

Transport Assessment

TRANSPORT ASSESSMENT: Queens Wharf, Kings Dock, Liverpool

RESIDENTIAL & OFFICE DEVELOPMENT

SITE: QUEENS WHARF, WAPPING WAY, LIVERPOOL

CLIENT: YPG Developments Ltd

DATE: 28th March 2018

REFERENCE: VC0090 R8.0

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Contents

1	Introduction	4
1.1	Introduction	4
1.2	Report Structure	5
2	Existing Site Context	6
2.1	History	6
2.2	Current Land Use and Infrastructure within the Development Site	7
3	Proposed Development	8
3.1	Development Composition	8
4	Policy and Design Guidance	11
4.1	National	11
5	Sustainable Accessibility	14
5.1	Description	14
5.2	Highway Audit	14
5.3	MASA	14
5.4	Sustainable Access	15
5.5	Framework Travel Plan	20
6	Travel Forecasts	21
6.1	Introduction	21
6.2	Initial Study Area Assessment	21
6.3	Traffic Surveys	22
6.4	Assessment Years	22
6.5	Assessment Scenarios	23
6.6	Proposed Development Trip Generation	23
6.7	Committed Schemes	25
6.8	Trip Distribution	26
6.9	Trip Assignment	26
7	Local Highway Network Performance Assessment	27
7.1	Scenarios	27
7.2	Development Highway Network Performance Assessment	27
7.3	Step 1: Net Impact Assessment	27
7.4	Step 2: Detailed Junction Capacity Analysis	28
8	Multi Modal Impact Assessment	30
8.1	Multi Modal Impact Assessment	30
9	Impacts on Adjacent Land Uses and Infrastructure	33
9.1	Adjacent ACC Event Traffic Impact Assessment	33
9.2	Highway Network VMS Signage	34
9.3	Kings Dock Directional Signage	34
10	Parking Assessment	35
10.1	Car Parking Provision	35
10.2	Cycle Parking Provision	36
11	Accident Analysis	37
11.1	Personal Injury Accident Data Analysis	37
12	Summary and Conclusions	39
12.1	Summary	39
12.2	Conclusions	40

Figures

Figure 1: Site Location Plan	4
Figure 2: Extract from the Liverpool Waterfront Website, Illustrating the Historic Zoning of the Kings Dock Area	6
Figure 3: Existing Site Layout	7
Figure 4: Proposed Development Layout	8
Figure 5: Extent of Highway Audit	14
Figure 6: Walking Isochrone	16
Figure 7: Cycling Isochrone	17
Figure 8: Area Wide Cycling Network (Sustrans)	17
Figure 9: Local Cycle Routes	17
Figure 10: Existing Bus Stop Locations	19
Figure 11: Committed Development Location Plan	26
Figure 12: Accident Assessment Study Area	37

Tables

Table 1: MASA Assessment Summary	15
Table 2: Extract from IHT 'Guidelines for Providing for Journeys on Foot, 2000'	16
Table 3: Summary of Existing Bus Services	18
Table 4: High Level Traffic Link Impact	21
Table 5: Assessment Day and Time Periods	22
Table 6: Growth Rates	23
Table 7: Proposed Development Forecast Vehicular Trip Generations	25
Table 8: Net Traffic Impact Assessment (2018)	28
Table 9: Junction Capacity Comparison 2023, Do Minimum vs. Do Something	29
Table 10: National Statistics Travel to Work Mode Share Census Data	30
Table 11: Forecast Sustainable Transport Movements (Weekday)	31
Table 12: Public Transport Weekday Trips	32
Table 13: Forecast Weekday Development Site Hourly Traffic Generation	33
Table 14: LCC Parking Standards	35
Table 15: Parking Policy Provision	35
Table 16: Total Number of Accidents and Casualties	37
Table 17: Casualty Severity	38

Appendix

Appendix A: Masterplan

Appendix B: Highway Audit

Appendix C: MASA

Appendix D: Gravity Model Extract

Appendix E: Traffic Turning Surveys

Appendix F: Seasonality Calculations

Appendix G: Survey Data Traffic Flow Diagram (PCUs)

Appendix H: Traffic Queue Surveys

Appendix I: TRICS Report – Office Land Use

Appendix J: TRICS Report – Residential Land Use

Appendix K: Traffic Diagrams

Appendix L: Junction Modelling Outputs

1 INTRODUCTION

Vectio Consulting Limited have been commissioned by YPG Developments to prepare a Transport Assessment in support of a full planning application for a residential and office development within the Kings Dock area of Liverpool.

1.1 Introduction

The site has historically been under development by the Homes and Communities Agency and Liverpool City Council, until more recently when the applicant has acquired the site for development.

The proposed development forming the subject of this report comprises a 1,000 m² gross floor area office, seven storey residential apartment building, housing 120 units, with 1,000m² gross floor area commercial space on the ground floor. The apartment building is also to include 33 car parking spaces on the ground floor under the building.

The apartment building will be constructed on an existing pay and display 47 space car park.

The site is located within the Kings Dock area of Liverpool adjacent to the Exhibition Centre Liverpool, BT Convention Centre and Echo Arena. and Exhibition Centre Liverpool (ECL). The location of the site is illustrated in Figure 1.

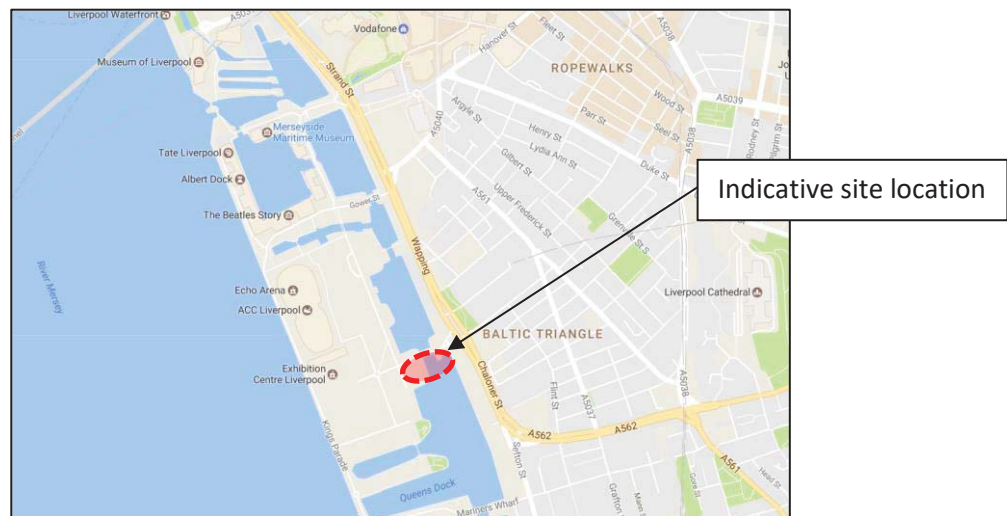


Figure 1: Site Location Plan

During the development of the sites masterplan, various meetings and discussions were held with Liverpool City Council and their Highways team to agree the approaches to be adopted when considering the impacts of the proposed development. Given the small scale of this development, a specific scoping exercise has not been undertaken with LCC Highways department, however brief discussions were undertaken with the Authority on the 21st March 2018 to discuss the scheme.

1.2 Report Structure

This Transport Assessment investigates the highway and transportation issues associated with the proposed office development. The layout of this report is split into 8 further sections as follows:

- Section 2 provides an overview of the existing site operations, historic development masterplans and surrounding land uses;
- The proposed development is discussed in Section 3;
- Local and national policy context is reviewed in Section 4;
- Section 5 investigates the sustainable transport facilities available and modal splits within the vicinity of the development site;
- Development trip generations and travel forecasts are discussed and calculated in Section 6;
- The operational performance of the adjacent highway network is assessed in Section 7;
- Section 8 presents a multi-modal impact assessment;
- Section 9 discusses potential impacts on adjacent land uses and infrastructure;
- A parking assessment is undertaken in Section 10;
- An analysis of the study area's recent accident history is presented in Section 11; and,
- Section 12 outlines a summary of the report's findings, and its conclusions.

2 EXISTING SITE CONTEXT

2.1 History

The Kings Dock is a dockland located on the River Mersey historically forming part of the Port of Liverpool. The dock was located in the southern part of the dock system, connecting Wapping Dock to the north and Queens Dock to the south. The dock was closed in 1972 and have since undergone regeneration.

In 2008 the complete regeneration of the Kings Waterfront, part of the Kings Dock was commenced including the adjacent southern land uses to the proposed development including: 11,000 seat capacity Echo Arena, BT Convention Centre, 1,600 space multi-storey carpark, central public plaza, residential housing and a 3 star plus hotel. An extract from the Liverpool Waterfront website (<http://www.kingsdock.com>), provided in Figure 2, illustrates the developed zoning philosophy at this stage.

In 2015 the Exhibition Centre Liverpool, was completed, along with the connected Pullman Hotel located to the south of the proposed development.

More recently a partnership between Liverpool Vision, the Home and Communities Agency and Liverpool City Council have worked jointly to establish Kings Dock as a visitor destination of international quality.

A Masterplan developed by BDP has been created for the remaining Kings Dock area, the subject of this report, that has considered the alteration to existing routes for various modes, through the site. The high level proposals were to not only be ancillary to the existing Arena and Exhibition Centre (ECL), but also create destinations in their own right. Traffic movements and impacts associated with this masterplan were assessed by Mott MacDonald in 2016.

Subsequent to the development of BDPs masterplan, the sites masterplan has been further developed by YPG Developments. The former BDP master plan has evolved, based on more defined land uses being proposed within the site, and as such this Transport Assessment has been prepared to both assist in the development of the masterplan supporting this application, and appraise the development sites impacts and integration on the surrounding road network.



Figure 2: Extract from the Liverpool Waterfront Website, Illustrating the Historic Zoning of the Kings Dock Area

2.2 Current Land Use and Infrastructure within the Development Site

2.2.1 Description

The existing development footprint is situated to the south of Queens Wharf, between Chaloner Street to the east and Monarchs Quay to the west. Albert Docks can be accessed via Keel Wharf to the north, or Kings Parade to the east along the side of the River Mersey. An image illustrating the existing site layout is provided in Figure 3. The boundary of the proposed development site is shown in **RED**, whilst the **GREEN** boundary illustrates the extent of the recently consented TCC office development.

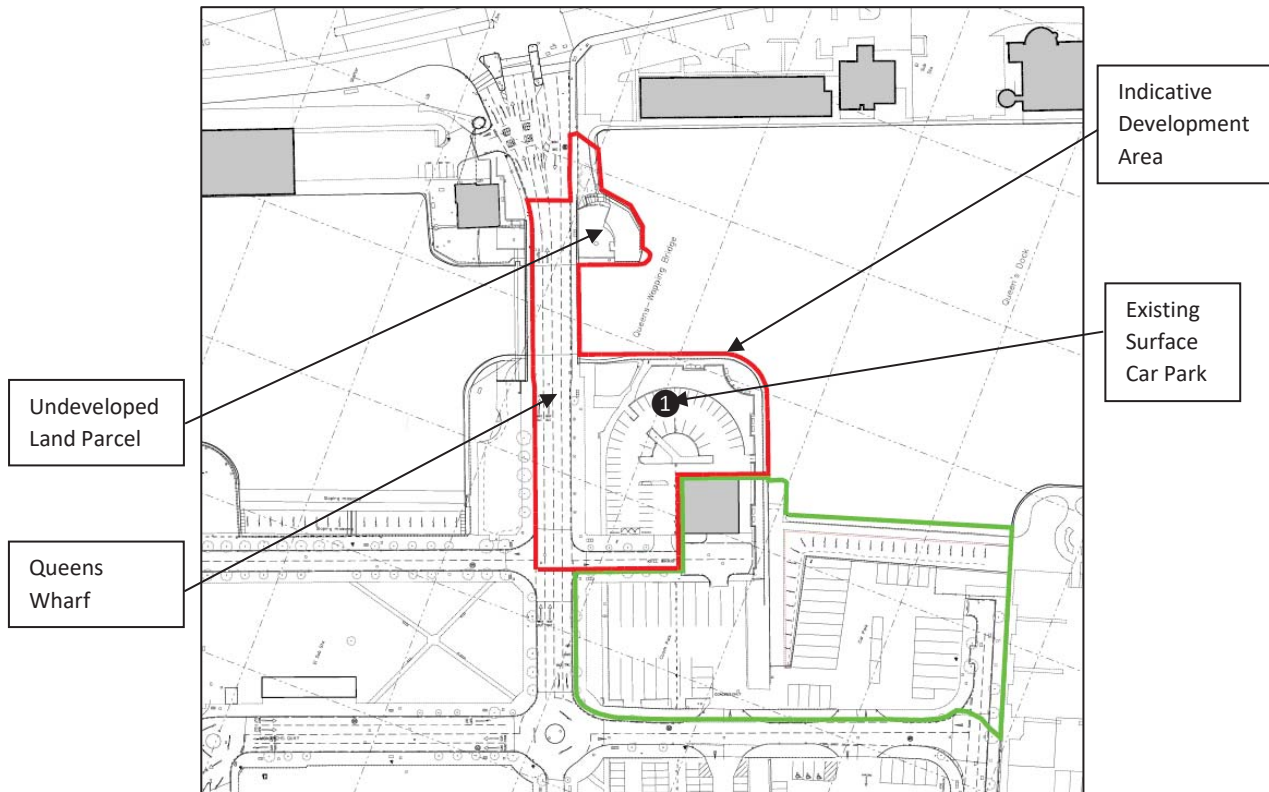


Figure 3: Existing Site Layout

The road infrastructure within the development provides access to:

- The Waterfront multi storey car park;
- Access to ACCL Loading Docks 1, 2 and 3;
- Access to Kings Parade, leading to Albert Docks and Queens Docks;
- Access to residential, hotel and retail land uses via Keel Wharf;
- Access to the adjacent “The Keel” residential development; and,
- Access to a new development recently granted planning permission to the south.

As part of the development proposals, access to the above facilities are to be maintained.

2.2.2 Parking

Existing parking supply within the site, as illustrated in Figure 3, is listed below:

- Car park 1: 47 car parking spaces and two motorcycle parking areas (Pay and Display).

3 PROPOSED DEVELOPMENT

3.1 Development Composition

The proposed development forming the subject of this report is to comprises:

- Building 2: 1,000 m² gross floor area (approximate) office;
- Building 4: 1000 m² gross floor area (approximate) Commercial use (assumed to be office); and,
- Building 4: 120 apartment units, with 33 ground floor parking spaces.

The red line boundary of the site, and location of each building is illustrated in Figure 4. Full detailed plans of the scheme have been submitted in support of the planning application, although a high level copy of the proposed layout is also presented in Appendix A.

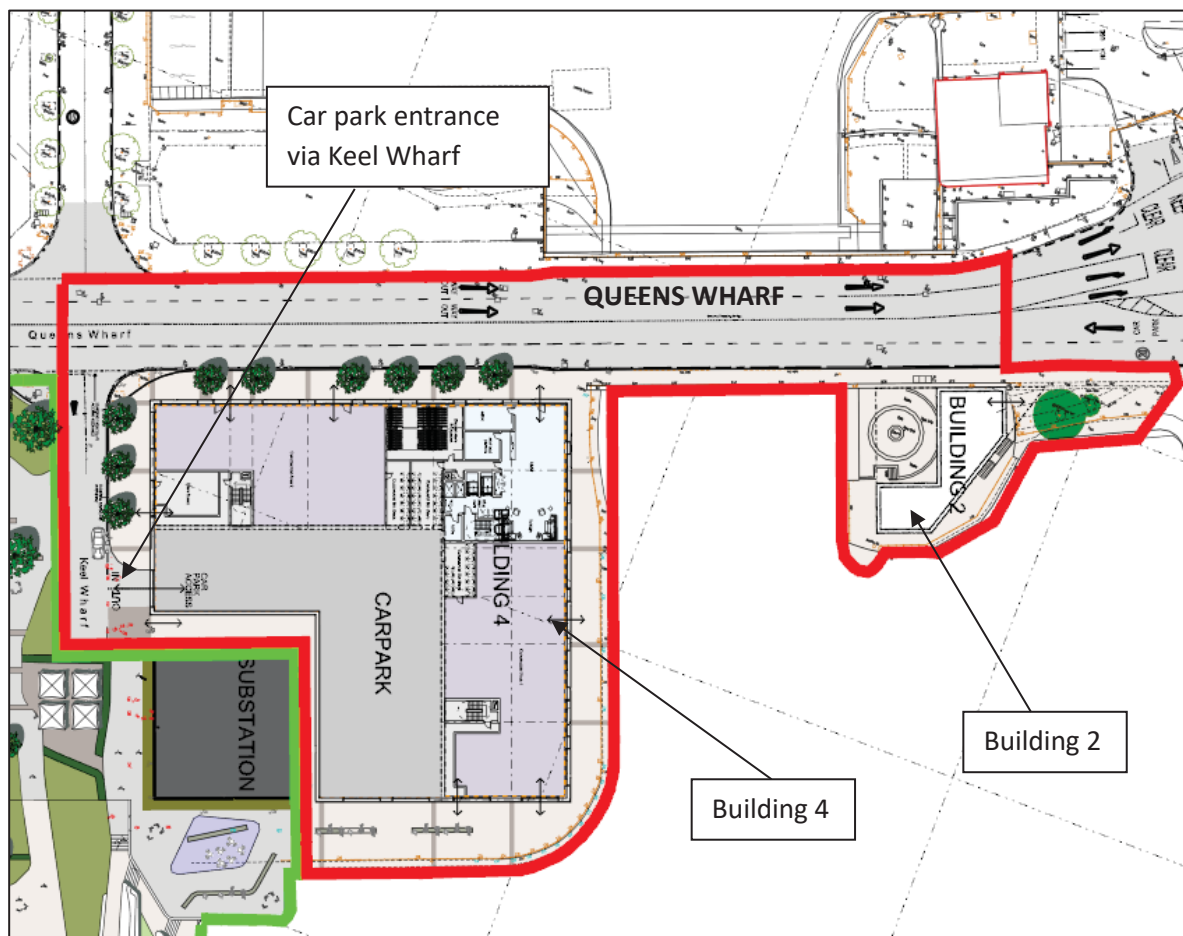


Figure 4: Proposed Development Layout

3.1.1 Road Layout Alterations

The Kings Dock area contains a private road network that does not form part of the formal Adopted Highway Network.

No amendments to the local road network are proposed as part of the scheme. The scheme is to adopt the existing road layout in Kings Dock, and amendments associated with planning application reference: 17F/2490 (The Call Centre).

3.1.2 Parking Arrangements

3.1.2.1 Car Parking

No parking supply is to be provided for either of the office spaces. It is considered suitable for the staff and visitors of these units to use nearby public car parks.

With regard to the residential apartments, 33 car park spaces are proposed to be located on the ground floor of the building. Of the 33 spaces, 10 are to be to disability standards. The car park is to be accessed from the southern end of Keel Wharf (south of Queens Wharf). The car park will be of a private nature, with access controlled by electric roller shutters, or similar mechanisms.

It is noted that as part of 'The Call Centres' road works, Keel Wharf in this location is to be modified so as to enable misguided LGV's to turn should the car park entrance be closed, so as to prevent them reversing out onto Queens Wharf.

The car park, accommodates refuse access associated with both the commercial and residential units, although the commercial units will also have access to their frontages for such collections.

For clarification, no loss of coach or HGV parking is created by the proposed scheme.

3.1.2.2 Cycle Parking

A cycle store accessed internally will be provided associated with the residential units. This will house 84 cycle parking spaces.

With regard to the commercial units. Cycle parking facilities for staff will be provided internally.

3.1.3 Servicing

3.1.3.1 Residential

Servicing associated with the residential apartment building will be made from either Keel Wharf, via the ground floor carpark, or Queens Wharf.

3.1.3.2 Commercial (Building 2)

Servicing arrangements associated with the small office building will be made road side on Queens Wharf.

3.1.3.3 Commercial (Building 4)

Servicing associated with the residential apartment building will be made from either Keel Wharf, via the ground floor carpark, or Queens Wharf.

To ensure appropriate servicing is undertaken it is recommended that the provision of a servicing and delivery management plan is conditioned should the application be granted.

3.1.4 Construction Stage

The method of construction is largely unknown at present. It is therefore recommended that prior to the commencement of works, a construction management plan is prepared and agreed with Liverpool City Council.

As an indication, the likely construction phasing is to be:

- 1. Building 4 - Apartments; and,
- 2. Building 2 – Interpretation.

Land to the north of the site (on the opposite side of Queens Wharf, east of Keel Wharf) will be used as a construction compound.

For clarity, access through Kings Dock is **not** proposed to be closed during the construction or operational stage of the development site. All existing access routes through Queens Wharf and Keel Wharf will be retained so as not to impact the existing rights of access available to neighbouring land owners / occupiers.

The construction management plan will need to appreciate operations and access needs of adjacent land owners / occupiers. As such it needs to include measures of reduce construction operations so as not to impact the use of Queens Wharf when activities are planned such as when The Strand is closed to vehicular traffic, and the route through Kings Dock becomes heavily used.

4 POLICY AND DESIGN GUIDANCE

This section discusses the planning policy and design guidance criteria that has been adopted when preparing the site layout and this Transport Statement.

4.1 National

4.1.1 National Planning Policy Framework

The National Planning Policy Framework (NPPF) replaced PPG13 in March 2012 and covers the current national policy for promoting sustainable transport. Within this document, it is stated that “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.”

NPPF also states that *“Planning policies should aim for a balance of land uses within their area so that people can be encouraged to minimise journey lengths for employment, shopping, leisure, education and other activities.”*

The preparation of a Transport Assessment in support of a proposed development is also identified as a key document in encouraging the use of more sustainable modes of transport. Developments should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

On larger scale developments, NPPF recommends that planning policies should promote a mix of uses to provide opportunities for day to day activities to be carried out on foot, e.g. local shops and employment.

While the NPPF is the current policy document, it is recognised that there are some gaps in the guidance provided. In such cases, the information contained within PPG13 is used as a sound basis for assessment.

4.1.2 DfT “Transport evidence bases in plan making” dated 10th October 2014

In October 2014, the former DfT’s Guidance document: “Guidance on Transport Assessments” was archived and new guidance provided. Paragraph 32 of the National Planning Policy Framework sets out that all developments that generate significant amounts of transport movement should be supported by a Transport Assessment.

The new guidance considers that Local Planning Authorities must make a judgement as to whether a development proposal would generate significant amounts of movement on a case by case basis.

In determining whether a Transport Assessment will be needed for a proposed development Local Planning Authorities consider the following listed overleaf:

- Local Plan Policies;
- the scale of the proposed development;
- existing intensity of transport use and the availability of public transport;
- proximity to nearby environmental designations or sensitive areas;
- impact on other priorities/ strategies; and,
- the cumulative impacts of multiple developments within a particular area.

4.1.3 DfT Guidance on Transport Assessments (Archived)

The Department for Transport document “Guidance on Transport Assessments”, published in March 2007, expanded on the scope of the guidance available at that time to include the assessment of the potential implications of development proposals on the entire transport system. This includes the public transport system (buses, rail, and trams), the Strategic Road Network (SRN), local highways and footways.

The guidance dictates that the following considerations will be relevant to this Transport Assessment:

4.1.3.1 Encouraging environmental sustainability

- **Reducing the need to travel, especially by car** – reducing the need for travel, reducing the length of trips and promoting multi-purpose or linked trips by promoting more sustainable patterns of development and more sustainable communities that reduce the physical separation of key land uses;
- **Tackling the environmental impact of travel** – by improving sustainable transport choices, and by making it safer and easier for people to access jobs, shopping and leisure facilities and services by public transport, walking and cycling;
- **The accessibility of the location** – the extent to which a site is, or is capable of becoming, accessible by non-car modes, particularly for large developments that involve major generators of travel demand;
- **Other measures which may assist in influencing travel behaviour (ITB)** – achieving reductions in car usage (particularly single occupancy vehicles), by measures such as car sharing/pooling, high occupancy vehicle (HOV) lanes and parking control.

4.1.3.2 Managing the existing network

- **Making best possible use of existing transport infrastructure** – for instance by low-cost improvements to the local public transport network and using advanced signal control systems, public transport priority measures (bus lanes), or other forms of Intelligent Transport Systems (ITS) to improve operations on the network;
- **Managing access to the highway network** – taking steps to maximise the extent to which the development can be made to “fit” within available capacity by managing access from developments onto the highway network;

4.1.3.3 Mitigating residual impacts

- **Through demand management** – using traffic control measures across a wide network to regulate flows;
- **Through improvements to the local public transport network, and walking and cycling facilities** – for example by extending bus routes and increasing bus frequencies and designing sites to facilitate walking and cycling;

- **Through minor physical improvements to existing roads** – it may be possible in some circumstances, to improve the capacity of existing roads by relatively minor physical adjustments such as improving the geometry of junctions etc. within the existing highway boundary; and,
- **Through provision of new or expanded roads** – it is considered good transport planning practice to demonstrate that the other opportunities have been fully explored before considering the provision of additional road space, such as new roads and major junction upgrades.

4.1.4 Merseyside Local Travel Plan 3 (LTP3) 2011 - 2026

The Merseyside current Local Travel Plan (LTP3) 2011-2026 outlines the transport related policies covering the 15-year period. It is likely that the detailed planning of this development will fall within this plan period and therefore makes reference to the current local policy documents.

The vision of the Merseyside LTP3 is:

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

To achieve this the LTP3 has identified 6 goals:

- Help create the right conditions for sustainable economic growth by supporting the priorities of the Liverpool City Region, the Local Enterprise Partnership and the Local Strategic Partnerships.
- Provide and promote a clean, low emission transport system which is resilient to changes to climate and oil availability.
- Ensure the transport system promotes and enables improved health and wellbeing and road safety.
- Ensure equality of travel opportunity for all, through a transport system that allows people to connect easily with employment, education, healthcare, other essential services and leisure and recreational opportunities.
- Ensure the transport network supports the economic success of the city region by the efficient movement of people and goods.
- Maintain our assets to a high standard.

5 SUSTAINABLE ACCESSIBILITY

5.1 Description

This section includes a review of the existing adjacent infrastructure associated with the site, considering person desire lines, barriers and the quality of provision for all non-car modes of transport.

5.2 Highway Audit

A local highway network audit was carried out on Friday 22nd January 2016. The purpose of the audit was to assess the suitability of the existing route infrastructure / facilities available for use by non-motorised road users and also to appraise the parking facilities within a 300 m radius of the proposed development.

The extent of the audit is presented in Figure 5, approximately formed by the red line boundary.



Figure 5: Extent of Highway Audit

The full audit findings are presented in Appendix B.

5.3 MASA

Acknowledging Liverpool City Councils Supplementary Planning Document “Ensuring a Choice of Travel” a Minimum Accessibility Standard Assessment (MASA) has been undertaken. As discussed with LCC Highway Authority. This assessment only provides a high level indication of the sites score, as the Baltic Triangle and Docks areas have undergone significant redevelopment since the assessment base maps were developed.

The completed MASA questionnaires associated with office and residential land uses are presented in Appendix C, whilst a summary of the findings are provided in Table 1.

Table 1: MASA Assessment Summary

Access Mode	Residential			Office (Commercial)		
	Min. Score required	Score Achieved	Comments	Min. Score required	Score Achieved	Comments
Access on Foot	4	2	Further development of the Baltic Triangle will resolve the deficient	2	4	Minimum criteria met
Access by Bicycle	4	4	Minimum criteria met	5	4	Lockers provided but due to small scale of development no showers provided
Access by Public Transport	5	5	Minimum criteria met	5	5	Minimum criteria met
Vehicle Access & Parking	3	3	Minimum criteria met	3	3	Minimum criteria met

The results of the MASA assessment indicate that the site achieves the minimum score required when considering the existing infrastructure available and recent regeneration of the local area.

It is noted that the commercial units are not proposed to include shower facilities, this is due to the small scale of development, although lockers, or similar secure locations, are proposed.

5.4 Sustainable Access

The Highway Audit discussed in Section 5.2, identified the existing level of highway infrastructure adjacent to the proposed development site. The following sub sections consider the journey distances that will relate to different land uses within the proposed development, for all non-motorised user modes, their expected desire line routes, and any foreseen barriers to prevent / restrict access.

5.4.1 Means of access for Pedestrians

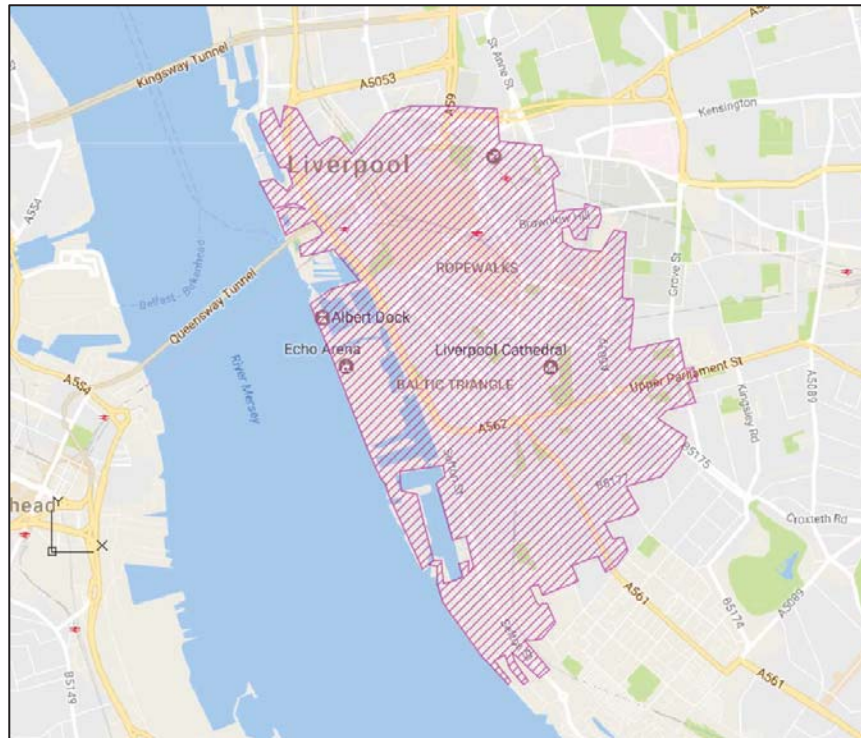
The Chartered Institution of Highways and Transportation (CIHT) in their document 'Guidelines for Providing for Journeys on Foot, 2000' state that "walking accounts for over a quarter of all journeys and four fifths of journeys less than one mile". It is generally considered that people are prepared to walk up to 2km (1.24 miles) to and from work, given suitable walking routes and facilities.

When assessing the accessibility of a site for pedestrians, and the proximity of local facilities, an average walking speed of 1.4 m/s can be assumed, which equates to approximately 400 metres in 5 minutes, or 3 mph. This document also contains a table of suggested walking distances for different purposes. Table 2 recreates this table.

Table 2: Extract from IHT 'Guidelines for Providing for Journeys on Foot, 2000'

	Town Centre (m)	Commuting School (m)	Elsewhere (m)
Desirable	200	500	400
Acceptable	400	1,000	800
Maximum	800	2000	1200

Figure 6 illustrates the 2000 m walking distance measurement taken from the centre.

**Figure 6: Walking Isochrone**

The 2km walking distances referred to in Table 2, when compared to the isochrone in Figure 6, demonstrates that there is a plethora of key facilities within an acceptable walking distance of the site.

The topography of the area will be conducive to walking journeys. It will however be important to provide pedestrian facilities that maximise local trips as far as possible to allow occupiers to make informed route choices.

5.4.2 Means of access for Cyclists

It is generally considered that a distance of 5km (3 miles) represents a reasonable cycling distance to and from work, while 8km (5 miles) is a maximum realistic range for cycle trips. Figure 7 illustrates cycling isochrones (crow-flies) taken as distances from the centre of the site.

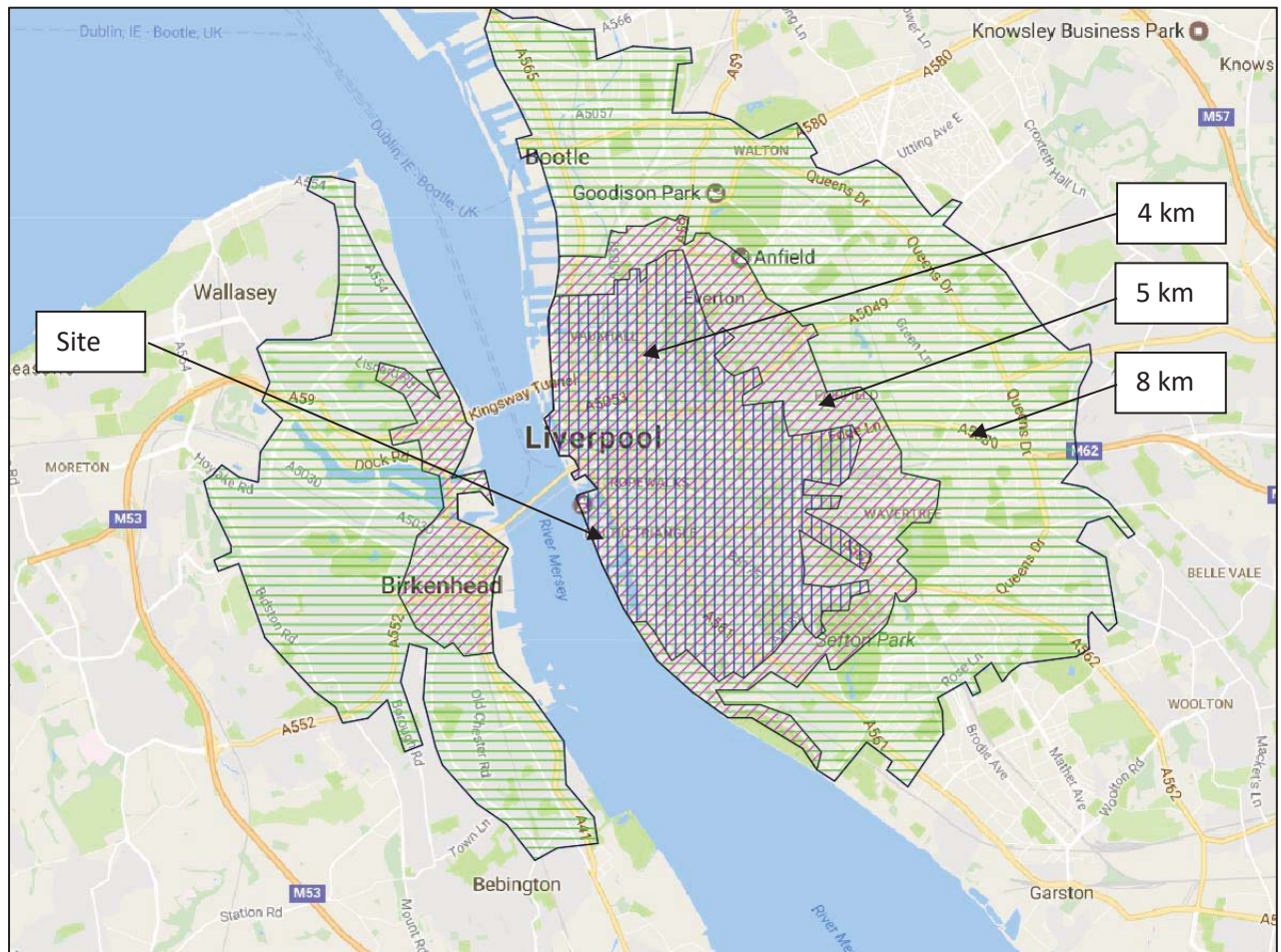


Figure 7: Cycling Isochrone

5.4.2.1 Sustrans & Local Cycle Route Information

An extract from the Sustrans website along with local cycle route map data is presented in Figures 8 and 9 which illustrates Liverpool's cycling routes.



Figure 8: Area Wide Cycling Network (Sustrans)

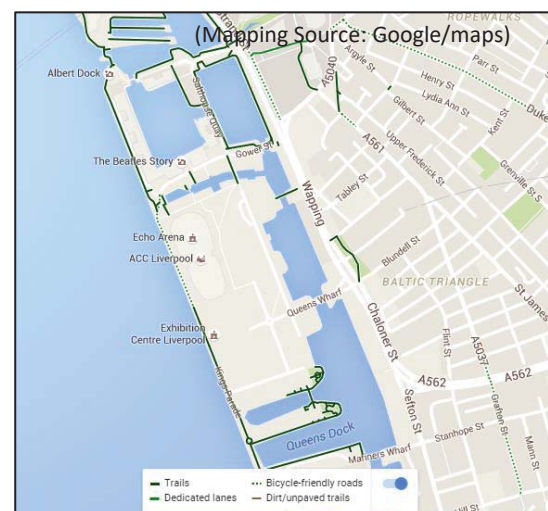


Figure 9: Local Cycle Routes

The thin purple coloured routes shown in Figure 8 are on road routes that are not part of the National Cycle Network. The thin green coloured route are traffic free routes. The thick purple and green coloured routes are on and off road routes that are part of the National Cycle Network and also routes that are not part of the National Cycle Network within a close vicinity of the proposed development.

The Trans Pennine Trail (National Cycle Route 56) is displayed as the thick purple and thick green line and is within close vicinity of the site specifically running along Kings Parade to the west. This route runs between Chester Town Hall and Liverpool Town Hall and is 44 miles long.

As with walking, the topography of the local area should prove conducive to cycle journeys.

5.4.3 Means of access for Public Transport – Bus

The prime operator of buses in the Kings Dock area is Mersey Travel, whilst various other operators provide services from Wapping and the surrounding highway network.

More recently Services C4 and C5 which used to run through Monarchs Quay have been cut, and as such there are no existing bus routes travelling through the site. It is understood from liaising with Mersey Travel the routes were stopped due to lack of custom and funding as the frequency of bus journey demand was irregular associated with the Arenas land use.

The C4 and C5 services used to operate a Dingle Mount to City Centre circular route, operating on 30 minute frequency during the week and at weekends.

The C5 routes still operates although travels along Kings Parade with only one service per day. It is understood that a separate service '4' also runs along Kings Parade with similar headways to the previous C4 and C5 services on a 30 minute frequency Mondays to Saturdays.

Two additional bus stops are within 400 m walk from the site, located on Wapping and Chaloner Street, as illustrated in Figure 10. The current routes, frequencies, and headways serving these stops are listed in Table 3.

Table 3: Summary of Existing Bus Services

No.	Route	Areas served	Frequency (Mon-Sun, daytime)
82A	Wapping: City Centre to Holton Hospital	City Centre, Dingle, Aigburth Vale, Garston, Liverpool John Lennon Airport, Speke, Widnes, Runcorn, Holton Hospital.	<ul style="list-style-type: none"> • Daytime – approx. every 30 mins • Saturday – approx. every 30 mins • Sunday – approx. every 30 mins
500	Wapping: Liverpool One Bus Station to Liverpool John Lennon Airport	Liverpool One Bus Station, Liverpool South Parkway, Aigburth Vale, Estuary Business Park, Liverpool John Lennon Airport.	<ul style="list-style-type: none"> • Daytime – approx. every 30 mins • Saturday – approx. every 30 mins • Sunday – approx. every 30 mins

No.	Route	Areas served	Frequency (Mon-Sun, daytime)
800	Wapping: Speke to Liverpool Freeport	Speke, Garston, Aigburth, Liverpool Freeport.	<ul style="list-style-type: none"> • 1 Weekday AM Journey

Significantly more bus services are available from Liverpool One Bus Station which is located approximately 850 m walking distance to the north of the site.



Figure 10: Existing Bus Stop Locations

Given the size of the development it is considered that the critical mass for a bus service to route through the site will not be economically viable.

Appreciating that the adjacent bus stops on Wapping and Chaloner Street are only up to 200m walking distance from the site, no enhancements to the existing service are considered necessary, especially when considering the forecast weekday demand for bus use, being 176 trips in a standard weekday.

In summary, the existing bus services and frequencies adjacent to the site provide a realistic choice to travel by Bus.

5.4.4 Means of access for Public Transport – Train

The closest railway stations to the site are St James Street and Liverpool Central railway stations, which lie 1.2 km to the north and 1.4 km to the north east respectively. The station has services provided by East Midlands Trains, Northern, London Midland, TransPennine Express and Virgin Trains providing routes throughout the UK.

This is considered to be accessible by occupiers of the site and therefore rail services are a likely mode of transport.

5.5 Framework Travel Plan

The sustainable features of location and design outlined above are to be reinforced and exploited by the introduction of Travel Plans. The purpose of the Travel Plans are to encourage sustainable travel behaviour by all users of the development site.

In support of this planning application an Interim Travel Plan for the proposed office and residential development has been prepared, setting the initial focus, intentions and approach, from which the detailed site specific travel plan will implement. Due to the size of each land use, it is recommended that Travel Plans are operated independent of each other (i.e., each office occupier will have their own Travel Plans, and the management company of the apartment building will manage the apartments Travel Plan separately).

6 TRAVEL FORECASTS

6.1 Introduction

This section includes a review of the applicable traffic data associated with proposed development, considering committed developments and infrastructure, assessment years and periods, and forecasts person and vehicular trip generations.

6.2 Initial Study Area Assessment

To determine the extent of the off-site study area relating to the assessment of junction's operational capacities, a population over distance gravity model was created considering all of the Wards in Liverpool.

Given the nature of the site, it was considered that a gravity model encompassing the whole of Liverpool (all 30 wards) was the most appropriate. A copy of the gravity model data is presented in Appendix D. Forecast vehicular trip generations associated with the proposed development were then inserted into the gravity model to provide an indication of the likely assignment of development related traffic on the wider highway network. The results of this assessment are illustrated in Table 4.

Table 4: High Level Traffic Link Impact

PROJECTED LINK IMPACTS			VERSION: 2.0			DATE: 23/03/2018		
			Weekday					
Road Name	Percentage		AM			PM		
	TRIPS		22	34	56	25	22	47
	Arrivals	Departures	Arrivals	Departures	Two way	Arrivals	Departures	Two way
Queens Wharf	100.00%	100.0%	22	34	56	25	22	47
A562 Chaloner Street	84.60%	80.3%	19	27	46	21	18	39
A562 Upper Parliament Str	79.38%	71.2%	17	24	42	20	16	36
B5175 Princes Road	25.74%	18.1%	6	6	12	6	4	10
London Road	21.14%	17.8%	5	6	11	5	4	9
The Strand	15.40%	19.7%	3	7	10	4	4	8
Strand Street	15.40%	19.7%	3	7	10	4	4	8
Wapping	15.40%	19.7%	3	7	10	4	4	8
A5089 Durning Road	14.84%	16.4%	3	6	9	4	4	7
A561 Aigburth Road	11.13%	15.9%	2	5	8	3	3	6
A5052 New Quay	6.71%	19.3%	1	7	8	2	4	6

Based on the findings of the high-level impact assessment, discussions were held with the Highway Authority so as to agree the extent of assessment study area and agree junctions that were to be considered as part of this Transport Assessment. This approach was based on the sites proximity to the off-site junctions, along with the Highway Authority's knowledge of existing junction operational capacities. Based on these discussion, the following junctions were agreed upon to form the extent of the study area.

- I. Queens Wharf / Wapping Blundell Street / Chaloner Street traffic signal controlled junction.

6.3 Traffic Surveys

6.3.1 Traffic Turning Surveys

Fully classified traffic turning surveys were recorded on Thursday 9th February 2017 for the junctions identified and agreed upon with the Highway Authority. A copy of the traffic surveys are presented in Appendix E of this report.

The surveys were recorded for the following time periods agreed with the Highway Authority:

- 7:30 to 9:30 – Weekday; and,
- 16:30 to 18:30 – Weekday.

To ascertain the peak hour period, a rolling peak assessment was undertaken concluding the peak hours detailed in Table 5. These peak hours have been adopted in the assessment of traffic impact.

Table 5: Assessment Day and Time Periods

Day	Period	Time
Weekday	AM Peak	08:00 to 09:00
	PM Peak	17:00 to 18:00

It is appreciated that due to the surveys being collected in January / February, they do not fall within a standard neutral or representative survey month as defined in Web Tag Unit M1-2, although have been collected outside of school / public holiday periods.

To ensure that the data adopted is representative of a neural month, historic 'in season' traffic surveys were used to enable a seasonality factor to be calculated. The calculations undertaken are presented in Appendix F. The resultant seasonality factors applied to the recorded traffic surveys are as follows:

- Weekday AM Peak hour: – 5.2%; and,
- Weekday PM Peak hour: +21.4%.

A traffic flow diagram presenting the seasonality factor adjusted traffic surveys (converted into passenger car units) is presented in Appendix G.

6.3.2 Traffic Queue Surveys

At the time of recording the traffic turning surveys, junction queue surveys were also recorded so as to enable junction capacity models to be validated, so as to be representative of each of the junctions observed on street operations. A copy of the queue surveys are presented in Appendix H.

6.4 Assessment Years

Appreciating the likely build programme of the development, the following assessment years have been adopted within this assessment:

- 2018 Planning submission Year; and,
- 2023 Five year period post planning submission.

In terms of growth factors, the TEMPro version 7.2 database has been adopted to calculate applicable growth rates associated with the above periods. The following criteria has been applied when calculating the factors:

- Data Selections: Trip ends by time period;
- Transport Mode: Car Driver;
- Trip End Type: Origin / Destination; and,
- NTEM adjustment (AF15 dataset, Urban & Principal Road network settings).

The proposed growth rates adopted within the assessment are detailed in Table 6.

Table 6: Growth Rates

Year From	Year To	Day	Period	Origin	Destination	Growth Factor
2017	2018	Weekday	AM Peak	1.0185	1.0125	1.55%
			PM Peak	1.0128	1.0164	1.46%
2017	2023	Weekday	AM Peak	1.0984	1.0659	8.21%
			PM Peak	1.0677	1.0872	7.75%

6.5 Assessment Scenarios

As part of the overall assessment, the following impact assessment scenarios will be considered:

- **Do Nothing 2017 (DN 2017):** Traffic survey data – used for junction validation purposes;
- **Do Minimum 2017 (DM 2017):** Traffic survey data with sensitivity adjustments, plus committed developments flows;
- **Do Minimum 2018 (DM 2018):** Traffic Survey with sensitivity adjustments data factored to 2018, plus committed developments flows;
- **Do Something 2018 (DS 2018):** Seasonality adjusted traffic survey data factored to 2018, plus committed developments flows, plus development flows; and,
- **Do Something 2023 (DS 2023):** Seasonality adjusted traffic survey data factored to 2023, plus committed developments flows, plus development flows.

6.6 Proposed Development Trip Generation

A detailed interrogation of the TRICS database has been undertaken to forecast the level of vehicular trips each land use of the proposed development is likely to generate, during each of the assessment periods detailed in Table 5.

For the purpose of vehicular trip generation estimates, the gross floor areas associated with each land use are as follows:

- Building 2 – Small office: 1000 m²;
- Building 4 – ground floor commercial (office): 1,000 m²; and,
- Building 4 – residential apartments: 120 no.

6.6.1 OFFICE

6.6.1.1 Weekday peak

Assumptions made whilst interrogating the TRICS database included:

- All sites in England have been considered, excluding Greater London;
- To maximise the search results the date range was increased starting at 01/01/00; and,
- Town centre, weekday surveys were considered.

A specific site was identified located on Castle Street in Liverpool, site reference: MS-02-A-01 that was considered to be the most comparable office use to that of the proposed site. The adopted peak hour trip generation rates are provided below, whilst the TRICS reports are presented in Appendix I.

Land use	Period	Arr	Dep't	Total	Period	Arr	Dep't	Total
B1 Office	08:00 to 09:00	0.533	0.100	0.633	17:00 to 18:00	0.022	0.566	0.588

6.6.2 APARTMENTS

6.6.2.1 Weekday peak

Assumptions made whilst interrogating the TRICS database included:

- All sites in England have been considered, excluding Greater London;
- To maximise the search results the date range was increased starting at 01/01/00; and,
- Town centre, weekday surveys were considered.

A specific site was identified located on Wapping Dock in Liverpool, site reference: MS-03-C-01 that was considered to be the most comparable office use to that of the proposed site. The adopted peak hour trip generation rates are provided below, whilst the TRICS reports are presented in Appendix J.

Land use	Period	Arr	Dep't	Total	Period	Arr	Dep't	Total
B1 Office	08:00 to 09:00	0.096	0.263	0.359	17:00 to 18:00	0.202	0.088	0.290

6.6.3 Trip Generation Summary

Based on the individual land use TRICS interrogation assessment, the forecast vehicular trip generations associated with the whole development site are detailed in Table 7. These generations exclude any pass by, linked, diverted or transferred trips that would be applicable given the mixed use of the development and location adjacent to various other land uses.

Table 7: Proposed Development Forecast Vehicular Trip Generations

Land use	Quantum	Period	Weekday AM			Period	Weekday PM		
			Arr	Dep't	Total		Arr	Dep't	Total
Building 2 - Small Office	1,000 m ²	08:00 to 09:00	5	1	6	17:00 to 18:00	0	6	6
Building 4 - Residential	1,000 m ²		5	1	6		0	6	6
Building 4 - Commercial	120 No.		12	32	43		24	11	35
TOTAL			22	34	56		25	22	47

6.7 Committed Schemes

6.7.1 Developments

With regard to committed developments, during historic scoping consultation the Highway Authority requested traffic generated by the following proposed development planning applications were considered as part of the assessments undertaken in this report:

- A. **150/1998** – Land bounded by Great George Street/Great George Place St James Street/Duncan Street/Upper Pitt Street/Cookson Street/Grenville Street South/Hardy Street Liverpool L1;
- B. **16F/0084** – Land bounded by Grafton Street, Hill Street & Brassey Street Liverpool L8;
- C. **13F/2178** – Robert Cain And Co Ltd Stanhope Street Liverpool L8 5XJ;
- D. **16F/2879** – Land east of Brassey Street Liverpool L8 5XP;
- E. **16F/0413** – Land at Hurst Street Liverpool L1 8DN;
- F. **16F/1889** – Land bounded by Blundell Street, Kitchen Street and Simpson Street, Liverpool L1 5HA;
- G. **16F/3032** – 70-90 Pall Mall Liverpool L3 7DB;
- H. **100/2424** – Liverpool Central & Northern Docks (Bramley Moore, Nelson, Salisbury, Collingwood, Trafalgar, Clarence Graving, West Waterloo, Princes Half Tide & Princes Docks), L3; and,
- I. **16F/0776** – Land adjacent to the Keel Kings Parade/Halftide Wharf Queens Dock Liverpool L3 4GE.

A plan showing the locations of the committed developments listed above is provided in Figure 11.

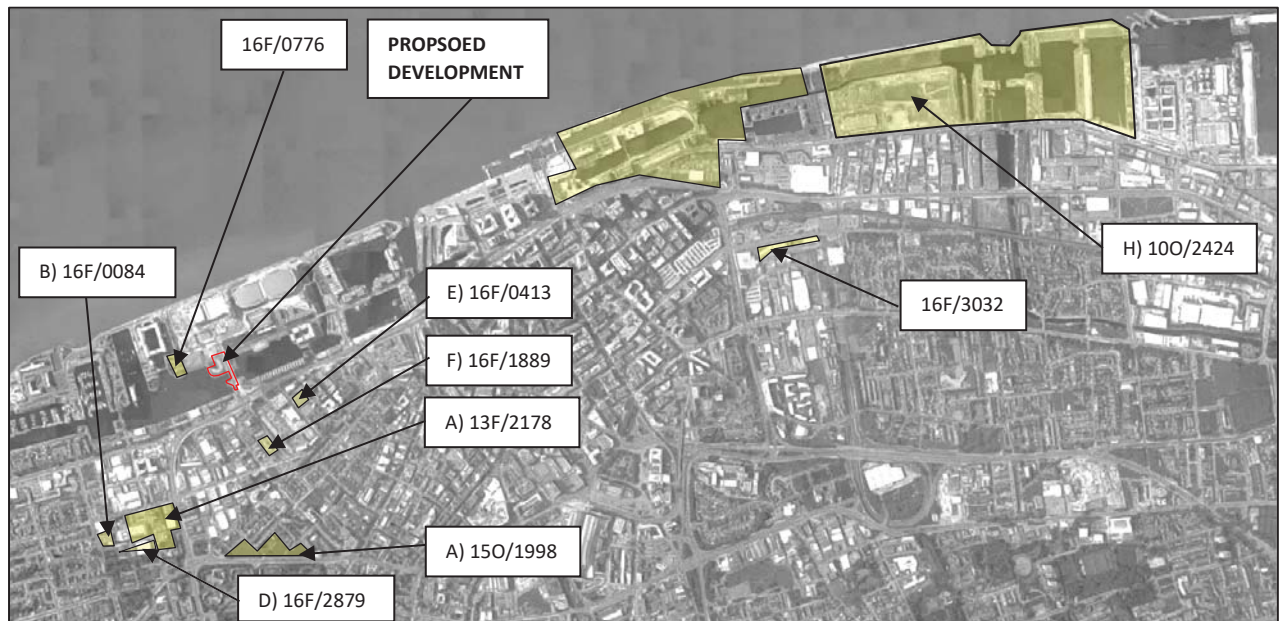


Figure 11: Committed Development Location Plan

In addition to the above developments, the recently consented planning application for the TCC office building located on Monarchs Quay within Kings Dock has also been included as a committed development.

Traffic flows adopted associated with each of the committed developments detailed in Figure 11, along with the TCC scheme, are presented in Appendix K.

6.8 Trip Distribution

Traffic associated with the proposed development site has been distributed on the Highway network using the gravity model developed and discussed in Section 6.2 of this report. This model has enabled an estimation of the likely arrival and departure distribution of traffic on the wider highway network associated with the development site.

A copy of the adopted distribution diagram is presented in Appendix K.

6.9 Trip Assignment

Vehicular trip assignment has been calculated adopting the trip generations for each assessment scenario discussed in Section 6.6, and the forecast development traffic distribution discussed in section 6.8. A copy of the traffic flow assignment diagrams, associated with the Do Something assessment scenarios, are presented in Appendix K.

7 LOCAL HIGHWAY NETWORK PERFORMANCE ASSESSMENT

This section presents a highway impact assessment to identify junctions on the adjacent highway network that are materially and negatively impacted by development related traffic. The analysis is presented as three separate stages, as follows:

- Step 1: Undertakes a net impact assessment to determine whether the proposed development is likely to generate in excess of 30 two-way movements on junctions within the study area. Where junctions are impacted by 30 or more two-way movements, junction capacity analysis has been undertaken as discussed in Step 2.
- Step 2: Undertakes macro-simulation assessment for junctions identified as an outcome of Step 1 above, to determine whether remedial works will be required so as not to create a negative impact to the operation of the highway network;
- Step 3: Develops high level remedial layouts for the junctions identified to be negatively impacted as an outcome of Step 2 and puts forward proposed mitigation measures.

7.1 Scenarios

7.1.1 Do Nothing

The Do Nothing (DN) scenario is based on the 2017 traffic surveys. This scenario is used to enable any traffic models developed to be validated.

7.1.2 Do Minimum

The Do Minimum (DM) scenario is based on DN scenario traffic flows adjusted using the seasonality factors and then factored to the 2018 and 2023 assessment year plus committed development traffic flows as detailed in Section 6.9 of this report. This scenario is used as a comparison when comparing junction percentage (2018) and performance (2023) impacts.

7.1.3 Do Something

The Do Something (DS) scenario is based on the Do Minimum scenario's plus the proposed development trip generations for each development phase. This information is used to inform any macro-simulation modelling undertaken as part of the assessment.

7.2 Development Highway Network Performance Assessment

7.3 Step 1: Net Impact Assessment

An assessment has been undertaken to determine the net level of traffic impact the proposed development has been estimated to create on the surrounding road network associated with the following junctions:

- Queens Wharf / Keel Wharf priority junction;
- Queens Wharf / Wapping Blundell Street / Chaloner Street traffic signal controlled junction; and,
- Chaloner Street / Parliament Street / Sefton Street traffic signal controlled Junction.

It is highlighted that the assessment undertaken in this section of the report does not consider the base line traffic associated with the existing private surface car parks which the proposed development is to be sited on, and as such the findings will portray an inflated impact.

The results of this exercise are presented in Table 8. With regard to percentage impact, the assessment adopts traffic data from the 2018 DM and DS scenarios as a worst-case assessment.

Table 8: Net Traffic Impact Assessment (2018)

Junction	AM Peak hour		PM Peak hour	
	Increase in Junction Flow (pcus)	Percentage impact	Increase in Junction Flow (pcus)	Percentage impact
Queens Wharf / Keel Wharf priority junction	56	12.7%	47	9.5%
Queens Wharf / Wapping / Blundell St / Chaloner St signalised junction	56	1.3%	47	0.9%
Chaloner St / Parliament Street / Sefton St signalised junction	46	1.1%	38	0.7%

The results in Table 8 indicates that the proposed development is forecast to impact all junctions by more than 30 two-way trips during the peak weekday peak hour periods considered.

However, appreciating that the site will result in the loss of a 47 space surface car park, the actual net increase in traffic is likely to be below 30 two way trips at both the Queens Wharf / Wapping / Blundell St / Chaloner St signalised junction, and the Chaloner St / Parliament Street / Sefton St signalised junction.

Given the existing relatively low level of vehicular movements on Queens Wharf within Kings Dock (considering standard highway peak hour periods), and that Building 4 is to only house 33 parking space, 14 less than the existing car park, further detailed analysis of the Keel Wharf / Queens Wharf junction is not considered to be necessary.

However, as discussed with Highway Authority, it has been agreed to assess the operation of the Queens Wharf / Wapping / Blundell St / Chaloner St signalised junction so as to gain an appreciation of the quantum of operational impact that is forecast to occur.

7.4 Step 2: Detailed Junction Capacity Analysis

7.4.1 Queens Wharf / Wapping / Blundell St / Chaloner St signalised junction

For traffic signal-controlled junctions modelled using Linsig the key performance indicator of a junction arm is the degree of saturation (DegSat) with the overall performance of the junction being measured by its Practical Reserve Capacity (PRC). A threshold DegSat value of '90%' is usually considered appropriate. Junctions exhibiting DegSat values at or below '90%' are considered to be operating 'within capacity'; whereas junctions exhibiting DegSat values above '90%' are considered to be operating over capacity'.

A summary of the results of the modelling exercise is presented in Table 9, whilst a copy of the capacity model outputs are presented in Appendix L. Where arms are forecast to be operating beyond design capacity thresholds, the corresponding cells are highlighted in **YELLOW**. Where negative impacts are created on arms operating beyond design capacity thresholds, the text colour is highlighted in **Red**.

Table 9: Junction Capacity Comparison 2023, Do Minimum vs. Do Something

Arm	2023 AM Peak				2023 PM Peak			
	DM		DS		DM		DS	
	CAPACITY	QUEUE	CAPACITY	QUEUE	CAPACITY	QUEUE	CAPACITY	QUEUE
A5036 Wapping (1)	71.4%	21.2	68.1%	21.2	90.3%	35.0	90.5%	35.0
Blundell Street (2)	83.0%	6.8	83.0%	6.8	105.9%	32.5	105.9%	20.6
A5036 Chaloner Street (3)	89.0%	35.5	89.8%	36.0	105.2%	82.3	106.0%	87.0
Queens Wharf (4)	28.5%	1.9	30.2%	2.0	41.6%	2.9	46.3%	3.3
Practical Reserve Capacity	1.1%		0.3%		-17.7%		-17.8%	

The results of the macro-simulation modelling exercise have identified that the junction is forecast to operate within acceptable design standard capacities during the AM peak hour.

During the weekday evening peak hour period, all arms of the junction are forecast to operate beyond design capacity thresholds, other than Queens Wharf, with or without development related traffic.

Traffic generated by the proposed development is expected to negatively impact the operation of the signals, although considering the practical reserve capacity, this is only minor, being a reduction of 0.1%.

The only minor detrimental impact when considering queuing is found on the Chaloner Street arm, whereby an increase in queue of 4.7 vehicles is predicted, on balance this is considered to be offset by the reduction in forecast queue on Blundell Street of 11.9 vehicles.

Given the estimated results above, it is considered that similar impacts would be found associated with variations in daily traffic flows, as such no mitigation is proposed to accommodate the additional vehicular traffic created by the proposed development.

8 MULTI MODAL IMPACT ASSESSMENT

Appreciating the size of the development site, it is considered necessary to undertake a multi modal impact assessment so as to estimate general weekday person trips. This assessment has been undertaken so as to highlight capacity requirements, such as pedestrian footway and crossing widths, etc.

In this instance, when estimating person and multimodal trip forecasts, Census 2011 Travel to Work Data has been adopted and used in conjunction with the trip generation rates calculated in Section 6.6 of this report. It is acknowledged that the trip generations adopted in Section 6 only used peak hour rates. The adopted TRICS survey sites however have full day survey movements, a copy of which, associated with each land use, are presented in Appendices I and J.

An interrogation of the NOMIS website has been undertaken to ascertain 2011 Census travel to work mode share data for the Liverpool area. The Travel to Work mode share percentage statistics for the North West region, Liverpool, and the Liverpool local area (Kings Dock area) have been extrapolated associated with car and sustainable transport forms of transport as detailed in Table 10.

Table 10: National Statistics Travel to Work Mode Share Census Data

Method of Travel to Work	Liverpool: Local area	Liverpool	Regional: North west
Train	5.3%	8.4%	2.9%
Bus, minibus or coach	20.4%	9.3%	8.8%
Taxi	1.5%	1.5%	0.9%
Motorcycle, scooter / moped	0.4%	0.2%	0.7%
Driving a car or van	50.7%	39.8%	66.4%
Passenger in a car or van	6.2%	3.9%	6.5%
Bicycle	2.2%	1.3%	2.3%
On foot	13.3%	35.7%	11.6%

Given that the development site in effect forms an expansion of the city centre, the lower car borne trips and higher walking trips associated with the general Liverpool census data is considered to be more applicable than the current statistics held for the Kings Dock area. As such, these mode share percentages have been used, in conjunction with the weekday TRICS data presented in Appendices I and J, to forecast the weekday sustainable transport movements likely to be created by the proposed development.

8.1 Multi Modal Impact Assessment

Based on the mode share percentages detailed in Table 10, weekday hourly trip forecasts, associated with person, public transport, walking and cycling have been estimated as detailed in Table 11. For ease of reference, public transport movements have been amalgamated including train, bus and taxi. Person trips include all movements including the private car.

Table 11: Forecast Sustainable Transport Movements (Weekday)

Period	Arrival Trips				Departure Trips				Total Trips			
	Person	Public Transport	Walking	Cyclist	Person	Public Transport	Walking	Cyclist	Person	Public Transport	Walking	Cyclist
0500-0600	0	0	0	0	0	0	0	0	0	0	0	0
0600-0700	0	0	0	0	0	0	0	0	0	0	0	0
0700-0800	15	3	5	0	35	7	12	0	49	9	18	1
0800-0900	56	11	20	1	84	16	30	1	140	27	50	2
0900-1000	38	7	13	0	52	10	18	1	89	17	32	1
1000-1100	32	6	11	0	51	10	18	1	83	16	30	1
1100-1200	14	3	5	0	32	6	11	0	47	9	17	1
1200-1300	33	6	12	0	30	6	11	0	63	12	22	1
1300-1400	17	3	6	0	22	4	8	0	39	8	14	1
1400-1500	18	4	7	0	24	5	9	0	42	8	15	1
1500-1600	43	8	15	1	30	6	11	0	74	14	26	1
1600-1700	58	11	21	1	35	7	13	0	94	18	33	1
1700-1800	62	12	22	1	55	11	20	1	117	22	42	2
1800-1900	50	10	18	1	32	6	12	0	83	16	30	1
1900-2000	0	0	0	0	0	0	0	0	0	0	0	0
2000-2100	0	0	0	0	0	0	0	0	0	0	0	0
2100-2200	0	0	0	0	0	0	0	0	0	0	0	0
TOTAL	437	83	156	6	483	92	172	6	919	176	328	12

The results in Table 11 indicates that the proposed development has the potential to generate in the order of 919 person trips during a general weekday, including 328 walking trips (504 when considering combined movements associated with public transport trips), 176 public transport trips, and 12 cycle trips.

The impacts each of these modes of transport are forecast to create, and the measures recommended to be put in place to facilitate such demands are discussed in the following sub sections.

8.1.1 Public Transport Trips

Public transport trips include an amalgamation of taxi, bus and train modes of transport, all of which are likely to include walking as a linked mode of transport so as to reach the bus stops /stations and train stations etc. During a standard weekday, a peak hour demand of between 20 and 27 trips are forecast.

Considering the standard weekday, the arrival and departure trips associated with each public transport mode and land use are listed In Table 12.

Table 12: Public Transport Weekday Trips

Land Use	Arrival			Departure			Total		
	Bus	Rail	Taxi	Bus	Rail	Taxi	Bus	Rail	Taxi
Plot 2 (Office)	7	6	1	0	0	0	7	6	1
Plot 4 (Residential)	33	30	5	38	34	6	71	65	11
Plot 4 (Commercial)	7	6	1	0	0	0	7	6	1
TOTAL	69	43	7	38	34	6	85	77	13

Table 12 details the forecast weekday public transport journeys associated with each of the proposed plots. In the order of 85 bus trips, 77 rail trips and 13 taxi trips are forecast.

This level of trips spread across an average weekday is moderate and unlikely to create an impact upon the existing services available adjacent to the site.

8.1.2 Walking Trips

Walking trips as a mode of transport have been forecast to generate 328 weekday movements. When combined with the walking elements of public transport trips, this could increase to 504 with a peak hour movement of 77 movements. Local Transport Note 2/95 highlights the capacity of standard width pedestrian crossings, being 2.4m to be able to cater for a demand of 600 pedestrians. Should the demand increase above this, then the crossings should be widened.

Given that the maximum demand is forecast to be significantly less than this threshold value, pedestrian crossings widths within the local vicinity should not require adjustment.

Due to the low level of overall walking trips, no improvements to adjacent infrastructure is proposed as the demand is unlikely to create significant impact, when considering capacity or maintenance requirements and route choice.

8.1.3 Cycling Trips

Cycle trips during a weekday have been estimated to be up to 12 journeys.

It is however appreciated that a low level of parking provision will not promote the use and uptake in cycling as a form of transport, as such provision should be made in line with the parking standards detailed in Section 10 of this report.

9 IMPACTS ON ADJACENT LAND USES AND INFRASTRUCTURE

9.1 Adjacent ACC Event Traffic Impact Assessment

It is acknowledged that this Transport Assessment has focussed on general highway network peak hours, and as such has not necessarily considered the operation of neighbouring plots, such as the Echo Arena, during events, or how the additional development traffic will interact with such events, and whether negative impacts will be created.

The proposed development is forecast to generate an additional 56 weekday peak hour movements, with all other hourly operations, especially at weekdays, being much lower than this.

Also considering that the proposals will create a reduction in traffic flows given the removal of a 47 space surface mounted carpark, the net impacts will significantly less.

As such any increase in traffic movements are likely to be imperceptible when compared to background.

Appreciating that peak hour operations of the highway network, and the adjacent arenas are likely to be different, week day traffic movements associated with the proposed development site have been projected as shown in Table 13.

Table 13: Forecast Weekday Development Site Hourly Traffic Generation

Period	0500-0600	0600-0700	0700-0800	0800-0900	0900-1000	1000-1100	1100-1200	1200-1300	1300-1400	1400-1500	1500-1600	1600-1700	1700-1800	1800-1900	1900-2000	2000-2100	2100-2200	TOTAL
Arrival	0	0	6	22	15	13	6	13	7	7	17	23	25	20	0	0	0	174
Departure	0	0	14	33	21	20	13	12	9	10	12	14	22	13	0	0	0	192
Total Movements	0	0	20	56	35	33	19	25	16	17	29	37	47	33	0	0	0	366

It is understood that generally visitor arrivals associated with the arena operations are between 6:30 and 7:30 PM, and departures between 10:00 and 10:30. During these periods, the development site is forecast to generate up to 33 traffic movements, which when compared to the likely generation created by arena event visitors, will be negligible.

Although the direct impacts are considered to be low, it is understood from ACCs operators that there are existing issues encountered associated with traffic arriving and departing Kings Dock, with these movements restricting the free flow of traffic travelling between loading bays and the ACC service yard and other crossover movements.

To reduce any foreseen impacts, and provide a betterment to the existing operations, the following measures are proposed:

- Operation of Travel Plans associated with the proposed development land uses with a key action to educate occupiers of the site when events are on, busy traffic periods to avoid, and the provision of flexible working hours to account for such periods.

9.2 Highway Network VMS Signage

At the time of preparing this report no alterations to the existing VMS system on the A5036 is proposed.

9.3 Kings Dock Directional Signage

As discussed in Section 3 of this report, the existing directional signage in Kings Dock will be impacted by the proposed development. Measures have been proposed as part of the adjacent The Call Centre, planning application to revise existing signage to cater for any impacts. It is recommended that a similar Grampian style condition is applied to this application should it be granted, so as to ensure the applicant revises signage within and surrounding Kings Dock that will be impacted.

10 PARKING ASSESSMENT

The primary purpose of this section is to consider the parking demand that will be created by the proposed development and ensure that sufficient supply is either available or will be provided, including parking for cars, bicycles and servicing vehicles.

A review of Liverpool City Councils SPD document: Ensuring Travel Choice dated April 2008 has been undertaken to ascertain the parking standards associated with the proposed land uses.

An extract from the parking standards is presented in Table 14.

Table 14: LCC Parking Standards

Land Use	Car Parking Spaces	Motorcycle	Disabled Parking Spaces	Cycle Parking Spaces
Building 2 (Small Offices)	1 Space per 40 m ² GFA	1 Space per 75 m ² GFA (2 spaces minimum)	5% of maximum car parking provision	1 per 400 m ² (Staff + locker) 1 per 300 m ² (Visitor)
Building 4 (Residential)	0.7 Spaces per dwelling	N/A, included in car parking standards	1 space per 10 units or part therefore	1 secure space per 1 flat, plus 1 visitor cycle stand per 10 units.
Building 4 (Commercial)	1 Space per 40 m ² GFA	1 Space per 75 m ² GFA (2 spaces minimum)	5% of maximum car parking provision	1 per 400 m ² (Staff + locker) 1 per 300 m ² (Visitor)

By applying the parking standards above, considering the policy guidance, the proposed development would need to provide parking supply as detailed in Table 15.

Table 15: Parking Policy Provision

Land Use	Car Parking Spaces	Motorcycle	Disabled Parking Spaces	Cycle Parking Spaces
Building 2 (Small Offices)	25 spaces	14 spaces	2 spaces	3 staff spaces 4 visitor spaces
Building 4 (Residential)	84 spaces	Included in car parking provision	12 spaces	120 spaces 12 visitor spaces
Building 4 (Commercial)	25 spaces	14 spaces	2 spaces	3 staff spaces 4 visitor spaces

10.1 Car Parking Provision

The offices / commercial spaces locate in buildings 2 and 4 are to be car free. This is considered suitable given the proximity of the site to the city centre, adjacent sustainable transport network and infrastructure, along with accessibility to nearby public car parks. The level of demand the office uses will create is considered to be minor, and as such should not create a capacity issues with local public car parks.

With regard to the residential land use, the policy guidance recommends 0.7 space per dwelling, equating to 84 spaces, whereas the proposals include a provision of 33. Similarly to the office land uses, given the proximity of the site to the city centre, adjacent sustainable transport network and infrastructure, along with accessibility to nearby public car parks, the undersupply should not create a significant issue.

For comparative purposes, it is noted that similar residential apartment buildings adjacent to the site, have provided reduced levels of off street parking, generally falling between 1 space per 0.25 to 0.3 units. This would equate to an off street provision of between 30 and 36 spaces, similar to that of the proposals.

Ten disabled parking spaces are proposed to be included within the residential parking provision, which is over and above the 5% policy requirement.

It is therefore considered that the quantum of parking provision is suitable to serve the demands of the development site.

10.2 Cycle Parking Provision

10.2.1 Office / Commercial Use

Cycle parking provision associated with the commercial units and office are to be provided internally. Appreciating that provision of 7 spaces are required in each building, this is considered to be viable. In addition, lockers (or similar secure storage facilities) for staff are also proposed.

10.2.2 Residential Use

The proposed cycle store is to include 84 cycle parking spaces. Although under the recommended guidance level of 132, the calculations undertaken in Section 8 of this report forecast a demand of 12 cycle trips per weekday. As such 132 is considered to be an overprovision, although a provision of only 12 spaces would clearly be a significant under supply, and not promote the use of cycling as a form of transport.

It is therefore considered that the parking supply is appropriate for the nature of the development.

11 ACCIDENT ANALYSIS

11.1 Personal Injury Accident Data Analysis

11.1.1 Introduction

Recorded road traffic accident data has been obtained from the www.crashmap.co.uk website associated with land adjoining the proposed development for the most recent 5-year period. The study area of the assessment is shown in Figure 12.

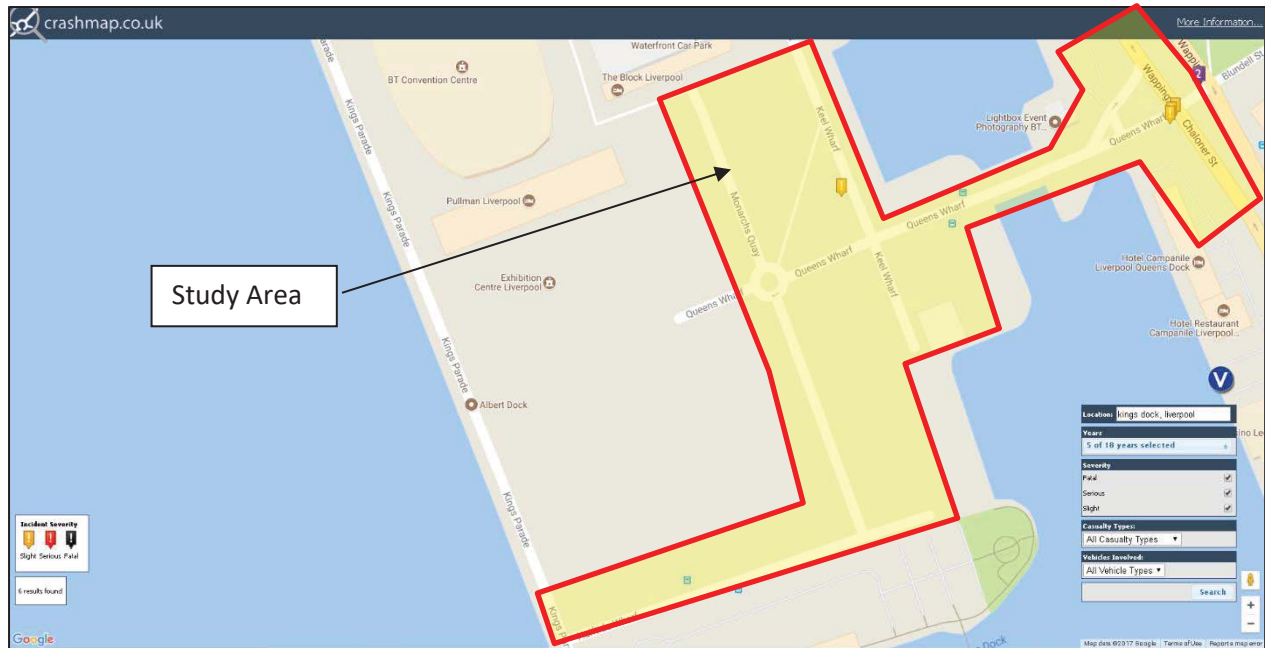


Figure 12: Accident Assessment Study Area

Over a period between 2013 and 2017, there were 4 recorded accidents resulting in injury. Only one of these accidents occurred in the Kings Dock area, whilst 3 occurred at or adjacent to the Wapping / Queens Wharf / Chaloner Street / Blundell Street signal controlled junction. All of the four accidents were recorded with severity ratings of slight. None of the accidents were recorded as severe or fatal.

A breakdown of the total number of personal injury accidents within the study area is shown in Tables 16 and 17.

Table 16: Total Number of Accidents and Casualties

Year	Total		Pedal Cycle		Child Casualty		Motorcycle		Pedestrian	
	Accidents	Casualties	Accidents	Casualties	Accidents	Accidents	Accidents	Casualties	Accidents	Casualties
2013	1	1	0	0	0	0	0	0	1	1
2014	2	5	0	0	0	0	0	0	1	1
2015	0	0	0	0	0	0	0	0	0	0
2016	1	2	0	0	0	0	0	0	0	0
2017	0	0	0	0	0	0	0	0	0	0
Totals	4	8	0	0	0	0	0	0	2	2

Table 17: Casualty Severity

Year	Fatal	Serious	Slight	Total
2013	0	0	1	1
2014	0	0	2	2
2015	0	0	0	0
2016	0	0	1	1
2017	0	0	0	0
Totals	0	0	4	4

Of all accidents that occurred within the assessment area, 2 involved pedestrians, whilst the remaining accidents involved vehicles.

The single accident that occurred in the vicinity of Kings Dock was located on Keel Wharf, approximately 30 m north of its junction with Queens Wharf. The incident involved a pedestrian crossing Keel Wharf not at a crossing point during the hours of darkness. Based on a review of the records the pedestrian appeared to have stepped out into the path of an oncoming vehicle from the driver's side which resulted in a slight conflict occurring.

Based on a review of the accident records no patterns or trends have been identified that are considered likely to be detrimentally impacted by the operations of the proposed development.

12 SUMMARY AND CONCLUSIONS

Vectio Consulting Limited have been commissioned by YPG Developments to prepare a Transport Assessment in support of a full planning application for a residential and office development within the Kings Dock area of Liverpool.

The proposed development forming the subject of this report comprises a 1,000 m² gross floor area office, seven storey residential apartment building, housing 120 units, with 1,000m² gross floor area commercial space on the ground floor. The apartment building is also to include 33 car parking spaces on the ground floor under the building.

The apartment building will be constructed on an existing pay and display 47 space car park.

The site is located within the Kings Dock area of Liverpool adjacent to the Exhibition Centre Liverpool, BT Convention Centre and Echo Arena, and Exhibition Centre Liverpool (ECL).

12.1 Summary

This report has been prepared in consultation with the Liverpool City Council acting as Highway Authority, and in line with guidance provided in Paragraph 32 of the National Planning Policy Framework which sets out that all developments that generate significant amounts of transport movement should be supported by a Transport Statement.

This report has appraised key transport aspects and the findings are summarised as follows:

- The development proposals have been discussed in context with the local environment. Measures to accommodate all modes of access have been developed. Servicing vehicles have been discussed along with the need to provide a Construction Stage Traffic Management prior to construction, and a Servicing and /Delivery Management Plan;
- A review of relevant planning policy has been undertaken, planning policy has been adopted and conformed to where relevant;
- The existing transport conditions have been audited and discussed within the assessment. Excellent pedestrian infrastructure and public transport provision were identified;
- A MASA assessment has been undertaken concluding that the site is suitably located to achieve the minimum accessibility criteria;
- A traffic impact assessment has been undertaken, including a review of the operation performance of the Queens Wharf / Wapping / Blundell Street / Chaloner Street junction, concluding that the developed will only create a minor impact to its existing peak hour operation, with the extent of impact being similar to that of daily variations in traffic flows;
- Travel forecasts have estimated the likely increase in person movements concluding that the proposed development is likely to generate a low level of traffic impact;
- An assessment of car parking demand has been undertaken, confirming that the proposed parking provision is suitable for the type of development proposed;

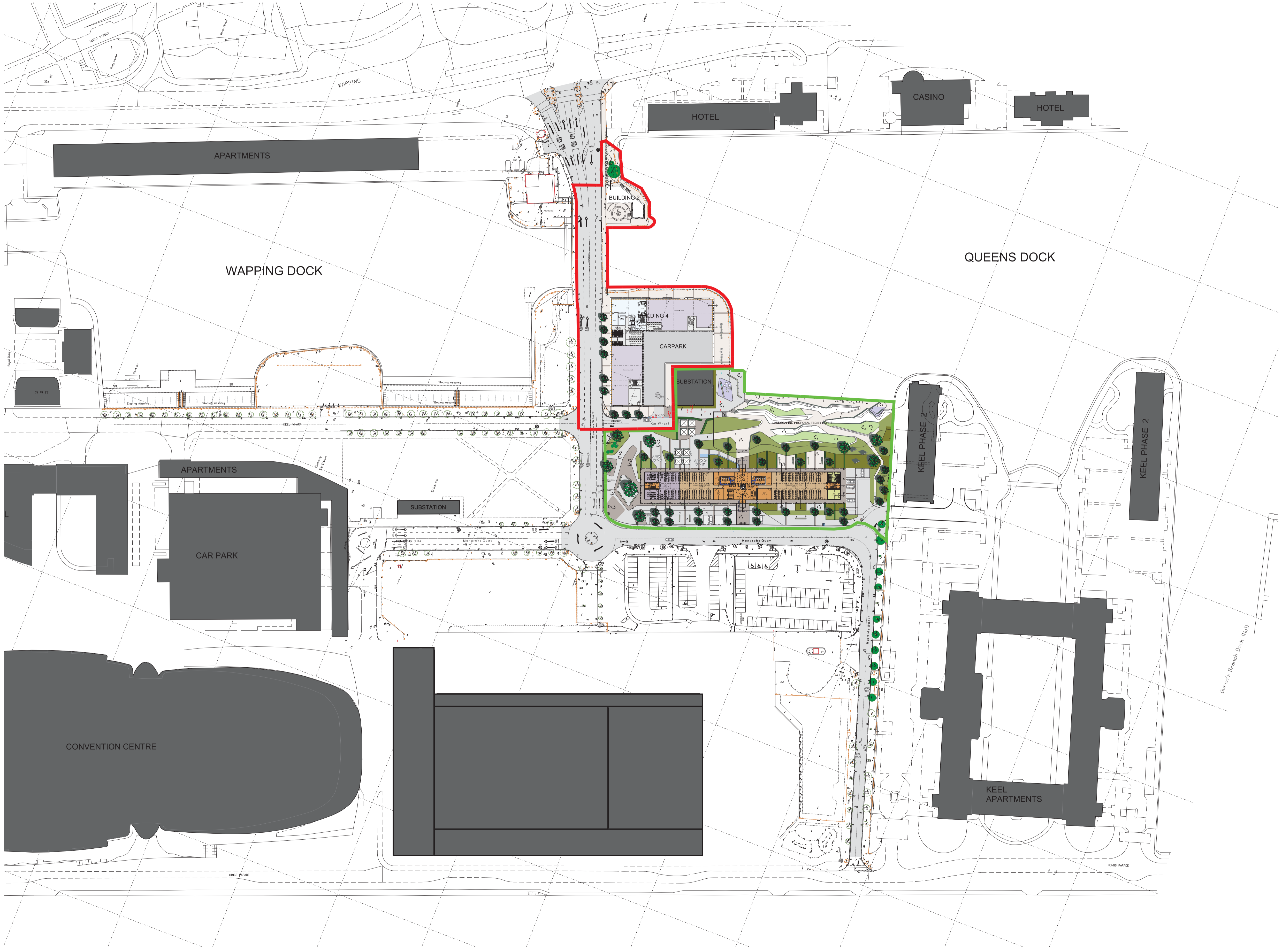
- Suitable provision for cycle, motorcycle and disabled parking has been provided;
- A Grampian condition has been recommended to ensure that adjacent signage within the Kings Dock and surrounding area that may be impacted by the loss of the existing carpark are amended to suit, prior to removal of the existing surface carpark;
- Although the vehicular traffic impact is forecast to be minor, so as not to create a significant impact to the operation of the adjacent Arena operations, and other occupiers of the Docks, the Transport Assessment recommends the implementation of Travel Plans to further reduce the small impacts that may be created; and,
- An appraisal of the most recent 5-years' worth of available road traffic accident data has been undertaken. The assessment has not identified any patterns or trends that would be detrimentally impacted by the operations of the proposed development.

12.2 Conclusions

It is the view of this Transport Assessment that, in transportation and highway safety terms, there are no overriding issues that would prevent the granting of planning permission based on the recommendations within this report being implemented.

Appendix A: Masterplan





KEY

— APPLICATION SITE
6,224 sq.m / 1.53 Acres / 0.62 Hectares

— PREVIOUS APPLICATION
ALREADY SUBMITTED

Rev D - 22.03.18 Car Park removed from drawing and
Rev C - 04.03.18 Application site boundary updated
Rev B - 14.03.18 Application site boundary updated
Rev A - 06.10.17 Building 3 and landscaping updated
Rev A - 02.10.17 Building 4 note added

Project Title
Falconer Chester Hall
Kings Dock
Proposed site plan - Application 1b
YPS Developments
Drawn By
Date
Scale
1:1250 @ A1

Project No.
P16-144
Drawing No.
02.10.17
Scale
1:1250 @ A1

02-02-007D
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Appendix B: Highway Audit



VC0090 –INFRASTRUCTURE AUDIT

STREET / ROAD NAME: Queens Wharf

DESCRIPTION: Queens Wharf is a private road with a general width of between 12.2 and 13m. It comprises of four lanes of traffic along its entire length. Along Queens Wharf there is a 20 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Queens Wharf forms a signalised junction with Wapping, Chaloner Street and Blundell Street to the east. To the west, it terminates at a roundabout with Monarchs Quay.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Queens Wharf and are in good condition. Tactile paving has been provided across all junction minor arms along the length of Queens Wharf with a signalised crossing at the major signalised junction with Wapping, Chaloner Street and Blundell Street.

Parking Facilities

There is no available on road parking along the length of Queens Wharf although there is off road Pay and Display parking available.

Bus Facilities

There were 2 bus stops observed along Queens Wharf, these are located to the west near to the junction with Wapping, Chaloner Street and Blundell Street.

TROs

There are double yellow lines along the length of Queens Wharf.

STREET / ROAD NAME: Keel Wharf

DESCRIPTION: Keel Wharf is a private single carriageway road which is generally 7.3m wide. Along Keel Wharf there is a 15 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Keel Wharf terminates to the south with vehicular access into a car park. To the north the road terminates with no vehicular access over the bridge onto Gower Street except for emergency vehicles. Access to loading bay 2 is located on the western kerblines for the Echo Arena and BT Convention Centre.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Keel Wharf and are in good condition. Tactile paving has been provided across all junction minor arms along the length of Keel Wharf. There is pedestrian only access to Gower Street.

Parking Facilities

There is no available on road parking along the length of Keel Wharf. A layby is provided in front of Jury Inn for collection/drop off and loading.

Bus Facilities

No bus stops were observed along Keel Wharf.

TROs

There are double yellow lines along the length of Keel Wharf.

STREET / ROAD NAME: Monarchs Quay

DESCRIPTION: Monarchs Quay has a varying carriageway width to the north there are four lanes of traffic serving the Waterfront car park and Pullman Hotel and to the south it is a single carriageway road. Monarchs Quay is generally 7.3m wide. Along Monarchs Quay there is a 15 mph speed limit to the north and a 20 mph speed limit to the south, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Monarchs Quay terminates to the north with access provided to the Waterfront car park and a turning head/loading bay for the Pullman Hotel. To the south Monarchs Quay form a T junction with Halftide Wharf. Access to loading bay 1 is provided to the north of Monarchs Quay near to the Pullman Hotel to serve the BT Convention centre and Echo Arena.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Monarchs Quay and are in good condition. Tactile paving has been provided across all junction minor arms along the length of Monarchs Quay.

Parking Facilities

There is no available on road parking along the length of Monarchs Quay. Off road parking Pay and Display parking is available.

Bus Facilities

No bus infrastructure / facilities were observed along Monarchs Quay although it is noted to be on a bus route.

TROs

There are double yellow lines along the length of Monarchs Quay.

STREET / ROAD NAME: Halftide Wharf

DESCRIPTION: Halftide Wharf is a single carriageway road which is generally 6 to 7m wide. Along the length of Halftide Wharf there is a 20 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Halftide Wharf terminates to the east and forms a priority junction to the west with Kings Parade. There is an access to loading bay 3 for Exhibition Centre Liverpool provided off Halftide Wharf.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Halftide Wharf and are in good condition. Tactile paving has been provided across all junction minor arms along the length of Halftide Wharf.

Parking Facilities

There is no available on road parking along the length of Halftide Wharf.

Bus Facilities

Two bus stops were observed along Halftide Wharf each with a shelter, seating, timetables and bus cage markings.

TROs

There are double yellow lines along the length of Halftide Wharf.

STREET / ROAD NAME: Kings Parade

DESCRIPTION: Kings Parade is generally 6m wide single carriageway road but varies in width, with a chicane and shuttle system operating to the north. Along the length of Kings Parade there is a 20 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Kings Parade terminates to the south in the form of a priority junction with Coburg Wharf. To the north Kings Parade turns into Gower Street which heads east. King Parade continues north into the Albert Dock area providing servicing and drop off for the Albert Dock apartments. There is off road cycling provision which forms part of National Cycle Route 56.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Kings Parade and are in good condition. Tactile paving has been provided although at the junction with Halftide Wharf there is only tactile paving on the eastern kerbline and none of the western kerbline on the desire line to the bus stop. There are a lack of crossings along Kings Parade but due to the chicane and shuttle system the area operates as a shared surface.

Parking Facilities

The length of Kings Parade is a no parking area there are landscaped bollards placed to prevent this from happening along the western kerbline. The only area this is permitted is in front of the Echo and BT Convention Centre where there is a dedicated loading/drop off area. This was observed on exhibition days to be managed by a steward. There were a substantial number of cars noted parked along the footpath in front of the Keel residential apartments which has caused damage to the footway.

Bus Facilities

Four bus stops were observed along Kings Parade each with a shelter, seating and timetables.

TROs

Parking is restricted along the length of Kings Parade in the form of landscaped bollards and signage.

STREET / ROAD NAME: Gower Street

DESCRIPTION: Gower Street is a single carriageway road which is approximately 6.6m wide. Along the length of Gower Street there is a 15 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Gower Street forms a priority junction with Wapping to the east and merges to west with Kings Parade.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Gower Street and are in good condition. Uncontrolled pedestrian crossings are present on Gower Street although there is a lack of tactile paving on minor arms junctions.

Parking Facilities

There is no available on road parking along the length of Gower Street although there is an area for loading along the northern kerbline on Gower Street. Off street Pay and Display parking is available.

Bus Facilities

Two bus stops were observed along Gower Street each with a shelter, seating, timetables and bus cage markings.

TROs

There are double yellow lines along the length of Gower Street.

STREET / ROAD NAME: Salthouse Quay

DESCRIPTION: Salthouse Quay operates as a one-way street in a north south direction and ranges in width up to 6.4m wide. Along the length of Salthouse Quay there is a 10 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Salthouse Quay forms a priority junction with Strand Street to the north and Gower Street to the South.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Salthouse Quay and are in good condition. An uncontrolled pedestrian crossing is present on Salthouse Quay to the south near the junction with Gower Street and a signalised crossing is to the north near the junction with Strand Street. There is a lack of tactile paving on minor arms junctions.

Parking Facilities

There is no available on road parking along the length of Salthouse Quay although there are areas for loading along the western kerbline on Salthouse Quay, these are controlled by removable bollards. There is a designated waiting area for taxis.

Bus Facilities

One bus stop was observed along Salthouse Quay with a shelter, seating, timetables and bus cage markings. There is also a designated bay for coaches to drop off/pick up.

TROs

There are double yellow lines along the length of Salthouse Quay.

STREET / ROAD NAME: Hartley Quay

DESCRIPTION: Hartley Quay is approximately 6m wide. Along the length of Salthouse Quay there is a 10 mph speed limit, there are footways along either side of the road and the area is street lit. The roads located within the Wharf area are private roads and not adopted highway.

General Observation

Hartley Quay has restricted access after approximately the first 60m whereby rising bollards are used to control the entry of vehicles. Access to Hartley Quay is mainly for the servicing of the commercial/retail premises adjacent. Hartley Quay terminates to the west and to the east forms a priority junction with Salthouse Quay.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Hartley Quay and are in good condition. An uncontrolled pedestrian crossing is present on Hartley Quay to the west near the junction with Salthouse Quay. There is a lack of tactile paving on however Hartley Quay operates as a shared surface area.

Parking Facilities

There is no available on road parking along the length of Hartley Quay although there are areas for off-road loading along the southern kerbline on Hartley Quay.

Bus Facilities

No bus infrastructure / facilities were observed along Hartley Quay.

TROs

There are double yellow lines along the length of Hartley Quay.

STREET / ROAD NAME: Mann Island

DESCRIPTION: Mann Island is a single carriageway road which ranges in width with the narrowest point of 12m wide. Along the length of Mann Island there is a 10 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Mann Island forms a crossroad junction with Strand Street, James Street and Goree to the east and terminates to the west with a turning head provided for vehicles and a priority junction with Georges Pierhead.

Pedestrian Infrastructure / Facilities

Footways are provided on both sides of Mann Island and are in good condition. A controlled pedestrian crossing is present to the east near to the crossroad junction. Tactile paving is present on minor arms junctions.

Parking Facilities

There is no available on road parking along the length of Mann Island.

Bus Facilities

Two bus stops were observed along Mann Island with a shelter, seating, timetables and bus cage markings.

TROs

There are double yellow lines along the length of Mann Island.

STREET / ROAD NAME: Georges Pierhead

DESCRIPTION: Georges Pierhead is a single carriageway road approximately 6.8m wide. Along the length of Georges Pierhead there is a 10 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Georges Pierhead forms a priority junction with Mann Island to the south and to the north merges with Canada Boulevard.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Georges Pierhead and are in good condition. There is a lack of tactile paving near the junction with Mann Island.

Parking Facilities

There is no available on road parking within the survey area of Georges Pierhead.

Bus Facilities

Within the survey area a bus stand was observed.

TROs

There are double yellow lines along the length of Georges Pierhead.

STREET / ROAD NAME: A5036 Goree

DESCRIPTION: Goree operates as a one-way carriageway in a south to north direction holding four lanes of traffic. Within the survey area Goree is generally in the order of 13.5m wide. Along the length of Goree there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Goree forms a signalised crossroad junction to the south with Mann Island, Strand Street and James Street and to the north merges with Georges Dock Gates which in turn merges with New Quay.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Goree and are in good condition. Within the survey area tactile paving was present along with a signalised junction at the crossroads to the south of Goree.

Parking Facilities

There is no available on road parking within the survey area of Goree.

Bus Facilities

Within the survey area one bus stop was observed along Goree with a shelter, seating, timetables and bus cage markings.

TROs

There are double yellow lines along the length of Goree within the survey area.

STREET / ROAD NAME: A5036 The Strand

DESCRIPTION: The Strand operates as a one-way carriageway in a north to south direction holding four lanes of traffic. Within the survey area The Strand is generally in the order of 13.5m wide. Along the length of The Strand there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

The Strand forms a signalised crossroad junction to the south with Mann Island, Strand Street and James Street and to the north merges with Georges Dock Gates which in turn merges with New Quay.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of The Strand and are in good condition. Within the survey area tactile paving was present along with a signalised crossing at the crossroads to the south of The Strand.

Parking Facilities

There is no available on road parking within the survey area of The Strand.

Bus Facilities

No bus infrastructure / facilities were observed along The Strand.

TROs

There are double yellow lines along the length of The Strand within the survey area.

STREET / ROAD NAME: A5036 Strand Street

DESCRIPTION: Strand Street is mainly a 3-lane dual carriageway widening to 4 lanes to serve junctions. Along the length of Strand Street there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Strand Street merges to the north with Goree in a northbound direction and The Strand in a south bound direction. To the south Strand Street merges with Wapping. VMS signs are located along Strand Street alerting travellers where available spare Pay and Display parking capacity is located.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Strand Street and are in good condition. Within the survey area tactile paving was present along with signalised crossings.

Parking Facilities

There is no available on road parking along the length of Strand Street.

Bus Facilities

Liverpool One Bus Station is located directly off the eastern side of Strand Street.

TROs

There are double yellow lines along the length of Strand Street.

STREET / ROAD NAME: A5036 Wapping

DESCRIPTION: Wapping is mainly a 2-lane dual carriageway widening to 3 or 4 lanes to serve junctions. Along the length of Wapping there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Wapping merges to the north with Strand Street and Chaloner Street in a south bound direction. VMS signs are located along Wapping alerting travellers where available spare Pay and Display parking capacity is located.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Wapping and are in good condition. Within the survey area tactile paving was present along the majority of Wapping, however there was a lack of tactile paving on the Kings Dock / Wapping junction and the Tabley Street / Wapping junction. There are signalised pedestrian crossings available on Wapping. The footpath has a slight pinch point on the western kerbside where a street light is located near to the crossroads with Queens Wharf, Chaloner Street and Blundell Street.

Parking Facilities

There is no available on road parking along the length of Wapping.

Bus Facilities

Three bus stops were observed along Wapping with a shelter, seating and timetables.

TROs

There are double yellow lines along the length of Wapping.

STREET / ROAD NAME: A562 Chaloner Street

DESCRIPTION: Chaloner Street is mainly a 2-lane dual carriageway widening to 3 or 4 lanes to serve junctions. Along the length of Chaloner Street there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Chaloner Street merges to the north with Wapping to the north and Parliament Street in a south bound direction. VMS signs are located along Chaloner Street alerting travellers where available spare Pay and Display parking capacity is located.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Chaloner Street and are in good condition. Within the survey area tactile paving was present along with signalised pedestrian crossings.

Parking Facilities

There is no available on road parking along the length of Chaloner Street.

Bus Facilities

One bus stop was observed along Wapping with a shelter, seating and timetables.

TROs

There are double yellow lines along the length of Chaloner Street.

STREET / ROAD NAME: A5040 Liver Street

DESCRIPTION: Liver Street is a 2-lane dual carriageway. Along the length of Liver Street there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Liver Street forms a signal controlled junction to the west with Wapping and Strand Street and merges to the east with Paradise Street.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Liver Street and are in good condition. Within the survey area tactile paving was present. Signalised pedestrian crossings were also identified along Liver Street.

Parking Facilities

There is no available on road parking along the length of Liver Street.

Bus Facilities

No bus infrastructure / facilities were observed along Liver Street.

TROs

There are double yellow lines along the length of Liver Street.

STREET / ROAD NAME: A5040 Paradise Street

DESCRIPTION: Paradise Street is a wide single carriageway road with laybys and opening at junctions to two lanes. Along the length of Paradise Street there is a 30 mph speed limit, there are footways along either side of the road and the area is street lit.

General Observation

Paradise Street merges with Liver Street to the south and to the north forms a signal controlled junction with Hanover Street.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Paradise Street and are in good condition. Within the survey area tactile paving was present along however there was no tactile paving present at the junction with Argyle Street. Signalised pedestrian crossings were also identified along Paradise Street.

Parking Facilities

There is no available on road parking along the length of Paradise Street.

Bus Facilities

No bus infrastructure / facilities were observed along Paradise Street.

TROs

There are double yellow lines along the length of Paradise Street.

STREET / ROAD NAME: B5339 Hanover Street

DESCRIPTION: Hanover Street is a wide single carriageway road with laybys and opening at junctions to two lanes. Along the length of Hanover Street there is a 30 mph speed limit, there are footways along either side of the road within the survey and the area is street lit.

General Observation

Hanover Street forms a roundabout to the west with Price Street and Canning Place whilst to the east merges with Ranelagh Street further afield.

Pedestrian Infrastructure / Facilities

Within the survey area footways are provided on both sides of Hanover Street and are in good condition. Within the survey area tactile paving was present. Signalised pedestrian crossings were also identified along Hanover Street within the survey area.

Parking Facilities

There is no available on road parking along the length of Hanover Street.

Bus Facilities

No bus infrastructure / facilities were observed along Hanover Street within the survey area.

TROs

There are double yellow lines along the length of Hanover Street within the survey area.

Appendix C: MASA



Office MASA



3 Minimum Accessibility Standard Assessment

Address: Proposed Office – Queens Wharf, Wapping Way, Liverpool				
Completed By: Vectio Consulting Limited				
Access Diagram				
Has a diagram been submitted which shows how people move to and through the development and how this links to the surrounding roads, footpaths and sight lines? (This can be included within the Design and Access Statement, see Section 2.25.) If a diagram has not been submitted your application may not be processed.				(Yes) / No
Access on Foot			Points	Score
Safety	Is there safe pedestrian access to and within the site, and for pedestrians passing the site (2m minimum width footpath on both sides of the road)? If no your application must address safe pedestrian access.			(Yes) / No
Location	<u>Housing Development:</u> Is the development within 500m of a district or local centre (see Accessibility Map 1 in Appendix F) <u>Other development:</u> Is the density of existing local housing (i.e. within 800m) more than 50 houses per hectare (see Accessibility Map 4 in Appendix F)	Yes	(2)	2
		No	0	
Internal Layout	Does 'circulation' and access inside the sites reflect direct, safe and easy to use pedestrian routes for all; with priority given to pedestrians when they have to cross roads or cycle routes?	Yes	(1)	1
		No	0	
External Layout	Are there barriers between site and local facilities or housing which restrict pedestrian access? (see Merseyside Code of Practice on Access and Mobility) e.g. <ul style="list-style-type: none"> No dropped kerbs at crossings or on desire lines; Steep gradients; A lack of a formal crossing where there is heavy traffic; Security concerns, e.g. lack of lighting. 	There are barriers	-2	1
		There are no barriers	(1)	
Other	The development links to identified recreational walking network (see Accessibility Map 1). If no, please provide reasons why not.			(Yes) / No
			Total (B)	4
Summary	Box A: Minimum Standard (from Table 3.1)	2	Comments or action needed to correct any shortfall	
	Box B: Actual Score	4		

Access by Cycle			Points	Score
Safety	Are there safety issues for cyclists either turning into or out of the site or a road junctions within 400m of the site (e.g. dangerous right turns for cyclists due to the level of traffic)? If yes, you must address safety issues in your application.			Yes / <input checked="" type="radio"/> No
Cycle Parking	Does the development meet cycle parking standards, in a secure location with natural surveillance, or where appropriate contribute to communal cycle parking facilities? If no, you must address cycle parking standards and cycle parking facilities.			<input checked="" type="radio"/> Yes / No
Location	<u>Housing Development</u> : Is the development within 1 mile of a district or local centre (see Accessibility Map 1) <u>Other Development</u> : Is the density of local housing (e.g. within 1 mile) more than 50 houses per hectare (see Accessibility Map 4 in Appendix F)	Yes	<input checked="" type="radio"/> 2	2
		No	0	
Internal layout	Does 'circulation' and access inside the site reflect direct and safe cycle routes; with priority given to cyclists where they meet motor vehicles?	Yes	<input checked="" type="radio"/> 1	1
		No	0	
External Access	The development is within 400m of an existing or proposed cycle route (see Accessibility Map 1 in Appendix F) and / or proposes to create a link to a cycle route, or develop a route?		<input checked="" type="radio"/> 1	1
	The development is not within 400m of an existing or proposed cycle route (see Accessibility Map 1 in Appendix F)		-1	
Other	Development includes shower facilities and lockers for cyclists	Yes	1	0
		No	<input checked="" type="radio"/> 0	
			Total (B)	5
Summary	Box A: Minimum Standard (From Table 3.1)	5	Comments or action needed to correct any shortfall <div>No shower facilities but lockers to be provided</div>	

3 Minimum Accessibility Standard Assessment

	Box B: Actual Score	4		
Access by Public Transport			Points	Score
Location and access to public transport	Is the site within a 200m safe and convenient walking distance of a bus stop, and/or within 400m of a rail station? (See Accessibility Map 2 in Appendix F).	Yes	2	2
		No	0	
	Are there barriers on direct and safe pedestrian routes to bus stops or rail stations i.e. • A lack of dropped kerbs; • Pavements less than 2m wide; • A lack of formal crossings where there is heavy traffic; or • Bus access kerbs.	There are barriers	0	1
		There are no barriers	1	
Frequency	High (four or more bus services or trains an hour)		2	2
	Medium (two or three bus services or trains an hour)		1	
	Low (less than two bus services or trains an hour)		0	
Other	The proposal contributes to bus priority measures serving the site		1	0
	The proposal contributes to bus stops, bus interchange or bus or rail stations in the vicinity and/or provides bus stops or bus interchange in the site		1	0
	The proposal contributes to an existing or new bus service		1	0
			Total (B):	6

Summary	Box A: Minimum Standard (from Table 3.1)	5	Comments or action needed to correct any shortfall	
	Box B: Total Score	5		
Vehicle Access and Parking			Points	Score
Vehicle access and circulation	Is there safe access to and from the road? If no, you must address safety issues.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	Can the site be adequately serviced? If no, you must address service issues.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	Is the safety and convenience of other users (pedestrians, cyclists and public transport) affected by the proposal? If yes, you must address safety issues.			Yes <input checked="" type="radio"/> <input type="radio"/> No
	Has access for the emergency services been provided? If no, you must provide emergency service provision.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	For development which generates significant freight movements, is the site easily accessed from the road or rail freight route networks (i.e. minimising the impact of traffic on local roads and neighbourhoods) (see Accessibility Map 3 in Appendix F)? If no, please provide an explanation.			<div>N/A</div>
Parking	The off-street parking provided is more than advised in Section 4 for that development type. If yes, parking provision must be reassessed.			Yes <input checked="" type="radio"/> <input type="radio"/> No

3 Minimum Accessibility Standard Assessment

	The off-street parking provided is as advised in Section 4 for that development type	1	Yes / <input checked="" type="radio"/> No
	The off-street parking provided is less than 75% of the amount advised in Section 4 for that development type (or shares parking provision with another development)	<input checked="" type="radio"/> 2	<input checked="" type="radio"/> Yes / No
	For development in controlled parking zones:		Yes / <input checked="" type="radio"/> No
	• Is it a car free development?	<input checked="" type="radio"/> 1	<input checked="" type="radio"/> Yes / No
	• Supports the control or removal of on-street parking spaces (inc provision of disabled spaces), or contributes to other identified measures in the local parking strategy (including car clubs)	1	Yes / <input checked="" type="radio"/> No
Total (B):			
Summary	Box A: Minimum Standard (From Table 3.1)	3 3	Comments or action needed to correct any shortfall. If conditions are appropriate for the reduced level of parking (see section 4), but this has not been provided, please explain why.

Residential MASA



3 Minimum Accessibility Standard Assessment

Address: Proposed Apartments – Queens Wharf, Wapping Way, Liverpool				
Completed By: Vectio Consulting Limited				
Access Diagram				
Has a diagram been submitted which shows how people move to and through the development and how this links to the surrounding roads, footpaths and sight lines? (This can be included within the Design and Access Statement, see Section 2.25.) If a diagram has not been submitted your application may not be processed.				(Yes) / No
Access on Foot			Points	Score
Safety	Is there safe pedestrian access to and within the site, and for pedestrians passing the site (2m minimum width footpath on both sides of the road)? If no your application must address safe pedestrian access.			(Yes) / No
Location	<u>Housing Development:</u> Is the development within 500m of a district or local centre (see Accessibility Map 1 in Appendix F) <u>Other development:</u> Is the density of existing local housing (i.e. within 800m) more than 50 houses per hectare (see Accessibility Map 4 in Appendix F)	Yes	2	0
		No	(0)	
Internal Layout	Does 'circulation' and access inside the sites reflect direct, safe and easy to use pedestrian routes for all; with priority given to pedestrians when they have to cross roads or cycle routes?	Yes	(1)	1
		No	0	
External Layout	Are there barriers between site and local facilities or housing which restrict pedestrian access? (see Merseyside Code of Practice on Access and Mobility) e.g. <ul style="list-style-type: none"> No dropped kerbs at crossings or on desire lines; Steep gradients; A lack of a formal crossing where there is heavy traffic; Security concerns, e.g. lack of lighting. 	There are barriers	-2	1
		There are no barriers	(1)	
Other	The development links to identified recreational walking network (see Accessibility Map 1). If no, please provide reasons why not.			(Yes) / No
			Total (B)	
Summary	Box A: Minimum Standard (from Table 3.1)	4	Comments or action needed to correct any shortfall It is acknowledged that the site sits adjacent to the Baltic Triangle and as such the principle of the siting of the residential development has already been accepted and promoted by Liverpool City Council. The site is located within 800 m crow flies from the local centre to the east. The IHT 'Guidelines for Providing for Journeys on Foot, 2000' considers that 800m is an acceptable waking distance, with 1,200 being a maximum. The redevelopment of Kings Dock itself will create district centre and as such once the overall masterplan is developed out, the minimum standard score will be achieved.	
	Box B: Actual Score	2		

Access by Cycle			Points	Score
Safety	Are there safety issues for cyclists either turning into or out of the site or a road junctions within 400m of the site (e.g. dangerous right turns for cyclists due to the level of traffic)? If yes, you must address safety issues in your application.			Yes / (No)
Cycle Parking	Does the development meet cycle parking standards, in a secure location with natural surveillance, or where appropriate contribute to communal cycle parking facilities? If no, you must address cycle parking standards and cycle parking facilities.			(Yes) / No
Location	<u>Housing Development:</u> Is the development within 1 mile of a district or local centre (see Accessibility Map 1) <u>Other Development:</u> Is the density of local housing (e.g. within 1 mile) more than 50 houses per hectare (see Accessibility Map 4 in Appendix F)	Yes	(2)	2
		No	0	
Internal layout	Does 'circulation' and access inside the site reflect direct and safe cycle routes; with priority given to cyclists where they meet motor vehicles?	Yes	(1)	1
		No	0	
External Access	The development is within 400m of an existing or proposed cycle route (see Accessibility Map 1 in Appendix F) and / or proposes to create a link to a cycle route, or develop a route?		(1)	1
	The development is not within 400m of an existing or proposed cycle route (see Accessibility Map 1 in Appendix F)		-1	
Other	Development includes shower facilities and lockers for cyclists	Yes	(1)	1
		No	0	
			Total (B)	
Summary	Box A: Minimum Standard (From Table 3.1)	4	Comments or action needed to correct any shortfall	

3 Minimum Accessibility Standard Assessment

	Box B: Actual Score	5		
Access by Public Transport			Points	Score
Location and access to public transport	Is the site within a 200m safe and convenient walking distance of a bus stop, and/or within 400m of a rail station? (See Accessibility Map 2 in Appendix F).	Yes	2	2
		No	0	
	Are there barriers on direct and safe pedestrian routes to bus stops or rail stations i.e. <ul style="list-style-type: none">• A lack of dropped kerbs;• Pavements less than 2m wide;• A lack of formal crossings where there is heavy traffic; or• Bus access kerbs.	There are barriers	0	1
		There are no barriers	1	
Frequency	High (four or more bus services or trains an hour)		2	2
	Medium (two or three bus services or trains an hour)		1	
	Low (less than two bus services or trains an hour)		0	
Other	The proposal contributes to bus priority measures serving the site		1	0
	The proposal contributes to bus stops, bus interchange or bus or rail stations in the vicinity and/or provides bus stops or bus interchange in the site		1	0
	The proposal contributes to an existing or new bus service		1	0
			Total (B):	

Summary	Box A: Minimum Standard (from Table 3.1)	5	Comments or action needed to correct any shortfall	
	Box B: Total Score	5		
Vehicle Access and Parking			Points	Score
Vehicle access and circulation	Is there safe access to and from the road? If no, you must address safety issues.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	Can the site be adequately serviced? If no, you must address service issues.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	Is the safety and convenience of other users (pedestrians, cyclists and public transport) affected by the proposal? If yes, you must address safety issues.			Yes <input checked="" type="radio"/> <input type="radio"/> No
	Has access for the emergency services been provided? If no, you must provide emergency service provision.			<input checked="" type="radio"/> Yes / <input type="radio"/> No
	For development which generates significant freight movements, is the site easily accessed from the road or rail freight route networks (i.e. minimising the impact of traffic on local roads and neighbourhoods) (see Accessibility Map 3 in Appendix F)? If no, please provide an explanation.			<div>N/A</div>
Parking	The off-street parking provided is more than advised in Section 4 for that development type. If yes, parking provision must be reassessed.			Yes <input checked="" type="radio"/> <input type="radio"/> No

	The off-street parking provided is as advised in Section 4 for that development type		1	Yes / No
	The off-street parking provided is less than 75% of the amount advised in Section 4 for that development type (or shares parking provision with another development)		2	Yes / No
	For development in controlled parking zones:			Yes (No)
	• Is it a car free development?		1	Yes / No
	• Supports the control or removal of on-street parking spaces (inc provision of disabled spaces), or contributes to other identified measures in the local parking strategy (including car clubs)		1	Yes / No
Total (B):				
Summary	Box A: Minimum Standard (From Table 3.1)	3 3	Comments or action needed to correct any shortfall. If conditions are appropriate for the reduced level of parking (see section 4), but this has not been provided, please explain why.	

Appendix D: Gravity Model Extract



Gravity model projected ward distributions (Arrivals)

[illegible]

Gravity model projected ward distributions (Departures)

	Horton and Harts Cross	Ashfield	Belle Vale	Central	Chiswell	Church	Clubmoor	County	Crossington	Crofteth	Everton	Fazakerley	Greenbank	Kemington and Fairfield	Kirkdale	Knotting Ash	Mossley Hill	Norris Green	Old Swan	Pickton	Princes Park	Riverside St Michael	Spoke-Garston	Tubbrook & Stonecroft	Warwick	Waverstone	West Derby	Woolston	Yewtree	Total
Dept Name	Dept'1.1	Dept'1.2	Dept'1.3	Dept'1.4	Dept'1.5	Dept'1.6	Dept'1.7	Dept'1.8	Dept'1.9	Dept'1.10	Dept'1.11	Dept'1.12	Dept'1.13	Dept'1.14	Dept'1.15	Dept'1.16	Dept'1.17	Dept'1.18	Dept'1.19	Dept'1.20	Dept'1.21	Dept'1.22	Dept'1.23	Dept'1.24	Dept'1.25	Dept'1.26	Dept'1.27	Dept'1.28	Dept'1.29	Dept'1.30
Aggbarth Hall Avenue	0.60%	0.76%																												1.33%
A101 Aggbarth Road	0.00%	0.76%																												1.51%
Jeniche Lane	0.60%																													5.15%
Beveridge Drive	0.60%																													5.15%
Selban Street	0.60%																													5.15%
A102 Chaddesley Street	0.60%	0.76%																												5.15%
Queens Walk	0.60%	0.76%																												5.15%
AS289 Walker Brook Road																														5.15%
Everton Valley																														5.15%
A101 Scotland Road																														5.15%
A1006																														5.15%
AS263 Leeds Street																														5.15%
AS262 New Quay																														5.15%
The Strand																														5.15%
Stewart Street																														5.15%
Wapping																														5.15%
Groat Harmer Street																														5.15%
St Anne Street																														5.15%
Road Street																														5.15%
Garnsey Street																														5.15%
Rodney Street																														5.15%
Upper Duke Street																														5.15%
Hage Street																														5.15%
A102 Upper Parliament Street																														5.15%
BS140 Low Hill																														5.15%
AS248 Grove Street																														5.15%
Great Wall Valley Road																														5.15%
BS178 Church West Road																														5.15%
BS176 High Street																														5.15%
AS289 Tunnel Road																														5.15%
Queens Drive																														5.15%
A102 South Down Road																														5.15%
AS289 Ulster Road																														5.15%
BS175 Crofteth Road																														5.15%
BS175 Princess Road																														5.15%
Mossley Hill Drive																														5.15%
Landon Road																														5.15%
Comutation Row																														5.15%
AS7 Churchill Way																														5.15%
Queens Drive																														5.15%
Water Street																														5.15%
AS288 Low Street																														5.15%
Great George Street																														5.15%
Seymour Street																														5.15%
Bea Lane																														5.15%
Elmwood Road																														5.15%
Ashfield Road																														5.15%
Aggbarth Drive																														5.15%
Ulster Lane																														5.15%
Bea Lane																														5.15%
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Appendix E: Traffic Turning Surveys



Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: QUEENS WHARF / KEEL WHARF

ARM: QUEENS WHARF EAST (WAPPING)

TIME / CLASS	LEFT TO KEEL WHARF SOUTH (COACH CAR PARK)								STRAIGHT TO QUEENS WHARF WEST (EXIBITION CENTRE)								RIGHT TO KEEL WHARF NORTH (LARGE CAR PARK)								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	1	35	4	1	0	0	41	0	0	1	0	1	0	0	2	43
7:45 - 8:00	0	0	2	0	0	0	0	2	0	0	40	4	2	0	0	46	1	0	6	2	1	0	0	10	58
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	36	0	2	0	1	39	0	0	8	0	0	0	0	8	47
8:15 - 8:30	0	0	1	0	0	0	0	1	0	0	44	3	1	0	0	48	0	0	8	2	0	0	0	10	59
HOURLY TOTAL	0	0	3	0	0	0	0	3	0	1	155	11	6	0	1	174	1	0	23	4	2	0	0	30	207
8:30 - 8:45	0	0	0	0	0	0	0	0	1	0	55	3	0	0	1	60	0	0	2	1	1	0	0	4	64
8:45 - 9:00	0	0	0	1	0	0	0	1	0	1	54	2	0	0	0	57	0	0	4	0	0	0	0	4	62
9:00 - 9:15	0	0	0	0	0	0	0	0	0	0	30	3	1	0	2	36	1	0	8	1	0	0	0	10	46
9:15 - 9:30	0	0	1	0	0	0	0	1	0	0	18	5	2	0	1	26	0	0	3	3	0	0	0	6	33
HOURLY TOTAL	0	0	1	1	0	0	0	2	1	1	157	13	3	0	4	179	1	0	17	5	1	0	0	24	205
PERIOD TOTAL	0	0	4	1	0	0	0	5	1	2	312	24	9	0	5	353	2	0	40	9	3	0	0	54	412

16:30 - 16:45	0	0	0	0	0	0	0	0	1	0	29	1	0	0	1	32	0	0	2	2	0	0	0	4	36
16:45 - 17:00	0	0	0	0	0	0	0	0	1	0	28	3	1	0	0	33	0	0	7	1	0	0	0	8	41
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	17	1	0	0	0	18	0	0	4	0	1	0	0	5	23
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	17	5	0	1	0	23	1	0	6	1	0	0	0	8	31
HOURLY TOTAL	0	0	0	0	0	0	0	0	2	0	91	10	1	1	1	106	1	0	19	4	1	0	0	25	131
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	27	1	0	0	0	28	0	0	7	1	0	0	0	8	36
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	23	0	0	0	0	23	0	0	6	0	0	0	0	6	29
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	31	0	0	0	0	31	1	0	5	0	0	0	0	6	37
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	13	0	0	0	0	13	0	0	3	0	0	0	0	3	16
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	94	1	0	0	0	95	1	0	21	1	0	0	0	23	118
PERIOD TOTAL	0	0	0	0	0	0	0	0	2	0	185	11	1	1	1	201	2	0	40	5	1	0	0	48	249

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	2	0	0	0	0	2	2	0	38	2	0	0	0	42	0	0	10	0	0	0	1	11	55
12:45 - 13:00	0	0	3	0	0	0	0	3	0	0	31	3	1	0	0	35	0	0	8	0	0	0	0	8	46
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	27	1	0	0	0	28	0	1	4	0	0	0	0	5	33
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	28	2	0	0	1	31	0	0	7	2	0	0	0	9	40
HOURLY TOTAL	0	0	5	0	0	0	0	5	2	0	124	8	1	0	1	136	0	1	29	2	0	0	1	33	174
13:30 - 13:45	0	0	2	0	0	0	0	2	0	0	44	2	0	0	0	46	0	0	9	1	0	0	0	10	58
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	47	3	0	0	2	52	0	0	13	0	0	0	0	13	65
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	41	1	0	0	2	44	0	0	11	0	0	0	1	12	56
14:15 - 14:30	0	0	2	0	0	0	0	2	0	0	33	2	0	0	0	35	0	0	16	0	0	0	0	16	53
HOURLY TOTAL	0	0	4	0	0	0	0	4	0	0	165	8	0	0	4	177	0	0	49	1	0	0	1	51	232
14:30 - 14:45	0	0	0	0	1	0	0	1	0	0	38	3	0	0	0	41	0	0	9	1	0	0	0	10	52
14:45 - 15:00	0	1	1	0	0	0	0	2	0	0	35	3	0	0	0	38	1	0	9	0	1	0	0	11	51
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	25	1	0	0	0	26	0	0	13	1	0	0	0	14	40
15:15 - 15:30	0	0	1	0	0	0	0	1	0	0	35	0	0	0	2	37	0	0	9	0	0	0	0	9	47
HOURLY TOTAL	0	1	2	0	1	0	0	4	0	0	133	7	0	0	2	142	1	0	40	2	1	0	0	44	190

15:30 - 15:45	0	0	0	0	0	0	0	0	1	0	31	0	0	0	1	33	0	0	22	1	0	0	0	23	56
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	32	4	1	0	1	38	0	0	16	1	0	0	0	17	55
16:00 - 16:15	0	0	3	0	0	0	0	3	0	0	27	2	0	0	0	29	0	0	10	0	0	0	0	10	42
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	20	0	0	0	0	20	0	0	7	0	0	0	0	7	27
HOURLY TOTAL	0	0	3	0	0	0	0	3	1	0	110	6	1	0	2	120	0	0	55	2	0	0	0	57	180

PERIOD TOTAL	0	1	14	0	1	0	0	16	3	0	532	29	2	0	9	575	1	1	173	7	1	0	2	185	776
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survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: QUEENS WHARF / KEEL WHARF

ARM: KEEL WHARF SOUTH (COACH CAR PARK)

TIME / CLASS	LEFT TO QUEENS WHARF WEST (EXIBITION CENTRE)								STRAIGHT TO KEEL WHARF NORTH (LARGE CAR PARK)								RIGHT TO QUEENS WHARF EAST (WAPPING)								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7:45 - 8:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:00 - 8:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:15 - 8:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:30 - 8:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8:45 - 9:00	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	1
9:00 - 9:15	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2
PERIOD TOTAL	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	2

16:30 - 16:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16:45 - 17:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
17:00 - 17:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
17:15 - 17:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
17:30 - 17:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17:45 - 18:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18:00 - 18:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4
18:15 - 18:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4
PERIOD TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	0	0	6	6

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12:45 - 13:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
13:00 - 13:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2
13:15 - 13:30	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	3	0	0	0	0	3	4
13:30 - 13:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
13:45 - 14:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:00 - 14:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:15 - 14:30	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
HOURLY TOTAL	0	0	1	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	2
14:30 - 14:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14:45 - 15:00	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	5
15:00 - 15:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:15 - 15:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
HOURLY TOTAL	0	2	1	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	1	0	0	2	5

15:30 - 15:45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15:45 - 16:00	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	1	
16:00 - 16:15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	2	
16:15 - 16:30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	4	
HOURLY TOTAL	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	0	0	0	7	7	
PERIOD TOTAL	0	2	2	0	0	0	0	4	0	0	0	1	0	0	0	1	0	0	11	1	1	0	0	13	18

survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: QUEENS WHARF / KEEL WHARF

ARM: QUEENS WHARF WEST (EXIBITION CENTRE)

[illegible][illegible]

DATE: SATURDAY 11th FEBRUARY 2017

[illegible]

15:30 - 15:45	0	0	6	0	0	0	0	6	0	0	33	0	0	0	3	36	0	0	0	0	0	0	0	0	42
15:45 - 16:00	0	0	5	0	0	0	0	5	0	0	33	1	0	0	3	37	0	0	0	0	0	0	0	0	42
16:00 - 16:15	0	0	4	0	0	0	0	4	0	0	45	2	1	0	0	48	0	0	0	0	0	0	0	0	52
16:15 - 16:30	0	0	2	0	0	0	0	2	0	0	19	2	0	0	0	21	0	0	0	0	0	0	0	0	23
HOURLY TOTAL	0	0	17	0	0	0	0	17	0	0	130	5	1	0	6	142	0	0	0	0	0	0	0	0	159
PERIOD TOTAL	0	0	44	4	0	0	0	48	0	1	542	15	1	0	14	573	0	0	1	0	0	0	0	1	622

survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: QUEENS WHARF / KEEL WHARF

ARM: KEEL WHARF NORTH (LARGE CAR PARK)

TIME / CLASS	LEFT TO QUEENS WHARF EAST (WAPPING)								STRAIGHT TO KEEL WHARF SOUTH (COACH CAR PARK)								RIGHT TO QUEENS WHARF WEST (EXIBITION CENTRE)								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	1	1	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	3
7:45 - 8:00	0	0	6	0	1	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
8:00 - 8:15	0	0	4	1	1	0	1	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
8:15 - 8:30	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
HOURLY TOTAL	0	0	17	2	2	0	1	22	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	2	24
8:30 - 8:45	0	0	5	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	8
8:45 - 9:00	0	0	4	1	0	0	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
9:00 - 9:15	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	9
9:15 - 9:30	0	0	3	3	0	0	0	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	6
HOURLY TOTAL	0	0	19	6	0	0	0	25	0	0	0	0	0	0	0	0	0	0	2	0	1	0	0	3	28
PERIOD TOTAL	0	0	36	8	2	0	1	47	0	0	0	0	0	0	0	0	1	0	2	0	2	0	0	5	52

16:30 - 16:45	0	0	7	2	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
16:45 - 17:00	0	0	7	0	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	8
17:00 - 17:15	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
17:15 - 17:30	1	0	1	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	5
HOURLY TOTAL	1	0	18	3	0	0	0	22	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	26
17:30 - 17:45	0	0	2	1	0	0	0	3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
17:45 - 18:00	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	1	0	2	0	0	0	0	3	9
18:00 - 18:15	1	0	5	1	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
18:15 - 18:30	0	0	3	0	0	0	0	3	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	4
HOURLY TOTAL	1	0	16	2	0	0	0	19	0	0	0	0	0	0	0	0	1	0	3	0	0	0	0	4	23
PERIOD TOTAL	2	0	34	5	0	0	0	41	0	0	0	0	0	0	0	0	1	0	6	1	0	0	0	8	49

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	13	0	0	0	0	13	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	14
12:45 - 13:00	0	0	6	0	0	0	0	6	0	0	0	0	0	0	0	0	0	0	2	0	0	0	1	3	9
13:00 - 13:15	0	0	10	0	0	0	0	10	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	11
13:15 - 13:30	0	1	4	2	0	0	0	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7
HOURLY TOTAL	0	1	33	2	0	0	0	36	0	0	0	1	0	0	0	1	0	0	3	0	0	0	1	4	41
13:30 - 13:45	0	0	5	0	0	0	0	5	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	9
13:45 - 14:00	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	10
14:00 - 14:15	0	0	15	1	0	0	0	16	0	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	20
14:15 - 14:30	0	0	10	1	0	0	0	11	0	0	0	0	0	0	0	0	0	0	4	0	0	0	1	5	16
HOURLY TOTAL	0	0	39	2	0	0	0	41	0	0	0	0	0	0	0	0	0	0	13	0	0	0	1	14	55
14:30 - 14:45	0	0	11	1	0	0	0	12	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	1	13
14:45 - 15:00	1	0	11	0	0	0	0	12	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	2	14
15:00 - 15:15	0	0	9	2	0	1	0	12	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	13
15:15 - 15:30	0	0	8	1	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
HOURLY TOTAL	1	0	39	4	0	1	0	45	0	0	0	0	0	0	0	0	0	0	3	1	0	0	0	4	49

15:30 - 15:45	1	0	12	2	0	0	0	15	0	0	0	0	0	0	0	0	0	4	0	0	0	0	4	19
15:45 - 16:00	0	0	14	3	0	0	0	17	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	18
16:00 - 16:15	1	0	16	1	0	0	0	18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	18
16:15 - 16:30	0	0	9	0	0	0	0	9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	9
HOURLY TOTAL	2	0	51	6	0	0	0	59	0	0	0	0	0	0	0	0	0	5	0	0	0	0	5	64

PERIOD TOTAL	3	1	162	14	0	1	0	181	0	0	0	1	0	0	0	1	0	0	24	1	0	0	2	27	209
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survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: WAPPING

TIME / CLASS	LEFT TO BLUNDELL STREET								STRAIGHT TO CHARLONER STREET								RIGHT TO QUEENS WHARF								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	13	5	1	0	0	19	0	3	260	28	11	3	1	306	0	1	21	5	3	0	0	30	355
7:45 - 8:00	0	0	12	13	1	0	0	26	0	5	442	18	13	3	1	482	0	0	26	5	0	0	1	32	540
8:00 - 8:15	0	0	36	10	0	0	0	46	2	3	420	29	7	3	2	466	0	0	24	0	1	0	0	25	537
8:15 - 8:30	0	0	27	6	1	0	0	34	0	3	429	54	5	1	0	492	0	0	28	2	1	0	0	31	557
HOURLY TOTAL	0	0	88	34	3	0	0	125	2	14	1551	129	36	10	4	1746	0	1	99	12	5	0	1	118	1989
8:30 - 8:45	0	0	29	12	1	0	0	42	0	5	435	45	12	3	3	503	0	0	33	3	0	0	1	37	582
8:45 - 9:00	0	0	16	2	1	0	0	19	2	1	288	23	6	0	1	321	0	1	19	2	0	0	0	22	362
9:00 - 9:15	0	0	29	2	0	0	0	31	0	0	318	21	17	5	0	361	0	0	16	1	1	0	2	20	412
9:15 - 9:30	0	0	35	3	3	0	0	41	0	1	285	38	16	3	1	344	0	0	11	6	2	0	0	19	404
HOURLY TOTAL	0	0	109	19	5	0	0	133	2	7	1326	127	51	11	5	1529	0	1	79	12	3	0	3	98	1760
PERIOD TOTAL	0	0	197	53	8	0	0	258	4	21	2877	256	87	21	9	3275	0	2	178	24	8	0	4	216	3749

16:30 - 16:45	0	0	28	8	0	0	0	36	0	3	372	36	3	0	2	416	0	0	19	1	0	0	0	20	472
16:45 - 17:00	0	0	28	2	0	0	0	30	1	4	344	33	2	2	2	388	0	0	23	2	1	0	0	26	444
17:00 - 17:15	1	0	34	2	0	0	0	37	1	4	359	25	4	0	1	394	0	0	10	0	0	0	0	10	441
17:15 - 17:30	0	0	16	3	0	0	0	19	2	0	444	25	5	0	1	477	0	0	7	5	0	0	0	12	508
HOURLY TOTAL	1	0	106	15	0	0	0	122	4	11	1519	119	14	2	6	1675	0	0	59	8	1	0	0	68	1865
17:30 - 17:45	0	0	22	1	0	0	0	23	0	4	441	22	0	0	1	468	0	0	18	1	0	0	0	19	510
17:45 - 18:00	0	0	16	1	0	0	0	17	0	0	318	13	0	0	0	331	0	0	14	0	0	0	0	14	362
18:00 - 18:15	1	0	23	0	0	0	0	24	0	1	325	8	0	0	2	336	0	0	19	0	0	0	0	19	379
18:15 - 18:30	0	0	20	1	0	0	0	21	0	0	260	4	0	0	1	265	0	0	10	0	0	0	0	10	296
HOURLY TOTAL	1	0	81	3	0	0	0	85	0	5	1344	47	0	0	4	1400	0	0	61	1	0	0	0	62	1547
PERIOD TOTAL	2	0	187	18	0	0	0	207	4	16	2863	166	14	2	10	3075	0	0	120	9	1	0	0	130	3412

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	40	0	0	0	0	40	0	1	202	15	2	0	4	224	0	0	23	0	0	0	0	23	287
12:45 - 13:00	0	0	52	3	0	0	0	55	1	0	263	10	1	0	1	276	0	0	23	2	0	0	0	25	356
13:00 - 13:15	0	1	29	1	0	0	0	31	0	1	252	13	1	0	1	268	0	0	17	0	0	0	0	17	316
13:15 - 13:30	0	0	18	4	0	0	0	22	0	0	231	14	2	0	2	249	0	0	15	3	0	0	1	19	290
HOURLY TOTAL	0	1	139	8	0	0	0	148	1	2	948	52	6	0	8	1017	0	0	78	5	0	0	1	84	1249
13:30 - 13:45	0	0	31	2	0	0	0	33	1	0	237	13	2	0	4	257	0	0	35	1	0	0	0	36	326
13:45 - 14:00	0	0	36	2	0	0	0	38	1	0	246	15	2	0	5	269	0	0	32	1	0	0	1	34	341
14:00 - 14:15	0	0	32	2	0	0	0	34	1	0	214	11	1	0	3	230	0	0	23	0	0	0	1	24	288
14:15 - 14:30	0	1	32	1	1	0	0	35	2	0	230	11	1	0	4	248	0	0	28	2	0	0	0	30	313
HOURLY TOTAL	0	1	131	7	1	0	0	140	5	0	927	50	6	0	16	1004	0	0	118	4	0	0	2	124	1268
14:30 - 14:45	1	0	39	2	0	0	0	42	0	2	228	12	2	0	3	247	0	0	32	2	0	0	0	34	323
14:45 - 15:00	0	0	36	5	0	0	0	41	0	1	239	14	1	0	2	257	0	0	21	1	0	0	0	22	320
15:00 - 15:15	0	0	24	0	0	0	0	24	0	0	234	8	0	0	4	246	0	0	16	0	0	0	0	16	286
15:15 - 15:30	0	0	25	1	0	0	0	26	0	1	267	13	1	0	3	285	0	0	29	1	0	0	0	30	341
HOURLY TOTAL	1	0	124	8	0	0	0	133	0	4	968	47	4	0	12	1035	0	0	98	4	0	0	0	102	1270

15:30 - 15:45	0	0	20	1	0	0	0	21	0	1	261	16	0	0	2	280	0	0	27	1	1	0	2	31	332
15:45 - 16:00	0	0	20	1	0	0	0	21	0	0	215	8	0	0	1	224	0	0	23	0	0	0	1	24	269
16:00 - 16:15	0	0	22	1	0	0	0	23	0	0	222	13	0	0	2	237	0	0	23	1	0	0	0	24	284
16:15 - 16:30	0	0	21	0	0	0	0	21	0	0	214	18	0	0	2	234	0	0	14	0	0	0	0	14	269
HOURLY TOTAL	0	0	83	3	0	0	0	86	0	1	912	55	0	0	7	975	0	0	87	2	1	0	3	93	1154
PERIOD TOTAL	1	2	477	26	1	0	0	507	6	7	3755	204	16	0	43	4031	0	0	381	15	1	0	6	403	4941

survey and presentation by **trafficsense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: BLUNDELL STREET

TIME / CLASS	LEFT TO CHALONER STREET								STRAIGHT TO QUEENS WHARF								RIGHT TO WAPPING								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	2	1	0	0	0	3	1	0	0	0	0	0	0	1	0	0	7	0	0	0	0	7	11
7:45 - 8:00	0	0	6	3	0	0	0	9	0	0	3	1	1	0	0	5	0	0	8	3	0	0	0	11	25
8:00 - 8:15	0	0	7	3	0	0	0	10	0	0	3	0	0	0	0	3	0	0	7	2	0	0	0	9	22
8:15 - 8:30	0	0	7	1	0	0	0	8	0	0	5	0	1	0	0	6	0	0	14	2	0	0	0	16	30
HOURLY TOTAL	0	0	22	8	0	0	0	30	1	0	11	1	2	0	0	15	0	0	36	7	0	0	0	43	88
8:30 - 8:45	0	0	8	1	0	0	0	9	0	0	3	1	0	0	0	4	0	0	19	3	0	0	0	22	35
8:45 - 9:00	0	0	4	1	0	0	0	5	0	0	7	0	0	0	0	7	0	0	11	3	0	0	0	14	26
9:00 - 9:15	0	0	8	0	0	0	0	8	0	0	4	0	0	0	0	4	0	0	8	2	0	0	0	10	22
9:15 - 9:30	0	0	9	2	0	0	0	11	0	0	2	0	0	0	0	2	0	0	11	6	0	0	0	17	30
HOURLY TOTAL	0	0	29	4	0	0	0	33	0	0	16	1	0	0	0	17	0	0	49	14	0	0	0	63	113
PERIOD TOTAL	0	0	51	12	0	0	0	63	1	0	27	2	2	0	0	32	0	0	85	21	0	0	0	106	201

16:30 - 16:45	1	0	10	0	0	0	0	11	0	0	3	0	0	0	0	3	0	0	35	3	0	0	0	38	52
16:45 - 17:00	0	0	11	2	0	0	0	13	0	0	4	1	0	0	0	5	0	0	16	6	0	0	0	22	40
17:00 - 17:15	0	0	12	1	0	0	0	13	0	0	3	0	0	0	0	3	0	0	29	2	0	0	0	31	47
17:15 - 17:30	0	0	11	0	0	0	0	11	0	0	4	0	0	0	0	4	0	0	17	3	0	0	0	20	35
HOURLY TOTAL	1	0	44	3	0	0	0	48	0	0	14	1	0	0	0	15	0	0	97	14	0	0	0	111	174
17:30 - 17:45	0	0	9	1	0	0	0	10	0	0	5	0	0	0	0	5	0	0	14	2	0	0	0	16	31
17:45 - 18:00	0	0	6	1	0	0	0	7	0	0	1	0	0	0	0	1	0	0	17	2	0	0	0	19	27
18:00 - 18:15	0	0	9	1	0	0	0	10	0	0	3	0	0	0	0	3	0	0	24	0	0	0	0	24	37
18:15 - 18:30	0	0	9	1	0	0	0	10	0	0	2	0	0	0	0	2	0	0	20	1	0	0	0	21	33
HOURLY TOTAL	0	0	33	4	0	0	0	37	0	0	11	0	0	0	0	11	0	0	75	5	0	0	0	80	128
PERIOD TOTAL	1	0	77	7	0	0	0	85	0	0	25	1	0	0	0	26	0	0	172	19	0	0	0	191	302

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	14	0	0	0	0	14	0	0	9	0	0	0	0	9	0	1	18	2	1	0	0	22	45
12:45 - 13:00	0	0	20	1	0	0	0	21	0	0	4	0	1	0	0	5	0	0	22	0	0	0	0	22	48
13:00 - 13:15	0	1	16	1	0	0	0	18	0	0	5	0	0	0	0	5	0	0	20	1	0	0	0	21	44
13:15 - 13:30	0	0	16	0	0	0	0	16	0	0	3	0	0	0	0	3	0	0	25	2	0	0	0	27	46
HOURLY TOTAL	0	1	66	2	0	0	0	69	0	0	21	0	1	0	0	22	0	1	85	5	1	0	0	92	183
13:30 - 13:45	0	0	16	0	0	0	0	16	0	0	5	0	0	0	0	5	0	0	17	1	0	0	0	18	39
13:45 - 14:00	0	0	11	0	0	0	0	11	0	0	8	0	0	0	0	8	0	1	22	0	0	0	0	23	42
14:00 - 14:15	0	0	16	1	1	0	0	18	0	0	7	0	0	0	0	7	0	1	16	0	0	0	0	17	42
14:15 - 14:30	0	0	10	0	0	0	0	10	0	0	11	0	0	0	0	11	0	0	19	0	0	0	0	19	40
HOURLY TOTAL	0	0	53	1	1	0	0	55	0	0	31	0	0	0	0	31	0	2	74	1	0	0	0	77	163
14:30 - 14:45	0	0	12	1	0	0	0	13	0	0	1	0	1	0	0	2	0	0	10	2	0	0	0	12	27
14:45 - 15:00	0	0	12	1	0	0	0	13	0	0	8	1	0	0	0	9	0	0	28	4	0	0	0	32	54
15:00 - 15:15	0	0	22	0	0	0	0	22	0	0	10	1	0	0	0	11	0	0	13	0	0	0	0	13	46
15:15 - 15:30	0	0	12	1	0	0	0	13	0	0	5	0	0	0	0	5	0	0	14	0	0	0	0	14	32
HOURLY TOTAL	0	0	58	3	0	0	0	61	0	0	24	2	1	0	0	27	0	0	65	6	0	0	0	71	159

15:30 - 15:45	0	0	9	0	0	0	0	9	0	0	4	0	0	0	0	4	0	0	21	0	0	0	0	21	34
15:45 - 16:00	0	0	10	0	0	0	0	10	0	0	5	0	0	0	0	5	0	0	11	3	0	0	0	14	29
16:00 - 16:15	0	0	12	1	0	0	0	13	0	0	4	1	0	0	0	5	0	0	18	1	0	0	1	20	38
16:15 - 16:30	0	0	4	0	0	0	0	4	0	0	0	0	0	0	0	0	0	0	15	0	0	0	0	15	19
HOURLY TOTAL	0	0	35	1	0	0	0	36	0	0	13	1	0	0	0	14	0	0	65	4	0	0	1	70	120
PERIOD TOTAL	0	1	212	7	1	0	0	221	0	0	89	3	2	0	0	94	0	3	289	16	1	0	1	310	625

survey and presentation by **trafficsense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: CHALONER STREET

TIME / CLASS	LEFT TO QUEENS WHARF								STRAIGHT TO WAPPING								RIGHT TO BLUNDELL STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	16	0	0	0	0	16	0	0	341	34	8	9	1	393	0	0	5	1	0	0	0	6	415
7:45 - 8:00	0	0	21	0	2	0	0	23	1	3	377	42	9	10	1	443	0	0	4	2	0	0	0	6	472
8:00 - 8:15	0	0	16	0	0	0	0	16	2	1	373	40	12	2	5	435	0	0	3	0	0	0	0	3	454
8:15 - 8:30	0	0	21	4	0	0	0	25	5	2	410	30	6	0	1	454	0	0	7	0	0	0	0	7	486
HOURLY TOTAL	0	0	74	4	2	0	0	80	8	6	1501	146	35	21	8	1725	0	0	19	3	0	0	0	22	1827
8:30 - 8:45	0	0	21	1	1	0	0	23	1	4	365	26	8	1	3	408	0	0	13	0	1	0	0	14	445
8:45 - 9:00	0	0	34	1	0	0	0	35	0	5	305	37	10	9	3	369	0	0	11	0	0	0	0	11	415
9:00 - 9:15	1	0	19	0	0	0	0	20	2	1	308	31	12	6	3	363	0	0	4	1	1	0	0	6	389
9:15 - 9:30	1	0	9	3	0	0	0	13	0	2	272	40	7	4	5	330	0	0	7	0	0	0	0	7	350
HOURLY TOTAL	2	0	83	5	1	0	0	91	3	12	1250	134	37	20	14	1470	0	0	35	1	2	0	0	38	1599
PERIOD TOTAL	2	0	157	9	3	0	0	171	11	18	2751	280	72	41	22	3195	0	0	54	4	2	0	0	60	3426

16:30 - 16:45	1	0	10	3	0	0	0	14	1	8	330	36	4	2	1	382	0	0	10	2	0	0	0	12	408
16:45 - 17:00	0	0	10	0	0	0	0	10	0	2	312	33	3	0	0	350	0	1	11	0	0	0	0	12	372
17:00 - 17:15	0	0	11	0	1	0	0	12	1	4	307	16	3	0	2	333	0	0	10	0	0	0	0	10	355
17:15 - 17:30	0	0	7	2	0	1	0	10	1	8	340	8	1	0	1	359	0	0	8	0	0	0	0	8	377
HOURLY TOTAL	1	0	38	5	1	1	0	46	3	22	1289	93	11	2	4	1424	0	1	39	2	0	0	0	42	1512
17:30 - 17:45	0	0	13	1	0	0	0	14	0	0	259	16	1	0	1	277	0	0	4	2	0	0	0	6	297
17:45 - 18:00	0	0	8	0	0	0	0	8	0	5	253	20	1	1	2	282	0	0	12	0	0	0	0	12	302
18:00 - 18:15	0	0	14	0	0	0	0	14	0	0	250	15	0	0	3	268	0	0	10	1	0	0	0	11	293
18:15 - 18:30	0	0	8	0	0	0	0	8	0	1	195	15	1	0	2	214	0	0	9	0	0	0	0	9	231
HOURLY TOTAL	0	0	43	1	0	0	0	44	0	6	957	66	3	1	8	1041	0	0	35	3	0	0	0	38	1123
PERIOD TOTAL	1	0	81	6	1	1	0	90	3	28	2246	159	14	3	12	2465	0	1	74	5	0	0	0	80	2635

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	19	2	0	0	0	21	0	1	242	18	2	0	2	265	0	0	22	1	0	0	0	23	309
12:45 - 13:00	0	0	14	2	0	0	0	16	0	2	216	15	3	1	2	239	0	0	11	2	0	0	1	14	269
13:00 - 13:15	0	0	8	1	0	0	0	9	0	0	246	16	1	0	3	266	0	0	19	1	0	0	0	20	295
13:15 - 13:30	0	1	18	0	0	0	0	19	0	0	224	12	1	0	0	237	0	0	15	0	1	0	0	16	272
HOURLY TOTAL	0	1	59	5	0	0	0	65	0	3	928	61	7	1	7	1007	0	0	67	4	1	0	1	73	1145
13:30 - 13:45	0	0	17	2	0	0	1	20	0	0	241	17	2	0	2	262	0	0	17	0	0	0	0	17	299
13:45 - 14:00	0	0	19	3	0	0	0	22	0	0	205	10	0	0	2	217	0	0	14	0	0	0	0	14	253
14:00 - 14:15	0	0	21	1	0	0	2	24	0	1	213	18	1	0	2	235	0	0	13	0	0	0	1	14	273
14:15 - 14:30	0	0	15	1	0	0	0	16	2	2	194	15	4	0	5	222	0	0	10	0	0	0	0	10	248
HOURLY TOTAL	0	0	72	7	0	0	3	82	2	3	853	60	7	0	11	936	0	0	54	0	0	0	1	55	1073
14:30 - 14:45	0	0	15	3	0	0	0	18	0	1	248	17	1	0	4	271	0	0	18	0	0	0	0	18	307
14:45 - 15:00	1	0	13	0	1	0	0	15	1	1	236	11	0	0	1	250	0	0	5	0	0	0	0	5	270
15:00 - 15:15	0	0	12	1	0	0	0	13	0	1	222	16	2	0	4	245	0	0	22	1	0	0	0	23	281
15:15 - 15:30	0	0	10	1	0	0	1	12	2	0	212	20	1	0	1	236	1	0	11	0	0	0	0	12	260
HOURLY TOTAL	1	0	50	5	1	0	1	58	3	3	918	64	4	0	10	1002	1	0	56	1	0	0	0	58	1118

15:30 - 15:45	0	0	21	2	0	0	0	23	0	0	210	11	1	0	5	227	0	0	11	1	0	0	0	12	262
15:45 - 16:00	0	0	21	2	0	0	0	23	0	2	191	19	1	0	4	217	0	0	8	0	0	0	0	8	248
16:00 - 16:15	0	0	14	2	0	0	0	16	1	0	207	17	1	0	2	228	0	0	17	0	0	0	0	17	261
16:15 - 16:30	0	0	12	1	0	0	0	13	0	1	203	14	0	0	2	220	0	1	10	2	0	0	0	13	246
HOURLY TOTAL	0	0	68	7	0	0	0	75	1	3	811	61	3	0	13	892	0	1	46	3	0	0	0	50	1017
PERIOD TOTAL	1	1	249	24	1	0	4	280	6	12	3510	246	21	1	41	3837	1	1	223	8	1	0	2	236	4353

survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: QUEENS WHARF

TIME / CLASS	LEFT TO WAPPING								STRAIGHT TO BLUNDELL STREET								RIGHT TO CHALONER STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	10	0	0	0	0	10	0	0	4	0	0	0	0	4	0	0	2	1	0	0	0	3	17
7:45 - 8:00	0	0	11	2	2	0	0	15	0	0	3	0	0	0	0	3	0	0	9	0	0	0	0	9	27
8:00 - 8:15	0	0	22	0	2	0	1	25	1	0	4	1	0	0	0	6	0	0	0	3	0	0	0	3	34
8:15 - 8:30	0	0	19	0	0	0	0	19	0	0	4	0	0	0	0	4	0	0	4	0	1	0	0	5	28
HOURLY TOTAL	0	0	62	2	4	0	1	69	1	0	15	1	0	0	0	17	0	0	15	4	1	0	0	20	106
8:30 - 8:45	0	0	16	3	0	0	1	20	0	0	2	1	0	0	0	3	0	0	11	0	0	0	0	11	34
8:45 - 9:00	0	0	14	2	0	0	1	17	0	0	2	0	0	0	0	2	0	0	13	0	0	0	0	13	32
9:00 - 9:15	0	0	20	2	0	0	1	23	0	0	1	1	0	0	0	2	0	0	5	0	0	0	0	5	30
9:15 - 9:30	0	0	9	4	0	0	0	13	0	0	0	1	0	0	0	1	0	0	11	1	0	0	0	12	26
HOURLY TOTAL	0	0	59	11	0	0	3	73	0	0	5	3	0	0	0	8	0	0	40	1	0	0	0	41	122
PERIOD TOTAL	0	0	121	13	4	0	4	142	1	0	20	4	0	0	0	25	0	0	55	5	1	0	0	61	228

16:30 - 16:45	0	1	20	3	0	0	1	25	0	0	5	2	0	0	0	7	0	0	25	0	1	0	0	26	58
16:45 - 17:00	0	0	24	2	1	0	0	27	0	0	4	0	0	0	0	4	0	0	14	0	0	0	0	14	45
17:00 - 17:15	0	0	13	0	0	0	1	14	1	0	7	0	0	0	0	8	1	0	30	1	1	0	1	34	56
17:15 - 17:30	0	0	11	0	0	0	0	11	0	0	2	0	1	0	0	3	0	0	17	3	0	0	0	20	34
HOURLY TOTAL	0	1	68	5	1	0	2	77	1	0	18	2	1	0	0	22	1	0	86	4	2	0	1	94	193
17:30 - 17:45	0	0	29	3	0	0	1	33	0	0	8	1	0	0	0	9	0	0	25	1	1	0	0	27	69
17:45 - 18:00	0	0	21	0	0	0	1	22	0	0	3	0	0	0	0	3	0	0	13	2	0	0	0	15	40
18:00 - 18:15	0	0	12	0	0	0	1	13	1	0	1	0	0	0	0	2	0	0	21	0	0	0	0	21	36
18:15 - 18:30	0	0	11	0	0	0	0	11	0	0	1	0	0	0	0	1	0	0	16	0	0	0	0	16	28
HOURLY TOTAL	0	0	73	3	0	0	3	79	1	0	13	1	0	0	0	15	0	0	75	3	1	0	0	79	173
PERIOD TOTAL	0	1	141	8	1	0	5	156	2	0	31	3	1	0	0	37	1	0	161	7	3	0	1	173	366

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	27	0	0	0	1	28	0	0	6	0	0	0	0	6	0	0	9	0	0	0	0	9	43
12:45 - 13:00	0	0	19	1	0	0	0	20	0	0	4	0	0	0	0	4	0	0	19	1	0	0	0	20	44
13:00 - 13:15	0	0	30	0	0	0	0	30	0	0	7	0	0	0	0	7	0	0	14	1	0	0	0	15	52
13:15 - 13:30	0	0	16	1	0	0	1	18	0	1	3	0	0	0	0	4	0	0	13	1	0	0	0	14	36
HOURLY TOTAL	0	0	92	2	0	0	2	96	0	1	20	0	0	0	0	21	0	0	55	3	0	0	0	58	175
13:30 - 13:45	0	0	30	2	0	0	0	32	0	0	8	1	0	0	0	9	0	0	9	0	0	0	0	9	50
13:45 - 14:00	0	1	24	1	0	0	0	26	0	0	5	0	0	0	0	5	0	0	18	0	0	0	1	19	50
14:00 - 14:15	0	0	31	0	0	0	1	32	0	0	3	0	0	0	0	3	0	0	13	0	0	0	1	14	49
14:15 - 14:30	0	0	27	1	0	0	0	28	0	0	5	0	0	0	0	5	0	0	12	0	0	0	0	12	45
HOURLY TOTAL	0	1	112	4	0	0	1	118	0	0	21	1	0	0	0	22	0	0	52	0	0	0	2	54	194
14:30 - 14:45	0	0	20	2	0	0	0	22	0	0	7	0	0	0	0	7	0	0	7	0	0	0	0	7	36
14:45 - 15:00	0	0	34	2	0	0	1	37	0	0	3	0	0	0	0	3	1	0	15	2	0	0	1	19	59
15:00 - 15:15	0	0	24	1	1	0	0	26	0	0	4	0	0	0	0	4	0	0	16	0	0	0	0	16	46
15:15 - 15:30	0	0	24	1	0	0	0	25	0	0	6	0	0	0	0	6	0	0	14	1	0	0	0	15	46
HOURLY TOTAL	0	0	102	6	1	0	1	110	0	0	20	0	0	0	0	20	1	0	52	3	0	0	1	57	187

15:30 - 15:45	0	0	25	1	0	0	3	29	1	0	2	0	0	0	0	3	0	0	16	0	0	0	0	16	48
15:45 - 16:00	0	0	30	1	0	0	4	35	0	0	7	1	0	0	0	8	0	0	12	1	0	0	0	13	56
16:00 - 16:15	0	0	34	2	0	0	0	36	0	0	10	1	0	0	0	11	0	0	19	1	1	0	0	21	68
16:15 - 16:30	0	0	14	2	0	0	0	16	0	0	3	0	0	0	0	3	0	0	14	1	0	0	0	15	34
HOURLY TOTAL	0	0	103	6	0	0	7	116	1	0	22	2	0	0	0	25	0	0	61	3	1	0	0	65	206
PERIOD TOTAL	0	1	409	18	1	0	11	440	1	1	83	3	0	0	0	88	1	0	220	9	1	0	3	234	762

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Appendix F: Seasonality Calculations



Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: CHALONER STREET / SEFTON STREET / PARLIAMENT STREET

ARM: PARLIAMENT STREET

TIME / CLASS	LEFT TO SEFTON STREET								STRAIGHT TO CHALONER STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	22	2	0	0	0	24	0	0	144	21	5	7	0	177	201
7:45 - 8:00	0	0	29	2	0	0	0	31	0	2	186	26	5	6	1	226	257
8:00 - 8:15	0	0	33	5	1	1	0	40	0	0	177	21	7	0	3	208	248
8:15 - 8:30	0	0	36	3	0	0	0	39	3	2	195	17	2	1	0	220	259
HOURLY TOTAL	0	0	120	12	1	1	0	134	3	4	702	85	19	14	4	831	965
8:30 - 8:45	0	0	41	2	1	0	0	44	0	4	194	17	4	1	1	221	265
8:45 - 9:00	0	1	44	4	0	0	0	49	0	3	144	22	5	6	2	182	231
9:00 - 9:15	0	0	30	0	0	0	1	31	2	1	117	21	8	4	2	155	186
9:15 - 9:30	0	0	28	3	0	0	1	32	1	2	114	22	2	3	5	149	181
HOURLY TOTAL	0	1	143	9	1	0	2	156	3	10	569	82	19	14	10	707	863
PERIOD TOTAL	0	1	263	21	2	1	2	290	6	14	1271	167	38	28	14	1538	1828

16:30 - 16:45	0	0	33	3	0	0	0	36	1	5	137	15	2	1	0	161	197
16:45 - 17:00	0	0	36	1	1	0	0	38	0	3	139	11	2	0	0	155	193
17:00 - 17:15	0	0	39	2	0	0	0	41	0	3	151	7	1	0	0	162	203
17:15 - 17:30	0	0	37	3	0	0	0	40	1	7	157	5	0	1	0	171	211
HOURLY TOTAL	0	0	145	9	1	0	0	155	2	18	584	38	5	2	0	649	804
17:30 - 17:45	0	0	45	2	0	0	0	47	0	0	144	13	0	0	0	157	204
17:45 - 18:00	0	0	40	2	1	0	0	43	0	3	147	11	1	0	2	164	207
18:00 - 18:15	0	0	36	1	0	0	0	37	0	0	120	7	0	0	1	128	165
18:15 - 18:30	0	0	36	2	1	0	0	39	0	0	114	11	1	0	2	128	167
HOURLY TOTAL	0	0	157	7	2	0	0	166	0	3	525	42	2	0	5	577	743
PERIOD TOTAL	0	0	302	16	3	0	0	321	2	21	1109	80	7	2	5	1226	1547

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	30	3	0	0	0	33	0	0	125	4	1	0	0	130	163
12:45 - 13:00	2	0	26	0	1	0	0	29	0	1	125	6	1	0	2	135	164
13:00 - 13:15	0	0	47	1	0	1	0	49	0	0	111	6	1	0	1	119	168
13:15 - 13:30	0	0	47	1	0	0	0	48	0	0	105	5	1	0	1	112	160
HOURLY TOTAL	2	0	150	5	1	1	0	159	0	1	466	21	4	0	4	496	655
13:30 - 13:45	1	0	52	3	0	0	0	56	0	0	106	12	2	0	1	121	177
13:45 - 14:00	0	0	49	0	3	0	0	52	0	0	101	8	0	0	1	110	162
14:00 - 14:15	1	0	25	5	0	0	0	31	0	0	104	6	1	0	1	112	143
14:15 - 14:30	0	0	35	1	0	0	1	37	0	0	91	6	1	0	2	100	137
HOURLY TOTAL	2	0	161	9	3	0	1	176	0	0	402	32	4	0	5	443	619
14:30 - 14:45	0	0	18	2	1	0	0	21	0	0	119	7	1	0	1	128	149
14:45 - 15:00	0	0	42	0	0	0	0	42	0	0	102	9	1	0	0	112	154
15:00 - 15:15	0	0	30	1	0	0	0	31	0	0	102	11	1	0	0	114	145
15:15 - 15:30	0	0	32	4	0	0	1	37	1	0	117	11	0	0	2	131	168
HOURLY TOTAL	0	0	122	7	1	0	1	131	1	0	440	38	3	0	3	485	616

15:30 - 15:45	0	0	33	0	0	0	0	33	0	0	103	7	1	0	0	111	144
15:45 - 16:00	0	0	27	1	0	0	0	28	0	2	94	8	1	0	0	105	133
16:00 - 16:15	0	0	28	0	0	0	0	28	1	0	91	11	1	0	1	105	133
16:15 - 16:30	0	0	15	2	0	0	0	17	0	1	98	11	0	0	0	110	127
HOURLY TOTAL	0	0	103	3	0	0	0	106	1	3	386	37	3	0	1	431	537
PERIOD TOTAL	4	0	536	24	5	1	2	572	2	4	1694	128	14	0	13	1855	2427

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Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: CHALONER STREET / SEFTON STREET / PARLIAMENT STREET

ARM: SEFTON STREET

TIME / CLASS	LEFT TO CHALONER STREET								RIGHT TO PARLIAMENT STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	216	15	3	1	1	236	0	0	19	4	2	0	1	26	262
7:45 - 8:00	2	0	222	17	6	4	1	252	0	0	25	6	2	0	1	34	286
8:00 - 8:15	2	1	209	21	3	1	0	237	0	1	26	6	1	0	0	34	271
8:15 - 8:30	1	1	241	17	5	0	2	267	0	0	31	8	4	0	1	44	311
HOURLY TOTAL	5	2	888	70	17	6	4	992	0	1	101	24	9	0	3	138	1130
8:30 - 8:45	1	0	217	11	5	0	1	235	0	0	32	5	3	0	0	40	275
8:45 - 9:00	1	1	209	15	5	3	2	236	0	0	35	4	3	1	0	43	279
9:00 - 9:15	0	0	211	12	4	1	1	229	0	0	31	6	1	0	0	38	267
9:15 - 9:30	0	0	186	18	6	2	0	212	0	0	28	3	1	0	0	32	244
HOURLY TOTAL	2	1	823	56	20	6	4	912	0	0	126	18	8	1	0	153	1065
PERIOD TOTAL	7	3	1711	126	37	12	8	1904	0	1	227	42	17	1	3	291	2195

16:30 - 16:45	0	1	211	24	2	0	1	239	0	0	22	2	0	0	0	24	263
16:45 - 17:00	0	1	195	22	1	1	0	220	0	0	41	2	1	0	0	44	264
17:00 - 17:15	0	2	177	11	1	0	2	193	0	1	46	5	0	0	0	52	245
17:15 - 17:30	1	0	195	7	1	0	1	205	0	1	47	1	0	0	0	49	254
HOURLY TOTAL	1	4	778	64	5	1	4	857	0	2	156	10	1	0	0	169	1026
17:30 - 17:45	0	1	137	9	1	0	1	149	0	0	43	2	1	0	0	46	195
17:45 - 18:00	0	1	131	6	1	0	1	140	0	0	47	4	0	0	0	51	191
18:00 - 18:15	0	0	155	11	0	1	0	167	0	0	37	2	0	0	0	39	206
18:15 - 18:30	0	0	106	5	1	0	0	112	0	2	33	3	0	0	0	38	150
HOURLY TOTAL	0	2	529	31	3	1	2	568	0	2	160	11	1	0	0	174	742
PERIOD TOTAL	1	6	1307	95	8	2	6	1425	0	4	316	21	2	0	0	343	1768

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	1	154	18	1	1	2	177	0	0	31	3	1	0	0	35	212
12:45 - 13:00	0	1	123	13	2	0	0	139	0	0	32	3	1	0	0	36	175
13:00 - 13:15	0	0	171	11	0	0	2	184	0	0	32	2	1	0	0	35	219
13:15 - 13:30	0	2	145	7	0	0	0	154	0	0	35	2	0	0	0	37	191
HOURLY TOTAL	0	4	593	49	3	1	4	654	0	0	130	10	3	0	0	143	797
13:30 - 13:45	0	0	160	6	1	1	2	170	0	0	35	4	0	0	0	39	209
13:45 - 14:00	1	0	144	6	1	0	2	154	1	0	32	4	0	0	0	37	191
14:00 - 14:15	0	2	136	13	0	0	4	155	0	0	24	2	0	0	0	26	181
14:15 - 14:30	3	1	133	12	1	0	1	151	0	0	32	3	0	0	0	35	186
HOURLY TOTAL	4	3	573	37	3	1	9	630	1	0	123	13	0	0	0	137	767
14:30 - 14:45	1	1	161	10	1	0	4	178	0	0	34	3	0	0	0	37	215
14:45 - 15:00	1	0	154	4	0	0	1	160	0	0	19	0	0	0	0	19	179
15:00 - 15:15	0	0	150	8	1	0	4	163	0	0	36	2	0	0	1	39	202
15:15 - 15:30	1	2	117	12	0	0	0	132	0	0	23	3	0	0	0	26	158
HOURLY TOTAL	3	3	582	34	2	0	9	633	0	0	112	8	0	0	1	121	754

15:30 - 15:45	1	0	131	9	0	0	5	146	0	0	39	1	0	0	1	41	187
15:45 - 16:00	0	0	125	12	0	0	4	141	0	0	37	1	0	0	0	38	179
16:00 - 16:15	0	0	142	9	0	0	1	152	0	0	27	1	0	0	0	28	180
16:15 - 16:30	0	0	128	5	1	0	2	136	0	0	26	1	0	0	0	27	163
HOURLY TOTAL	1	0	526	35	1	0	12	575	0	0	129	4	0	0	1	134	709
PERIOD TOTAL	8	10	2274	155	9	2	34	2492	1	0	494	35	3	0	2	535	3027

survey and presentation by **trafficsense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: CHALONER STREET / SEFTON STREET / PARLIAMENT STREET

ARM: CHALONER STREET

TIME / CLASS	STRAIGHT TO PARLIAMENT STREET								RIGHT TO SEFTON STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	1	113	17	9	1	0	141	0	2	157	12	3	2	1	177	318
7:45 - 8:00	0	1	208	13	8	0	0	230	1	4	244	9	4	2	2	266	496
8:00 - 8:15	1	2	211	16	5	0	1	236	0	1	233	18	2	4	0	258	494
8:15 - 8:30	0	2	210	27	4	0	0	243	0	0	221	26	2	1	1	251	494
HOURLY TOTAL	1	6	742	73	26	1	1	850	1	7	855	65	11	9	4	952	1802
8:30 - 8:45	0	2	187	26	5	2	2	224	0	3	256	21	6	2	1	289	513
8:45 - 9:00	0	0	137	13	4	0	0	154	1	1	177	12	2	1	1	195	349
9:00 - 9:15	0	0	130	11	8	2	0	151	1	1	198	11	7	2	0	220	371
9:15 - 9:30	0	0	127	16	13	2	0	158	0	1	185	24	3	1	1	215	373
HOURLY TOTAL	0	2	581	66	30	6	2	687	2	6	816	68	18	6	3	919	1606
PERIOD TOTAL	1	8	1323	139	56	7	3	1537	3	13	1671	133	29	15	7	1871	3408

16:30 - 16:45	1	1	199	23	2	0	1	227	0	1	204	14	1	1	1	222	449
16:45 - 17:00	1	0	151	16	0	1	1	170	0	5	221	17	2	1	0	246	416
17:00 - 17:15	2	2	177	11	2	0	1	195	0	2	218	17	2	0	1	240	435
17:15 - 17:30	1	0	209	12	3	0	0	225	0	2	256	16	3	0	2	279	504
HOURLY TOTAL	5	3	736	62	7	1	3	817	0	10	899	64	8	2	4	987	1804
17:30 - 17:45	0	0	204	8	1	0	0	213	0	3	261	16	0	0	1	281	494
17:45 - 18:00	0	0	165	5	0	0	0	170	0	1	199	11	0	0	1	212	382
18:00 - 18:15	0	0	144	6	0	0	1	151	1	0	219	4	0	0	0	224	375
18:15 - 18:30	0	0	122	3	0	0	1	126	0	1	167	3	1	0	0	172	298
HOURLY TOTAL	0	0	635	22	1	0	2	660	1	5	846	34	1	0	2	889	1549
PERIOD TOTAL	5	3	1371	84	8	1	5	1477	1	15	1745	98	9	2	6	1876	3353

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	99	5	1	0	2	107	0	0	131	9	0	0	1	141	248
12:45 - 13:00	0	0	167	4	2	0	0	173	1	0	128	8	0	0	1	138	311
13:00 - 13:15	0	1	141	7	1	0	0	150	0	0	140	8	1	0	2	151	301
13:15 - 13:30	0	1	131	8	0	0	1	141	0	0	134	6	1	0	1	142	283
HOURLY TOTAL	0	2	538	24	4	0	3	571	1	0	533	31	2	0	5	572	1143
13:30 - 13:45	1	0	126	6	2	0	2	137	0	0	137	6	0	0	1	144	281
13:45 - 14:00	2	0	155	10	1	0	1	169	0	0	118	5	1	0	4	128	297
14:00 - 14:15	1	0	121	4	1	0	0	127	0	0	140	10	1	0	6	157	284
14:15 - 14:30	1	1	133	5	0	0	1	141	0	0	119	5	1	0	2	127	268
HOURLY TOTAL	5	1	535	25	4	0	4	574	0	0	514	26	3	0	13	556	1130
14:30 - 14:45	0	1	125	6	1	0	2	135	0	0	124	7	0	0	2	133	268
14:45 - 15:00	1	0	124	6	0	0	1	132	0	2	130	10	1	0	2	145	277
15:00 - 15:15	0	0	116	4	0	0	1	121	0	2	147	6	0	0	2	157	278
15:15 - 15:30	0	0	124	11	0	0	1	136	0	2	160	5	1	0	2	170	306
HOURLY TOTAL	1	1	489	27	1	0	5	524	0	6	561	28	2	0	8	605	1129

15:30 - 15:45	0	0	166	9	0	0	0	175	0	1	116	4	0	0	1	122	297
15:45 - 16:00	0	0	104	7	0	0	0	111	0	0	143	6	1	0	3	153	264
16:00 - 16:15	0	0	118	6	0	0	0	124	0	0	126	7	0	0	1	134	258
16:15 - 16:30	0	0	110	11	0	0	0	121	1	0	112	8	1	0	2	124	245
HOURLY TOTAL	0	0	498	33	0	0	0	531	1	1	497	25	2	0	7	533	1064
PERIOD TOTAL	6	4	2060	109	9	0	12	2200	2	7	2105	110	9	0	33	2266	4466

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Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: JAMAICA STREET / PARLIAMENT STREET / GRAFTON STREET

ARM: JAMACIA STREET

TIME / CLASS	LEFT TO PARLIAMENT STREET EAST (J4)								STRAIGHT TO GRAFTON STREET								RIGHT TO PARLIAMENT STREET WEST (J3)								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	4	0	0	0	0	4	0	0	8	1	0	0	0	9	0	0	1	0	0	0	0	1	14
7:45 - 8:00	0	0	7	1	1	0	0	9	0	0	13	0	0	0	0	13	0	0	1	1	0	0	0	2	24
8:00 - 8:15	0	0	11	1	0	0	0	12	0	0	11	1	0	0	0	12	0	0	4	0	0	0	0	4	28
8:15 - 8:30	0	0	9	0	0	0	0	9	0	0	15	1	0	0	0	16	0	0	0	0	0	0	0	0	25
HOURLY TOTAL	0	0	31	2	1	0	0	34	0	0	47	3	0	0	0	50	0	0	6	1	0	0	0	7	91
8:30 - 8:45	0	0	12	2	0	0	0	14	0	0	12	0	0	0	0	12	0	0	2	1	0	0	0	3	29
8:45 - 9:00	0	0	10	2	0	1	0	13	0	0	9	1	0	0	1	11	0	0	4	0	1	0	0	5	29
9:00 - 9:15	0	1	8	1	0	1	0	11	0	0	10	1	0	0	0	11	0	0	1	0	0	0	0	1	23
9:15 - 9:30	0	0	4	2	0	0	0	6	0	0	7	0	0	0	1	8	0	0	2	1	0	0	0	3	17
HOURLY TOTAL	0	1	34	7	0	2	0	44	0	0	38	2	0	0	2	42	0	0	9	2	1	0	0	12	98
PERIOD TOTAL	0	1	65	9	1	2	0	78	0	0	85	5	0	0	2	92	0	0	15	3	1	0	0	19	189

16:30 - 16:45	0	0	22	2	0	0	0	24	0	0	16	1	1	0	0	18	0	0	2	0	0	0	0	2	44
16:45 - 17:00	0	0	31	1	0	0	0	32	0	0	9	3	0	0	0	12	0	0	2	0	0	0	0	2	46
17:00 - 17:15	0	0	35	2	0	0	0	37	0	0	12	1	0	0	0	13	0	0	6	1	0	0	0	7	57
17:15 - 17:30	0	0	33	1	1	0	0	35	0	0	15	2	0	0	1	18	0	0	0	1	0	0	0	1	54
HOURLY TOTAL	0	0	121	6	1	0	0	128	0	0	52	7	1	0	1	61	0	0	10	2	0	0	0	12	201
17:30 - 17:45	0	0	35	0	0	0	0	35	0	0	12	0	0	0	0	12	0	0	3	0	0	0	0	3	50
17:45 - 18:00	0	0	33	2	0	0	0	35	1	0	11	2	0	0	0	14	0	0	8	0	0	0	0	8	57
18:00 - 18:15	0	0	28	1	0	0	0	29	0	0	10	1	0	0	1	12	0	0	2	0	0	0	0	2	43
18:15 - 18:30	0	0	25	1	0	0	0	26	0	0	7	1	0	0	0	8	0	0	4	1	0	0	0	5	39
HOURLY TOTAL	0	0	121	4	0	0	0	125	1	0	40	4	0	0	1	46	0	0	17	1	0	0	0	18	189
PERIOD TOTAL	0	0	242	10	1	0	0	253	1	0	92	11	1	0	2	107	0	0	27	3	0	0	0	30	390

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	33	3	0	0	0	36	0	0	11	0	0	0	0	11	0	0	1	0	0	0	0	1	48
12:45 - 13:00	0	0	25	3	0	0	0	28	1	0	17	3	0	0	0	21	1	0	2	0	0	0	0	3	52
13:00 - 13:15	0	0	32	4	0	0	1	37	0	0	15	1	0	0	0	16	0	0	6	1	0	0	0	7	60
13:15 - 13:30	0	0	27	3	0	0	0	30	1	0	23	1	0	0	1	26	0	0	8	0	0	0	0	8	64
HOURLY TOTAL	0	0	117	13	0	0	1	131	2	0	66	5	0	0	1	74	1	0	17	1	0	0	0	19	224
13:30 - 13:45	0	0	28	1	0	0	0	29	0	2	15	0	1	0	0	18	0	0	5	0	0	0	0	5	52
13:45 - 14:00	0	0	33	2	0	0	0	35	0	0	15	0	0	0	1	16	0	0	5	0	0	0	0	5	56
14:00 - 14:15	0	0	46	1	0	0	0	47	1	0	14	2	0	0	0	17	0	0	16	0	0	0	0	16	80
14:15 - 14:30	0	0	36	1	0	0	0	37	0	0	14	2	1	0	0	17	0	0	33	0	0	0	0	33	87
HOURLY TOTAL	0	0	143	5	0	0	0	148	1	2	58	4	2	0	1	68	0	0	59	0	0	0	0	59	275
14:30 - 14:45	0	0	44	2	0	0	0	46	0	0	15	1	0	0	0	16	0	0	4	0	0	0	0	4	66
14:45 - 15:00	0	1	46	3	0	0	0	50	0	0	9	0	0	0	0	9	0	0	6	0	0	0	0	6	65
15:00 - 15:15	0	0	33	0	0	0	0	33	0	0	12	0	0	0	0	12	0	0	6	1	0	0	0	7	52
15:15 - 15:30	0	0	24	1	0	0	0	25	0	1	14	1	0	0	0	16	0	0	7	0	0	0	1	8	49
HOURLY TOTAL	0	1	147	6	0	0	0	154	0	1	50	2	0	0	0	53	0	0	23	1	0	0	1	25	232

15:30 - 15:45	0	0	42	2	0	0	1	45	0	0	10	1	0	0	0	11	0	0	11	1	0	0	0	12	68
15:45 - 16:00	0	1	28	1	0	0	0	30	0	0	8	0	1	0	0	9	0	0	2	0	0	0	0	2	41
16:00 - 16:15	0	0	43	2	0	0	1	46	0	0	7	1	0	0	0	8	0	0	9	0	0	0	0	9	63
16:15 - 16:30	0	0	29	0	0	0	0	29	0	0	8	3	0	0	0	11	0	0	3	1	0	0	0	4	44
HOURLY TOTAL	0	1	142	5	0	0	2	150	0	0	33	5	1	0	0	39	0	0	25	2	0	0	0	27	216
PERIOD TOTAL	0	2	549	29	0	0	3	583	3	3	207	16	3	0	2	234	1	0	124	4	0	0	1	130	947

survey and presentation by **trafficsense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: JAMAICA STREET / PARLIAMENT STREET / GRAFTON STREET

ARM: PARLIAMENT STREET EAST (J4)

TIME / CLASS	LEFT TO GRAFTON STREET								STRAIGHT TO PARLIAMENT STREET WEST (J3)								RIGHT TO JAMACIA STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	37	3	2	0	0	42	0	0	166	22	5	6	0	199	0	0	22	1	0	0	0	23	264
7:45 - 8:00	0	0	44	6	0	0	0	50	0	2	209	27	5	7	2	252	0	0	25	2	0	0	0	27	329
8:00 - 8:15	0	0	46	5	0	0	0	51	0	0	205	24	7	2	2	240	0	0	28	1	1	0	1	31	322
8:15 - 8:30	0	0	49	8	1	0	0	58	2	2	228	21	3	2	0	258	0	0	33	3	1	0	0	37	353
HOURLY TOTAL	0	0	176	22	3	0	0	201	2	4	808	94	20	17	4	949	0	0	108	7	2	0	1	118	1268
8:30 - 8:45	0	1	41	4	1	0	0	47	0	4	233	18	5	1	1	262	0	1	29	1	1	0	1	33	342
8:45 - 9:00	1	0	37	4	1	0	0	43	0	3	185	25	4	5	2	224	0	0	30	1	1	1	1	34	301
9:00 - 9:15	0	0	37	3	2	0	0	42	2	1	152	21	6	4	3	189	0	0	28	1	1	0	0	30	261
9:15 - 9:30	0	0	36	5	0	0	0	41	1	3	140	24	3	2	6	179	0	1	24	2	0	0	0	27	247
HOURLY TOTAL	1	1	151	16	4	0	0	173	3	11	710	88	18	12	12	854	0	2	111	5	3	1	2	124	1151
PERIOD TOTAL	1	1	327	38	7	0	0	374	5	15	1518	182	38	29	16	1803	0	2	219	12	5	1	3	242	2419

16:30 - 16:45	0	0	33	2	0	0	0	35	1	5	165	16	2	1	0	190	1	0	16	2	0	0	1	20	245
16:45 - 17:00	0	0	36	2	0	0	0	38	0	4	170	11	2	0	0	187	2	0	21	1	1	0	0	25	250
17:00 - 17:15	0	0	41	4	1	0	0	46	0	3	180	10	2	0	0	195	0	0	22	1	0	0	0	23	264
17:15 - 17:30	0	0	33	2	0	0	0	35	1	6	188	7	0	1	0	203	0	2	19	1	0	0	1	23	261
HOURLY TOTAL	0	0	143	10	1	0	0	154	2	18	703	44	6	2	0	775	3	2	78	5	1	0	2	91	1020
17:30 - 17:45	0	0	37	4	1	0	0	42	0	1	178	14	0	0	0	193	0	0	18	0	0	0	0	18	253
17:45 - 18:00	0	0	36	6	0	0	0	42	0	2	179	12	1	0	2	196	0	0	15	0	1	0	0	16	254
18:00 - 18:15	0	0	29	1	0	0	0	30	0	0	144	10	1	0	2	157	0	0	16	1	0	0	0	17	204
18:15 - 18:30	0	0	33	2	0	0	0	35	0	0	152	11	1	0	1	165	0	0	11	2	0	0	0	13	213
HOURLY TOTAL	0	0	135	13	1	0	0	149	0	3	653	47	3	0	5	711	0	0	60	3	1	0	0	64	924
PERIOD TOTAL	0	0	278	23	2	0	0	303	2	21	1356	91	9	2	5	1486	3	2	138	8	2	0	2	155	1944

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	23	8	0	0	1	32	0	0	155	7	1	0	1	164	0	0	16	2	0	0	0	18	214
12:45 - 13:00	1	0	31	3	0	0	2	37	1	1	141	6	1	1	2	153	0	0	17	2	0	0	0	19	209
13:00 - 13:15	0	0	29	5	0	0	0	34	0	0	149	5	2	0	1	157	0	0	17	0	0	0	0	17	208
13:15 - 13:30	0	0	28	1	1	0	1	31	0	0	144	5	1	0	0	150	0	0	20	1	0	0	0	21	202
HOURLY TOTAL	1	0	111	17	1	0	4	134	1	1	589	23	5	1	4	624	0	0	70	5	0	0	0	75	833
13:30 - 13:45	0	0	30	2	0	0	1	33	1	0	157	14	2	0	1	175	0	1	21	0	0	0	0	22	230
13:45 - 14:00	0	0	23	2	0	0	3	28	0	0	144	7	3	0	2	156	0	0	33	1	0	0	0	34	218
14:00 - 14:15	0	0	16	1	0	0	0	17	1	0	116	11	2	0	1	131	0	0	23	1	0	0	0	24	172
14:15 - 14:30	0	0	29	2	0	0	2	33	0	0	101	7	0	0	3	111	0	0	24	1	0	0	0	25	169
HOURLY TOTAL	0	0	98	7	0	0	6	111	2	0	518	39	7	0	7	573	0	1	101	3	0	0	0	105	789
14:30 - 14:45	0	0	30	2	0	0	0	32	1	0	126	9	2	0	1	139	0	0	15	1	0	0	0	16	187
14:45 - 15:00	0	0	30	1	0	0	1	32	0	0	143	8	1	0	0	152	0	0	21	2	0	0	0	23	207
15:00 - 15:15	0	0	25	0	0	0	0	25	0	0	122	11	0	0	0	133	0	1	17	0	0	0	0	18	176
15:15 - 15:30	0	0	27	4	2	0	1	34	1	0	133	14	1	0	2	151	0	0	19	0	0	0	0	19	204
HOURLY TOTAL	0	0	112	7	2	0	2	123	2	0	524	42	4	0	3	575	0	1	72	3	0	0	0	76	774

15:30 - 15:45	0	0	27	6	0	0	0	33	0	0	127	4	1	0	1	133	0	0	16	0	0	0	1	17	183
15:45 - 16:00	0	0	9	1	0	0	2	12	0	2	117	9	1	0	0	129	0	1	12	2	0	0	0	15	156
16:00 - 16:15	0	0	22	1	0	0	0	23	1	0	106	12	1	0	0	120	0	0	19	0	0	0	0	19	162
16:15 - 16:30	0	0	29	2	0	0	1	32	0	1	114	11	0	0	0	126	1	0	13	2	0	0	0	16	174
HOURLY TOTAL	0	0	87	10	0	0	3	100	1	3	464	36	3	0	1	508	1	1	60	4	0	0	1	67	675
PERIOD TOTAL	1	0	408	41	3	0	15	468	6	4	2095	140	19	1	15	2280	1	3	303	15	0	0	1	323	3071

survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: JAMAICA STREET / PARLIAMENT STREET / GRAFTON STREET

ARM: GRAFTON STREET

TIME / CLASS	LEFT TO PARLIAMENT STREET WEST (J3)								STRAIGHT TO JAMACIA STREET								RIGHT TO PARLIAMENT STREET EAST (J4)								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	1	0	0	0	0	1	0	0	4	1	0	0	0	5	0	0	33	4	0	0	0	37	43
7:45 - 8:00	0	0	1	0	0	0	0	1	0	0	4	1	0	0	0	5	0	0	35	4	1	0	0	40	46
8:00 - 8:15	0	0	3	1	0	0	0	4	0	1	7	0	0	0	0	8	0	0	31	6	1	0	0	38	50
8:15 - 8:30	0	0	1	1	0	0	0	2	0	0	9	3	0	1	0	13	0	2	40	3	0	1	0	46	61
HOURLY TOTAL	0	0	6	2	0	0	0	8	0	1	24	5	0	1	0	31	0	2	139	17	2	1	0	161	200
8:30 - 8:45	0	0	2	0	0	0	0	2	0	0	4	2	0	1	0	7	0	0	37	4	2	0	0	43	52
8:45 - 9:00	0	0	2	0	0	0	0	2	0	0	6	2	1	0	0	9	0	0	33	5	0	0	0	38	49
9:00 - 9:15	0	0	0	1	0	0	0	1	1	0	8	0	0	0	0	9	1	0	28	1	1	0	0	31	41
9:15 - 9:30	0	0	0	0	0	0	0	0	0	0	5	1	0	0	0	6	1	0	27	3	1	0	0	32	38
HOURLY TOTAL	0	0	4	1	0	0	0	5	1	0	23	5	1	1	0	31	2	0	125	13	4	0	0	144	180
PERIOD TOTAL	0	0	10	3	0	0	0	13	1	1	47	10	1	2	0	62	2	2	264	30	6	1	0	305	380

16:30 - 16:45	0	0	2	0	0	0	0	2	0	0	11	1	0	0	0	12	0	0	36	2	0	0	0	38	52
16:45 - 17:00	0	0	1	0	0	0	0	1	0	1	9	1	0	0	0	11	0	0	33	2	0	0	0	35	47
17:00 - 17:15	0	0	4	0	0	0	0	4	2	0	12	0	0	0	0	14	0	1	41	4	1	0	0	47	65
17:15 - 17:30	0	0	2	1	0	0	0	3	0	1	10	2	0	0	0	13	0	0	40	3	0	0	1	44	60
HOURLY TOTAL	0	0	9	1	0	0	0	10	2	2	42	4	0	0	0	50	0	1	150	11	1	0	1	164	224
17:30 - 17:45	0	0	2	1	0	0	0	3	1	1	7	1	0	0	0	10	0	0	39	2	0	0	0	41	54
17:45 - 18:00	0	0	2	0	0	0	0	2	1	0	7	1	0	0	0	9	0	0	41	3	0	0	0	44	55
18:00 - 18:15	0	0	4	0	0	0	0	4	0	0	9	0	0	0	0	9	0	1	33	3	0	0	0	37	50
18:15 - 18:30	0	0	1	0	0	0	0	1	0	0	6	0	0	0	0	6	0	0	27	2	0	0	0	29	36
HOURLY TOTAL	0	0	9	1	0	0	0	10	2	1	29	2	0	0	0	34	0	1	140	10	0	0	0	151	195
PERIOD TOTAL	0	0	18	2	0	0	0	20	4	3	71	6	0	0	0	84	0	2	290	21	1	0	1	315	419

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	1	0	0	0	0	1	0	0	10	0	0	0	0	10	0	0	24	2	0	0	1	27	38
12:45 - 13:00	0	0	1	0	0	0	0	1	0	0	9	0	0	0	0	9	0	0	28	2	0	0	0	30	40
13:00 - 13:15	0	0	2	1	0	0	0	3	0	0	4	3	0	0	0	7	0	0	31	5	0	0	0	36	46
13:15 - 13:30	0	0	1	0	0	0	0	1	0	0	11	0	0	0	0	11	0	0	21	0	0	0	0	21	33
HOURLY TOTAL	0	0	5	1	0	0	0	6	0	0	34	3	0	0	0	37	0	0	104	9	0	0	1	114	157
13:30 - 13:45	0	0	3	0	0	0	0	3	0	0	9	0	0	0	0	9	0	0	26	0	0	0	0	26	38
13:45 - 14:00	0	0	1	0	0	0	0	1	0	0	6	1	0	0	0	7	0	0	22	2	0	0	0	24	32
14:00 - 14:15	0	0	2	0	0	0	0	2	0	0	9	0	0	0	0	9	0	0	18	4	1	0	0	23	34
14:15 - 14:30	0	0	1	1	0	0	0	2	0	0	5	1	0	0	0	6	0	0	22	2	0	0	0	24	32
HOURLY TOTAL	0	0	7	1	0	0	0	8	0	0	29	2	0	0	0	31	0	0	88	8	1	0	0	97	136
14:30 - 14:45	0	0	2	0	0	0	0	2	0	0	4	0	0	0	0	4	0	0	28	0	0	0	0	28	34
14:45 - 15:00	0	0	2	0	0	0	0	2	0	0	9	0	1	0	0	10	0	0	26	0	0	0	0	26	38
15:00 - 15:15	0	0	3	0	0	0	0	3	0	0	6	1	0	0	0	7	0	0	24	1	0	0	1	26	36
15:15 - 15:30	0	0	2	1	0	0	0	3	0	0	8	0	0	0	0	8	1	0	19	0	0	0	0	20	31
HOURLY TOTAL	0	0	9	1	0	0	0	10	0	0	27	1	1	0	0	29	1	0	97	1	0	0	1	100	139

15:30 - 15:45	0	0	2	0	0	0	0	2	0	0	7	0	0	0	0	7	0	0	21	6	0	0	1	28	37
15:45 - 16:00	0	0	1	0	0	0	0	1	0	0	4	0	0	0	0	4	0	1	24	0	2	0	0	27	32
16:00 - 16:15	0	0	2	0	0	0	0	2	0	0	7	0	0	0	0	7	0	0	14	1	0	0	0	15	24
16:15 - 16:30	0	0	1	0	0	0	0	1	0	0	8	0	0	0	0	8	0	0	22	0	0	0	0	22	31
HOURLY TOTAL	0	0	6	0	0	0	0	6	0	0	26	0	0	0	0	26	0	1	81	7	2	0	1	92	124
PERIOD TOTAL	0	0	27	3	0	0	0	30	0	0	116	6	1	0	0	123	1	1	370	25	3	0	3	403	556

survey and presentation by traffic**sense** Ltd.

Manual Classified Turning Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: JAMAICA STREET / PARLIAMENT STREET / GRAFTON STREET

ARM: PARLIAMENT STREET WEST (J3)

TIME / CLASS	LEFT TO JAMACIA STREET								STRAIGHT TO PARLIAMENT STREET EAST (J4)								RIGHT TO GRAFTON STREET								TOTAL MOVEMENT FROM ARM
	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	PEDAL CYCLE	MOTOR CYCLE	CAR TAXI	LGV	OGV 1	OGV 2	BUS COACH	TOTAL	
7:30 - 7:45	0	0	11	0	0	0	0	11	0	1	112	21	11	1	0	146	0	0	8	1	0	0	0	9	166
7:45 - 8:00	0	0	10	1	0	0	0	11	0	1	221	16	11	0	2	251	0	0	11	0	0	0	0	11	273
8:00 - 8:15	0	0	8	1	0	0	0	9	1	2	214	22	7	0	1	247	0	0	12	1	0	0	0	13	269
8:15 - 8:30	0	0	14	1	0	0	0	15	0	2	209	32	7	0	1	251	0	0	19	1	0	0	0	20	286
HOURLY TOTAL	0	0	43	3	0	0	0	46	1	6	756	91	36	1	4	895	0	0	50	3	0	0	0	53	994
8:30 - 8:45	0	0	11	1	0	0	0	12	0	2	191	26	9	2	2	232	0	0	16	1	0	0	0	17	261
8:45 - 9:00	0	1	7	0	0	0	0	8	0	0	146	17	6	2	0	171	0	0	20	1	0	0	0	21	200
9:00 - 9:15	0	0	8	2	0	0	0	10	0	0	131	13	9	2	0	155	0	0	18	2	0	0	0	20	185
9:15 - 9:30	0	0	6	0	0	0	0	6	0	0	135	17	13	1	0	166	0	0	14	1	0	0	0	15	187
HOURLY TOTAL	0	1	32	3	0	0	0	36	0	2	603	73	37	7	2	724	0	0	68	5	0	0	0	73	833
PERIOD TOTAL	0	1	75	6	0	0	0	82	1	8	1359	164	73	8	6	1619	0	0	118	8	0	0	0	126	1827

16:30 - 16:45	0	0	4	0	0	0	0	4	1	0	205	24	1	0	1	232	0	0	13	0	0	0	0	13	249
16:45 - 17:00	0	0	4	1	0	0	0	5	2	1	177	16	2	1	1	200	0	0	19	2	0	0	0	21	226
17:00 - 17:15	0	0	9	1	0	0	0	10	0	2	178	13	2	0	1	196	0	0	21	1	0	0	0	22	228
17:15 - 17:30	0	0	7	0	0	0	0	7	1	1	244	11	3	0	0	260	0	0	11	1	0	0	0	12	279
HOURLY TOTAL	0	0	24	2	0	0	0	26	4	4	804	64	8	1	3	888	0	0	64	4	0	0	0	68	982
17:30 - 17:45	0	0	3	1	0	0	0	4	0	0	241	7	2	0	0	250	0	0	8	1	0	0	0	9	263
17:45 - 18:00	0	0	6	1	0	0	0	7	0	0	209	7	0	0	0	216	0	0	6	0	0	0	0	6	229
18:00 - 18:15	0	0	5	0	0	0	0	5	0	0	166	9	0	0	2	177	0	0	7	1	0	0	0	8	190
18:15 - 18:30	0	0	7	0	0	0	0	7	0	2	144	5	0	0	0	151	0	0	5	1	0	0	0	6	164
HOURLY TOTAL	0	0	21	2	0	0	0	23	0	2	760	28	2	0	2	794	0	0	26	3	0	0	0	29	846
PERIOD TOTAL	0	0	45	4	0	0	0	49	4	6	1564	92	10	1	5	1682	0	0	90	7	0	0	0	97	1828

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	3	0	0	0	0	3	0	0	130	7	2	0	2	141	0	0	5	1	0	0	1	7	151
12:45 - 13:00	0	0	9	0	0	0	0	9	0	0	190	7	2	0	1	200	0	0	2	1	0	0	0	3	212
13:00 - 13:15	0	0	12	0	0	0	0	12	0	2	158	9	1	0	0	170	0	0	2	0	0	0	0	2	184
13:15 - 13:30	0	0	7	0	0	0	0	7	2	0	150	9	3	0	0	164	0	0	4	0	0	0	0	4	175
HOURLY TOTAL	0	0	31	0	0	0	0	31	2	2	628	32	8	0	3	675	0	0	13	2	0	0	1	16	722
13:30 - 13:45	0	0	9	0	0	0	0	9	0	1	148	12	1	0	2	164	0	0	3	0	0	0	0	3	176
13:45 - 14:00	0	0	2	0	0	0	0	2	1	0	177	13	2	0	1	194	0	0	6	0	0	0	0	6	202
14:00 - 14:15	0	0	11	0	0	0	0	11	0	0	138	5	0	0	0	143	0	0	4	0	0	0	0	4	158
14:15 - 14:30	0	0	8	1	0	0	0	9	2	1	156	7	0	0	1	167	0	0	1	0	0	0	0	1	177
HOURLY TOTAL	0	0	30	1	0	0	0	31	3	2	619	37	3	0	4	668	0	0	14	0	0	0	0	14	713
14:30 - 14:45	0	0	7	1	0	0	0	8	0	0	143	9	0	0	2	154	0	0	4	0	0	0	0	4	166
14:45 - 15:00	0	1	4	1	0	0	0	6	1	0	128	6	1	0	0	136	0	0	1	0	0	0	0	1	143
15:00 - 15:15	0	0	4	1	0	0	0	5	0	0	146	7	0	0	3	156	0	0	3	0	0	0	0	3	164
15:15 - 15:30	0	0	10	0	0	0	0	10	0	0	134	10	0	0	1	145	0	0	8	0	0	0	0	8	163
HOURLY TOTAL	0	1	25	3	0	0	0	29	1	0	551	32	1	0	6	591	0	0	16	0	0	0	0	16	636

15:30 - 15:45	0	0	3	0	0	0	0	3	0	0	191	13	1	0	1	206	0	0	3	1	0	0	0	4	213
15:45 - 16:00	0	0	7	0	0	0	0	7	0	0	132	3	0	0	0	135	0	0	2	0	0	0	0	2	144
16:00 - 16:15	0	0	5	0	0	0	0	5	0	0	136	10	0	0	0	146	0	0	0	0	0	0	0	0	151
16:15 - 16:30	0	0	4	1	0	0	0	5	0	0	128	8	0	0	0	136	0	0	0	1	0	0	0	1	142
HOURLY TOTAL	0	0	19	1	0	0	0	20	0	0	587	34	1	0	1	623	0	0	5	2	0	0	0	7	650
PERIOD TOTAL	0	1	105	5	0	0	0	111	6	4	2385	135	13	0	14	2557	0	0	48	4	0	0	1	53	2721

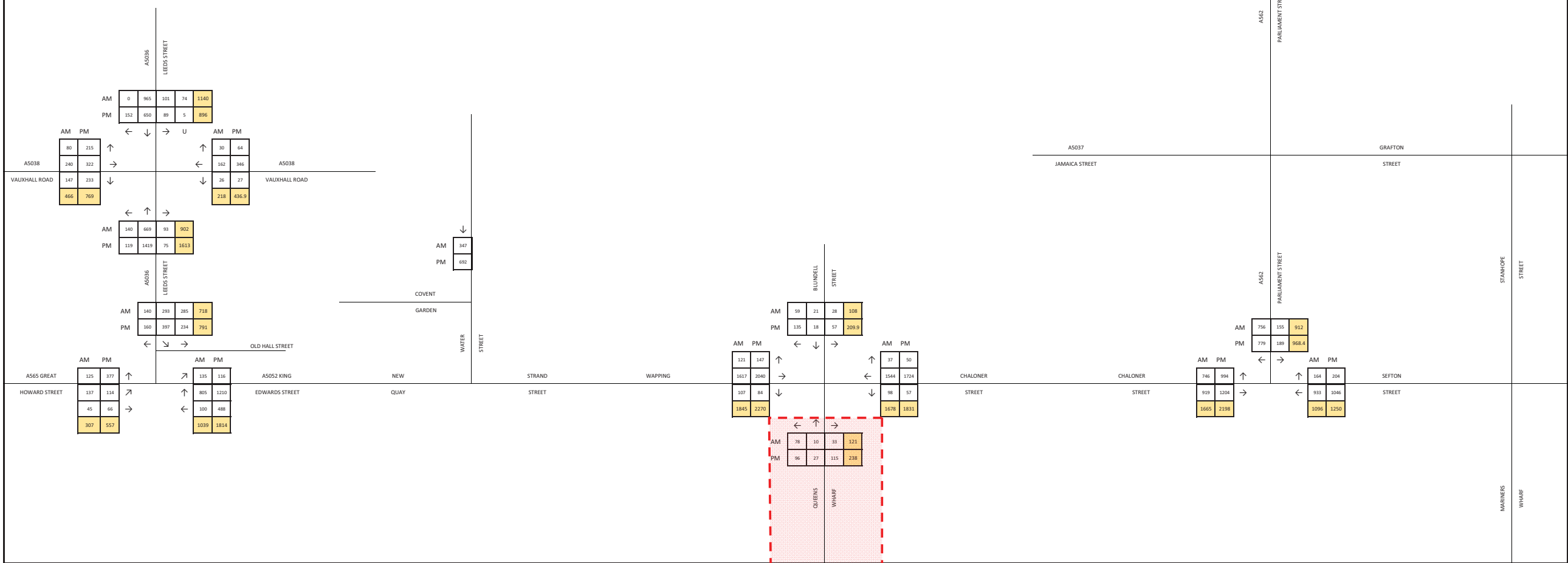
survey and presentation by traffic**sense** Ltd.

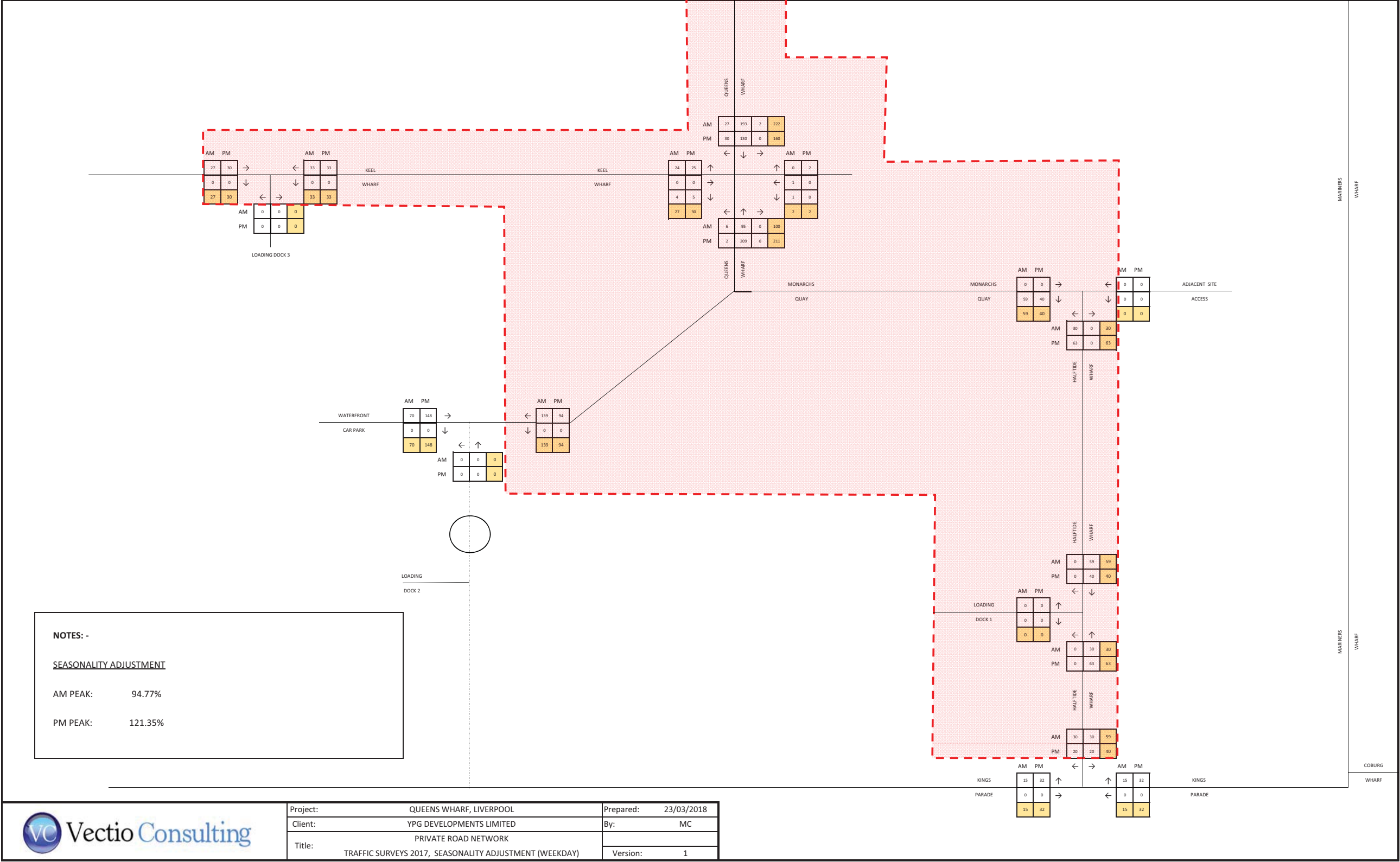
Appendix G: Survey Data Traffic Flow Diagram (PCUs)



SEASONALITY ADJUSTMENT

PM PEAK: 121.35%





Appendix H: Traffic Queue Surveys



Manual Classified Queue Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: QUEENS WHARF / KEEL WHARF

ARM: QUEENS WHARF EAST (WAPPING)

Max Queue in 15 minute	LANE 1			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	0	0	0	0.0
7:45 - 8:00	0	0	0	0.0
8:00 - 8:15	0	0	0	0.0
8:15 - 8:30	0	0	0	0.0
8:30 - 8:45	0	0	0	0.0
8:45 - 9:00	0	0	0	0.0
9:00 - 9:15	0	0	0	0.0
9:15 - 9:30	0	0	0	0.0

16:30 - 16:45	0	0	0	0.0
16:45 - 17:00	0	0	0	0.0
17:00 - 17:15	0	0	0	0.0
17:15 - 17:30	0	0	0	0.0
17:30 - 17:45	0	0	0	0.0
17:45 - 18:00	0	0	0	0.0
18:00 - 18:15	0	0	0	0.0
18:15 - 18:30	0	0	0	0.0

ARM: KEEL WHARF SOUTH (COACH CAR PARK)

Max Queue in 15 minute	LANE 1			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	0	0	0	0.0
7:45 - 8:00	0	0	0	0.0
8:00 - 8:15	0	0	0	0.0
8:15 - 8:30	0	0	0	0.0
8:30 - 8:45	0	0	0	0.0
8:45 - 9:00	0	0	0	0.0
9:00 - 9:15	0	0	0	0.0
9:15 - 9:30	0	0	0	0.0

16:30 - 16:45	0	0	0	0.0
16:45 - 17:00	0	0	0	0.0
17:00 - 17:15	0	0	0	0.0
17:15 - 17:30	0	0	0	0.0
17:30 - 17:45	0	0	0	0.0
17:45 - 18:00	0	0	0	0.0
18:00 - 18:15	0	0	0	0.0
18:15 - 18:30	0	0	0	0.0

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	0	0	0	0.0
12:45 - 13:00	0	0	0	0.0
13:00 - 13:15	0	0	0	0.0
13:15 - 13:30	0	0	0	0.0
13:30 - 13:45	0	0	0	0.0
13:45 - 14:00	0	0	0	0.0
14:00 - 14:15	0	0	0	0.0
14:15 - 14:30	0	0	0	0.0
14:30 - 14:45	0	0	0	0.0
14:45 - 15:00	0	0	0	0.0
15:00 - 15:15	0	0	0	0.0
15:15 - 15:30	0	0	0	0.0
15:30 - 15:45	0	0	0	0.0
15:45 - 16:00	0	0	0	0.0
16:00 - 16:15	0	0	0	0.0
16:15 - 16:30	0	0	0	0.0

12:30 - 12:45	0	0	0	0.0
12:45 - 13:00	0	0	0	0.0
13:00 - 13:15	0	0	0	0.0
13:15 - 13:30	0	0	0	0.0
13:30 - 13:45	0	0	0	0.0
13:45 - 14:00	0	0	0	0.0
14:00 - 14:15	0	0	0	0.0
14:15 - 14:30	0	0	0	0.0
14:30 - 14:45	0	0	0	0.0
14:45 - 15:00	0	0	0	0.0
15:00 - 15:15	0	0	0	0.0
15:15 - 15:30	0	0	0	0.0
15:30 - 15:45	0	0	0	0.0
15:45 - 16:00	0	0	0	0.0
16:00 - 16:15	0	0	0	0.0
16:15 - 16:30	0	0	0	0.0

ARM: QUEENS WHARF WEST (EXIBITION CENTRE)

Max Queue in 15 minute	LANE 1			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	0	0	0	0.0
7:45 - 8:00	0	0	0	0.0
8:00 - 8:15	0	0	0	0.0
8:15 - 8:30	0	0	0	0.0
8:30 - 8:45	0	0	0	0.0
8:45 - 9:00	0	0	0	0.0
9:00 - 9:15	0	0	0	0.0
9:15 - 9:30	0	0	0	0.0

16:30 - 16:45	0	0	0	0.0
16:45 - 17:00	0	0	0	0.0
17:00 - 17:15	0	0	0	0.0
17:15 - 17:30	0	0	0	0.0
17:30 - 17:45	0	0	0	0.0
17:45 - 18:00	0	0	0	0.0
18:00 - 18:15	0	0	0	0.0
18:15 - 18:30	0	0	0	0.0

12:30 - 12:45	0	0	0	0.0
12:45 - 13:00	0	0	0	0.0
13:00 - 13:15	0	0	0	0.0
13:15 - 13:30	0	0	0	0.0
13:30 - 13:45	0	0	0	0.0
13:45 - 14:00	0	0	0	0.0
14:00 - 14:15	0	0	0	0.0
14:15 - 14:30	0	0	0	0.0
14:30 - 14:45	0	0	0	0.0
14:45 - 15:00	0	0	0	0.0
15:00 - 15:15	0	0	0	0.0
15:15 - 15:30	0	0	0	0.0
15:30 - 15:45	0	0	0	0.0
15:45 - 16:00	0	0	0	0.0
16:00 - 16:15	0	0	0	0.0
16:15 - 16:30	0	0	0	0.0

ARM: KEEL WHARF NORTH (LARGE CAR PARK)

Max Queue in 15 minute	LANE 1			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	0	0	0	0.0
7:45 - 8:00	0	0	0	0.0
8:00 - 8:15	0	0	0	0.0
8:15 - 8:30	0	0	0	0.0
8:30 - 8:45	0	0	0	0.0
8:45 - 9:00	0	0	0	0.0
9:00 - 9:15	0	0	0	0.0
9:15 - 9:30	0	0	0	0.0

16:30 - 16:45	0	0	0	0.0
16:45 - 17:00	0	0	0	0.0
17:00 - 17:15	0	0	0	0.0
17:15 - 17:30	0	0	0	0.0
17:30 - 17:45	0	0	0	0.0
17:45 - 18:00	0	0	0	0.0
18:00 - 18:15	0	0	0	0.0
18:15 - 18:30	0	0	0	0.0

12:30 - 12:45	0	0	0	0.0
12:45 - 13:00	0	0	0	0.0
13:00 - 13:15	0	0	0	0.0
13:15 - 13:30	0	0	0	0.0
13:30 - 13:45	0	0	0	0.0
13:45 - 14:00	0	0	0	0.0
14:00 - 14:15	0	0	0	0.0
14:15 - 14:30	0	0	0	0.0
14:30 - 14:45	0	0	0	0.0
14:45 - 15:00	0	0	0	0.0
15:00 - 15:15	0	0	0	0.0
15:15 - 15:30	0	0	0	0.0
15:30 - 15:45	0	0	0	0.0
15:45 - 16:00	0	0	0	0.0
16:00 - 16:15	0	0	0	0.0
16:15 - 16:30	0	0	0	0.0

Manual Classified Queue Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: WAPPING

Max Queue in 15 minute	LANE 1				LANE 2				LANE 3				LANE 4				LANE 5			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	10	0	55	0.0	15	0	82.5	0.0	12	0	66	0.0	16	0	88	0.0	13	0	71.5	0.0
7:45 - 8:00	15	0	82.5	0.0	19	1	119.5	5.0	23	0	126.5	0.0	17	0	93.5	0.0	15	0	82.5	0.0
8:00 - 8:15	17	0	93.5	0.0	17	0	93.5	0.0	20	2	140	9.1	15	1	97.5	6.3	10	0	55	0.0
8:15 - 8:30	27	2	178.5	6.9	19	0	104.5	0.0	22	0	121	0.0	16	0	88	0.0	10	0	55	0.0
8:30 - 8:45	18	1	114	5.3	24	1	147	4.0	18	0	99	0.0	16	0	88	0.0	12	0	66	0.0
8:45 - 9:00	20	0	110	0.0	20	0	110	0.0	21	0	115.5	0.0	14	0	77	0.0	10	0	55	0.0
9:00 - 9:15	18	0	99	0.0	17	0	93.5	0.0	21	0	115.5	0.0	16	0	88	0.0	10	0	55	0.0
9:15 - 9:30	13	0	71.5	0.0	12	1	81	7.7	19	1	119.5	5.0	16	0	88	0.0	12	0	66	0.0

16:30 - 16:45	14	0	77	0.0	18	0	99	0.0	23	1	141.5	4.2	12	0	66	0.0	10	0	55	0.0
16:45 - 17:00	17	0	93.5	0.0	22	0	121	0.0	19	0	104.5	0.0	16	0	88	0.0	15	0	82.5	0.0
17:00 - 17:15	20	0	110	0.0	24	0	132	0.0	17	0	93.5	0.0	19	1	119.5	5.0	10	0	55	0.0
17:15 - 17:30	19	0	104.5	0.0	20	0	110	0.0	27	0	148.5	0.0	16	1	103	5.9	19	2	134.5	9.5
17:30 - 17:45	15	0	82.5	0.0	18	0	99	0.0	24	2	162	7.7	16	0	88	0.0	13	0	71.5	0.0
17:45 - 18:00	19	0	104.5	0.0	16	0	88	0.0	21	0	115.5	0.0	16	0	88	0.0	10	0	55	0.0
18:00 - 18:15	16	0	88	0.0	17	0	93.5	0.0	19	1	119.5	5.0	16	0	88	0.0	14	0	77	0.0
18:15 - 18:30	10	0	55	0.0	15	0	82.5	0.0	11	0	60.5	0.0	10	0	55	0.0	6	0	33	0.0

DATE: SATURDAY 11th FEBRUARY 2017

12:30 - 12:45	8	0	44	0.0	12	0	66	0.0	17	0	93.5	0.0	7	0	38.5	0.0	10	0	55	0.0
12:45 - 13:00	16	0	88	0.0	11	0	60.5	0.0	17	1	108.5	5.6	12	0	66	0.0	10	0	55	0.0
13:00 - 13:15	21	0	115.5	0.0	19	0	104.5	0.0	16	2	118	11.1	11	0	60.5	0.0	14	0	77	0.0
13:15 - 13:30	19	0	104.5	0.0	15	0	82.5	0.0	14	0	77	0.0	15	0	82.5	0.0	12	0	66	0.0
13:30 - 13:45	17	0	93.5	0.0	16	0	88	0.0	18	0	99	0.0	13	0	71.5	0.0	10	0	55	0.0
13:45 - 14:00	16	0	88	0.0	18	0	99	0.0	18	0	99	0.0	10	0	55	0.0	12	1	81	7.7
14:00 - 14:15	17	0	93.5	0.0	17	0	93.5	0.0	16	1	103	5.9	11	0	60.5	0.0	10	0	55	0.0
14:15 - 14:30	16	0	88	0.0	16	0	88	0.0	14	0	77	0.0	8	0	44	0.0	10	1	70	9.1
14:30 - 14:45	19	0	104.5	0.0	16	0	88	0.0	17	0	93.5	0.0	5	0	27.5	0.0	11	0	60.5	0.0
14:45 - 15:00	13	0	71.5	0.0	15	0	82.5	0.0	15	1	97.5	6.3	5	1	42.5	16.7	5	1	42.5	16.7
15:00 - 15:15	10	0	55	0.0	13	0	71.5	0.0	12	1	81	7.7	5	0	27.5	0.0	5	0	27.5	0.0
15:15 - 15:30	13	0	71.5	0.0	14	0	77	0.0	17	0	93.5	0.0	4	0	22	0.0	5	0	27.5	0.0
15:30 - 15:45	16	0	88	0.0	15	0	82.5	0.0	14	0	77	0.0	8	0	44	0.0	11	1	75.5	8.3
15:45 - 16:00	17	0	93.5	0.0	14	0	77	0.0	13	0	71.5	0.0	8	0	44	0.0	12	0	66	0.0
16:00 - 16:15	20	0	110	0.0	17	0	93.5	0.0	16	0	88	0.0	10	0	55	0.0	12	0	66	0.0
16:15 - 16:30	20	0	110	0.0	17	0	93.5	0.0	14	0	77	0.0	14	0	77	0.0	11	0	60.5	0.0

Manual Classified Queue Counts, Liverpool

DATE: THURSDAY 9th FEBRUARY 2017

LOCATION: WAPPING / BLUNDELL STREET / CHARLONER STREET / QUEENS WHARF

ARM: BLUNDELL STREET

Max Queue in 15 minute	LANE 1			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	3	0	16.5	0.0
7:45 - 8:00	3	0	16.5	0.0
8:00 - 8:15	7	0	38.5	0.0
8:15 - 8:30	5	0	27.5	0.0
8:30 - 8:45	5	0	27.5	0.0
8:45 - 9:00	6	0	33	0.0
9:00 - 9:15	5	0	27.5	0.0
9:15 - 9:30	7	0	38.5	0.0

16:30 - 16:45	7	0	38.5	0.0
16:45 - 17:00	9	0	49.5	0.0
17:00 - 17:15	9	0	49.5	0.0
17:15 - 17:30	7	0	38.5	0.0
17:30 - 17:45	11	0	60.5	0.0
17:45 - 18:00	10	0	55	0.0
18:00 - 18:15	11	0	60.5	0.0
18:15 - 18:30	9	0	49.5	0.0

12:30 - 12:45	8	0	44	0.0
12:45 - 13:00	9	0	49.5	0.0
13:00 - 13:15	5	0	27.5	0.0
13:15 - 13:30	6	0	33	0.0
13:30 - 13:45	7	0	38.5	0.0
13:45 - 14:00	6	0	33	0.0
14:00 - 14:15	4	0	22	0.0
14:15 - 14:30	6	0	33	0.0
14:30 - 14:45	5	0	27.5	0.0
14:45 - 15:00	6	0	33	0.0
15:00 - 15:15	6	0	33	0.0
15:15 - 15:30	3	0	16.5	0.0
15:30 - 15:45	3	0	16.5	0.0
15:45 - 16:00	1	0	5.5	0.0
16:00 - 16:15	4	0	22	0.0
16:15 - 16:30	4	0	22	0.0

ARM: CHALONER STREET

Max Queue in 15 minute	LANE 1				LANE 2				LANE 3				LANE 4			
	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES	LIGHTS	HEAVIES	QUEUE LENGTH (M)	%AGE HEAVIES
7:30 - 7:45	19	0	104.5	0.0	15	1	97.5	6.3	10	0	55	0.0	6	0	33	0.0
7:45 - 8:00	25	0	137.5	0.0	26	2	173	7.1	20	0	110	0.0	7	0	38.5	0.0
8:00 - 8:15	28	2	184	6.7	25	0	137.5	0.0	13	1	86.5	7.1	6	0	33	0.0
8:15 - 8:30	24	0	132	0.0	19	0	104.5	0.0	21	0	115.5	0.0	9	0	49.5	0.0
8:30 - 8:45	25	1	152.5	3.8	17	0	93.5	0.0	20	0	110	0.0	5	0	27.5	0.0
8:45 - 9:00	20	0	110	0.0	27	0	148.5	0.0	30	0	165	0.0	5	0	27.5	0.0
9:00 - 9:15	17	1	108.5	5.6	29	0	159.5	0.0	17	0	93.5	0.0	3	0	16.5	0.0
9:15 - 9:30	18	0	99	0.0	22	0	121	0.0	16	1	103	5.9	3	0	16.5	0.0

16:30 - 16:45	17	1	108.5	5.6	21	0	115.5	0.0	16	0	88	0.0	7	0	38.5	0.0
16:45 - 17:00	18	0	99	0.0	21	0	115.5	0.0	10	0	55	0.0	9	0	49.5	0.0
17:00 - 17:15	25	1	152.5	3.8	20	0	110	0.0	17	0	93.5	0.0	9	0	49.5	0.0
17:15 - 17:30	35	0	192.5	0.0	26	0	143	0.0	19	0	104.5	0.0	6	0	33	0.0
17:30 - 17:45	24	0	132	0.0	29	0	159.5	0.0	22	1	136	4.3	7	0	38.5	0.0
17:45 - 18:00	19	0	104.5	0.0	19	0	104.5	0.0	21	0	115.5	0.0	6	0	33	0.0
18:00 - 18:15	12	1	81	7.7	16	0	88	0.0	16	0	88	0.0	5	0	27.5	0.0
18:15 - 18:30	13	0	71.5	0.0	12	0	66	0.0	14	0	77	0.0	5	0	27.5	0.0

12:30 - 12:45	16	0	88	0.0	13	0	71.5	0.0	18	0	99	0.0	7	0	38.5	0.0
12:45 - 13:00	20	1	125	4.8	11	0	60.5	0.0	14	0	77	0.0	4	0	22	0.0
13:00 - 13:15	17	0	93.5	0.0	18	0	99	0.0	13	0	71.5	0.0	6	0	33	0.0
13:15 - 13:30	15	0	82.5	0.0	17	0	93.5	0.0	14	0	77	0.0	6	0	33	0.0
13:30 - 13:45	17	0	93.5	0.0	15	2	112.5	11.8	17	0	93.5	0.0	4	0	22	0.0
13:45 - 14:00	16	0	88	0.0	14	0	77	0.0	13	0	71.5	0.0	6	0	33	0.0
14:00 - 14:15	15	0	82.5	0.0	18	0	99	0.0	14	0	77	0.0	7	0	38.5	0.0
14:15 - 14:30	19	0	104.5	0.0	16	0	88	0.0	12	0	66	0.0	4	0	22	0.0
14:30 - 14:45	14	0	77	0.0	16	0	88	0.0	15	0	82.5	0.0	6	0	33	0.0
14:45 - 15:00	13	0	71.5	0.0	15	1	97.5	6.3	15	0	82.5	0.0	3	0	16.5	0.0
15:00 - 15:15	15	0	82.5	0.0	14	0	77	0.0	17	0	93.5	0.0	7	0	38.5	0.0
15:15 - 15:30	13	0	71.5	0.0	12	1	81	7.7	16	0	88	0.0	4	0	22	0.0
15:30 - 15:45	10	0	55	0.0	15	0	82.5	0.0	13	0	71.5	0.0	3	0	16.5	0.0
15:45 - 16:00	13	0	71.5	0.0	12	1	81	7.7	15	0	82.5	0.0	6	0	33	0.0
16:00 - 16:15	7	0	38.5	0.0	14	0	77	0.0	13	0	71.5	0.0	5	0	27.5	0.0
16:15 - 16:30	7	0	38.5	0.0	13	0	71.5	0.0	16	0	88	0.0	7	0	38.5	0.0