The Leeds Railway Station (Southern Entrance) Order

296480/RPT10 Revision C - Transport Statement

May 2012
Metro / Network Rail
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Executive Summary

Leeds City Station is one of Network Rail's seventeen managed stations, serving the city centre of Leeds in West Yorkshire, with local, regional and inter-city rail services. At present, it is used by approximately 100,000 passengers per day. A single passenger access and egress point from the platforms serves both the main station entrance at New Station Street and the north concourse, which has entrances to Wellington Street and Princes Square. These three station entrances provide easy access to that part of the city centre which lies to the north of the railway viaduct. This structure bisects the city centre and impedes pedestrian flows to the south.

For a number of years Network Rail and Metro have been developing plans for a southern entrance to Leeds City Station that would provide a new direct pedestrian link to redevelopment areas to the south, and relieve passenger congestion issues at the main station entrance. Various locations and concepts for the Leeds Station Southern Entrance (LSSE) have been explored and a preferred scheme has now been determined, funding has been secured and it is anticipated that LSSE will be open to passengers in 2014.

LSSE comprises a concourse deck situated over the River Aire within an enclosed building which provides pedestrian access via stairs, escalators and lifts to the station Western Footbridge and upper concourse within the station. The building is supported on piers within the river and has link bridges to either bank and also to Dark Neville Street within the railway viaduct structure itself. The proposals also include CCTV, help points, ticketing facilities and passenger information screens.

This report replaces the previous Transport Statement (AECOM September 2009) and has expanded it to consider safety issues, the quality of the access routes to LSSE and local traffic management. Pedestrian links to LSSE will be important in making the new entrance an attractive alternative for users and this can be achieved through improvements on the pedestrian routes to LSSE.

Pedestrian Modelling

Pedestrian modelling was previously undertaken in 2006 by consultants Halcrow and reported on in AECOM’s LSSE Transport Statement in 2009. The modelling reported the following key points:-

- The location with the highest attraction in the AM peak is the Central Riverside zone along Neville Street and Sovereign Street. Other significant areas include the Campfield and Eastern Gateway zones (Marshall’s Mill, City Walk and Victoria Place);
- In the AM peak period, the two principal concentrations of demand for access to the station are from the Hilton Hotel and Blue Apartments Building and the Sweet Street Car Park, with smaller concentrations located at City Walk and other commercial office locations; and
- During the PM peak period the pedestrian demand to the station effectively represents the returning flows from the AM peak movements with some additional concentration in the Central Riverside zone.

Further pedestrian modelling has been undertaken by consultant Hyder to assess the proposed LSSE design in terms of forecast passenger volumes and capacity, this assessment also provides updated estimates of passenger demand. This updated pedestrian modelling is covered in the report ‘Leeds Station Southern Entrance, Pedestrian Modelling and Assessment’.

The updated pedestrian modelling is based on a footfall count undertaken by Jacobs in 2008 of exit flows at the station. As the footfall counts were ‘exit only’ an entry/exit split was derived by Hyder from the various previous counts. To growth the 2008 flows Hyder were requested to utilise the Leeds ‘High’ growth forecast of 62% from 2008 to 2029, based on the Northern Route Utilisation Strategy (RUS).
The updated pedestrian modelling indicates that almost 7,000 passengers may exit the LSSE during the 3 hour morning peak period. The Hyder pedestrian model also provides an indication of the dispersal directions of the passengers which is provided in section 4.2.1.1.

The Hyder pedestrian modelling assessment has concluded that the proposed LSSE design would accommodate the forecast 2029 passenger demands. The report indicates that there may be some issues in relation to the proposed number of ticketing gates, but this can be overcome by increasing the number of gates from 7 to 8 to provide additional capacity.

The modelling results for 2029 suggest that the east link bridge is close to capacity and that an increase of 20% in the volume of passengers may necessitate some form of management intervention during the AM peak period. Potential mitigation measures may include the management of passengers on the western footbridge and a one-way system at ground level to ensure the eastern footbridge was only used for exiting passengers.

It is recommended that the Leeds Station Management Plan should be updated to reflect that LSSE is likely to become the choice of access/egress for those passengers attending local events in Leeds or Leeds United Football Club matches due to improved access to the bus stops and temporary coach stands on Neville Street and Sovereign Street.

**Constructability Phase Impacts**

A Constructability Review report has been prepared by Carillion for Network Rail which deals with the practicalities of building the Leeds Station Southern Entrance. The chosen construction solution involves use of both the local road network and the river to construct LSSE and bring construction materials to site. The construction programme assumes an overall 62 week construction period commencing in the summer of 2013.

The main work area comprises the area around LSSE, the River Aire as far as the ISIS pedestrian footbridge, the land between the Blue Apartments, Little Neville Street and the station viaduct and the arches within the viaduct on the south side of Dark Neville Street, to the west of Little Neville Street.

The main compound area is the site adjacent to the railway and at the end of Wharf Approach. It will mainly be used for welfare and office facilities.

The barge loading / launch site is located at the end of a spur of Water Lane near Bridge End. It compromises a derelict site, the south-western end of Water Lane, the ASDA surface car park and the car park of the Red Lion Public House.

At this early stage it is not possible to make an accurate assessment of the number vehicular deliveries per hour to Little Neville Street (main work site) or Water Lane (barge loading site). However, indicative numbers of vehicles (which are subject to change) are listed below:-

- A maximum of 20 small delivery wagons per day may visit Little Neville Street;
- A maximum of 6 large delivery wagons per day may visit Water Lane but this will not be on a daily basis; and
- It is unlikely that more than 6 barges will be used at any one time during the construction programme.
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Drop-off and Pick-up Facilities

The current LSSE proposal does not include a drop-off facility in the immediate vicinity of the proposed station entrance and it is assumed that passengers will continue to be dropped off on Aire Street and Princes Square (i.e. at the current facility). This is a fundamental change from the previous Transport Statement, and local traffic and access control measures will be used to help prevent vehicular drop off/pick up. As a consequence, the traffic network modelling undertaken in the previous Transport Statement no longer applies because the highway impact has changed and it is considered that the LSSE will not significantly affect the current operation of the highway network.

Operation of the Local Highway Network

The through movement between Little Neville Street and Dark Neville Street is proposed to be blocked by the provision of physical means of access control (exact details to be determined) and Little Neville Street is proposed to be converted to a ‘Pedestrian Zone’ with pedestrian friendly surface style treatment. It is further proposed that access to Dark Neville Street in the vicinity of its junction with Neville Street will be restricted by physical measures in order to reduce or avoid safety and environmental impacts.

It is considered that there will be a slight reduction to current traffic flows on Little Neville Street due to the proposed changes and as a result of the proposed access control measures on Dark Neville Street. Details of the proposals for Little Neville Street and Dark Neville Street are contained in the Mott MacDonald document RPT22 Traffic, Access & Urban Realm.

Removal of pay and display bays

There are currently five formal pay and display parking spaces on Little Neville Street operated by LCC. These are likely to be lost as a result of LSSE scheme proposals. In discussions LCC has indicated that it would not object to the loss of these parking spaces.

Cycle Parking

Cycle parking stands are located on Granary Wharf between the railway viaduct and Watermans Place, close to the landing position of the western link bridge. Due to the large numbers of pedestrians using the link bridge to access LSSE it is considered that the current cycle parking stands will not be able to be used efficiently or safely and will therefore need to be relocated in agreement with Network Rail and key stakeholders.

During previous discussions between Metro / Network Rail and Leeds City Council it was agreed that additional cycle storage provision of x20 spaces would be provided in a vacant viaduct arch on Dark Neville Street. This additional cycle storage would offset and mitigate the loss of the x8 cycle parking spaces on the west bank of the River Aire.

In conclusion LSSE is a major infrastructure improvement for Leeds City Station and will improve pedestrian linkages between the station and the south of the City of Leeds. The scheme will reduce passenger congestion at the main ticket barrier and on the access routes form the station to the south of the city, such as the rotunda staircase and the pedestrian footway on Neville Street. In addition it will provide step-free access between the station and Granary Wharf, Little Neville Street and Dark Neville Street.

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The proposed southern entrance will serve the current and future passenger demand of Leeds City Station and the redevelopment to the south of the city. The scheme will have a minimal impact on traffic but will improve the situation for pedestrians and cyclists in the vicinity of the LSSE. This will be via the proposed public realm improvement works on Little Neville Street and Dark Neville Street and the provision of additional cycle storage.
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1. Introduction

The Leeds Station Southern Entrance (LSSE) is intended to provide a new direct pedestrian link between Leeds City Station and redevelopment to the south of the railway viaduct via Granary Wharf, Little Neville Street and Dark Neville Street. It comprises a concourse deck situated over the River Aire within an enclosed building which provides pedestrian access via stairs, escalators and lifts to the station Western Footbridge and upper concourse. The building is supported on piers within the river and has link bridges to either bank and also to Dark Neville Street within the railway viaduct structure itself.

Rail patronage within Leeds and West Yorkshire has grown at double the national average rate since 2000. With 80% of services in the West Yorkshire area originating or terminating in Leeds Station, this creates congestion for pedestrians, public transport and other transport modes in and around the station. The West Yorkshire Local Transport Plan 3 has forecast that the number of rail passengers travelling to Leeds is predicted to increase by 66% by 2026, but without additional capacity, the growth will be constrained and crowding will worsen the current congestion.

Metro and Network Rail are together seeking powers for the LSSE scheme under sections 1 and 3 of the Transport and Works Act 1992 (TWA). A Transport and Works Act Order (TWAO) is required under sections 1 and 3 of the 1992 Act to authorise:

a) the construction and maintenance of a new station entrance at Leeds Railway Station;
b) the carrying out of works in the Aire and Calder Navigation adjacent to the southern boundary of Leeds Railway Station and associated with a) above;
c) the carrying out of other works and the exercise of powers required in connection with or ancillary to the matters set out in items a) and b) above; and
d) the acquisition of land and rights over land required in connection with items a), b) and c) above.

Although the LSSE scheme gained a grant of full planning approval in May 2010, the promoters now require works powers and therefore a TWAO application will be made. In addition a request for a direction as to deemed planning permission will also be submitted to the Secretary of State under section 90(2A) of the Town and Country Planning Act 1990. An application for conservation area consent is also being submitted in respect of works proposed to be undertaken at Water Lane, Leeds as part of the overall scheme. It is intended that an application for an order will be submitted to the Secretary of State in Spring 2012.

A previous Transport Statement (TS) was produced to accompany the previous planning application which was granted approval in May 2010. The previous TS was produced by AECOM in September 2009 and this assessed and quantified the impacts and benefits of the proposed southern entrance. The previous TS also included proposed improvements to the design to facilitate the new pedestrian route choices and indicated that a vehicular drop off facility would be provided.

Mott MacDonald has been commissioned by Metro to provide planning advice and TWAO documentation for the LSSE scheme. This report replaces the previous Transport Statement and has expanded it to consider safety issues, the quality of the access routes to LSSE and local traffic management. Pedestrian links to LSSE will be important in making it an attractive alternative for users and this can be achieved through improvements on the pedestrian routes to LSSE.
A fundamental change from the previous Transport Statement is that local traffic and access control measures will be used to help prevent vehicular drop off/pick up as this has adverse environmental effects.

1.1 Scheme Objectives

The following scheme objectives were derived as part of the major scheme business case application for funding.

- To improve access to Leeds by sustainable means;
- Maximise growth of the Leeds economy by enhancing its competitive position and facilitating future employment and population growth;
- Support and facilitate the sustainable growth of Leeds, in particular to the South, recognising the importance of its city centre to the future economy of the Leeds City Region;
- To minimise journey times accessing Leeds Station to/from the south;
- To meet existing and future passenger flow requirements to the south of Leeds Station; and
- To ensure the current passenger flows within the station are maintained or improved.

1.2 Scheme Benefits

The key benefits of the scheme include;

- A new pedestrian entrance to the station, which incorporates lifts, escalators and stairs to provide passenger to access to the current western footbridge within the station from ground level either side of the River Aire. The proposals also include CCTV, help points, ticketing facilities and passenger information screens.
- The scheme will provide a direct pedestrian link to and from the southern portion of Leeds City Centre. Work undertaken as part of the ‘Transport for Leeds’ programme of studies has estimated that jobs in the city centre as a whole will increase from around 102,000 in 2009 to 108,000 (+8%) in 2018 and 118,000 (+16%) in 2030. Most new jobs are likely to be located in the expanding southern part of the city centre.
- It is pedestrian modelling carried out for the scheme has estimated that between 22% and 24% of passengers using Leeds Station would use the proposed southern entrance.
- On average it is estimated that each of these passengers would benefit from an estimated time saving of 133 seconds for each trip to or from the station.

1.3 Report Format

This Transport Statement includes the following chapters:

Chapter 2 Existing Situation

This chapter describes the existing situation in terms of the site location, the existing usage of the site and surrounding area, current access routes (both vehicular and non motorised users), public transport provision and Leeds City Station passenger usage.

Chapter 3 Development Proposals

This chapter describes the LSSE scheme in terms of the proposal, its site access (vehicular and non motorised users), its impacts on the surrounding highway network, its effect on loading and servicing, it identifies LSSE passenger accessibility routes and refers to public transport provision.
Chapter 4 Trip Generation and Distribution

This chapter summarises the pedestrian modelling work undertaken at GRIP2 and that undertaken since GRIP4 in terms of the pedestrian demand generated from the new developments to the south of Leeds City Station.

Chapter 5 Construction Phase Impacts

This chapter summarises the LSSE construction strategy, stating the proposed construction site and compound areas, and presents the construction routes via the River Aire and via the road network. It also includes approximate numbers of trips generated during construction.

Chapter 6 Summary

This chapter summarises the impact of the development and why it is considered that the scheme should be approved in transport terms.
2. Existing Situation

2.1 Site Location

Leeds City Station is located in the city centre over Neville Street, Dark Neville Street and Swinegate and is immediately to the south of the Central Business District and south west of the main shopping areas; the Headrow Shopping Centre, Leeds Shopping Plaza and the refurbished Trinity and Burton Arcades (Trinity Leeds). To the south of the station are the Holbeck Urban Village and City Walk commercial districts and the Granary Wharf commercial and residential development. The station is connected to the trunk road network to the south via Bishopgate Street and Neville Street which then connects with Great Wilson Street (A653) and onto the M621 and the wider Motorway network. The station is connected to the west of the city via Wellington Street which then provides access to the A58(M).

The River Aire passes under the station viaduct perpendicular to the alignment of the railway lines through the station. The River Aire is segregated to the north and west of the station from the Leeds and Liverpool Canal which runs parallel to the River in the vicinity of the station. The two waterways join each other to the south of the station viaduct and form the Aire and Calder Navigation.

Photo 2.1: River Aire passing under Leeds City Station

Source: Mott MacDonald
2.2 Existing Site Use

Leeds City Station is one of Network Rail's seventeen managed stations, serving Leeds City Centre with local, regional and inter-city rail services. Network Rail counts indicate that at present, it hosts over 36 million passengers per annum (or 100,000 per day). These are mainly commuters, as well as shoppers, business travellers and leisure visitors.

The proposed LSSE scheme is to be located over the River Aire (Aire & Calder Navigation) to the immediate south of Leeds City Station. The structure is to be joined to the existing station viaduct and connected via link bridges to the east and west banks of the river and via a new footbridge to Dark Neville Street. The site is currently unused as it is located over a river and not part of the navigation.

Photo 2.2: Proposed location of LSSE

![Proposed location of LSSE](Source: Mott MacDonald)

The proposed LSSE structure will link into Dark Neville Street via a replaced pedestrian footbridge and a series of steps and ramps. This is a private road owned by Network Rail which runs under the station viaduct. This road is used for access to parking within the station arches to either side if the river. A road bridge and two parallel pedestrian bridges span the River Aire on Dark Neville Street. The road bridge is closed to traffic and has a 3T maximum gross weight (mgw) weight limit. The footbridges give access for pedestrians between Granary Wharf and Neville Street.

The LSSE structure will also link into the western footbridge within the station and platform 16 (for emergency evacuation only). The western footbridge within the station provides pedestrian access to platforms 9 to 17. The western footbridge narrows at its southern end and it is proposed that it will be widened in this location to provide access into the LSSE.
2.2.1 Land use in the Vicinity of the Site

Several buildings are located on the eastern bank of the river near to where the eastern wing of LSSE will land. The Blue Apartments building is located on the eastern bank of the river; this is a residential development with a Golf Bar in the ground floor which has a balcony overhanging the river. The Hilton Hotel is located to the east of Little Neville Street, with the entrance to the hotel on Neville Street. The UKi Partnerships building is located to the south of Little Neville Street and has a main pedestrian entrance on Neville Street and vehicle access to an underground car park on Little Neville Street.

The western bank of the river and the area between the River Aire, the Leeds and Liverpool Canal and the station viaduct has recently been redeveloped as Granary Wharf. This development includes three large buildings, Watermans Place, the DoubleTree by Hilton Hotel and Candle House, and usage of some of the railway viaduct arches. The Watermans Place development is located on the west bank of the River Aire and is the closest building on Granary Wharf to the proposed location of LSSE. Watermans Place includes 122 apartments and also several cafes, restaurants and opportunities for further commercial properties on the ground floor. The DoubleTree Hotel is located to the west of Watermans Place, across the Graving Dock. The hotel has 333 rooms, as well as meeting rooms for conferences and a restaurant / bar on the 13th floor. The third building on the granary wharf development is Candle House which is located to the west of the DoubleTree Hotel and has 160 residential apartments. An Italian restaurant (Vineataly) is located in the arch nearest to the passageway between Dark Neville Street and Granary Wharf, with a public house (The Hop) located in the two arches west of the Italian restaurant and a Japanese restaurant (Wasabi Tepanyaki) located in two arches to the west of the public house. These properties have an area to the front of the viaduct which is reserved for tables and alfresco drinking and dining.

Photo 2.3: Granary Wharf

Source: Mott MacDonald
The ISIS footbridge over the River Aire is located south of the station viaduct. This footbridge links Little Neville Street with Granary Wharf, via a passageway through Watermans Place.

The redevelopment/regeneration of the area to the south of Leeds City Station includes a variety of the developments which will generate a significant number of pedestrian trips that will add to the existing pedestrian demand from the south, and only grow over time as more developments in this area come to fruition. These developments are described below.

Holbeck Urban Village is located to the south west of Leeds City Station and is a collection of developments providing a mix of uses. Some of the developments have been completed, others are under construction or they have been put on hold owing to the downturn in market conditions. The developments in Holbeck Urban Village include the following:-
- Tower Works;
- Manor Mills;
- Marshall’s Mill;
- Round Foundry; and
- Temple Works.

A more detailed description of the developments in Holbeck Urban Village is provided in Mott MacDonald’s RPT 18 Scheme Location and Design Rationale report.

The Bridgewater Place development is located at the junction of Water Lane with Neville Street and was completed in 2006. It is a large mixed use, 33 storey building comprising offices, residential and retail units.

Leeds City Council held an architectural competition in 2004 for the land known as Criterion Place located to the south of the railway viaduct and east of Neville Street. The ‘Kissing towers” scheme by Ian Simpson Architects won and consisted of apartments, and a hotel. Unfortunately, in July 2008 it was announced that this scheme was cancelled owing to the downturn in the market conditions. More recently another party has expressed interest in the site and is in discussions with Leeds City Council.

Asda House is the head office of ASDA Stores Ltd and is located just off Neville Street to the southeast of the River Aire on Great Wilson Street. It benefits from a large surface and a multi-storey car parks.

The City Walk development is located to the south of Bridgewater Place on the outskirts of the city centre and includes a hotel, a number of office blocks and residential apartment blocks. There are a number of other developments located beyond City Walk on Sweet Street but work on these has yet to begin.

### 2.3 Existing Site Access

The main station entrance, located to the north of the railway viaduct, primarily serves City Square and destinations beyond. Passengers wanting to access or exit the Station from the south of the railway have no alternative but to pass through the tunnel of Neville Street beneath the Station and rise up to the Station entrance via the ‘Rotunda’ steps. The ‘step-free’ access route for mobility impaired users is even longer, with passengers having to continue from Neville Street, onto Bishopgate Street and access the main entrance via New Station Street. The Southern Entrance scheme is designed to address this by providing a new entrance to the south of the station that will provide a direct route to and from the expanding southern portion of Leeds City Centre.
2.3.1 **Little Neville Street**

Little Neville Street is adopted highway under the control of the local highway authority (Leeds City Council) and connects to Neville Street at its eastern end, and Dark Neville Street at its northern end. It provides pedestrian access linking to a footbridge over the River Aire, the UKI building station undercroft and Blue Apartments building. Vehicular access is provided to an underground car park (UKI building), the Blue Apartments and the rear of the Hilton Hotel. There are currently five pay and display car parking spaces on the eastern side of Little Neville Street.

![Photo 2.4: Little Neville Street](image)

Source: Mott Mac Donald

2.3.2 **Dark Neville Street**

Dark Neville Street is a private road situated within the railway station undercroft and is owned by Network Rail. It has gates at its connection with Little Neville Street although we understand that these are not generally closed. At its west end it crosses the River Aire on a bridge although this has a weight restriction of 3 tonnes and appears to be currently closed to all vehicular traffic. At its east end it connects with Neville Street and is the minor arm of a priority T-junction. Dark Neville Street is primarily used to access the car parking spaces within the arches in the undercroft, situated to either side of the road. From observations it would appear that Little Neville Street is used in conjunction with Dark Neville Street as a loop route for some vehicles. We note that Dark Neville Street could be closed (for example at the gates to Little Neville Street) to pedestrians and vehicles by the owner Network Rail.
2.3.3 Granary Wharf

Granary Wharf is a pedestrianised area with servicing and loading to the properties in Granary Wharf via Dark Neville Street and Wharf Approach permitted. However, there is currently no right of way through the Granary Wharf estate except for access to the parking areas under the station for the DoubleTree Hotel and the residential developments.
2.4 Operation of the Local Highway Network

2.4.1 Traffic Flows

A traffic survey was undertaken by Metro on Thursday 7th December 2011 during the AM and PM peak periods to identify the existing use of Little Neville Street. These flows are shown in Figure 2.1 below.

Figure 2.1: Observed Traffic Flows AM - PM Peak December 2011

AM Peak 08:00 to 09:00
(PM Peak) 17:00 to 18:00

Source: Metro

During the periods 0700-1200 and 1300-1800 just short of 400 vehicle movements were recorded on Little Neville Street.

A review of the traffic flows on Little Neville Street throughout the day shows that over one-third of the traffic is either passing through to/from Dark Neville Street or is u-turning presumably because they cannot park or have taken a wrong turn (less likely).

Over 40% of traffic using Little Neville Street is accessing the UKI underground car park and 12% is loading by goods vehicles. These two ‘classes’ of activity must remain within the proposed ‘Pedestrian Zone’ scheme, and it should be noted that they contribute over 50% of the street’s vehicle movements. Observations of the vehicle movements on Little Neville Street suggest that goods vehicles either reverse into Little Neville Street or use Dark Neville Street to enter / egress.
10% of movements are for ‘non-goods vehicle loading’ and ‘parking’ (other than in the UKI building car park) although as noted many of the ‘drive through’ movements are probably seeking parking spaces, so the parking activity could be much higher.

The traffic flows occurring in the AM and PM peak periods are dominated by cars parking at the UKI underground car park (i.e. arriving in the morning peak, and leaving in the evening peak).

2.4.2 Car Park Facilities and Capacity

As stated in the previous LSSE Transport Statement (September 2009), the principal car park serving Leeds City Station is located on Princes Square and includes surface and multi-storey, short-stay car parks, which were observed to be well used at the time of the study.

Further car parking is also available in a privately owned car park within the Arches on Dark Neville Street which provides space for approximately 100 cars. Again, this was observed to be well used at the time of the study. A small pay and display car parking bay is provided on Little Neville Street immediately south of the railway viaduct which provides 5 spaces.

<table>
<thead>
<tr>
<th>Car Park</th>
<th>Capacity</th>
<th>Vacant spaces at start of AM Peak Count</th>
<th>Vacant spaces at start of PM Peak Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Multi-Storey</td>
<td>299</td>
<td>2</td>
<td>28</td>
</tr>
<tr>
<td>Surface Car Park</td>
<td>450</td>
<td>164</td>
<td>133</td>
</tr>
<tr>
<td>Short Stay</td>
<td>38</td>
<td>21</td>
<td>13</td>
</tr>
</tbody>
</table>

Source: Leeds Station Southern Entrance Transport Statement September 2009 - AECOM

2.4.3 Drop off / Pick up Facilities

AECOM undertook AM and PM peak surveys in March 2009 of the drop-offs and pick-ups in Bishopgate Street, Wellington Street (outside Queens Hotel) and in Princes Square. The results of these surveys are shown in Table 2.2 and Table 2.3 below. It should be noted that the drop-off area on Wellington Street/Bishopgate Street also serves the Queens Hotel and as such, these surveys include a large proportion of manoeuvres that are solely associated with the hotel and not the railway station.

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak</th>
<th>Passenger(s) Went</th>
<th>PM Peak</th>
<th>Passenger(s) Went</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bishopgate Street</td>
<td>16</td>
<td>20 North 3 South</td>
<td>22</td>
<td>Various (over 70 not all movements noted)</td>
</tr>
<tr>
<td>Wellington Street (Outside the Queens Hotel)</td>
<td>21</td>
<td>3 East to train station 2 North</td>
<td>26</td>
<td>19 West 4 to Hotel 3 East</td>
</tr>
<tr>
<td>Princes Square</td>
<td>23</td>
<td>22 North 2 South 5 West</td>
<td>10</td>
<td>24 North 4 South</td>
</tr>
</tbody>
</table>

Source: Leeds Station Southern Entrance Transport Statement September 2009 - AECOM

AM Peak Bishopgate Street:-
- 4 Fourways coaches were waiting, all having come from Swinegate/Mill Hill direction;
- 2 other coaches briefly stopped;
- 2 buses stopped; and

296480/BNI/EST/10/C May 2012
http://pims01/pims/lisapi.dll/Open/1501245137
1 LGV loaded in the lay-by.

Table 2.3: Pick-ups AM Peak (08:00-09:00hrs) and PM Peak (17:00 -18:00hrs)

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak</th>
<th>Passenger(s) from</th>
<th>PM Peak</th>
<th>Passenger(s) From</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bishopgate Street</td>
<td>1</td>
<td>Not Known. In bus stop</td>
<td>8</td>
<td>3 North</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>5 South</td>
</tr>
<tr>
<td>Wellington Street (Outside the Queens Hotel)</td>
<td>13</td>
<td>Not known</td>
<td>19</td>
<td>9 West</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10 East</td>
</tr>
<tr>
<td>Princes Square</td>
<td>3</td>
<td>Station entrance</td>
<td>14</td>
<td>10 North</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4 South</td>
</tr>
</tbody>
</table>

Source: Leeds Station Southern Entrance Transport Statement September 2009 - AECOM

It was concluded in the previous Transport Statement that there are relatively small numbers of people being dropped off in both peak periods, and very few of those including people who walk south. Bishopgate Street was observed as having the largest number of people being dropped off in the PM peak period. However, observations made in 2011 and 2012 saw that the drop off area on Princes Square was well used throughout the day and queuing vehicles waiting to use the drop off area extending back beyond the junction with Aire Street during the peak periods.

In the PM peak period nine coaches were observed dropping off passengers in the lay-by on Bishopgate Street (including three Fourway coaches), with seven of the coaches dropping off ten or more passengers.

The total number of passengers observed being dropped off in Bishopgate Street and walking south in the AM peak period was three. The total number of passengers observed in the PM peak period was unconfirmed due to the number coaches dropping passengers off.

A total of 13 people were observed being dropped off in Little Neville Street in the AM peak period.

2.4.4 Loading and Servicing

Loading on New Station Street is only permitted with prior consent from Leeds City Station Management. Loading is permitted on Princes Square between the short stay and multi-storey car parks, and on the west side of Bishopgate Street. The Queens Hotel has a loading delivery access on Bishopgate Street between the loading bay and bus stop. A loading area is provided on Aire Street between Wellington Street and Princes Square.

No formal loading provision is provided on Little Neville Street and double yellow lines are present, indicating no waiting at any time, however the loading regime is not specified as tabs on the kerbs are not present and plates indicating the loading restrictions are not provided. It is understood that servicing vehicles for the Hilton Hotel reverse into Little Neville Street from the junction with Neville Street, to enable them to pull up alongside the southern side of the hotel. A loading bay is provided adjacent to the Blue Apartments on Little Neville Street and it is understood that this is used for servicing of the Golf Bar and the residential apartments.

Double yellow waiting restrictions are in place on Dark Neville Street but it is thought that these restrictions are not enforceable as the Street is private property (owned by Network Rail) and therefore not adopted by the local highway authority. It appears that there may be an informal arrangement in place for servicing of the ‘Jaldi Jaldi’ and newsagent which have service entrances on Dark Neville Street.
2.5 Passenger Accessibility and Routes – Non-motorised User Provision

2.5.1 Pedestrian Routes and Facilities

Within Leeds City Station and beyond the ticket barriers, surface pedestrian access is provided from the station concourse to Platforms 1 to 8. Step free access is provided to all other platforms in the station via escalators and lifts provided on the western footbridge which are supplemented with stairs. Further stepped access is provided via the eastern footbridge to platforms 9 to 17.

Upon passing the ticket barrier in Leeds City Station, passengers have the option to exit the station concourse via the main entrance on New Station Street, or continue to the northern concourse and exit either via Aire Street or Wellington Street. During periods when congestion occurs around the ticket barrier, Leeds City Station Management opens an overflow egress on Platform 8b which links to New Station Street (east of the main entrance).

The western station entrance on Aire Street leads to the pick-up and drop-off area and to the short and long stay car parks on Princes Square. This entrance provides pedestrian links to the west of the city (north of the River Aire).

The northern station entrance on Wellington Street provides links to the west and northwest of the city. Pelican crossings are provided on the desire lines across the busy roads of Wellington Street and Quebec Street and this entrance provides good interchange links to the bus stops on Wellington Street and Infirmary Street.

The main entrance on New Station Street provides links to all directions of the city, albeit convoluted routes to the south and west. The pedestrian routes from this entrance are along New Station Street towards City Square or onto Boar Lane. Further links are provided by the Rotunda steps located opposite the station entrance to Neville Street, and the ‘Swingate’ shortcut which is accessed via the steps off New Station Street between the NCP car park and the railway viaduct. This entrance leads to the taxi rank, cycle parking, and bus stops on New Station Street.

2.5.2 Cycle Routes and Facilities

On-road cycle routes along Neville Street (to the south Leeds City Station) tie into the National Cycle Network (NCN) routes to the west (Route no. 66) and to the east (route no. 67) at the junction with Water Lane, with further links to local routes serving southern city areas. A local cycle route on Park Row (to the north of Leeds City Station) provides further links to West Park, Headingley, Alwoodley and Potternewton. These cycle routes are shown in Figure 2.2.

Cycle parking is provided at the following locations:-
- Inside the station, located on Platform 1;
- Within the short stay parking area on Princes Square;
- Secure cycle parking is provided at Leeds Cycle Point on New Station Street immediately opposite the station entrance; and
- In Granary Wharf on the west bank of the River Aire between the railway viaduct and Watermans Place.

It should be noted that the cycle parking stands on Granary Wharf (x8) are affected by the LSSE scheme and will need to be relocated.
2.6 Public Transport Provision

2.6.1 Buses and Coaches

New Station Street serves as a bus interchange, delivering passengers to Leeds Railway Station and taking them to their destinations throughout the city and further-a-field. Bus services access New Station Street from Boar Lane from both the northwest and east directions.

A bus stand is provided on the nearside of New Station Street located on the Neville Street over bridge, with a further 3 bus stops (S8, S7 and S6) located further along on the nearside and two other bus stops (S10 and S9) located on the island between the station entrance and the taxi rank. These bus stops serve the following routes:-

- S6 serves bus route no.s 4, and 16/16a, some 12 services;
- S7 serves bus route no.s 5, 14, 62/62a, 85/87, 90 and 757, some 12 services;
- S8 serves Leeds City Buses, which runs a service every few minutes;
- S9 serves bus route no. 95, some 5 services; and
- S10 serves bus route no. 19/19a, some 4 services.

Figure 2.3 indicates the locations of the bus stops within the immediate vicinity of Leeds City Station and its surrounding area.
Observations made by AECOM noted coaches dropping off in the bus stop on Bishopgate Street (Referenced Z1 in Figure 2.3 above) impeded buses and loading activities in the bay south of the bus stop.

Match day coaches are provided for Leeds United games, which are queued in the southbound direction on Neville Street under Leeds City Station. It should be noted that during local events such as home games at Leeds United Football Club, that Leeds City Station sees peak surges in passenger volumes much greater than those experiences during typical weekday AM and PM peak periods. The movement of passengers during peak surges are co-ordinated in accord with Leeds City Station Management Plan.

AECOM undertook AM and PM peak surveys of the interchange at New Station Street in March 2009. The total number of bus services arriving during the peak periods are shown below in Table 2.4.

<table>
<thead>
<tr>
<th>Time</th>
<th>Buses</th>
<th>Leeds City Bus</th>
<th>Fourways Coach</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 to 09:00</td>
<td>61</td>
<td>8</td>
<td>0</td>
<td>69</td>
</tr>
<tr>
<td>17:00 to 18:00</td>
<td>62</td>
<td>9</td>
<td>5</td>
<td>76</td>
</tr>
</tbody>
</table>

Source: Leeds Station Southern Entrance Transport Statement September 2009 - AECOM

In addition to the timetabled bus services, AECOM observed a number of other services which picked up passengers during both peak periods. These included: Quarry House buses (Charter Service), and bus service numbers 28, 35, 37, 45, 47, 64, 68, 71, 163, 166 and 167. These other services totalled an additional 28 services in the AM peak and 29 additional services in the PM peak which are included in the totals provided in Table 2.4 above.
2.6.2 Taxis

One of the busiest taxi ranks in Leeds is located on New Station Street and is situated to the east side of a traffic island and passengers are picked up from the offside. Due to its popularity the queue of taxis previously extended back to the junction of New Station Street with Boar Lane causing congestion which affected bus movements along Boar Lane. To overcome this issue, a marshalling system was implemented which stacks taxis on Lower Briggate and Meadow Lane. The taxi marshalling scheme works, utilising marshalls at all ranks who facilitate the movement of taxis from Meadow Lane to Lower Briggate to New Station Street once space becomes available at New Station Street.

AECOM undertook AM and PM peak surveys of the interchange in New Station Street in March 2009. The total number of taxis arriving during the AM and PM peak periods is shown in Table 2.5 below.

Table 2.5: Taxis arriving on New Station Street AM and PM peak

<table>
<thead>
<tr>
<th>Collecting passengers</th>
<th>Driving through without picking up</th>
<th>Dropped off then drove through</th>
<th>Totals</th>
</tr>
</thead>
<tbody>
<tr>
<td>08:00 to 09:00</td>
<td>111</td>
<td>9</td>
<td>123</td>
</tr>
<tr>
<td>17:00 to 18:00</td>
<td>104</td>
<td>17</td>
<td>121</td>
</tr>
</tbody>
</table>

Source: Leeds Station Southern Entrance Transport Statement September 2009 - AECOM

The survey did not record the destinations of the passengers who boarded taxis at the New Station Street rank. To estimate the number of passengers boarding taxis and then travelling to the south of the railway station, AECOM used the proportions observed in the previous Jacobs study. This equates to approximately 17 passengers in the AM peak and 18 in the PM peak taking taxis to the south of the city. It should be noted that these passenger numbers are estimates and may not reflect the true number of taxi passengers to the south of the city.

2.7 Existing Passenger Usage

As reported in AECOM’s LSSE Transport Statement (September 2009) Passenger surveys were undertaken in 2007 by Count on Us as part of work being undertaken by Halcrow to develop a PAXPORT model of Leeds City Station. Additional surveys were undertaken by Jacobs to provide the basis for the development of the Leeds City public transport model. Survey data indicated that the three hours peak comprised in excess of 30,000 passenger movements to and from the station. Table 2.6 presents the flow data collected to date.

Table 2.6: Passenger Flows into/out of Leeds City Station (2007 flows)

<table>
<thead>
<tr>
<th>AM (7am – 10am)</th>
<th>PM (4pm – 7pm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Entering</td>
<td>Exiting</td>
</tr>
<tr>
<td>Entering</td>
<td>Exiting</td>
</tr>
</tbody>
</table>

Source: AECOM’s LSSE Transport Statement (September 2009)
The Jacobs survey included a more detailed breakdown relating to origin/destination, trip type and associated travel modes. The passenger count data exiting the station provided a better understanding of onward travel from the station during the peak AM period (08:00-09:00). Analysis of the data, approx 53% of passengers during the three hour AM peak were surveyed exiting the station during the core peak period of 08:00-09:00. When this percentage was applied to the highest count above it provides a flow of approximately 13,000 passengers exiting the station from both the main exit and the additional exit on platform 8 which is operational during the AM peak. The table below presents details of the onward mode of travel for passengers exiting the station during the 08:00-09:00 AM peak.

Table 2.7: Passenger % transferring from rail to other modes and Distribution applied to AM Peak numbers

<table>
<thead>
<tr>
<th>Rail to Transport Mode</th>
<th>Bus</th>
<th>Free City Centre Bus</th>
<th>Taxi</th>
<th>Short Walk</th>
<th>Longer Walk</th>
<th>Drove and Parked</th>
<th>Cycle</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of passengers (08:00-09:00 survey)</td>
<td>6.5</td>
<td>1.3</td>
<td>0.6</td>
<td>46</td>
<td>44</td>
<td>0.5</td>
<td>0.4</td>
<td>0.7</td>
</tr>
<tr>
<td>Number of passengers (based on 13,000 footfall)</td>
<td>845</td>
<td>169</td>
<td>78</td>
<td>5980</td>
<td>5720</td>
<td>65</td>
<td>52</td>
<td>91</td>
</tr>
</tbody>
</table>

Source: AECOM's LSSE Transport Statement (September 2009)

At the time of the surveys, respondents were also asked about their final destination and exit location from the station. The destinations were then split into 6 general zones:
1. Princess Square area (west to north west)
2. City Square area (north west to north east)
3. Mill Hill/New Station Street (north east to east)
4. New Station Street/Swinegate (east to south east)
5. Sovereign Street/Neville Street (south east to south)
6. Neville Street/Canal Wharf (south to west)

Passengers identifying zones 5 and 6 as their final destination by foot are those that would be likely to use the new southern access. Table 2.8 shows the percentage mode split of individuals accessing zones 5 and 6 in the interview period and how this relates to actual flows during the AM period.

Table 2.8: Southbound Passengers transferring from rail to other modes (08.00-09.00 hours)

<table>
<thead>
<tr>
<th>Rail to Transport Mode</th>
<th>Bus</th>
<th>Free City Centre Bus</th>
<th>Taxi</th>
<th>Short Walk</th>
<th>Longer Walk</th>
<th>Drove and Parked</th>
<th>Cycle</th>
<th>Other</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of passengers (08:00-09:00 survey)</td>
<td>0.4</td>
<td>0</td>
<td>0.07</td>
<td>9</td>
<td>8</td>
<td>0.2</td>
<td>0</td>
<td>0.07</td>
</tr>
<tr>
<td>Number of passengers (based on 13,000 footfall)</td>
<td>52</td>
<td>0</td>
<td>9</td>
<td>1170</td>
<td>1040</td>
<td>26</td>
<td>0</td>
<td>9</td>
</tr>
</tbody>
</table>

Source: AECOM's LSSE Transport Statement (September 2009)

The above table indicates that of the 11,700 people exiting the station (at the time of the surveys) during the core AM peak of 8-9 with their onward journey by foot, 2306 would be likely to use LSSE. These flows would be reversed in the PM peak as passengers travel back home from work.
3. Development Proposals

3.1 Details of Proposed Development

The proposed LSSE scheme is to be located over the River Aire (Aire & Calder Navigation) to the south of Leeds City Station. The structure is to be joined to the existing station viaduct and connected via link bridges to the east and west banks of the river and via a new footbridge to Dark Neville Street.

Figure 3.1: LSSE Scheme Location

Source: Mott MacDonald

The new southern entrance comprises a concourse deck situated over the River Aire within an enclosed building which provides pedestrian access via stairs, escalators and lifts to the Western Footbridge and upper concourse within the station. The building is to be supported on piers within the river and has link bridges to either bank, and also to Dark Neville Street within the railway viaduct structure itself.

It is envisaged that automatic ticket gates will be provided on the Western Footbridge connection to LSSE, in line with the station’s gating requirements, and that ticket purchase facilities may also be provided on the ‘paid’ side of the gates. One-up and one-down escalators along with a set of stairs and two elevators are provided to help cope with any opening year and future demand.
The entrance will connect to walking routes from the south of the station: such as
- Holbeck Urban Village to the southwest via Water Lane;
- Canal Approach and Canal Wharf;
- City Walk from the south via Neville Street;
- either Little Neville Street or Dark Neville Street; and
- Sovereign Street from the southeast via either Little Neville Street or Dark Neville Street.

The previous Transport Statement highlighted that future year growth at the station is predicted to increase rail passenger levels from approximately 2.1m passengers per annum to a projected demand by 2020 of 3.5m passengers per annum. The Hyder Pedestrian Modelling and Assessment report predicts a growth in passengers of 62% between 2008 and 2029 based on the Northern Route Utilisation Strategy (RUS). This growth reflects general growth in rail patronage combined with increased growth within the city centre and the redevelopment of the southern side of the city. It should be noted that it is uncertain what impact the recent recession will have had on the growth in passenger numbers at the station, if any.

3.2 Operation of the Local Highway Network

The previous scheme included minimal interventions on the local highway network, however it was considered that improvements to Little Neville Street and Dark Neville Street would be required as part of the scheme due to the large numbers or pedestrians using the local highway network to access LSSE. The details for these improvement measures can be found in Mott MacDonald report 296480/RPT22 Rev A Traffic, Access & Urban Realm.

3.2.1 Little Neville Street

Little Neville Street will remain as two-way operation and is to become a ‘Pedestrian Zone’ with a prohibition of driving (motor vehicles only) with specified exemptions to permit access to the users of the UKI underground car park, the Blue Apartments, the Hilton Hotel and general service access. Vehicular access onto Dark Neville Street from Little Neville Street and vice-versa will be blocked via physical means of access control (exact details to be determined). This is to prevent the through movement between these two roads which would facilitate a drop-off / pick-up movement which is to be discouraged. It is also to prevent access and egress to the car parking spaces within the station undercroft via Little Neville Street in order to reduce potential conflicts in the ‘Pedestrian Zone’. This access control barrier should not impede the movement of pedestrians or cyclists.

A turning head will be provided on Little Neville Street in the immediate vicinity of the Railway Viaduct. It would not be delineated by a kerb, but by street furniture, bollards and trees. This would mean that during general operation the turning head space would be part of the wider public realm improvements.

It has been agreed with Leeds City Council that Little Neville Street will be designated as a ‘Pedestrian Zone’ with an exception for access to off-street properties and loading by goods vehicles restricted to outside of the peak periods. This will reflect to drivers of vehicles passing through Little Neville Street that the space is pedestrian dominated and that vehicles should proceed with caution. Providing multiple access deterrents such as a ‘Pedestrian Zone’, signage and pedestrian friendly surface and layout, would all help reinforce the message to vehicle drivers that unauthorised users should not be on Little Neville Street and that authorised users should proceed with caution. This scheme is shown in Figure 3.2 and in Appendix B.
Key features of the improvement scheme on Little Neville Street and Dark Neville Street are:

- the raising of the existing carriageway to provide pedestrian friendly space allowing free movement across footpath and carriageway
- the use of a 30mm kerb check to assist with drainage
- the combination of high quality natural stone products with less costly widely available highway materials to create an attainable, maintainable, but high quality scheme – all paving is on a full carriageway construction
- the use of contemporary, well detailed street furniture, tree planting and lighting
- re-use of existing basalt sets from Little Neville Street laid to diagonal pattern
- introduction of access control measures on the entrance to Dark Neville Street
- the focusing of higher quality finishes and tree planting in the larger area of public open space nearer the LSSE
- the creation of an at-grade crossing to the exit from Little Neville Street
- highly visible signage at the entrance to Little Neville Street making it clear that only vehicles accessing the properties on Little Neville Street are permitted to use it, for example the UKI Partnerships car park.
- the retention of bollards on the southern portion of Little Neville Street on the assumption that cellars/underground structures need protecting
3.2.2 Dark Neville Street

Currently vehicles are free to use Dark Neville Street as an access route to Little Neville Street albeit via a private road. It is predicted (in the ‘Pedestrian Modelling and Assessment’ report) that the LSSE will accommodate 9,000 to 10,000 pedestrians in a three hour peak period by 2029, with a large proportion using Dark Neville Street. This represents a significant increase in the number of pedestrians on Dark Neville Street and there is concern that mixing this number of pedestrians with the current parking access may lead to road safety issues and/or congestion issues.

The future function of the street will become predominantly pedestrian dominated (section between LSSE and Little Neville Street) when LSSE is implemented due to the large flows of pedestrians. The current road surface effectively operates as a ‘shared space’ as there are currently no kerbs; however the function of the street is currently vehicle dominated with little to no provision for pedestrians. Unless access controls are implemented to restrict vehicular access along Dark Neville Street it is likely that significant numbers of vehicles would use the route for vehicular drop off at LSSE resulting in safety implications, environmental impacts and congestion. Network Rail has agreed to the principle of some form of access control along Dark Neville Street although the details and implementation will be resolved at a later stage.

At present there are arches on either side of Dark Neville Street which are used by a private car parking company. The arches on the south side of Dark Neville Street are not as extensive as those on the northern side of the street and have the potential for between 2 and 10 vehicles per arch, depending upon the size of the arch. The entrance/exit to LSSE on Dark Neville Street is on the south side of the street and it is believed that pedestrians accessing LSSE will predominantly be on the south side of the street. One of the main concerns is the interaction between pedestrians walking along the south side of Dark Neville Street and vehicles turning into and out of the arches on the south side of the street.

It is proposed that a 3m wide, pedestrian route / ‘safe space’ is provided along the south side of Dark Neville Street connecting LSSE with Little Neville Street. It is recommended (although not provided for in the current promoted scheme) that this demarcated pedestrian route is extended along the south side of Dark Neville Street between Little Neville Street and Neville Street. This would avoid the trafficked carriageway slewing in the vicinity of Little Neville Street and help improve pedestrian safety along the full length of Dark Neville Street. The surfacing would be consistent with that used on Little Neville Street and would connect the two areas via a demarcated pedestrian route through the viaduct arch. The demarcation between the pedestrian route and the carriageway has not currently been specified but could be a delineator according to the latest Shared Space guidance to satisfy the needs of visually impaired pedestrians. This scheme outlined above is shown in Figure 3.2 and Appendix B.

The following additional measures to improve safety and personal security are also included as part of the scheme; additional lighting, signage, tactile paving and delineators for assisting blind and visually impaired users.

3.2.2.1 Access Control Measures

Without access control measures and regardless of the signage adopted, it is likely that large numbers of vehicles would use Dark Neville Street to attempt to drop off passengers for LSSE. This would create congestion which may block access to the car parking spaces and may potentially create a health issue for pedestrians requiring additional ventilation. Therefore, it is recommended that physical access control measures are put in place on Dark Neville Street and that this be in the form of an access control barrier.
near to its junction with Neville Street. This barrier should not impede the movement of pedestrians or cyclists.

The access control barrier would need to be of a type that minimised delay to authorised users entering the restricted area so as to reduce any blocking back onto Neville Street. The exact form of the access control measure has not been specified. It may take the form of a physical barrier such as an automatic arm combined with a Key pad or swipe card facility. Whatever form the access control measure takes it is envisaged that a parking attendant from the underground parking area, member of British Transport Police or other attendant would be able to override the system to allow access for emergency service vehicles. Additionally if servicing or delivery vehicles require access they will be provided with the means to gain entry or an attendant will be able to allow access.

To allow smooth and unconstrained egress from the car parking under the rail station it is proposed that the egress from Dark Neville Street is either free flow or a barrier of a suitable type to prevent vehicles from bypassing the access control barrier but to allow unrestricted egress. Any access control measure on Dark Neville Street would need to be set back from the junction with Neville Street so that a large vehicle could safely wait at the access control measure without extending back into Neville Street.

3.2.3 LCC Scheme at Neville Street / Little Neville Street junction

LSSE will significantly increase the numbers of pedestrians wishing to cross Neville Street, in particular towards Sovereign Street and the Asda headquarters building. The GRIP4 proposals and current scheme do not provide for any additional pedestrian crossing facilities of Neville Street. Given the likely pedestrian demand increase at the junction of Neville Street and Sovereign Street, a signal controlled crossing facility would help improve pedestrian safety.

A junction improvement scheme to provide signalised pedestrian crossing facilities over Neville Street at its junction with Little Neville Street and Sovereign Street is under development by Leeds City Council (LCC). This scheme also includes for a prescribed ahead only movement on Little Neville Street onto Sovereign Street which would make Little Neville Street less attractive to general traffic as they would have to take a convoluted route to proceed in a southerly direction. See Appendix A which shows LCC’s proposed junction layout.

3.2.4 Car Park Facilities and Capacity

There are currently five formal pay and display parking spaces on Little Neville Street operated by LCC. These parking spaces will be lost as a result of LSSE scheme proposals. Discussions have taken place with the local highway authority, LCC, and they have indicated that they would not object to the loss of these spaces. If the LCC view changes or it becomes an issue during public consultation, re-provision of the parking spaces may be possible within an arch off Dark Neville Street.

3.2.5 Drop-off and Pick-up Area

The previous Transport Statement (AECOM) contains a Proposed Improvements chapter which discusses options for a vehicular drop-off area for passengers on Little Neville Street. Such a drop-off area requires traffic to be routed in a loop via Little Neville Street and Dark Neville Street as turning vehicles around in the highway would be difficult given local constraints. We have reviewed the drop-off proposals in conjunction with the scheme promoters and do not consider them to be appropriate in the context of the current scheme; this is for the following reasons:

296480/BNI/EST/10/C May 2012
http://pims01/pims/lisapi.dll/Open/1501245137
The previous (to be updated) pedestrian flow modelling indicates that of the 20,000 passengers expected to use LSSE on a daily basis, a large proportion will traverse Dark Neville Street and/or Little Neville Street. The provision of a drop-off facility would significantly increase the number of vehicles on Little Neville Street / Dark Neville Street and is likely to lead to queuing traffic and congestion. This would result in an increased likelihood of conflicts between pedestrians and vehicles albeit in a low speed environment.

All vehicles that would drop-off or pick-up on Little Neville Street or Dark Neville Street would have to perform a 3-point turn to exit. These turning movements may cause congestion and may also lead to conflicts between turning vehicles and pedestrians.

Traffic congestion on Little Neville Street and Dark Neville Street may result in pedestrian intimidation in what would be a car dominated environment with vehicles jostling to drop off passengers. We would be concerned about the attractiveness of the LSSE access routes to pedestrians, and this may negatively impact on the number of users.

Queuing vehicles on Dark Neville Street in proximity to large numbers of pedestrians may be a concern given the confined nature of the road in the undercroft, and potential for worsening of air quality in that locality.

Queuing vehicles on Dark Neville Street may block access to the car parking within the undercroft and this may lead to concerns from Network Rail (infrastructure owner) over possible impacts on their attractiveness to users and long term revenue potential.

Queuing vehicles on Little Neville Street may block access to the UKI car park and the Blue Apartments, potentially leading to objections and increased scheme delivery risk.

A large through movement of vehicles on Dark Neville Street from a drop-off facility on Little Neville Street may compromise the viability of any future retail aspirations on Dark Neville Street.

An alternative vehicular drop-off facility exists on the north side of the station and this is only a few minutes away for vehicles travelling from the south. It is understood that Network Rail are considering enhancing this drop off facility in the future.

Therefore a vehicular drop-off facility is not provided for LSSE in the current scheme and control measures are to be taken to prevent any drop off / pick up activity in the vicinity of the entrance. Also control of drop-offs and pick-ups is to be pursued further a field with the introduction of Traffic Regulation Orders on Canal Wharf and Wharf Approach to limit waiting and loading.

3.2.6 Loading and Servicing

The maintenance of the LSSE will be via both the local road network and the River Aire. General cleaning requirements, including window cleaning of the glazed front of the LSSE will be via Dark Neville Street. It is understood that a small mobile platform will be employed, which will be positioned on the balcony on the front of the station entrance. This will then be used to clean the glazing.

Servicing on Little Neville Street will be during specified hours as set out in the Traffic Regulation Order for the ‘Pedestrian Zone’.

3.3 Passenger Accessibility and Routes – Non-motorised User Provision

3.3.1 Pedestrian Routes and Facilities

LSSE is primarily intended to serve pedestrians accessing the station from the southern areas of Leeds city centre. To meet this purpose, the entrance is located so as to provide connections to both the east and
west of the River Aire and Neville Street. Figure 3.3 shows the access points to the LSSE and the key non motorised routes in the immediate vicinity of the entrance. The main pedestrian desire lines to the south of Leeds Railway Station include:

- Routes to the Calls Commercial District to the east of Neville Street;
- Routes to the South of Leeds and further commercial areas along Neville Street;
- Routes via Granary Wharf area towards Holbeck Urban Village; and
- Routes along the Canal towpath to the west of Leeds.

Non motorised user links to LSSE will be important in making the scheme an attractive alternative to other modes and this can be achieved through improvements in lighting, journey ambiance, urban realm and personal safety. These improvements, combined with the proposed public realm scheme, will lead to better passive surveillance and personal security and will improve accessibility to LSSE.

As shown in Figure 3.3, LSSE provides step free access (shown with green arrows) via ramps on both banks of the River Aire with links to Granary Wharf and Dark Neville Street. Stepped access (shown with red arrows) is provided to both banks of the River Aire via the link bridges situated on the outside edge of the railway viaduct and further stepped access on Dark Neville Street which ties into landing points on the ramps which provide pedestrian links to Dark Neville Street and Little Neville Street. The footbridge reconstructed as part of the ISIS development provides stepped and step free access over the River Aire between Granary Wharf and Little Neville Street.
The proposed improvements to Little Neville Street and Dark Neville Street shown in Figure 3.2, including the provision of pedestrian friendly surfaces and minimal up-stand kerbs, will benefit mobility impaired users and tie disabled access into the surrounding street network.

### 3.3.2 Pedestrian Route Signing

The main mode of transport used to access LSSE will be by foot, and as such appropriate pedestrian signage will be required to inform pedestrians travelling from the south of the city. Therefore it is recommended that finger post signing is provided to advise non-motorised users of the route to LSSE, at the following locations:-

- Swinegate / The Calls
- Sovereign Street / Swinegate;
- Sovereign Street / Neville Street / Little Neville Street;
- Granary Wharf;
- Canal Wharf / Water Approach;
- Neville Street / Dark Neville Street;
- Holbeck Urban Village; and
- Bridgewater Place / City Walk.

### 3.3.3 Leeds United Football Club Home Match Days and Other Local Events

Owing to the improved integration between LSSE and the bus stops on Neville Street it is likely that LSSE would become the natural choice of access/egress for passengers boarding and alighting buses on Neville Street. It is therefore recommended that a passenger management strategy is developed with all stakeholders to facilitate surges in passenger volumes occurring on match days and other local events.

### 3.3.4 Discounted Access Routes

A narrow alleyway is located between the Hilton Hotel and the railway viaduct and runs between Little Neville Street and Neville Street. This alleyway is currently used for parking (assumed to be associated with the Hilton Hotel), refuse storage and refuse compactors. There are also fire exits opening onto the alleyway from the Hilton Hotel and the rear of the railway viaduct arches.

It has been suggested that this alleyway could be utilised to provide an additional pedestrian route to LSSE from Neville Street. However this route is generally unpleasant, being confined by tall buildings on either side, populated with refuse collection bins and partially oversailed by concrete balconies which appear to be in a poor state of repair and on occasion drip water into the alleyway. Furthermore, Hilton (UK) Hotels was granted planning permission in August 2011 to change the use of part of their ground floor into a car park, which provides vehicular egress onto Little Neville Street immediately next to the railway viaduct.

Alternative pedestrian routes exist via Dark Neville Street and Little Neville Street and it is proposed to enhance these (as part of the LSSE scheme) to provide more emphasis on walking routes. Given the alternatives available, cost and likely operational issues for the Hilton Hotel it is recommended that the land between the hotel and railway viaduct is not promoted as a pedestrian route for the scheme.

### 3.3.5 Cycle Routes and Facilities

There are x8 cycle parking stands currently provided on Granary Wharf, on the west bank of the River Aire between the railway viaduct and Waterman Place. The western link bridge ties into the western bank of the
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River Aire close to where the cycle stands are located. Due to the large numbers of pedestrians using the link bridge to access LSSE it is considered that the current cycle parking stands will not be able to be used efficiently or safely and will therefore need to be relocated in agreement with Network Rail and key stakeholders.

During previous discussions between Metro / Network Rail and Leeds City Council it was agreed that additional cycle storage provision of x20 spaces would be provided in a vacant viaduct arch on Dark Neville Street. This additional cycle storage would offset and mitigate the loss of the x8 cycle parking spaces on the west bank of the River Aire.

In addition it should be noted that the ‘Pedestrian Zone’ on Little Neville Street will apply to motor vehicles only and therefore cycling will not be prohibited within the ‘Pedestrian Zone’.

3.4 Public Transport Provision

3.4.1 Buses and Coaches

There are no proposals as part of the LSSE scheme to improve/upgrade the existing bus and coach provision. However, it should be noted that LSSE will be located in close proximity to the existing bus stops along Neville Street which may encourage modal shift since it improves integration between buses and trains.

3.4.2 Taxis

The LSSE scheme does not include for the provision of taxi stands as it is focused on the movement of pedestrians, however it is envisaged that taxis would want to gain access to Little Neville Street to pick up and drop off passengers. Due to the large number of taxis on New Station Street, taxi drivers may see Little Neville Street as a convenient location to pick up a fare where they do not have to join the back of a long queue, as they currently do on New Station Street.

LSSE proposals would present very limited opportunities (due to space constraints) for a taxi rank on Little Neville Street. Therefore any such facility would require careful vehicle management by a marshal to help avoid congestion. Given the limited room for vehicle storage and turnaround (should access to the Dark Arches be blocked as part of local traffic management) it is suggested that a taxi rank is not appropriate for LSSE. If a taxi rank were provided it is likely that passengers on many of the southern platforms would follow taxi signs directing them to use LSSE when they could equally well use the taxi rank at the main entrance, adding to congestion in Little Neville Street. LSSE is intended to be a pedestrian access point and not an alternative route to a further taxi rank. Therefore the LSSE scheme does not include for the provision of a taxi rank in the vicinity of LSSE.

A large and well managed taxi rank already exists serving the station main entrance and this offers waiting facilities under cover. Station signage to a single taxi rank (at the main entrance) would provide more clarity for passengers.
4. Trip Generation and Distribution

4.1 Previous Transport Statement (2009)

4.1.1 Pedestrian Modelling

Pedestrian catchment modelling was previously undertaken in 2006 by consultants Halcrow and reported on in AECOM’s LSSE Transport Statement in 2009. The modelling considered generated pedestrian trips from new and proposed development within a 1km catchment area to the south of Leeds City Station. Developments were grouped to create zoning (geographically) as shown in Figure 4.1 below.

Figure 4.1: Halcrow South Leeds Zone Plan: Trips Attracted from Leeds Station

Source: Halcrow, 'Data Collection Results and Analysis (Tasks 4 and 5)', Figure 11, CTDAHC000/TN1, July 2006

It should be noted that since this work was undertaken a number of the developments proposed in 2009 have not come to fruition owing to the downturn in market conditions and other factors.

The modelling reported the following key points:-

- The location with the highest attraction in the AM peak is the Central Riverside zone along Neville Street and Sovereign Street. Other significant areas include the Campfield and Eastern Gateway zones (Marshall’s Mill, City Walk and Victoria Place) (Figure 4.1);

- For the AM peak period, the two principal concentrations of demand for access to the station are from the Hilton Hotel and Blue Apartments Building and the Sweet Street Car Park, with smaller concentrations located at City Walk and other commercial office locations; and

- During the PM peak period the pedestrian demand to the station effectively represents the returning flows from the AM peak movements with some additional concentration in the Central Riverside zone.
The zonal attraction for trips from the station is shown in Figure 4.1 with Table 4.1 providing a brief summary of pedestrian demand/attraction by location and period.

Table 4.1: Pedestrian Zonal Demand Distribution (Bandings) for South of Leeds Station (2006)

<table>
<thead>
<tr>
<th>Area</th>
<th>Demand (trips to the station)</th>
<th>Attraction (trips from the station)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tower Works</td>
<td>No Demand</td>
<td>No Demand</td>
</tr>
<tr>
<td>Temple Works</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Granary Wharf</td>
<td>High</td>
<td>Low</td>
</tr>
<tr>
<td>Camp Field</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Eastern Gateway</td>
<td>Low</td>
<td>Low</td>
</tr>
<tr>
<td>Southern Gateway</td>
<td>Medium</td>
<td>Low</td>
</tr>
<tr>
<td>Central Riverside</td>
<td>Low</td>
<td>High</td>
</tr>
<tr>
<td>South Bank</td>
<td>No Demand</td>
<td>Low</td>
</tr>
<tr>
<td>Office and Retail Parks</td>
<td>No Demand</td>
<td>Low</td>
</tr>
<tr>
<td>Apex</td>
<td>No Demand</td>
<td>Low</td>
</tr>
</tbody>
</table>

Source: Halcrow, ‘Data Collection Results and Analysis (Tasks 4 and 5)’, CTDAHC000/TN1, July 2006

*The Halcrow note specifies percentage ranges on the chart but does not provide details, these have been categorised above as No Demand, Low (<4%-8%, Medium (8% - 12%) and High (12% – 20%) in the absence of detailed results, with the predominate category being applied where demand was recorded. For the AM distribution of trip demand to the station the categories are amended to No Demand, Low (<8%-16%, Medium (16% - 24%) and High (24% – 40%).

It should be noted that these surveys were based on a sample pedestrian interview survey of 260 pedestrians at the rotunda staircase. Approximately 60%-70% of the pedestrians interviewed were passengers from Leeds City Station heading towards the south. Furthermore the resultant sample results (approximately 182 pedestrians) represent only approximately 14% of the 1,300 passenger trips observed in the peak hour and may therefore not be fully representative of the actual demand.

The results of the 2006 Halcrow survey should be treated with a degree of caution as development has subsequently taken place at Granary Wharf, Holbeck Urban Village and Bridgewater Place.

4.1.2 Traffic Network Performance

AECOM previously prepared a VISSIM model to determine the impacts of the LSSE on local highway network. This was based on the scheme having drop-off and pick-up facilities on Little Neville Street and vehicles re-directing from the Princess Square facility. As the current scheme does not include drop-off and pick-up facilities on Little Neville Street it is considered that the scheme will not have any beneficial or negative impacts on the wider traffic network.
4.2 Current Pedestrian Modelling (2012) and Traffic Impacts

4.2.1 Pedestrian and Passenger Demand Modelling

4.2.1.1 Hyder Pedestrian Modelling and Assessment of Entry and Exit flows for LSSE

Further pedestrian modelling has been undertaken by consultant Hyder to assess the proposed LSSE design in terms of forecast passenger volumes and capacity, this assessment will also provide updated estimates of passenger demand. This updated pedestrian modelling is covered in the report ‘Leeds Station Southern Entrance, Pedestrian Modelling and Assessment’. The updated pedestrian modelling covers the following periods:
- AM Weekday Period – 0700 – 1000 hours;
- PM Weekday Period – 1600 – 1900 hours.

The updated pedestrian modelling is based on a footfall count undertaken by Jacobs in 2008 of exit flows at the station. The footfall survey was carried out over three hours in each of the peaks with the survey undertaken on a Wednesday in October 2008. As the footfall counts were ‘exit only’ an entry/exit split was derived by Hyder from the various previous counts.

To growth the 2008 flows Hyder were requested to utilise the Leeds ‘High’ growth forecast of 62% from 2008 to 2029, based on the Northern Route Utilisation Strategy (RUS). It has been agreed that no additional background growth is to be included as RUS includes strategic land development aspirations.

Table 4.2 shows the results of the previous counts in 2008 along with the increased flows for 2029.

<table>
<thead>
<tr>
<th></th>
<th>AM Peak Period</th>
<th>Total</th>
<th>PM Peak Period</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter</td>
<td>Exit</td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>2008</td>
<td>4,846</td>
<td>19,382</td>
<td>24,228</td>
<td></td>
</tr>
<tr>
<td>2029</td>
<td>7,851</td>
<td>31,399</td>
<td>39,250</td>
<td></td>
</tr>
</tbody>
</table>

Source: LSSE ‘2029’ Normal Operation Analysis & Results, Hyder

The revised 2031 Leeds Transport Model (LTM) has forecast a passenger usage level for LSSE of 22% in the AM peak, and 24% in the PM peak, out of the total passenger entries/exits from Leeds City Station. This is a higher percentage than envisaged in previous modelling work and strengthens the case for LSSE. (i.e. the 5.1:1 estimated benefit to cost ratio would be improved since a greater number of pedestrians would use the scheme). Following further analysis by Hyder the following entry and exit splits have been established.
- AM Peak Entry – 34% and Exit – 21%;
- PM Peak Entry – 22% and Exit – 39%.

Table 4.3 shows the predicted volumes of passengers who will use LSSE in the AM and PM 3 hour peak periods based on the entry and exit splits above.
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Table 4.3: Predicted Entry/Exit Flows for LSSE

<table>
<thead>
<tr>
<th>AM Peak Period</th>
<th>PM Peak Period</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>Hyder LSSE Flow 3hrs</td>
<td>2,669</td>
</tr>
</tbody>
</table>

Source: LSSE ‘2029’ Normal Operation Analysis & Results, Hyder

The table above reveals that almost 7,000 passengers may exit the LSSE during the 3 hour morning peak period. The Hyder pedestrian model also provides an indication of the dispersal directions of the passengers, the results of which are summarised in Table 4.4 below. These splits are based on initial analysis by Metro which concluded that circa 66% would entry/exit from the east and 34% from the west of LSSE during the AM and PM peak periods.

Table 4.4: LSSE Percentage Total Entry/Exit Passenger Distribution (2029)

<table>
<thead>
<tr>
<th></th>
<th>West</th>
<th></th>
<th>East</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>Exit</td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>AM Peak Period</td>
<td>36%</td>
<td>34%</td>
<td>64%</td>
</tr>
<tr>
<td>PM Peak Period</td>
<td>39%</td>
<td>52%</td>
<td>61%</td>
</tr>
</tbody>
</table>

Source: Hyder - Pedestrian Modelling and Assessment 2012

Using the total modelled flows from Table 4.3 and the percentages from Table 4.4, the distribution of the 3-hour peak flows are provided in Table 4.5 below.

Table 4.5: LSSE Flow Total Entry/Exit Passenger Distribution (2029)

<table>
<thead>
<tr>
<th></th>
<th>West</th>
<th></th>
<th>East</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enter</td>
<td>Exit</td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>AM Peak Period</td>
<td>959</td>
<td>2,275</td>
<td>1,710</td>
</tr>
<tr>
<td>PM Peak Period</td>
<td>2,244</td>
<td>1,797</td>
<td>3,554</td>
</tr>
</tbody>
</table>

Source: Hyder - Pedestrian Modelling and Assessment 2012

The Hyder modelling assessment has further assumed that 90% of LSSE users will route to/from LSSE via the link bridges, with the remaining 10% using the back entrance onto Dark Neville Street. The percentage split of pedestrians using the ramps or the stairs to gain access/egress to Dark Neville Street has not been indicated. Using this assumption the distribution of pedestrians equates to the pedestrian flows provided in Table 4.6.
Table 4.6: LSSE Flow Total Entry/Exit Passenger Distribution by Accesses (2029)

<table>
<thead>
<tr>
<th>Location</th>
<th>AM Peak Period</th>
<th>PM Peak Period</th>
<th>AM Peak Period</th>
<th>PM Peak Period</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Enter</td>
<td>Exit</td>
<td>Enter</td>
<td>Exit</td>
</tr>
<tr>
<td>Dark Neville Street</td>
<td>96</td>
<td>227</td>
<td>171</td>
<td>432</td>
</tr>
<tr>
<td></td>
<td>224</td>
<td>180</td>
<td>355</td>
<td>163</td>
</tr>
<tr>
<td>Granary Wharf</td>
<td>863</td>
<td>2,048</td>
<td>1,539</td>
<td>3,887</td>
</tr>
<tr>
<td></td>
<td>2,020</td>
<td>1,617</td>
<td>3,199</td>
<td>1,466</td>
</tr>
</tbody>
</table>

Source: Hyder - Pedestrian Modelling and Assessment 2012

The Hyder pedestrian modelling assessment has concluded that the proposed LSSE design would accommodate the forecast 2029 passenger demands. The report indicates that there may be some issues in relation to the proposed number of ticketing gates, but this can be overcome by increasing the number of gates from 7 to 8 to provide additional capacity.

The modelling results for 2029 suggest that the east link bridge is close to capacity and that an increase of 20% in the volume of passengers may necessitate some form of management intervention during the AM peak period. Potential mitigation measures may include the management of passengers on the western footbridge and a one-way system at ground level to ensure the eastern footbridge was only used for exiting passengers.

Additionally the pedestrian modelling assessment has concluded that the LSSE will provide an additional means of evacuation during and emergency event and it would therefore contribute positively to the overall station evacuation management strategy.

4.2.1.2 Pedestrian movements to LSSE from the wider area

In addition to the modelling of the pedestrian flows within the LSSE building and pedestrian demand at the access points, Hyder have also considered the wider demand for access to Leeds station and the catchment for that demand. Hyder has provided estimates of passenger demand and pedestrian flows for the station based on the revised Leeds Transport Model.

The revised pedestrian model has provided an indication of the dispersal directions of the passengers on a zone-to-zone basis, with the zoning of areas in central and south Leeds shown in Figure 4.2 to Figure 4.6. The individual zone demand for trips to and from the station has been applied to the zones, and colour coding applied to the zones to indicate the level of demand. The colours vary according to the proportion of the total demand they generate. Dark green indicates a lower proportion of the modelled demand, lightening through yellow and orange to dark red to indicate areas with the highest overall proportion of the demand.

These results have been summarised in Table 4.7, showing the demand for trips to/from the station in the peak hours by approximate land blocks bounded by Neville Street which are more likely to use LSSE than the existing entrances once the southern entrance is operational. The distribution of these results is broadly comparable with the results from the Halcrow modelling for LSSE which used similar zoning, but focused on south Leeds but with smaller zones.
Table 4.7: Passenger Zonal Demand Distribution for 2031

<table>
<thead>
<tr>
<th>Area</th>
<th>AM Demand (to the station)</th>
<th>AM Attraction (from the station)</th>
<th>PM Demand (to the station)</th>
<th>PM Attraction (from the station)</th>
</tr>
</thead>
<tbody>
<tr>
<td>West of Neville Street*</td>
<td>4%†</td>
<td>4%†</td>
<td>5%</td>
<td>14%†</td>
</tr>
<tr>
<td>East of Neville Street*</td>
<td>4%†</td>
<td>6%†</td>
<td>6%†</td>
<td>6%</td>
</tr>
<tr>
<td>South of Neville Street*</td>
<td>10%</td>
<td>5%</td>
<td>6%</td>
<td>5%</td>
</tr>
</tbody>
</table>

Source: Hyder 2012

* West of Neville Street (zones 124, 125 and 131) covering Granary Wharf and Holbeck Urban Village; East of Neville Street (zones 125 and 136) covering Sovereign Place and sites between Neville Street and Swinegate; South of Neville Street (zones 134, 135 and 148) covering areas south of Water Lane and Great Wilson Street; and † zone 125 spans Neville Street and is not apportioned.

The analysis of the results in Table 4.7 suggests that the demand for passengers to the station is evenly distributed to the east and west of Neville Street, except in the PM peak hour where there is a higher demand for access to the western bank (Granary Wharf (5%) and Holbeck (9%)). Similarly the distribution south of Water Lane / Great Wilson Street in the periods is relatively even except for a high percentage of trip generated from City Walk (including Lateral).

The percentages presented on the plans (Figure 4.3 to Figure 4.6) are the total rail user passenger demand for that zone; with the plans also showing the three existing entrances/access points, the access routes via the Rotunda steps and Swinegate, as well as proposed LSSE locations. Figure 4.2 shows the zoned overall demand for trips from the LTM to/from the station during the AM and PM peak hours.

Figure 4.2: Hyder Passenger Demand Modelling (2012): 2031 ‘Overall Demand Distribution’

Source: Hyder 2012 data, Mott MacDonald plan

* based summation of the inbound and outbound flows for both the AM and PM peak hours to provide an indication of the global demand during the day.
The demand forecasts suggest that there are areas of high rail user demand to the south of the railway station and east of Neville Street; in particular Sovereign Place and Swinegate. Although these locations may utilise LSSE it is likely that many of these passengers would continue to use the existing Swinegate Shortcut (providing access to New Station Street from Swinegate) with LSSE likely to provide greater additional benefits for users from the south and west.

Figure 4.3: Hyder Passenger Demand Modelling 2031 AM Peak Hour - Origins

Source: Hyder 2012 data, Mott MacDonal plan
The Leeds Railway Station (Southern Entrance) Order
Transport Statement

Figure 4.4: Hyder Passenger Demand Modelling: 2031 AM Peak Hour - Destinations

Figure 4.5: Hyder Passenger Demand Modelling: 2031 PM Peak Hour - Origins

Source: Hyder 2012 data, Mott MacDonald plan

296480/BNI/EST/10/C May 2012
http://pims01/pims/lisapi.dll/Open/1501245137

34
4.2.2 Traffic Impacts

4.2.2.1 Amendment - Removal of the proposed drop off facility

The current LSSE proposal does not include a drop-off facility in the immediate vicinity of the proposed station entrance and it is assumed that passengers will continue to be dropped off on Aire Street and Princes Square (i.e. at the current facility).

4.2.2.2 Improvement scheme on Little Neville Street and Dark Neville Street

The through movement between Little Neville Street and Dark Neville Street is proposed to be blocked by the provision of physical access control measures and Little Neville Street is proposed to be converted to a ‘Pedestrian Zone’ with a pedestrian friendly surface treatment. It is considered that there will be a slight reduction to current traffic flows on Little Neville Street due to the proposed changes and as a result of the proposed access control measures on Dark Neville Street.

4.2.2.3 Removal of pay and display bays

There are currently five formal pay and display parking spaces on Little Neville Street operated by LCC. These are likely to be lost as a result of LSSE scheme proposals. In discussions LCC has indicated that it would not object to the loss of these parking spaces.
4.2.2.4 Cycle Parking

Cycle parking stands are located on Granary Wharf between the railway viaduct and Watermans Place are proposed to be relocated in agreement with Network Rail and key stakeholders. It has been agreed between Network Rail and Leeds City Council that additional cycle storage provision of x20 spaces would be provided in a vacant viaduct arch on Dark Neville Street. This additional cycle storage would offset and mitigate the loss of the x8 cycle parking spaces on the west bank of the River Aire.
5. Construction Phase Impacts

5.1 Construction Strategy

A Constructability Review report has been prepared by Carillion for Network Rail which deals with the practicalities of building the Leeds Station Southern Entrance. The report details various methodologies which have been considered with regard to the construction elements of the scheme and the challenges posed by the constrained nature of the site. The chosen construction solution involves use of both the local road network and the river to construct LSSE and bring construction materials to site. This involves the use of barges to deliver material and cranes to move the construction material into place. The construction programme assumes an overall 62 week construction period commencing in Autumn 2013.

The construction method currently considers two cranage options as at this time it is not possible to select the optimum solution. The first option would use a small self erecting crane on the west bank of the River Aire. The second option considers a large tower crane to be located on the east side of the River Aire at the end of Little Neville Street. The first cranage option will not be able to lift loads as large as the second option and therefore smaller components will be needed, more movements of materials to site and a longer construction program. Additionally, due to the proposed location of the small self erecting crane, the majority of the movement of materials to the site will be carried out via barge rather than the local road network.

As stated in the Constructability Review due to ‘the limited nature of the road links and the probability that a Tower Crane will not be viable, it is envisaged that the delivery of materials and plant via road wagons to the actual work site will be limited to small vehicles that will use Dark Neville Street; with the primary means of delivery by barge. Any road delivery operations will have to be carefully controlled, given the restricted space for turning and lifting. Agreement will also be required for restricting / segregating public pedestrian access through the Dark Arches to remove the interface with moving delivery vehicles.’

5.1.1 Construction Sites / Compounds

To deliver the scheme, three separate sites have been identified. They are as follows;

- **Main work area**
  This comprises the area around LSSE, the River Aire as far as the ISIS pedestrian footbridge, the land between the Blue Apartments, Little Neville Street and the station viaduct and the arches within the viaduct on the south side of Dark Neville Street, to the west of Little Neville Street. This will be the main focus of construction activities with some limited welfare and material storage facilities.

- **Main compound area**
  This is the site adjacent to the railway and at the end of Wharf Approach. It will mainly be used for welfare and office facilities.

- **Barge loading / launch site**
  This site is located at the end of a spur of Water Lane near Bridge End. It compromises a derelict site, the southwestern end of Water Lane, the ASDA surface car park and the car park of the Red Lion Public House. This site will be the main site for delivery of materials by road, whereby they will then be transferred to barge and sailed up river to the main work area.
5.2 Construction Routes

Access to the main works site and the other compounds will either be via narrow, minor roads or along the River Aire. A number of highway construction routes have been specified in the Constructability Review, which link the construction sites and compounds detailed above with the motorway network. These can be seen in Appendix C.

5.2.1 Road Routes

5.2.1.1 Main work area

The primary road link to the area is Neville Street, which is a very congested artery into Leeds City Centre, and runs at least 80m from the main work area. Construction vehicles will be able to gain closer access to the work site via Little Neville Street. This is a 6m wide carriageway which runs between the Blue Apartments and the Hilton Hotel and as such it provides closer access to the work area.

The alternative is to use Dark Neville Street which is an 8m wide carriageway which runs below the railway viaduct and will provide access to the rear of the work area but has the following restrictions:

- Limited space for turning;
- Limited headroom below highway standards in some places;
- A weight restriction of 3T on the Dark Neville Street bridge;
- Dark Neville Street is a busy pedestrian thoroughfare;
- Restricted access from Neville Street; and
- Vehicular access must be maintained to the station undercroft at the eastern end of Dark Neville Street for parking.

5.2.1.2 Main compound area

Access for construction vehicles via Wharf Approach, and over the cobbled area between the railway viaduct and Watermans Place, may also be possible but this has the following restrictions:

- Limited to reasonably light loads given the granite surface of Granary Wharf.
- Limited room for turning.
- The area is pedestrian dominated and also a busy pedestrian thoroughfare, therefore there would be a need to minimise vehicle movements over the busier sections of Granary Wharf.
- Vehicular access must be maintained to the station undercroft at the western end of Dark Neville Street for parking, deliveries to reduce the impact on users and loss of revenue for businesses.

The access for assembling the self-erecting crane will be via Wharf Approach and the Wharf Approach Canal Bridge. The bridge is a Grade II listed structure and as such limits on deliveries and vehicle movements will need to be imposed. However, it is envisaged that limited vehicular access will actually be required to this side of the works. We understand that the Wharf Approach Canal Bridge was strengthened as part of the Granary Wharf development, although the exact weight restriction has not be made available to us.

5.2.1.3 Barge loading / launch site

Large deliveries via road will be made to the Water Lane site where they will be transferred onto barges in the river to be transported upstream to the main work area. The tight radius that the delivery vehicles will have to undertake when turning from Meadow Lane into Water Lane and vice versa, will require traffic
management measures. Certain manoeuvres will need to either be supervised by a banksman (reversing) or restricted when delivery vehicles exit Water Lane.

Measures will need to be undertaken during the construction process to:
- Secure the construction compound area;
- Restrict parking on Water Lane to permit clear access for construction vehicles; and
- Level the ground using imported fill to make it suitable for receiving and lifting heavy plant.

Additionally a public footpath runs through the proposed barge loading site, via the river bank. This footpath will need to be temporarily diverted onto Meadow Lane via part of the Asda car park.

5.2.2 River Aire

Access to the River Aire will be via the barge loading / launch site at Water Lane which is downstream of the main work area. Barges will be moored in the vicinity of the Water Lane site where they will then be loaded and sailed up river to the construction site where they will either be unloaded and returned to the Water Lane site or moored until the materials are needed. This site is to the west of ‘Leeds Bridge’, which is a low cast iron structure, under which vessels laden with large plant may not pass. The proposed barge loading / launch site at Water Lane offers:
- Reasonable access for large delivery vehicles via Water Lane;
- Sufficient room for the turning of large plant;
- Sufficient space for the temporary storage of materials and plant; and
- Clear access on the water edge.

The barges used will be sailed up the River Aire from downstream to the barge loading / launch site. The downstream location will be dependant upon which contractor / supplier is used. Once the barges reach the barge loading / launch site and the pontoons are launched into the River Aire where they will either be:-
- Moored alongside the river, at the designated mooring points within the construction compound area for the crane to lift the materials/plant to the main work area; or
- Fixed into position in the river and adjacent to the main work area by placing ropes around the existing viaduct piers with lateral restraints being attached to fixings on the riverbank walls on either side.

The river is not navigable through the section which passes under the viaduct and therefore there will not be an issue of these barges / pontoons creating an obstruction to other vessels. However, the implications of having large amounts of vessels in the river will require managing / consideration with regards to;
- High water levels/flood conditions; and
- Environmental and ecological impacts (increased risk of pollution (fuel spills) and impact on fish and wildlife.

5.3 Construction Vehicle Numbers

At this early stage it is not possible to make an accurate assessment of the number vehicular deliveries per hour to Little Neville Street (main work site) or Water Lane (barge loading site). A general assessment of vehicular deliveries is included within Table 5.1. A maximum of 20 small delivery wagons per day may visit Little Neville Street. A maximum of 6 large delivery wagons per day may visit Water Lane but this will not be on a daily basis. This information has been supplied by Carillion as part of their Construction Review.
Table 5.1: Construction deliveries to work sites

<table>
<thead>
<tr>
<th>Work Area</th>
<th>Main Work Area</th>
<th>Main Compound Area</th>
<th>Barge Loading / Launch Site</th>
</tr>
</thead>
<tbody>
<tr>
<td>Type of deliveries and size of vehicles</td>
<td>Small pick up vehicles delivering small tools and plant to the stores under the Dark Arches. Small wagons delivering consumable materials to the facilities and site. Concrete wagons. Large delivery wagons transporting larger items</td>
<td>Small wagons delivering consumable materials to the office and welfare facilities. Staff and visitors may park their cars in the station undercroft. The self erecting crane to gain access to the west bank of the River Aire and the crane and delivery wagons for establishing and dismantling the offices and welfare facilities.</td>
<td>Large delivery wagons, some articulated, will deliver the larger components of the structure. Additionally the pontoons will be delivered here and some of the barges may also be delivered if they can not be sailed up the river.</td>
</tr>
<tr>
<td>Time of deliveries in programme</td>
<td>Plant and consumable material deliveries throughout the duration of the project. Concrete deliveries will be at their peak at the start of the programme during the piling and foundation works.</td>
<td>The delivery of consumable materials to the office / welfare facilities throughout the duration of the contract and the larger deliveries of the cabins and cranes will be limited to the start and end of the construction period.</td>
<td>The delivery of large components for the structure will be ongoing throughout the construction programme.</td>
</tr>
<tr>
<td>Frequency of deliveries</td>
<td>It is estimated that a peak of 20 vehicles could arrive per day.</td>
<td>It is estimated that on average 3 or 4 small delivery vehicles may arrive per day. During the erection / dismantling of the cabins a maximum of 5 wagons may visit the site per day.</td>
<td>It is anticipated that large delivery vehicles will not arrive every day. On days when deliveries are scheduled 5 or 6 large (possibly articulated) vehicles may arrive per day.</td>
</tr>
<tr>
<td>Effect of using a Tower Crane on the east bank of the River Aire</td>
<td>A similar number of delivery vehicles will visit site if a Tower Crane is used, however there will be a significant increase in the number of large delivery wagons on site via Little Neville Street as the crane will lift large components from construction vehicles located here. The limited space will result in a restriction of 5 large articulated vehicles per day.</td>
<td>The use of the Tower Crane will remove the need for the self erecting crane to be used on the west bank of the River Aire. As such any vehicle movements to this site will be small wagons delivering consumable material to the office and welfare facilities as well as staff and visitors.</td>
<td>If a Tower Crane is to be used the amount of large deliveries to the launch site will be reduced. However this area will still be used as a launch point for the pontoons, and possibly some barges. Also some of the larger items of material may be delivered here due to the restricted width on Little Neville Street.</td>
</tr>
</tbody>
</table>

Source: LSSE Constructability Review, Rev 02, 31/01/12, Carillion

It is unlikely that more than 6 barges will be used at any one time during the construction programme. This will include 3 barges moored at the main work area and 3 barges being loaded at the barge loading site on Water Lane at any one time. The barges will need to be of sufficient size to safely transport and store reasonable quantities of steelwork, cladding, roofing and glazing materials

5.4 Construction Staff

It is estimated that approximately 100 construction staff and other operatives (inc sub-contractors) may be employed on the project at its peak. The general labour and some sub-contractors will be sourced from the local area and it is also likely that a large proportion of staff will be locally based, however specialist sub contractors could be procured from anywhere within the UK. It has been confirmed by Carillion that worker accommodation will not be provided on the scheme.
There is very limited space for car parking on site and therefore spaces in local car parks may be negotiated for staff to park their cars. However the proximity of the train station and the site's city centre location means that staff and operatives may travel to work via public transport.

5.5 The Safe Passage of the General Public around the Work Site

As referenced previously the Granary Wharf area is a busy public space with high levels of residents, business people and tourists using the existing pedestrian routes which link Dark Neville Street to the canal basin, via Granary Wharf. For this reason the work site will be surrounded by solid hoarding to prevent unauthorised access. The exact alignment and layout of the hoarding will be agreed locally with commercial units to provide the most aesthetically pleasing but safe solution. Clear signage will be affixed to the hoarding to direct the public around the work area and to describe the scheme and to highlight the hazards and risks that are associated with the project.

Some existing footpaths and walkways will need to be closed or have access restricted along them during certain periods of the construction programme. When a closure is in place, clear signage and information boards will be erected providing clear direction for the diversion. Temporary pedestrian barriers may also be erected to create an obvious walkway and if uneven ground conditions are encountered temporary membranes will be rolled out to give a desirable walking surface.

Similar measures to the ones described above will be employed at the Water Lane barge loading site, where secure fencing or hoarding will be erected around the perimeter of the site and a footpath diversion will be established with the provision of temporary pedestrian barrier if necessary.
6. **Summary and Conclusion**

### 6.1 **Summary**

This Transport Statement has set out the existing conditions in the area of the proposed Leeds Station Southern Entrance development and has detailed the development proposals and the impacts of the proposals.

The Leeds Station Southern Entrance (LSSE) is intended to provide a new direct pedestrian link between the Leeds City Station and redevelopment to the south of the railway viaduct via Granary Wharf, Little Neville Street and Dark Neville Street. It comprises a concourse deck situated over the River Aire within an enclosed building which provides pedestrian access via stairs, escalators and lifts to the station Western Footbridge and upper concourse. The proposals also include CCTV, help points, ticketing facilities and passenger information screens.

The LSSE proposals will redistribute a proportion of existing and future passenger trips from the existing entrance to the LSSE. This will lead to reduced walk times, reduced congestion on the footways on Neville Street and reduced congestion on the rotunda staircase leading to the station.

#### 6.1.1 **Trip Generation and Distribution**

Pedestrian modelling was previously undertaken in 2006 by consultants Halcrow and reported on in the previous Transport Statement in 2009. The modelling considered generated pedestrian trips from new and proposed developments within a 1km catchment area to the south of Leeds City Station. The results of the 2006 modelling should be treated with a degree of caution as development has subsequently taken place at Granary Wharf, Holbeck Urban Village and Bridgewater Place. Further pedestrian modelling has been undertaken by consultant Hyder to assess the proposed LSSE design in terms of forecast passenger volumes and capacity, this assessment also provides updated estimates of passenger demand.

Key Issues from the pedestrian modelling work undertaken to assess the impact of the proposed southern entrance to Leeds City Station, are that:-

- The location with the highest attraction in the AM peak is the Central Riverside zone along Neville Street and Sovereign Street. Other significant areas include the Campfield and Eastern Gateway zones (Marshall’s Mill, City Walk and Victoria Place);
- In the AM peak period, the two principal concentrations of demand for access to the station are from the Hilton Hotel and Blue Apartments Building and the Sweet Street Car Park, with smaller concentrations located at City Walk and other commercial office locations; and
- During the PM peak period the pedestrian demand to the station effectively represents the returning flows from the AM peak movements with some additional concentration in the Central Riverside zone.
- Modelling results indicate that between 6,500 to 7,000 pedestrians would consider leaving the station by the southern entrance during the 3hr AM peak period in 2029.
- Modelling results indicate that between 5,800 to 6,300 pedestrians would consider entering the station by the southern entrance during the 3hr PM peak period in 2029.
- Average delay times, total delay times, total distance travelled and total travel times for pedestrians in the AM peak would all decrease.
- Average delay times, total delay times, total distance travelled and total travel times for pedestrians in the PM peak would all decrease.
- Pedestrian journey times in the AM peak to and from almost all platforms and the southern network would decrease.
- Pedestrian journey times in the PM peak to and from almost all platforms and the southern network would decrease.

The Hyder pedestrian modelling assessment has concluded that the proposed LSSE design would accommodate the forecast 2029 passenger demands. The report indicates that there may be some issues in relation to the proposed number of ticketing gates, but this can be overcome by increasing the number of gates from 7 to 8 to provide additional capacity.

The modelling results for 2029 suggest that the east link bridge is close to capacity and that an increase of 20% in the volume of passengers may necessitate some form of management intervention during the AM peak period. Potential mitigation measures may include the management of passengers on the western footbridge and a one-way system at ground level to ensure the eastern footbridge was only used for exiting passengers.

It is recommended that the Leeds Station Management Plan should be updated to reflect that LSSE is likely to become the choice of access/egress for those passengers attending local events in Leeds or Leeds United Football Club matches due to improved access to the bus stops and temporary coach stands on Neville Street and Sovereign Street.

6.1.2 Construction Phase Impacts

A Constructability Review report has been prepared by Carillion for Network Rail which deals with the practicalities of building the Leeds Station Southern Entrance. The chosen construction solution involves use of both the local road network and the river to construct LSSE and bring construction materials to site. The construction programme assumes an overall 62 week construction period commencing in the summer of 2013.

At this early stage it is not possible to make an accurate assessment of the number vehicular deliveries per hour to Little Neville Street (main work site) or Water Lane (barge loading site). However, indicative numbers of vehicles (which are subject to change) are listed below:-

- A maximum of 20 small delivery wagons per day may visit Little Neville Street;
- A maximum of 6 large delivery wagons per day may visit Water Lane but this will not be on a daily basis; and
- It is unlikely that more than 6 barges will be used at any one time during the construction programme.

6.1.3 Key Impacts

6.1.3.1 Amendment - Removal of the proposed drop off facility

The current LSSE proposal does not include a drop-off facility in the immediate vicinity of the proposed station entrance and it is assumed that passengers will continue to be dropped off on Aire Street and Princes Square (i.e. at the current facility).

6.1.3.2 Improvement scheme on Little Neville Street and Dark Neville Street

The through movement between Little Neville Street and Dark Neville Street is proposed to be blocked by the provision of physical access control measures and Little Neville Street is proposed to be converted to a ‘Pedestrian Zone’ with a pedestrian friendly surface treatment. It is considered that there will be a slight reduction to current traffic flows on Little Neville Street due to the proposed changes and as a result of the proposed access control measures on Dark Neville Street.
6.1.3.3 Removal of pay and display bays

There are currently five formal pay and display parking spaces on Little Neville Street operated by LCC. These are likely to be lost as a result of LSSE scheme proposals. In discussions LCC has indicated that it would not object to the loss of these parking spaces.

6.1.3.4 Cycle Parking

Cycle parking stands are located on Granary Wharf between the railway viaduct and Watermans Place are proposed to be relocated in agreement with Network Rail and key stakeholders. It has been agreed between Network Rail and Leeds City Council that additional cycle storage provision of x20 spaces would be provided in a vacant viaduct arch on Dark Neville Street. This additional cycle storage would offset and mitigate the loss of the x8 cycle parking spaces on the west bank of the River Aire.

6.2 Conclusion

In conclusion LSSE is a major infrastructure improvement for Leeds City Station and will improve pedestrian linkages between the station and the south of the City of Leeds. The scheme will reduce passenger congestion at the main ticket barrier and on the access routes form the station to the south of the city, such as the rotunda staircase and the pedestrian footway on Neville Street. In addition it will provide step-free access between the station and Granary Wharf, Little Neville Street and Dark Neville Street.

The proposed southern entrance will serve the current and future passenger demand of Leeds City Station and the redevelopment to the south of the city. The scheme will have a minimal impact on traffic but will improve the situation for pedestrians and cyclists in the vicinity of the LSSE. This will be via the proposed public realm improvement works on Little Neville Street and Dark Neville Street and the provision of additional cycle storage.
Appendices

Appendix A. LCC Neville Street / Sovereign Street Proposals __________________________________________ 46
Appendix B. Combined Traffic & Urban Realm Proposal __________________________________________ 47
Appendix C. Proposed Construction Phase Delivery Routes ________________________________________ 48
Appendix A. LCC Neville Street / Sovereign Street Proposals
Appendix B. Combined Traffic & Urban Realm Proposal
1. New kerbline to be Charcon eco-kerb.
2. Granite kerb to be silver grey granite, 300mm wide x 200mm deep.
3. Trees to be 30-35cm rootballed in 3x2x1m deep tree pit, uplit with 2no. in-ground uplighters and 2no. 1000x50x50mm granite protective bollards per tree.
4. Granite benches to be silver grey 400x750x300mm set in 750x300x300mm granite grey granite feature trim.
5. Granite bollards, silver grey 300x300x900mm.
6. Replacement contemporary lighting columns using tapered powder coated columns with LED light fittings to head.
7. Screen to be 2.25m high louvred aluminium effect painted galvanized steel screen. e.g. Orsogril Talia 80.
8. Sandstone paving to be Greenmoor rustic (flamed finish) 200x100x200mm on instarmac (or equivalent).

Key to symbols
- Stainless steel bollards
- Granite bollards - see note 5
- Granite bench - see note 5
- Lighting columns - see note 6
- Semi-mature tree - see note 3
- Sandstone setts - see note 8
- Asphal with tar spray and natural stone drip finish
- Black basalt setts reclaimed from Little Neville Street laid to a diagonal pattern
- Red tactile paving

Notes
- Stainless steel bollards
- Granite bollards - see note 5
- Granite bench - see note 5
- Lighting columns - see note 6
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- Sandstone setts - see note 8
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- Red tactile paving

Client
Leeds Station Southern Entrance
Little Neville Street/Dark Neville Street
Public Realm Proposals - Option 2

Design
S Weston
S Weston
A Norman
A Norman

Reviewed
J Kennedy
J Kennedy
A Norman
A Norman

Approval
J Smith
J Smith

Scale
1:500

Drawing
296480/SKE/014
Appendix C. Proposed Construction Phase Delivery Routes
Site 1 - Little Neville St. / Dark Neville St
Compound Area, Material Storage and Crane location
(Localised restricted access and parking on Little Neville St. will be necessary and potential traffic management on Neville St. for very large deliveries may be required.)

Site 2 - Wharf Approach
Compound area and access for Self Erecting Crane on West Bank

Site 3 - Water Lane
Launch point onto the River Aire and material storage area

- Delivery Route
- Exit Route