

BARRATT HOMES

PROPOSED RESIDENTIAL DEVELOPMENT

SPEKE HALL AVENUE

SPEKE

LIVERPOOL

Transport Assessment

August 2011

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1 INTRODUCTION

- 1.1.1 Croft have been commissioned by Barratt Homes to produce a Transport Assessment to support a planning application for a residential development on a site off Speke Hall Avenue in the Speke area of Liverpool.
- 1.1.2 The application site is located approximately 7 miles south east of Liverpool City Centre and around 800 metres to the north of Liverpool John Lennon Airport adjacent to the Speke area of the City. The location of the application site is shown within **Plan 1**.
- 1.1.3 The site is currently vacant with no traffic being generated by the site, further details pertaining to the site's existing use will be provided in Section 2.
- 1.1.4 It is proposed to redevelop the site to provide approximately 268 residential units. Vehicular access will be provided via a new signalised access off Speke Hall Avenue and via an extension to Cartwright's Farm Road. Further details regarding the proposed development will be provided within Section 3 of the Report.
- 1.1.5 Section 4 of the Report considers the aspects of local and national planning policy which are relevant to the redevelopment and Section 5 considers the accessibility of the site by non-car modes and includes a 'minimum accessibility standard' exercise.
- 1.1.6 Section 6 contains the traffic impact assessment. Section 7 provides an analysis of Road Accident Data and Section 8 contains the Report's conclusions.

2 EXISTING CONDITIONS

2.1 Site Location

- 2.1.1 As previously stated the application site is located approximately 800 metres north of Liverpool John Lennon Airport.
- 2.1.2 The site is bound by Speke Boulevard to the north, by properties on Dymchurch Road to the east and by Speke Hall Avenue to the south and west.
- 2.1.3 The predominant land use in the vicinity of the site is residential with areas of retail and commercial.

2.2 Existing Development

- 2.2.1 The site is currently vacant and not generating any traffic movements. Existing vehicular access into the site is provided via an access off the end of Cartwright's Farm Road.
- 2.2.2 Cartwright's Farm Road runs west from the site to its roundabout junction with Speke Hall Avenue and Estuary Banks. Cartwright's Farm Road at present has a carriageway width of around 6.5 metres and is subject to a 30 mph speed limit.
- 2.2.3 From the roundabout, Speke Hall Avenue runs north towards it signalised junction with Speke Boulevard and is a two lane dual carriageway subject to a 40 mph speed limit in the vicinity of the site. Speke Hall Avenue runs south towards Liverpool John Lennon Airport.
- 2.2.4 The A561 Speke Boulevard is a major east-west route that runs towards the City Centre through the southern districts of Liverpool.
- 2.2.5 Opposite the site at its south eastern corner, Stirling Road forms an access to an existing employment site and this will form the basis of the main signalised access to the site off Speke Hall Avenue.

2.2.6 The existing site is shown in more detail in **Plan 2**.

2.2 Baseline Transport Data

2.2.1 The site is currently undeveloped and as such does not currently generate vehicular trips.

2.2.2 The existing trip attraction of the site is covered in more detail in Section 5 of this report.

3 PROPOSED DEVELOPMENT

3.1 Built Development Proposals

3.1.1 As previously stated it is proposed to develop the site for approximately 268 residential units. The residential development will comprise a mix of house types although at this particular stage these have not been finalised.

3.1.2 The proposed Masterplan is shown in **Plan 3**.

3.2 Vehicular Access

3.2.1 Vehicular access into the proposed development will be provided in two locations, namely:

- Signalised access off Speke Hall Avenue/Stirling Road.
- Extension to Cartwright's Farm Road.

3.2.2 The signalised access off Speke Hall Avenue will form the fourth arm to an existing priority controlled junction with Stirling Road adjacent to the south-eastern corner of the site.

3.2.3 The infrastructure will include full signalisation with pedestrian facilities across all arms with formal splitter islands to allow staggered crossings on each arm of the junction to increase pedestrian safety in the area. The existing right turning lanes on Speke Hall Avenue can also be retained to increase the capacity of the junction.

3.2.4 The secondary vehicular access to the site is via an extension to the existing Cartwright's Farm Road to the west of the site. This will involve the continuation of the carriageway and the footways into the site to create a formal secondary access into the site.

3.2.5 The junction arrangements are shown in more detail on **Plan 4**.

3.3 Pedestrian and Cycle Access

- 3.3.1 The main route into the site for pedestrians and cyclists will be via the two vehicular access points off Speke Hall Avenue and Cartwright's Farm Road as well as via a potential pedestrian and cycle link in the northern section of the site off Dymchurch Road.
- 3.3.2 This will allow a link to the existing residential areas of Speke to the north and east of the site to increase the connectivity of the proposed residential development site improving its sustainability.
- 3.3.3 The internal layout of the site has also been designed in such a way to encourage pedestrian and cyclist linkages to the local services located within the Speke area.

3.4 Internal Site Layout

- 3.4.1 The internal site layout of the site has been designed with Manual for Streets in mind to ensure maximum permeability as well as reduced vehicular speeds and will also include areas dominated by pedestrians and cyclists.
- 3.4.2 The principle spine road is a standard minor-residential road which this runs through the scheme, connecting the two site access junctions and also several shared surfaces. These shared surfaces have a 'low key' residential feel and each has an intentionally distinct character.
- 3.4.3 There are two urban squares, one centred around a mews block of contemporary back-to-back units and one as a terminus at the top of the site. The mews square has deliberately tight forward visibility to reduce traffic speed and protect pedestrians.
- 3.4.4 The shared surfaces spread across the main residential road as raised tables, emphasising pedestrian dominance and informally slowing traffic. The raised tables enables the two halves of the site to fully integrate and allows the urban spaces flow across providing shared surface routes rather than a collection of fragmented minor streets.

- 3.4.5 The carriageway widths, boundary treatments and building geometry change to give different characters to the roads, this provides a better sense of place and the transitions again act as a subconscious traffic calming measure.
- 3.4.6 The southwest corner of the site flows as a pedestrian route; the planting, road surface and geometry is intended to give an informal character to the road, blurring the boundaries between vehicles and pedestrians to ensure traffic speed is reduced.
- 3.4.7 The frontage of the site comprises unadopted highways controlled by a management agency set up to allow carparking to be set within the public street scene whilst allocated to specific plots for sales desirability.
- 3.4.8 The pedestrian linkages to the existing cul-de-sacs encourage sustainable transport and social integration whilst negating the creation of 'rat-runs' and the generally heavier traffic levels that would invalidate the shared surface design ethos.

4 TRANSPORT PLANNING POLICY

4.1 Introduction

4.1.1 The national policy presented in this document focuses on Planning Policy Guidance (PPG) Note 13 'Transport' and Planning Policy Statement (PPS) note 3 on 'Housing'. PPG13 was revised in March 2001 and provides advice on how local authorities should integrate transport and land use planning for all types of development.

4.1.2 Local transport planning policy for this area is taken from the Merseyside Local Transport Plan 2006-2011 and the Liverpool Unitary Development Plan which was adopted in November 2002. This section will briefly outline the pertinent policies relating to the proposed development.

4.2 National Policy

4.2.1 The key aim of PPG13 is to ensure that local authorities carry out their land use policies and transport programmes in ways which help to:

- Promote more sustainable transport choices for both people and for moving freight.
- Promote accessibility to jobs, shopping, leisure facilities and services by public transport, walking and cycling.
- Reduce the need to travel, especially by car.

4.2.2 A key planning objective, set out in PPG13, is to ensure that jobs, shopping, leisure facilities and services are accessible by public transport, walking and cycling. This is important for all, but especially for those who do not have regular use of a car, and to promote social inclusion.

4.2.3 As the development is a residential development located a short distance from a Local Centre and is accessible by public transport, it is considered that the proposed development accords with the aims and objectives of PPG13.

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- 4.2.4 Planning Policy Statement 3: Housing (PPS3) underpins the delivery of the Government’s strategic housing policy objectives and sets out the goals to ensure that everyone has the opportunity to live in a decent home, which they can afford in a community where they want to live.

4.3 Local Policy

- 4.3.1 The Liverpool Unitary Development Plan (UDP) adopted in November 2002 and covers the period up until the adoption of the Local Development Framework.

- 4.3.2 With regard to the link between Housing and Transport, the UDP requires new housing developments that are well located in relation to the jobs, other services and infrastructure, and are accessible by public transport, walking and cycling.

- 4.3.3 The Third Local Transport Plan for Merseyside became active from 1st April 2011. The plan sets out the implementation plans in the short term to 2015 and looks to the longer term strategy for 2024 on how to improve transport in Merseyside.

- 4.3.4 The Third Local Transport Plan has the following vision;

'A city region committed to a low carbon future, which has a transport network and mobility culture that positively contributes to a thriving economy and the health and wellbeing of its citizens and where sustainable travel is the option of choice'.

- 4.3.5 The Local Transport Plan has six goals;

- One - Help create the right conditions for sustainable economic growth by supporting the priorities of the Liverpool City Region, the Local Enterprise Partnership and the Local Strategic Partnerships.
- Two - Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.
- Three - Ensure the transport system promotes and enables improved health and wellbeing and road safety.

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- Four - Ensure equality of travel opportunity for all, through a transport system that allows people to connect easily with employment, education, healthcare, other essential services and leisure and recreational opportunities.
- Five - Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.
- Six - Maintain our assets to a high standard. (Please note all goals have equal status).

4.3.6 Within the Draft Transport Strategy there are no site specific policies that are relevant to the proposed development site.

Liverpool Unitary Development Plan (2002)

4.3.7 The UDP was adopted in 2002 and until the emerging LDF is adopted (particularly the Core Strategy), the majority of policies within the UDP have been ‘saved’ under transitional arrangements provided for within the Planning and Compulsory Purchase Act, 2004, and therefore remain valid for the purpose of determining planning applications. All of the policies referred to in this statement have been ‘saved’ under the transitional arrangements.

4.3.8 The site is currently allocated as being within a mixed use area (policy E6). The site adjoins an area to the east that is described on the proposals map as being primarily residential. The key policies relevant to this proposal are:

- E6 – Sites for Various Types of Development
- GEN4 - Housing
- H1 – The Provision of Land for New Housing
- H4 – Primarily Residential Areas
- H5 – New Residential Development
- HD18 – General Design Requirements
- T12 – Car Parking Provision in New Developments

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Liverpool City Council Local Development Framework

- 4.3.9 The LDF process has encountered a number of delays given various changes to the planning system over the last 2 years. The Core Strategy has been subject to various public consultations
- 4.3.10 The council consulted on a revised options report in 2010. With regards to housing growth, housing figures from RSS have been carried forward along with the uplift identified by the Growth Point status that was awarded to the council in 2008. The council currently anticipates submitting the Core Strategy to the Secretary of State for Examination by the end of 2011.
- 4.3.11 The council has been undertaking background work in relation to the Allocations DPD alongside the emerging Core Strategy. In terms of further formal consultation on the Allocations DPD, this is unlikely to take place until after the Core Strategy is adopted.

4.4 Planning Policy Summary

- 4.4.1 The proposed development is in accordance with local policy for the following reasons:
- The proposed development will reduce the need to travel due to it being located in close proximity to various retail, commercial and residential areas as well as Hunts Cross Local Centre and as such a relatively wide range of facilities will be located within a short walk of the site.
 - The site is located in close proximity of a range of public transport opportunities which will facilitate non-car travel to and from the proposed development.

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5 NON-CAR ACCESSIBILITY OF THE SITE

5.1 Introduction

5.1.1 In order to accord with the aspirations of Planning Policy Guidance (PPG) Note 13, entitled 'Transport', any new proposals should extend the choice in transport and secure mobility in a way that supports sustainable development.

5.1.2 New proposals should attempt to influence the mode of travel to the development in terms of gaining a shift in modal split towards non car travel modes, thus assisting in meeting the aspirations of current national and local planning policy.

5.1.3 The accessibility of the proposed development by the following modes of transport has, therefore, been considered.

- a) Accessibility on Foot.
- b) Accessibility by Cycle.
- c) Accessibility by Bus.
- d) Accessibility by Rail.

5.2 Access by Foot

5.2.1 Pedestrian access from the east of the site will be afforded in a number of locations. Each of the two vehicular access points will have footways on either side and facilitate pedestrian access from the south and west of the site. Further pedestrian access is provided along the eastern boundary of the site to connect to the existing housing off Dymchurch Road.

- 5.2.2 The internal highway infrastructure has been designed using the guidance within Manual for Streets 2 and as such ensures that the vehicular speeds through the site will be low and the design of the internal infrastructure will ensure a pedestrian friendly environment with areas of pedestrian priority to ensure safe and efficient movement for pedestrians through the site.
- 5.2.3 Furthermore footways are provided in both sides of the carriageways along Speke Hall Avenue and Speke Boulevard to provide excellent connectivity from the site to the surrounding areas of Speke.
- 5.2.4 Crossing facilities are located on Speke Hall Avenue and Speke Boulevard to ensure that safe pedestrian movements are provided in the surrounding area. These will be enhanced by the new facilities at the signalised junction of Speke Hall Avenue with the site.
- 5.2.5 The junction of Speke Hall Avenue/Speke Church Road has dropped crossings and a pedestrian refuge to assist with pedestrian safety and the junctions of Speke Hall Avenue/Speke Boulevard and Speke Hall Avenue/Cartwright's Farm Road have dropped crossings and tactile paving areas to enhance pedestrian safety at each junction.
- 5.2.6 Within the Institution of Highways and Transportation (IHT) document, entitled "Guidelines for Providing for Journeys on Foot", a distance of 800 metres is identified as the preferred maximum distance for town centres, whilst a distance of 2 kilometres is defined as a preferred maximum for commuting.
- 5.2.7 PPG13 states that walking is the most important mode of travel at the local level and offers the greatest potential to replace short car journeys, particularly those under 2 kilometres.
- 5.2.8 As such, in order to assess the extent of the area considered accessible by foot catchments of 800 metres and 2 kilometres have been prepared and are shown within **Plan 5**.

- 5.2.9 As can be seen from **Plan 5** the 800 metre catchment encompasses a good deal of Speke as well as the retail opportunities at Hunts Cross Local Centre, Speke Retail Park, Liverpool John Lennon Airport and the local facilities on Speke Church Road located around 500 metres to the east of the site which includes a post office and a convenience store.
- 5.2.10 In terms of schools Stockton Wood Primary School is located around 400 metres east of the site and Parklands High School is located around 1.5 kilometres to the east of the site within the centre of the Speke area both within a walk of 20 minutes.
- 5.2.11 Employment opportunities are located in abundance in the area. Liverpool John Lennon Airport is located within 800 metres of the site and the Estuary Business Park is located across Speke Hall Avenue to the west of the site. Further opportunities are located on the northern side of Speke Boulevard with numerous industrial areas within a short walk of the site.
- 5.2.12 The 2 kilometre catchment extends to include even more retail, employment and education facilities ensuring that the site is located in an extremely sustainable location.
- 5.2.13 It is therefore considered that the existing pedestrian infrastructure following the improvements discussed will facilitate safe and direct pedestrian linkages between the site and local destinations. All these amenities are within around a 10 minute walk of the site.

5.3 Access by Cycle

- 5.3.1 An alternative mode of travel to the site could be achieved by bicycle.
- 5.3.2 PPG13 states that cycling has the 'potential to replace short car journeys, particularly those under 5 kilometres.' This cycle catchment would extend to include the nearby areas of Garston and Halewood.

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- 5.3.3 Cyclists are catered for in the area with cycle facilities at the junction of Speke Hall Avenue and Speke Boulevard in the form of cycle lanes and cycle advanced stop lines at the approaches to the junction. Cycle lanes are also located along the north-south section of Speke Hall Avenue.
- 5.3.4 The internal layout will ensure that vehicular speeds are low and as such this would assist cycle accessibility.
- 5.3.5 The site can therefore be considered as being accessible by cycle.

5.4 Access by Bus

- 5.4.1 The closest bus stops to the proposed development are located on Speke Hall Avenue. The ones located adjacent to the western boundary have shelters and timetable information whilst the ones along the southern boundary have poles and timetable information.
- 5.4.2 There are also stops on Speke Boulevard located within 50 metres of the site boundary which also have lay-bys, bus shelters and timetable information and on Dymchurch Road to the east of the site.
- 5.4.3 There also bus lanes located along Speke Hall Avenue to assist bus accessibility to the area.
- 5.4.4 A summary of the services available from the bus stops on Speke Hall Avenue, Speke Boulevard and Dymchurch Road is provided in Table 5.1 below.

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Service No	Route	Monday – Friday Frequency per hour				Sat	Sun
		AM Peak	Midday	PM Peak	Eve		
80A/180	City Centre-Toxteth-Garston-Airport	4	4	4	2	2	2
181	Childwall-Hunts Cross-Airport	6	6	6	2	2	2
82/82B/82D/82E	City Centre-Toxteth-Aigburth Vale-Garston	12	12	12	3	6	3
82A/82B	City Centre-Aigburth Vale-Airport-Runcorn	2	2	2	1	1	1
82/82D	City Centre-Toxteth-Garston-Liverp'l Sth Pway	8	8	8	2	2	4
86A/186	City Centre- Liverp'l Sth Pway-Airport	6	6	6	4	4	4
89/89A	Airport-Speke-Prescot-St Helens	3	3	3	2	3	2
166/266/188/288	Liverp'l Sth Pway-Woolton-Belle Vale	2	2	2	1	2	1
211	Speke Circular	2	2	2	-	2	-
500	City Centre-Estuary Business Park-Airport	2	2	2	2	2	2
501	Liverpool South Parkway-Liverpool Airport	3	3	3	-	3	-
786	Halewood College-Airport-Liverpool South Parkway	1 jny	-	1 jny	-	-	-
883	Airport-Hunts Cross-Halewood-Huyton	1	1	1	-	-	-

Table 5.1 - Existing Bus Services Operating Past the Site

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5.4.5 As shown in Table 5.1 the bus stops provide at least 52 services an hour to destinations including the City Centre, Hunts Cross, Aigburth and Childwall. Journeys to Liverpool City Centre take approximately 30 minutes. This is an excellent level of service and provides commuter, retail and leisure opportunities from the site.

5.4.6 As such, the existing bus services are ideally placed to cater for the needs of the development's residents, employees and visitors to numerous local and regional destinations in the area.

5.5 Multi-Modal Trip Generation

5.5.1 In order to assess the modal split of trips generated by the proposed development the TRICS 2011(b) database was utilised. Trip rates per unit were obtained for pedestrians, cyclists and public transport users.

5.5.2 For the proposed development trip rates were obtained for all developments in the field "Residential – Houses Privately Owned". The full TRICS output is contained within **Appendix 1**.

5.5.3 The resultant modal split figures for the AM peak in the respect of the residential element are shown within Table 5.2. The AM peak hour has been assumed to be 0800 to 0900 hours.

Mode	Trip Rates			Trip Generation		
	Arr	Dep	2-way	Arr	Dep	2-way
Pedestrian	0.052	0.191	0.243	15	55	70
Cyclist	0.005	0.017	0.022	1	5	6
PT User	0.008	0.039	0.047	2	11	13

Table 5.2 - AM Peak Multi – Modal Trip Generation for Residential Development

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5.5.4 The resultant modal split figures for the PM peak in the respect of the residential element are shown within Table 5.3. The PM peak hour has been assumed to be 1700 to 1800 hours.

Mode	Trip Rates			Trip Generation		
	Arr	Dep	2-way	Arr	Dep	2-way
Pedestrian	0.090	0.063	0.153	26	18	44
Cyclist	0.015	0.011	0.026	4	3	7
PT User	0.018	0.005	0.023	5	1	6

Table 5.3 - PM Peak Multi – Modal Trip Generation for Residential Development

5.5.5 As can be seen from the above tables walking is likely to be the most popular mode of non-car travel to and from the site.

5.6 Minimum Accessibility Standard Exercise

5.6.1 As requested by Liverpool City Council this report includes an exercise which considers the 'Minimum Accessibility Standard' as contained in Liverpool City Council's Supplementary Planning Document (SPD) entitled 'Ensuring a Choice of Travel'.

5.6.2 Within the SPD is a set of minimum scores that each type of development, depending on their location, should meet with respect to a number of elements such as access on foot, by cycle, by public transport and vehicular access and car parking.

5.6.3 The minimum scores for a 'major' C3 residential development for an 'other urban' location are listed below:

- Access on Foot - minimum score of 4.
- Access by Cycle - minimum score of 5.
- Access by Public Transport - minimum score of 5.

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- Vehicular Access and Parking - minimum score of 1.

5.6.4 With respect to the access on foot there are a number of items that are scored, these are summarised below with their respective scores.

- **Location** - is the housing development within 500m of a district or local centre?
This is not so no points are awarded.
- **Internal Layout** - does 'circulation' and access inside the sites reflect direct, safe and easy use pedestrians when they have to cross roads or cycle routes? *This will be the case, as can be seen on the proposed masterplan, and as such 1 point is awarded.*
- **External Layout** - are there barriers between the site and local facilities or housing which restrict pedestrian access? *These include no dropped crossings, steep gradients, lack of lighting and lack of formal crossings. If all these are considered barriers then -2 points should be awarded and 1 point for no barriers and therefore 1 point is awarded for this proposal.*
- **Total Points** - 2 points.

5.6.5 The access by cycle section includes similar criteria which will be considered below:

- **Location** - is the housing development within a mile of a district or local centre?
This is the case with both Hunts Cross and Speke local centres so 2 points are awarded.
- **Internal Layout** - does 'circulation' and access inside the sites reflect direct, safe and easy use pedestrians when they have to cross roads or cycle routes? *This will be the case, as can be seen on the proposed masterplan, and as such 1 point is awarded.*
- **External Layout** - is the development within 400m of an existing or proposed cycle route? *This is the case with the route along Speke Boulevard so 1 point is awarded.*
- **Total Points** - 4 points.

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5.6.6 The access by public transport section also includes similar criteria which will be considered below:

- **Location** - is the site within a 200m safe and convenient walking distance of a bus stop? *This is the case with bus stops on Speke Boulevard, Speke Hall Avenue and Dymchurch Road so 2 points are awarded.*
- **Location** - are their barriers on direct and safe pedestrian routes to bus stops? *This will not be the case, as can be seen on the proposed masterplan, and as such 1 point is awarded.*
- **Frequency** - the bus routes provide over 4 buses per hour and as such 2 points are awarded.
- **Total Points** - 5 points.

5.6.7 The final section of this exercise is the Vehicular Access and Parking section. This has four criteria as described below:

- The off-street parking is provided as is advised in Section 4 for that development type? - the proposals include around 2 spaces per unit and as such this does not meet with the guidance in Section 4 of the SPD. However, in the past couple of years residential car parking has been the subject of much debate and it must be noted that the residential guide of 150% in PPS3 has now been removed as parking is usually a controversial issue with residential development with a number of recent residential developments not being provided with sufficient car parking once they have been occupied. *This has been awarded 1 point.*
- The off-street parking provided is less than 75% of the amount advised in Section 4? - *no, as advised above as such 0 points awarded.*
- **Total Points** - 1 point.

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5.6.8 In summary, the points awarded to each of the four sections are summarised below with their comparison to the required 'minimum' standards contained within the SPD:

- Access on Foot - 2 points from 4.
- Access by Cycle - 4 points from 5.
- Access by Public Transport - 5 points from 5.
- Vehicular Access and Parking - 1 point from 1.

5.6.9 As can be seen, the vehicular access and public transport section meets with the minimum accessibility standards but the access on foot and cycle doesn't. However, proposals to improve the pedestrian crossing facilities at the Speke Hall Avenue Site Access will provide substantial improvements to the area as will the proposed pedestrian and cycle links from the site to the surrounding area to overcome these SPD shortfalls.

5.7 Accessibility Summary

5.7.1 It has been demonstrated that pedestrian infrastructure in the vicinity of the site is excellent. PPG13 states that cycling has the 'potential to replace short car journeys, particularly those under 5 kilometres. It has been demonstrated that cycle accessibility is good.

5.7.2 The pedestrian connections to the surrounding area are already good and will be enhanced by the proposals to ensure that the site is extremely accessible on foot.

5.7.3 The site is located adjacent to the nearest bus stops on Speke Hall Avenue, Speke Boulevard and Dymchurch Road and so complies with the IHT publication entitled 'Providing for Journeys on Foot', which quotes 400 metres as being the 'desirable' walking distance to such facilities. .

- 5.7.4 There are at least 52 bus services per hour to Liverpool City Centre, Hunts Cross, Aigburth and Childwall which provide excellent accessibility to the site by bus.
- 5.7.5 In light of the above, it is considered the site is highly accessible to cater for needs of development's residents and assist in promoting a choice of travel modes other than the private car.

6 TRAFFIC IMPACT ASSESSMENT

6.1 Introduction

6.1.1 Having established that the proposed development site is accessible by modes of transport other than the private car and would be in general accordance with land use and transport policies, the following section of the report considers the traffic impact of the development proposals on the local highway network.

6.2 Traffic Survey Data

6.2.1 In order to assess the impact of the proposed development on the local highway network traffic surveys were undertaken at the following junctions on Tuesday 21st July 2011, as agreed with Liverpool City Council, the local highway authority;

- Southern Site Access/Speke Hall Avenue Signal Controlled Junction.
- Speke Hall Avenue/Estuary Business Park/Cartwright's Farm Road Roundabout Junction.
- Speke Hall Avenue/Speke Boulevard Signal Controlled Junction.
- Speke Hall Avenue/Dunlop Road Priority Controlled Junction.

6.2.2 The full traffic survey data is contained within **Appendix 2**. The AM and PM peak hours were identified as 0745 to 0845 hours and 1645 to 1745 hours. The AM and PM peak hours are shown within **Figures 1 & 2** in terms of PCU's.

6.3 Growthed Flows

6.3.1 In order to factor the surveyed traffic flows to the assumed year of opening, 2017, and the future assessment year of 2022, a NTEM adjusted NTM Growth factor was applied for Liverpool.

6.3.2 These years have been used following discussions with the applicant regarding likely completion timescales for the proposals.

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6.3.3 The resultant growth factors for Liverpool are shown below:

- 2011 to 2017 AM Peak - 1.055.
- 2011 to 2017 PM Peak - 1.053.
- 2011 to 2022 AM Peak - 1.129.
- 2011 to 2022 PM Peak - 1.127.

6.3.4 The resultant growthed flows for 2017 and 2022 are shown in Figures 3 to 6 for the two assessment peak hour periods respectively.

6.4 Committed Developments

6.4.1 We have been advised by Liverpool City Council that there are two committed developments in the vicinity of the site that are required to be taken account of within this particular analysis. These are as follows:

- Cell 4B, Liverpool International Business Park (Ref 09RM/1787).
- Former Tea Factory site on Speke Hall Road (Ref 09O/0430).
- Plot H1C, Leeward Drive, Estuary Business Park (Ref 09F/1431).

6.4.2 The traffic flows from these have been provided by the City Council and are shown in **Figures 7** and **8** for the Liverpool Business Park planning permission and then **Figures 9** and **10** for the former Tea Factory site. Whilst the Leeward Drive traffic flows are shown in **Figures 11** and **12**. The traffic flows have been assigned to the local highway network using the existing patterns of traffic flow in the surrounding network.

6.5 Base Traffic Flows

6.5.1 The resultant base flows have been calculated by adding the 2017 and 2022 growthed flows and the committed development flows described above. The resultant 2017 base

flows are shown in **Figures 13 and 14** for the 2017 Weekday AM and PM peak periods and **Figures 15 and 16** for the 2022 Weekday AM and PM Peak periods.

6.6 Trip Distribution

6.6.1 As agreed with Liverpool City Council the directional distribution of the existing and proposed traffic on the local highway network has been based on observed turning movements from the traffic count surveys. The proposed distribution for the AM Peak period is shown in **Figure 17** whilst the proposed distribution for the PM Peak period is shown in **Figure 18**.

6.7 Proposed Development

6.7.1 As previously stated it is proposed to develop the site for residential purposes for approximately 268 residential units being located on the site.

6.7.2 In order to establish the number of trips which the proposed development are forecast to generate the TRICS database has been used for the 'private housing' range of sites. These have been agreed with Liverpool City Council.

6.7.3 The full TRICS output for the agreed trip rates are contained within **Appendix 3**.

6.7.4 The peak hour trip rates and forecast trip generation are shown within Table 6.1.

Peak Hour	Trip Rates		Trip Generation	
	Arr	Dep	Arr	Dep
AM	0.164	0.434	44	116
PM	0.396	0.237	106	64

Table 6.1 - Forecast Trip Generation of Proposed Residential Development

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- 6.7.5 As can be seen from Table 6.1 the residential development is forecast to generate a 2-way total of approximately 160 trips in the AM peak hour and 170 trips in the PM peak hour.
- 6.7.6 In order to assign traffic forecast to be generated by the proposed development, the trip distribution shown in the **Figures 17 and 18** has been utilised.
- 6.7.7 The resultant proposed residential development flows for the AM Peak are shown in **Figure 19** whilst the proposed residential development flows for the PM Peak are shown in **Figure 20**.

6.8 With Development Flows

- 6.8.1 In order to calculate the 2017 'With Development' flows, the Base Flows contained within **Figures 13 and 14**, were added to the development flows contained within **Figures 19 and 20**. The resultant 2017 'With Development' flows are contained within **Figures 21 and 22** for the two peak hour periods respectively.
- 6.8.2 In order to calculate the 2021 'With Development' flows, the 2021 Growthed flows, contained within **Figures 15 and 16**, were added to the development flows contained within **Figures 19 and 20**. The resultant 2021 'With Development' flows are contained within **Figures 23 and 24** for the two peak hour periods respectively.

6.9 Capacity Assessments

- 6.9.1 In order to assess the operation of the junctions, capacity assessments were undertaken. Details of the capacity assessments undertaken are provided below.
- 6.9.2 It must be noted that on site observations by Croft and on the day of the traffic surveys revealed that there was no particular queuing on any of the junctions on the local highway network.

Southern Site Access/Speke Hall Avenue Signal Controlled Junction

- 6.9.3 In order to assess the operation of the proposed Site Access/Speke Hall Avenue signal controlled junction the program LINSIG3 was utilised.
- 6.9.4 Assessments were undertaken using the 2017 and 2022 Base and Assessment Flows, the results of which are summarised within Table 6.2 with the full results contained within **Appendix 4**.

Arm	2017 Assessment Flows				2022 Assessment Flows			
	AM		PM		AM		PM	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
Speke Hall Avenue (w) Left Ahead	18.9	3	58.7	11	20.6	3	62.7	12
Speke Hall Avenue (w) Ahead Right	21.0	3	59.7	12	22.6	3	63.7	13
Site Access	25.9	1	15.7	0	14.1	1	15.7	1
Speak Hall Avenue (e) Left Ahead	27.6	4	31.7	4	30.2	4	34.1	5
Speak Hall Avenue (e) Right Ahead	31.7	5	35.6	6	43.2	6	37.9	6
Stirling Avenue	1.9	0	11.9	1	1.9	0	12.6	0

Table 6.2 - Summary of LINSIG Results for Site Access/Speke Hall Avenue Junction

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- 6.9.5 As can be seen from Table 6.2, the Site Access/Speke Hall Avenue junction is forecast to operate within its theoretical capacity in both the AM and PM peak scenarios and can therefore adequately accommodate the traffic forecast to be generated by the proposed development.
- 6.9.6 The actual impact of the proposed development can be considered to be minimal given the results in the above table.

Western Site Access/Speke Hall Avenue Roundabout Junction

- 6.9.7 Assessments were undertaken using the 2017 and 2022 Base and Assessment Flows, the results of which are summarised within Tables 6.3 and 6.4 with the full results contained within **Appendix 5**.

Arm	2017 Base Flows				2017 Assessment Flows			
	AM		PM		AM		PM	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
Speke Hall Avenue (n)	0.316	0	0.345	1	0.330	0	0.375	1
Site Access	0.216	0	0.028	0	0.107	0	0.103	0
Speak Hall Avenue (e)	0.290	0	0.320	0	0.313	0	0.333	1
Speak Hall Avenue (s)	0.058	0	0.165	0	0.038	0	0.168	0
Estuary Road	0.132	0	0.678	2	0.135	0	0.692	2

Table 6.3 - Summary of ARCADY Results for Site Access/Speke Hall Avenue/Estuary Banks

Arm	2022 Base Flows				2022 Assessment Flows			
	AM		PM		AM		PM	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
Speke Hall Avenue (n)	0.336	1	0.375	1	0.354	1	0.404	1
Site Access	0.018	0	0.035	0	0.066	0	0.117	0
Speak Hall Avenue (e)	0.310	0	0.343	1	0.324	0	0.356	1
Speak Hall Avenue (s)	0.041	0	0.179	0	0.041	0	0.183	0
Estuary Road	0.141	0	0.740	3	0.071	0	0.747	3

Table 6.4 - Summary of ARCADY Results for Site Access/Speke Hall Avenue/Estuary Banks

6.9.8 The results demonstrate that the junction will operate within its capacity level and will continue to do so in both assessment years. The results also demonstrate that the proposed development will have a minimal impact on the operation of the junction.

Speke Hall Avenue/Speke Boulevard Signalised Junction

6.9.9 In order to assess the operation of the above mentioned junction the LINSIG3 program has again been utilised.

6.9.10 Assessments were undertaken using the 2017 and 2022 Base and Assessment Flows, the results of which are summarised within Tables 6.5 and 6.6 with the full results contained within **Appendix 6**.

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Arm	2017 Base Flows				2017 Assessment Flows			
	AM		PM		AM		PM	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
A561 Speke Boulevard (w) left	30.5	7	78.4	26	31.1	7	79.7	26
A561 Speke Boulevard (w) Ahead	66.6	19	73.9	24	67.9	20	74.2	24
A561 Speke Boulevard (w) Ahead	66.6	19	73.0	24	67.9	20	74.2	24
A561 Speke Boulevard (w) Ahead	66.5	19	73.0	24	67.7	20	74.2	24
A561 Speke Boulevard (w) Right	38.3	3	74.8	8	40.5	3	77.3	8
A562 Speke Hall Road Left	67.0	13	77.2	15	68.7	13	79.5	15
A562 Speke Hall Road Ahead	21.8	5	22.0	5	23.5	5	24.5	5
A562 Speke Hall Road Ahead	21.6	12	22.0	5	23.3	6	24.3	5
A562 Speke Hall Road Right	59.3	5	73.2	16	60.7	12	74.7	16
A561 Speke Boulevard (e) Left	19.0	6	16.2	4	20.5	5	18.2	4
A561 Speke Boulevard (e) Left	20.9	24	18.2	5	22.2	6	20.4	5
A561 Speke Boulevard (e) Ahead	63.4	24	59.7	20	64.2	24	61.6	20
A561 Speke Boulevard (e) Ahead	63.4	24	59.7	20	64.2	24	61.6	20
A561 Speke Boulevard (e) Ahead	63.6	16	59.9	20	64.3	24	61.7	20
A561 Speke Boulevard (e) Right	68.7	3	77.4	11	68.7	16	77.4	11
Speke Hall Avenue Left	20.2	3	28.4	6	25.0	4	28.4	6
Speke Hall Avenue Ahead	60.5	4	43.6	6	63.4	5	43.4	6
Speke Hall Avenue Ahead	64.0	5	46.4	7	69.0	6	45.8	7
Speke Hall Avenue Right	46.9	3	78.1	10	52.9	4	79.6	12

Table 6.5 - Summary of LINSIG Results for Speke Hall Avenue/Speke Boulevard Junction

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Arm	2022 Base Flows				2022 Assessment Flows			
	AM		PM		AM		PM	
	DOS	Max Q	DOS	Max Q	DOS	Max Q	DOS	Max Q
A561 Speke Boulevard (w) left	33.1	8	83.4	29	33.1	8	84.8	29
A561 Speke Boulevard (w) Ahead	72.6	21	77.6	27	72.6	21	78.9	27
A561 Speke Boulevard (w) Ahead	72.6	21	77.6	27	72.6	21	78.9	27
A561 Speke Boulevard (w) Ahead	72.4	21	77.6	27	72.4	21	78.9	27
A561 Speke Boulevard (w) Right	41.2	3	80.1	9	49.0	4	82.3	9
A562 Speke Hall Road Left	71.5	14	82.3	16	71.5	14	84.6	17
A562 Speke Hall Road Ahead	23.3	5	23.5	5	24.8	5	26.0	5
A562 Speke Hall Road Ahead	23.1	5	23.5	5	24.8	5	25.8	5
A562 Speke Hall Road Right	67.1	16	78.3	18	67.1	16	79.8	18
A561 Speke Boulevard (e) Left	20.2	5	17.4	4	21.7	6	19.4	5
A561 Speke Boulevard (e) Left	22.5	7	19.4	5	24.1	7	21.6	6
A561 Speke Boulevard (e) Ahead	67.5	26	63.9	22	68.3	27	65.9	22
A561 Speke Boulevard (e) Ahead	67.5	26	63.9	22	68.3	27	65.9	22
A561 Speke Boulevard (e) Ahead	67.6	26	63.9	22	68.4	27	65.9	22
A561 Speke Boulevard (e) Right	71.3	17	82.7	12	73.0	20	82.7	12
Speke Hall Avenue Left	21.6	3	30.3	6	24.2	3	30.4	6
Speke Hall Avenue Ahead	65.0	4	46.5	6	65.8	5	46.1	7
Speke Hall Avenue Ahead	67.4	5	49.5	7	68.2	3	48.7	8
Speke Hall Avenue Right	50.2	3	83.7	12	55.1	4	84.6	14

Table 6.6 - Summary of LINSIG Results for Speke Hall Avenue/Speke Boulevard Junction

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- 6.9.11 As can be seen from the above tables the Speke Hall Avenue/Speke Boulevard junction is forecast to continue to operate within its theoretical capacity in both the AM and PM peak scenarios in both assessment years of 2017 and 2022.
- 6.9.12 The results also confirm that the impact of the proposed residential development would also be negligible.

Speke Hall Avenue/Dunlop Road Priority Junction

- 6.9.13 The PICADY program was used to assess the operation of the junction of Speke Hall Avenue and Dunlop Road.
- 6.9.14 Assessments were undertaken using the 2017 and 2022 base and assessment flows, the results of which are summarised within Tables 6.7 and 6.8 with the full output shown in **Appendix 7**.

Arm	2017 Base				2017 Assessment			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Dunlop Avenue Left	1.284	16	0.218	0	1.311	17	0.224	0
Dunlop Avenue Right	1.341	97	0.425	1	1.407	107	0.456	1
Speke Hall Avenue Right	0.256	0	0.295	0	0.266	0	0.296	0

Table 6.7 - Summary of PICADY Output for Speke Hall Avenue/Dunlop Road Junction

Arm	2022 Base				2022 Assessment			
	AM		PM		AM		PM	
	RFC	Max Q	RFC	Max Q	RFC	Max Q	RFC	Max Q
Dunlop Avenue Left	1.356	20	0.241	0	1.391	22	0.248	0
Dunlop Avenue Right	1.407	121	0.471	1	1.440	134	0.503	0
Speke Hall Avenue Right	0.266	0	0.325	0	0.268	0	0.326	0

Table 6.8 - Summary of PICADY Output for Speke Hall Avenue/Dunlop Road Junction

6.9.15 As can be seen from Tables 6.7 and 6.8 the Speke Hall Avenue/Dunlop Road junction is forecast to operate over its theoretical capacity in both the AM and PM peak scenarios. This continues to be the case once the development traffic has been added onto the junction. That said the level of queuing observed during the surveys was substantially less than this and the resultant queuing is a result of the limitations of the PICADY program.

6.9.16 It must be noted that the impact of the proposals on the operation of this junction can be considered is negligible.

6.10 Capacity Assessment Summary

6.10.1 The capacity assessments detailed above, have demonstrated that the development proposals will result in a minimal impact on the local highway network.

6.10.2 This section also demonstrated that the traffic forecast to be generated by the proposed residential development can adequately be accommodated on the local highway network.

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7 ACCIDENT ANALYSIS

7.1 Introduction

7.1.1 For the purpose of this report an accident data analysis has been carried out in the vicinity of the site. The junctions and the number and type of accidents that have occurred between August 2006 and July 2011 are described below.

7.1.2 **NOT RECEIVED YET**

7.2 Summary

7.2.1 In view of this information it can be concluded that the local highway network in the vicinity of the site does not have an unduly poor safety record, and that there are no reasons to assume that this situation should be significantly worsened as a consequence of the development proposals. A full copy of the Accident Data is shown in **Appendix 8**.

8 SMARTER TRAVEL CHOICES

8.1 Introduction

8.1.1 In order to manage the travel by new residents of the development, the applicant wishes to offer a Travel Plan for the proposed residential development.

8.2 Travel Plan

8.2.1 The preparation and adoption of a Travel Plan is an important element of managing the demand for travel to all modern developments. The Department for Transport has issued two separate guides on the preparation of travel plans which are of relevance to this proposed development, these documents are as follows;

- *Making Residential Travel Plans Work* - Published in September 2005.
- *Good Practice Guidelines: Delivering Travel Plans through the Planning Process* – Published in April 2009.

8.2.2 These guidance encourages developers to provide a number of components to the Travel Plans, namely:

- Setting objectives and targets.
- Measures to promote and facilitate public transport use.
- Measures to promote and facilitate walking and cycling.
- Travel Information and marketing.
- Travel Plan co-ordinators

8.2.3 The effectiveness of Travel Plans in assisting the use of non-car modes for journeys to work is intrinsically linked to the accessibility of a given site by means other than the private car. The proposed Framework Residential Travel Plan is enclosed within **Appendix 9** of this report.

9 CONCLUSIONS

9.1.1 This Report has considered proposals for a residential development off Speke Hall Avenue in the Speke area of Liverpool.

9.1.2 The following conclusions have been drawn with regard to the proposed development:

- The proposed development will be accessed by safe and efficient vehicular access arrangements in two locations.
- The proposed development complies with local and national planning policy.
- The enhancement of pedestrian facilities on Speke Hall Avenue will enable safe pedestrian movement between the development site and the wide range of local services located within the Speke area.
- The site benefits from being located in close proximity to the bus stops located on Speke Hall Avenue which provides services that are ideally placed to cater for the needs of the development's residents, employers and visitors.
- The minimum accessibility standards are almost met and will be improved with the proposed enhancements to the local highway network.
- A Framework Travel Plan will also accompany the planning application to further reduce the reliance on the private car.
- The traffic likely to be generated by the proposed development and be accommodated on the local highway network.
- The traffic impact assessment indicated that the proposed development would have a negligible impact on the local highway network.

9.1.3 Based on the above it is the conclusion of this Report that there are no material reasons why the proposed development should not be granted planning consent on highways or transportation grounds.

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FIGURES

PLANS

APPENDICES

APPENDIX 1

Multi Modal TRICS Output

APPENDIX 2

Traffic Surveys

APPENDIX 3

Vehicular TRICS Output

APPENDIX 4

LINSIG Output for Southern Site Access/Speke Hall Avenue

APPENDIX 5

ARCADY Output for Western Site Access/Speke Hall Avenue

APPENDIX 6

LINSIG Output for Speke Hall Avenue/Speke Boulevard

APPENDIX 7

PICADY Output for Speke Hall Avenue/Dunlop Road

APPENDIX 8

Accident Statistics

APPENDIX 9

Framework Travel Plan