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Transport Assessment

Comprehensive Retail-led Regeneration of Former
Rayware Site, Speke Boulevard, Liverpool, L24 9HZ

Iceni Projects Limited on behalf of TJ
Morris Ltd

November 2016

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LTD

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Transport Assessment
COMPREHENSIVE RETAIL-LED REGENERATION OF
FORMER RAYWARE SITE, SPEKE BOULEVARD,
LIVERPOOL, L24 9HZ

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1. INTRODUCTION

- 1.1 Icen Projects Ltd has been appointed by TJ Morris Ltd to provide transportation advice in relation to the proposed redevelopment of the former Rayware Site, Speke Boulevard, Liverpool. The proposal seeks to redevelop the former employment site to provide a mixed use development comprising retail and employment uses and this Transport Assessment has been prepared in support of a hybrid planning application for the site. A Site Location Plan is attached at Appendix A1.
- 1.2 The proposal seeks a redevelopment of part of the site to provide a mix of uses comprising:
- “Hybrid planning application for comprehensive retail-led regeneration comprising: demolition of existing buildings and cessation of temporary airport car parking use; full planning application for erection of 1no. flagship retail unit for Home Bargains (Class A1 non-food retail use with 30% ancillary food and drink for consumption off the premises and ancillary customer café) with associated external garden centre, 1no. building for Class A1 food retail use, and 1no. leisure/café/restaurant unit for Class A3 or Class D2 uses along with access and servicing arrangements, car parking, landscaping and associated highway works; outline planning application for up to 9,000 square metres of employment uses (Classes B1(c), B2 and B8) including details of access with all other matters reserved.”
- 1.3 The methodology used in the preparation of this Transport Assessment (TA) principally follows the National Planning Practice Guidance (NPPG) ‘Travel Plans, Transport Assessments and Statements in decision-taking’ document. Consideration has also been given to the Department for Transport’s (DfT’s) Design Manual for Roads and Bridges (DMRB) guidance documents and Manual for Streets (MfS).
- 1.4 The scope of this Transport Assessment was discussed with Liverpool City Council and agreement was reached on the study area, trip generation, trip distribution, committed developments, and passby/diverted trip proportions. A copy of the correspondence is included at Appendix A2.
- 1.5 A separate Framework Travel Plan for the site has been submitted with the planning application.
- 1.6 The report is arranged as follows:
- Section 2 provides a description of the existing site conditions including site use, local highway network, existing levels of public transport provision, cycling and walking;
 - Section 3 provides an analysis of the Personal Injury Accident data within the study area;
 - Section 4 provides a description of the proposals, including access, development type, parking and servicing;

- Section 5 provides an overview of relevant national, regional and local policies and outlines how the proposed development accords with these;
- Section 6 describes the traffic generation of the proposal, distribution and impact;
- Section 7 provides an assessment of the junctions within the study area; and
- Section 8 provides a summary and draws conclusions.

1.7 The results of this assessment clearly show that the proposed development can be adequately accommodated on the site without detriment to road capacity and safety.

2. THE SITE AND SURROUNDINGS

Site Location

- 2.1 The application site is located on the former Rayware Factory site at Speke Boulevard, Liverpool. The site is bounded to the north, east and west by employment uses and to the south by Speke Boulevard.
- 2.2 The site, which was formerly a Rayware factory, is currently occupied by a private car park operator on a short term lease agreement.
- 2.3 Access to the site is taken via two priority junctions in Speke Boulevard to the south east and south west of the site. Direct pedestrian and cycle access can also be gained at these locations.

Existing Highway Network

- 2.4 Speke Boulevard is a 40mph two lane dual carriageway with shared footway/cycleway on both sides segregated from the carriageway by a grass verge for much of its length and only narrowing on the approach to junctions. The footway and cycleway are both circa 1.5m wide (3m in total) in the vicinity of the site, however, to the west of the site there are some sections up to 6m wide.
- 2.5 At each signalised junction to the east and west of the site, full pedestrian crossing movements are provided across most arms. A signalised pedestrian crossing is provided across Speke Boulevard adjacent to the eastern end of the site.
- 2.6 Both site accesses are priority junctions and a gap is provided in the middle of the carriageway enabling vehicles to cross Speke Boulevard and perform u-turns. There is a short diverge lane on the westbound approach to the gap in the carriageway, however, no such facility is provided eastbound.
- 2.7 The site access road is set back from the main carriageway on Speke Boulevard providing a safer route for pedestrians and cyclists away from the main carriageway.
- 2.8 To the west of the site, Speke Boulevard widens to 5 lanes on the approach to the stop line in both directions at the junction with Woodend Avenue and Western Avenue including 1 segregated left turn lane and 1 segregated right turn lane.

- 2.9 There are 3 lanes on the exit arm in both directions with the westbound arm reducing to 2 lanes after some 100m. The eastbound nearside lane serves as a left turn lane for Renaissance Lane some 350m east of the junction.
- 2.10 At its junction with Evans Road, Speke Boulevard widens to 4 lanes on the western approach to the stop line including 1 segregated left turn lane and 3 lanes on the eastern approach to the stop line also including a segregated left turn lane.
- 2.11 Evans Road is a 30mph single carriageway with 1 lane in each direction throughout. A 2m wide footway is provided on the eastern/southern side and a 3m wide shared footway/cycleway is located on the western/northern side.
- 2.12 Woodend Avenue is a 30mph single carriageway road with 1 lane in each direction widening to 4 lanes on the approach to its junction with Speke Boulevard, including a segregated left turn lane. A 2m wide footway is provided on the eastern side and a 3m wide shared footway/cycleway is located on the western side. An additional signalised crossing is located some 45m north of the junction's stop line. Up to this point the road is effectively a dual carriageway and the crossing requires two movements.
- 2.13 In order to gain an understanding of the operation of the existing highway network and car parking a site visit was undertaken on Friday 5th April 2013. Further, traffic flow and queue length surveys, and saturation flow data at the signalised junctions was obtained for the locations below on Thursday 28th January 2016 during the AM peak (0700-1000) and PM peak (1600-1900) and Saturday 30th January 2016 between (1100-1500):
- Speke Road / Speke Hall Road (signal junction)
 - Speke Boulevard / Evans Road (signal junction)
 - Speke Boulevard / Woodend Lane / Pharmacy Road / site access (priority junction)
 - Speke Boulevard / Woodend Avenue (signal junction)
 - Evans Road / Woodend Avenue (priority junction)
 - Evans Road/Goals access (priority junction)
- 2.14 Based on the surveys, the peak periods over the whole network have been identified as:
- AM peak – 07:45-08:45
 - PM peak – 16:30-17:30
 - Saturday peak – 13:45-14:45

- 2.15 The operation of the junctions during these periods is considered in detail in Section 6 of this report.

Road Safety

- 2.16 In order to assess the safety of the surrounding highway network, Personal Injury Accident (PIA) data has been obtained from Liverpool City Council for the 5 year period 31st December 2010 to 31st December 2015 including all of the junctions identified in paragraph 2.13 and adjoining roads and additional junctions to the north and west of the site. Full details of the accident data is included at Appendix A3.
- 2.17 Over the five years surveyed a total of 62 PIAs occurred. Of these, 52 resulted in slight injuries, 10 resulted in serious injuries and there were no fatalities. The number of accidents occurring has generally reduced each year, with 17 accidents occurring during 2010 and 6 occurring during 2015, with an average of some 12.4 accidents occurring annually. For a study area of this size, which includes the A561 strategic route, which carries large volumes of traffic in and out of Liverpool city centre and John Lennon Airport, it is considered that the number of PIAs recorded over this period is low. The accident breakdown by severity is shown in Table 2.1.

Table 2.1 Severity of Accidents

Severity	2011	2012	2013	2014	2015	Total	Average
Slight	15	10	9	12	6	52	10.4
Serious	2	2	4	2	0	10	2.0
Fatal	0	0	0	0	0	0	0
Total	17	12	13	14	6	62	12.4

- 2.18 The percentage of people killed or seriously injured (KSI) is higher than average, accounting for 16.1% of incidents recorded in the study area. Based on the data contained in the DfT report Reported Road Casualties in Great Britain 2014, 15.1% of all PIAs occurring in Merseyside in 2014 resulted in KSIs. As such, the number of these incidents in the study area is slightly higher than the average for the area. Notwithstanding, this proportion has been increased due to the low number of accidents occurring when compared to Merseyside.
- 2.19 Whilst it is accepted that the proportion of KSIs is higher than average for the area and on similar road types, it should be noted that none of the accidents resulted in fatalities and the average number of serious accidents per year (2) across the study area is considered low.

Vulnerable Road Users

- 2.20 Table 2.2 shows the annual breakdown of accidents involving more vulnerable road users. Over the five year period, nine accidents resulted in cyclists being injured, six involved a pedestrian, one

involved children and no older people were injured. In total, three pedestrians and one cyclist suffered serious injuries, whilst the rest of the incidents resulted in slight injuries. It should also be noted that one of the cycle accidents involved children and, as such, the total number of accidents involving vulnerable road users was 15; an average of 3 per year.

2.21 Considering these in more detail:

- Eight of the cyclists suffered slight injuries, while one sustained serious injuries. Six were injured as a result of drivers colliding with them while crossing their path, two resulted from cyclists crossing the path of cars and one resulted from a cyclists colliding with a car waiting at the traffic lights.
- Six pedestrians suffered slight injuries and three was seriously injured. Two accidents resulted from a bus colliding, three pedestrians whilst on a pedestrian crossing, and one occurred when a car turn into a junction.

2.22 The single accident involving a child occurred on a pedestrian crossing, where a driver failed to stop for the child while they crossed. Although consideration still needs to be given to passengers, it is accidents directly involving children that should be given greater consideration in terms of road safety.

Table 2.2 Injuries to Vulnerable Road Users

User	2011	2012	2013	2014	2015	Total	Average
Cyclist	1	3	2	2	1	9	1.8
Pedestrian	2	1	2	0	1	6	1.2
Child	0	1	0	0	0	0	0.2
Older people	0	0	0	0	0	0	0
Total	3	3	4	2	3	15	3.0
Total Accidents	3	3	4	2	3	15	3.0

2.23 Referring again to the DfT report, the following comparisons can be made between the 2014 national data and the data for the study area:

- Cyclists – 11% nationally, 14.5% in the study area;
- Pedestrians – 13% nationally, 9.7% in the study area;
- Children – 8% nationally, 1.6% in the study area
- Older people – 11% nationally, 0% in the study area; and
- Total – 43% nationally, 24.2% in the study area.

- 2.24 The proportion of vulnerable road users involved in accidents in the study area over the five year period surveyed is lower overall than the national average for 2014. It should also be noted that although cyclists represented a higher than average proportion of incidents, only 1.8 incidents per year occurred on average; this is considered low. Similarly with accidents involving children, only 1.6% directly involved children, which is below the national average.

Conclusions

- 2.25 PIA data was obtained for the five year period 31st December 2016 to 31st December 2015 covering the area surrounding the proposed development site at Speke Boulevard, Liverpool.
- 2.26 Whilst the proportion of accidents resulting in KSIs was higher than average, the actual number of accidents of this type is low with no fatalities occurring and an average of only 2 serious accidents per year across the study area.
- 2.27 The proportion of accidents involving vulnerable road users (24.2%) was significantly lower than the national average for 2014 (43%).
- 2.28 For a study area of this size, which includes more than 9 junctions including large signalised crossings with up to 20 lanes of traffic, it is considered that the number of PIAs recorded over this period is low.
- 2.29 Overall, it is considered that the existing number of accidents within the study area is low and there is no reason to suggest that the proposed development will result in an increased risk of accidents occurring.

Public Transport

Bus Services

- 2.30 The nearest bus stops to the site are located adjacent to the site on Speke Boulevard. These stops are served by 11 regular services. The 11 services provide approximately 25 buses per hour during the day. As such, the site is well located for access to many bus services across Liverpool. Table 2.3 below details the routes that can be accessed from these stops.

Table 2.3 Bus Services

Bus	Route	First Bus	Last Bus	Frequency
80	Liverpool – Speke	0553	1928	3 per hour
80E	Liverpool – Speke Boulevard	1942	2002	2 per day
81	Speke – Bootle	0539	2347	3 per hour

81A	Liverpool John Lennon Airport – Bootle	0556	2020	3 per hour
82	Liverpool – Speke	0453	0030	10 per hour
82A	Halton Hospital – Otterspool – Liverpool	0556	2355	2 per hour
82D	Liverpool – Speke	0643	0812	1 per hour
201	Royal Liverpool Hospital – Speke	1327	2041	3 per day
800	Speke – Liverpool Freeport, Seaforth	0700	-	1 per day
883	Liverpool John Lennon Airport – Huyton Industrial Estate	0437	2324	1 per hour
X1	Windmill Hill – Runcorn – Liverpool	0615	2034	2 per hour

Rail

- 2.31 Hunts Cross rail station is situated 1 mile from the site and is served by two rail operators. The Northern Rail service, which runs between Liverpool Lime Street and Manchester Picadilly, operating at a frequency of two trains per hour during peak periods and one per hour throughout the day. The Merseyrail service runs from Hunts Cross to Southport/Ormskirk at a frequency of four trains per hours. Although retail customers are unlikely to travel to the site by train, it is a viable mode for staff as part of a linked trip with bus or cycle, with routes for both modes running between the site and the railway station.

Cycling

- 2.32 A traffic free cycle route runs along both sides of Speke Boulevard providing excellent access to the site by cycle. The route runs along the site's access road. This route links directly to other traffic free and suggested cycle routes in the area, providing a safe link to the site for a large area of Speke and south eastern Liverpool in particular.

Pedestrians

- 2.33 A segregated shared footway/cycleway runs along both sides of Speke Boulevard and runs along the site's access route providing safe access for pedestrians. A signalised pedestrian crossing across Speke Boulevard is provided adjacent to the main site access and signalised crossings are provided across all arms of the signalised junctions to the east and west of the site providing safe routes for all people walking to the site, including those travelling primarily by bus.
- 2.34 The crossings provide access to the predominantly residential area to the south of Speke Boulevard providing an opportunity for people living in this area to walk to the site.

Summary

- 2.35 It has been shown that the redevelopment site is located in a sustainable location with good footway and cycle links, and is adjacent to frequent bus services, which supply good area coverage. Although rail services are unlikely to be used by customers, employees may use them as part of a multi modal trip combining train travel with bus or cycle.
- 2.36 In conclusion, the proposed development provides opportunities to use modes other than the car and will provide all users of the site with a good level of access to all alternative modes of travel.

3. TRANSPORTATION POLICY

- 3.1 In considering the policy context of the proposal, we have had regard to; National Planning Policy Framework – March 2012, the Liverpool City Council Unitary Development Plan and the Liverpool City Council ‘Ensuring a Choice of Travel’ Supplementary Planning Document. In terms of highways, the latter document is the key policy document.

National Planning Policy Framework (NPPF) – March 2012

- 3.2 The National Planning Policy Framework (NPPF), which was adopted in March 2012, sets out the Government’s planning policies for England and how these are expected to be applied. It provides a framework within which local people and their accountable councils can produce their own distinctive local and neighbourhood plans, which reflect the needs and priorities of their communities. As a result of this policy being adopted, all Planning Policy Guidance and Planning Policy Statements have been superseded, including PPG13 (Transport), which was formerly used as a basis for national transport policy. As such, any detailed policy guidance previously provided within PPG13 will no longer act as the default policy where no policy has been set by the local authority. All detailed transport policies will now be found within Unitary Development Plan and Local Development Framework documents adopted by each local authority.
- 3.3 While no longer policy, there are two key aspects within PPG13 which are still of relevance when determining a site’s level of sustainable travel access. Paragraph 74 states with regard to walking that:

“Walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under two kilometres. Walking also forms an often forgotten part of all longer journeys by public transport and car.”

3.4 Paragraph 77 goes on to state that:

“Cycling also has potential to substitute for short car trips, particularly those under five kilometres, and to form part of a longer journey by public transport”

3.5 It is considered that the walking and cycling distances referred to in PPG13 remain valid and should not be overlooked when determining the walking and cycling accessibility of development sites.

3.6 With regard to transport policy, the NPPF states in Paragraph 32 that:

“All developments that generate significant amounts of movement should be supported by a Transport Statement or Transport Assessment. Plans and decisions should take account of whether:

- the opportunities for sustainable transport modes have been taken up depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- safe and suitable access to the site can be achieved for all people; and
- improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.”

3.7 Paragraphs 34 to 36 go on to say that:

“Plans and decisions should ensure developments that generate significant movement are located where the need to travel will be minimised and the use of sustainable transport modes can be maximised. However this needs to take account of policies set out elsewhere in this Framework, particularly in rural areas.

- Plans should protect and exploit opportunities for the use of sustainable transport modes for the movement of goods or people. Therefore, developments should be located and designed where practical to
- accommodate the efficient delivery of goods and supplies;
- give priority to pedestrian and cycle movements, and have access to high quality public transport facilities;
- create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians, avoiding street clutter and where appropriate establishing home zones;
- incorporate facilities for charging plug-in and other ultra-low emission vehicles; and
- consider the needs of people with disabilities by all modes of transport.

A key tool to facilitate this will be a Travel Plan. All developments which generate significant amounts of movement should be required to provide a Travel Plan.”

3.8 The NPPF also supports the development of a mix of uses within all areas in order to encourage travel by non-car modes and to reduce the length of journeys being undertaken for employment, shopping, leisure, education and other activities. In addition to this, large residential developments should be located within walking distance of primary school and local shops in particular to further reduce reliance on the private car.

3.9 The site is located in an area with very good public transport accessibility providing opportunities for all users of the site to use modes other than the car. The site is also well connected to the pedestrian network and within close proximity to public transport services and surrounding residential areas.

3.10 The proposed development site could not be better located to encourage cycle accessibility being adjacent to the local cycle network, with most roads surrounding the site being designated as quieter roads suitable for cycling or signed on-road routes. A large proportion of the area within 5km of the site is residential meaning that cycling would be a viable option for all users of the site

living within this distance and a number of national rail and underground services are also located within 5km, meaning that cycling could form part of a multimodal journey to and from the site.

3.11 The site is also located close to a mix of uses, with retail, leisure and commercial uses located close to the site all within a reasonable walking distance, thus providing the opportunity for linked trips.

3.12 Sustainable travel will be further encouraged through separate Travel Plans for the retail and residential elements of the development and it is therefore considered that the site accords well with NPPF.

National Planning Practice Guidance (NPPG) – March 2014

3.13 Information contained as part of the National Planning Practice Guidance (NPPG), provides advice for travel plans, transport assessments and statements in decision-taking.

“Travel Plans, Transport Assessments and Statements are all ways of assessing and mitigating the negative transport impacts of development in order to promote sustainable development. They are required for all developments which generate significant amounts of movements.”

3.14 This report follows the advice within the guidance and accords with providing the information which should be included as part of a Transport Assessment.

3.15 The site is located in an area with good public transport accessibility providing opportunities for residents to use modes other than the car.

3.16 The proposed development conforms with the NPPG policies being well located to the existing public transport facilities. The proposed development site is also well located to encourage cycle accessibility being adjacent to and linking with roads suitable for cycling.

Liverpool City Council Unitary Development Plan

3.17 The Liverpool City Council Unitary Development Plan (UDP) was adopted in November 2002 and under the current planning system, the UDP is a ‘saved plan’, which means it is a Development Plan Document (DPD) within the current Local Development Framework. It will gradually be

replaced by new DPDs and Supplementary Planning Documents (SPDs), but at this time it remains the most commonly used document for making planning decisions in Liverpool.

- 3.18 Although the UDP contains transport policies, these have been superseded by the policies contained within the 'Ensuring a Choice of Travel' SPD and, as such, the UDP policies are not considered in detail within this report.

Ensuring a Choice of Travel Supplementary Planning Document

- 3.19 The Ensuring a Choice of Travel SPD, which was adopted in December 2008, was developed in partnership with the Merseyside Local Authorities and Merseytravel in order to provide consistent guidance to developers on access and transport requirements for new development across the wider Merseyside area. Its overall objectives are:

- Ensure a reasonable choice of access by all modes of transport to new development;
- Reduce the environmental impact of travel choices, by reducing pollution, and improving the local environment;
- Improving road safety;
- Promote healthier lifestyles by providing opportunities for people to walk or cycle for work or leisure purposes;
- Reduce the level of traffic growth and congestion on the strategic and local road network; and
- Encourage opportunities to improve the quality of development proposals by better use of space through the provision of less car parking spaces where appropriate.

- 3.20 The proposed development benefits from a good choice of access by all modes of transport and provides further opportunities and encouragement for people walking or cycling to the site, which should help to minimise the impact on congestion and the environment. The level of parking proposed will also encourage non-car travel to the site. As such, the proposal complies with the overall aims of the SPD.

- 3.21 The document contains a number of policies relating to highways and transport and those relevant to this application are outlined below.

Policy 1 RSS Policy RT2 - Managing Travel Demand

“Plans and strategies will need to be specific to the nature and scale of the problems identified, set clear objectives and specify what is being proposed, why it is necessary and what the impacts will be. They should:

- Ensure that major new developments are located where good access to public transport already exists, backed by effective provision for pedestrians and cyclists to minimise the need to travel by private car;
- Seek to reduce private car use through the introduction to 'smarter choices' and other incentives to change travel behaviour which should be developed alongside public transport, cycling and pedestrian network and service improvements;
- Consider the effective reallocation of road space in favour of public transport, pedestrians and cyclists alongside parking charges, enforcement and provision and other fiscal measures, including road user charging;
- Make greater use of on-street parking controls and enforcement; and
- Incorporate maximum parking standards that are in line with, or more restrictive than Table 8.1 [of the SPD], and define standards for additional land use categories and areas where more restrictive standards should be applied. Parking for disabled people and for cycles and two-wheeled motorised vehicles are the only situations where minimum standards will be applicable.”

As already stated, the site is located adjacent to an existing bus stop served by some 24 buses per hour and a traffic-free cycle route runs along Speke Boulevard, including the site's service road. The parking provision on the site will be below the standards and as such the site accords with this policy.

3.24 Policy 3 states that:

Policy 3 T12 – Car parking provision in new developments

“All new developments including changes of use, which generate a demand for car parking will be required to make provision for car parking on site, to meet the minimum operational needs of the development. Additional space for non-operational car parking will be permitted up to a maximum standard. This will be determined by:

- the nature and type of use;
- whether off-site car parking would result in a danger to highway and pedestrian safety;
- whether the locality in which the proposed development is located is served by public car parking facilities;
- whether off-site parking would result in demonstrable harm to residential amenity; and
- the relative accessibility of the development site by public transport services.”

3.25 The proposed parking provision for the site is below the maximum standards and, as such, the development accords with this policy.

3.26 Policy 4 states that:

Policy 4 T3 – Car parking for the disabled

“Car parking for the disabled should be provided in accordance with the following specific standards:

- a minimum of 6% of the first 100 parking spaces in a development should be reserved for Blue [formerly Orange] Badge holders. Thereafter, the number of spaces will be negotiable;
- parking bays should be wide enough to facilitate the easy transfer of a wheelchair to and from a car;
- disabled parking bays should be clearly marked as such and should be located close to the point of access to and from the development served; and
- within multi-storey car parks, disabled parking bays must be adjacent to lifts.”

3.27 Disabled parking will represent 6% of the total parking on the site and as such the proposal accords with this policy.

3.28 Policy 5 states that:

Policy 5 T6 – Cycling

“The City Council will promote and support initiatives designed to maximise the role of cycling as a transport mode by:

- adopting a cycling strategy for Liverpool which will include the formulation of a Strategic Cycle Route Network and the setting of targets regarding cycle use;
- improving the condition of designated cycle routes in the City;
- catering for cyclists’ needs in the design of all highway improvement schemes, traffic management schemes, road safety schemes, the road maintenance programme, and giving consideration to the provision of safe cycling routes through all major development and redevelopment sites;
- improving road signage, road conditions, junction priorities and carriageway crossings where cycle routes join highways;
- introducing appropriate traffic calming and speed reduction measures on designated cycle routes and areas of high cycle usage; and
- ensuring that secure cycle parking facilities are provided at locations regularly visited by the public and requiring new developments to provide secure cycle parking facilities.”

3.29 The site is located on an existing traffic-free cycle route and cycle parking will be provided in accordance with the cycle parking standards. The new site access junction has been designed to accommodate cyclists entering and exiting the site as well as those travelling along the cycle route. On this basis, the proposed development accords with this policy.

Summary

3.30 The site benefits from very good bus, pedestrian and cycle access, with routes for each mode available adjacent to the site. Parking for cars and cycles will be provided in accordance with the standards and the site will be designed to ensure safety for all users, particularly pedestrians and cyclists. As such, the development accords with national and local transport policies.

4. PROPOSED DEVELOPMENT

4.1 This section outlines the proposals for the redevelopment of the former Rayware site as detailed within the introduction. In order to ensure that the development accords with the 'Ensuring a Choice of Travel' SPD, a Minimum Accessibility Standard Assessment has been undertaken and is outlined within the TA and included at Appendix A7.

4.2 The proposal seeks a redevelopment of part of the site to provide a mix of uses comprising:

- a 2,413m² GFA Home Bargains store;
- a 2,560m² open A1 retail space split into three units; and
- a 344m² D2/A3 2 Storey unit for leisure/restaurant/coffee use

4.3 In addition to this, additional plots totalling some 9,000m² have been identified within the site for future redevelopment for employment use, however, at this stage the number and size of units and the specific uses on the site have not been considered in detail. A site layout plan is included at Appendix A4.

Access

4.4 Access to the site is currently taken via two priority junctions in Speke Boulevard to the south east and south west of the site. Direct pedestrian and cycle access can also be gained at these locations. Both junctions are considered to be unsafe and not appropriate for the proposed development so will be stopped up and reinstated as footway and verge.

4.5 In order to provide access to the site a new access will be provided in Evans Road by forming a mini roundabout junction with the Goals access opposite. This will be for staff and customer use only. A further internal mini roundabout will provide access to the retail units to the north of the junction and the drive thru and future employment site to the south.

4.6 The future employment site will be accessed via a priority junction off of the existing internal road which runs parallel with Speke Boulevard. This internal road will be stopped off at the eastern end meaning that all staff and customer traffic will enter and exit the site via Evans Road.

4.7 The Evans Road approach to its junction with Speke Boulevard will be widened to provide two lanes between the new site access and Speke Bouelvard.

- 4.8 Consideration was given to providing a priority junction on Evans Road, however, it is considered that this would have the potential to block back to Speke Boulevard if vehicles are unable to turn right into the site and there are inherent safety issues with crossroads. While keep clear or yellow box markings could be provided to prevent vehicles queuing at the Speke Boulevard junction from blocking the junction this would also reduce stacking space southbound, which would impact on the number of vehicles that could get through the signal junction each green time, with vehicles needing to filter closer to the junction to access the two lanes proposed.
- 4.9 The key movement to accommodate is vehicles turning right into the site, which will be achieved with the mini roundabout option as these vehicles will always have priority over vehicles travelling south on Evans Road. As such, vehicles travelling south will be required to wait at the give way line to enable right turners into the site. Equally, with a right turn lane, vehicles wanting to turn right out of the access will find it harder to do so with a priority junction as the predominant flow into the site will be via Speke Boulevard. With a mini roundabout, right turners out of the site will get greater opportunities to exit as they will have priority over right turners into the site. On balance, it is considered that the proposed mini roundabout junction will be both safer and will be the best solution for all road users.
- 4.10 All service vehicles for the retail and future employment units will access the site via a new priority junction to the north of the site via the Evans Road spur road. As such, there will be no conflict between customer and delivery vehicles. Deliveries to the drive thru will be made via the proposed access, however, these will not be made by articulated lorries with 7.5T box vans or smaller being generally used for these types of occupiers. The unit will also attract no more than 1 delivery per day and this will generally not occur during peak periods.

Car Parking

Retail Park

- 4.11 Vehicle parking, including standard and disabled parking for all uses at the site will conform to the relevant standards set out in LCC's *'Ensuring a Choice of Travel Supplementary Planning Document'*. The standards and the number of spaces applicable to this development are outlined below:

A1 – Shops

- 1 space per 14m² (A1 - Food Shops) = maximum 183 spaces
- 1 space per 20m² (A1 - Other Shops) = maximum 121 spaces
- Total parking = maximum 304 spaces
- Disabled Parking – 4 spaces plus 4% of the total number of spaces = 13 (4 + 9)
- Taxis – one pick-up/ set down required above 1,000m²

- Motorcycles 1 Space per 500m² = 10

4.12 It is proposed to provide a total of 231 spaces, including 15 disabled spaces and 3 parent & child spaces. Although the total number of parking spaces proposed is below the maximum permitted there will be an element of linked trips between the two retail units meaning that fewer spaces will be required. Additionally, the site is on a traffic-free cycle route and is adjacent to a bus stop served by up to 25 buses per hour. On the basis that the site is accessible by non-car modes and there will be an element of linked trips it is considered that a lower parking provision is appropriate.

4.13 If it is assumed that there will be 10% linked trips then the parking demand will reduce accordingly. On this basis, the maximum provision could arguably be 274 spaces meaning that the proposed parking provision equates to 84% of the required parking provision. In light of the very good sustainable travel access this is considered to be appropriate. Furthermore, if the site were to be occupied solely by non-food operators then the maximum provision permissible would be 249 spaces, for which the proposed parking provision equates to 93%.

Employment site

4.14 The standards and the number of spaces applicable to this development are outlined below:

B1 Business

- Elsewhere - 1 space per 36m² (Business Parks) = maximum 250 spaces

B2 General Industrial / B8 Storage and Distribution

- 1 space per 60m² (Storage and Distribution) = maximum 150 spaces
- 1 space per 48m² (General Industrial) = 188 spaces
- Up to 200 bays - 1 space for each disabled employee, plus two spaces or 5% of the maximum standard, whichever is greater = minimum 2 spaces
- Motorcycles 1 space per 1900m² (minimum of 2 spaces) = 2 spaces

4.15 The parking provision outlined above assumes the whole site would be occupied by each type of occupier meaning that if the site was fully occupied by B1 type uses up to 250 spaces could be provided, whereas 100% B8 occupiers would mean that up to 150 would be permitted. The site layout has not been considered in detail as part of this application, however, any future application for the site will include parking provision within these parameters. Current market research indicates that the site is more likely to attract B2/B8 occupiers meaning that provision is likely to be towards the lower end of the scale. Providing parking in accordance with B1 business park standards would likely result in a significant over-provision of parking, which would be contrary to national and local policies promoting sustainable travel.

Cycle Parking

Retail Park

- 4.16 Cycle parking will conform to the relevant standards set out in LCC's *'Ensuring a Choice of Travel Supplementary Planning Document'*. The standards and the number of spaces applicable to this development are outlined below:

A1 – Shops

- Staff - 1 secure covered space and locker per 300m² = minimum 13 spaces
 - Customers – 1 space per 200m² = minimum 20 spaces
- 4.17 A total of 36 spaces will be provided close to the entrances to the stores with 20 adjacent to the discount retail store and 16 adjacent to the discount food retail store.

Employment Site

- 4.18 The standards and the number of spaces applicable to this development are outlined below:

B1 Business

- Staff - 1 secure covered space and locker per 400m² = minimum 23 spaces
- Customer / Visitor - 1 space per 300m² = minimum 30 spaces
- Total – minimum 53 spaces

B2 - General Industrial / B8 Storage and Distribution

- Cycles Staff - 1 secure staff space and locker per 500m² = minimum 18 spaces
- 4.19 As with car parking, this element of the site has not been considered in detail, however, appropriate cycle parking based on the above will be provide and the provision outlined in a future application based on the likely mix of occupiers.

Service Vehicle Access

- 4.20 Swept path analysis has been undertaken to demonstrate that the proposed layout conforms to the design guidance set out in Manual for Streets (MfS) detailing that fire tenders, public service and refuse vehicles can serve the site. Additionally, vehicle tracking has been undertaken to demonstrate that the service yards associated with the various uses on the site can accommodate specific HGV types. The swept path analyses are included at Appendix A6.

Minimum Accessibility Standard Assessment

- 4.21 One of the requirements of LCC's Ensuring a Choice of Travel Supplementary Planning Document is the completion of a Minimum Accessibility Standard Assessment to enable the Council to

determine whether developments are accessible by all modes. The completed assessment form is included at Appendix A7 and is summarised in Table 4.1 below.

Table 4.1 Minimum Accessibility Standard Assessment Summary

Criteria	Minimum Standard				Actual Score
	A1	B1	B2	B8	
Access on Foot	4	4	2	2	2
Access by Cycle	3	4	2	2	3
Access by Public Transport	4	4	4	4	5
Vehicle Access and Parking	1	1	1	1	1

4.22 It can be seen that generally each of the land uses proposed on the site meet the minimum standards with the exception of A1/B1 access on foot and B1 access by cycle. The reason for this is that the scoring awards 2 points for a development where the housing within 800m has a density of more than 50 houses per hectare and no points if it does not. The proposed development is within 800m of housing in Speke to the south of Speke Boulevard, which has a general density of between 30 and 50 houses per hectare. A signalised pedestrian crossing adjacent to Woodend Lane links the site the residential area providing very good access for pedestrians and cyclists. As such, it is considered that the scoring does not reflect the true accessibility of the site by these modes.

4.23 It should be noted that the score for access to public transport exceeds the minimum standard for all land uses.

5. TRAFFIC GENERATION

5.1 This section of the report outlines the existing, extant, committed and proposed trip generation associated with this development and explains how suitable trip rates for the extant site have been derived to assess the capacity for the immediate highway network. The resulting traffic flow diagrams are included at Appendix A8.

5.2 The trip generation data, trip distribution, trip types and committed developments included within the TA have all been agreed with the highway officer and form the basis of this section.

Extant Land Use

5.3 From the outset, it is important to recognise that the current site has the potential to generate a number of vehicle trips. In order to ascertain the likely level of trips associated with the site, the TRICS database has been interrogated to ascertain the number of trips that could be generated by a B2 development located on the site. Similar sites in terms of land use, size and location (suburban/edge of town) have been selected in accordance with the TRICS guidelines.

5.4 Based on the surveys, the peak periods over the whole network have been identified as:

- AM peak – 07:45-08:45
- PM peak – 16:30-17:30
- Saturday peak – 13:45-14:45

5.5 Table 5.1 shows the trip rates for the extant use based on the TRICS data, a full copy of which is included at Appendix A9.

Table 5.1 Extant Trip Rates

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
Network AM Peak	0.199	0.056	0.255	45	13	58
Site AM Peak (07:30-08:30)	0.301	0.092	0.393	68	21	89
Network PM Peak	0.035	0.160	0.195	8	36	44
Site PM Peak (16:30-17:30)	0.053	0.285	0.338	12	64	76

Notes: The trip generation is based on the existing GFA of 22,575m²

- 5.6 The extant trip generation has been added to the observed flows to calculate the baseline flow and has been distributed based on observed turning proportions.

Current Use

- 5.7 The site currently has temporary permission for use as a car park operated by In2CarParks primarily as off-site parking for the airport. The usage of this car park has been observed as part of the traffic survey data obtained for the site access junction. The flows for this use are negligible and as such have not been used for calculating the trip distribution at the junction.

Trip Generation

- 5.8 The TRICS database has been interrogated in order to estimate the likely number of trips associated with the proposed and potential future uses on the site. Similar sites in terms of land use, size and location type (suburban/edge of town) have been selected to ensure that the sites selected have similar characteristics to the development site. Full TRICS outputs are included at Appendix A9.
- 5.9 With regard to the Home Bargains site, there are no similar discount retail sites within TRICS and, as such, all non-food retail units have been considered. A large number of the sites included on TRICS are bulky goods retailers (carpet retailers, electrical retailers, etc), which do not have similar trip generating characteristics to a Home Bargains store. As such, the sites selected were those selling predominantly smaller, cheaper items that will generally have a higher turnover of customers, such as pet supplies, sports goods and Argos has also been included as they also have a high turnover of customers.
- 5.10 Similarly, there are a very limited number of trade counter sites on TRICS, with the majority of B8 sites being storage and distribution, which often have a very low trip rate. As such, the sites were interrogated in more detail to obtain developments that also generate customer trips.
- 5.11 There are a large number of discount food retail sites and these have been selected based purely on the criteria outlined in paragraph 5.7.
- 5.12 The future employment sites are likely to be predominantly B8 use with an element of B2 and B1(c) light industry. Although the size and specific uses of the employment units will not be specified within the planning application, for the purposes of the Transport Assessment it has been assumed that the total GFA of the units will be 9,000m² comprising 70% B8 (6,300m²), 20% B2 (1,800m²) and 10% B1(c) (900m²).
- 5.13 Tables 5.2 to 5.5 show the trip rates and estimated trips for the proposed discount retail, discount food retail and trade park units on the site along with the total estimated trips for these uses.

Please note that the total trips have been reduced by 10% to account for linked trips between the uses on the site

Table 5.2 Food Retail Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	3.626	2.425	6.051	84	56	139
PM Peak (16:30-17:30)	8.501	8.489	16.990	196	196	391
Saturday Peak (13:45-14:45)	6.505	6.429	12.934	150	148	298

Notes: Based on 2,560m² GFA with a reduction of 10% for linked trips

Table 5.3 Discount Retail Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.840	0.640	1.480	18	14	32
PM Peak (16:30-17:30)	1.755	2.075	3.830	38	45	83
Saturday Peak (13:45-14:45)	5.476	5.238	10.714	119	114	233

Notes: Based on 2,413m² GFA with a reduction of 10% for linked trips

Table 5.4 Drive Thru Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.000	0.000	0.000	0	0	0
PM Peak (16:30-17:30)	2.806	3.341	6.147	65	77	142
Saturday Peak (13:45-14:45)	1.919	2.054	3.973	44	47	92

Notes: Based on 344m² GFA with a reduction of 10% for linked trips

Table 5.5 Total Detailed Application Trips

Period	Number of Trips		
	Arrive	Depart	Total
AM Peak (07:45-08:45)	102	70	172
PM Peak (16:30-17:30)	299	318	616
Saturday Peak (13:45-14:45)	313	309	622

- 5.14 Based on the data outlined above, the elements of the application that are being applied for in detail will generate 172 two-way trips during the AM peak, 616 during the PM peak and 622 during the Saturday peak.
- 5.15 Tables 5.6 to 5.9 summarise the trip rates and estimated trips for the future employment uses, for which outline permission is being sought. As stated previously, the GFAs for the units and the proportion of each use to be provided on the site are only being used for indicative purposes at present to gain an understanding of the likely number of trips that could be generated by the plots. As such, the unit sizes and mix of uses is subject to change.

Table 5.6 B1 Light Industry Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.661	0.251	0.912	6	2	8
PM Peak (16:30-17:30)	0.284	0.502	0.786	2	5	7

Notes: Based on 900m² GFA

Table 5.7 B2 Industrial Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.447	0.095	0.542	8	2	10
PM Peak (16:30-17:30)	0.177	0.421	0.598	3	8	11

Notes: Based on 1,800m² GFA

Table 5.8 B8 Storage & Distribution Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.450	0.144	0.594	28	9	37
PM Peak (16:30-17:30)	0.169	0.232	0.401	11	15	26

Notes: Based on 6,300m² GFA

Table 5.9 Total Outline Application Trips

Period	Number of Trips		
	Arrive	Depart	Total
AM Peak (07:45-08:45)	42	13	55
PM Peak (16:30-17:30)	16	28	44

5.16 The data shows that the number of trips associated with the potential future employment uses on the site is relatively low with only 55 two-way trips in the AM peak and 44 in the PM peak.

5.17 While LCC challenged the split of different uses, these are considered to be appropriate based on the likely occupiers on a site like this. B2/B8 occupiers are more likely to find this location attractive due the proximity to the M62 enabling easy access to the strategic route network. Notwithstanding this, consideration has been given to an alternative scenario as outlined in Tables 5.10 to 5.13 overleaf.

Table 5.10 B1 Light Industry Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.661	0.251	0.912	24	9	33
PM Peak (16:30-17:30)	0.284	0.502	0.786	10	18	28

Notes: Based on 3,600m² GFA (40%)

Table 5.11 B2 Industrial Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.447	0.095	0.542	16	3	20
PM Peak (16:30-17:30)	0.177	0.421	0.598	6	15	22

Notes: Based on 3,600m² GFA (40%)

Table 5.12 B8 Storage & Distribution Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.450	0.144	0.594	8	3	11
PM Peak (16:30-17:30)	0.169	0.232	0.401	3	4	7

Notes: Based on 1,800m² GFA (20%)

Table 5.13 Total Outline Application Trips

Period	Number of Trips		
	Arrive	Depart	Total
AM Peak (07:45-08:45)	48	15	63
PM Peak (16:30-17:30)	20	37	57

- 5.18 Based on the alternative scenario, the employment site would generate an additional 8 more trips in the AM peak and 14 more in the PM peak compared with what is considered to be the more realistic split of occupiers.
- 5.19 Based on the trip distribution used within this assessment, of these, 7 in the AM and 12 in the PM will travel via Speke Boulevard with the remainder arriving/departing via the northern arm of Evans Road. In the context of the existing flows through the junctions this level of additional trips will be negligible and will not result in any material difference to the capacity of the existing or proposed junctions. As stated previously, it is considered that the development will be more likely to attract B2/B8 occupiers and the data outlined in Tables 5.6 to 5.9 has been used within the assessment.

Committed Development

5.20

In addition to the proposed and potential future developments on the application site, the trip generation of the currently vacant plots at Venture Point, which is located directly to the north of the site, needs to be considered. This is pertinent as the development proposal includes the provision of a new link road through the site linking Venture Point with Speke Boulevard. Although some of the plots have not been developed at present, and they are therefore committed developments, the trip generation data for the site is not available on the LCC website. As such, the trip rates outlined above have been applied to the vacant plots. The total GFA of the unoccupied units for which planning permission has been granted is 13,530m² and for the purpose of this assessment it has been assumed that 30% of this will be occupied by B8 uses, 20% by B1 Office and 50% B1 light industrial. Tables 5.14 to 5.17 summarise the trip rates and estimated trips.

Table 5.14 B1 Light Industrial Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.661	0.251	0.912	45	17	62
PM Peak (16:30-17:30)	0.284	0.502	0.786	19	34	53

Notes: Based on 6,765m² GFA

Table 5.15 B1 Office Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	1.451	0.143	1.594	39	4	43
PM Peak (16:30-17:30)	0.284	0.502	0.786	8	14	21

Notes: Based on 2,706m² GFA

Table 5.16 B8 Storage & Distribution Trips

Period	Trip Rate per 100m ²			Number of Trips		
	Arrive	Depart	Total	Arrive	Depart	Total
AM Peak (07:45-08:45)	0.450	0.144	0.594	18	6	24
PM Peak (16:30-17:30)	0.169	0.232	0.401	7	9	16

Notes: Based on 4,059m² GFA

Table 5.17 Total Venture Point Trips

Period	Number of Trips		
	Arrive	Depart	Total
AM Peak (07:45-08:45)	102	27	129
PM Peak (16:30-17:30)	34	57	90

5.21 The trips outlined in Table 5.17 have been distributed on the network as committed development.

5.22 In addition to this, the following committed developments have been included:

- Former Tea Factory Site – ref 12/O2431
- Imagine Park – ref 11/F1890
- A2/A3 development (currently part occupied by Toby Carvery) – ref 11/F1459

5.23 The trips associated with each site have been taken from the respective individual Transport Assessments and distributed across the study area based on the distribution used in each assessment and, where necessary, using observed turning proportions to distribute the traffic across the whole study area for this application.

Distribution

5.24 Speke Boulevard carries predominantly through traffic, something which is clear from the survey data with straight ahead movements along the road in both directions accounting for the majority of trips at all junctions.

- 5.25 For this reason, the observed distribution at junctions has not been utilised as this would be biased towards the assumption that most trips would be to/from Liverpool and the M62, which will not be the case for the retail units in particular. In order to obtain a more localised distribution, it has been assumed that the majority of trips will be made to/from the surrounding residential areas to the north and south of the site. Trip distribution diagrams are included at Appendix A8.
- 5.26 Separate distributions have been assumed for retail and employment trips at the development site, Venture Point trips and committed development trips to reflect the different origins and destinations of these distinct groups. It should also be noted that a larger proportion of employment trips are assumed to have an origin/destination to the east of the site, with people commuting from surrounding towns.

Passby and Diverted Trips

- 5.27 As stated previously, Speke Boulevard carries a large proportion of through traffic and as such it is reasonable to assume that a large proportion of trips associated with the proposed retail units will come from vehicles already passing the site or driving on roads nearby. The TRICS report '*TRICS Research Report 95/2 – Pass by & Diverted Traffic*' provides details of research undertaken by TRICS on the proportion of Primary (single purpose) and Secondary (passby/diverted) trips associated with retail uses. For a site such as the application site, the report concludes that on Fridays around 60% of trips are primary trips and 40% secondary. On a Saturday there are more primary trips equating to some 80% of trips.
- 5.28 Given the high proportion of through traffic passing the site it is reasonable to assume that the proportion of secondary trips associated with the retail units will be high and, as such, it has been assumed that 40% of weekday trips and 20% of Saturday trips will be made up of passby and diverted trips in accordance with the TRICS research document. These have been split as follows:
- Weekday – 25% passby/15% diverted
 - Saturday – 15% passby/5% diverted
- 5.29 In this location, this is considered to be a robust assessment of the primary and secondary trips as it is considered likely that the actual proportion of secondary trips will be higher than this.
- 5.30 Given that staff will not necessarily already be on the network at present and may travel longer distances to work than customers would travel to the retail units, no reduction has been made for any employment trips in terms of passby and diverted trips.

- 5.31 In addition to the passby and diverted trips, it is likely that there will be an element of linked trips with nearby retail and leisure uses, in particular the New Mersey Retail Park to the west of the site, the Ford Dealership and Dobbies garden centre at the Speke Hall Road junction and the A2/A3 development currently only occupied by Toby Carvery. In order to provide a robust assessment no reduction has been made in the number of trips to account for linked trips to these uses.
- 5.32 On the basis of the above it is considered that the proportion of primary trips included within the assessment is robust given the nature of the surrounding roads and the likelihood of linked trips with other retail and leisure uses nearby.

Future Assessment Years

- 5.33 It has been agreed with LCC that as well as assessing the 2016 peak periods the future years of 2021 and 2026 will be assessed. As such, the growth rates have been obtained from TEMPRO for Liverpool and the resulting factors that have been utilised within the assessments are shown in Table 5.18 and have been applied to the observed 2016 flows to obtain the background growth for 2021 and 2026.

Table 5.18 TEMPRO NTM Growth Rates

Period	2016-2021	2016-2026
AM	1.0690	1.1324
PM	1.0685	1.1324
Sat	1.0680	1.1324

- 5.34 The following scenarios have therefore been modelled for the AM, PM and Saturday peak periods:
- 2016 Observed
 - 2016 Base (including extant and committed flow)
 - 2016 Base + Proposed
 - 2021 Base
 - 2021 Base + Proposed
 - 2026 Base
 - 2026 Base + Proposed

6. JUNCTION CAPACITY ASSESSMENTS

6.1 In order to gain an understanding of the operation of the existing highway network and car parking a site visit was undertaken on Friday 5th April 2013. Further, traffic flow and queue length surveys, and saturation flow data at the signalised junctions was obtained for the locations below on Thursday 28th January 2016 during the AM peak (0700-1000) and PM peak (1600-1900) and Saturday 30th January 2016 between (1100-1500):

- Speke Road / Speke Hall Road (signal junction)
- Speke Boulevard / Evans Road (signal junction)
- Speke Boulevard / Woodend Lane / Pharmacy Road / site access (priority junction)
- Speke Boulevard / Woodend Avenue (signal junction)
- Evans Road / Woodend Avenue (priority junction)
- Evans Road/Goals access (priority junction)

6.2 Pedestrian crossing movements were also surveyed for the signalised crossing adjacent to the site's eastern access junction.

6.3 Based on the surveys, the peak periods observed were:

- AM Peak – 07:45-08:45
- PM Peak – 16:30-17:30
- Saturday Peak – 13:45-14:45

6.4 The operation of the junctions listed above has been assessed based on the existing scenario using the observed traffic flows and the proposed scenario including the proposed development flows as outlined in section 5 of this report.

Junction Capacity Analysis

6.5 The junctions identified above have all been assessed using the appropriate approved software package for each junction type. The results of the assessments are summarised in Tables 6.1 to 6.6 and full details are included at Appendix A10.

- 6.6 The Evans Road/Goals soccer centre access has not been assessed as it is proposed to amend this to provide a mini roundabout junction to facilitate the site access. Additionally, the current use of the site generates relatively low flows and it is clear from this and on-site observations that it operates within capacity.
- 6.7 As stated above a new mini roundabout junction will be formed in Evans Road incorporating the Goals soccer centre access. A drawing showing the proposed layout is included at Appendix A10 and the junction has been assessed using ARCADY for all future years scenarios.
- 6.8 The remaining Evans Road/Woodend Road priority junction has been assessed using PICADY while a LINSIG model has been prepared to model all of the other junctions.

Woodend Avenue/Evans Road Priority Junction

- 6.9 The Woodend Avenue/Evans Road junction has been assessed using PICADY. The results are summarised in Tables 6.1 to 6.3 and the full PICADY outputs are included at Appendix A10.
- 6.10 It can be seen from Tables 6.1 to 6.3 that the Woodend Avenue/Evans Road junction operates within capacity at present and will continue to operate within capacity in future with the proposed and committed developments fully occupied. A maximum RFC of 0.684 and a queue of 2 vehicles occurs on Evans Road in 2026 with the development fully occupied.

Table 6.1 Woodend Avenue/Evans Road PICADY Results Summary – AM Peak

Arm	2016						2021				2026			
	Observed		Base		Proposed		Base		Proposed		Base		Proposed	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
B-ACD	0.010	0	0.010	0	0.010	0	0.011	0	0.011	0	0.011	0	0.011	0
A-D	0.203	0	0.235	0	0.329	1	0.255	0	0.315	1	0.272	0	0.333	1
D-ABC	0.094	0	0.108	0	0.174	0	0.120	0	0.142	0	0.130	0	0.152	0
C-B	0.021	0	0.021	0	0.022	0	0.022	0	0.022	0	0.026	0	0.026	0

Notes: Arm A = Woodend Avenue (north)
 Arm B = access road
 RFC = Ratio of Flow to Capacity

Arm C = Woodend Avenue (south)
 Arm D = Evans Road

Table 6.2 Woodend Avenue/Evans Road PICADY Results Summary – PM Peak

Arm	2016						2021				2026			
	Observed		Base		Proposed		Base		Proposed		Base		Proposed	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
B-ACD	0.014	0	0.014	0	0.014	0	0.014	0	0.015	0	0.015	0	0.015	0
A-D	0.066	0	0.072	0	0.110	0	0.077	0	0.105	0	0.082	0	0.111	0
D-ABC	0.547	1	0.519	1	0.668	2	0.569	1	0.633	2	0.620	2	0.684	2
C-B	0.002	0	0.002	0	0.002	0	0.002	0	0.002	0	0.002	0	0.002	0

Notes: Arm A = Woodend Avenue (north)

Arm C = Woodend Avenue (south)

Arm B = access road

Arm D = Evans Road

RFC = Ratio of Flow to Capacity

Table 6.3 Woodend Avenue/Evans Road PICADY Results Summary – Saturday Peak

Arm	2016						2021				2026			
	Observed		Base		Proposed		Base		Proposed		Base		Proposed	
	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q	RFC	Q
B-ACD	0.017	0	0.017	0	0.014	0	0.017	0	0.017	0	0.019	0	0.019	0
A-D	0.018	0	0.027	0	0.138	0	0.020	0	0.086	0	0.020	0	0.085	0
D-ABC	0.129	0	0.150	0	0.587	1	0.143	0	0.213	0	0.153	0	0.219	0
C-B	0.005	0	0.005	0	0.002	0	0.005	0	0.005	0	0.005	0	0.005	0

Notes: Arm A = Woodend Avenue (north)

Arm C = Woodend Avenue (south)

Arm B = access road

Arm D = Evans Road

RFC = Ratio of Flow to Capacity

Proposed Evans Road/Goals soccer centre/Site access Roundabout Junction

6.11 The proposed site access junction has been assessed using ARCADY. The results are summarised in Tables 6.4 to 6.6 and the full ARCADY outputs are included at Appendix A10.

Table 6.4 Site Access ARCADY Results Summary – AM Peak

Arm	2016		2021		2026	
	Base + Proposed		Base + Proposed		Base + Proposed	
	RFC	Q	RFC	Q	RFC	Q
Evans Road (South)	0.35	1	0.30	1	0.31	1
Goals Access	0.00	0	0.00	0	0.00	0
Evans Road (North)	0.16	0	0.16	0	0.17	0
Site Access	0.11	0	0.11	0	0.11	0

Table 6.5 Site Access ARCADY Results Summary – PM Peak

Arm	2016		2021		2026	
	Base + Proposed		Base + Proposed		Base + Proposed	
	RFC	Q	RFC	Q	RFC	Q
Evans Road (South)	0.26	1	0.25	0	0.26	1
Goals Access	0.03	0	0.03	0	0.03	0
Evans Road (North)	0.17	0	0.18	0	0.19	0
Site Access	0.35	1	0.36	1	0.36	1

Table 6.6 Site Access ARCADY Results Summary – Saturday Peak

Arm	2016		2021		2026	
	Base + Proposed		Base + Proposed		Base + Proposed	
	RFC	Q	RFC	Q	RFC	Q
Evans Road (South)	0.34	1	0.34	1	0.35	1
Goals Access	0.04	0	0.04	0	0.04	0
Evans Road (North)	0.09	0	0.10	0	0.10	0
Site Access	0.36	1	0.36	1	0.36	1

- 6.12 It can be seen from Tables 6.4 to 6.6 that the proposed site access mini roundabout junction will operate within capacity with a maximum RFC of 0.36 and queue of 1 vehicle occurring on the Site Access arm in both the PM peak and the Saturday peak. On this basis, it is clear that the junction will continue to operate within capacity in future with the proposed and committed developments fully occupied.

LINSIG Model

- 6.13 Due to the proximity of the signalised junctions on Speke Boulevard and the proposed new signalised site access junction it was considered more appropriate to model the three four existing and proposed signalised junctions using LINSIG to create a single model. All junctions have been modelled as per the timing sheets and signal layout drawings obtained from LCC, as well as video survey observations. The results are summarised in Tables 6.7 to 6.9 and the full LINSIG outputs are included at Appendix A10.

- 6.14 In order to provide a robust assessment, all flow scenarios as outlined in paragraph 5.34 have been modelled for the following three scenarios:

- Existing timings and layout
- Existing timings with proposed additional lane on Evans Road

- Proposed additional lane on Evans Road with an increased cycle time of 144 seconds

6.15 The modelling results summarised in Tables 6.7 to 6.9 show the results based on the existing timings and layouts.

Table 6.7 LINSIG Results Summary – Speke Boulevard/Western Avenue

Scenario	Observed			Base			Proposed		
	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	91.6	23.1	85.6%	108.4	24.6	89.4%	99.9	24.6	90.6%
2021 AM	-	-	-	135.6	27.4	95.0%	117.7	26.2	99.4%
2026 AM	-	-	-	-	-	-	259.9	29.0	107.5%
2016 PM	116.1	24.8	91.2%	118.4	26.8	95.6%	95.5	23.1	90.0%
2021 PM	-	-	-	173.2	38.1	102.1%	116.7	27.1	94.8%
2026 PM	-	-	-	-	-	-	174.8	30.9	100.6%
2016 Sat	85.2	12.5	78.5%	75.9	16.9	74.8%	75.9	18.6	79.5%
2021 Sat	-	-	-	81.3	14.5	81.9%	73.3	21.5	77.6%
2026 Sat	-	-	-	-	-	-	72.3	21.5	79.2%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

6.16 The Speke Boulevard/Western Avenue junction is predicted to operate within capacity in 2021 in the AM and Saturday peak and will slightly exceed capacity in the 2026 AM and PM peak.

Table 6.8 LINSIG Results Summary – Speke Boulevard/Evans Road

Scenario	Observed			Base			Proposed		
	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	84.8	32.1	79.4%	124.8	32.8	85.3%	157.5	45.8	96.9%
2021 AM	-	-	-	138.6	32.7	90.0%	191.8	63.6	102.0%
2026 AM	-	-	-	-	-	-	209.8	101.3	107.5%
2016 PM	78.5	25.8	71.3%	80.8	27.1	76.8%	147.5	73.7	105.3%
2021 PM	-	-	-	110.9	26.8	79.7%	237.1	90.0	108.3%
2026 PM	-	-	-	-	-	-	268.3	98.6	110.5%
2016 Sat	80.7	21.2	51.6%	71.9	23.5	57.6%	87.9	25.0	89.0%
2021 Sat	-	-	-	72.6	21.2	60.1%	72.0	26.0	82.9%
2026 Sat	-	-	-	-	-	-	72.8	28.7	83.3%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

6.17 Based on the existing layout and timings, the Speke Boulevard/Evans Road junction is predicted to exceed capacity in both the AM and PM peak.

Table 6.9 LINSIG Results Summary – Speke Boulevard/Woodend Lane

Scenario	Observed			Base			Proposed		
	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	5.9	25.0	69.4%	35.5	25.9	72.3%	8.0	32.0	77.2%
2021 AM	-	-	-	41.6	21.4	77.7%	19.5	30.1	81.4%
2026 AM	-	-	-	-	-	-	22.1	31.0	86.1%
2016 PM	9.7	13.2	76.7%	102.7	36.4	81.1%	7.5	26.8	78.2%
2021 PM	-	-	-	262.6	27.4	100.1%	14.3	34.7	83.6%
2026 PM	-	-	-	-	-	-	16.0	34.8	85.6%
2016 Sat	11.7	5.0	50.0%	29.8	5.0	54.1%	4.4	6.5	55.9%
2021 Sat	-	-	-	15.7	23.2	57.9%	3.8	14.0	60.5%
2026 Sat	-	-	-	-	-	-	4.0	15.2	63.7%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

- 6.18 The Speke Boulevard/Woodend Lane junction is predicted to operate within capacity in 2021 in all scenarios with a maximum degree of saturation of 86.1% occurring in the 2026 AM peak.

Table 6.10 LINSIG Results Summary – Speke Boulevard/Speke Hall Avenue

Scenario	Observed			Base			Proposed		
	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	73.8	25.9	82.6%	77.8	25.9	84.3%	99.5	23.6	85.9%
2021 AM	-	-	-	81.3	29.2	90.0%	99.6	28.6	88.5%
2026 AM	-	-	-	-	-	-	97.6	27.5	89.8%
2016 PM	97.1	23.3	83.1%	91.2	26.1	88.6%	199.9	57.8	106.5%
2021 PM	-	-	-	103.7	25.0	92.9%	220.9	64.4	108.2%
2026 PM	-	-	-	-	-	-	239.4	69.1	109.3%
2016 Sat	75.6	17.8	78.9%	82.2	17.6	84.7%	107.6	21.1	92.7%
2021 Sat	-	-	-	91.4	22.0	89.4%	146.2	25.4	96.3%
2026 Sat	-	-	-	-	-	-	173.0	32.9	100.9%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

- 6.19 The Speke Boulevard/Speke Hall Avenue junction is predicted to operate within capacity in the AM peak, will exceed capacity in the PM peak and will slightly exceed capacity in the Saturday peak in 2026.
- 6.20 Given that the junctions are currently operating close to or over capacity during some periods, consideration has been given to ways in which the capacity could be improved. The Western Avenue junction is already a very large junction with 18 entry lanes and the Speke Hall Road junction has 21 entry lanes; both junctions also have pedestrian crossings across all arms that require 4 separate movements to cross each road. On this basis, there is very little that can

realistically be done, that is in scale with the development impact, to introduce physical improvements to increase the capacity.

6.21 Consideration has been given, therefore, to amending the method of control at the junctions, however, given the complexity of the Western Avenue junction there is very little that can be amended whilst accommodating the 18 or 21 traffic lanes and 16 pedestrian crossing movements. As such, no modifications are proposed.

6.22 As part of the proposal, the Evans Road will be widened to two lanes southbound between the proposed access and Speke Boulevard and the LINSIG results based on this scenario are summarised in Table 6.11, with the Evans Road results compared in Table 6.12.

Table 6.11 LINSIG Results Summary – Proposed Layout

Scenario	Western Avenue			Evans Road			Woodend Lane			Speke Hall Avenue		
	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	99.9	24.6	90.6%	129.4	42.6	94.3%	8.0	32.0	77.2%	99.5	23.2	85.9%
2021 AM	117.7	26.2	99.4%	149.0	43.0	94.7%	19.5	30.1	81.4%	99.5	29.4	90.6%
2026 AM	127.7	31.2	96.4%	161.1	50.5	97.3%	22.1	31.5	86.2%	98.7	32.7	94.2%
2016 PM	97.3	24.4	90.0%	166.7	64.4	103.7%	8.8	28.2	81.0%	158.0	50.9	104.2%
2021 PM	127.5	27.8	97.5%	217.4	83.3	107.4%	15.7	36.2	85.6%	181.6	57.2	105.5%
2026 PM	254.3	31.2	107.0%	207.6	96.2	109.1%	18.1	35.7	87.7%	239.4	61.7	108.4%
2016 Sat	77.5	18.6	79.5%	67.5	25.0	81.1%	4.4	8.3	55.9%	107.6	22.0	92.7%
2021 Sat	73.3	21.5	77.6%	65.1	25.6	80.0%	3.9	13.6	60.5%	146.2	25.4	96.3%
2026 Sat	72.3	21.5	79.2%	68.4	28.6	82.2%	4.3	14.9	63.7%	173.8	32.9	100.9%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

Table 6.12 LINSIG Results Summary – Proposed Layout – Evans Road Comparison

Scenario	Existing Layout			Proposed Layout		
	Delay	Queue	DoS	Delay	Queue	DoS
2016 AM	157.5	45.8	96.9%	129.4	42.6	94.3%
2021 AM	191.8	63.6	102.0%	149.0	43.0	94.7%
2026 AM	209.8	101.3	107.5%	161.1	50.5	97.3%
2016 PM	147.5	73.7	105.3%	166.7	64.4	103.7%
2021 PM	237.1	90.0	108.3%	217.4	83.3	107.4%
2026 PM	268.3	98.6	110.5%	207.6	96.2	109.1%
2016 Sat	87.9	25.0	89.0%	67.5	25.0	81.1%
2021 Sat	72.0	26.0	82.9%	65.1	25.6	80.0%
2026 Sat	72.8	28.7	83.3%	68.4	28.6	82.2%

Notes: Delay = Average delay per PCU (seconds) Queue = Highest mean max queue at the junction
DoS = Degree of saturation

- 6.23 Table 6.12 shows that the provision of an additional lane on Evans Road will reduce the impact of the development, with only the PM peak still exceeding capacity. The delay queue and degree of saturation will be reduced in the PM peak, but the additional lane will have a benefit to the operation of the junction. Changes to the cycle time may improve the situation further, however, this would need to be the subject of further testing at the detailed design stage.
- 6.24 It should also be noted that it has been assumed within this assessment that 40% of traffic will be passby or diverted traffic, which is considered to be a robust assessment for a location such as this. Speke Boulevard is a strategic road carrying predominantly through traffic from the M62 to the airport and the south of Liverpool and in reality, the retail element of the trip generation will likely be made up of relatively few new trips on the network. As such, the actual impact on the highway network will be lower than is shown within this report.

Summary

- 6.25 In summary, it has been shown that the Woodend Avenue/Evans Road priority junction currently operates within capacity and will continue to do so in 2026 with the application site and all committed developments fully occupied.
- 6.26 The Speke Boulevard/Speke Hall Road/Speke Hall Avenue, Speke Boulevard/Evans Road/Longman Road and Speke Boulevard/Woodend Avenue/Western Avenue junctions all exceed their capacity in the observed peak periods. While the situation worsens in the base scenario, the additional impact resulting from the proposed development is negligible when compared to the base scenario.
- 6.27 Although physical amendments to the junctions are considered to be unachievable or out of scale with the impact of the development, it is proposed to provide an additional lane on Evans Road and increase the cycle time to 144 seconds. While this does not completely mitigate the impact of the development, it does provide some improvements.
- 6.28 It is also noted that the 40% reduction in trips to account for passby/diverted trips is robust as in reality the proportions are likely to be higher on a strategic route such as Speke Boulevard.
- 6.29 Overall, it is considered that there will be a negligible impact on the surrounding highway network

7. CONCLUSIONS

- 7.1 Icen Projects Ltd has been appointed by TJ Morris Ltd to provide transportation advice in relation to the proposed redevelopment of the former Rayware Site, Speke Boulevard, Liverpool. The proposal seeks to redevelop the former employment site to provide a mixed use development comprising retail and employment uses.
- 7.2 The scope of the TA has been agreed with LCC with regard to the study area, trip generation, trip distribution, passby/diverted trips and committed developments.
- 7.3 Car parking and cycle parking will be provided in accordance with the standards set out in the Liverpool City Council Parking Guidelines.
- 7.4 Vehicular access to the site will be via a new fully signalised junction to replace the existing priority junction. This will also include formal pedestrian and cycle crossing facilities across the site access, a new right turn lane on the eastbound carriageway.
- 7.5 Pedestrian access to the site is good with footways provided on all roads linking to the site and signalised pedestrian crossings at regular points across Speke Boulevard, including one adjacent to the site access.
- 7.6 Cycle access to the site is also good with a segregated cycleway running along Speke Boulevard on both sides of the road and connecting with other cycle routes to the north and south of Speke Boulevard connecting with residential areas.
- 7.7 The nearest bus stops to the site are located adjacent to the site on Speke Boulevard. These stops are served by 11 regular services as well as 4 other services that only operate at a frequency of 1 or 2 journeys per day. The 11 services provide approximately 25 buses per hour during the day. As such, the site is well located for access to many bus services across Liverpool.
- 7.8 The safety of the surrounding highway network has been assessed, which showed that a total of 46 personal injury accidents occurred in 5 years within the whole study area. The data has been analysed in detail, which showed that there are no underlying patterns or particular locations that raise particular safety concerns and there is nothing to suggest that the proposed development will lead to an increased risk of accidents occurring on the surrounding highway.
- 7.9 The main junctions on the surrounding highway network have been assessed and it has been shown that the proposed development will result in a negligible impact on the surrounding highway network. By providing an additional lane on Evans Road the capacity can be increased and

increasing the cycle time across the network may also increase capacity further. It should also be noted that the proposed trip generation is robust given the assumption that 40% will be passby or diverted traffic.

- 7.10 Trip generation associated with a new retail development is rarely new to the highway network and on a strategic route such as Speke Boulevard it is considered that the actual proportion of new trips will be lower than assessed. As such, the impact on the surrounding highway will also be lower than outlined within this report.
- 7.11 Further to this, a comprehensive Framework Travel Plan has also been prepared for the site, which will reduce the impact further.
- 7.12 In conclusion the proposed redevelopment of the site is compatible with and supports national and local transport policies and would not give rise to any adverse transport impact which cannot be mitigated. It is therefore considered that there is no highway related reason why the development proposal should not be granted planning consent.