URS

Environment and Infrastructure Ltd

FEASIBILITY STUDY – EXTENSION OF NET TRAM WEST OF TOTON (EAST MIDLANDS HUB)

January 2014

CONTENTS

Rev	Date	Details	Prepared by	Checked by	Approved by
!F	28.1.2014	Final draft agreed with client	JC/DG	MD	JC
!F	30.1.2014	Final agreed with client	JC/DG	MD	JC

1. EXECUTIVE SUMMARY

1.1 Current proposals from HS2 Ltd include a station at Toton, with provision to extend the Nottingham Express Transit (NET)tram service from Toton Lane to the new station.

1.2 This study considers the options for extending the NET to the west of the proposed HS2 station at Toton and considers the potential demand from local communities. It concludes that whilst rail and bus services may be capable of meeting much of the current demand for access to the station, planned housing growth in the area and the establishment of the HS2 station will significantly increase the level of demand. It is recommended that infrastructure should be provided to enable pedestrians, cyclists and other traffic to access the site. In addition consideration should be given to adjusting the terminus of the proposed extension into Toton station by extending to the south and providing a structure to cross the HS2 line. It is recommended that further investigation should be undertaken to assess in more detail the level of demand and the infrastructure need to enable Toton to function as an effective transport hub.

2. INTRODUCTION

2.1 The current HS2 proposals for a station at Toton include provision to extend the proposed NET tram service from the current proposed terminus at Toton Lane, Chilwell as far as the new station at Toton. It is understood that the current plans envisage the tram terminating at concourse level ie above the HS2 and classic rail tracks.

2.2 Investigation is needed to establish whether there is a case for the tram service being extended west of the proposed station; to assess the contribution this could make to the development of an effective transport interchange at Toton (East Midlands Hub); and to identify any changes to the plans that should be requested by Derbyshire County Council (DCC) in its response to HS2.

2.3 The study makes a broad brush assessment of the potential for extending the NET tram service west of Toton to serve some or all of the following potential markets:

- Long Eaton
- Sandiacre
- Stanton Ironworks development site
- Ilkeston
- Park and Ride
- Other destinations (e.g. Derby)

2.4 Nottingham City Council and its partners, Nottinghamshire County Council, Broxtowe Borough Council and Derbyshire County Council commissioned Volterra partners to assess the economic benefits of Toton station and how to maximise those benefits. Some of the points from the report are set out below;

- Para 1.31 states*; "The proximity to the HS2 station at Toton could very well lead to a significant boost its economy provided there is direct connectivity to the proposed station. This could come through an extension of the NET 2 tram network or other forms of rapid transit.*''
- Para 9.30 states "*Importantly, the existing rail network is undergoing a number of major initiatives as mentioned earlier in this report, including electrification of the Midland Mainline, the extension of the NET2 tram network and the new railway station at Ilkeston. These projects should be aligned with the HS2 network where possible. In particular the viability of extending the tram network to other parts the region, such as Ilkeston and Long Eaton in Erewash, could be explored."*

3. AN ASSESSMENT OF THE POTENTIAL MARKETS AND THEIR DEMAND

Overview

3.1 The Options for Phase Two of the high speed rail network – demand and appraisal report prepared by MVA in July 2013 identifies the case for a station at Toton to serve the East Midlands.

3.2 Within this report it states that:

> *"The demand analysis showed that an interchange station should be connected to public transport to gain the most benefits. Heavy rail access was tested at Toton assuming the same level of passenger services as at East Midlands Parkway.*
>
> *It should be noted that providing heavy rail access at Toton does require a significant re-ordering of the existing railway services and further work will be required to select the best option for serving Toton while minimising negative impacts on existing services".*

Figure 1 shows that passengers directly accessing Toton for travel to London would come from an area covering Nottingham and Derby, and extending southwards towards Loughborough and Leicester.

Figure 2 shows the origin of trips at Toton in relation to conventional demand at Derby, Nottingham and Leicester stations.

Figure 1: Access to Toton Station Demand for Toton Scenario (Source: PFM)

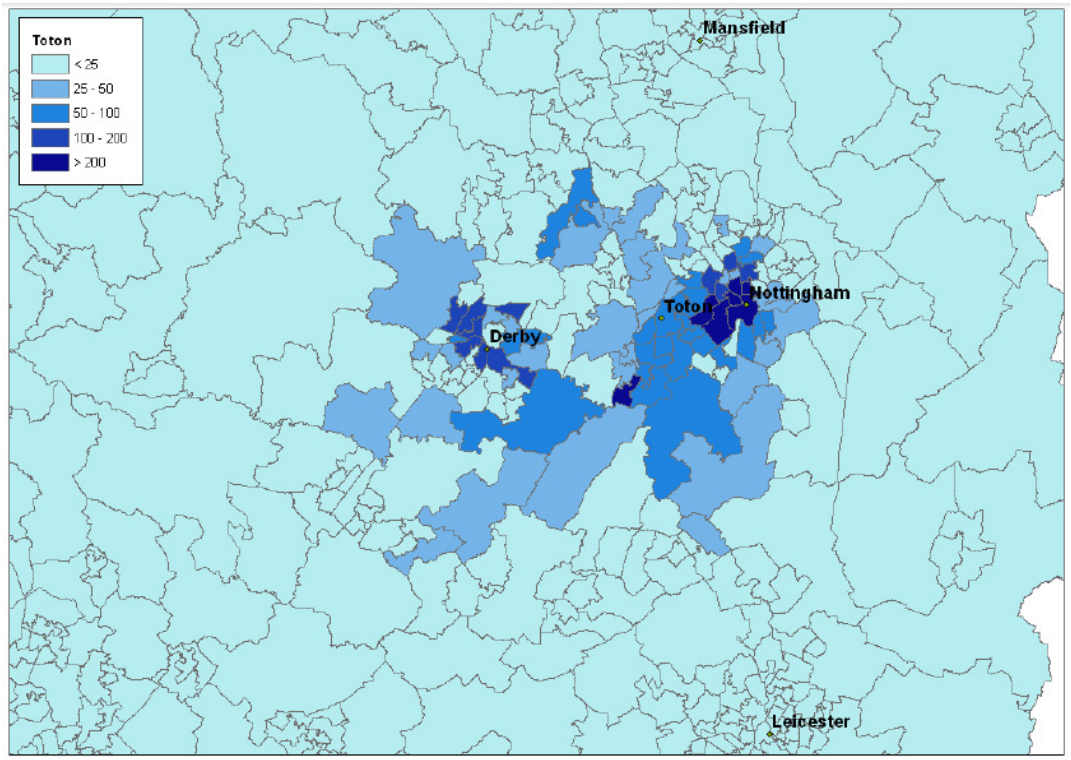
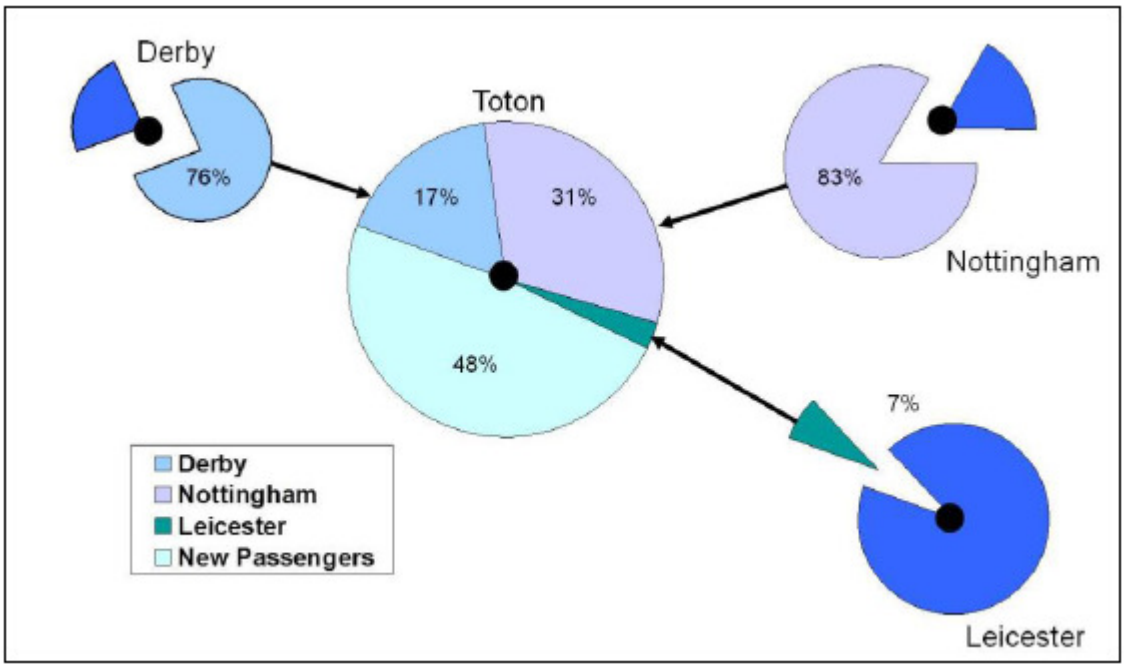


Figure 2: Source of 2043 Demand for HS2 with a HS2 Station at Toton (Source: PFM)



3.3 Overall it is expected that there would be 16,900 passengers using Toton station each day travelling to all destinations.

Assumed Connectivity to Toton

3.4 In order to provide connectivity by conventional rail, the Toton station proposals will include a new conventional rail station immediately adjacent to the high-speed station. It has been assumed that conventional rail services will be provided to link the station with Derby, Nottingham, Loughborough and Leicester. These connections are shown on Figure 3 and Figure 4.

3.5 The Economic Case for HS2 (PFM v4.3: Assumptions report) states that:

"To understand the costs and benefits of the scheme our modelling requires assumptions on a service specification for HS2 and a service specification for released capacity on the classic network."

3.6 Although these assumptions were made for transport modelling purposes only, and not future proposed service specifications, they do show the general thinking relating to connecting Toton to the wider network.

Figure 3: East Midlands Service Pattern used in PFMv4.3 – Phase Two

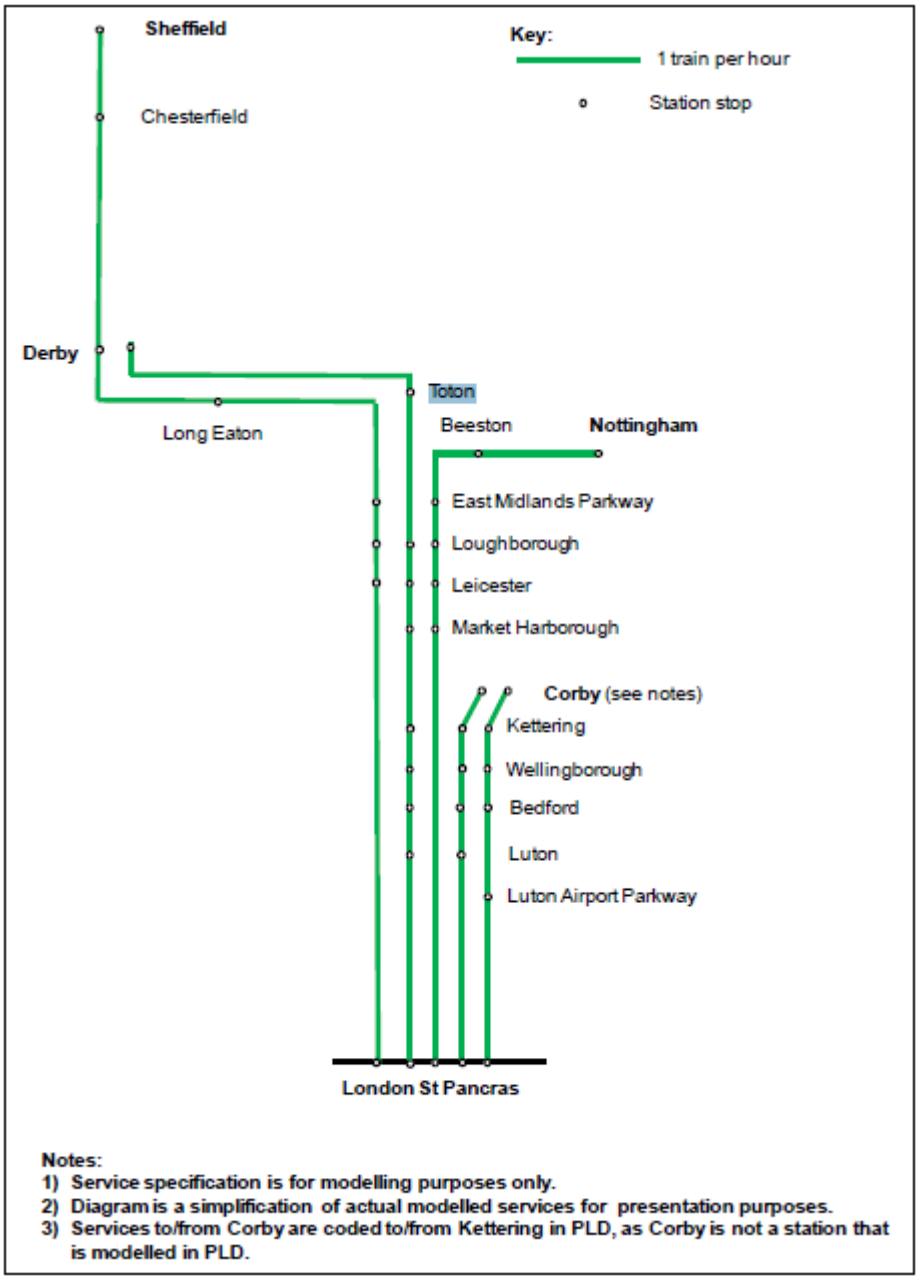
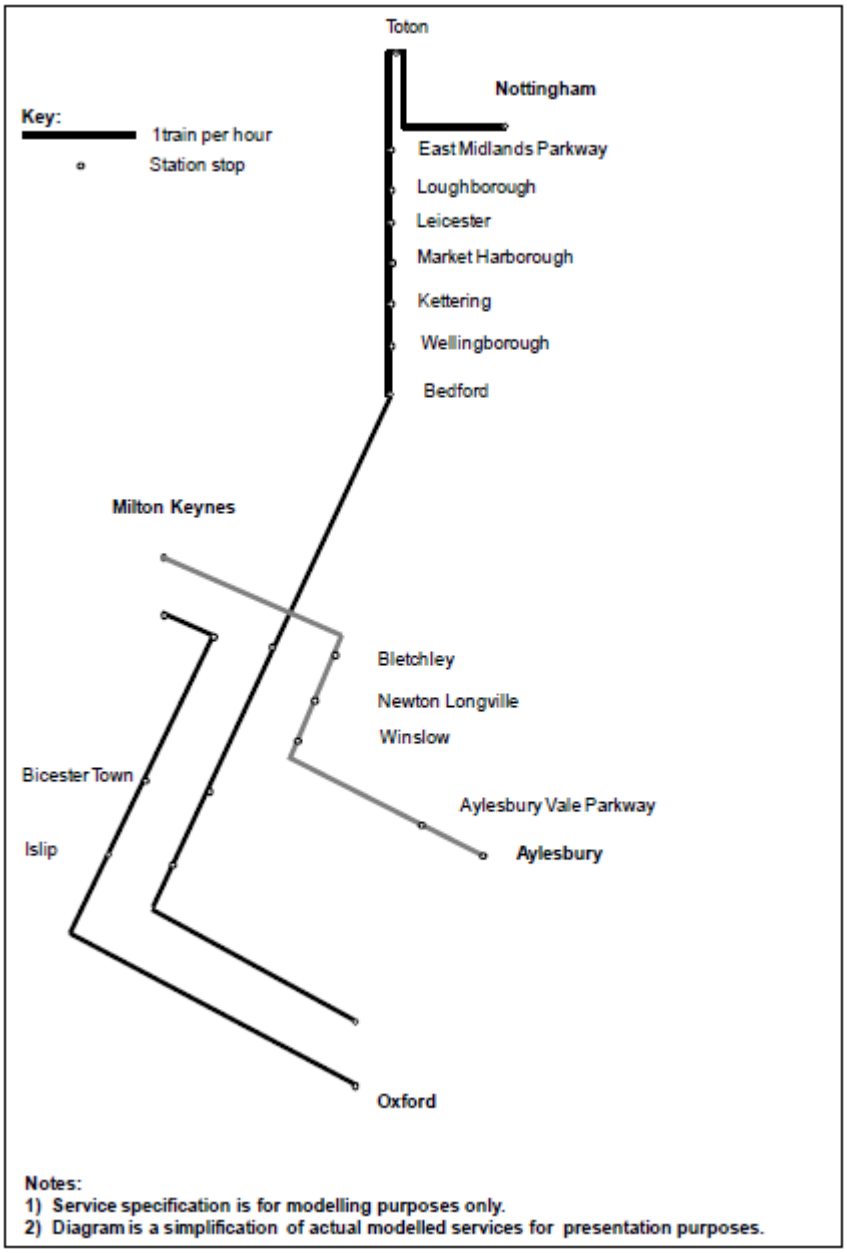


Figure 4: East-West Rail Service Pattern used in PFMv4.3 – Phase Two



3.7 The HS2 website (www.hs2.org.uk/phase-two/leeds) states that:

"A new station at Toton, between Nottingham and Derby, would offer excellent links to East Midlands cities and stimulate growth across the region. The station would be readily accessible by public transport from both Derby and Nottingham.

Rail lines could be connected to serve Derby, Leicester, Nottingham and much of the wider East Midlands region. For example, it would be possible for either shuttle or existing services to call at the East Midlands Hub station en route, with a journey time of 12 and 15 minutes from Nottingham and Derby respectively."

3.8 Whilst conventional rail may provide access from the larger urban areas, there are other settlements in the vicinity of Toton station (and further across Derbyshire) from which demand could be reasonably expected. The remainder of this section considers the potential demand from these settlements, and how this could be served (including via extensions to the NET):

Other Derbyshire Destinations

Long Eaton

3.9 The town of Long Eaton forms part of the Greater Nottingham conurbation. It, has a population of 45,000 and is one of two main centres of Erewash District (the other being Ilkeston with a population of 37,550). It has a railway station which lies on the Midland Main Line and the Derby - Nottingham line.

3.10 There may be opportunities to connect the town to the HS2 railway at Toton either by diversions of existing bus services (Figure 5) or by developing and improving access to the Nutbrook Trail, (Figure 6). This latter route is a multi-user greenway route. The majority of Long Eaton lies within a 2kms walking distance of Toton station.

3.11 It is understood that HS2 Ltd has considered the possibility of providing additional access to Toton station from the south (Long Eaton) side of the station. The existing A6005 bridge over the railway would not provide sufficient clearance for the high speed line and a new bridge would need to be constructed, probably just to the north of the existing bridge. The eastern approach to the bridge would be on a gradient and there may be insufficient room to accommodate a junction to provide a link to the station. It is therefore likely that any access road from the south would need to start from the west side of the high speed line (e.g. from Midland Street). Access to the station could be gained by establishing a secondary access on the west side.

3.12 This link would be important in providing pedestrian, cycle, taxi and potentially bus access to Toton Station. Providing opportunities for walking and cycling also has the benefit of offering the potential for more active lifestyles.

Figure 5: Trent Barton SkyLink Route (Brown)

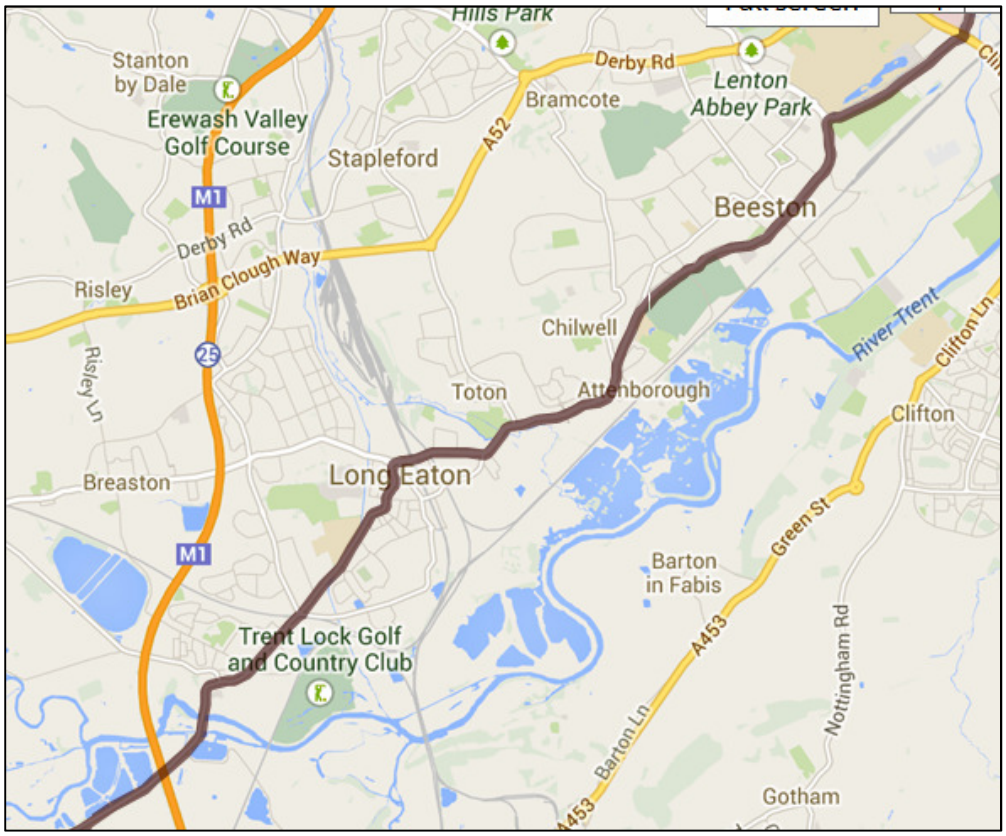


Figure 6: Erewash Valley Trail (Yellow)

(A) = Major access point for walkers / cyclists with open slot of 1.2m width

3.13 One potential option may be to extend the (NET) tram service west of the proposed station to connect to Long Eaton (and / or Sandiacre). This would also provide access to an existing railway station, there would likely be competition between modes to / from Nottingham city centre. Trains currently run every 20 to 30 minutes from Long Eaton to Nottingham with a journey time of 20 minutes. Such competition may reduce the economic viability of a tram connection at Long Eaton also running into Nottingham in an estimated 25 minutes, even if this also connects at HS2, as Nottingham city centre would likely remain the dominant destination for passengers from Long Eaton. (It should be noted, however, that the tram provides connection to destinations to the east of the planned HS2 route such as the University and Beeston.)

3.14 Long Eaton is also expected to accommodate 1,450 new homes under the proposed Local Plan which may also increase demand for transport in the local area.

Sandiacre

3.15 Sandiacre has a population of approximately 9,000. It is denoted as a local centre in the Erewash Local Plan, the level below that of Ilkeston / Long Eaton.

3.16 As shown in Figure 6, access to the proposed Toton Station could be provided via the Erewash Valley Trail. Most of Sandiacre would be within 2kms walking distance of the station. The public transport connections could either be made by alterations to local bus services, or via an extension of the NET. If demand estimates were based on the railway trip factors for new railway stations (as outlined in the Ilkeston Station Business Case, and is equivalent to 25 trips per day per 1,000 people) then this could be equivalent to 225 passenger trips per day (the majority of which would head to Nottingham city centre, but could also make use of connection to the University, Beeston and Queen's Medical Centre).

Stanton Regeneration Site

3.17 It is proposed to redevelop the Stanton Ironworks and surrounding area. The site could be the location of 1,950 residential units, and up to 20,000m2 of B1 (offices) and 50,000m2 of B2 / B8 (general industrial uses and warehousing).

3.18 The Transport Assessment (TA) submitted in support of the site indicates that the site could generate 1,700 two-way external trips in the AM peak (i.e. leaving or entering the site, as opposed to trips contained within the site) and 1,730 two-way external trips in the PM peak. However, it is also anticipated that 92% of these trips would be made by car driver & passenger modes, with only 4-6% made by public transport.

3.19 The current public transport strategy envisages the combination of existing Route 14 and the 'Rainbow' 4 (Nottingham to Sandiacre branch) service. This will therefore provide a continuous service between Nottingham and Ilkeston via Sandiacre and the Site. The TA states that the services would use high quality buses offering a journey time of approximately 10-12 minutes between the Site and Ilkeston and 45-50 minutes between the site and Nottingham Broadmarsh Bus Station.

3.20 Given the above improvements, the TA concludes that such improvements would deliver 72 two-way public transport trips in the AM peak (external to the site) and 93 two-way public trips in the PM peak (external to the site). The majority of these trips would be to Nottingham.

3.21 It should also be noted that, in July 2013, Erewash BC revised its Local Plan to indicate that the site would be provided with "at least three busses an hour each way on a service between Ilkeston and Nottingham via the Stanton Regeneration Site. This was seen as a sustainable transport alternative to the use of the private car".

Ilkeston

3.22 There are current proposals to construct a new railway station similar to the provision at Langley Mill and Alfreton. A few services run direct from Langley Mill to London, but the majority of services to the capital require connection at Nottingham.

3.23 The business case supporting the proposed Ilkeston station identified that 5.7% of total demand would be to / from London. In 2035, this is likely to be 49 passengers per average day (with total demand averaged over the full 365 day year), or 65 passengers per average day (with total demand averaged over a 275 working day year).

Other locations

3.24 HS2's modelling work assumes that 76% of existing heavy rail demand to London will transfer to the station at Toton. However the modelling is likely to require further work and refinement.

3.25 It is likely that, to deliver a 76% capture of existing trips from Derby station, there would be a shift to private car modes, at least for the first part of the Derby to London trip which could have a detrimental impact on Derbyshire's highway network, particularly the A52.

3.26 HS2 may also have implications for established rail services to larger urban areas such as Chesterfield and Alfreton as well as communities served by the Derwent Valley Line and services to Burton-on-Trent. Again, this may mean a transfer to private car modes for the first part of the trip towards Birmingham and London. Discussion on related parking impacts are discussed, below.

4. DEVELOPMENT OF AN EFFECTIVE TRANSPORT HUB AT TOTON

4.1 There are a number of issues relating to the development of a station at Toton in terms of creating an effective transport hub. The majority of existing transport hubs can be fitted into the framework identified in the Transport Interchanges toolkit developed by the East Midlands Development Agency (EMDA). This considered:

4.2 National Urban Hubs Located exclusively in city centre, these hubs have multiple modes, serving national (with access to international), sub-regional and local services.

4.3 Regional Urban Hubs Located in town or large sub-urban centres, these operate as local hubs distributing passengers to local networks. They have multiple modes, serving mostly regional routes but with limited access to national networks.

4.4 Sub regional or local interchanges Limited modes are represented, serving local needs. They provide no connection to regional networks.

4.5 Parkway Interchanges These display similar characteristics to Regional Urban Hubs but are found outside main urban areas.

4.6 An HS2 station at Toton (not located exclusively in a city centre) would therefore be a combination of a National Urban Hub and a Parkway Interchange.

4.7 The connectivity assumed in the modelling to date appears to centre on heavy rail assumptions linking the site to the principal urban centres of Nottingham, Derby and Leicester. In addition the proposals assume that NET would be extended across Toton Lane and into the site, providing access to HS2 from just over 30 minutes from Old Market Square, and 62 minutes from Hucknall.

4.8 Given the above, without complementary interventions, there must be a concern it that those living closest to the station are least able to access high-speed services. Furthermore, some knock-on impacts of opening an HS2 station at Toton may result in unwanted side effects for local residential areas. For instance, national hubs within urban centres normally benefit from the parking controls and provision common to a city centre, which may be more difficult to deliver in an area such as Toton. These issues are explored in further detail below.

<u>Providing connection from local communities</u>

4.9 Further extensions of the tram network to Long Eaton or Sandiacre may be justified on the basis of creating connectivity to both HS2 and destinations to the east of the proposed HS2 station. Nottingham.

4.10 Notwithstanding the above, there may be potential to serve the HS2 station via amendments to local bus services. As the site lies on the border of Derbyshire and Nottinghamshire, this would require co-ordination between the two authorities, and commitment from commercial bus operators. However, the existence of specific services to other national transport hubs, such as East Midlands Airport, would appear to indicate that bus operators would be responsive to the opening of a station at Toton.

4.11 The other clear potential for servicing HS2 from local communities would be to make use of the Erewash Valley Trail. The Erewash Valley Trail is noted in the Erewash Local Plan as being a key piece of Green Infrastructure which could support future development.

4.12 As such, the potential of an HS2 station at Toton would be maximised via:

- Extension of the NET across Toton Lane and into the site;
- Provision of walking / cycling connectivity to / from the Erewash Valley Trail;
- Provision of adequate cycling parking and potential cycle hub facilities;
- Design of station in accordance with the Cycle Rail Toolkit (Association of Train Operating Companies, July 2012);
- Provision of bus priority at entries / exits and within the station forecourt.
- Further investigation of the scope for feasibility studies relating to extending the tram to Long Eaton and Sandiacre.
- Upgrading of heavy rail links to existing city stations.

<u>Protecting local residential areas</u>

4.13 Providing good walking / cycling routes from Long Eaton and Sandiacre may unfortunately put (especially the former) at risk of commuter parking starting to occur in residential areas surrounding the station. As such, the development of the station near Toton may require a review of residential parking arrangements to ensure additional pressure for parking is properly managed.

4.14 Similarly, the operator of the Park and Ride at Toton Lane would have to make a decision as to how to manage parking at its site, given that their 1,400 spaces under construction may be more attractively priced than any new parking provision at the HS2 station which would be only be a short tram stop or walk away.

Wider Land-use Changes

4.15 The provision of a station providing fast, regular train services to London (Leeds, Sheffield and Birmingham) will also promote both residential and employment development in the Long Eaton and Sandiacre areas. This would need to be considered in revised Local Plan policy guidance. It would also be sensible to promote an Area Travel Plan Framework to seek to manage trips in the local area if any such major developments do start being promoted alongside the HS2 proposals.

5. CONCLUSION

5.1 Whilst rail and bus services may be capable of meeting much of the current demand for access to the station, planned housing growth in the area and the establishment of the HS2 station will significantly increase the level of demand. To meet local needs infrastructure should be provided to enable pedestrians, cyclists and other traffic to access the site. In addition consideration should be given to adjusting the terminus of the proposed extension into Toton station by extending it to the south and providing a structure to cross the HS2 line, It is recommended that further investigation should be undertaken to assess in more detail the level of demand and the infrastructure needed to support the proposed HS2 station.

6. RECOMMENDATION

6.1 Derbyshire County Council should request that HS2 Ltd extend the proposed tram extension further south to enable access from the south /west side of the new Toton station. This should include a structure capable of carrying a tram over HS2 and heavy rail lines in combination with pedestrian/cycle access.