SCP

Transportation Planning : Infrastructure Design

Transport Assessment

Proposed Residential Development

Park Avenue, Sefton Park

Liverpool

Redrow Homes (NW)

December 2014

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APPENDICES

1.0 INTRODUCTION

General

1.1 SCP are instructed by Redrow Homes (NW) to provide highways, traffic and transportation advice in connection with proposals to construct 34 dwellings on land at Park Avenue, Liverpool.

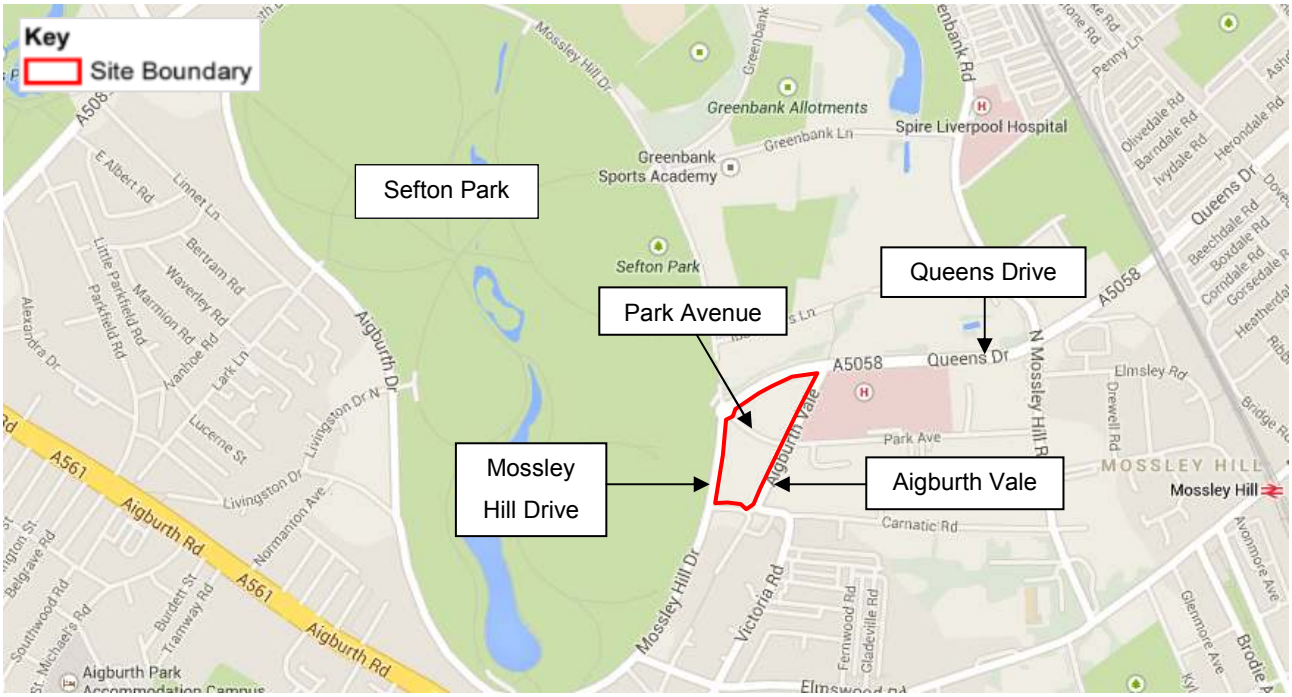
1.2 The location of the application site in relation to the wider highway network is shown on **Figure 1.1** below:

Figure 1.1 – Site Location – Wider Highway Network

Source: © Google 2014

1.3 The site location is shown in a more local context on **Figure 1.2** below.

Figure 1.2 – Site Location – Local Highway Network



Source: © Google 2014

Purpose and Structure of Report

1.4 This Transport Assessment (TA) has been produced to accompany the planning application and demonstrate to the Local Planning and Highway Authority that the development is satisfactory from a highway safety, traffic and access perspective.

1.5 The TA has been prepared in accordance with the Department for Transport (DfT) publication "Guidance on Transport Assessment", March 2007. In addition, the proposed development has been discussed with Liverpool City Council (LCC), as Highway Authority, during pre-application discussions.

1.6 The structure of the report summarised below:

- Chapter 2 – describes the site and local transport network;
- Chapter 3 – provides an appraisal of the accessibility credentials of the site;
- Chapter 4 – defines the development proposals including the proposed access, servicing arrangements and car parking;
- Chapter 5 – presents estimates of the trip generating potential of the site along with a summary of the potential impact of the development on the local highway network;
- Chapter 6 – provides an assessment of the operation of the local highway network with the proposed development in place; and
- Chapter 7 – provides the summary and conclusions.

2.0 EXISTING SITE CONTEXT

2.1 The development site is located to the south of Liverpool city centre, adjacent to Sefton Park, as shown at **Figure 1.1 and 1.2** earlier. The site is made up of two parcels of open space which is bounded by Mossley Hill Drive to the west, Queens Drive to the north, Aigburth Vale to the east and Carnatic Road to the south. Park Avenue passes east-west through the centre of the site connecting with Mossley Hill Drive and Queens Drive at a 4-arm roundabout and intersecting with Aigburth Vale at a priority crossroads.

2.2 Adjacent to Mossley Hill Drive is Sefton Park. Sefton Park is a Grade 2 listed historic park covering some 235 acres and contains a boating lake, bandstand, the Grade 2 listed Palm House, Shaftesbury Memorial and Eros Fountain, children's play areas and cafes.

Local Highway Network

2.3 As mentioned in the previous chapter, the proposed development has been discussed with Liverpool City Council (LCC), as Highway Authority, during pre-application discussions. It has been agreed that the following junctions will be assessed to verify the impact the proposed development on the local highway network. These include:

- Aigburth Vale / Queens Drive priority junction;
- Mossley Hill Drive / Queens Drive / Park Avenue 4-arm roundabout; and
- Aigburth Vale / Park Avenue crossroads junction.

2.4 These local roads are discussed in more detail below.

A5058 Queens Drive

2.5 Queens Drive is classified at the A5058 and is subject to a 30mph speed limit within the vicinity of the site. Locally, the A5058 is approximately 7.5m in width with a 2m wide footway on one side of the road and travels in an east / west direction past the site. At the 4-arm roundabout, the A5058 provides dropped crossing points with a pedestrian refuge.

2.6 The A5058 commences at the 4-arm roundabout, mentioned above, and serves Liverpool whilst also connecting to Bootle, north of the site. The A5058 provides a connection on to the M62 motorway at Broadgreen and also links with the A580 East Lancashire Road.

Mossley Hill Drive

2.7 Mossley Hill Drive is a single carriageway road subject to a 30mph limit, serving a number of residential dwellings along its length. To the south, Mossley Hill Drive provides a vehicular route around Sefton Park via Aigburth Drive. Aigburth Drive connects with the A561 Aigburth Road, which is a major route within the borough providing links to Liverpool City Centre, to the north, as well as Liverpool John Lennon Airport, to the south.

2.8 To the north of the roundabout, Mossley Hill Drive does not provide a through route for vehicular traffic and has bollards across the road. There is an informal car park for approximately 10 vehicles with no formal parking restrictions.

Aigburth Vale

2.9 Aigburth Vale serves is a single carriageway route, subject to a 30mph speed limit. This road connects with Queens Drive at a priority junction and also connects with Park Avenue at a crossroads formation, with Aigburth Vale having priority.

2.10 Within the vicinity of the site, Aigburth Vale provides a footway on the east side of the road and is lit. The road travels in a north-south direction and serves a large number of residential dwellings. Aigburth Vale connects with A561 Aigburth Drive to the south of the site at a signalised crossroads formation.

Park Avenue

2.11 Park Avenue is an unadopted single carriageway route which runs between the two parcels of land forming the development site. This road runs from the 4-arm roundabout intersecting Aigburth Vale and continues past Mossley Hill Hospital before meeting with North Mossley Hill Road.

2.12 Park Avenue is subject to a 30mph speed limit and provides footways for most of its length on both sides of the carriageway and is lit. Through the development site, a footway is only provided along the northern side of the road.

Traffic Survey

2.13 In order to establish the existing traffic flow on the local highway network surrounding the development site, a traffic count was undertaken on Thursday 26th June 2014 at the following junctions:

- Queens Drive / Mossley Hill / Park Avenue 4-arm roundabout;
- Queens Drive / Aigburth Vale priority junction; and
- Aigburth Vale / Park Avenue crossroads.

2.14 The peak hour traffic flows have been confirmed as 08:00 – 09:00 and 16:00 – 17:00. The raw survey data and summary of the peak hour flows is presented in **Appendix 1.**

Road Safety

2.15 The DfT document "Guidance on Transport Assessment" states that, "*Critical locations on the road network with poor accident records should be identified. This is to determine if the proposed development will exacerbate existing problems or, if proposed, whether highway mitigation works or traffic management measures will help to alleviate the problems*".

2.16 The Personal Injury Accident data for the local highway network has been obtained from the Department for Transport for the period covering 1st January 2008 to 31st December 2012. The study area comprised the Queens Drive / Park Avenue / Mossley Hill Drive 4-arm roundabout, the Queens Drive / Aigburth Vale priority junction and the Park Avenue / Aigburth Vale crossroads junction.

Queens Drive / Park Avenue / Mossley Hill Drive 4-arm roundabout

2.17 There have been three 'slight' accidents recorded at this roundabout for the most recently available five year accident data. Upon further investigation, the accidents occurred in September 2011, April 2012 and December 2012. All accidents involved two vehicles and resulted in one casualty.

Queens Drive / Aigburth Vale priority junction

2.18 At the junction of Queens Drive / Aigburth Vale, the data reveals that three 'slight' accidents have occurred at the junction for the last five years. All three accidents occurred in 2011 involving two vehicles and resulted in one casualty.

2.19 Furthermore, an accident on Queens Drive occurred in March 2010, between the 4-arm roundabout and the Queens Drive / Aigburth Vale priority junction. The accident was classified as 'serious' and occurred between two vehicles, which resulted in one casualty.

Park Avenue / Aigburth Vale crossroads junction

2.20 There have been three 'slight' accidents recorded at this junction for the most recently available five year accident data. One accident occurred in October 2010 between two vehicles and resulted in three casualties. The second accident happened in May 2011 and occurred between two vehicles and resulted in two casualties. The third 'slight' accident happened in April 2012 and involved two vehicles and resulted in one casualty.

2.21 Whilst there are a number of slight accidents and one serious accident within the vicinity of the development site, the analysis indicates there are no inherent deficiencies with the local highway network in the vicinity of the site which would be affected by the proposed residential proposals.

3.0 ACCESSIBILITY REVIEW

3.1 The site is located within a walkable neighbourhood with good quality pedestrian facilities across the surrounding area. There are a range of local facilities and public transport opportunities within a comfortable walking distance of the site, which are described in greater detail below.

Walking

3.2 The development site is located within an established area of south Liverpool and has a number of local facilities within a short walk from the site.

3.3 Manual for Streets (MfS) states that walkable neighbourhoods are typically characterised by having a range of facilities within 10 minutes' (equivalent to 800m) walking distance of residential areas which residents may access comfortably on foot. However, it goes on to state that this is not an upper limit and that walking offers the greatest potential to replace short car trips, particularly those under 2km.

3.4 The sites location makes walking an attractive mode of the travel within the local area and also for access towards Liverpool city centre and other local neighbourhoods. Bus stops are located on Aigburth Vale for local connections whilst Mossley Hill train station is accessible within a 15 minute walk to the east of the site for which details of public transport services are discussed in more detail below.

3.5 As mentioned previously, Sefton Park is located adjacent to the site and provides an ideal opportunity for leisure activities. An active programme of leisure pursuits on offer within the Park includes boot camps, organised walking, running and cycling events, pony riding and children's activities, amongst others. Connecting to the western side of Sefton Park is Lark Lane. Lark Lane can be accessed within a 10 minute walk via Sefton Park and is a well-known street popular for its large number of cafes, pubs and restaurants. Lark Lane provides a post office which is open 6 days per week and also hosts a Farmer Market every last Saturday in the month, amongst other attractions.

3.6 Located opposite the site on Park Avenue is Mossley Hill Hospital, which is a non-emergency hospital specialising in rehabilitation. Also, Liverpool College is located on Queens Drive, approximately 5 minutes' walk from the site. This independent school provides educational facilities for children aged 4 to 19 years old. Other schools can be found nearby within a short walk distance, which includes Mossley Hill Pre-School, St Anthony of Padua Primary School, Dovedale Junior School, Sudley Infant School and Greenbank College.

3.7 This demonstrates that the site is suitably located for local residents to travel around the local area for employment opportunities or for accessing local facilities and leisure pursuits.

Cyclists

3.8 The highway network in the vicinity site provides a comprehensive network that offers opportunities for cycling. Combined with the local pedestrian network, which offers a number of shortcuts, cycle accessibility from the site can cover a significant area.

3.9 Route 56 of the National Cycle Network (NCN) is located to the north of the site and can be accessed from the Mossley Hill Drive / Greenbank Lane junction. Route 56 passes through Sefton Park and splits in to two routes; one route travels south to Festival Gardens then continues up to Liverpool City Centre as a traffic–free route whilst the second route travels as an on-road route through Toxteth and connects with the traffic-route route at Albert Dock.

3.10 Route 56 forms part of the Trans Pennine Trail, providing connections to many residential areas in the area and also linking to Route 62 of the NCN. Route 62 can be found to the east of the site. This NCN route is a largely traffic-free route and also forms part of the Trans Pennine Trail, linking Aintree with Widnes.

3.11 In addition to these national cycle routes, a number of advisory routes run near to the site, particularly Park Avenue and Mossley Hill Drive being designated on-road local cycle routes. The local routes assist in providing connections to other designated NCN routes within the area as well as linking to key transport hubs. The local cycle routes are highlighted on Travelwise Merseyside's cycling map for Liverpool (www.letstravelwise.org).

3.12 It is typically accepted that cycling represents a realistic and healthy option to use instead of the private car for making journeys up to 5km (equivalent to 25 minutes) as a whole journey or as part of a longer journey by public transport.

3.13 This distance allows for connections to be made in to Liverpool city centre via the good quality traffic-free and segregated on-road routes provided within the borough. Other areas that are within 5km include Allerton, Childwall and Wavertree for employment opportunities.

3.14 This demonstrates that the site is well placed for local residents to cycle within the area and to connect to local and national cycle routes for recreational purposes and for access to employment opportunities.

Public Transport

3.15 The nearest bus stops to the development site are located by the Aigburth Vale / Park Avenue junction. These stops are served by bus routes 68, 168 and 173. A summary of the bus routes are provided below:

Table 3.1 – Bus Route Summary from Aigburth Vale

Service Number	Route Description	Maximum Frequency		
		Mon - Fri	Saturday	Sunday
68	Bootle Bus Station – Aigburth Vale	15 minutes	20 minutes	No service
168	Bootle Bus Station – Aigburth Vale (Evening service only Mon to Sat)	Hourly	Hourly	30 minutes
173	Belle Vale – Sefton Park	Hourly	Hourly	No service

Source: Merseytravel

3.16 Bus route 68 provides a high frequency service to Bootle as well as Wavertree, Broadgreen Hospital and Walton. This provides easy access to a wide range of retail, leisure and employment opportunities from the site. Furthermore, route 168 provides an extension to service 68 by providing an evening service which terminates late at night.

3.17 Bus route 173 provides an hourly connection to Belle Vale throughout the week and on Saturdays and travels via Mossley Hill train station, Childwall and Woolton.

3.18 In addition to these bus routes, further services can be found within a 10 minute walk from the site on Elmswood Road. This road serves route 61 which is a high frequency route between Aigburth, Wavertree, Aintree and Bootle. This service operates from early morning and continues until late at night, 7 days per week.

3.19 Other high frequency bus routes can be found on Aigburth Road, approximately 10 minutes south of the development site and serves bus routes 60, 61, 68, 103 and 168. Further information and assistance with travel choices can be found at www.merseytravel.gov.uk.

3.20 Mossley Hill train station is within a 15 minute walk from the development site, via Park Avenue and Palmerston Road. This station provides a connection to Liverpool Lime Street and Manchester Oxford Road on a 30 minute frequency throughout the day. The travel time in to Lime Street from Mossley Hill is only 10 minutes and to Oxford Road is 60 minutes.

3.21 Access to these train stations provides the opportunity for connections to be made to London, Birmingham, Wales and routes across to East Yorkshire and East Anglia.

3.22 Overall, a good level of bus provision can be found adjacent to the site as well as Mossley Hill train station being within a short walk. For any residents travelling from the site, utilising the local bus and train services will be a good alternative to using the private car, particularly for longer distance journeys.

4.0 PROPOSED DEVELOPMENT

Overview

4.1 The scheme will provide 34 detached houses. The development proposals are shown on the site layout plan presented in **Appendix 2**.

Proposed Access Arrangements

4.2 The proposed dwellings will be served by a mix of private driveways and direct access to existing highways. A small number of dwellings will take direct access from Park Avenue, which will be retained as a through route for existing traffic movements, and others will take direct access from Mossley Hill Drive.

4.3 The existing junction arrangements with Mossley Hill Drive, Park Avenue, Aigburth Vale and Queens Drive will be retained as existing and there are no difficulties in achieving safe visibility standards.

4.4 No existing roads are to be closed as part of the scheme and no new roads are proposed, although new footways and cycleways are proposed around the site, including a connection to the park.

Car Parking

4.5 The development will provide in minimum of 2 parking spaces per dwelling. This will ensure that no car parking occurs on the highway within the site or the local highway network.

4.6 As well as the level of car parking stated above, the development will provide 1 secure cycle parking space per apartment plus 1 visitor cycle stand per 10 units. This level of cycle parking is a minimum requirement as outlined in LCCs parking standards.

'Ensuring a Choice of Travel'

4.7 The 'Minimum Accessibility Standard Assessment' (MASA) from the Liverpool SPD 'Ensuring a Choice of Travel' has been completed and is included in **Appendix 3**. The site scores and targets are summarised in the table below.

Table 4.1 – Site Assessment against 'Ensuring a Choice of Travel' Targets

C3 – Dwelling Houses		
	Target	**Score**
Access on Foot	4	2
Access by Cycle	5	5
Access by Public Transport	5	5
Vehicle Access and Parking	1	1

4.8 The site scores well for the MASA, although there is a shortfall for 'Access on Foot'. The shortfall is due to the development site not being located within 500m of a district or local centre as defined by the Accessibility Map within the assessment.

4.9 Despite this, the site is located close to regular buses, cycle routes and is within an easy walk distance of a wide range of facilities.

5.0 TRIP ASSESSMENT

5.1 The vehicular trips associated with the development site have been assessed to determine the potential impact on the local highway network.

Proposed Development Trip Attraction

5.2 The potential trip attraction of the proposed development has been assessed using the latest version of the TRICS database, 7.1.1. Peak hour assessments of vehicle flows concentrate on the surveyed network peak times of 08:00 to 09:00 hours and 16:00 – 17:00.

5.3 Only sites with multi-modal surveys have been selected within the 'Residential – Houses Privately Owned' category and sites within England have been selected with between 20 and 100 dwellings located in suburban areas, edge of town and neighbourhood centres only.

5.4 From the dataset, the calculated trip rates are set out in **Table 5.1** along with the resulting development trips during the peak hours. Full details of the TRICS assessment are provided at **Appendix 4**.

Table 5.1 – Peak hour trip rates: Residential Dwellings (Housing)

Peak Hour	Trip Rates (per dwelling)			Total Trips (34 dwellings)		
	In	Out	Total	In	Out	Total
AM Peak	0.170	0.377	0.547	6	13	19
PM Peak	0.328	0.208	0.536	11	7	18

Source: TRICS 7.1.1

5.5 The assessment from the TRICS database has been calculated based on the network peak hours confirmed by the traffic survey, representing the cumulative peak period.

5.6 The trip generation assessment estimates that up to 19 two-way vehicle movements during the peak periods could be generated by the development proposals. This equates to a little under 1 vehicle every 3 minutes arriving or departing the site.

5.7 Using the trip rates available for each mode type, **Table 5.2** summarises the trips expected to be generated by the proposed development. Full details of the TRICS assessment for all modes are provided at **Appendix 4**.

Table 5.2 – Travel Mode Assessment: Residential Dwellings (Housing)

Travel Mode	AM Peak (08:00-09:00)			PM Peak (16:00-17:00)		
	In	Out	Total	In	Out	Total
Vehicles	6	13	19	11	7	18
Cyclists	0	1	1	1	1	2
Pedestrians	2	8	10	4	2	6
Public Transport	1	1	2	1	0	1
Total People	**9**	**27**	**36**	**20**	**12**	**32**

5.8 Vehicle movements from the site will equate to approximately 1 vehicle every 3 minutes arriving or departing the site, which supports the view that there will be no material traffic impact arising from the proposed development on the surrounding highway network.

5.9 Furthermore, the multi-modal trip assessment demonstrates that a reasonable portion of residents could walk to / from the site. This view is particularly apparent given that Sefton Park is located adjacent to the site and is a short walk to local facilities, public transport connections and employment opportunities in the area.

Background Traffic Growth

5.10 The estimated opening year is 2015 therefore the design year assessed is five years hence, 2020. The background flows have been factored to allow for background growth using TEMPRO derived NTM growth factors for the 'Liverpool (Main)' boundary.

5.11 The assessment year of 2020 will be factored based on the growth factors as shown below:

- 2014 – 2020 AM peak = 1.0811
- 2014 – 2020 PM peak = 1.0799

5.12 The factored base peak hour traffic flows for 2020 are presented at **Appendix 5.**

Trip Distribution and Assignment

5.13 The distribution of traffic has been dispersed on an assumption of likely movements to major routes in the region. It has been considered appropriate that 45% of traffic is likely to travel northbound towards the M62 and A57 whilst 20% will travel to Liverpool City Centre via the A561 westbound and 30% will travel towards Liverpool John Lennon Airport, Widnes and Runcorn via the A561 eastbound.

5.14 The distribution is therefore established as follows:

- Queens Drive via roundabout – 25%
- Queens Drive via Aigburth Vale (N) – 20%
- Park Avenue – 5%
- Aigburth Vale (S) – 20%
- Mossley Hill Drive via Park Avenue – 30%

5.15 The trip distribution has been illustrated on the flow diagram presented at **Appendix 6** including the resultant vehicle movements.

6.0 TRAFFIC IMPACT

6.1 The potential impact of the proposed residential development on the local highway network has been assessed by analysing the capacity of the following key local junctions, as agreed with LCC:

- Aigburth Vale / Queens Drive priority junction;
- Mossley Hill Drive / Queens Drive / Park Avenue 4-arm roundabout; and
- Aigburth Vale / Park Avenue crossroads junction.

6.2 It should be noted that the proposed development will mostly provide private driveways with a small element being taken from Park Avenue. The assessments below have been undertaken on the basis of a worst case scenario that all development traffic will enter the highway network on Park Avenue at the centre of the site.

6.3 These junctions have been assessed for capacity purposes in 2020, this being the worst case in terms of background traffic flows. The assigned development traffic has been combined with the forecast flows for 2020 to calculate the assessment flows, which are presented at **Appendix 7**.

Queens Drive / Aigburth Vale Priority Junction

6.4 To demonstrate the limited impacts we have undertaken assessments of the capacity of the proposed site access onto Queens Drive in 2020 using the PICADY modelling program. It should be noted that the capacity assessments were originally undertaken on the basis of a development of up to 55 dwellings, including apartments that are no longer proposed on the site, and are therefore a very robust assessment of the highway network.

6.5 The table below summarises the capacity summary and the detailed assessment outputs are attached at **Appendix 8**.

Table 6.1 – Queens Drive / Aigburth Vale Priority Junction Assessment for 2020

Approach	2020 AM Peak		2020 PM Peak	
	Max. RFC	Max. Queue	Max. RFC	Max. Queue
Aigburth Vale	0.68	2.04	0.56	1.26
Queens Drive (W)	0.01	0.01	0.04	0.05

6.6 The Queens Drive / Aigburth Vale junction would be anticipated to operate with significant spare capacity in 2020.

Aigburth Vale / Park Avenue Crossroads junction

6.7 The capacity of this junction has been assessed in 2020 using the PICADY program. The results of the capacity test are summarised below with the detailed output presented at **Appendix 9.**

Table 6.2 – Aigburth Vale / Park Avenue Crossroads Junction Assessment for 2020

Approach	2020 AM Peak		2020 PM Peak	
	Max. RFC	Max. Queue	Max. RFC	Max. Queue
Park Avenue (W)	0.08	0.09	0.06	0.07
Aigburth Vale (S)	0.04	0.06	0.03	0.04
Park Avenue (E)	0.26	0.35	0.10	0.11
Aigburth Vale (N)	0.00	0.00	0.01	0.01

6.8 The junction of Aigburth Vale with Park Avenue would be anticipated to operate with significant spare capacity in 2020.

Mossley Hill Drive / Queens Drive / Park Avenue Roundabout junction

6.9 The capacity of the 4-arm roundabout has been assessed in 2020 using the ARCADY program based on a mini roundabout layout. The results from the capacity assessment are summarised below with detailed outputs provided at **Appendix 10.**

Table 6.3 – Mossley Hill Drive / Queens Drive / Park Avenue Roundabout Assessment for 2020

Approach	2020 AM Peak		2020 PM Peak	
	Max. RFC	Max. Queue	Max. RFC	Max. Queue
Mossley Hill Drive (S)	0.21	0.27	0.19	0.23
Mossley Hill Drive (N)	0.00	0.00	0.01	0.01
Queens Drive	0.41	0.68	0.38	0.62
Park Avenue	0.17	0.20	0.05	0.05

6.10 The existing four arm roundabout would be anticipated to operate well within in 2020.

Overall Summary

6.11 In summary, it has been demonstrated that the very robust traffic impacts associated with the development proposals would be minimal upon the local highway network and that the local junctions serving the proposed development would be anticipated to operate with significant spare capacity in the year 2020. It is therefore considered that the traffic associated with the development proposals can be safely accommodated onto the local highway network.

6.12 On the basis of the above assessments it is considered that the development would have no material impact on the operation of the local highway network.

7.0 SUMMARY & CONCLUSIONS

7.1 SCP have been appointed by Redrow Homes (NW) to provide transport planning and engineering advice in support of a planning application for 34 residential dwellings on land at Park Avenue, Sefton Park, Liverpool.

7.2 The development will make use of the existing highway network around the site and does not create any new highways, although new footpaths and cycleways will be provided, including a link to the park. Dwellings will be served by a mix of private drives and some direct access to the existing highways.

7.3 Existing visibility splays will be protected at the various junctions around the site.

7.4 The personal injury accident data for the most recently available five year period has been reviewed and does not represent a material concern in the context of the proposed development.

7.5 It has been demonstrated that the development is sustainable with good accessibility to the site provided to those travelling by foot and by bicycle and there is a good level of bus service provision serving the local area within close proximity to the site. Mossley Hill train station is also accessible within a 15 minute walk from the development site, via Park Avenue and Palmerston Road, which provides frequent connections between Liverpool Lime Street and Manchester Oxford Road.

7.6 A very robust assessment of the impact of the traffic arising from the scheme has been tested in detail at the following junctions as agreed with Liverpool City Council:

- Queens Drive / Mossley Hill / Park Avenue 4-arm roundabout;
- Queens Drive / Aigburth Vale priority junction; and
- Aigburth Vale / Park Avenue crossroads.

7.7 The assessments show that the junctions operate with sufficient spare capacity to accommodate the proposed development in a future year of 2020.

7.8 Having regard to the above, it is concluded that there is no highway or transport related reason to withhold planning permission for the scheme and the proposed development is therefore commended for approval.