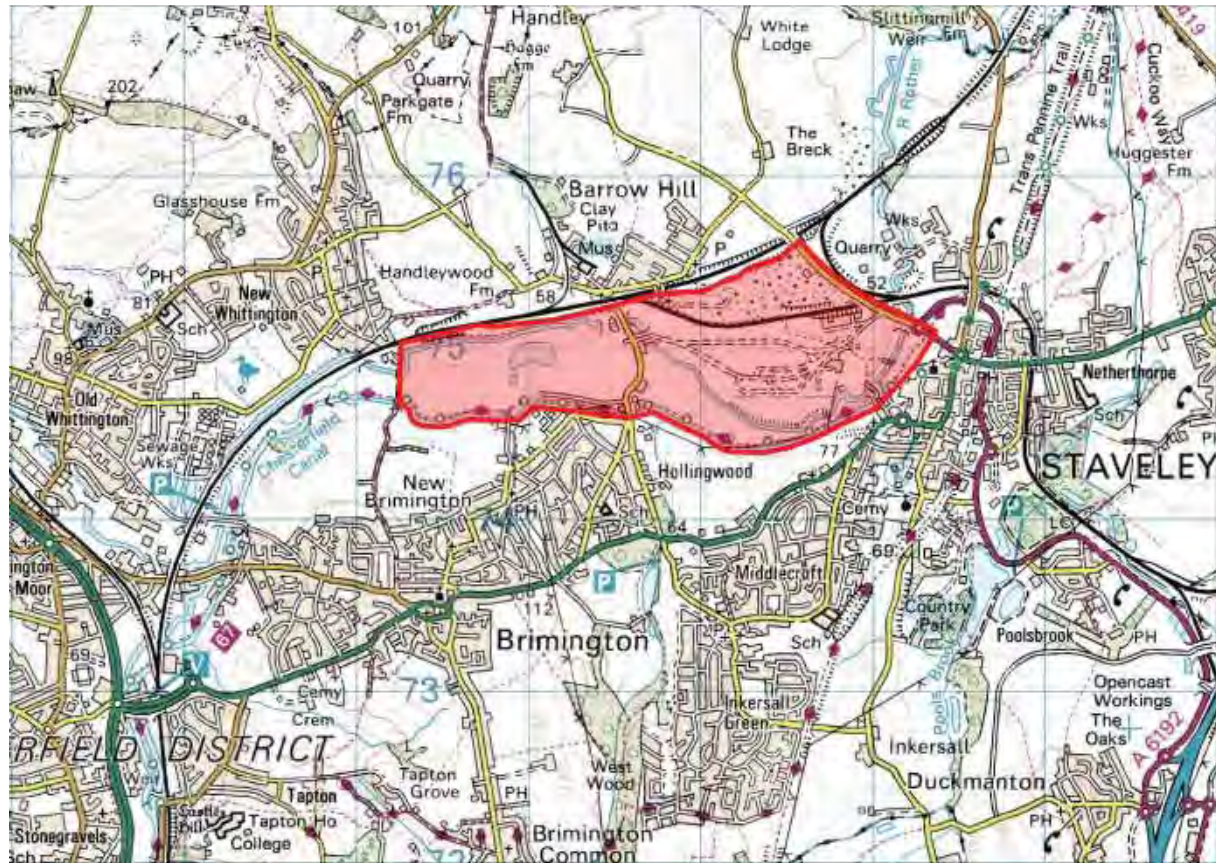
## Location of the Staveley IMD

- 2.11 Figures 1 and 2 below present the boundaries of the SRVC and the proposed site for the IMD. Although the IMD would directly occupy a relatively small proportion of the total

## Economic Impact of IMD at Staveley

land area within the SRVC (15.5 hectares, 11.6%), its impact on the opportunity for comprehensive regeneration of the area would be of a far greater magnitude. This is because of the IMD's shape and location, cutting across different proposed land use areas and restricting the ability to provide much needed new infrastructure.

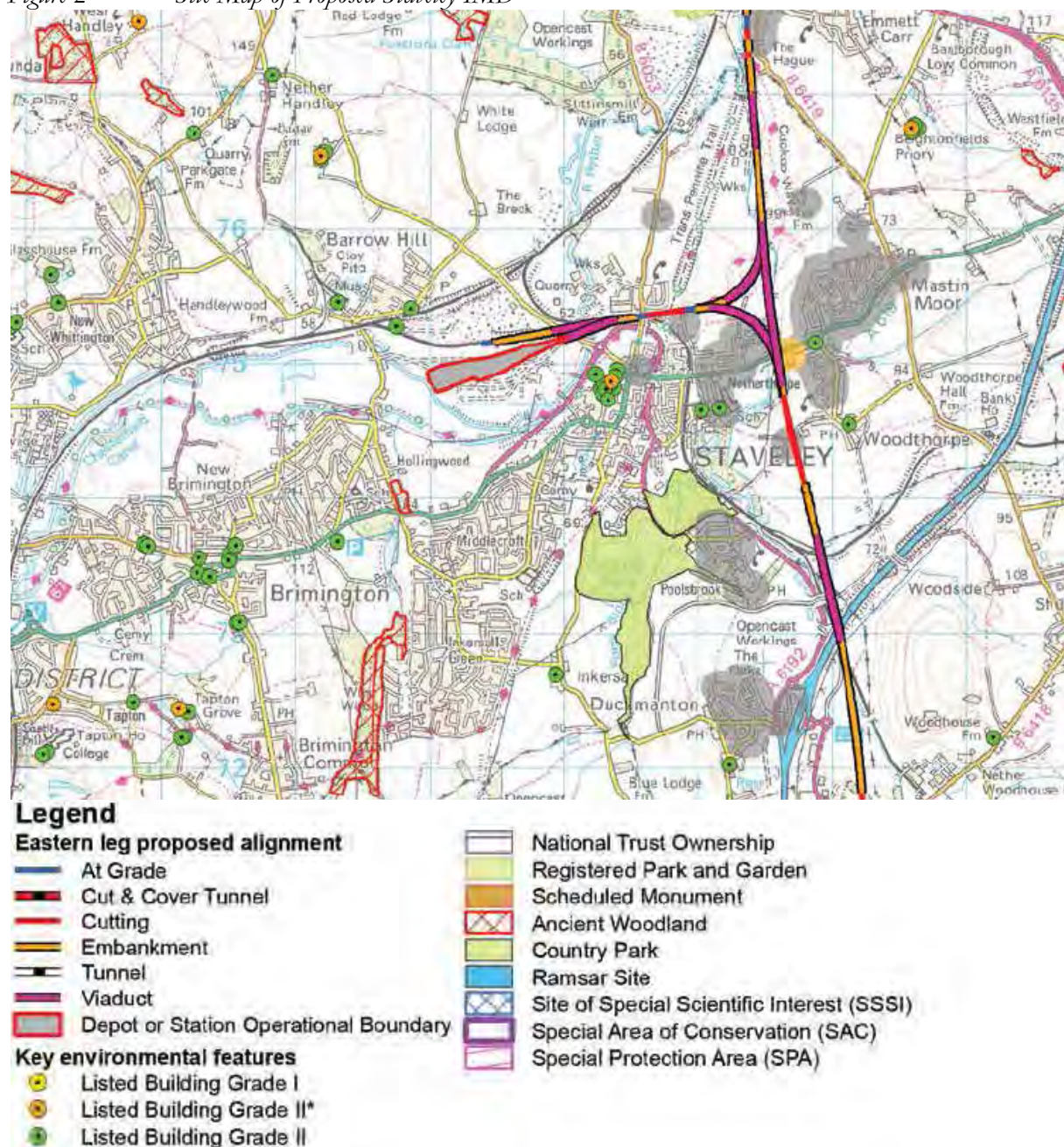
Figure 1 SRVC Boundary



Source: Staveley Works Area, Regeneration Masterplan, March 2012; Capita Symonds



Figure 2 Site Map of Proposed Staveley IMD



Source: Tibshelf to Killamarsh, HS2 Ltd

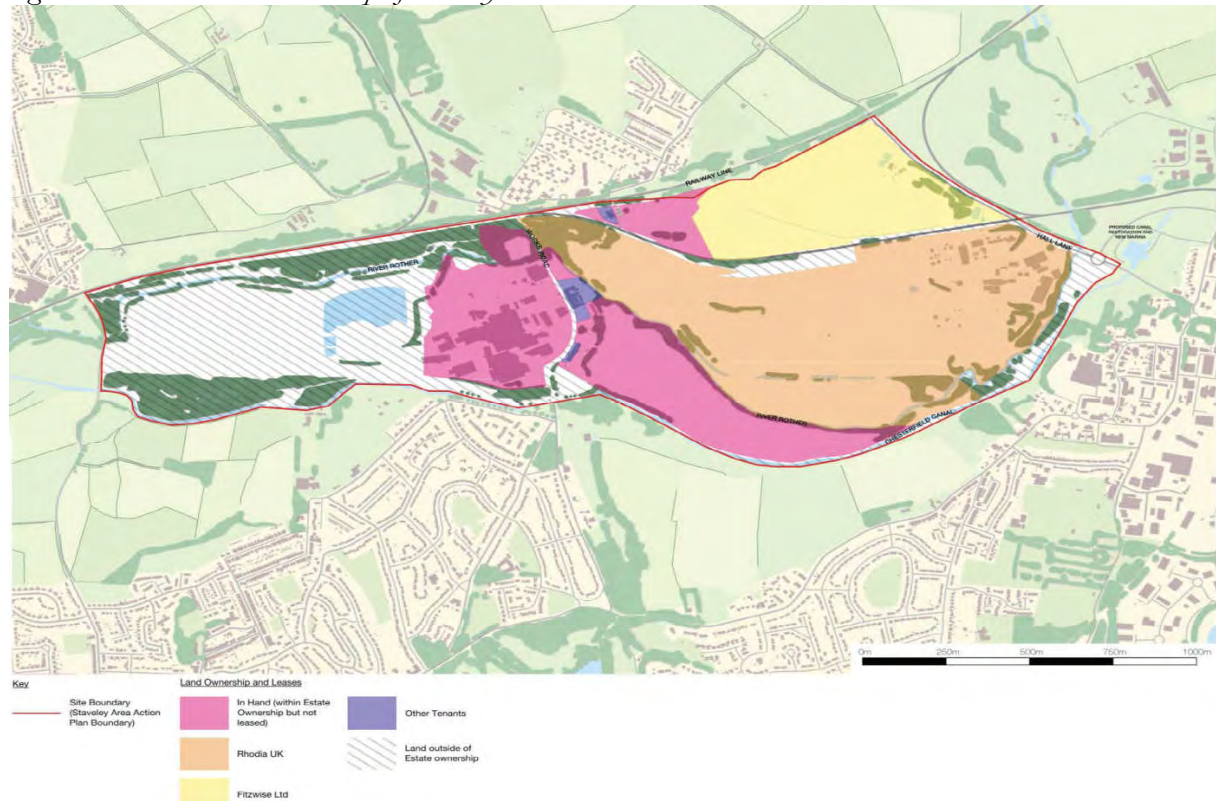
## Land Considerations for the Area

2.12 Figure 3 shows land ownership across the SRVC. The Chatsworth Settlement Trustees have significant holdings, parts of which are leased to Rhodia UK Ltd. Rhodia's operations have largely ceased but they retain a long lease. Part of the Rhodia site is sub-leased to Mallinckrodt Chemical Works. However, that has also recently closed and the site cleared. The Clock Tower and Devonshire Buildings on Works Road have been retained and are used for a broad range of uses, including small workshops, business units and offices.

## Economic Impact of IMD at Staveley

- 2.13 There is still a sizeable portion of the area that lies outside of Estate ownership; Saint-Gobain owns a substantial plot at the western end, along with a small pocket of land east of Works Road. Also Derbyshire County Council owns the Chesterfield Canal, which runs along the southern boundary of the Corridor, and specifically, to the south of the planned IMD site.

*Figure 3 Land Ownership of Staveley Works and SRVC*

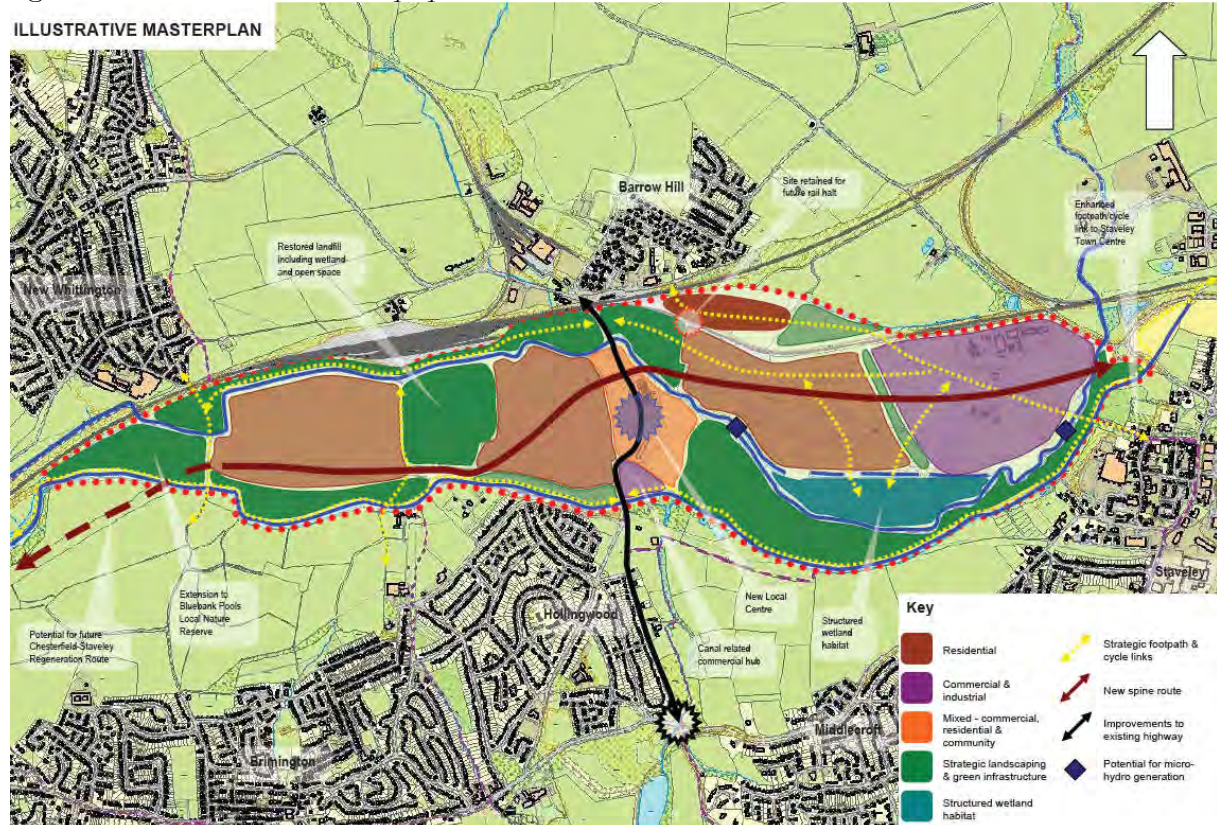


*Source: Capita Symonds; Regeneration Masterplan; 2012*



- 2.14 Figure 4 shows the broad land use types proposed for the site within the SRVCAAP. Figure 5 shows the Hall Lane Character Area, which is situated towards the eastern end of the SRVC and is the area within which the IMD is proposed.

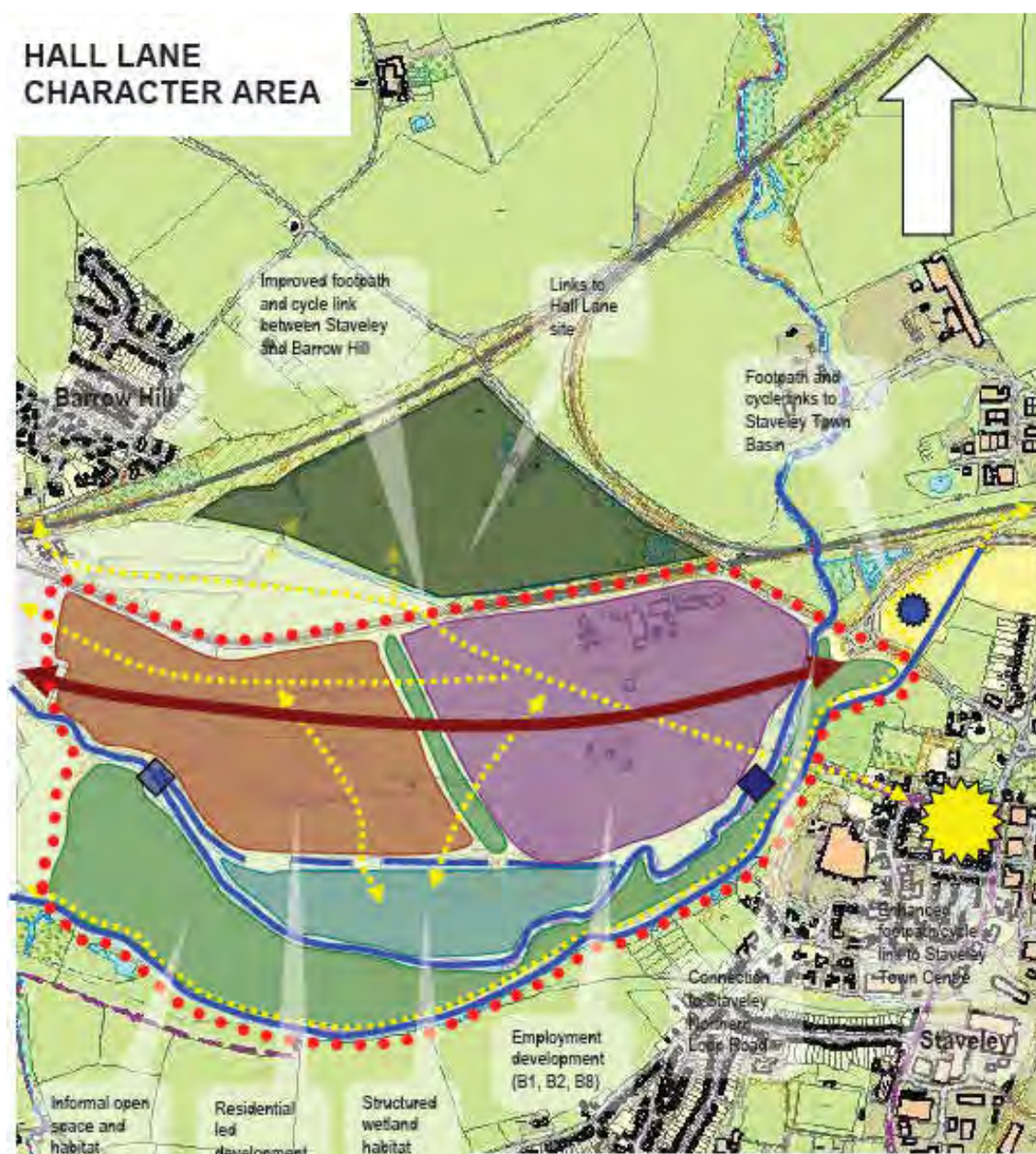
Figure 4 Broad Land Uses proposed in SRVC



Source: Chesterfield Borough Council Preferred Option; November 2012



Figure 5 Broad Land Uses proposed in Hall Lane



Source: Chesterfield Borough Council Preferred Option; November 2012

- 2.15 The Hall Lane character area is situated in the eastern part of the SRVC with Hall Lane to the east and the canal and railway to the south and north respectively. This area was most recently occupied by chemical works by Rhodia UK Ltd and Covidien.
- 2.16 Hall Lane is physically very close to Staveley Town Centre, with a footpath connection via Mill Green and, once canal restoration work in this area is complete, Constitution Hill. Road connections to Staveley Town Centre are short, via Hall Lane. The area has excellent links to the highway transport network; due to the recently constructed Staveley Northern Loop Road, which provides links to Junction 29A of the M1 and Markham Vale Commerce Park.

- 2.17 Proposals for the IMD were made public after the publication of the SRVCAAP Preferred Option. The IMD has not therefore been incorporated into the latest proposals for the area. The proposed location of the IMD would however impose upon and cut across a number of different proposed land use types including residential, employment, green infrastructure and major highways infrastructure. Based on the emerging AAP, about 40 per cent of the IMD would be located on land identified for employment uses, a limited area on green infrastructure and a larger area on residential development. The construction of the IMD would therefore have an adverse impact on the delivery of comprehensive regeneration of the SRVC.
- 2.18 In this report, data is considered at various spatial levels, determined by availability but also suitability. Most of the SRVC is situated in the Lower Super Output Area (LSOA) of Chesterfield 003A. Hence data is considered in this LSOA, along with data at a ward, borough, district, LEP, regional and national level.
- 2.19 The next section, Section 3 of this report, estimates job creation associated with the IMD. Section 4 goes on to consider the compatibility of the proposed depot with the local community and Section 5 then considers how well the depot fits with existing regeneration plans for the area. Finally the Appendix also contains a detailed baseline assessment of the characteristics of the local area.



### 3. Job Creation as a result of the IMD

- 3.1 In this section we consider and estimate the quantifiable economic impact of the proposed IMD at Staveley in terms of job creation and spending. The most relevant comparator to consider is the existing IMD at Singlewell, which serves HS1, and we use this as a benchmark for much of our analysis. For this reason we begin this section with a brief description of the jobs supported at Singlewell.

#### Singlewell IMD on HS1

- 3.2 Singlewell IMD operates 24 hours a day and supports 145 full-time jobs.<sup>2</sup> We have estimated the split of these jobs across occupation types by reviewing Census statistics at a suitably small geographical area. The resulting estimate of occupational split is shown in Table 1 below.

*Table 1 Occupation Disaggregation Estimates at Singlewell IMD; as a Percentage of Total*

Occupation	%
Managers, directors and senior officials	12.3
Process, plant and machine operatives	55.8
Elementary	31.9

*Source: 2011 National Census; Occupation by Industry*

- 3.3 The total track length of the HS1 route is 108km, or 67.5 miles. This means that there are 21 jobs for every 10 miles of track on HS1.
- 3.4 In addition to direct jobs, there is some evidence that the IMD in Singlewell has attracted associated knock-on employment. The employment sector of Transport and Storage is important in the area surrounding Singlewell, accounting for about 12 per cent of employees. In comparison, at the national level, this sector accounts for just 4.5 per cent of total employment. At Singlewell IMD there is a security firm, LandSheriffs, which provides a service in ensuring the security of HS1. This company and the associated jobs would not have been located here without the presence of the Singlewell depot. The company employs over 50 SIA licensed guards on permanent contracts.

#### Job Creation at Staveley

- 3.5 In evidence that we have seen to date, there are not any concrete estimates of the job numbers that are expected to be generated by the IMD at Staveley. According to Derbyshire County Council, estimates have ranged at between 200 and 500 full time positions and HS2 Ltd has stated that they will be mostly local.
- 3.6 HS2 Ltd has estimated the number of direct jobs that will be generated by the IMD at Calvert, in Buckinghamshire. This will serve the London to Birmingham section of HS2 (Phase One). HS2 Ltd forecast that over 500 jobs could be generated, with 300 involved in its construction and a further 250 involved in its day-to-day running<sup>3</sup>. It is important to

<sup>2</sup> Source: [http://www.kentrail.org.uk/singlewell\\_imd.htm](http://www.kentrail.org.uk/singlewell_imd.htm)

<sup>3</sup> Source: HS2's Infrastructure Maintenance Depot, HS2 Ltd

note that HS2's assertion of the number of construction jobs is relatively unspecific at this stage and so it is likely that it could include not just direct construction jobs, but also indirect jobs from construction, along with other occupations involved in the construction process. This could include the logistics and management of the project. Furthermore there is a consensus that the IMD site would be used as a construction site for the HS2 line<sup>4</sup>, which would create additional jobs.

### ***Construction***

- 3.7 There are no figures on how much the IMD at Staveley will cost to construct. However, Arup was commissioned to undertake an assessment of the site options for the IMD on the London to Birmingham section. They found an IMD at Thame Road in Buckinghamshire to be the most preferred option and the cost of this was estimated at £45.6 million<sup>5</sup>. Without further information on the likely cost of the IMD at Staveley, we estimate that its construction would cost a similar capital sum. Based on figures for output per construction worker in Derbyshire, this suggests around 700-750 construction 'job years', or 70-75 full time equivalent jobs would be supported by the construction of the IMD.
- 3.8 It is standard to present construction jobs in terms of full time equivalents, so that they can be compared against permanent jobs that are created once a development is operational. However the nature of construction jobs is that they are usually temporary and can vary significantly in terms of skill levels and contract lengths. This means that jobs created by construction projects are lumpy in nature, with very large numbers employed for relatively short periods of time. We do not know the likely construction length of the depot but if we assume that it would be two years, then we can assume that there would be around 350-375 construction workers on site on average throughout this period. This is a significant employment impact for the Staveley local area.
- 3.9 When estimating the impact of construction workers, it is standard to consider the expenditure that they might be expected to make in the local area. It is standard to assume that they work 220 days a year, spend £5 a day, with 40% leakage. In other words, on average, they spend £3 out of every £5 in the local area each day they work. The construction of the IMD would therefore create £460k-£500k of additional spend in the local economy over the construction period. This would help to boost the incomes of local shop owners, who most likely will live in the area.

### ***Operation***

- 3.10 A high level method of estimating the jobs once Staveley IMD is operational would be to use track length as a proxy. Since the purpose of the IMD is to maintain the infrastructure, which includes the train track, then this seems like an appropriate proxy for likely activity. As mentioned previously, there are 145 people employed at the depot in Singlewell serving HS1. The total length of the HS1 route is 108km, or 67.5 miles, translating into 21 jobs for every 10 miles of track.
- 3.11 The same calculation can be carried out based on the estimated jobs at the proposed IMD at Calvert, serving Phase One of HS2. Here 250 jobs are expected to be generated

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<sup>4</sup> Source: HS2's Infrastructure Maintenance Depot, HS2 Ltd

<sup>5</sup> Source: High Speed 2 Infrastructure Maintenance Depot, Arup; March 2011

## Economic Impact of IMD at Staveley

at the depot and the route length is about 140 miles and so this translates into 18 jobs for every 10 miles of track on HS2 Phase 1.

- 3.12 There will be 116 miles of track on the Eastern leg of HS2 Phase Two; the section that will be served by the depot at Staveley. Using the Calvert and Singlewell benchmarks would result in an estimate of 207-249 jobs for the depot at Staveley.<sup>6</sup>
- 3.13 Therefore based on this simplistic assumption, we estimate that between 200 and 250 jobs would be generated. We have also estimated that the construction of Staveley would support around 70-75 FTE jobs, so this would bring the estimate up to 270-325. Thus the previous estimates for direct jobs of 200-500 seem plausible, although our estimates are at the lower end of this range. The upper 500 estimate may have included indirect jobs which we go on to consider later in this section.

## Job Types

- 3.14 It is important to be able to have an idea of what can be expected, in terms of the breakdown of jobs created at the depot in Staveley. There is currently no disaggregation available of the jobs at the proposed IMD at Staveley, or those proposed at Calvert for the Phase One IMD, in terms of the type of job and the level of education and training necessary to be able to undertake it effectively.
- 3.15 However in order to gauge the types of jobs that might be involved, we look into more detail at those employed at the IMD at Singlewell. Its employees are engaged in skilled manual and managerial occupations<sup>7</sup>. It can be assumed that the types of occupations at Staveley IMD will be very similar, as the depots provide equivalent functions to their respective high speed rail networks.
- 3.16 In order to find out the likely distribution of jobs across these different categories for Singlewell, a suitable geographical area was selected; namely, the Middle Super Output Area of Gravesham 010 in which the Singlewell depot is located. The majority of the workforce can be expected to live locally and so this selection appears credible. Next we disaggregate the jobs into the three most relevant categories – elementary; process, plant and machine; and managerial. The pie chart below shows the resulting estimated distribution of jobs across occupation.

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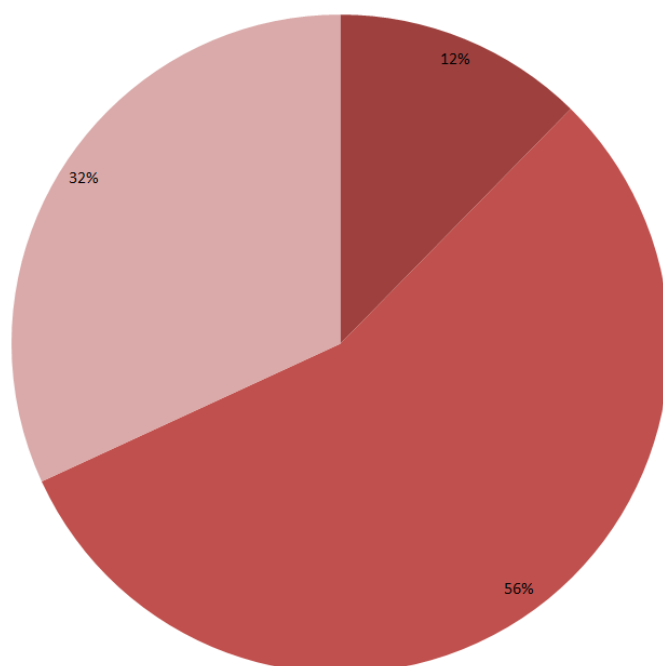
<sup>6</sup> Sources: Wikipedia and HS2 Ltd

<sup>7</sup> Source:

<http://web.gravesham.gov.uk/democracy/Data/Rail%20Link%20SubCommittee/20050913/Agenda/Agenda.pdf>

Figure 6 *Estimated Occupation Types at Singlewell Depot*

■ Managers, directors and senior officials ■ Process, plant and machine operatives ■ Elementary



Source: 2011 National Census; Occupation by Industry and Volterra calculations

- 3.17 Applying this distribution of jobs to the estimated job numbers at Staveley, would result in that there would be between 25- 30 managerial positions, 66-80 elementary positions and 116-139 process, plant and machine operatives.

## Supply-Side Effects

- 3.18 In addition to direct jobs there will be a supply chain effect initiated by the depot at Staveley. Companies that are in a relevant industry will stand to benefit. More generally, any company that can become part of the supply chain or increase its output in the supply chain will boost their own fortunes. Some of these supply chain impacts could be located anywhere across the country and others may choose to co-locate which would have larger knock on benefits for the local area. For example at Singlewell IMD there is a security firm, LandSheriffs, which provides a service in ensuring the security of HS1. This company and the associated jobs would not have been located here without the presence of the Singlewell depot. The company employs over 50 SIA licensed guards on permanent contracts.
- 3.19 In addition there will be firms that supply the parts required for maintaining the track. In particular, there is a small rail engineering firm located in the Barrow Hill area. It could stand to benefit from a depot in the vicinity. Furthermore, as jobs are created, residents will have greater disposable income and so their consumption will rise. This will lead to a multiplier effect as this extra income circulates throughout the economy.
- 3.20 With these impacts in mind, in this section we calculate indirect jobs. The standard method to do this is to apply a multiplier figure to the estimate of direct jobs. In order to

be conservative we use the lower of our estimates for the direct jobs figure, namely 207 (our earlier estimates ranged from 207-249 depending on the method used).

- 3.21 There are a variety of different factors which need to be considered to thoroughly undertake this assessment. These are deadweight, displacement, leakage and multipliers. Deadweight, displacement and leakage are factors that are taken away from direct jobs to estimate net jobs. Deadweight refers to any activity that would occur anyway without the proposed investment; displacement refers to the number of jobs that are displaced from elsewhere in the economy; and leakage refers to the number of jobs that will be taken up by people outside of the area of interest. Multipliers are in addition to direct jobs and are a method for estimating the knock-on indirect impacts resulting from the net direct jobs created. The IMD jobs would not be created without the delivery of HS2 and so we assume displacement is zero. Given the nature of the project and the types of jobs created, we believe most jobs will be local. This can be inferred from commuter areas which are discussed in the next section of this report. It points to the fact that most employees living within the catchment would be working in the ward. The occupations used in calculating the catchments resemble the types of jobs that can be expected at the depot. We therefore assume zero displacement and leakage.
- 3.22 There is currently no activity on the site that would be lost as a result of development here, and so it is appropriate to assume zero deadweight. However later in this report we specifically consider what the regeneration plans are for this area and therefore what alternative uses may not occur in the future as a result of locating the IMD here.
- 3.23 Multipliers are a standard method for estimating the number of indirect jobs created in addition to direct jobs through supply chain and income impacts. It is standard to estimate these at both the local and regional levels. We use the average local multiplier proposed by guidance<sup>8</sup> which is 1.1, and the average regional multiplier which is 1.5. This means that for every 100 direct jobs created, 10 further indirect jobs are created locally, and 50 regionally (including the 10 created locally).
- 3.24 Using this method, a total of 228-274 local jobs is therefore estimated, as shown in Table 2. There would be 21-25 indirect jobs created in the local area as a result of the IMD. At the regional level, the total jobs would be 310-373, with 103-124 indirect jobs created at the regional level. Note these jobs are those precipitating from the operational phase of the depot – they exclude any employment created by construction activities.

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<sup>8</sup> Source: Additonality Guide, English Partnerships

Table 2 *Indirect Jobs*

Assumptions	Base scenario	Higher scenario
Deadweight, displacement and leakage	0	
Local Multiplier	0.1	
Regional Multiplier	0.5	
Gross Direct Jobs	207	249
<b>Estimates</b>	<b>Base scenario</b>	<b>Higher scenario</b>
Local Direct Jobs	207	249
Local Indirect Jobs (multiplier at local level = 1.1)	21	25
<b>Total Net Local Jobs (direct and indirect)</b>	<b>228</b>	<b>274</b>
Regional Indirect Jobs (multiplier at regional level = 1.5)	103	124
<b>Total Net Regional Jobs (direct and indirect, including local impacts)</b>	<b>310</b>	<b>373</b>

Source: Volterra Calculations

## Use of the Depot Site as a Construction Site for HS2

- 3.25 There is a consensus that sites, which are allocated to depots proposed as part of HS2, will also be used as sites for the construction of the line itself. In particular, these sites will be used as bases from which construction will take place. This clearly will have an impact on the local area in and around the SRVC – both positive in terms of construction workers spending money in the local economy and negative; there could be negative externalities such as noise pollution.
- 3.26 Additional expenditure by construction workers has been estimated. There will be 10,000 construction workers, according to HS2 Ltd<sup>9</sup>, in the cities of the Midlands and North. Based on the current distribution of construction workers, around 60 per cent will be based in the East Midlands, which therefore equates to 6,000 workers. This figure includes the construction of both the line and hub station at Toton. If it is assumed that there is a 60/40 split<sup>10</sup> in favour of stations, then around 2,400 jobs will be created in the East Midlands associated with building the line. We make a further assumption that there will be a construction site for HS2 every 20km. The total length of the HS2 Phase 2 line is 116 miles, or 185.6 km. Based on these assumptions, this site would have around 260 FTE construction workers in the local area, spending money. It should be noted that we believe these assumptions are appropriately conservative and it could be the case that considerably more construction workers are located in the area, depending upon how the construction is managed and planned.
- 3.27 We use the same local expenditure assumptions set out in paragraph 3.9 in order to estimate the expenditure of these construction workers in the local area. Over the 6-7 year construction period, we therefore estimate that the use of the site as a construction site for the HS2 development would create around £1.7 million of additional spend in the local economy. This would help to boost the incomes of local shop owners, who most likely will live in the area. As businesses benefit, so too would employees. Note that

<sup>9</sup> Source: <http://www.hs2.org.uk/what-hs2/economic-benefits-jobs>

<sup>10</sup> For the purposes of this assessment, we view this as a conservative assumption as it assumes that the construction of stations involves considerably more workers than the construction of the line.



## Economic Impact of IMD at Staveley

another way in which this assessment is conservative is that the jobs assumed are just for the East Midlands, but the track length is for the whole of the Phase 2 section.

### Total Jobs

- 3.28 We have estimated direct job creation at the proposed IMD at Staveley (207-249), indirect job creation locally (a further 21-25 jobs), indirect job creation regionally (103-124 including the local indirect jobs), direct construction employment associated with building the depot itself (70-75 jobs), and finally job creation that we might expect in this area resulting from the overall construction of Phase 2 of HS2 (260 jobs). This means that overall we estimate that the total impact of locating the IMD at Staveley could be in the region of 540-580 direct jobs, or up to 710 including indirect impacts at a wider spatial level. Whilst we have tried to be conservative wherever possible, it should be noted that some of the wider construction jobs could bring benefits to the local area even if the IMD is not located at Staveley.
- 3.29 All jobs are reported in terms of FTEs as this is the standard method for evaluating the impact of development proposals, and it enables jobs from different aspects to be summed together. However it is important to note that construction jobs tend to be of a temporary nature compared to most other jobs. In particular, construction workers tend to have contracts which mean that work is concentrated over a relatively short time with high volumes working on a particular construction site. Construction years arising from building the depot amount to 700-750 and for use of the site as a construction site, around 2,600 construction years of employment can be expected. Over the 6-7 year construction period the average number of construction workers on site would be 370-430, although this would be expected to peak at levels much higher than this during the busiest part of the construction phase.
- 3.30 The table below summarises all of the job impacts discussed in this section. For the purposes of direct comparison, all job estimates are presented as full time equivalents. There could also be indirect jobs as a result of the construction impacts, which could be estimated using the same multipliers but we do not estimate those here, because construction jobs are typically less local in nature and the primary focus of this report is the estimate of impacts at the more local level.

*Table 3 Summary of Jobs impact estimates*

Type of job	Range of estimate (FTE)
Direct jobs at the IMD	207-249
Direct jobs through construction of IMD	70-75
Direct jobs through use of site during construction phase	260
<b>Total Direct Jobs</b>	<b>537-584</b>
Indirect jobs at the local level	21-25
Indirect jobs at the regional level (including local level)	103-124
<b>Total Jobs (direct and indirect, at the regional level)</b>	<b>640-708</b>

*Source: Volterra calculations*

- 3.31 In the next section we consider the compatibility of these jobs with the skill levels of the local workforce.



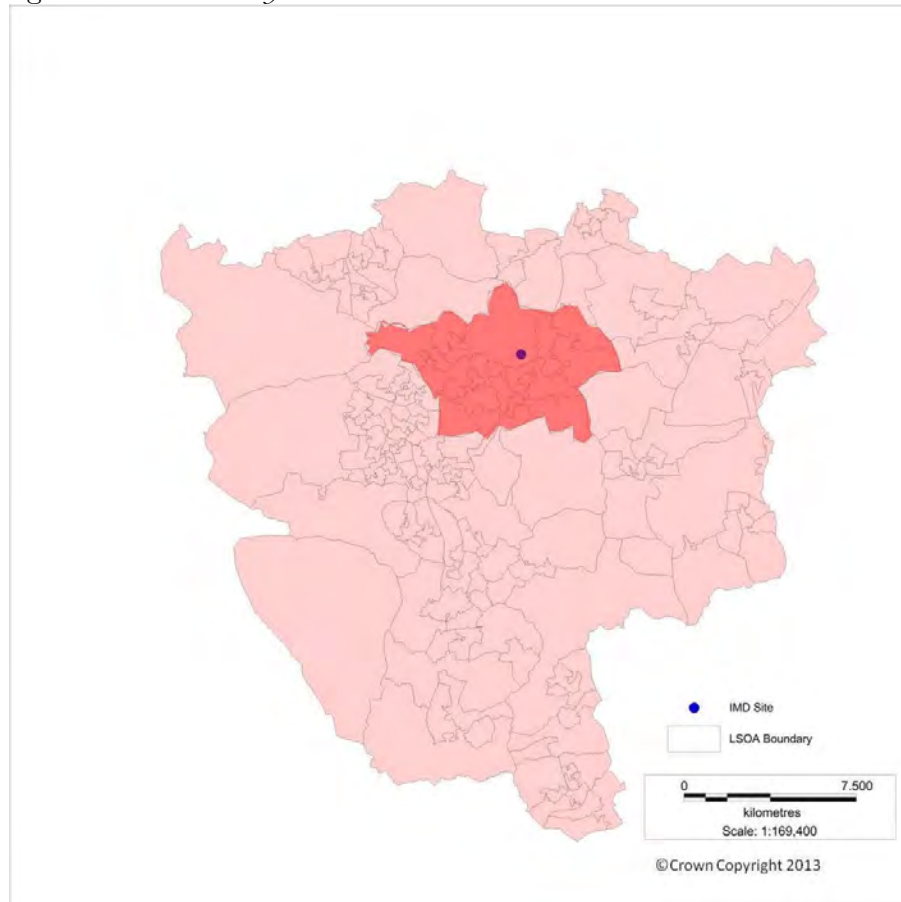
## 4. Compatibility of IMD with Local Population

- 4.1 In this section we consider the extent to which the skill levels in the local community are well matched to the types of jobs that will be created at the IMD at Staveley. In order to do this, we consider the likely area from which the majority of commuters will travel to work at the depot. This is defined in the next section. We then define a similar commuter catchment for the Singlewell depot, and finally we compare the skill levels of the working population around Singlewell with the potential commuter catchment around Staveley. We find that the two population types are of similar skill levels, suggesting that the depot could be well matched with the local community.

### Commuter Catchment Areas

- 4.2 A commuter catchment area is typically defined to be an area that captures a large proportion of the people who commute to work in a given location. Figure 7 shows the commuter catchment that we have defined for Staveley IMD. It was defined such that the weighted average of the percentage of workers in Barrow Hill and New Whittington (the ward where the Staveley depot will be) also living within the commuter area equalled between 60 and 70 per cent. In other words, the area was defined such that the majority of people working in relevant industries in the ward also resided within the catchment zone.

Figure 7 *Staveley IMD Commuter Catchment*



Source: UK Travel Flows, 2001 National Census, ONS, Volterra calculations

## Economic Impact of IMD at Staveley

- 4.3 There were three occupation types involved, shown below in Table 4, in determining the commuter catchment of Staveley IMD. To calculate the weighted average, proportions in each occupation were based on the estimate of the occupational distribution at Singlewell IMD which was detailed earlier in this report and shown in Figure 6.
- 4.4 Workers in Barrow Hill and New Whittington that also live there comprise more than half of the workers living within the commuter catchment. Furthermore, 51.5 per cent of managers in Barrow Hill and New Whittington live within the commuter area, with 61.4 per cent of operatives and 74.8 per cent of elementary occupations also living within the commutable catchment. This is intuitive since, in general, managers and senior officials will be willing and able to travel further distances to work than their less skilled/qualified counterparts as the financial reward, i.e. their salary, is more lucrative.
- 4.5 One figure does stand out and that is the percentage of managers and senior officials working in Barrow Hill and New Whittington, that also reside there (38.9 per cent). This is very high. However, it could be a positive sign since it suggests any managerial posts created could be taken by local residents.

Table 4 *Percentage of workers living within Commuter Catchment, by Occupation*

CAS 2003 Ward of Residence	All Jobs	Managers and Senior Officials	Process, plant and machine operatives	Elementary occupations
Barrow Hill and New Whittington	35.5	38.9	20.1	36.9
Hollingwood and Inkersall	8.7	2.9	19.1	8.6
Brimington South	4.3	2.9	4.7	6.6
Brimington North	3.3	1.7	5.4	6.1
Old Whittington	2.9	1.7	1.7	10.1
Middlecroft and Poolsbrook	2.7	1.7	5.4	4.0
Lowgates and Woodthorpe	2.6	1.7	5.0	2.5
Commuter Catchment Area	60.0	51.5	61.4	74.8
<b>Weighted Average for Commuter Area</b>	<b>64.4</b>			

Source: UK Travel Flows, 2001 National Census, ONS

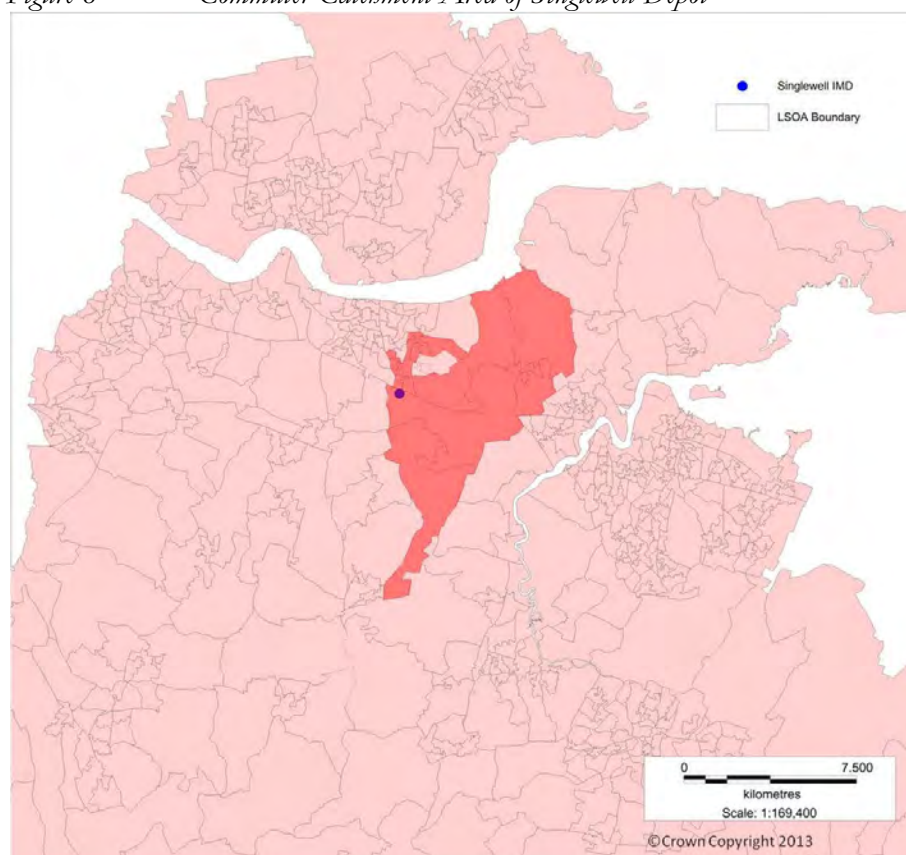
- 4.6 We undertake a similar assessment for Singlewell to determine the appropriate commuter catchment of the IMD located there. The calculations are shown in Table 5 and the resulting area is represented in Figure 8. Like Staveley, the weighted average is based on the estimated occupation composition at Singlewell IMD.

## Economic Impact of IMD at Staveley

Table 5 *Percentage of workers living within Commuter Catchment, by Occupation*

Ward	All Jobs	Managers	Process, Plant and Machine Operatives	Elementary
Shorne, Cobham and Luddesdown	45.4	62.5	62.5	28.3
Singlewell	2.6	0.0	9.4	5.9
Westcourt	2.7	0.0	0.0	6.6
Higham	2.4	2.3	0.0	3.3
Commuter Area	53.0	64.8	71.9	44.1
<b>Weighted Average for Commuter Area</b>	<b>62.2</b>			

Source: UK Travel Flows, 2001 National Census, ONS

Figure 8 *Commuter Catchment Area of Singlewell Depot*

Source: UK Travel Flows, National Census 2001, ONS, Volterra calculations

## Skill levels of the Commuter Catchments

- 4.7 Next the skill levels of the populations that live in these two commuter catchments are considered, relative to the wider regions in which they are located. This allows for direct comparison of the type of population living in the vicinity of Staveley and Singlewell. If they exhibit similarities in terms of how educated they are, then this should boost the chances of a depot at Staveley being successful. In other words, this is to primarily see if the jobs created by the IMD at Staveley will match the local workforce, by means of using the case study of Singlewell.

## Economic Impact of IMD at Staveley

- 4.8 Table 6 shows that there is a relative abundance of less qualified people in the commuter catchment zone of Singlewell. Indeed, 28 per cent of residents have no qualifications, compared to 19 per cent in the South East more generally. Furthermore, in Singlewell's catchment, 34 per cent of residents either had level 1 or level 2 as their highest form of qualification.
- 4.9 Around Staveley the figure for those with level 1 or 2 as their highest level of qualification was very similar, 33 per cent. For both catchments people with these qualifications were more prevalent than their respective regional levels; with this group representing around 30 per cent for both regions more widely.
- 4.10 The same general message is resonated by the percentage with degree level qualifications. Less than one-in-five had a degree in the catchment of Singlewell IMD, whereas nearly 30 per cent do in the South East. Similarly, just 16 per cent had a degree in Staveley's catchment, compared to 24 per cent in the East Midlands. Therefore from these statistics it is clear that the two populations have a fairly similar skills structure, especially relative to the wider region in which they are located.

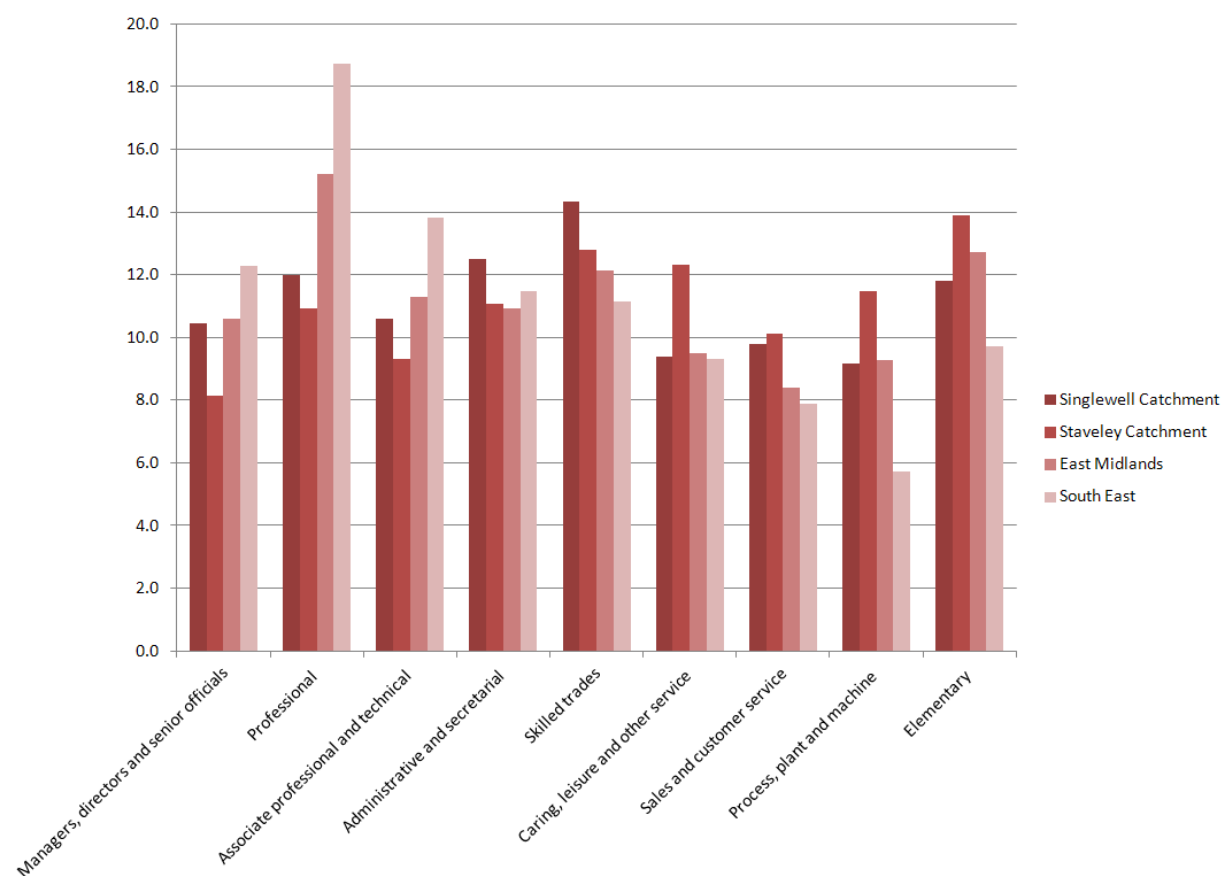
Table 6 *Skill Levels of the Commuter Catchments and the relevant Regions*

Qualifications	Singlewell Commuter Catchment	South East	Staveley Commuter Catchment	East Midlands
None	28	19	32	25
Level 1	17	14	15	14
Level 2	17	16	18	16
Apprenticeship	5	4	4	4
Level 3	11	13	12	13
Level 4 and above	18	30	16	24
Other	5	5	4	5

Source: National Census 2011, totals may not sum due to rounding

## Occupations in the Commuter Catchments

- 4.11 It is also interesting to consider the type of jobs that are taken up in the same geographies as above. Clearly this is linked to the highest level of qualification attained, as generally, the more skilled the workforce, the more prevalent are jobs in managerial and professional occupations. And at the same time, proportions in elementary roles diminish with a more highly skilled labour force.
- 4.12 Figure 9 shows that the two commuter catchment areas have fairly high proportions of employees based in elementary and operative positions compared to their respective regions. They also both have lower than regional-average proportions of managerial and professional occupations. For instance, in Singlewell's catchment, 12 per cent have a job classified as elementary. This compares with under 10 per cent in the South East. In the same catchment, 9 per cent work in process, plant and machine. This compares with under 6 per cent in the South East. In Staveley's catchment zone, 11 per cent of employees are based in professional occupations. This is significantly lower than the 15 per cent found in the East Midlands more widely.

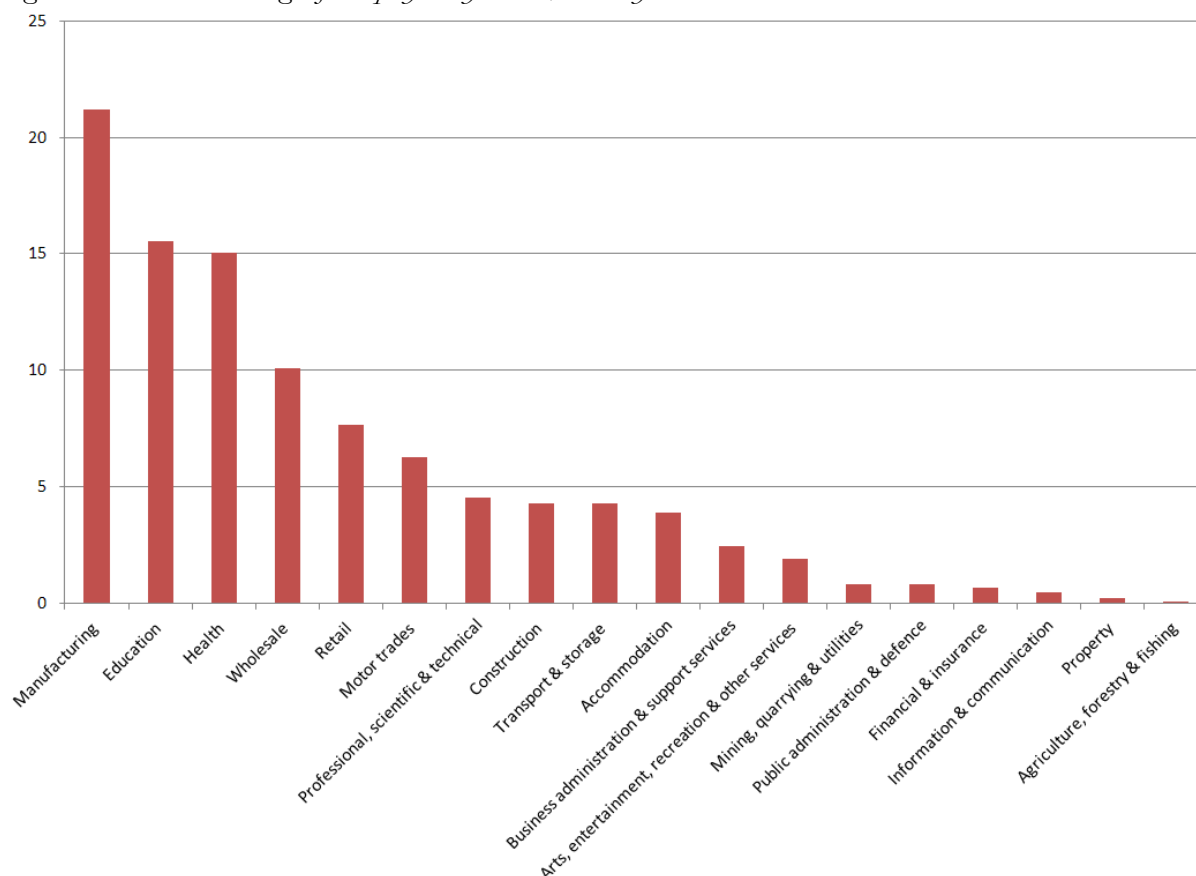
Figure 9 *Comparison of Occupation Types*

Source: 2011 National Census, Occupation by industry; ONS

## Industries in the Commuter Catchments

- 4.13 Another interesting comparison is the industries that are most prominent in the commuter catchments. This creates a snapshot of the structure of the local economies around the depots. The most important industries in each area are those which employ the highest percentage of workers. Figure 10 shows this information for the commuter catchment area of Staveley, whilst Figure 11 does the same for Singlewell.
- 4.14 Education, manufacturing and health account for more than half of all employees in Staveley's commuter zone. Conversely, information and communication and financial services contribute a combined negligible 1 per cent to total employees. The area's most significant employment sector is manufacturing, with more than 1 in 5 employed in the sector. This compares with less than 9 per cent for England and Wales, as shown by Figure 12.

Figure 10 Percentage of Employees by Sector, Staveley Commuter Zone

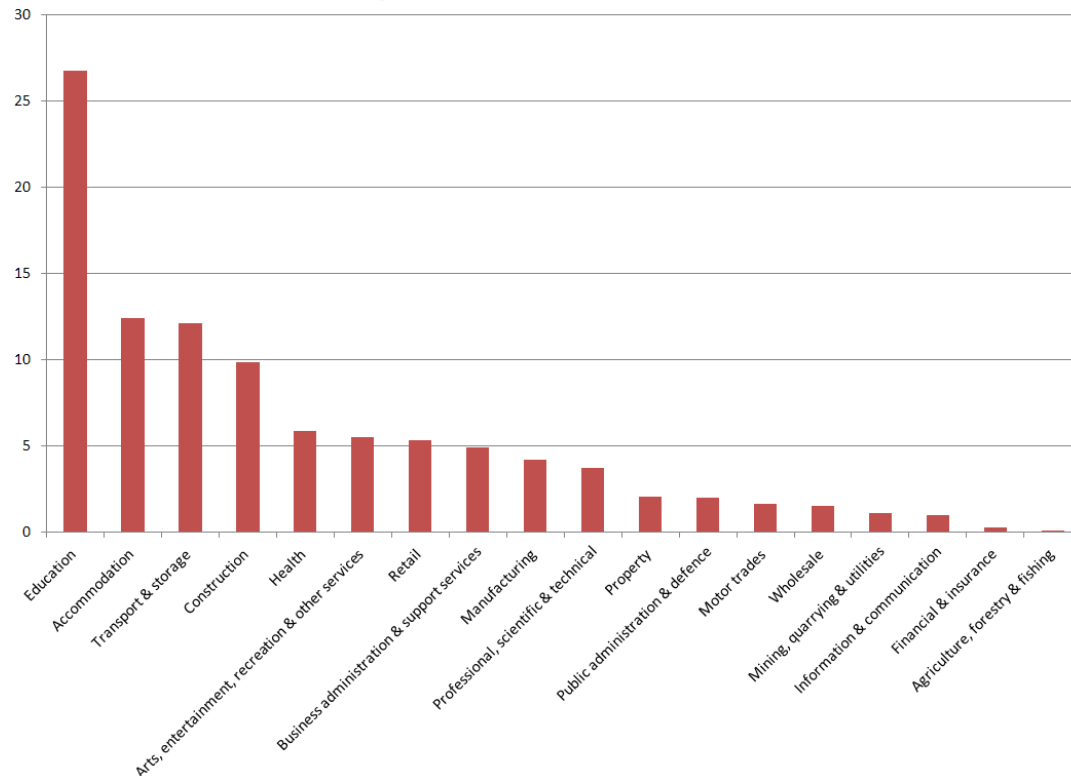


Source: BRES, ONS, 2012

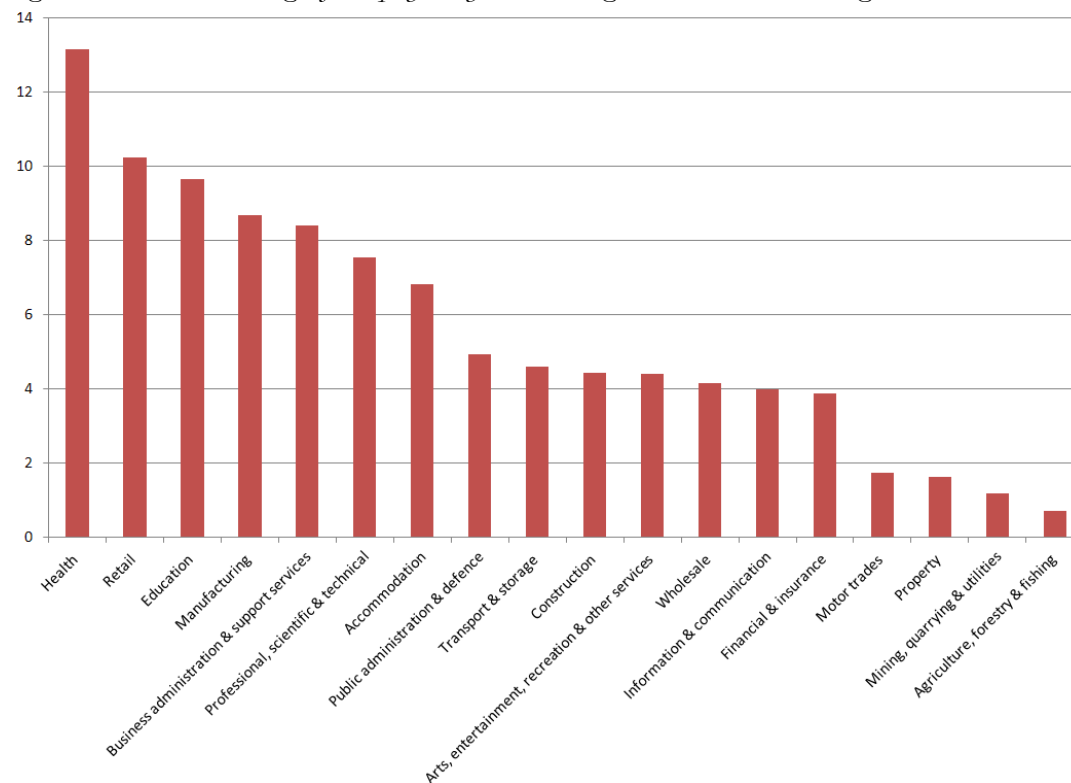
- 4.15 Figure 11 shows that in Singlewell's commuter zone, education is by far the most prominent sector in terms of employees – with over a quarter of workers based in the sector. Transport and storage is important too, accounting for about 12 per cent of employees.
- 4.16 For England and Wales the proportion employed in transport and storage is much lower, at around 4.5 per cent, and Staveley's catchment is currently in line with the national average in this sector. Construction is also fairly important to the Singlewell area, accounting for almost 1-in-10 employees. This contrasts with just over 4 per cent in England and Wales on average, and a similar proportion in the Staveley catchment.
- 4.17 In other words, as employment sectors, transport and storage is two and a half times as important, and construction is twice as important in Singlewell's catchment than in England and Wales as a whole. This reflects the relative specialisation in the Singlewell area and the importance of these sectors to the local economy.



## Economic Impact of IMD at Staveley

Figure 11 *Percentage of Employees by Sector, Singlewell Commuter Zone*

Source: BRES, ONS, 2012

Figure 12 *Percentage of Employees by Sector, England and Wales Average*

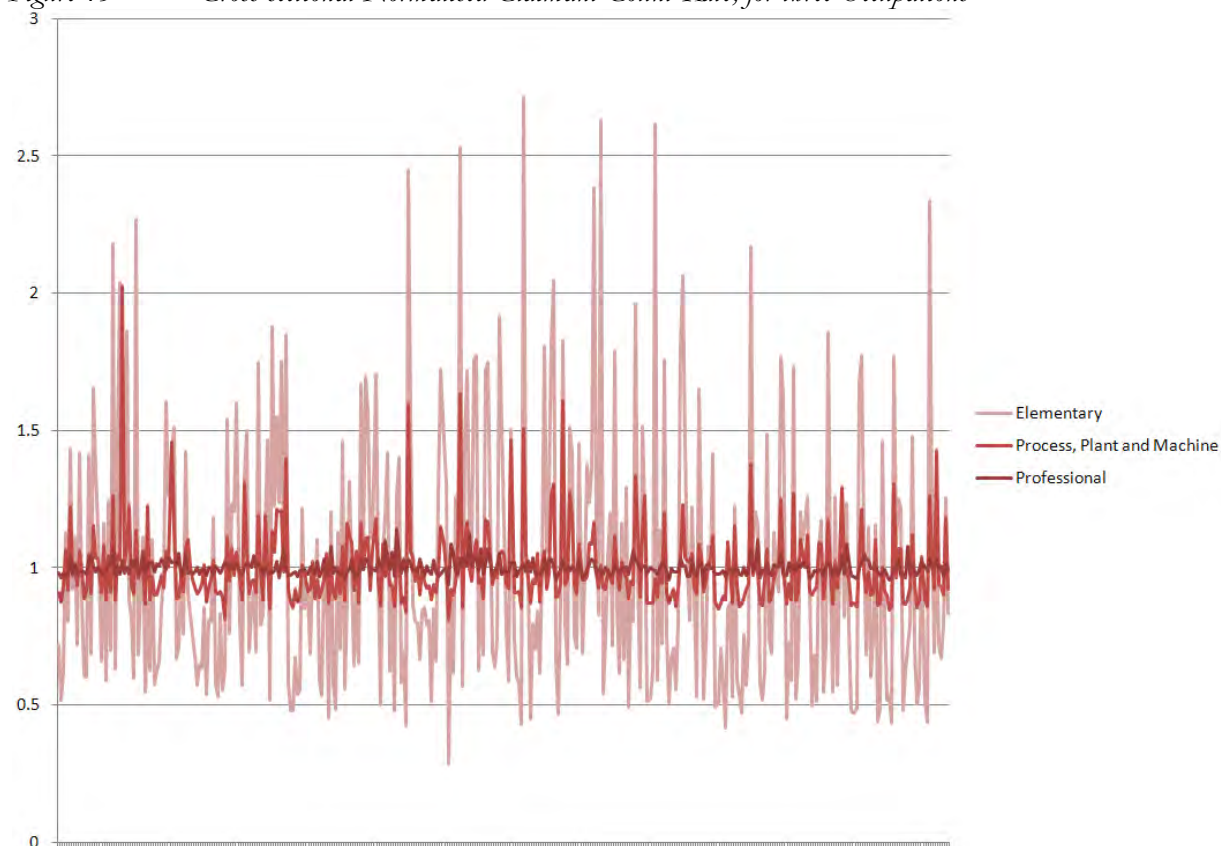
Source: BRES, ONS, 2012

## Forecasting Future Population Characteristics

- 4.18 The earlier sections have concluded that the characteristics of the local area appear to be a good match for the job creation likely to stem from the proposed IMD. However due to the long-term nature of the project, it is also an important consideration to consider whether the population, which is suitable currently for the depot, will also be suitable in 20 years' time. In other words, it is necessary to consider whether the structure and characteristics of the population are likely to change significantly.
- 4.19 This is very difficult to predict as there are a lot of factors which will influence this. These include government policies such as education as well as building houses. The type of housing will affect the type of population living in the vicinity. Currently there is a high degree of social housing in the local area and this is associated with generally larger families, on either relatively low incomes, or unemployed. Furthermore the current structure of the economy reflects a "skilled blue-collar workforce". Indeed there are above average percentages of employees in the skilled trades sector, as well as in process, plant and machinery.
- 4.20 There has been some research into the effects of education on labour mobility, but this area is still being researched extensively. Put more simply, it involves whether an individual with more years of schooling/education is more likely to travel further to find work. With this in mind, data reveals that highly qualified people, in particular with degrees and above, are generally more willing and able to travel further afield for employment. This in itself is a very open topic. Maybe this is because graduates tend to earn higher salaries and so are willing to travel further. There could also be unobserved effects such as university education making people less tied to a particular area. This could be because university is commonly associated with people leaving home and so they become used to living away from where they grew up. Hence they can become less tied to an area.
- 4.21 As a way of demonstrating the effect of education on labour mobility, Figure 13 shows a cross-section of the October 2013 Claimant Count rates for all local authorities in England, Scotland and Wales; by three occupations. These reflect a spectrum of skill levels – elementary requiring the lowest and professional the highest. The rates have been normalised so that the series revert around a mean of 1. This enables just the deviation from the mean to be observed and thus eliminates the distortion caused by the absolute values.
- 4.22 There is a clear pattern. The Claimant Count rate fluctuates far more as the skill level required for the occupation decreases. Specifically, the range in the claimant count is 0.2 per cent for professional occupations. The values are significantly higher at 1.2 and 2.4 per cent for process, plant and machinery; and elementary jobs respectively. These figures confirm a negative relationship between skill level and the range in unemployment rates between areas. So for higher skilled occupations, the difference in unemployment rates between areas is far less than for elementary jobs.
- 4.23 This is explained by the following mechanism: firstly, areas with low unemployment tend to have more job vacancies. Subsequently, unemployed people will move from an area of high-unemployment to one with low-unemployment in search of a job. They are far more likely to do this if they are in an occupation requiring a high skill level. This culminates in the unemployment rate falling in the area that they originated from and so the rates are

equalised between areas to a higher extent than for less skilled occupations where people are more adverse to moving.

Figure 13 Cross-sectional Normalised Claimant Count Rate, for three Occupations



Source: Claimant Count, ONS; October 2013

- 4.24 In summary, this suggests that as the population in the area of consideration is a relatively less skilled one in general, then people are more likely to stay in the local area. Hence this suggests that the population is likely to still be well-matched with the depot in the future, when it will be operational, in terms of the type of population residing in the local area or more specifically, the commuter catchment.
- 4.25 It is important that local education and training providers offer suitable qualifications to residents in the area, so as to enable them to fill the vacancies that will be created by the depot.

## 5. Compatibility with Regeneration Plans

- 5.1 Section 5 considers the compatibility of the proposed IMD at Staveley with wider regeneration plans for the area. We consider each proposed land use in the regeneration area in turn; first by considering how much of each there is and secondly, how the presence of a depot will impact upon each land use.

### Housing

- 5.2 The Chesterfield Core Strategy sets out a housing requirement of 7,600 dwellings for the period 2011 to 2031 (362 dwellings/year). The SRVC is identified as a major focus for new homes (around 2,000 dwellings). Regeneration Priority Areas (RPAs), which include Barrow Hill to the north of the SRVC, will also be a focus for new homes.
- 5.3 The 2,000 new dwellings identified for the SRVC represents over one quarter of the Borough's total housing requirement. Around 850 of these new dwellings<sup>11</sup> could be accommodated within the Hall Lane character area. The SRVC will play a significant and vital role in meeting the need for new homes. This area has experienced substantial growth in its young population, as shown in the Appendix of this report. This will inevitably increase demand for housing significantly in the future. This highlights the fact that Staveley Works and the SRVC more generally are vital locations for achieving the housing requirements that the Borough will face.
- 5.4 For illustrative purposes, to see how the IMD will affect housing plans that would otherwise come to fruition, areas can be used as rough guides. Relative to Hall Lane as a whole, the depot would occupy around 30 per cent of proposed residential land. Subsequently we estimate that around 255 dwellings could be forfeited as a result of the depot being located here, which is equivalent to a 13 per cent cut of the total proposed housing on the SRVC.
- 5.5 The proposed IMD has the potential to disrupt the published proposals for comprehensive redevelopment of the area, as expressed within the emerging SRVCAAP and the Regeneration Masterplan, through physical land take and operational effects including noise and light pollution (the IMD would operate 24 hours a day). Development of the IMD would therefore reduce the number of dwellings that could be delivered on the site. Our methodology in determining how disruptive the depot would be to housing plans assumes a linear approach. Specifically, this means that an x percentage reduction in land designated for housing leads to an x percentage reduction in dwellings. However, there are likely to be logistical constraints that will mean this assumption is too simplistic and optimistic. Arup have considered more comprehensively the possible plots of housing that could be achieved given various scenarios regarding the location of the IMD and central spine road.
- 5.6 There is potentially scope that, with some realignment of the IMD site accompanied by re-planning of the regeneration masterplan, the loss of dwellings could be minimised and

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<sup>11</sup> SRVCAAP Preferred Option; November 2012, Chesterfield Borough Council

other proposed uses could still be accommodated. In order to minimise any adverse impacts on the regeneration plans for the area, this should be considered carefully.

## Employment

- 5.7 The council is aiming to provide 79 hectares of new employment land over the same time stretch, for B1, B2 and B8 uses in Chesterfield. These include business, general industry and storage/distribution purposes. This employment space will come from already committed sites, mainly Markham Vale, but also from RPAs.
- 5.8 CBC wishes to create a business park towards the eastern side of the SRVC. This will form a significant majority of the 28 hectares, or 280,000 sq m, of employment land proposed on the Corridor. According to CBC this translates into around 100,000 sq m of floor space.
- 5.9 For the purposes of carrying out a high level estimate of likely job creation associated with the planned commercial land, we use the Masterplan<sup>12</sup>, which gives an indication of the breakdown into various uses. It infers a ratio of floorspace of 1 : 3 : 2.5 for B1(c), B2 and B8 uses respectively. This is seen as a suitable approximation as CBC does not expect any significant new B1 office floorspace. Using standard employment densities<sup>13</sup>, we estimate that a total of 2,092 Full Time Equivalent jobs would be created.
- 5.10 In terms of commercial and industrial land, around 10 per cent would be directly lost to the depot. Accordingly this would result in around 209 jobs being lost. However, employment will of course be generated as a consequence of the depot – our estimates described earlier in this report suggest that the direct employment at the IMD will be between 200 and 250 jobs. Therefore there would be a net value of -9 to 41 FTE jobs, as a result of the depot in terms of direct employment generated during the operational phase.
- 5.11 Our jobs estimates are lower than those made by Arup (who estimate 2,779 jobs) for two reasons. Firstly they have assumed that the 100,000 sqm is net or gross internal area, as relevant for different land uses, whereas we have assumed it is gross external area. Neither of these is definitively correct as at this stage the floorspace creation is suitably high level such that it is difficult to predict exactly what level of net internal space could be accommodated in the regeneration area. Secondly, we have excluded the commercial land in the middle of the SRVC, as it will not be directly affected by the depot. Conversely, Arup have included this within their jobs figures. Both of these differences contribute to our lower total jobs number for the scenario in which the depot is excluded, although at a high level, the two approaches taken are broadly comparable.
- 5.12 Arup have estimated job creation of 2,779 and we have estimated a lower figure of 2,092. Both fall within the 2,000-2,900 range given by CBC in their employment topic paper for the site and at a high level should therefore be viewed as broadly consistent with one another.

<sup>12</sup> Source: Regeneration Masterplan; March 2012; Capita Symonds

<sup>13</sup> Source: Employment Densities Guide 2nd Edition, 2010, Homes and Communities Agency

## Economic Impact of IMD at Staveley

- 5.13 It should be noted that the high level assumptions we have made about the split of commercial land between B1, B2 and B8 uses make a considerable difference to the job creation estimates and therefore the resulting job creation could be very different if a significantly different mix of uses is planned.
- 5.14 The result of our analysis is that, at a high level, the lost regeneration space would have supported around the same number of jobs as the IMD could. Some dwellings would however also be displaced as a result of the IMD (as detailed earlier in this report).
- 5.15 However, on balance, the IMD represents a definitive employment prospect, of appropriate skill levels for the local community, and brings with it associated benefits through the construction period of both the IMD itself and HS2 more widely and we therefore believe the net benefits will be positive.

## Regeneration

- 5.16 There are other factors that are important too, in determining how well the IMD will fit with current plans for the area. Since the closure of much of the industries and firms that used to occupy the SRVC, there has been significant investment by Chesterfield Canal Partnership, aimed at restoring the canal to its former glory. It is envisaged that, eventually, there will be 75 miles of continuous navigable canal waterways, accessible at the Corridor. The Trans-Pennine Trail runs alongside the Chesterfield Canal on the southern boundary of the Staveley Works Site; linking Chesterfield Town Centre, Staveley and Sheffield. This not only enhances connections between these places, but also provides a means in which people can exercise in an aesthetically pleasing environment. With this in mind, the current route envisaged for HS2 crosses a nine-mile stretch between Staveley and Kiveton, which is currently in the process of being restored, approximately four times. Current plans see the canal crossed both by the proposed HS2 mainline, but also by spurs, which connect the HS2 mainline with Staveley IMD. HS2 Ltd is in discussion with the Chesterfield Canal Trust in order to find potential solutions associated with these crossings.
- 5.17 Another point is that where the IMD would be located, is a former chemical works site. Because of this, the ground has been contaminated and will require comprehensive remediation work. CBC claim that because of this and the need for accessibility improvements at the eastern end of Hall Lane, this area is likely to form a later phase of development and as such, requires some flexibility so as to allow for changes in market demand and monitoring the impact of earlier phases of development. The plans subsequently allow for a mixture of housing/employment uses. Thus, due to this longer-term view for development in Hall Lane, an IMD would be suitable as it would not be operating until 2032/33 if it were to go ahead. In particular, the forfeit in economic activity accruing from opting for a depot over planned commercial development, would be minimised.

## Connectivity

- 5.18 It is evident that transport links in the local area are not of a particularly high standard. Chesterfield Council's Community Infrastructure Study (2009) found that although Barrow Hill was served by a GP, Post Office and Primary School, its accessibility to other



## Economic Impact of IMD at Staveley

facilities including secondary schools, local shops and importantly employment opportunities was sub-standard and compounded by limited bus services. Table 7 highlights this succinctly; in Barrow Hill and New Whittington only 16 per cent of workers use the bus as a means of travelling to work. For the D2N2 this average stands at 21 per cent, which is in line with the wider region and national averages. This is clearly an area that requires enhancement. Car ownership is not cheap and so it is important that there are good transport links, so as to increase the pool of available workers.

Table 7 *Percentage in Employment, by Mode of Transport to Work*<sup>14</sup>

	Bus	Car
Chesterfield 003A	20	74
Barrow Hill and New Whittington	16	78
Brimington North	21	73
Brimington South	16	78
Hollingwood and Inkersall	15	80
Lowgates and Woodthorpe	19	75
Middlecroft and Poolsbrook	22	72
Old Whittington	21	72
<b>Commuter Catchment Area</b>	18	76
D2N2	21	70
East Midlands	20	72
England and Wales	21	63

Source: *Method of Travel to Work; 2011 National Census*

- 5.19 However it is important to note that the council's budget is being squeezed and there are also feasibility concerns regarding an enhanced bus service. This relates to the potential demand there would be – Barrow Hill and New Whittington is sparsely populated, with a population density of 5.7 people per hectare. This compares with 15.7 per hectare in Chesterfield more widely.
- 5.20 Vehicle access into and through the SRVC is currently limited to just two roads; Hall Lane to the east and Works Road through the centre. Phase 1 of the Staveley Northern Loop Road provides a link between Hall Lane and Junction 29A of the M1. A second phase is programmed to run south of the site, connecting Hall Lane with the A619.
- 5.21 CBC have included in their SRVCAAP Preferred Option a central spine road, which they feel is a vital catalyst for development in the SRVC, as it will create far superior accessibility within the site. The spine road should be designed so as to facilitate further connection to a possible Chesterfield to Staveley Regeneration Route (CSRR) at its western end; and to the east, it should join onto the existing phase 1 Staveley Northern Loop road.
- 5.22 The Replacement Chesterfield Borough Local Plan (2006) protects the alignment of the proposed CSRR. This protection has been 'carried over' to the Local Plan: Core Strategy (adopted 2013). It would provide a connection from Chesterfield Town Centre through to Hall Lane, and the M1 beyond at Junction 29a. The scheme is identified in the Derbyshire Joint Local Transport Plan (LTP) though no funding is currently in place.

<sup>14</sup> Note, Bus includes walking and cycling

- 5.23 Planned improvements to the road network would be made more viable and thus probably would be brought forward, if the IMD was built at Staveley Works, as it is likely that sources of funding could be acquired from HS2 for this purpose. Moreover, there is a consensus that the sites hosting the HS2 depots will act as construction sites for HS2 in general. This could further secure investment for associated infrastructure i.e. roads.
- 5.24 The adopted Local Plan: Core Strategy recognises that the protected alignment would not maximise regeneration benefits. Indeed, it pre-dates the restoration of the Chesterfield Canal and so is not now deliverable. The SRVCAAP Preferred Option identifies that an alternative alignment located more centrally through the SRVC would maximise opportunities for regeneration within the area. The SRVCAAP incorporates flexibility in the detailed location and design of the CSRR. The IMD, as currently proposed, however would prevent delivery of the CSRR and as a result significantly frustrate the ability for comprehensive regenerative development. Options for relocation of the IMD to allow retention of the CSRR are assessed in the report prepared by Arup. Indeed one scenario they consider is that the IMD is moved northwards, whilst the central spine road is realigned so as to pass to the south of the IMD. They conclude that this is the best option to aim for and have consulted with HS2 Ltd subsequently, who have suggested that the scenario is viable.
- 5.25 A key objective involving connectivity is the improvement in local workers' geographical mobility, i.e. how accessible they are to jobs. As alluded to previously, greater provision of bus services to serve the SRVC and adjacent settlements, e.g. Barrow Hill, would be optimal given sufficient funding. Failing this however, providing safe and attractive walking and cycling routes could be a realistic and effective option.
- 5.26 There was an operating railway station at Barrow Hill and a number of associated buildings still exist. Also, the rail line to the north of the site is not used regularly for passenger services at present. However, options to re-use the line for this purpose are being explored in conjunction with the redevelopment at Markham Vale. Furthermore, there is potential for a rail halt at the north east section of the SRVC. These activities would be in the same industry as the depot and so there would be potential supply-chain effects.

## A. Appendix: Baseline Socio-Economic Conditions

- A.1 In this Appendix, an economic and social profile of the study area is identified and analysed. The boundaries of the study area were not subject to any strict conditions. Instead the objective was to select a region such that the site of the IMD was roughly in the centre. The majority of the impacts can be expected to occur within the study area. The study area is comprised of Chesterfield, Bolsover and North East Derbyshire and, more specifically, was designed so as to encapsulate the commuter catchment zone.

### Demographics

- A.2 All areas, not unexpectedly, exhibited increases in their total populations. The first column in Table 8 shows that Chesterfield, along with the two districts contained in the study area, recorded reasonable growth; the commuter catchment population grew by 4.8 per cent. However this was relatively low compared to an increase of 7 per cent in the D2N2 and 8.7 per cent in the East Midlands. But within the zone there were vast differences – Middlecroft and Poolsbrook's population grew by 16.3 per cent, compared to a contraction of 0.4 per cent in Brimington North.
- A.3 Closer inspections of the figures reveal significant disparities between population growths of particular segments of the various populations. Most notably, in the LSOA of Chesterfield 003A, the population of 0-15 year olds grew over the ten year period by a remarkable 8.3 per cent. This compares with a 1.5 per cent contraction in the D2N2 overall.
- A.4 On the other hand, the working-age population of the commuter catchment area experienced a relatively flat increase of 6.5 per cent. This contrasts with figures of 8.4 per cent and 9.1 per cent for the D2N2 and England/Wales averages respectively.

Table 8 *Population Growth, 2001-2011; Percentage Change of Persons, by age bracket*

	All Ages	Age 0-15	Age 16-64	Age 65+
Bolsover	5.7	-3.9	7.4	10.6
Chesterfield	5.0	-4.3	6.4	10.4
North East Derbyshire	2.1	-8.6	0.0	20.8
Barrow Hill and New Whittington	2.1	-4.9	1.9	12.4
Brimington North	-0.4	-12.0	4.2	-5.7
Brimington South	1.7	-14.1	3.2	10.8
Hollingwood and Inkersall	6.6	3.2	5.1	17.0
Lowgates and Woodthorpe	7.1	-0.3	9.2	9.1
Middlecroft and Poolsbrook	16.3	12.6	23.7	-3.3
Old Whittington	0.8	-8.5	3.9	-0.2
<b>Commuter Catchment</b>	<b>4.8</b>	<b>-2.9</b>	<b>6.5</b>	<b>7.4</b>
Chesterfield 003A	6.9	8.3	6.1	8.6
D2N2 LEP	7.0	-1.5	8.4	11.9
East Midlands	8.7	0.2	9.6	15.3
England and Wales	7.8	0.9	9.1	11.0

Source: National Census; 2001 and 2011, ONS

## Economic Impact of IMD at Staveley: Appendix

- A.5 Table 9 shows the 2011 population structure; while Table 10, the change in the composition of the population between 2001 and 2011. In all geographies covered, the proportion of working age is roughly three-fifths. What varies more is the split between the two subsets of the dependent population – the young and the old. Indeed in Chesterfield 003A, there is a relatively large proportion of 0-15 year olds (22.3 per cent), which significantly eclipses the D2N2 average of 18.3 per cent. Following on from this, the LSOA has a very small share of 65+ year olds – at just 13.9 per cent, which compares to 18.6 per cent in Chesterfield as a whole. Therefore in the immediate vicinity of the proposed depot site, the population is of a young structure.
- A.6 Table 10 shows the evolution of the population structures; namely the change in the percentage of the population within each age bracket, over the decade. Chesterfield 003A experienced a slight increase (0.3 per cent) in its young population; with over 65s seeing their share rise by a similar extent (0.2 per cent). Accordingly, the share of working age fell by 0.5 per cent. Importantly, the trend found in the wider geographic area was a declining share occupied by the young population. In particular, in the D2N2 the proportion of the population made up from 0-15 year olds fell by 1.6 per cent. A similar result was found for the England/Wales average. In nearly all places the fall in the percentage of 0-15 year olds was partially, but not completely, negated by the rise in the proportion of over-65s. Hence, the overarching dependent population decreased in all areas other than North East Derbyshire, where the age bracket 65+ experienced an increase of 3.3 per cent; and Chesterfield 003A. Moreover 003A, over the decade, has seen a contraction of its working-age population. This will have inevitably led to heightened pressures and difficulties in regenerating the area.

Table 9 2011 Age Structure; Percentage of Population, by age bracket

	0-15	16-64	Age 65+
Bolsover	18.0	63.8	18.2
Chesterfield	17.5	63.9	18.6
North East Derbyshire	16.5	62.4	21.1
Barrow Hill and New Whittington	18.5	64.6	16.9
Brimington North	18.3	69.7	12.0
Brimington South	15.4	61.4	23.2
Hollingwood and Inkersall	19.4	62.9	17.6
Lowgates and Woodthorpe	20.0	62.4	17.7
Middlecroft and Poolsbrook	23.3	62.1	14.6
Old Whittington	16.2	63.1	20.7
<b>Commuter Catchment</b>	18.7	63.5	17.7
Chesterfield 003A	22.3	63.8	13.9
D2N2	18.3	64.7	17.0
East Midlands	18.5	64.5	17.1
England and Wales	18.9	64.7	16.4

Source: National Census; 2001 and 2011, ONS

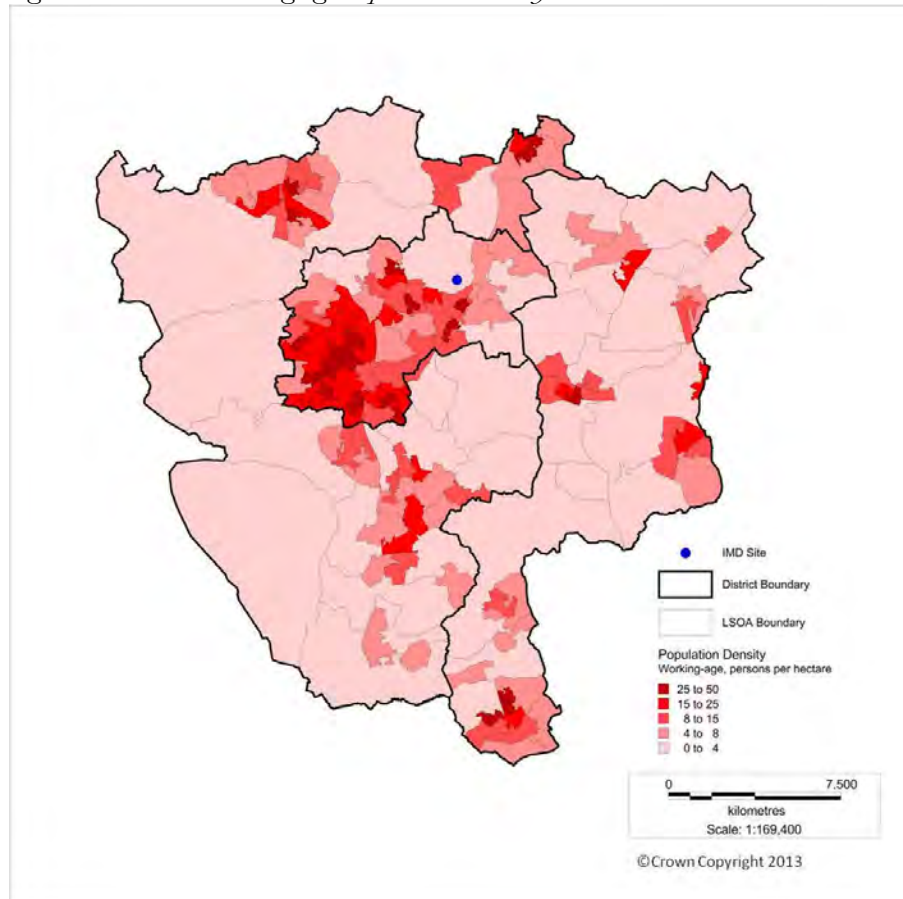
Table 10 *Change in Age Structure, 2001-2011; Change in the Percentage of Persons, by age bracket*

	0-15 year olds	16-64 year olds	65+ year olds
Bolsover	-1.8	1.0	0.8
Chesterfield	-1.7	0.8	0.9
North East Derbyshire	-1.9	-1.3	3.3
Barrow Hill and New Whittington	-1.4	-0.2	1.5
Brimington North	-2.4	3.1	-0.7
Brimington South	-2.8	0.9	1.9
Hollingwood and Inkersall	-0.7	-0.9	1.6
Lowgates and Woodthorpe	-1.5	1.2	0.3
Middlecroft and Poolsbrook	-0.8	3.7	-2.9
Old Whittington	-1.7	1.9	-0.2
<b>Commuter Catchment</b>	<b>-1.5</b>	<b>1.0</b>	<b>0.4</b>
Chesterfield 003A	0.3	-0.5	0.2
D2N2	-1.6	0.8	0.7
East Midlands	-1.6	0.6	1.0
England and Wales	-1.3	0.8	0.5

Source: National Census; 2001 and 2011, ONS

- A.7 Figure 14 below exhibits the population density of 16-64 year olds in the study area, by LSOA. In most parts, population density is low, with pockets of more densely populated areas. Chesterfield generally has a higher density towards the west of the borough. Indeed the LSOA in which most of the SRVC is located, is in the least densely populated category. But it can be seen that, as a whole, Chesterfield has a more widespread high density of working age people, when compared with Bolsover and North East Derbyshire.

Figure 14 Working-age Population Density

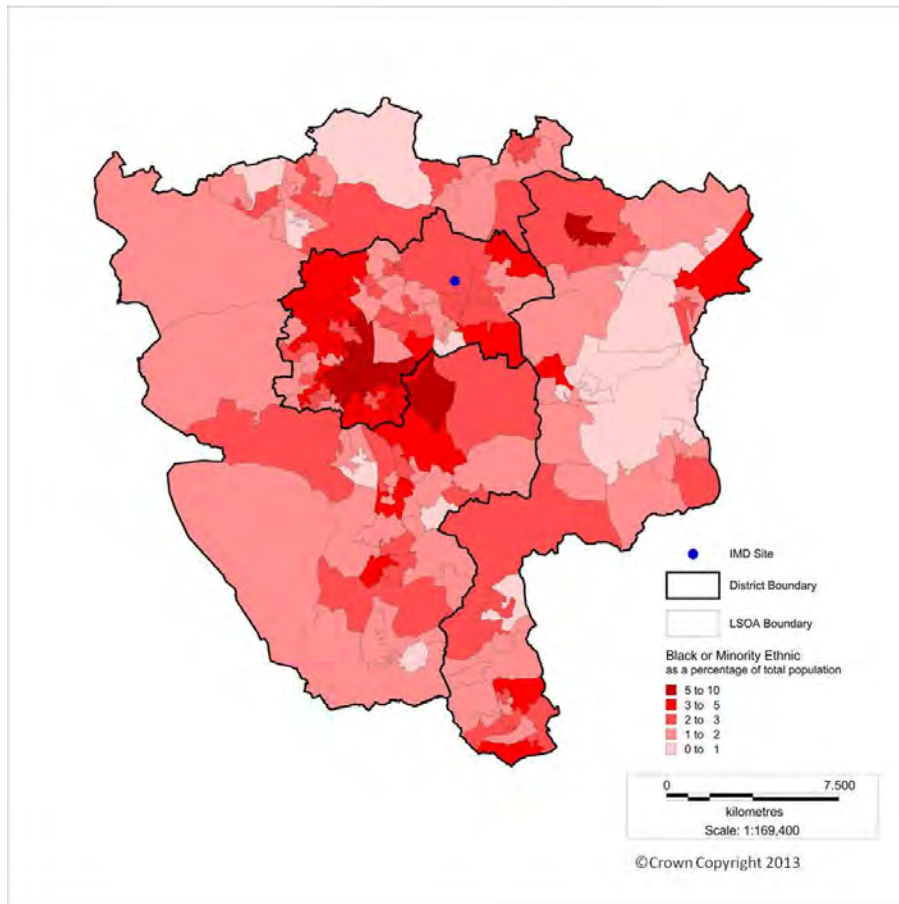


Source: National Census 2011, ONS

- A.8 Figure 15 below shows the percentage of the population that is made up from Black and Minority Ethnic. In Chesterfield the LSOAs to the west of the borough have higher proportions of BMEs. The highest percentage is found in Chesterfield 010A, where 9.1 per cent of residents are black or minority ethnic. However these figures are still low relative to England and Wales as a whole, where 14 per cent are BME.



Figure 15 Black and Minority Ethnic; Percentage of Total Population

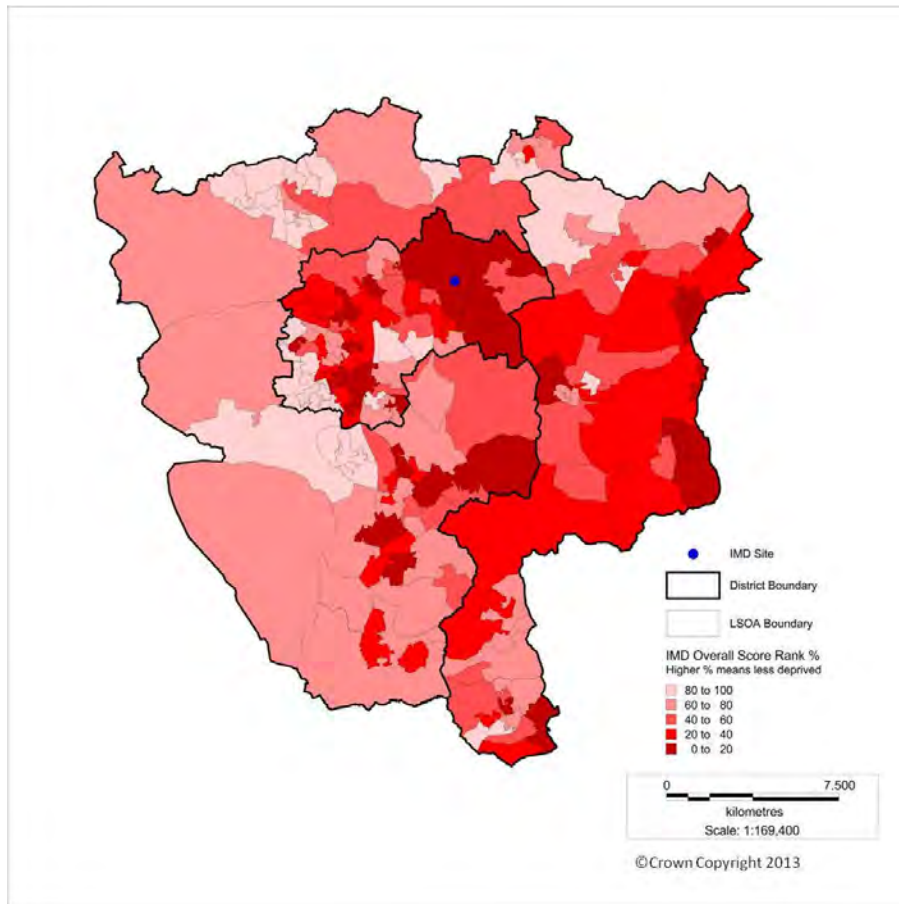


Source: National Census 2011, ONS

## Deprivation

- A.9 Figure 16 shows overall deprivation in the study area. Bear in mind that the ranks for each LSOA are relative to LSOAs in the study area only. Accordingly, Figure 17 reflects the same analysis, except the scores are ranked relative to all LSOAs in England. More deprived areas have a lower ranking i.e. the most deprived LSOA has a rank of 1. Subsequently the larger the rank as a percentage of total rank, the less deprived is the area.
- A.10 Chesterfield 003A is in the bottom quintile relative to LSOAs in the study area. Specifically it ranks as 6.1 per cent. Large swathes of Bolsover are deprived too. Unlike population density, the levels of deprivation tend to increase further to the East of Chesterfield. Despite some parts of Chesterfield being deprived, there are other areas towards the South East of the borough, which fall into the 20 per cent least deprived. North East Derbyshire is relatively non-deprived when compared to the rest of the study area – most of its LSOAs fall into the 40 per cent least deprived.

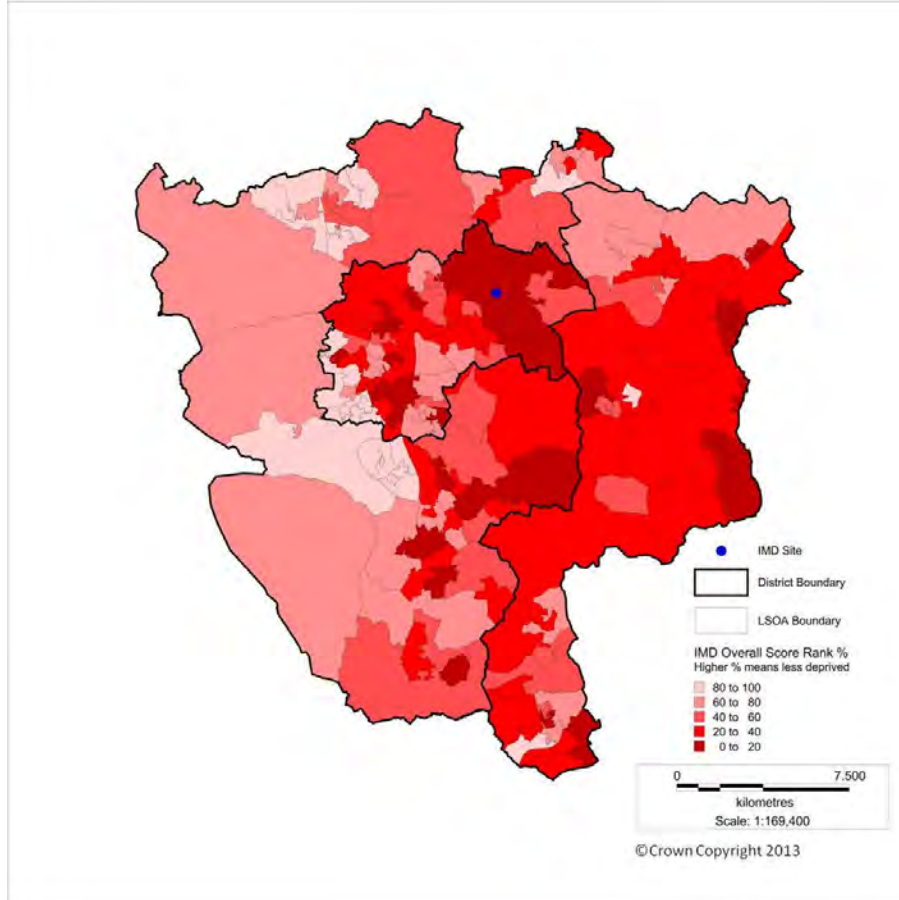
Figure 16 Overall IMD Score; rank relative to all LSOAs in Study Area



Source: *Indices of Multiple Deprivation, 2010*

- A.11 Figure 17 shows a mixed picture, similar to Figure 16 above. Chesterfield 003A is in the bottom decile nationally, in terms of its overall IMD score. Furthermore a significant number of LSOAs in Chesterfield feature in the bottom 40<sup>th</sup> percentile. Bolsover probably has the most widespread levels of deprivation – the vast majority of LSOAs rank in the bottom 40<sup>th</sup> percentile.

Figure 17 Overall IMD Score; rank relative to all LSOAs in England

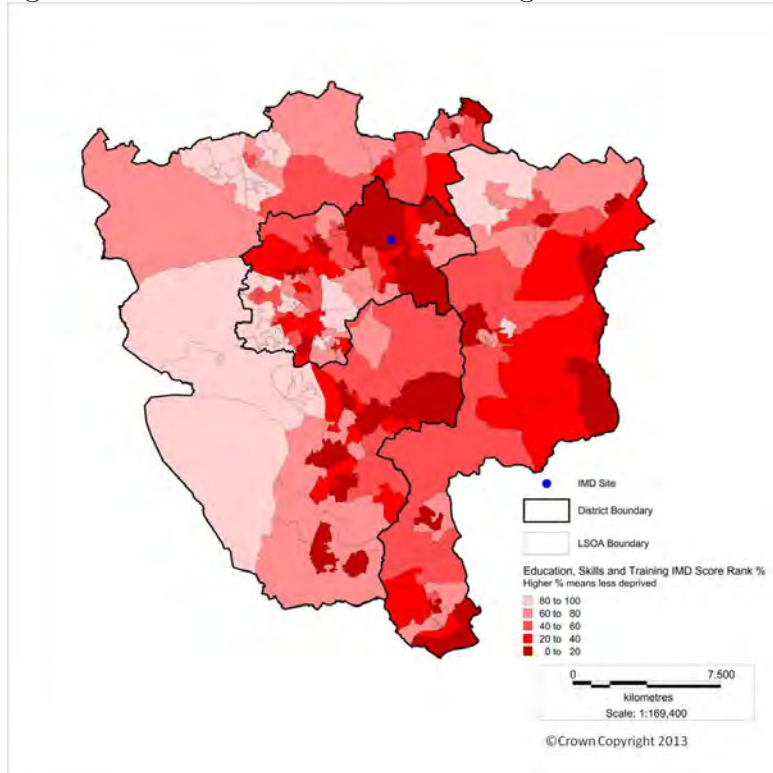


Source: *Indices of Multiple Deprivation, 2010*

- A.12 Finally Figures 18 and 19 below show deprivation for components of the IMD; namely: crime and disorder, and; education, skills and training. A very similar pattern emerges, in which Chesterfield and Bolsover have greater levels of deprivation, compared with North East Derbyshire. For both categories Chesterfield 003A ranks within the most deprived quintile.

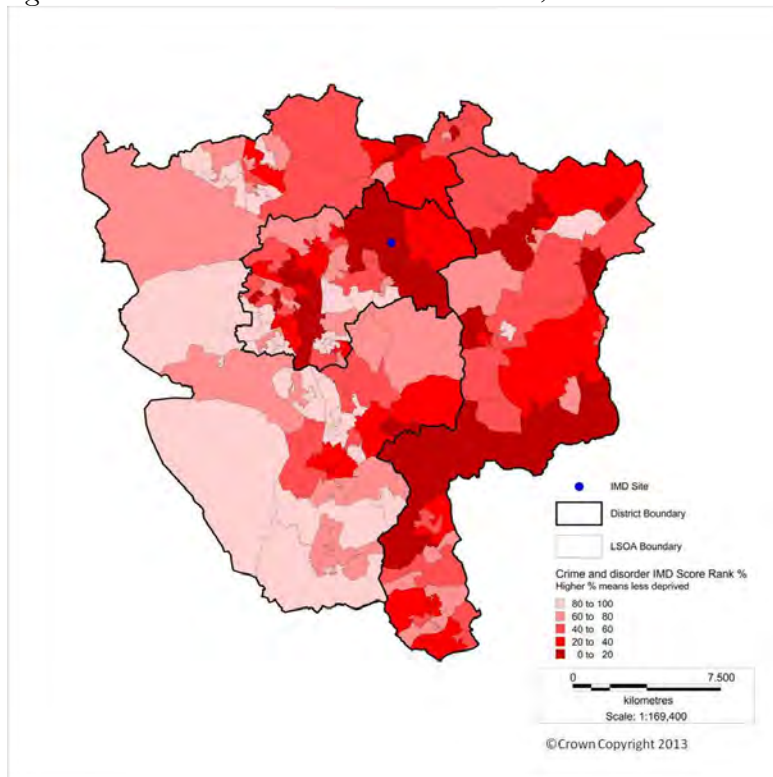
## Economic Impact of IMD at Staveley: Appendix

Figure 18 Education, Skills and Training IMD Score; ranked relative to all LSOAs in Study Area



Source: Indices of Multiple Deprivation, 2010

Figure 19 Crime and Disorder IMD Score; ranked relative to all LSOAs in Study Area



Source: Indices of Multiple Deprivation, 2010

## Economic Activity

A.13 Table 11 below presents economic activity rates; the rate stands at a relatively low 61.3 per cent in Chesterfield 003A, compared to 68.3 per cent in the D2N2 and 69.7 per cent for England and Wales. For the slightly wider area i.e. Barrow Hill and New Whittington, the rate is significantly higher – 68.9 per cent. This highlights the acuteness of the poor economic conditions in the immediate vicinity of the IMD site. Furthermore, it was indicated earlier that Chesterfield 003A had a growing dependent population. Hence the LSOA has a shrinking working-age population, with a low economic activity rate. This poses real problems for the area.

Table 11 *Economic Activity Rates, as a Percentage of Resident Population*

	Economically Active Rate
Bolsover	66.9
Chesterfield	67.9
North East Derbyshire	68.0
Barrow Hill and New Whittington	68.9
Brimington North	71.1
Brimington South	68.7
Hollingwood and Inkersall	66.4
Lowgates and Woodthorpe	65.6
Middlecroft and Poolsbrook	62.7
Old Whittington	66.9
<b>Commuter Catchment Area</b>	<b>67.2</b>
Chesterfield 003A	61.3
D2N2	68.3
East Midlands	69.3
England and Wales	69.7

Source: 2011 National Census; ONS

A.14 For the period July 2012-June 2013, the unemployment rate in Chesterfield stood at 7.4 per cent, compared to an average of 8.0 per cent for England and Wales, 8.2 per cent for the D2N2 LEP and 8.1 per cent for the East Midlands.<sup>15</sup> Thus, on the face of it, Chesterfield as a whole is doing fairly well in terms of unemployment.

A.15 Chesterfield's relative performance in terms of the Claimant Count is not as strong. The Claimant Count has historically recorded a slightly lower incidence of unemployment than the APS. Also, the APS and Claimant Count figures are for two different time periods and the economic climate is more optimistic with the Claimant Count data. In October 2013, 3.2 per cent of Chesterfield's working age residents (16-64 year olds) were registered on the Claimant Count. This compared with 3.1 per cent in the D2N2, 2.9 per cent in the East Midlands and 3.0 per cent for England and Wales.

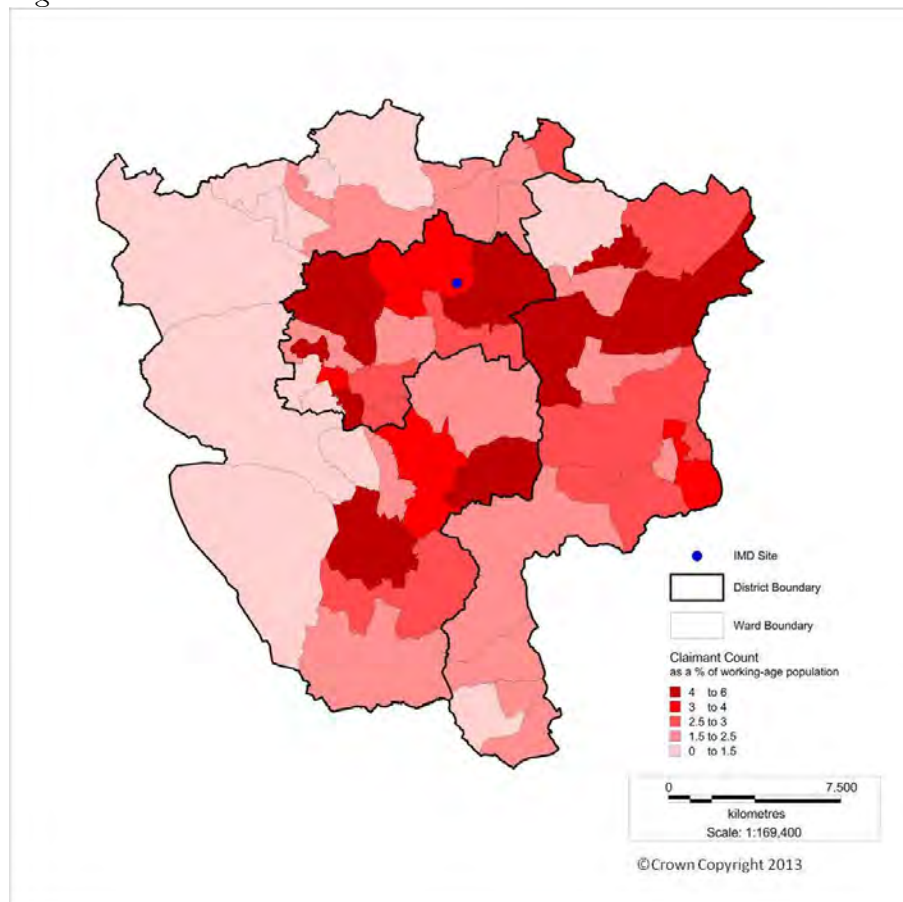
A.16 Figure 20 shows the Claimant Count rate by ward. Chesterfield and Bolsover have much higher incidences of people claiming unemployment-related benefits compared to North

<sup>15</sup> These figures are from the Annual Population Survey.



East Derbyshire. Chesterfield has a diverse range of rates. Rother is the ward with the highest unemployment, based on this measure, with 6 per cent of working-age residents claiming. Conversely, Walton has a mere 1.2 per cent of residents following suit. Barrow Hill and New Whittington, where the IMD would be situated, has a rate of 3.3 per cent.

Figure 20 Claimant Count Rate



Source: Claimant Count, ONS; October 2013

- A.17 Table 12 below shows two variables; firstly, young claimants aged 24 and under as a percentage of total claimants. And secondly, the Claimant Count rate among young people. For the commuter catchment area as a whole, 38.7 per cent of all claimants were aged 24 or less. For England and Wales this figure stands at a much lower 26.4 per cent. Furthermore, the actual Claimant Count rate for this age bracket was 7.6 per cent in the commuter area, compared with 4.3 per cent for the England/Wales average. There are particularly worrying pockets of the local area in which youth unemployment has soared. Indeed Chesterfield 003A has a claimant count rate of 12 per cent. Furthermore in Lowgates and Woodthorpe nearly half of all claimants are aged 24 or under.



Table 12 Youth Claimants as a Percentage of Total Claimants; and Youth Claimant Count Rate<sup>16</sup>

	% of claimants that are Young	Claimant Count
Bolsover	32.2	5.3
Chesterfield	36.6	7.1
North East Derbyshire	31.0	4.6
Barrow Hill and New Whittington	40.0	8.5
Brimington North	36.8	7.3
Brimington South	46.2	5.3
Hollingwood and Inkersall	30.8	5.2
Lowgates and Woodthorpe	47.8	10.2
Middlecroft and Poolsbrook	37.0	8.2
Old Whittington	36.4	9.6
<b>Commuter Catchment Area</b>	<b>38.7</b>	<b>7.6</b>
Chesterfield 003A	36.4	12.0
D2N2	29.6	4.8
East Midlands	28.7	4.4
England and Wales	26.4	4.3

Source: Claimant Count, 2011; 2011 National Census

- A.18 An important aspect of appraising the IMD at Staveley is how compatible the jobs, which would be generated, are with current job seeker's preferences and abilities. As there is no direct data on the skills and qualification levels of the unemployed, the sought occupations of claimants can be used as a proxy for how skilled they are. For an individual is unlikely to seek an occupation in which they do not have the required skills set. In Table 13, three sought occupations are included and should cover virtually all of the jobs created at the depot. These are construction; process, plant and machinery; and elementary.
- A.19 There is wide disparity within the commuter catchment area in terms of the type of job that an unemployed person is after. The ward in which the depot would be based has the second highest rate (32 per cent) of job seekers interested in elementary positions, among the seven wards. This figure compares with 27.2 per cent for England and Wales. Old Whittington has the highest percentage with 36.4 per cent of job seekers wanting such a position. Furthermore the LSOA in which most of the IMD would be located has 55 claimants, 45.5 per cent of which are seeking an elementary position.
- A.20 In terms of operatives, Barrow Hill and New Whittington has a relatively high percentage of 8 per cent seeking such roles. This compares with 6.5 per cent in the D2N2. The construction variable results from the summing of elementary and skilled construction jobs. This variable displays the largest variation among the three included. Lowgates and Woodthorpe has a particularly strong demand for such occupations, with 8.7 per cent of job seekers wanting a job in construction. Furthermore the weighted average for the commuter catchment in construction, where the weights are the respective total amounts of claimants in each ward, is 4.5 per cent, compared to 3.4 per cent in the East Midlands.

<sup>16</sup> \*\*Note, the claimant count rates for under-24s used 2011 census data for denominator.\*

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Table 13 *Percentage of Claimants, by Sought Occupation*

	Process, Plant and Machine	Elementary	Construction
Barrow Hill and New Whittington	8.0	32.0	4.0
Hollingwood and Inkersall	7.7	23.1	3.8
Brimington South	7.7	23.1	7.7
Brimington North	5.3	26.3	0.0
Old Whittington	4.5	36.4	4.5
Middlecroft and Poolsbrook	7.4	29.6	3.7
Lowgates and Woodthorpe	4.3	26.1	8.7
<b>Commuter Catchment Area</b>	<b>6.5</b>	<b>28.4</b>	<b>4.5</b>
Chesterfield 003A	9.1	45.5	9.1
D2N2	6.5	32.3	3.8
East Midlands	6.7	31.2	3.4
England and Wales	6.7	27.2	4.2

Source: Claimant Count, ONS; October 2013

## Skills

A.21 In terms of how qualified the local population is, Table 14 gives a breakdown of the percentage of residents aged 16 and over with the specified qualification as their highest level of qualification. For the commuter catchment area as a whole, 31.5 per cent of people have no qualifications at all. The situation is particularly dire in Middlecroft and Poolsbrook, where about two-fifths of people are completely unqualified; and in Chesterfield 003A the figure stands at a similarly dismal 36.9 per cent. These values compare with 25.4 per cent for the D2N2 LEP and 22.7 per cent for England and Wales.

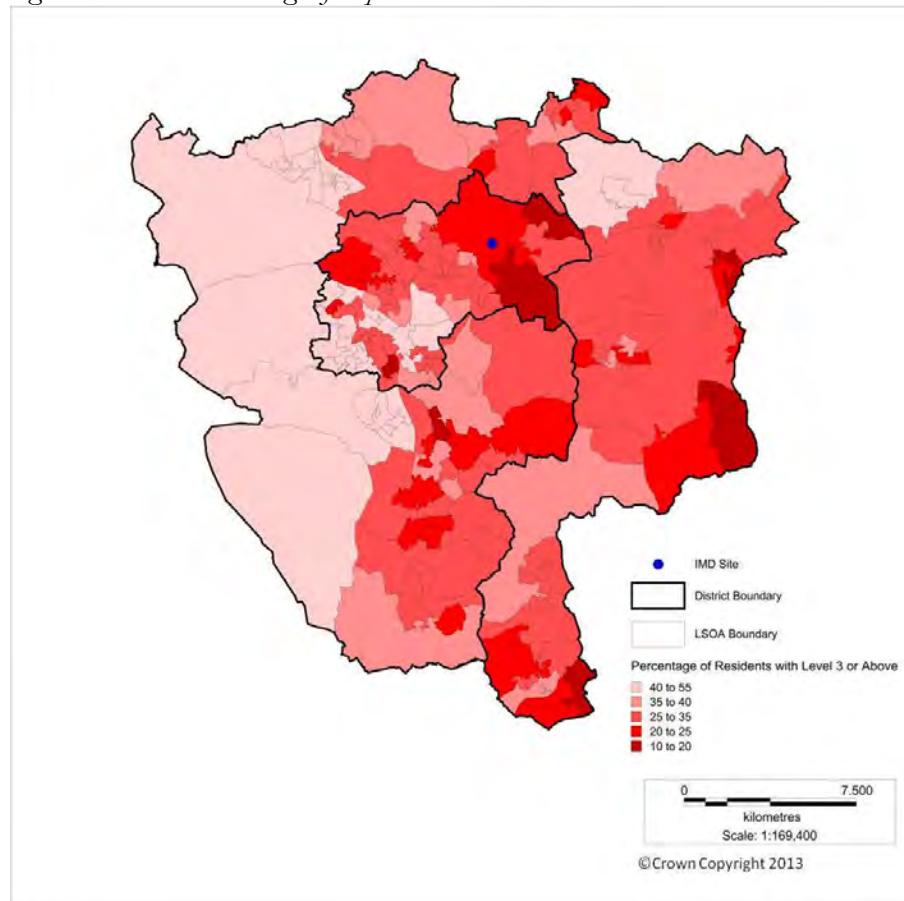
Table 14 *Percentage of Residents aged 16+; Highest Qualification Achieved*

2011 Ward	None	Level 1	Level 2	Apprenticeship	Level 3	Level 4+	Other
Barrow Hill and New Whittington	29.9	14.0	18.5	4.9	11.6	17.5	3.6
Hollingwood and Inkersall	29.8	14.8	18.8	4.9	12.6	15.2	3.8
Brimington South	27.9	13.1	16.3	4.5	12.5	21.9	3.8
Brimington North	28.6	16.6	18.1	4.1	13.4	15.0	4.1
Old Whittington	32.6	14.6	17.2	4.3	11.0	16.1	4.3
Middlecroft and Poolsbrook	39.4	15.4	17.4	3.3	10.1	10.5	3.9
Lowgates and Woodthorpe	34.9	17.8	15.9	3.7	11.0	12.5	4.3
<b>Commuter Catchment Area</b>	<b>31.5</b>	<b>15.0</b>	<b>17.5</b>	<b>4.3</b>	<b>11.8</b>	<b>15.9</b>	<b>3.9</b>
Chesterfield 003A	36.9	15.6	17.0	4.4	9.8	12.7	3.7
D2N2	25.4	13.7	15.4	4.0	13.2	23.6	4.7
East Midlands	24.7	13.9	15.6	4.0	12.9	23.6	5.3
England and Wales	22.7	13.3	15.3	3.6	12.3	27.2	5.7

Source: National Census 2011, ONS

- A.22 According to HS2 Ltd<sup>17</sup> apprenticeships will be created during the construction of the IMD. As Table 14 shows, for certain wards in the commuter catchment, a relatively high proportion of residents have, as their highest qualification, an apprenticeship. In Barrow Hill and New Whittington, the figure stands at 4.9 per cent, compared to 3.6 per cent in England and Wales on average. This suggests that there is a relatively large proportion of workers looking for this type of employment and training opportunity.
- A.23 The assertion that there is a relatively unskilled workforce in the area surrounding the proposed depot is backed up by the percentage of people holding qualifications of level 3 and above. Indeed in the commuter catchment area, 27.7 per cent do so. However for the East Midlands it is much higher at 36.5 per cent and for England and Wales even more so at 39.5 per cent. Furthermore, within the study area there is vast disparity. Figure 21 shows that North East Derbyshire has a denser population of highly skilled individuals. Comparatively, Chesterfield has widespread poor qualification levels. In particular in Chesterfield 003A only 22.5 per cent of residents have attained a qualification of level 3 or above.

Figure 21 Percentage of Population with level 3+



Source: *Qualifications and Students, National Census 2011*, ONS

<sup>17</sup> Source: Tibshelf to Killamarsh, HS2 Ltd, July 2013

## Employment

- A.24 So far, the skills level of the local population has been considered, along with the type of occupation that an average claimant would seek. These give a good indication of the match between the prospective job vacancies and the people that will potentially fill these positions. It is also necessary to consider the structure of the local economy; more specifically, the areas of employment in which the area specialises in.
- A.25 Table 15 reveals that for the commuter catchment as a whole, 4.3 per cent of employees worked in construction and the same figure worked in transportation and storage during 2012. These figures are actually just below the England/Wales average and are similar to the D2N2 LEP.
- A.26 However, in Chesterfield 003A, 7.6 per cent of employees were engaged in construction activities in 2012. This was significantly above the England/Wales average of 4.4 per cent. There are wards within the commuter catchment that have a similar dependence on construction as a source of employment. For instance in Lowgates and Woodthorpe, and Brimington South, the figures are 7.6 and 7.2 per cent respectively.
- A.27 In terms of transport and storage, Hollingwood and Inkersall stands out, as 15.3 per cent of its employees worked in this sector. This figure far exceeds the D2N2 average of 3.9 per cent.

Table 15 *Percentage of Employees, by Sector*

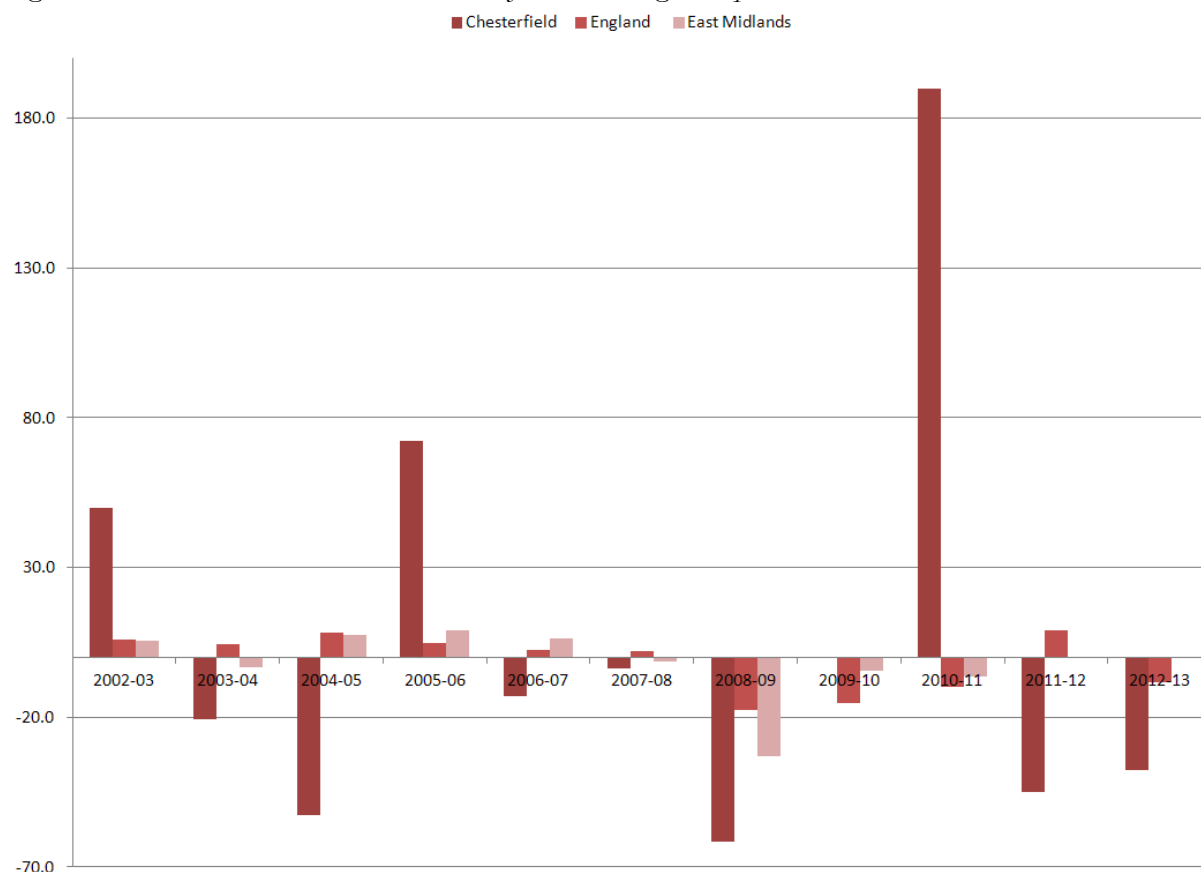
	<b>Total Employees</b>	<b>Construction (%)</b>	<b>Transport and Storage (%)</b>
Bolsover	27,149	6.9	4.2
Chesterfield	51,013	3.1	4.1
North East Derbyshire	26,631	6.9	3.3
Barrow Hill and New Whittington	761	3.7	0.0
Brimington North	568	2.1	1.1
Brimington South	1,279	7.2	0.8
Hollingwood and Inkersall	1,588	4.1	15.3
Lowgates and Woodthorpe	2,117	7.6	7.6
Middlecroft and Poolsbrook	1,829	2.4	0.0
Old Whittington	3,935	2.9	2.5
<b>Commuter Catchment Area</b>	<b>12,077</b>	<b>4.3</b>	<b>4.3</b>
Chesterfield 003A	302	7.6	0.0
D2N2	873,998	4.6	3.9
East Midlands	1,894,744	4.3	5.2
England and Wales	24,403,799	4.4	4.6

Source: Business Register and Employment Survey; ONS; 2012

## Housing Start-ups and Completions

A.28 Figure 22 shows that the growth rate of dwellings completed in Chesterfield behaves far more erratically than the England and East Midlands averages. More importantly, in most years the growth rate is lower in Chesterfield than in the other two geographies.

Figure 22 Year-on-Year Growth Rate of All Dwellings Completed



Source: Department for Communities and Local Government

A.29 Table 16 displays a time series of the average house price: median annual income ratio. The result is the number of years of earnings it would take to be able to afford the average house in the geography specified. It is evident that as time progresses the ratio increases for both Chesterfield and England overall. This is not surprising as wages are much stickier than house prices. Generally, firms do not like raising wages as it is very difficult to then lower them if an economic slump requires such action. However the increase in the ratio for England as a whole is markedly greater. In both geographies house prices have, on average, exceeded growth of median earnings. But in Chesterfield the difference in the two rates is less pronounced. So house prices in the area have not risen so rapidly relative to wages, compared with England. There are a whole host of possible reasons as to why this has been the case; most prominently, the fact that there is a relatively high degree of social housing and semi-detached properties. Subsequently there are fewer high-value properties.

A.30 The other characteristic of Table 16 is that the levels of the ratios in Chesterfield are consistently and significantly less than those found for England overall. This means wages are relatively large compared to house prices, in Chesterfield. For instance in England as a whole, the average price of a house was nearly 12 times the average income,

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in 2010. In Chesterfield, house prices were just 7 times the average annual pay. Other things equal, an average earner in Chesterfield would be able to afford a house nearly twice as quickly as an average earner in England.

Table 16 *House price: Median Annual Wage Ratio; years*

Year	Chesterfield	England
2002	5.4	7.4
2003	6.0	8.7
2004	6.7	9.7
2005	7.4	9.9
2006	7.6	10.4
2007	7.9	11.0
2008	7.4	10.8
2009	6.6	10.4
2010	7.1	11.7

Source: *Annual Survey of Hours and Earnings; ONS, DCLG*

- A.31 Social Renting is a means of affordable housing and allows residents with low incomes to live in a property which, without the scheme, they would not be able to afford. Table 17 reveals that the commuter catchment area has a high degree of social housing; 25.5 per cent of households, which compares with 17.2 per cent in the D2N2. In particular, Chesterfield 003A and Middlecroft and Poolsbrook have nearly half of all households living in socially rented accommodation. This is why the house price: earnings ratio is so low – because houses are relatively inexpensive. This also highlights the type of population living within the immediate vicinity of the proposed IMD - it is relatively deprived.

Table 17 *Percentage of Households which Socially Rent*

	All households	Social rented	%
Chesterfield	46796	10832	23.1
Chesterfield 003A	693	342	49.4
Barrow Hill and New Whittington	2666	588	22.1
Brimington North	1854	334	18.0
Brimington South	2697	476	17.6
Hollingwood and Inkersall	3159	558	17.7
Lowgates and Woodthorpe	1949	625	32.1
Middlecroft and Poolsbrook	2047	1011	49.4
Old Whittington	1962	578	29.5
<b>Catchment Area Average</b>	<b>16334</b>	<b>4170</b>	<b>25.5</b>
D2N2	895342	153775	17.2
East Midlands	1895604	300423	15.8
England	22063368	3903550	17.7

Source: *National Census 2011; ONS*



The logo for Volterra, featuring the word "Volterra" in a white, sans-serif font. The text is positioned on the right side of a dark blue rectangular background. On the left side of the background, there is a lighter blue, semi-circular graphic element that overlaps the edge of the rectangle.

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