ARUP

Kirklees Council

Kirklees Cultural Heart

Transport Assessment

Reference: CDT430201-ARP-XX-XX-RP-D-0001

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This report takes into account the particular instructions and requirements of our client. It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 284642-00

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Executive Summary

The proposals for the Kirklees Cultural Heart (KCH) comprises a new venue, museum, food hall and a 350 space multi-storey car park. The existing art gallery and library will be relocated within the scheme. New areas of open space and landscaping will also be provided to accommodate outdoor events (largely already occurring in and around the town centre) and to provide a safe and attractive environment for visitors.

The town centre is highly accessible by all modes of transport and the KCH scheme will improve connectivity through the delivery of the scheme and implementation of a site-wide Travel Plan.

The scheme proposes to enhance pedestrian and cycle connectivity with a network of pedestrian routes through the site, new active travel provision on the A62 Queensgate and a range of short and long stay cycle parking, all of which connect with existing routes surrounding the site.

The site benefits from access to a significant number of existing bus and rail services, providing excellent connections to local and regional destinations including Halifax, Bradford, Leeds and Manchester. Bus stops are located in the immediate vicinity of the site and the main bus and rail stations are within an approximate 5 to 10 minute walk.

As part of this Transport Assessment a detailed methodology to consider trips by all modes of transport has been used to assess access by sustainable modes and by vehicles. Assessment of the requirement for car parking and the development impact on the highway network has been undertaken.

The transport strategy seeks to utilise and maximise as much of the town centre's existing car parking infrastructure and provide the correct balance of parking on and off site. Therefore, the proposed new on-site car parking provision is designed to accommodate the KCH scheme parking demand relating to the majority of uses whilst relying on additional off-site parking provision (available in the town centre) to meet the demand for peak events. The highway assessment demonstrates that the forecast vehicle trips can be satisfactorily accommodated on the local highway network and the operation of the local highway network is not detrimentally affected.

An Events Management Plan will be developed in the subsequent project stages to set out how peak events at the venue and outdoor event space will be managed. This will consider the programming of events, parking availability, signing requirements and traffic management potentially required for management of peak events. Details of the Construction Environmental Management Plan will also be developed prior to construction.

The scheme has been developed in accordance with national and local transport planning policy and based on the findings of this Transport Assessment, it is considered that the impacts of the proposed development are considered to be acceptable in transport terms.

1. Introduction

Ove Arup and Partners Ltd (Arup) has been commissioned by Kirklees Metropolitan Borough Council (Kirklees Council) to prepare this Transport Assessment (TA) to accompany the planning application for the proposed Kirklees Cultural Heart (KCH) scheme in Huddersfield town centre.

The proposed development comprises a new venue, museum and food hall and relocation of the existing art gallery and library within the scheme. The development includes public realm and park to provide an outdoor event space as well as a new 350 space multi-storey car park. The full planning description is set out below:

Demolition of the existing Piazza shopping centre, part removal of elements of Queensgate Market, and demolition/retention of service tunnels; with redevelopment of the site to form new public realm space (including public park and gardens, play areas, public square/outdoor event space); refurbishment and change of use of existing Queensgate Market Hall into new food hall (Use Class E (b) Sale of food and drink for consumption, mostly, on the premises); refurbishment and extension of existing library and art gallery building to form a new museum (Use Class F.1); change of use of part existing market hall building and extension to form a new public library (Use Class F.1); construction of new indoor event venue incorporating multi-storey car park below (Sui-Generis); erection of new public gallery building (Class F.2); and associated infrastructure on land and buildings at Queensgate Market, Huddersfield Library and Art Gallery, and Piazza (and The Shambles) Shopping Centre, Huddersfield

1.1 Scope of Assessment

This TA has been produced in line with the Department for Transport (DfT) Guidance on Transport Assessments. Although this guidance has been archived it has not been replaced and remains valid. The purpose of this TA is to describe the existing transport conditions near the Site and assess the suitability of the proposed Development from a transport perspective.

The scope of the TA has been discussed and agreed with Kirklees Council Highways Development Management and is based on the TA Scoping Report, dated 28th April 2022 and additional Transport Technical Note, dated 14th July 2022.

Throughout the design period, a number of meetings have been held with the Local Planning Authority (LPA) during which various transport topics have been discussed. The following meetings/telecons have been held to discuss the design principles and transport assessment in more detail:

- 16th March 2022 – Kirklees Council Highways presentation of car park access options and seek feedback
- 28th April 2022 - Kirklees Council Transport Strategy meeting to discuss sustainable transport policy and principles for the scheme
- 24th June 2022 – Kirklees Council Highways to present developing transport and access principles and seek feedback.
- 1st July 2022 – Kirklees Council Highway Development Management meeting to discuss highway access options and assessment methodology
- 25th July 2022 – Kirklees Council Highway Development Management meeting to discuss the TA Scoping Report and agree the assessment methodology
- 2nd August 2022 – Kirklees Council Highways meeting to present initial traffic modelling findings and access strategy for other modes and for officers to provide feedback

1.2 Structure of the Report

Following this introduction, the TA report sets out the following:

- Chapter 2 describes the existing site and surrounding transport networks
- Chapter 3 describes the national and local transport policy context under which this proposal has been developed
- Chapter 4 describes the proposed development
- Chapter 5 outlines the forecast trip generation for the proposed development
- Chapter 6 assesses the sustainable travel accessibility of the proposed development
- Chapter 7 provides the parking assessment of the proposed development
- Chapter 8 provides the highway assessment of the proposed development
- Chapter 9 considers the potential construction impact, and
- Chapter 10 provides a summary and conclusions to the assessment

2. Existing Situation

2.1 Site Location

The KCH scheme site is located to the southeast of the town centre core within the Ring Road (A62 Castlegate / Queensgate / Southgate). The site is bounded by the vehicular routes of A62 Queensgate to the south east, Queen Street to the east, Peel Street and Alfred Street to the west, and the pedestrianised routes of King Street to the north and Victoria Lane to the west. The general KCH site location is shown in Figure 1 below with the redline boundary provided as part of the Masterplan drawings in the appendices.

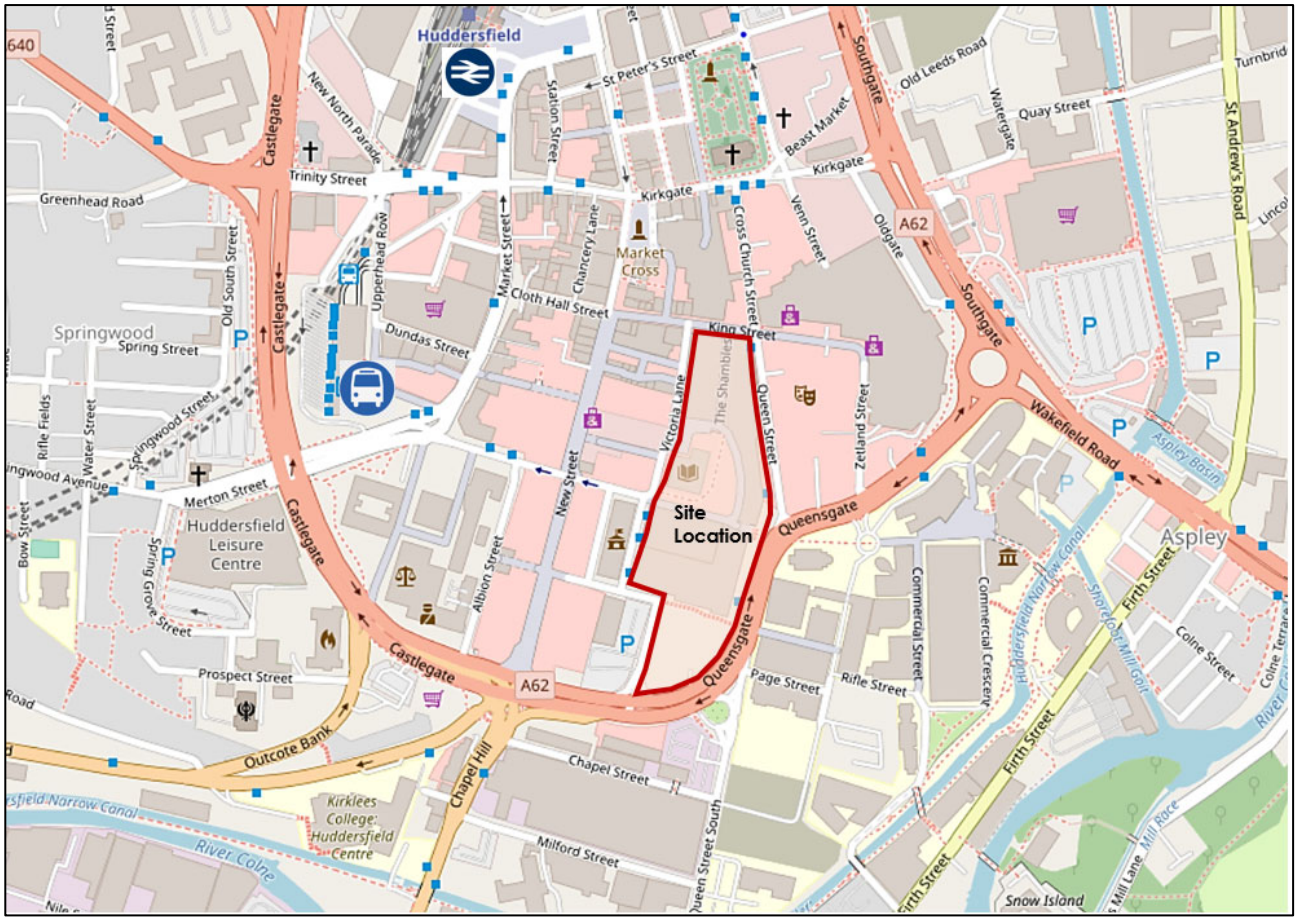


Figure 1: General KCH Site Location

The existing site is currently occupied by the Piazza Shopping Centre, Market Hall, Huddersfield Library and Art Gallery. There are a few small shops and an area of open space public realm fronting the entrance to the library and art gallery. The recently demolished multi-story car park is also located within the footprint of the scheme.

2.2 Surrounding Land Use

The KCH scheme site is located within the core of the town centre surrounded by town centre retail and cultural uses including the Kingsgate shopping centre, Town Hall, Lawrence Batley Theatre, Kirklees Council offices and Civic Centre.

2.3 Strategic Road Network

Several radial routes converge onto Huddersfield town centre's Ring Road. The radial routes include A616 Chapel Hill, Manchester Rd, A640 Trinity Street, A629 New N Road, A641 Bradford Road, A62 Leeds Road and A629 Wakefield Road. These provide access to the strategic road network, including to the M62 which runs in an east west direction approximately 4km north of Huddersfield for connections west to Manchester and north east to Leeds and Bradford.

2.4 Local Highways Network

Huddersfield town centre sits within in the A62 ring road with a number of radial routes providing connections to the surrounding area and strategic road network and local routes providing access into the town centre. Vehicular access to the town centre is limited with access provided from the ring road to car parks but through movements generally restricted, except for buses and taxis.

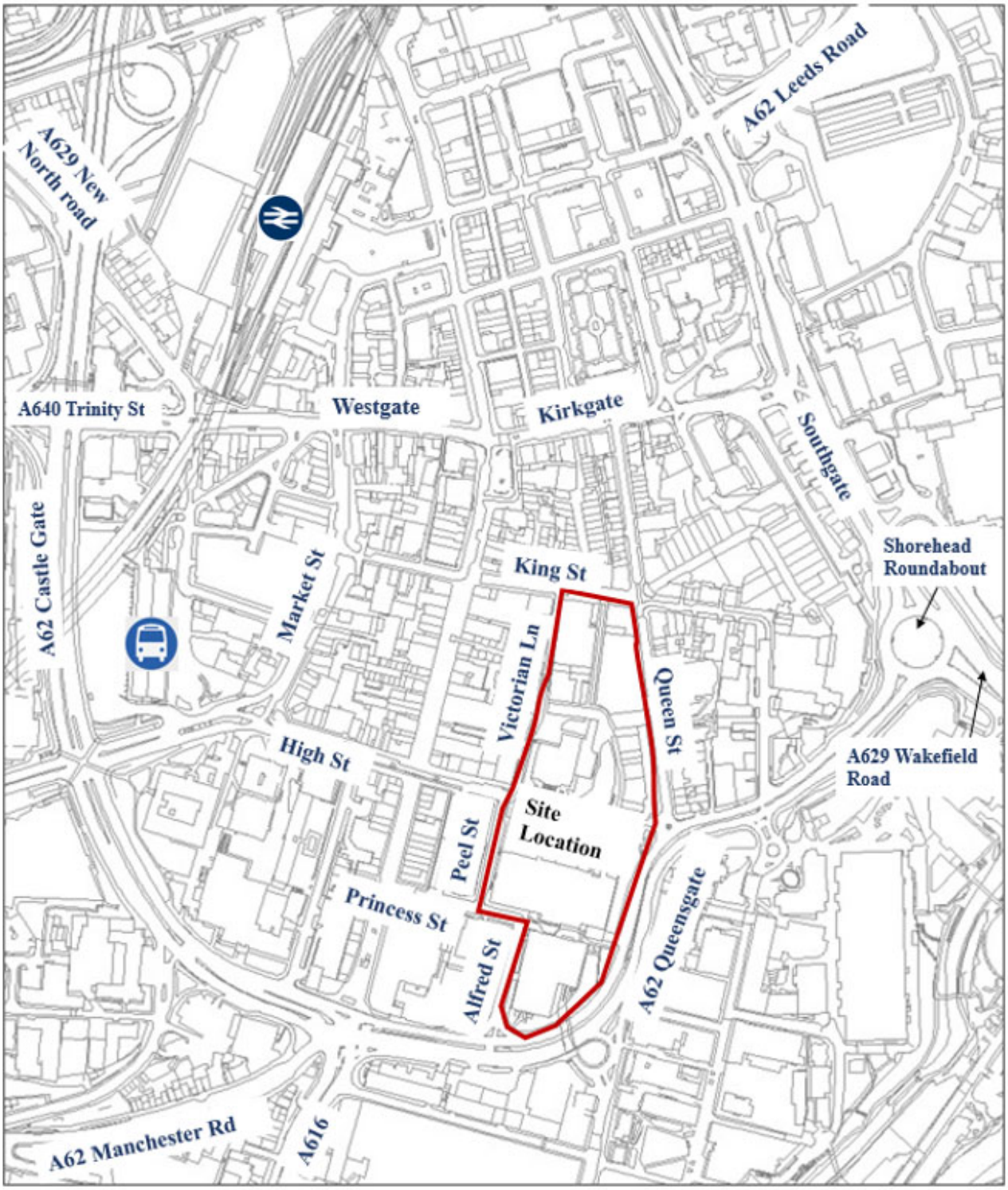


Figure 2: Local Highway Network

A summary of the key highway links in the vicinity of the site are provided below and illustrated on Figure 2.

2.4.1 Key Links

A62 Queensgate

The A62 Queensgate forms part of the ring road surrounding Huddersfield town centre. Along the south eastern site boundary, the A62 is a wide dual carriage way with two lanes of traffic in each direction widening to three lanes at key junctions. A shared route for cyclists and pedestrians is provided on the northern side of the carriageway and street lighting provided throughout the ring road. A 30mph speed limit applies with double yellow line 'no waiting' restrictions in place along this section of the ring road.

Queen Street / Queen Street South

Queen Street runs in an approximate north south direction forming the eastern site boundary and connects with A62 Queensgate via a left in left out junction. Queen Street is a two-way single carriageway road with narrow footways on either side of the road. It is a straight road with good lighting and a speed limit of 20mph. On street parking, taxi ranks and bus stops are provided along Queens Street. Queens Street South runs in a north south direction to the south of the ring road. A roundabout and subway link under the ring road provided access to the former Markets Car Park, however the route has now been closed as the car park has been demolished.

Alfred Street

To the west of the site, the A62 Queensgate connects to Alfred Street via a traffic signal controlled junction which allows all movements except for the westbound right turn into Alfred Street. Alfred Street is a two-way single carriageway with 20mph speed limit, footways and street lighting. Alfred Street provides access to the adjacent Town Hall (Wilko) car park and further connects to Princess Street and Peel Street to the north. It is a key route for buses heading out of the town centre.

Peel Street

Peel Street accommodates one way traffic in a southbound direction and forms half of the western site boundary. Peel Street is a single carriageway road with 20mph speed limit and has wide footways on both sides of the road. Peel Street is a busy bus route with bus bays along its full length and three bus stops located on the eastern side.

Princess Street

Princess Street is a two-way single carriage way which runs in an east west direction connecting Alfred Street and Peel Street. Princess Street has footways, streetlighting and is subject to 20mph speed limit.

2.4.2 Key Junctions

Key junctions in the vicinity of the site include

Shorehead Roundabout

Shorehead Roundabout provides a three arm junction of A62 Southgate, A62 Queensgate and A629 Wakefield Road forming a key junction of the Ring Road to the south east of the town centre. All approaches are two lane dual carriageways which widen to three or four lanes at the junction and include traffic signal controls.

A62 Queensgate / Zetland Street / University Road

The A62 Queensgate / Zetland Street junction provides a three arm traffic signal control with all movements accommodated except for the westbound right turn from Queensgate into Zetland Street. Immediately opposite Zetland Street a left-in left-out priority junction provides access to the University via the westbound Queensgate carriageway.

A62 Queensgate / Queen Street

A three arm priority junction enables left-in and left-out movements between the A62 Queensgate eastbound carriageway and Queen Street to the north.

A62 Queensgate / Queen Street South

From the A62 Queensgate westbound carriageway a slip road provides access to Queen Street South and roundabout to the south of the ring road for subway access to the former MSCP located at the southern extents of the KCH site (now closed). A left-out priority junction is provided on to A62 Queensgate westbound carriageway from the former car park egress and Queen Street South.

A62 Queensgate / Alfred Street

The A62 Queensgate / Alfred Street junction provides a three arm traffic signal control junction with all movements accommodated except for the westbound right turn from Queensgate into Alfred Street.

A62 Castlegate / A62 Queensgate / A616 Chapel Hill / A62 Manchester Road

The traffic signal control junction of A62 Castlegate / A62 Queensgate / A616 Chapel Hill / A62 Manchester Road provides a key junction on the ring road for strategic connections to the south of Huddersfield. All approach roads, except Manchester Road, are dual carriageway, widening from two lane approaches to three or four lanes at the junction.

2.4.3 Traffic Data

Fully classified junction turning counts at all junctions within the model extents were undertaken on Thursday 23rd June 2022 (AM 07:00-10:00hrs, PM 16:00-22:00hrs) and Saturday 25th June 2022 (11:00-14:00hrs). In addition, classified link flows were collected on A62 Queensgate from Tuesday 21st June to Monday 4th July inclusive to provide 24 hourly flows through this period.

A review of the traffic data identified the AM and PM weekday peak periods and the Saturday peak periods. The traffic data and analysis is provided at Appendix A and confirms the network peak periods as weekday AM 08:00-09:00hrs, PM 16:00-18:00hrs and Saturday 12:00-15:00hrs.

The data indicates the total two-way traffic flows on the A62 Queensgate immediately adjacent to the site are approx. 2200 during the AM peak hour, 2300 during the PM peak hour and 2400 during the Saturday peak hour.

2.4.4 Highway Safety

A review of personal injury accident data has been undertaken using DfT information from www.Crashmap.co.uk for the latest available five-year period (verified data up to 2021). The extent of the study area is shown below and a summary of the accidents that have occurred during the study period is shown in Table 1.

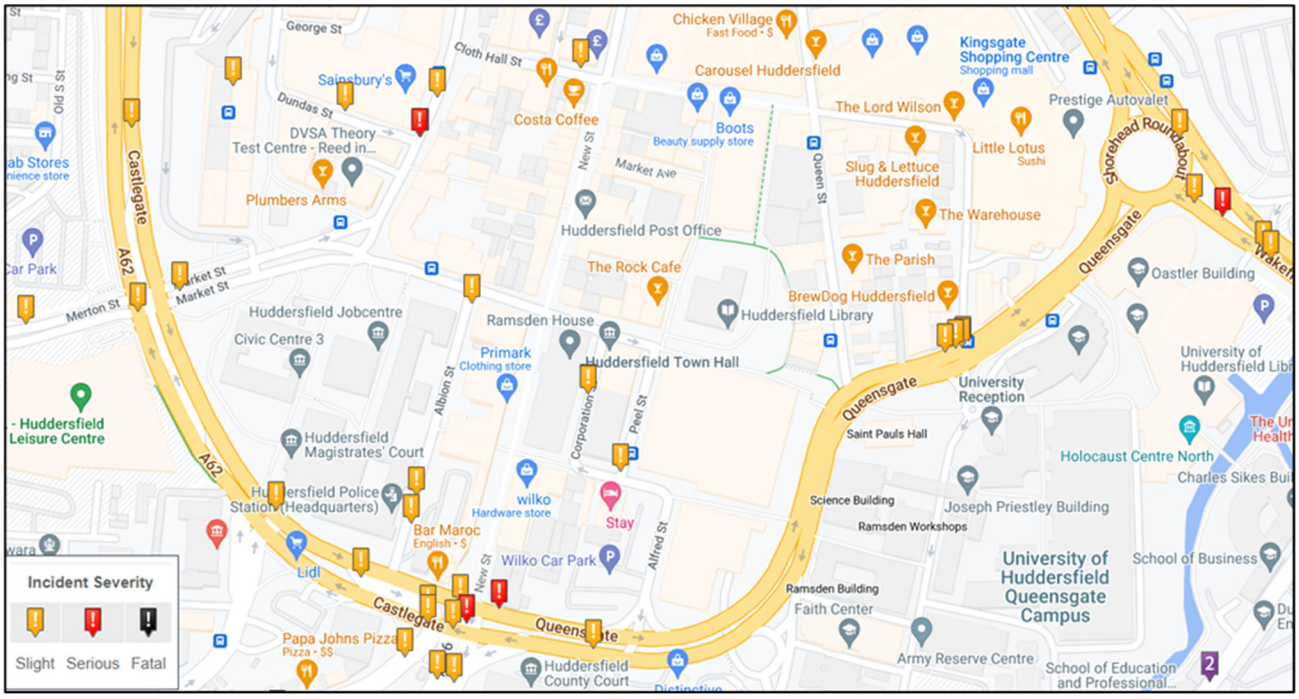


Figure 3: Map Showing Accident Location by Severity

Table 1: Summary of Accident Data

Severity	2017	2018	2019	2020	2021
Fatal	0	0	0	0	0
Serious	0	0	2	1	0
Slight	4	12	1	0	2
Total	**4**	**12**	**3**	**1**	**2**

The results of the analysis indicate that a total of 22 accidents have occurred in the study area in the latest five year period. It should be noted that year 2018 recorded the maximum number of accidents. Over the period of five years, there were two accidents resulting in serious injury in 2019 and one in 2020 with all others resulting in slight injuries.

A total of five accidents occurred at the Shorehead Roundabout signal junction, one of which resulted in serious injury and the remainder with slight injuries. The serious injury accident occurred in 2019 however did not include any pedestrians, motorcycle, or cycle casualties. Four of these accidents occurred at the Wakefield Road approach – occurring in 2018, 2019 and 2021. Cycle causalities were involved in the slight injury accident in 2019. An accident resulting in slight injury also occurred in the circulatory arm where the circulatory arm meets the Wakefield Road exit.

Four accidents occurred at the Queensgate / Zetland Road signal junction (all four vehicles travelling in eastbound direction). Of these, three accidents occurred in 2018 and one accident in 2017. No serious injury accidents or accidents involving pedestrians, motorcycles or cycles were recorded.

One accident occurred at the crossing on Queensgate / Alfred Street resulting in slight injury in 2018.

A total of 10 accidents occurred at the A62 Queensgate / Manchester Road / A616 Chapel Hill signal junction. Of these, two accidents resulted in serious injuries (in 2019 and 2020) with one accident involved injury to a cyclist. The remaining accidents resulted in slight injuries (five accidents occurred in 2018, two in 2017 and one in 2021). There were no slight injury accidents in the year 2020. None of these slight injury accidents involved any pedestrian, motorcycle or cycle injuries.

One accident occurred at the crossing on A62 Queensgate / Outcote Bank resulting in slight injury in 2018.

The findings of the highway safety review have not identified any highway safety issues in the vicinity of the site that raised concerns. There are some clusters of accidents at junctions, as would be expected, but in general the number of accidents over a five year period is considered low. As such, it is not considered that there are any road safety issues on the local highway network that are likely to be exacerbated by the development proposals.

2.5 Public Transport Provision

The public transport networks servicing the site are summarised below. Figure 1 above shows the location of the rail station, bus station and majority of bus stops (blue squares) within the town centre.

2.5.1 Bus Services

Huddersfield bus station is located at Upperhead Row / Market Street approx. 350m west of the KCH site between Market Street and the Ring Road (A62 Castlegate) with vehicular access via Westgate / Henry Street and egress on to Market Street. The main pedestrian routes to the site are via High Street / Ramsden Street or King Street / Dundas Street which provide access to a significant number of local and regional services within an approximate 5 minute walk.

A number of key bus routes operate in the town centre in the vicinity of the KCH site, including the Westgate / Kirkgate eastbound route, the Market Street northbound route, the High Street / Ramsden Street / Peel Street / Alfred Street southeast bound route and Queen Street northbound route. Within the town centre, routes including High Street and Westgate are restricted to general traffic to improve access for buses.

In the vicinity of the site, the nearest bus stops are located along Peel Street, Queensgate and Queens Street. The bus stops in the vicinity of the site are described below.

- Peel Street (stops H2a, H3, H4) – the extents of Peel Street provides three southbound bus stops with six marked bays on the carriageway. At H3 and H4 shelters, bench seating and timetable information are provided. A pole with timetable information is provided at stop H2a for the Free Town Bus (FTB). Approximately 30 buses per hour stop on Peel Street during daytime hours.
- Queensgate (stop Q1) – a layby is provided on the eastbound carriageway with pole and timetable information only. Approximately 4-5 buses per hour stop on Queensgate during daytime hours.
- Queen Street – (stop C1, C2) – northbound stops are marked on carriageway and provide raised kerbs, a pole and timetable information for the Free Town Bus only.

The Free Town Buses provides a town centre loop including the rail station, bus station and Kingsgate Shopping Centre. It runs from Mondays to Saturdays from approximately 9:30hrs to 15:00hrs at an approximate 20 minute frequency. In the vicinity of the site, the FTB stops on Peel Street and Queen Street

Table 2 below summarises local bus services showing destinations and approximate frequencies.

Table 2: Local Bus service

Service No.	Operator	Route	Closest Stop(s) Location	Frequency (mins)		
				Daytime M-F (per hr)	Evening (per hr)	Saturday (per hr)
181	First	Huddersfield - Wilberlee	H3	1		1
183	First	Huddersfield - Marsden Hard End	H3	1		1
185	First	Huddersfield - Marsden Dirker	H3	1		1
261	Arriva	Huddersfield - Cleckheaton	H3	2		2
262	Team Pennine	Huddersfield - Kirkheaton	H3	1		1
341	Ctplus	Huddersfield – Stocksmoor	H3	6 per day	1 service	6 per day
342	First	Huddersfield – Almondbury	H3	1	-	1
354	Ctplus	Huddersfield – Berry Brow - South Crosland	H3	4 per day		4 per day
355	Ctplus	Huddersfield – Netherton – South Crosland	H3	2 per day		2 per day
358	Team Pennine	Huddersfield - Ashenhurst	H3	4 per day		-
374	Ctplus	Huddersfield - Dalton	H3	4 per day		4 per day
375	Ctplus	Huddersfield – Dalton – Woodedge Avenue	H3	4 per day		4 per day
387	First	Huddersfield - Beaumont Park Circular	H3	1		1
393	Stotts coaches	Huddersfield –Blackmoorfoot	H3	1		1
306	First	Huddersfield - Taylor Hill Circular	H4	3	1	2
308	First	Huddersfield - Holmfirth	H4	2	1	1
310	First	Huddersfield - Hepworth	H4	2		1
314	First	Huddersfield - Holme	H4	1		1
315	South Pennine Community	Huddersfield - Honley	H4	3 per day		-
316	First	Huddersfield - Parkhead	H4	1	1	1

Service No.	Operator	Route	Closest Stop(s) Location	Frequency (mins)		
				Daytime M-F (per hr)	Evening (per hr)	Saturday (per hr)
319	Team pennine	Huddersfield – Newsome & Berrry Brow	H4	3		3
321	Team pennine	Huddersfield – Netherton & Meltham	H4	2 per day		-
323	First	Huddersfield - Marten Nest Circular	H4	7 per day		5 per day
324	First	Huddersfield - Meltham	H4	4	1	4

2.5.2 Rail Services

Huddersfield Rail Station is located to the northwest of the town centre at St George's Square, approximately 500m northwest of the site as shown on Figures 1 and 2. This provides access to a range of local, regional and national rail services, including frequent services to Leeds, Manchester, Hull, Sheffield, Newcastle, Liverpool and Bradford. The table below provides a summary of the key destinations and service frequencies.

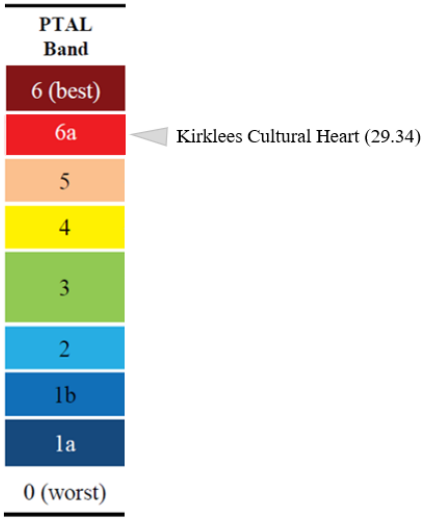
Table 3: Rail Services

Rail company	Destinations and approx. Frequency
TransPennine Express	Hourly to Leeds
Northern	Hourly to Bradford Interchange
TransPennine Express	Hourly to Redcar Central via York**
TransPennine Express	3/hr to Manchester and 1/hr extends to Manchester Airport
TransPennine Express	Hourly to Manchester Airport
TransPennine Express	Hourly to Hull**
Northern	Hourly to Sheffield
TransPennine Express	Hourly to Newcastle**
TransPennine Express	Hourly to Liverpool

**trains pass through Leeds adding to frequency of services to Leeds

2.6 Accessibility Index

To demonstrate the public transport accessibility of the site, a Public Transport Accessibility Level (PTAL) score has been calculated for the site area. This is based on the BREEAM UK methodology and considers the distance to public transport nodes (bus stops, bus station, rail station) and frequency of services available. An Accessibility Index score of 29.34 is achieved for the Kirklees Cultural Heart scheme which represents a very high level of access to public transport services as illustrated on the diagram below. Details of the PTAL calculation are provided at Appendix B.



2.7 Cycling Facilities

A number of cycle routes through the town centre are identified in the Huddersfield Cycle Map, updated in 2020. An extract of the map covering the town centre is provided in Figure 4 below.

Huddersfield has a number of recommended cycle routes that provide good access within the town centre. Major cycle routes are designated along several key links near the site including:

- Advisory cycle routes along High Street, Peel Street and Alfred Street including contra flow Cycle Lane provision on High Street
- Segregated path adjacent to Queensgate to the southeast of the site (traffic free path) connecting to Queens Street (Signed cycle route)
- Signed cycle route on Queen Street and Westgate / Kirkgate
- Advisory cycle routes on Market Street, High Street and Dundas Street.

Toucan crossings are provided on A62 Queensgate to the south east of the site and on Market Street.

Cycle parking facilities are located at a number of locations throughout the town centre and close to the site, as shown on the map below.

Figure 4: Cycle Map – Huddersfield Town Centre Extract (Source: Kirklees Council)

2.8 Pedestrian Facilities

Due to the town centre location, the pedestrian infrastructure in the vicinity of the proposed development is generally of a high quality. Wide footways are provided with a range of crossing provision including dropped kerbs at town centre junctions and pedestrian crossing at traffic signal control junctions. To the south east of the site, two signalised crossings are provided over the ring road.

In the vicinity of the site, New Street, King Street and Victoria Lane are all pedestrianised, with permit and loading access from 16:00-10:00hrs.

On the north western boundary of the site, the pedestrianised Victorian Lane connects Kings Street to Market Street for access to the Bus Station to the west, the Rail Station to the north west and Kingsgate Shopping Centre to the east. To the south of Victoria Lane, High Street has wide footways providing good connections with New lane and Market Street. The pedestrian areas use a range of materials including paving stones and brick. Lighting is provided as well as a range of street furniture including seating and planting.

Throughout the town, tactile paving and dropped kerbs facilitate access for mobility impaired users and those with buggies. Audible and tactile features are provided at pedestrian crossings for users with visual impairments.

2.9 Active Travel Improvements

Kirklees Council have plans to provide improved pedestrian and cycle infrastructure through a number of schemes throughout Huddersfield. Works are currently underway to implement a scheme along the A62 Leeds Road corridor to the north east of the town. Additional schemes include future works to A62 Queensgate and Queen Street which will be developed alongside the proposed KCH scheme access proposals.

2.10 Access to Amenities

Table 4 below provides a summary of amenities and their proximity to the KCH site. Individual amenities have been identified but where there are multiple amenities in close proximity, these have been grouped together. Overall, there is good access to amenities to/from the site. As identified, there is a large range of amenities within the town centre and located within 500m of the site, however some amenities such as outdoor open space and school and GP provision are located slightly further from the site.

Table 4: Amenities within 500m of the site

Amenities	Provision	Distance (m)
Appropriate food outlet	Multiple outlets at Kings St	170
	The Rock Café	40
	Café Society	27
Access to cash	Sainsbury's Bank ATM Market St	300
	Sainsbury's Bank ATM Southgate	500
Access to an outdoor open space	Greenhead Park	950
Access to a recreation or leisure facility for fitness or sports	KAL Huddersfield Leisure Centre	500
	HD1 Fitness Clinic Ltd	600
Publicly available postal facility	Huddersfield Post Office	170
Community facility	Huddersfield Art Gallery	74
	DAI Hall	150
Over the counter services associated with a pharmacy	Huddersfield Pharmacy	270
Public sector GP surgery or general medical centre	The Whitehouse Centre	850
	University Health Centre	750
Childcare facility or school	Spring Grove Junior Infant & Nursery School	700

3. Transport Planning Policy

The proposed KCH site has been developed in line with local and national transport planning policy.

3.1 National Policy

National Planning Policy Framework (NPPF), July 2021 states that development should support economic growth in order to create jobs and prosperity, building on the country's inherent strengths.

Section 9 of the NPFF discusses the important role that transport plays in facilitating sustainable development and contributing towards wider sustainability and health objectives. *Transport issues should be considered from the earliest stages of plan-making and development proposals.*

Section 9 discusses how development should promote sustainable transport. Paragraph 113 states that "*All developments that will generate significant amounts of movement should be required to provide a travel plan, and the application should be supported by a transport statement or transport assessment so that the likely impacts of the proposal can be assessed*".

The KCH site is located in Huddersfield town centre in a location highly accessible by sustainable modes of transport. The main bus and rail stations are located within a few minutes walk and the site will connect with the surrounding walking and cycling networks. Sustainable travel will be promoted through the site's Travel Plan and this Transport Assessment is prepared, in accordance with NPPF, to assess the transport impacts of the scheme.

3.2 Local Policy

3.2.1 West Yorkshire Transport Strategy (2017)

The West Yorkshire Transport Strategy 2040 sets out ambitions for a transport system that serves the needs of businesses and residents as well as enhancing prosperity, health and wellbeing for people and places across West Yorkshire. It also takes into account the necessity to provide 21st Century infrastructure that will support the City Region to grow and compete globally. The Transport Strategy 2040 vision is "*To enhance business success and people's lives by providing modern, world-class, well-connected transport that makes travel around West Yorkshire easy and reliable.*" The key objectives to realise this ambition are:

- Economy: Create a more reliable, less congested, better connected transport network.
- Environment: Have a positive impact on our built and natural environment.
- People and place: Put people first to create a strong sense of place

There are six core themes and ambitions:

- Inclusive Growth, Environment, Health and Wellbeing - connect people to better living standards and higher earning jobs, and to significantly improve the health, overall wellbeing and environment of the people living and working here
- Road network - an efficient, safe and reliable road network for all users, that creates new opportunities for jobs and housing
- Places to live and work - for West Yorkshire to be known for the quality and liveability of its places
- One System Public Transport - for a world-class public transport system that connects different modes of transport seamlessly into one comprehensive easy-to-use network
- Smart futures - to make best use of advancements in technology across all of our transport networks
- Asset management and resilience - to ensure we make best use of our existing and future transport assets

The KCH scheme will provide an exciting new destination within the town centre, creating an attractive environment for visitors and adding to the local economy. New highway proposals will be designed to provide a safe and efficient network and access to public transport will be included.

3.2.2 West Yorkshire Local Transport Plan (2011)

The Third West Yorkshire Local Transport Plan, 'My Journey', runs from 2011 to 2026. 'MyJourney' has three main objectives:

- Economy: To improve connectivity to support economic activity and growth in West Yorkshire and the Leeds City Region
- Low Carbon: To make substantial progress towards a low carbon, sustainable transport system for West Yorkshire, while recognising transport's contribution to national carbon reduction plans
- Quality of Life: To enhance the quality of life of people living in, working in and visiting West Yorkshire.

The Plan sets out to tackle congestion and a lack of transport investment which are key contributory factors to lower than average economic performance in West Yorkshire. It also aims to prepare for the predicted, post-recession growth in employment, population and housing and their impact on the reliability of the transport network. Four themes run through LTP3 to help ensure it achieves its aims:

- Transport Assets: focusing on the existing components of the transport network such as roads, bus stations and stops and traffic lights to ensure we are getting the most value out of them
- Travel Choices: enabling customers to make the most sustainable choices about when and how they travel
- Connectivity: ensuring people can make integrated and safe journeys using transport networks on which they can rely
- Enhancements: improving the overall network to make it more fit for journeys in the future.

LTP3 also concentrates on ensuring equality and safety, improving the county's natural and built environment, appropriate decision-making processes.

The proposed KCH scheme is located in Huddersfield town centre in a highly accessible location utilising existing transport networks and giving visitors a range of transport choices. It will be in accordance with the three main objectives supporting economic activity, promoting sustainable transport and improving quality of life.

3.2.3 Kirklees Local Plan

The Kirklees Local Plan, Strategy and Policies was adopted in February 2019. It sets out the strategy for development across the district for the time period between 2013 to 2031.

The Local Plan presents a number of policies in relation to transport, parking, infrastructure and sustainable travel. Brief extracts from the policies and commentary on how the KCH scheme accords with it are provided below:

- Strategic Policy LP19: Strategic Transport Infrastructure – "*The ability to move goods and people is particularly important given the district's strategic position on the national motorway and rail networks…The aim is to achieve balanced and integrated transport network which makes the most efficient and effective use of road, rail and public transport*". The KCH scheme is located in Huddersfield town centre and access proposals have been developed to provide safe and convenient access directly on to the ring road which connects with the strategic road network. The site is located within a short walk of the rail station for convenient access to the core rail network
- Strategic Policy LP20: Sustainable Travel – "*New development will be located in accordance with the spatial development strategy to ensure the need to travel is reduced and that essential travel needs can be met by forms of sustainable transport other than the private car. The council will support development proposals that can be served by alternative modes of transport such as public*

transport, cycling and walking…" The KCH scheme is located in the town centre providing access to a range of sustainable transport choices. A Travel Plan has been prepared to promote access by sustainable modes of transport, rather than the private car. Cycle parking and electric vehicle charging within the car park will encourage the use of low emission vehicles.

- Strategic Policy LP21: Highways and Access – "*Proposals shall demonstrate that they can accommodate sustainable modes of transport and be accessed effectively and safely by all users. New development will normally be permitted where safe and suitable access to the site can be achieved for all people and where the residual cumulative impacts of development are not severe. Proposals shall demonstrate adequate information and mitigation measures to avoid a detrimental impact on highway safety and the local highway network*". In accordance with Policy LP21, this Transport Assessment has been prepared to demonstrate suitable highway access proposals and access by sustainable modes of travel. New access proposals have been developed to ensure safe and efficient traffic flows on the local highway network, in particular, the ring road. Access proposals consider how service vehicles, refuse vehicles and emergency services will access the site.

- Strategic Policy LP22: Parking – this policy identifies a number of principles, including "*in town, district and local centres, car parks close to the main shopping area will be for short-stay use and peripheral car parks for long stay use; … provision of private non-residential parking in town centres will not be permitted unless it can be demonstrated that it is required for operational reasons; …. provision will be made to meet the needs of cyclists for cycling parking in new developments; …provision will be made to accommodate the needs of disabled people for the parking of vehicles*". A car parking assessment has been undertaken to consider the requirement for car parking to serve the KCH scheme. Based on the scheme requirements and the future availability of existing town centre parking, a new MSCP is proposed with disabled parking provision and electric vehicle charging. A range of long and short stay cycle parking will be provided for both staff and visitors. This Transport Assessment provides more detail of proposals and assessment, and car parking will be considered as part of an Events Management Plan to be developed as the scheme progresses.

- Strategic Policy LP23: Core Walking and Cycling Network – "*The core walking and cycling network as shown on the Policies Map will provide an integrated system of cycle routes, public footpaths and bridleways that provide opportunity for alternative sustainable means of travel throughout the district and provide efficient links to urban centres and sites allocated for development in the Local Plan… Proposals shall seek to integrate into existing and proposed cycling and walking routes*". The KCH scheme incorporates Kirklees Council proposals for improved walking and cycling infrastructure along the A62 Queensgate and the scheme provides access to town centre walking and cycling routes for connections to the wider networks to enable staff and visitors to access the site by foot or cycle.

4. Proposed Cultural Heart Development

The KCH scheme planning description is provided below with the full description of the proposed development included in the Planning Statement which accompanies the planning application.

Demolition of the existing Piazza shopping centre, part removal of elements of Queensgate Market, and demolition/retention of service tunnels; with redevelopment of the site to form new public realm space (including public park and gardens, play areas, public square/outdoor event space); refurbishment and change of use of existing Queensgate Market Hall into new food hall (Use Class E (b) Sale of food and drink for consumption, mostly, on the premises); refurbishment and extension of existing library and art gallery building to form a new museum (Use Class F.1); change of use of part existing market hall building and extension to form a new public library (Use Class F.1); construction of new indoor event venue incorporating multi-storey car park below (Sui-Generis); erection of new public gallery building (Class F.2); and associated infrastructure on land and buildings at Queensgate Market, Huddersfield Library and Art Gallery, and Piazza (and The Shambles) Shopping Centre, Huddersfield

Construction of the proposed development is anticipated to commence in 2023 (following grant of planning permission) and be fully operational in early 2026.

4.1 KCH Development Proposals

The KCH scheme proposes to redevelop a significant part of the town centre to provide a mixture of leisure and recreational uses. The proposals comprise provision of a new venue, museum and food hall and retains and relocates the existing art gallery and library within the scheme. The scheme comprises:

- Museum = 5,726sqm GIA
- Art Gallery = 2,993sqm GIA
- Library (& Archive) = 4,784sqm GIA
- Venue = 7,705sqm GIA / 2,200 person maximum capacity
- Food Hall = 2,379sqm GIA
- Multi-Storey Car Park (MSCP) – 350 spaces
- Public Realm – flexible, inclusive, safe, green character, able to host up to 3,000 person event

The image below provides an extract of the masterplan with scheme drawings provided in Appendix C and more detail provided as part of the planning submission drawings and Design and Access Statement.

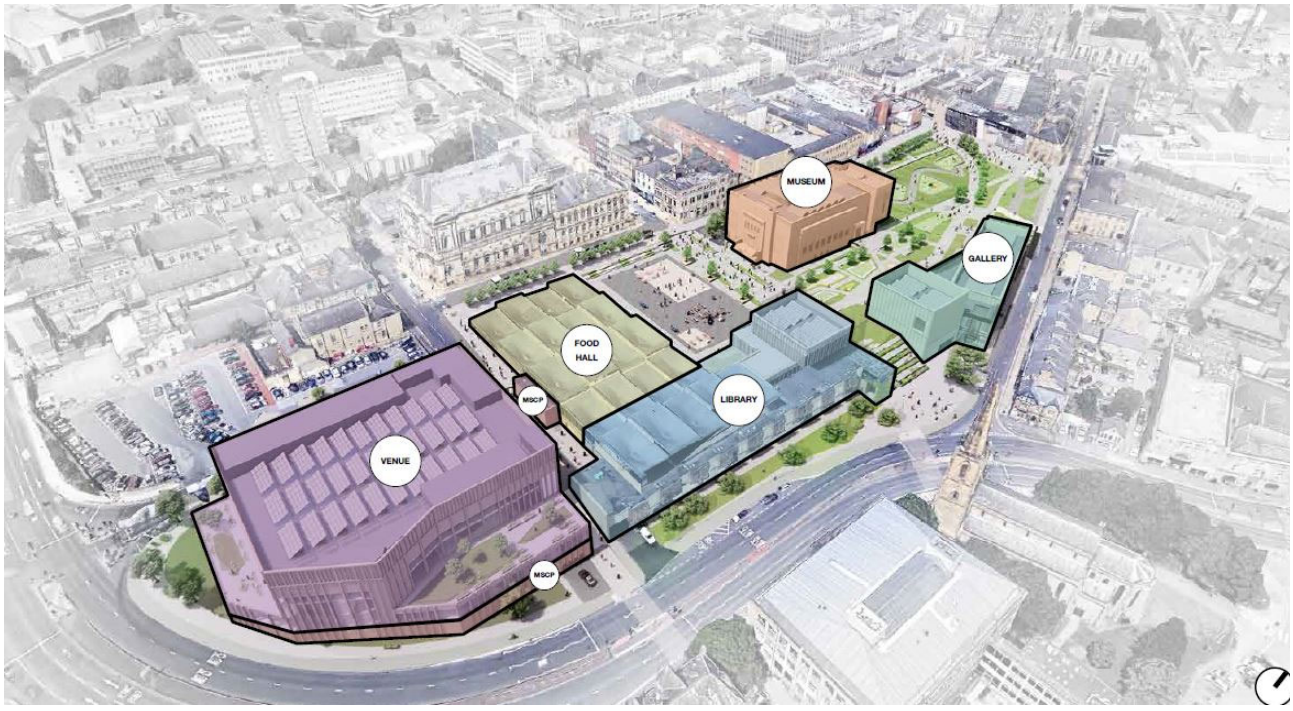


Figure 5: Site Masterplan (FCBS)

The proposed Venue and multi-storey car park (MSCP) are located to the south of the site bounded by Alfred Street to the west and the A62 Queensgate to the south and east. The proposed Library is located in the central section of the site bounded by the A62 Queensgate to the east with the proposed Food Hall and The Square (Outdoor Event Space) located immediately west. Peel Street provides the western boundary adjacent to the Food Hall and The Square. Further north, the proposed Museum is bounded by the pedestrianised Victoria Lane to the west and the proposed Art Gallery is bounded by Queen Street to the east. Areas of public realm (The Gardens, The Green and The Terraces) are located to the north of the site bounded by Queen Street to the east and the pedestrianised King Street and Victoria Lane to the north and west respectively.

4.2 Access Proposals

Access to the proposed development will be provided from the existing transport network surrounding the development site, as described below. The proposed development includes provision of a new 350 space MSCP with a new access junction from the A62 Queensgate to replace the former Markets car park accesses from Alfred Street and subway from Queen Street South.

4.2.1 Vehicular Access

Car Park Access

The proposed new MSCP will be provided to the south of the site, in the approximate location of the recently demolished MSCP, bounded by Alfred Street to the west and A62 Queensgate to the south and east. A total 350 car parking spaces are proposed across three levels, including 35 accessible spaces (10%) and 70 spaces with access to electric vehicle charging points (20%). Parking for six motorcycles is provided at the MSCP Basement level.

The proposal is to provide a new traffic signal control junction with A62 Queensgate located to the north east of the car park at Lower Ground level. The A62 Queensgate will be widened to provide a right turn lane in for traffic accessing from the north and a left turn lane in for traffic accessing from the south whilst maintaining the current two through-lanes in each direction. The existing layby and bus stop on the A62 Queensgate northbound carriageway will be closed to enable this localised widening. The access proposals provide a left-turn only lane out of the car park, combined with the service tunnel exit route. This allows the existing staggered-crossing across the A62 Queensgate to be improved to a straight-across crossing with minimal impact. The new access proposals provide improved crossing provisions for pedestrians and cyclists and ties into the active travel improvements promoted by the local authority. The car park access proposals

are shown at Arup Drawing Ref CDT430201-ARP-XX-XX-SK-C-000006, including the swept path analysis of cars accessing and egressing the MSCP.

From the car park access at A62 Queensgate, short ramps down provide access to the parking areas on the Lower Ground floor level. From the Lower Ground level ramp access is provided down to the Basement level and up to the Mezzanine level. Within the MSCP, parking bays are provided in accordance with the local authority's standards and 6m one-way aisles enable cars to circulate.

In addition to the MSCP, nine existing accessible parking bays on Corporation Street are unaffected by the KCH scheme and are located in close proximity of the site. Separate Kirklees Council proposals for improvements along Queen Street are not affected by the KCH scheme and also include provision of additional accessible parking bays which will serve the site as well as the wider town centre.

Service Vehicle Access

The existing retained Lower Ground level tunnels will be re-used for servicing the KCH scheme as well as some continued servicing to existing retail premises located to the west of the site on the pedestrianised Victoria Lane. Separate service areas are provided in the tunnels for each building with lift access between the tunnels and buildings. Service vehicle access and egress is retained as currently with access / egress from Queen Street which is accessed from the northeast bound carriageway of the A62 Queensgate. Additional egress is also provided directly on to A62 Queensgate at the existing tunnels egress to the south of the site and is included as part of the signal control egress for the car park. An additional catering and refuse service area is also provided adjacent to the car park access below the Venue. Vehicles will also access this area through the tunnels. Management of service vehicles will be undertaken to coordinate service vehicle entry / exit times and restrict movements at peak times when cars are leaving the car park. Drawing Ref CDT430201-ARP-XX-XX-SK-C-000008 shows the swept path analysis of HGVs accessing and egressing the site accesses as well as movement through the tunnels.

In addition, a new service vehicle layby is provided on Alfred Street to enable direct access to the Venue for service vehicles involved in set up and take down of some events. The layby is 40m in length enabling access for up to two large articulated HGVs. Drawing Ref CDT430201-ARP-XX-XX-SK-C-000001 shows the swept path analysis of HGVs accessing and leaving the service bay. It is anticipated that 1-2 vehicles will access the layby at any one time. Vehicles will arrive in the early morning to enable an event set up during the day and take down will be undertaken immediately after an event so that they laybys are occupied from approximately 08:00-10:00hrs and 22:00-00:00hrs.

Taxis

A new taxi rank is proposed on Ramsden Street immediately south west of the Museum and north west of The Square as shown on Drawing Ref CDT430201-ARP-XX-XX-SK-C-000002. The existing parking bay on Ramsden Street will be closed to enable provision of the taxi rank and Ramsden Street / High Street or Corporation Street could be used by taxis to filter into the rank.

In addition, it is noted that the separate Kirklees Council proposals for improvements along Queen Street, not forming part of the KCH proposal, include taxi ranking, which will serve visitors to the KCH scheme as well as the wider town centre.

Coaches

Parking for venue performers' tour buses / coaches will be provided in the tunnels area under the site. This will be accessed via the route used by service vehicles, comprising access from Queen Street and egress via A62 Queensgate. Drawing Ref CDT430201-ARP-XX-XX-SK-C-000008 shows the swept path analysis of Coaches accessing and egressing the site accesses as well as movement through the tunnels.

On-street visitor drop-off and pick-up areas will be provided for events at the Venue, as well as potential coach visitors to the Museum, Art Gallery and Library, on the existing highway to the west of the site. It is proposed that coaches can drop-off and pick-up on the northern section of Peel Street as well as the new Alfred Street service layby when not required for service deliveries. Currently, the FTB stops on Peel Street (stop H2a) operating at 20 minute frequency from approximately 9:00-15:00hrs only, therefore after 15:00hrs the bus stop would be available for coaches. As noted above, the Alfred Street service bay will be used by HGVs in the early morning and late evening, therefore outside these times (daytime event drop-off /

pick-up and evening event drop-off) it would be available to coaches. It is noted that coaches will not be able to pick-up from Alfred Street after an evening event, but that the Peel Street bus stops would be available as there are limited evening bus services. Details of the arrangements will be developed with Kirklees Council Highways as the scheme proposals are progressed.

Coaches will not be able to layover in the town centre and will need to make alternative arrangements elsewhere. Details of this will be developed through the Events Management Plan.

Private Vehicle Drop-off / Pick-Up

Private vehicle drop-off and pick-up, including private hire taxis, will be undertaken on the existing highway to the west of the site, comprising Alfred Street, Princess Street, Corporation Street and Peel Street which provide access in the immediate vicinity of the site, while some drivers may wish to drop-off / pick-up at other locations further from the site.

Emergency Vehicles

All areas of the site can be accessed by emergency vehicles. The surrounding highway network (Peel Street, Alfred Street, A62 Queensgate and Queen Street) provides direct access to all buildings. In addition, The Square (outdoor event space) will be accessible by emergency vehicles direct from Ramsden Street located on the western boundary of the site. Drawing Ref CDT430201-ARP-XX-XX-SK-C-000009 shows emergency vehicles accessing the outdoor event space.

4.2.2 Public Transport

The site is very well located for access by bus and rail services, with bus stops on Peel Street immediately adjacent to the site, providing access to over 30 buses per hour during the day to a range of destinations. Both the main bus and rail station are located within approx. 5-10 minute walk, providing access to a range of local and regional destinations. Limited public transport improvements are therefore proposed for the scheme as staff and visitors will make use of the existing service provision.

Access to the site by bus will be from Peel Street, as currently. The new areas of public realm will open up Peel Street with more attractive waiting areas provided.

As part of the car park access proposals the existing bus stop on Queensgate Q1 will close and buses (approximately 5 per hour) relocated to bus stop Queensgate Q2, approximately 200m to the east. It is noted that as part of the Council proposals to restrict traffic on Queen Street, the Free Town Bus will also be relocated to this stop.

4.2.3 Pedestrian Access

Pedestrian improvements proposed as part of the scheme will connect with existing pedestrian networks for good connectively to the surrounding town centre, nearby bus stops and routes to the bus station and rail station. Routes will link to the new MSCP but also connect with town centre routes to nearby car parks. Proposals aim to integrate the site with Kirklees Council schemes for pedestrian and cycle improvements on A62 Queensgate and Queen Street.

Appendix C shows the landscape proposals for the site, showing areas of public realm, landscaping, pedestrian routes and cycle provision. The scheme comprises a number of areas of public realm to provide pedestrian permeability through the site; The Square to the south will provide a flexible space for outdoor events; The Gardens located centrally, and The Green located to the north west of the site will provide level areas of green space and planting; and The Terraces to the north east will provide terraces of planting to accommodate the level change down to Queen Street. The proposals include a network of pedestrian routes though these areas, with high quality materials, planting, seating, lighting and CCTV providing attractive and secure environment for pedestrians.

The scheme will provide level access to all building entrances. Across the site, the provision of ramps, stepped routes with areas of rest and lifts provide accessible access and accommodate level changes.

Key pedestrian access points to buildings are:

- The corner of Alfred Street / Princess Street for the main entrance of the Venue
- from The Square for access to the Foodhall, Library and Museum and from The Gardens for access to the Art Gallery
- from A62 Queensgate and Queen Street for additional access to the Library and Art Gallery

Pedestrian access to the site will be provided from the surrounding highway network, including Peel Street and Alfred Street to the west, Queensgate to the south and east, Queen Street to east. These routes generally include wide pedestrian footways as well as crossing provision and lighting to provide good pedestrian access into the site. Kirklees Councils proposals for A62 Queensgate include new footways, cycleways and crossings will be incorporated into the car park access proposals and improve access to/from the south east of the ring road. Along A62 Queensgate in the vicinity of the car park access a footway and cycle path are provided on the northeast bound carriageway. Toucan crossings are provided across the car park entrance and egress as well as a straight across crossing provided for pedestrians and cyclists over A62 Queensgate.

The pedestrianised routes of King Street and Victoria Lane also provide traffic free access into the site. Separate Kirklees Council proposals for Queen Street aim to restrict traffic movements will also provide an improved environment for pedestrians accessing the town centre and site.

4.2.4 Cycle Access and Parking

As part of the car park access junction, a 2.5m two-way cycleway will be provided along the northeast bound carriageway of the A62 Queensgate, tying into wider Kirklees Council proposals for improvements along this corridor. Toucan crossings will be provided across the car park accesses and a straight ahead toucan crossing provided across A62 Queensgate.

Cycle access into the site will be available from all routes surrounding the site, connecting with the wider cycle network, including to / from:

- the new two-way cycle lane on the A62 Queensgate northeast bound carriageway
- Queen Street which is to be redeveloped by Kirklees Council to restrict traffic and enhance access for pedestrians and cyclists
- King Street and Victoria Lane which are Pedestrian Zones which restrict vehicular access but allow cycle access
- The High Street, Ramsden Street, Peel Street and Alfred Street routes which are identified as advisory cycle routes

Cycle parking will be provided at a number of locations throughout the site, connecting with existing cycling networks for good connectively to the surrounding town centre. Secure and covered staff cycle parking will be provided within each individual building with provision of 1 space per 10 staff and include shower, changing facilities and lockers.

Visitors cycle parking will be located throughout the site, as shown on the layouts provided in Appendix C. For short stay cycle parking, a total of 70 ‘Sheffield’ stands (140 cycle spaces) will be provided at six locations across the site including near each building and within the public realm. Of this provision, 5% of the cycle spaces will accommodate larger or adapted cycles.

4.3 Servicing

Details of access proposals for service vehicles are provided above. This section considers the numbers and types of vehicles serving the KCH scheme.

4.3.1 Museum, Art Gallery and Library

It is anticipated that the servicing requirements for the Museum, Art Gallery and Library will be relatively minor with regular small scale deliveries and refuse collection. In addition, occasional movement of installations and exhibitions will require van or larger vehicles accessing the site.

All servicing will be undertaken in the Tunnels area under the site, with access from Queen Street and egress on to A62 Queensgate. Separate service areas are provided in the Tunnels for each building with lift access between the Tunnels and buildings.

4.3.2 Venue

IPW is a specialist sport, venues, entertainment and business events consultancy, with a particular focus on delivering successful venues, sport stadium and events arenas across UK and world, and are providing advice to Kirklees Council. They have provided detail of the servicing requirements for the Venue. The servicing requirements will vary for the different types of events.

For entertainment events, particularly concerts, space is needed for two large articulated vehicles. It is anticipated that they would typically arrive early in the morning to allow the day to set up and depart late at night after the show. They would park in the Alfred Street layby for set up and take down as the at grade provision gives direct access to the Venue halls. During the day, when not being loaded or unloaded the HGVs would park in the Venue service area in the Tunnels.

For conferences / exhibitions, requirements would be to accommodate numerous smaller box trucks and vans, although numbers will depend on the different exhibitors for each event. These would arrive and depart over the course of the day as conferences / exhibitions are being set up or taken away. It is not considered that these will coincide with peak visitor arrivals and departures. In addition, there may also be a requirement for a single large artic. All servicing and parking of small trucks / vans would be accommodated in the Tunnels area.

Servicing requirements for other events will be less than the peak events identified above with all servicing undertaken from the venue service area in the Tunnels and lift access into the venue.

In addition, Venue kitchen deliveries could be a few vehicles at any time during the day but would need to be managed to avoid conflicting with the venue loading / unloading.

There will be a need to manage service vehicle requirements for all events to coordinate arrival / departure slots for the various exhibitors.

4.3.3 Food Hall

It is anticipated that there will be regular deliveries and refuse collection associated with the Food Hall. Vehicles will generally be small trucks and vans with occasional other larger vehicles. All servicing will be undertaken from the Food Hall service area in the Tunnels.

4.3.4 Servicing Strategy

A detailed site-wide Servicing Strategy will be secured by a planning condition to be agreed with the LPA.

4.4 Signing / Wayfinding

A detailed Signing Strategy for the site will need to be developed as the scheme progresses and will be secured through a Grampian planning Condition. This should identify proposals for:

- Car park access – signing should be provided to direct visitors to the KCH scheme car park. If the KCH scheme car park is full, signing should advise drivers of alternative town centre car parks
- Wayfinding within the town centre is required to direct visitors to the site to / from town centre car parks as well as along key walking routes to / from the bus and rail station

4.5 Event Management Plan

A detailed Events Management Plan will be developed to ensure peak events are managed across the venue and outdoor event space. The details of this will be agreed with the LPA but could consider the following:

- The timing of different events at the venue and outdoor event space and coordination of peak events
- Parking requirements of peak events and liaison with the local authority regarding the potential utilisation of off-site parking if required
- Requirements for signing and temporary traffic management to host special events (i.e. beyond the large events already assessed)

The detailed Events Management Plan will be secured by a planning condition to be agreed with the LPA.

5. Development Trip Generation

This chapter sets out the agreed vehicle trip generation associated with the different uses at the KCH scheme. It sets out the arrivals and departures across the day to determine peak hour trip generation used in the highway assessment (Chapter 8) and peak parking accumulation (Chapter 7). The trip rates have been discussed and agreed with Kirklees Council Highways Development Management.

5.1 Vehicle Trip Generation

For each proposed land use within the KCH scheme a trip generation exercise has been undertaken to determine forecast vehicle trips and cumulative parking demand for a 'Weekday' and a 'Saturday' scenario.

Kirklees Council has provided details of historical visitor numbers for the existing art gallery and Tolson library and forecasts of future visitor numbers have also been provided. However, the data doesn't provide the breakdown across the day or travel mode of visitors as required for trip generation purposes. Therefore, the TRICS database has been used which provides trip rates based on surveys for comparable sites across the UK. The visitor number forecasts have been referenced where appropriate. Where data is limited for the specific land uses, assumptions have been made based on our understanding of the proposed development and experience of other schemes. Further details are provided for each land use below. Appendix D provides the TRICS data and Appendix E includes details of the trip generation calculations. It is noted that the trip generation has been undertaken for slightly different development quanta from that set out at section 4.1, however, there is minor difference in the floor areas of the submitted scheme and generally the areas assessed below are slightly higher, therefore represent a worst case assessment.

In addition, we have also considered a Linked Trip factor which discounts trips as a result of town centre mixed uses where a single trip is made to multiple land uses. The linked trip factor applied for each land use is based on previous research undertaken for town / city centre sites, as provided at Appendix F.

5.1.1 Museum and Art Gallery

Museum

The existing Tolson Museum is located outside of the town centre and currently operates limited hours being open on Saturday and Sundays only from 12:00-17:00hrs. Kirklees Council has provided some visitor data comprising daily visitor numbers throughout the year. For the 2019/20 year, typical weekday attendance was approx. 50-100 visitors, weekend and holiday attendance was 100-200 visitors and peak attendance for occasional events was 300-400 visitors. The KCH proposals will relocate the Museum into the town centre to improve its attractiveness and increase visitor numbers. Following redevelopment, opening hours for the Museum will increase with the aim that it is open through the week and likely selected evenings.

Art Gallery

The existing Art Gallery is located within the KCH site and is open on Mondays and Thursdays from 09:00-19:00hrs, on Tuesday, Wednesday and Fridays from 09:00-17:00hrs, and on Saturdays from 09:30-16:00hrs. It is closed on Sundays. Kirklees Council has provided some visitor data comprising daily visitor numbers throughout the year. For the 2019/20 year, typical weekday and weekend attendance was 50-100 visitors with peak attendance of 300-400 visitors for occasional events. It is anticipated that a new facility would have greater attractiveness resulting in an increase in visitor numbers.

Overall visitor numbers are expected to be 250,000 visitors annually to the museum and gallery, equating to an average of approx. 700 visitors daily.

Vehicle Trip Rate

As the proposed Museum development comprises relocation of the existing Tolson Museum into the town centre, it is assumed trips to the development will be new to the local road network. The trips to the Art Gallery will be treated as new to add robustness to the assessment.

Kirklees Council has provided some visitor data comprising daily / monthly visitor numbers, however a breakdown of arrivals and departures across the day is not available. The visitor data doesn't identify the

modes used by visitors to travel and, therefore, trip generation forecasts have been calculated using TRICS trip rates and applied to the proposed gross floor area.

For the Museum and Art Gallery elements of the proposed development, the TRICS category 07/I – Art Galleries/Museums/Exhibitions has been used with Town Centre and Suburban area locations selected for Weekday vehicle trip rates.

No Saturday data is provided in TRICS under this category. It is noted that the Kirklees Council monthly attendance data (2019-20) doesn't provide a clear pattern for weekdays and Saturdays, with some increase at weekends but higher attendance generally related to events and holiday periods. Therefore, it has been assumed that the Weekday forecast can be applied to a Saturday profile on the basis that whilst there could be more visitors attending the museum and art gallery on weekends this will be offset by the likelihood that they will travel in larger groups (i.e. more occupants per car).

Based on research undertaken, a 30% reduction to arrivals and departures has been applied as trips are linked to other town centre retail and leisure uses, including the new KCH development.

Vehicle Trip Generation

The forecast vehicle arrival and departure profile for an 8,710sqm development for a Weekday and Saturday has been as shown in Table 5 below.

Table 5: Museum and Art Gallery vehicle trips – Weekday & Saturday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		
	Arrival	Departure	Arrival	Departure	Total
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	0.056	0.014	3	1	4
10:00-11:00	0.149	0.034	9	2	11
11:00-12:00	0.197	0.142	12	9	21
12:00-13:00	0.156	0.156	10	10	19
13:00-14:00	0.176	0.204	11	12	23
14:00-15:00	0.102	0.142	6	9	15
15:00-16:00	0.149	0.237	9	14	24
16:00-17:00	0.081	0.142	5	9	14
17:00-18:00	0.044	0.037	3	2	5
18:00-19:00	0.000	0.000	0	0	0
Total	**1.110**	**1.108**	**68**	**68**	**135**

5.1.2 Library

The existing library is located within the KCH site and is open on Wednesday to Saturdays 11:00-16:00hrs and closed Sunday to Tuesday. The existing Library currently attracts a high number of visitors (360,000pa) with large numbers of IT users and use of research facilities by students. Following redevelopment, opening hours will increase to include Sundays and evenings and visitor numbers are forecast to increase to 455,000pa.

Vehicle Trip Rate

No site specific visitor data is available for the current Library operation. Therefore, for the Library element of the proposed development, TRICS category 07/V – Library has been used with Town Centre and Suburban area locations selected for Weekday trip rates. There is no Saturday data within the TRICS

database, however, the weekday trip pattern is considered suitable for a Saturday. Therefore, the same vehicle trip rates for weekdays have been used to reflect Saturdays.

The forecast vehicle arrival and departure profile for a 5,000sqm development has been calculated. However, information identifies that there are already a high number of users of the existing Library which should be factored into the assessment. Therefore, assessment of new trips is based on a review of the daily trip estimates and forecast uplift in visitor numbers.

Information provided shows a forecast increase in visitor numbers of 95,000 visitors per annum, which equates to an average of 270 visitors per day (assuming the library is open 350 days per year). To be robust, it is assumed that just over half of these additional visitors are likely to travel by car. The TRICS trip rates (for the full development of 5,000sqm) have been factored down so that the arrival / departure profile across the day results in total daily arrivals and departures of approx. 155 visitors, as shown in the table below. These trips are the additional new trips associated with the Library, with any existing Library trips considered to already be on the existing highway network and therefore included within the existing traffic flows and car parking numbers. No linked trip factor has been applied.

Vehicle Trip Generation

The forecast vehicle arrival and departure profile for the library development for a Weekday and Saturday has been as shown in Table 6 below.

Table 6: Library New vehicle trips – Weekdays & Saturdays

Time Period	TRICS Trip Rates (per 100 sqm)		13.25% Total trips as new trips		
	Arrival	Departure	Arrival	Departure	Total
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	3.102	1.440	21	10	30
10:00-11:00	3.047	2.271	20	15	35
11:00-12:00	1.994	3.158	13	21	34
12:00-13:00	1.884	1.939	12	13	25
13:00-14:00	2.936	2.604	19	17	37
14:00-15:00	3.657	3.213	24	21	46
15:00-16:00	2.438	2.881	16	19	35
16:00-17:00	1.496	2.548	10	17	27
17:00-18:00	1.551	1.496	10	10	20
18:00-19:00	1.049	1.818	7	12	19
Total	**23.154**	**23.368**	**153**	**155**	**308**

5.1.3 New Venue

The proposals comprise a multi-purpose venue that can accommodate both entertainment and business events including exhibitions, conferences and entertainment events possibly occurring during the day and/or at evenings. The capacity, attendances and therefore trip generation and parking requirements will vary considerably for the different events throughout the year.

As identified previously, IPW is a specialist sport, venues, entertainment and business events consultancy and have provided information on the likely events to be hosted at the proposed venue, including type of event, frequency, maximum and average attendance and visitor profile and their likely car mode share and car occupancy, as set out below.

Conferences / Business events:

- Weekday, daytime, approx. 09:00-17:00hrs
- Total = 57 per year
- Average attendance = 87 people
- Largest attendances: 300 people = 1 per year, 250 people = 4 per year, 200+ people = 8 per year
- Typically, 85% car mode share and 1.25 average car occupancy
- Therefore, for an average attendance event (87) the peak car park demand is 59 spaces and for the largest attendance event (300) the peak car park demand is 204 spaces

Trade Shows:

- Weekday, daytime
- Total = 5 per year
- 300 people – arrive / depart throughout the day
- 85% car mode share and 1.5 car occupancy
- Therefore, parking demand total of 170 but visitors come and go throughout the day so suggested peak demand is approx. 150 spaces
- Exhibitors will park in service yard or off site

Exhibition / Consumer Shows:

- Saturday and Sunday daytimes
- 3 x two day events per year
- 1,250 people arrive / depart throughout the day
- 50 exhibitors arrive at start / depart at end of the day but park in service yard or off site
- 85% car mode share and 1.5 car occupancy
- Therefore, parking demand total of 708 but visitors will come and go throughout the day so suggested peak parking demand is approx. 500 spaces

Entertainment Event:

- Majority = evenings (weekday and Saturday), although some matinees
- Total = 128 per year

Average attendance = 700:

- Typically, 80% car mode share and 2.5 average car occupancy
- Therefore, peak car park demand = 224 spaces

Maximum attendance = standing audience:

- 2,200 people
- 3 per year
- Younger audience, less likely to drive with more arrivals / departures by train or parent / taxi pick up
- IPW state max parking demand = 500 spaces (approx. 60% car mode)

Seated show:

- 1,288 people
- 50 per year
- Typically, 80% car mode share and 2.5 average car occupancy
- Therefore, peak car park demand = 412 spaces

Banquets / Awards Ceremonies:

- Evening event – weekdays and weekends
- Total = 13 per year
- 150-500 people
- Max 500 = 2 per year
- Car mode share and car occupancy not confirmed but peak parking demand would be less than entertainments events

This information has been used to determine peak trip generation and car parking demand for weekdays, weekends and evenings, as set out below. This information is considered more site specific than using the TRICS database which has limited data available for venues.

No linked trip reduction has been applied to the forecast venue car trips as a high proportion of trips will be solely for the events such as the exhibition centre / conference and music event.

Weekday (Daytime) Event – Vehicle Trip Generation

The peak weekday trips are likely to be from the conference / business events with average parking demand of 60 and peak demand of 150-200 parking spaces. In addition, the weekday trade shows could generate a demand for approx. 150 car parking spaces, however with arrivals and departures spread across the day. It is estimated that there would be approximately 1 event per week, although the higher attendance events (larger conferences / trade shows) would be approximately 1 per month.

The conference / business events would generally operate from 09:00-17:00hrs, therefore the majority of attendees would arrive between 08:00 and 10:00hrs and depart between 16:00 and 18:00hrs. An estimate of the arrivals and departures profile for a weekday peak event has therefore been undertaken as set out in Table 7 below.

Table 7: Venue vehicle trips – Weekday

Time Period	Total new trips		
	Arrival	Departure	Total
07:00-08:00	0	0	0
08:00-09:00	153	0	153
09:00-10:00	51	0	51
10:00-11:00	0	0	0
11:00-12:00	0	0	0
12:00-13:00	0	0	0
13:00-14:00	0	0	0
14:00-15:00	0	0	0
15:00-16:00	0	0	0
16:00-17:00	0	51	51
17:00-18:00	0	153	153
18:00-19:00	0	0	0
Total	**204**	**204**	**408**

Weekend (daytime) Event – Vehicle Trip Generation

The peak weekend daytime parking demand would likely be from an exhibition / consumer show and forecast to be approximately 3 events per year. While the maximum attendance is forecast at 1,250, visitors can arrive and depart throughout the day. Therefore, a maximum parking demand of approximately 500 is assumed from approx. 11:00-15:00hrs.

An estimate of the arrivals and departures profile for a weekend event has therefore been undertaken as set out in Table 8 below.

Table 8: Venue vehicle trips – Saturday

Time Period	Total new trips		
	Arrival	Departure	Total
07:00-08:00	71	0	71
08:00-09:00	71	0	71
09:00-10:00	142	0	142
10:00-11:00	142	0	142
11:00-12:00	71	0	71
12:00-13:00	71	71	142
13:00-14:00	71	71	142
14:00-15:00	71	71	142
15:00-16:00	0	71	71
16:00-17:00	0	142	142
17:00-18:00	0	142	142
18:00-19:00	0	142	142
Total	**708**	**708**	**1416**

Note – slight rounding discrepancies occur

Evening Event – Vehicle Trip generation

The peak evening car parking demand is likely to be the entertainment events with average parking demand of 224 spaces and higher parking demand of approx. 400 spaces for a seated event and 500 spaces for a maximum standing audience event. There are forecast to be approximately 2-3 events per week with the higher demand events approximately once per week.

It is anticipated that visitors will arrive between 18:00 and 20:00hrs and leave from 22:00hrs. The likely arrivals and departures profile for the peak evening event and the peak car parking demand is set out in Table 9 below.

Table 9: Venue vehicle trips – Evening (Weekday or Saturday) (2,250 max capacity)

Time Period	Total new trips		
	Arrival	Departure	Total
16:00-17:00	0	0	0
17:00-18:00	0	0	0
18:00-19:00	300	0	300
19:00-20:00	200	0	200
20:00-21:00	0	0	0
21:00-22:00	0	0	0
22:00-23:00	0	400	400
23:00-24:00	0	100	100
Total	**500**	**500**	**1000**

It is considered unlikely that a significant exhibition / conference event would take place on the same day as a music event, therefore the tables above present different arrival and departure profiles for a weekday daytime business / conference, Saturday daytime exhibition / consumer show and an evening music event (which could be weekday or Saturday).

5.1.4 Outdoor Event Space

The Outdoor Event Space at KCH will provide a high-quality, well-designed destination for a range of existing events, that currently take place in existing outdoor spaces including The Piazza and St George's Square (both located in the town centre) and Greenhead Park (located approx. 800m west of the site). The proposed outdoor space will enable the events to attract larger visitor numbers and also accommodate events that currently take place indoors, including music festivals and events at the Library and Museum. In addition, it is anticipated that there will be regular small-scale activity / animation of the outdoor space at other times, including art / food markets and play facilities (e.g. chessboard).

It is anticipated that the shared programme of events would therefore see:

- some level of activity / animation every weekend from March to November attracting approx. 500-1,000 visitors across a day
- specific larger scale events approx. monthly attracting up to 3,000 visitors across a weekend day and into the evening

Vehicle Trip Generation

Trip generation forecasts for historical events held at current outdoor venues is not available. Therefore, forecast vehicle trip generation has been based on information provided by Kirklees Council and a number of assumptions:

Weekend Activity (markets / play space):

- 50% of visitors are assumed to already be visiting the town centre for other reasons (off-site retail / leisure) and incidentally drop into the outdoor event space, therefore, 50% will be new visitors. This value is seen as an average to account for some events that may draw a variance in linked trips over different occasions.
- The weekend activity / animation is assumed to operate during the day (from approx. 10:00 to 18:00 hrs). It is assumed visitors will visit the outdoor events space throughout the day and each stay between an hour or two.
- As with the KCH Venue, the forecast car mode share is 80%. Approximately 20% of visitors are anticipated to arrive by sustainable modes of travel (public transport, cycle and foot), with an increase encouraged through the implementation of a KCH Travel Plan.
- The majority of events are family / group events, therefore an average car occupancy of 2.5 is assumed

On the basis of the above assumptions, the forecast car generation for maximum 1,000 visitor event is calculated as follows:

- 500 new visitors in a day (considering half of visitors are not considered new trips)
- Across an 8 hour day = 62.5 visitors per hour
- 80% car mode share = 50 visitors arriving by car each hour
- 2.5 car occupancy = 20 car arrivals and 20 car departures in any one hour
- Peak additional parking demand = 40 cars

Larger scale Weekend Event:

- Larger scale events are already accommodated elsewhere in and around the town. Whilst the attendance numbers for these are unknown, a robust figure would be to assume current attendance of 1,500 visitors, therefore 1,500 visitors (ie 50%) would be new as a result of hosting events in the KCH outdoor event space
- Lager scale events are assumed to operate on weekend daytimes and evenings. Daytime events (such as Children's biennial, Woven, Easter / Half Term activities, Christmas Light Switch On) are assumed to operate from approx. 12:00 to 18:00 hrs. Evening events (such as Music festivals) are assumed to operate from 18:00 to 22:00 hrs. Some events (such as the Mela and Literature Festival) are assumed to operate across the afternoon and evening.

- Visitors are anticipated to stay for longer periods, with visitors arriving over an approx. 2-3 hour period at the start of the event and departing over an approx. 2-3 hour period towards the end of the event. It is assumed arrivals and departures are spread across these periods
- As with the KCH Venue, the forecast car mode share is 80%. 20% of visitors will arrive by sustainable modes of travel (public transport, cycle and foot), although a KCH Travel Plan will aim to promote sustainable travel and increase the sustainable mode share
- The majority of events are family / group events, therefore an average car occupancy of 2.5 is assumed

On the basis of the above assumptions, the forecast car generation for maximum 3,000 visitors to the outdoor event space is:

- 50% increase to events = 1,500 additional visitors over the day
- 80% car mode share = 1,200 visitors arriving by car
- 2.5 car occupancy = 480 car arrivals / departures
- Arrivals spread across 3 hour period = 160 car arrivals / departures in an hour
- Peak parking demand = 480 cars (approx. 14:00-16:00 for daytime events / 19:00-21:00 for evening events)

The vehicle trip generation profiles for the typical weekend activity event and a larger scale event in the Outdoor Event Space are presented in Tables 10 and 11 below.

Table 10: Outdoor Event Space – Typical Saturday Event Vehicle Trips – Saturday

Time Period	Total new trips		
	Arrival	Departure	Total
07:00-08:00	0	0	0
08:00-09:00	0	0	0
09:00-10:00	20	0	20
10:00-11:00	20	0	20
11:00-12:00	20	20	40
12:00-13:00	20	20	40
13:00-14:00	20	20	40
14:00-15:00	20	20	40
15:00-16:00	20	20	40
16:00-17:00	20	20	40
17:00-18:00	0	20	20
18:00-19:00	0	20	20
Total	**160**	**160**	**320**

Table 11: Outdoor Event Space Peak Saturday Evening Event - Vehicle Trips

Time Period	Total new trips		
	Arrival	Departure	Total
16:00-17:00	160	0	160
17:00-18:00	160	0	160
18:00-19:00	160	0	160
19:00-20:00	0	0	0
20:00-21:00	0	0	0

21:00-22:00	0	240	240
22:00-23:00	0	240	240
23:00-24:00	0	0	0
Total	**480**	**480**	**960**

5.1.5 Food Hall

The proposed food hall will provide a new standalone facility to serve visitors to the KCH and wider town centre during the daytime and on evenings with its operational hours tied to the KCH opening times. It will provide a bar and range of small food and drink trading units (walk up and order) and communal seating area. It is anticipated that it will likely be open daily from 10am until late, approx. midnight.

Vehicle Trip Rates

The proposed food hall is a new facility within the town centre and therefore forecast trips will be treated as new to the highway network. For the Food Hall element of the proposed development, the TRICS category 06/C – Pub/Restaurants has been used with Town Centre, Edge of Town Centre and Suburban areas sites available for different Weekday and Saturday trip rates.

It is estimated that limited visitors will come just to the food hall and the vast majority of trips will be linked to other town centre uses, in particular the new KCH venue. Therefore a 75% reduction to arrivals and departures has been applied to Food Hall trips to account for these linked trips.

Vehicle Trip Generation

The forecast vehicle arrival and departure profile for a 2,400 sqm development for a Weekday and Saturday has been used to determine the car park demand as shown in the tables below.

Table 12: Food Hall vehicle trips – Weekday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		
	Arrival	Departure	Arrival	Departure	Total
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	0.000	0.000	0	0	0
10:00-11:00	0.429	0.271	3	2	4
11:00-12:00	0.903	0.474	5	3	8
12:00-13:00	3.026	1.106	18	7	25
13:00-14:00	2.393	1.919	14	12	26
14:00-15:00	1.287	1.174	8	7	15
15:00-16:00	1.377	1.287	8	8	16
16:00-17:00	1.197	1.152	7	7	14
17:00-18:00	1.558	0.835	9	5	14
18:00-19:00	2.664	2.958	16	18	34
19:00-20:00	2.619	3.184	16	19	35
20:00-21:00	2.235	2.845	13	17	30
21:00-22:00	1.174	1.580	7	9	17
22:00-23:00	0.768	1.964	5	12	16
23:00-24:00	0.655	1.648	4	10	14
Total	**22.285**	**22.397**	**134**	**134**	**268**

Table 13: Food Hall vehicle trips – Saturday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		
	Arrival	**Departure**	**Arrival**	**Departure**	**Total**
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.882	0.000	5	0	5
09:00-10:00	1.579	0.614	9	4	13
10:00-11:00	2.345	1.581	14	9	24
11:00-12:00	2.890	1.636	17	10	27
12:00-13:00	5.234	2.290	31	14	45
13:00-14:00	3.435	4.744	21	28	49
14:00-15:00	3.162	4.471	19	27	46
15:00-16:00	2.999	3.435	18	21	39
16:00-17:00	4.526	3.162	27	19	46
17:00-18:00	4.198	3.217	25	19	44
18:00-19:00	3.599	3.653	22	22	44
19:00-20:00	2.399	3.217	14	19	34
20:00-21:00	0.927	2.508	6	15	21
21:00-22:00	0.709	2.017	4	12	16
22:00-23:00	0.327	1.963	2	12	14
23:00-24:00	0.175	0.614	1	4	5
Total	**39.386**	**39.122**	**236**	**235**	**471**

5.1.7 Combined Development Trips

The vehicle trips for weekday with exhibition / conference uses at the venue is set out in Table 14 below. The peak hours are shown as 08:00-09:00hrs and 17:00-18:00hrs by combing the trips for all uses.

Table 14: Vehicle Trips – Weekday Daytime Peak

Hour Start	Museum & Art Gallery		Library		Food Hall		Venue		Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Total
07:00-08:00	0	0	0	0	0	0	0	0	0	0	0
08:00-09:00	0	0	0	0	0	0	153	0	153	0	153
09:00-10:00	3	1	21	10	0	0	51	0	75	10	85
10:00-11:00	9	2	20	15	3	2	0	0	32	19	51
11:00-12:00	12	9	13	21	5	3	0	0	31	32	63
12:00-13:00	10	10	12	13	18	7	0	0	40	29	69
13:00-14:00	11	12	19	17	14	12	0	0	45	41	86
14:00-15:00	6	9	24	21	8	7	0	0	38	37	75
15:00-16:00	9	14	16	19	8	8	0	0	33	41	75
16:00-17:00	5	9	10	17	7	7	0	51	22	83	105
17:00-18:00	3	2	10	10	9	5	0	153	22	170	192
18:00-19:00	0	0	7	12	16	18	0	0	23	30	53
19:00-20:00	0	0	0	0	16	19	0	0	16	19	35
20:00-21:00	0	0	0	0	13	17	0	0	13	17	30
21:00-22:00	0	0	0	0	7	9	0	0	7	9	17
22:00-23:00	0	0	0	0	5	12	0	0	5	12	16
23:00-24:00	0	0	0	0	4	10	0	0	4	10	14

The vehicle trips for a Weekday Evening with a maximum capacity music event at the venue is calculated in Table 15 below. The peak hours are forecast to be 18:00-19:00hrs and 22:00-23:00hrs.

Table 15: Vehicle Trips – Evening Peak (Weekday)

Hour Start	Museum & Art Gallery		Library		Food Hall		Venue		Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Total
07:00-08:00	0	0	0	0	0	0	0	0	0	0	0
08:00-09:00	0	0	0	0	0	0	0	0	0	0	0
09:00-10:00	3	1	21	10	0	0	0	0	24	10	34
10:00-11:00	9	2	20	15	3	2	0	0	32	19	51
11:00-12:00	12	9	13	21	5	3	0	0	31	32	63
12:00-13:00	10	10	12	13	18	7	0	0	40	29	69
13:00-14:00	11	12	19	17	14	12	0	0	45	41	86
14:00-15:00	6	9	24	21	8	7	0	0	38	37	75
15:00-16:00	9	14	16	19	8	8	0	0	33	41	75
16:00-17:00	5	9	10	17	7	7	0	0	22	32	54
17:00-18:00	3	2	10	10	9	5	0	0	22	17	39
18:00-19:00	0	0	7	12	16	18	300	0	323	30	353
19:00-20:00	0	0	0	0	16	19	200	0	216	19	235
20:00-21:00	0	0	0	0	13	17	0	0	13	17	30
21:00-22:00	0	0	0	0	7	9	0	0	7	9	17
22:00-23:00	0	0	0	0	5	12	0	400	5	412	416
23:00-24:00	0	0	0	0	4	10	0	100	4	110	114

It is assumed a larger scale event in the outdoor event space on a weekend daytime will not be programmed at the same time as a peak Exhibition / Consumer event at the venue (3 per year) considering the frequency of events. The Exhibition / Consumer event generates a slightly higher trip generation and car park demand than the large scale events in the outdoor event space, therefore this has been assessed rather than the outdoor event space large scale event. However, given that a smaller scale activity in the outdoor event space could be programmed at the same time as an Exhibition / Consumer event at the venue, the forecast arrivals and departures have been included in the assessment. The vehicle trips for a Saturday daytime with small scale outdoor event and exhibition / consumer event at the venue is calculated in Table 16 below. The peak hours are forecast to be 12:00-15:00hrs.

Table 16: Vehicle Trips – Saturday Daytime Peak

Hour Start	Museum & Art Gallery		Library		Food Hall		Venue		Outdoor Event		Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Total
07:00-08:00	0	0	0	0	0	0	71	0	0	0	71	0	71
08:00-09:00	0	0	0	0	5	0	71	0	0	0	76	0	76
09:00-10:00	3	1	21	10	9	4	142	0	20	0	195	14	209
10:00-11:00	9	2	20	15	14	9	142	0	20	0	205	27	232
11:00-12:00	12	9	13	21	17	10	71	0	20	20	133	59	193
12:00-13:00	10	10	12	13	31	14	71	71	20	20	144	127	271
13:00-14:00	11	12	19	17	21	28	71	71	20	20	142	149	291
14:00-15:00	6	9	24	21	19	27	71	71	20	20	140	148	288
15:00-16:00	9	14	16	19	18	21	0	71	20	20	63	145	208
16:00-17:00	5	9	10	17	27	19	0	142	20	20	62	206	268
17:00-18:00	3	2	10	10	25	19	0	142	0	20	38	193	231
18:00-19:00	0	0	7	12	22	22	0	142	0	20	29	196	224
19:00-20:00	0	0	0	0	14	19	0	0	0	0	14	19	34
20:00-21:00	0	0	0	0	6	15	0	0	0	0	6	15	21
21:00-22:00	0	0	0	0	4	12	0	0	0	0	4	12	16
22:00-23:00	0	0	0	0	2	12	0	0	0	0	2	12	14
23:00-24:00	0	0	0	0	1	4	0	0	0	0	1	4	5

There may be occasions when a large scale event in the Outdoor Event Space occurs at the same time as a maximum capacity event at the Venue, such as a multi venue music festival, with the forecast vehicle trips for a Saturday evening calculated in Table 17 below. The peak hours are forecast to be 18:00-19:00hrs and 22:00-23:00hrs.

Table 17: Vehicle Trips – Evening Peak (Saturday)

Hour Start	Museum & Art Gallery		Library		Food Hall		Venue		Outdoor Event		Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Total
07:00-08:00	0	0	0	0	0	0	0	0	0	0	0	0	0
08:00-09:00	0	0	0	0	5	0	0	0	0	0	5	0	5
09:00-10:00	3	1	21	10	9	4	0	0	0	0	33	14	48
10:00-11:00	9	2	20	15	14	9	0	0	0	0	43	27	70
11:00-12:00	12	9	13	21	17	10	0	0	0	0	43	39	82
12:00-13:00	10	10	12	13	31	14	0	0	0	0	53	36	89
13:00-14:00	11	12	19	17	21	28	0	0	0	0	51	58	109
14:00-15:00	6	9	24	21	19	27	0	0	0	0	49	57	106
15:00-16:00	9	14	16	19	18	21	0	0	0	0	43	54	97
16:00-17:00	5	9	10	17	27	19	0	0	160	0	202	45	247
17:00-18:00	3	2	10	10	25	19	0	0	160	0	198	31	230
18:00-19:00	0	0	7	12	22	22	300	0	160	0	489	34	523
19:00-20:00	0	0	0	0	14	19	200	0	0	0	214	19	234
20:00-21:00	0	0	0	0	6	15	0	0	0	0	6	15	21
21:00-22:00	0	0	0	0	4	12	0	0	0	240	4	252	256
22:00-23:00	0	0	0	0	2	12	0	400	0	240	2	652	654
23:00-24:00	0	0	0	0	1	4	0	100	0	0	1	104	105

These occasions are likely to be infrequent, and the event management planning will require additional management such as off-site car parking and specialist traffic management in place. As set out in Chapter 8 the impact of this and a Saturday evening assessment has not been undertaken.

5.2 Trip Distribution

A gravity model has been developed to determine the distribution of KCH development trips on the local highway network.

This has been developed based on population and travel distance, assuming a travel distance of up to 50 miles (approx. 1 hour journey time) for the larger events at the venue. The forecast KCH scheme trips will be assigned on to the local highway network based on the resulting trip distribution as shown in Table 18 below.

Table 18: Trip Distribution

Route	Distribution
A62 Castlegate (ring road west)	17.8%
A62 Manchester Road / Outcote Bank	6.4%
A616 Chapel Hill	18.8%
A629 Wakefield Road	12.8%
A62 Southgate (ring road east)	44.2%
Total	**100.0%**

Traffic flow diagram showing the assignment of development trips is provided in Appendix I.

6. Sustainable Mode Assessment

The proposed KCH development is a mixed use scheme located within Huddersfield town centre and close to the main bus and rail station. As such the site is well located for access by sustainable modes of travel and measures to maximise their use will form essential elements of the development

Whilst the KCH site is ideally located for access by sustainable modes of travel, given the nature of development, it is anticipated that a number of trips to / from the Site will still be made by car, as set out in Chapter 5. A site Travel Plan will seek to ensure that staff and visitors to the Site are fully aware of the travel choices available to them and ensure maximum opportunity is taken to promote sustainable travel options. Public transport can have a major role in the movement of people to and from the Site. There is also a good proportion of the surrounding urban area where access by cycle and by foot is a realistic option.

In this section, access to and from the site by pedestrians, cyclists, and those using public transport will be considered. The number of predicted movements by each mode will be outlined, along with the facilities for each mode. Specific measures in the design of the proposed KCH scheme will be identified for each mode to ensure that strong links with the wider network are created and that the appropriate level of connectivity is provided.

6.1 Sustainable Mode Trip Generation

A review of mode share for each land use within the KCH scheme has been undertaken as described below. The forecast vehicle trips, as identified at Chapter 5, has been used to determine the total person trips and the mode shares applied to the peak hour trips to determine the numbers of visitors by sustainable modes in these peak periods.

6.1.1 Museum and Art Gallery

The mode shares for the Museum and Art Gallery have been taken from TRICS and are presented in Table 19 below.

Table 19: Museum and Art Gallery Mode Share – updated from TRICS – to check

Museum & Art Gallery	Vehicle Driver	Vehicle Passengers	Rail	Bus	Coach	Cyclist	Pedestrian	Total
Weekday & Saturday	16.75%	11.00%	17.90%	16.90%	14.10%	0.60%	22.80%	100%

6.1.2 Library

The mode shares for the Library have been taken from TRICS and are presented in Table 20 below.

Table 20: Library Mode Share

Library	Vehicle Driver	Vehicle Passengers	PT - Rail	PT – Bus/ Coaches	Cyclist	Pedestrian	Total
Weekday & Saturday	35.85%	10.15%	0.40%	6.30%	1.50%	45.90%	100%

6.1.3 New Venue

IPW provided the car mode share for different events at the proposed venue, as set out at Section 5.1.3, which is consistent with those identified for other venues in the north of England. The shares by other modes are therefore broadly based on those from the Leeds Arena Transport Assessment. Typical car occupancy for each venue event has also been provided by IPW as set out in Section 5.1.3.

Table 21: New Venue Mode Share

New Venue	Vehicle	PT - Rail	PT – Bus	Cyclist / Pedestrian	Taxi / Private	Coach	Total
Weekday	85%	5%	3%	2%	5%	0%	100%
Saturday	85%	5%	3%	2%	5%	0%	100%
Evening	60%	15%	5%	3%	15%	2%	100%

Vehicle mode share includes drivers and occupants parking at the KCH car park or elsewhere in the town centre. The taxi / private mode share includes visitors being dropped-off and picked-up by private vehicle or taxi.

6.1.4 Food Hall

The sustainable mode shares for Food Hall have been taken from TRICS and are presented in the Table 22 below.

Table 22: Food Hall Mode Share

Land Use	Vehicle Driver	Vehicle Passenger	PT - Rail	PT – Bus/ Coaches	Cyclist	Pedestrian	Total
Weekday	34.60%	21.00%	1.50%	11.10%	0.10%	31.70%	100%
Weekend	25.65%	15.75%	-	2.70%	-	55.90%	100%

6.1.5 Outdoor Event Space

Details of the mode share for the Outdoor Event Space are not known, therefore, a similar mode share for that of the Venue has been assumed. Slight adjustments have been made to account for the more local catchment for outdoor events, so slightly higher numbers by public transport and walking.

Table 23: Outdoor Event Space Mode Share

New Venue	Vehicle	PT - Rail	PT – Bus	Cyclist / Pedestrian	Taxi / Private	Coach	Total
Weekday and Saturday	80%	6%	4%	5%	5%	0%	100%

Vehicle mode share includes drivers and occupants parking at the KCH car park or elsewhere in the town centre. The taxi / private mode share includes visitors being dropped-off and picked-up by private vehicle or taxi.

6.2 Pedestrian Assessment

A review of existing pedestrian infrastructure has been undertaken and is provided in Chapter 2.

6.2.1 Pedestrian Accessibility

Pedestrian access to the site will be provided from vehicular routes surrounding the site including Peel Street and Alfred Street to the west, Queensgate to the south and east and Queen Street to east. These routes generally include wide pedestrian footways as well as crossing provision and lighting to provide good pedestrian access into the site. Kirklees Council proposals for A62 Queensgate including new footways, cycleways and crossings will be incorporated into the car park access proposals and improve access to/from the south east of the ring road. The pedestrianised routes of King Street and Victoria Lane also provide traffic free access into the site. Separate Kirklees Council proposals for Queen Street aim to restrict traffic movements and provide an improved environment for pedestrians accessing the town centre and site.

Although now superseded by NPPF, PPG13: A Guide to Better Practice stated that "*motorised modes are rarely used for trips of around half a mile (0.8km) or less*" and that "*walking is the most important mode of travel at the local level and offers the greatest potential to replace short car trips, particularly under 2km*".

The 0.8 km threshold distance therefore relates to the typical distance that people are prepared to walk before reverting to motorised modes of travel and the 2 km threshold distance is that below which planning policy seeks to replace car trips for walking trips. Figure 6 demonstrates the 0.8km and 2 km walking distance isochrones from the centre of the Site.

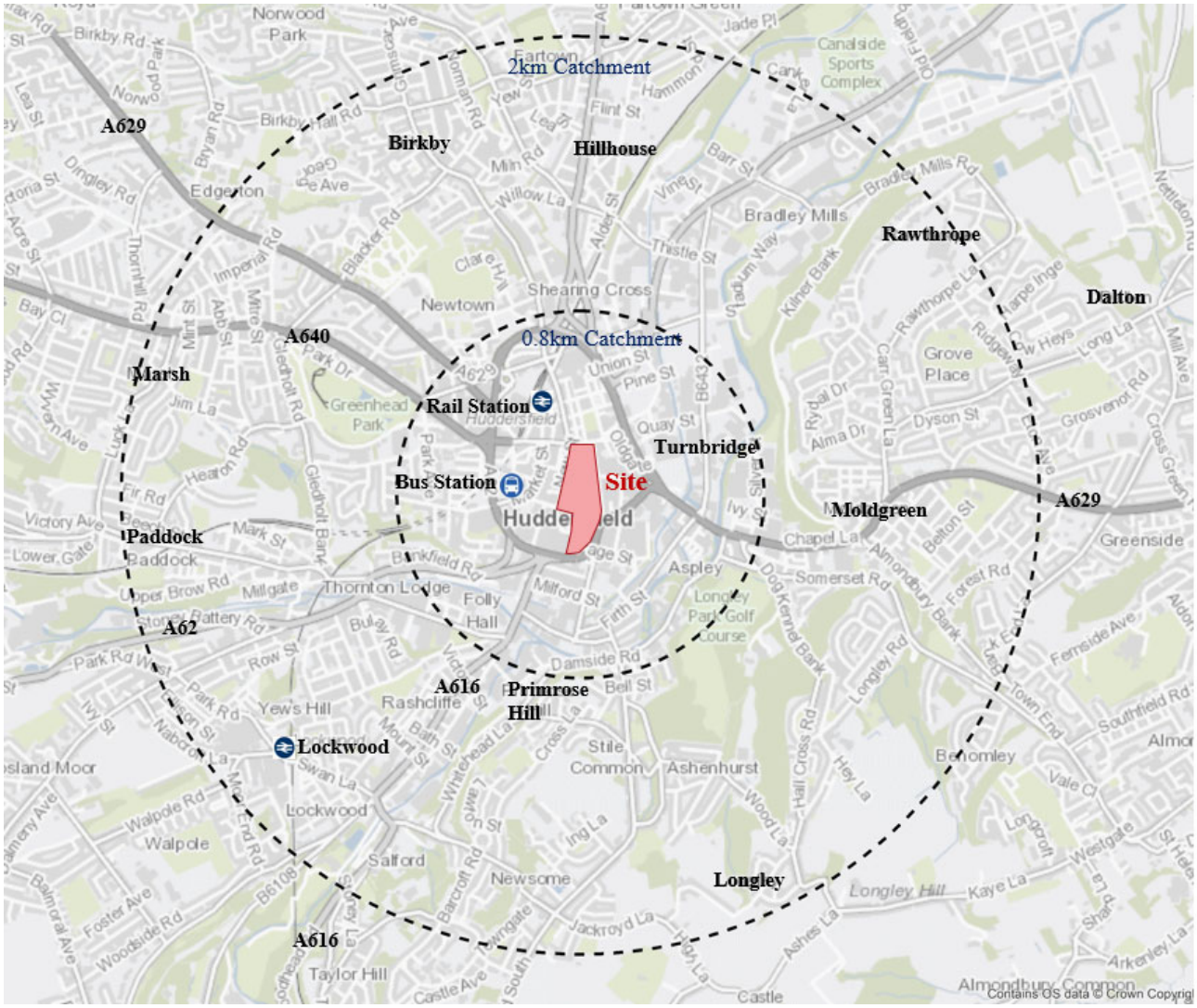


Figure 6: 0.8km and 2km Walking Catchment

All of Huddersfield town centre, including the rail station, bus station and core retail and leisure areas are within 800m walking distance (approx. 10 minutes walk) of the site. Areas to the south and east of the ring road including the University of Huddersfield, Kirklees College as well as retail and commercial areas are also all within 800m walk. In addition, some residential areas including Springwood / Greenhead to the west and areas of student accommodation are within an approx. 10 minute walk.

A large part of the urban area of Huddersfield is within 2km of the site (approx. 25 minutes walk) including surrounding residential areas such as Greenhead, Newsome, Longley, Rawthorpe and Bikby, enabling access to the KCH scheme by residents.

6.2.2 Pedestrian Impact

Based on the predicted trip rates and walking mode share, the total number of peak hour walking trips to / from the Site for the principle uses within the Development are shown in the Table 24 below.

Table 24: Pedestrian trips by land use

	AM Peak Hour	PM Peak Hour	Evening Peak Hour	Saturday Peak Hour
Museum & Art Gallery	0	7	0	26
Library	0	26	24	32
Venue	2	2	26	3
Food Hall	0	13	31	98
Outdoor Event Space	-	-	20	5
Total two-way	**2**	**48**	**101**	**164**

A total of 2 two-way pedestrian movements are predicted in the AM peak hour, 48 predicted in the PM peak hour, 101 in the Evening peak hour and 164 in the Saturday peak hour.

Pedestrian trips will be spread across the site and town centre and can be accommodated on existing local infrastructure which is of good quality. It is noted that Kirklees Council are implementing a number of active travel schemes which will improve the wider network for pedestrians.

6.2.3 KCH Scheme Provision for Pedestrians

The new car park access junction includes crossing provision for pedestrians including across the car park accesses as well as across A62 Queensgate. This connects with the new pedestrian and cycle routes along the northeast bound carriageway of Queensgate to be implemented as part of the wider Queensgate scheme improvements being separately brought forward by Kirklees Council.

The KCH scheme comprises a number of areas of public realm to provide pedestrian permeability through the site. The proposals include a network of pedestrian routes though these areas, with high quality materials, planting, seating, lighting and CCTV providing attractive and secure environment for pedestrians.

The scheme will provide level access to all buildings and ramps, stepped routes with areas of rest and lifts also proposed to provide accessible access and accommodate level changes across the site.

The public realm and pedestrian routes connect with external pedestrian routes, both on local highways and within existing pedestrian zones, to provide connectivity with the wider town centre and surrounding areas. This includes links to nearby bus stops, the bus station and rail station.

A signing and wayfinding scheme will be implemented to assist visitors in finding their way to / from and within the scheme. This will highlight routes to the bus and rail station as well as key car parks surrounding the site.

6.3 Cycle Assessment

A review of existing cycling infrastructure has been undertaken and is provided in Chapter 2.

6.3.1 Cycle Accessibility

Cycle access will be available from all routes surrounding the site, connecting with the wider cycle network, including to / from:

- the new two-way cycle lane on the A62 Queensgate northeast bound carriageway,
- Queen Street which is to be redeveloped by Kirklees Council to restrict traffic and enhance access for pedestrians and cyclists.
- King Street and Victoria Lane which are Pedestrian Zones which restrict vehicular access but allow cycle access

- High Street, Ramsden Street, Peel Street and Alfred Street route which are identified as advisory cycle routes

Cycling England's Integrating Cycling into Development Proposals (2009) notes that "*Most cycle journeys for non-work purposes and those to rail stations are between 0.5 miles [0.8km] and 2 miles [3.2km], but many cyclists are willing to cycle much further. For work, a distance of 5 miles [8km] should be assumed*". Figure 7 demonstrates that the majority of the Huddersfield urban area and some more rural areas are located within 5km of the site, including Lindley, Leymoor, Honley, Almondbury, Kirkheaton and Brackenhall. Cycling to the site could be feasible for staff and visitors living in these areas.

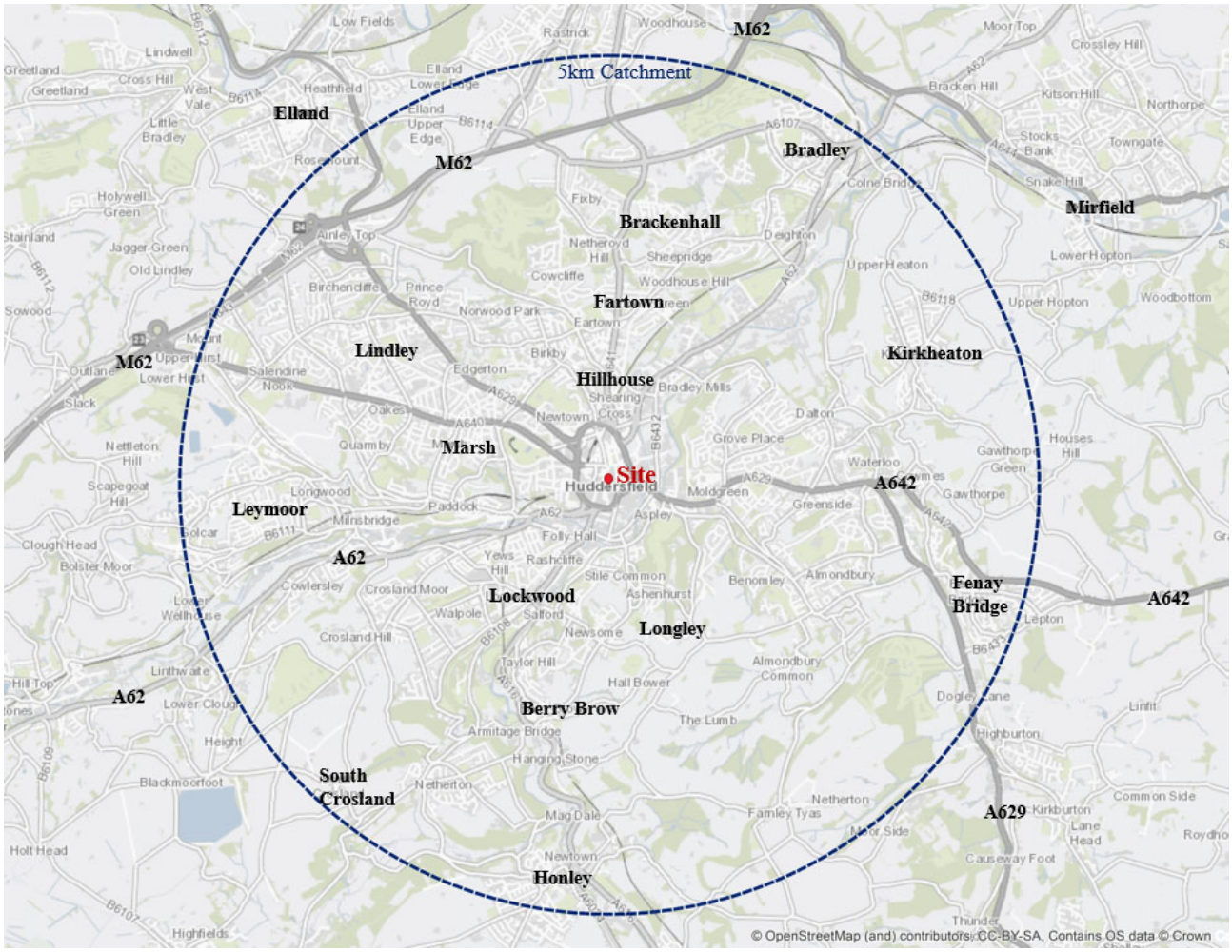


Figure 7: 5km Cycling Catchment

Cycle Impact

Based on the predicted trip rates and cycling mode share, the total number of peak hour cycling trips to/from the Site for the principle uses within the Development are shown in Table 25 below.

Table 25: Cycle trips by land use

Development	AM Peak Hour	PM Peak Hour	Evening Peak Hour	Saturday Peak Hour
Museum & Art Gallery	0	0	0	1
Library	0	1	1	1
Venue	2	2	13	3
Food Hall	0	0	0	0
Outdoor Event Space	-	-	5	1
Total two-way	**2**	**3**	**19**	**6**

A total of 2 two-way cycle movements are predicted in the AM peak hour, 3 predicted in the PM peak hour, 19 in the Evening peak hour and 6 in the Saturday peak hour.

Cycle trips will be spread across the site and town centre and can be accommodated on existing local infrastructure which is of good quality. It is noted that Kirklees Council are implementing a number of active travel schemes which will improve the wider network for cyclists.

6.3.2 KCH Scheme Provision for Cyclists

Cycle parking will be provided at a number of locations throughout the site to provide for staff and visitors and connecting with existing cycling networks for good connectively to the surrounding town centre.

Secure and covered staff cycle parking will be provided within each individual building with provision of 1 space per 10 staff and include shower, changing facilities and lockers.

Visitors cycle parking will be located throughout the site. For short stay cycle parking, a total of 70 'Sheffield' stands (140 cycle spaces) will be provided at six locations across the site including near each building and within the public realm. Of this provision, 5% of the cycle spaces will accommodate larger or adapted cycles.

Kirklees Council does not currently have cycle parking standards with provision considered on a site by site basis. A review of LTN1_20 short stay standards has been undertaken to consider the level of cycle parking across the site. It is noted that the requirement for cycle parking for leisure development is considered high, therefore a comparison for retail development has been undertaken to identify a range.

Table 26: Cycle Parking Standards LTN1_20 – Short Stay

Development	Retail	Leisure	Floor area (sqm)/ Capacity	Short Stay range
Museum	1 per 250sqm	1 per 50sqm	5,726sqm	23-115
Art Gallery	1 per 250sqm	1 per 50sqm	2,993sqm	12-60
Library	1 per 250sqm	1 per 50sqm	4,784sqm	19-96
Venue	-	1 per 30 seats or 1 per 50sqm	7,705sqm / 2200 seats	73-154
Food Hall	1 per 250sqm	-	2,379sqm	10
Total				**137- 435**

It is also noted that the BREEAM requirements based on occupancy levels for individual buildings would require 98-150 cycle parking spaces across the site, based on BREEAM calculated and maximum venue occupancy levels.

As set out above, short stay cycle parking for a total of 140 cycles will be provided across the site. This is towards the lower end of the range as set out in Table 26 above, however, is consistent with BREEAM requirements. It is considered more than sufficient to accommodate the cycle demand based on the forecast peak hour cycle trips. As part of the site wide Travel Plan, the usage of cycle parking will be monitored.

6.4 Public Transport Assessment

A review of existing provision for public transport has been undertaken and is provided in Chapter 2.

6.4.1 Public Transport Accessibility

The site is well located for public transport accessibility. As noted at Section 2.6 an assessment of the Accessibility Index gives a PTAL score of 29.34 which represents a very high level of access to public transport services. Huddersfield bus station is located at Upperhead Row / Market Street approx. 350m west of the KCH site between Market Street and the ring road (A62 Castlegate). The bus station provides a covered, well lit environment for waiting with seating and a range of facilities including toilets and cafe / retail provision. The main pedestrian routes to the site are via High Street / Ramsden Street or King Street /

Dundas Street which provide access to a significant number of local and regional services within an approximate 5 minute walk.

In the immediate vicinity of the site, bus stops are located along Peel Street, Queensgate and Queens Street providing access to 30+ services per hour during the day. There is wide footway provision for waiting with street lighting provided. Two of the three bus stops include shelters, bench seating and timetable information, the FTB bus stop includes a pole only.

Huddersfield Rail Station is located to the northwest of the town centre at St George's Square, approximately 500m northwest of the site. This provides access to a range of local, regional and national rail services, including frequent services to Leeds, Manchester, Hull, Sheffield, Newcastle, Liverpool and Bradford. The rail station provides sheltered and well lit waiting environment for passengers with CCTV. Step free access is provided between the station entrance and all platforms. A number walking routes through the town centre connect to the rail station within an approximate 10 minute walk, including via High Street / Market Street / Railway Street or Victoria Lane / Market Place / John William Street or Victoria Lane / Wood Street. The station is accessed through the town centre where there is good surveillance, street lighting, footways and crossing provision.

6.4.2 Public Transport Impact

Based on the predicted trip rates and public transport share, the total number of peak hour bus and rail trips to/from the Site for the principle uses within the Development are shown in the tables 27 and 28 below.

Table 27: Bus trips by land use

Development	AM Peak Hour	PM Peak Hour	Evening Peak Hour	Saturday Peak Hour
Museum & Art Gallery	0	5	0	19
Library	0	4	3	4
Venue	7	7	66	8
Food Hall	0	5	11	5
Outdoor Event Space	-	-	20	5
Total	**7**	**21**	**100**	**41**

A total of 7 bus trips are predicted in the AM peak hour, 21 predicted in the PM peak hour, 100 in the Evening peak hour and 41 in the Saturday peak hour.

Bus trips will be spread across the range of bus services serving the town centre and site and can therefore be accommodated within existing services. 30-40 bus services pass immediately adjacent to the site stopping on Peel Street. Additional services stop at other stops within the town centre including at the bus station. It is considered there is available capacity on existing bus services to accommodate forecast development trips by bus. It is noted that there are fewer bus services available later in the evening when events at the venue would likely finish with approximately 5 service per hour from bus stops on Peel Street. It is anticipated that some visitors arriving by bus in the early evening for an event would leave later in the evening by taxi or private pick-up.

Table 28: Rail trips by land use

Development	AM Peak Hour	PM Peak Hour	Evening Peak Hour	Saturday Peak Hour
Museum & Art Gallery	0	5	0	20
Library	0	0	0	0
Venue	11	11	198	13
Food Hall	0	1	1	0
Outdoor Event Space	-	-	30	8
Total	**11**	**17**	**229**	**41**

A total of 11 rail trips are predicted in the AM peak hour, 17 predicted in the PM peak hour, 229 in the Evening peak hour and 41 in the Saturday peak hour.

The predicted rail trips will be spread across numerous rail services to / from Huddersfield serving a range of local, regional and national destinations. It is therefore considered that the numbers of trips generated by the Site can be accommodated within existing rail capacity.

6.4.3 Scheme Provision for Public Transport

The site is very well located for access to existing public transport services in the town centre, including both bus and rail services. No specific new provision is therefore proposed, however, the public realm and landscaping close to Peel Street will provide improved waiting environment for passengers waiting for bus services. In addition, as part of the wayfinding proposals, the walking and cycling routes between the bus station and rail station and site will be signed.

The site Travel Plan will promote access to the site by public transport with the aim to increase staff and visitor trips by public transport.

7. Parking Assessment

To inform the car parking requirements for the KCH scheme, a Car Parking Assessment was undertaken in February 2022, considering the previous detailed parking assessment by Systra in 2019/2020 and the forecast parking demand generated by the KCH scheme. The Parking Assessment report is provided at Appendix G with a summary of the assessment provided below. Since preparation of the Car Parking Assessment, some updates have been made to the forecast parking demand for the KCH scheme, including minor updates to the floor areas and inclusion of the Outdoor Event Space, which has been discussed further below.

7.1 Existing Town Centre Parking Provision

There are currently approximately 5,000 car parking spaces in Huddersfield town centre, including off street and on street spaces. Figure 8 below shows the key off street car parks within the town centre. The off-street car parks provide over 3,000 spaces within an approximate 1,200m (15 minute walk) of the KCH site. It should be noted that the Market Hall car park is excluded from the assessment as it was demolished in 2020.

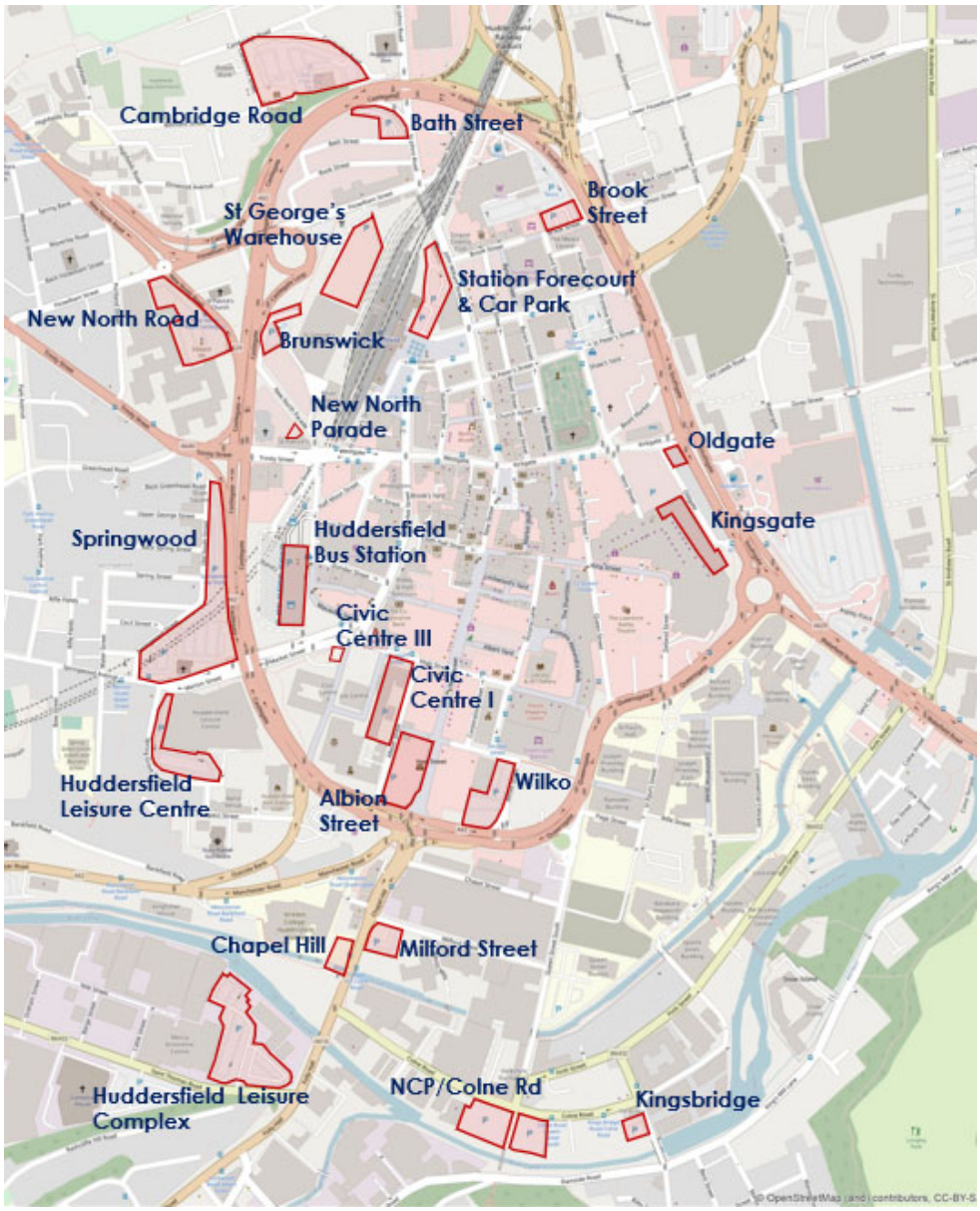


Figure 8: Existing Car Park Locations considered in the study (Open Street Map, Feb 2022)

7.1.1 Available Parking Capacity to serve the KCH site

A review of the town centre parking was undertaken to determine the future available parking to serve the KCH scheme. This included:

- A review of the detailed 2019 SYSTRA car park occupancy surveys. The survey data indicated that on a weekday (Thursday = market day) the peak occupancy across the town centre was approximately 70% from 11:00-15:00hrs. At 18:00hrs the occupancy was approximately 30%. For a Saturday, the peak occupancy was approximately 50% from 10:00-16:00hrs reducing to approximately 20% at 18:00hrs.
- Arup 2021 Spot Checks of occupancy at some town centre car parks on a weekday (Thursday) undertaken to compare against the more detailed 2019 surveys. Following the spot check surveys, it is considered that the findings of the detailed 2019 occupancy surveys are broadly representative of current parking demand within the town centre.
- Setting out future car parking provision across the town centre based on information provided by Kirklees Council officers in relation to planned closures as a result of redevelopment or reduced capacities as a result of mobility provision or electric vehicle charging. The future proposals will result in the removal of just over 900 off-street car parking spaces.
- Site visits were undertaken to key town centre car parks and observations made in relation to the quality and safety of car parks such as review of surfacing, markings, lighting provision and pedestrian access routes. In addition, the walking distance and route between the site and the car parks was considered. The car parks located further from the site and of poorer quality or accessibility were not considered suitable for serving the KCH scheme and therefore excluded from the assessment.

Following the review of car park locations and quality as well as planned future changes to provision, 13 car parks were identified that could potentially provide parking to serve the KCH development.

In addition, four existing car parks due to close as a result of redevelopment (Colne Road NCP, St George's Warehouse, New North Road and Cambridge Street) were included in the assessment. To account for existing users of these car parks relocating to different car parks, the occupancy of these car parks, as surveyed in 2021 has been totalled and taken from the total forecast available spaces.

Table 29 below provides the occupancy details for these car parks and potential numbers of spaces available for a Weekday daytime, Weekday evening and Saturday.

Table 29: Future Car Park Occupancy and Potential Capacity

Car Parks	Future Spaces	Weekday				Saturday	
		11:00 - 15:00		after 18:00		10:00 - 16:00	
		Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces
Town Hall (Wilko) Opp Market Hall	100	94	6	30	70	94	6
Kingsgate	650	358	293	closed	0	501	150
Civic Centre Car Park I	124	114	10	58	66	97	27
Albion Street Rooftop Car Park	41	39	2	23	18	29	12
Springwood Car Park	380	372	8	114	266	236	144
Oldgate Car Park**	5	8	-3	2	4	8	-3
Huddersfield Bus Station (Levels 1, 2 and 3)	225	153	72	68	158	99	126

Huddersfield Bus Station (Levels 4, 5 and 6)	225	223	2	68	158	61	164
Huddersfield Leisure Centre	110	86	24	33	77	96	14
Leisure complex	80	30	50	N/A	0	30	50
NCP/ Colne Rd*	0	198	-198	40	-40	12	-12
St George's Warehouse*	0	21	-21	30	-30	44	-44
Bath Street Car Park**	*24*	36	-12	7	17	28	-4
New North Road*	0	70	-70	31	-31	70	-70
Brunswick Street Car Park	26	26	0	8	18	12	14
New North Parade Car Park**	*9*	17	-8	3	6	19	-10
Cambridge Road Car Park*	0	45	-45	29	-29	22	-22
Total	**1999**	**1890**	**109**	**513**	**756**	**1434**	**565**
Car parks that will be closed in the future year* * Parking capacity reduced to accommodate development*							

The assessment indicates that on a weekday during the peak occupancy period approximately 11:00-15:00hrs, there are forecast to be 109 spaces available across the car parks. The majority of spaces available are located in the Kinsgate Shopping Centre car park and at the Bus Station.

The assessment indicates that on a weekday evening after 18:00hrs, there are forecast to be 756 spaces available across the car parks. It is noted that this excludes the Kingsgate shopping centre which closes at 18:30hrs and the Leisure complex which restricts public parking after 18:00hrs to be only available for complex visitors. The majority of spaces available are located in Springwood car park and at the Bus Station.

The assessment indicates that on a Saturday during the peak occupancy period approximately 10:00-16:00hrs, there are forecast to be 565 spaces available across the car parks. The majority of spaces available are located in the Kingsgate Shopping Centre car park, Springwood car park and at the Bus Station.

7.2 KCH Scheme Parking Demand

The following tables present the car parking demand for the different uses at the KCH scheme, using the forecast vehicle trip generation as set out at Chapter 5. These provide an update to the parking demand as set out in the Parking Assessment report at Appendix G as a result of the minor updates to the KCH scheme floor areas. In addition, parking demand for the Outdoor Event Space has also been considered.

7.2.1 Museum and Art Gallery

Forecast arrivals and departures across the day (both weekdays and Saturdays) and parking accumulation for the proposed Museum and Art Gallery are presented in Table 30 below.

Table 30: Museum and Art Gallery vehicle trips and car park accumulation – Weekday & Saturday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	0.056	0.014	3	1	3
10:00-11:00	0.149	0.034	9	2	10
11:00-12:00	0.197	0.142	12	9	13
12:00-13:00	0.156	0.156	10	10	13
13:00-14:00	0.176	0.204	11	12	11
14:00-15:00	0.102	0.142	6	9	9
15:00-16:00	0.149	0.237	9	14	3
16:00-17:00	0.081	0.142	5	9	0
17:00-18:00	0.044	0.037	3	2	0
18:00-19:00	0.000	0.000	0	0	0
Total	**1.110**	**1.108**	**68**	**68**	

The peak car parking demand is forecast to be 13 spaces between approximately 11:00 and 13:00hrs.

7.2.2 Library

Forecast arrivals and departures across the day (both weekdays and Saturdays) and parking accumulation for the proposed Library are presented below.

Table 31: Library New vehicle trips and car park accumulation – Weekdays & Saturdays

Time Period	TRICS Trip Rates (per 100 sqm)		13.5% Total trips as new trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	1
09:00-10:00	3.102	1.440	21	10	12
10:00-11:00	3.047	2.271	20	15	17
11:00-12:00	1.994	3.158	13	21	9
12:00-13:00	1.884	1.939	12	13	9
13:00-14:00	2.936	2.604	19	17	11
14:00-15:00	3.657	3.213	24	21	14
15:00-16:00	2.438	2.881	16	19	11
16:00-17:00	1.496	2.548	10	17	4
17:00-18:00	1.551	1.496	10	10	5
18:00-19:00	1.049	1.818	7	12	0
Total	**23.154**	**23.368**	**153**	**155**	

The peak car parking demand for the uplift for the improved Library provision is 17 spaces at 11:00hrs with demand reasonably consistent across the day from approximately 09:00 to 16:00hrs.

7.2.3 Venue

Forecast arrivals and departures across the day and parking accumulation for the proposed Venue are presented in the tables below. These set out the parking demand for the peak events assessed, comprising a Weekday business / conference event, a Saturday exhibition / consumer show and an Evening music event (weekdays or Saturday).

Table 32: Venue vehicle trips and car park accumulation – Weekday Business / Conference Event

Time Period	Total new trips		Total car parking accumulation
	Arrival	Departure	
07:00-08:00	0	0	0
08:00-09:00	153	0	153
09:00-10:00	51	0	204
10:00-11:00	0	0	204
11:00-12:00	0	0	204
12:00-13:00	0	0	204
13:00-14:00	0	0	204
14:00-15:00	0	0	204
15:00-16:00	0	0	204
16:00-17:00	0	51	153
17:00-18:00	0	153	0
18:00-19:00	0	0	0
Total	**204**	**204**	

On a weekday, the peak car park demand is forecasted to be 204 vehicles across the day from approximately 09:00 to 16:00hrs.

Table 33: Venue vehicle trips and car park accumulation – Saturday Exhibition / Consumer Show

Time Period	Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	
07:00-08:00	0	0	0
08:00-09:00	71	0	71
09:00-10:00	71	0	142
10:00-11:00	142	0	283
11:00-12:00	142	0	425
12:00-13:00	71	0	496
13:00-14:00	71	71	496
14:00-15:00	71	71	496
15:00-16:00	71	71	496
16:00-17:00	0	71	425
17:00-18:00	0	142	283
18:00-19:00	0	142	142
Total	**708**	**708**	

On a Saturday, the peak car park demand is forecasted to be up to 496 vehicles across the day from approximately 12:00 to 16:00hrs.

Table 34: Venue vehicle trips and car park accumulation – Evening (Weekday or Saturday) (2,200 max visitor capacity)

Time Period	Total new trips		Total car parking accumulation
	Arrival	Departure	
16:00-17:00	0	0	0
17:00-18:00	0	0	0
18:00-19:00	300	0	300
19:00-20:00	200	0	500
20:00-21:00	0	0	500
21:00-22:00	0	0	500
22:00-23:00	0	400	100
23:00-24:00	0	100	0
Total	**500**	**500**	

During evening events, the peak car park demand is forecasted to be up to 500 vehicles between 19:00 to 22:00hrs.

7.2.4 Food Hall

Forecast arrivals and departures across a Weekday and a Saturday and resulting parking accumulation for the proposed Food Hall are presented in Table 35 below.

Table 35: Food Hall vehicle trips and car park accumulation – Weekday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	0.000	0.000	0	0	1
10:00-11:00	0.429	0.271	3	2	2
11:00-12:00	0.903	0.474	5	3	5
12:00-13:00	3.026	1.106	18	7	16
13:00-14:00	2.393	1.919	14	12	19
14:00-15:00	1.287	1.174	8	7	20
15:00-16:00	1.377	1.287	8	8	20
16:00-17:00	1.197	1.152	7	7	20
17:00-18:00	1.558	0.835	9	5	25
18:00-19:00	2.664	2.958	16	18	23
19:00-20:00	2.619	3.184	16	19	20
20:00-21:00	2.235	2.845	13	17	16
21:00-22:00	1.174	1.580	7	9	13
22:00-23:00	0.768	1.964	5	12	6
23:00-24:00	0.655	1.648	4	10	0
Total	**22.285**	**22.397**	**134**	**134**	

The peak car park demand is 25 spaces at 17:00hrs with demand consistently over 15 from 12:00 to 20:00hrs.

Table 36: Food Hall vehicle trips and car park accumulation – Saturday

Time Period	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.882	0.000	5	0	5
09:00-10:00	1.579	0.614	9	4	11
10:00-11:00	2.345	1.581	14	9	16
11:00-12:00	2.890	1.636	17	10	23
12:00-13:00	5.234	2.290	31	14	41
13:00-14:00	3.435	4.744	21	28	33
14:00-15:00	3.162	4.471	19	27	25
15:00-16:00	2.999	3.435	18	21	23
16:00-17:00	4.526	3.162	27	19	31
17:00-18:00	4.198	3.217	25	19	37
18:00-19:00	3.599	3.653	22	22	36
19:00-20:00	2.399	3.217	14	19	31
20:00-21:00	0.927	2.508	6	15	22
21:00-22:00	0.709	2.017	4	12	14
22:00-23:00	0.327	1.963	2	12	4
23:00-24:00	0.175	0.614	1	4	2
Total	**39.386**	**39.122**	**236**	**235**	

The peak car park demand is 41 spaces at 12:00hrs with demand also at a similar level from approx. 17:00 to 20:00hrs.

7.2.5 Outdoor Event Space

Forecast arrivals and departures across the day and parking accumulation for the proposed Outdoor Event Space are presented in the tables below. These set out the parking demand for regular weekend activities and a Large Scale weekend event.

Table 37: Outdoor Event vehicle trips and car park accumulation – Saturday (Weekend Activity)

Time Period	Total new trips		Total car parking accumulation
	Arrival	Departure	
07:00-08:00	0	0	0
08:00-09:00	0	0	0
09:00-10:00	20	0	20
10:00-11:00	20	0	40
11:00-12:00	20	20	40
12:00-13:00	20	20	40
13:00-14:00	20	20	40
14:00-15:00	20	20	40

15:00-16:00	20	20	40
16:00-17:00	20	20	40
17:00-18:00	0	20	20
18:00-19:00	0	20	0
Total	**160**	**160**	

The peak car park demand is 40 spaces across the day from approximately 10:00-17:00hrs.

Table 38:Outdoor Event vehicle trips and car park accumulation – Weekend Large Scale Event

Time Period	Total new trips		Total car parking accumulation
	Arrival	Departure	
16:00-17:00	160	0	160
17:00-18:00	160	0	320
18:00-19:00	160	0	480
19:00-20:00	0	0	480
20:00-21:00	0	0	480
21:00-22:00	0	240	240
22:00-23:00	0	240	0
23:00-24:00	0	0	0
Total	**480**	**480**	

The peak car park demand is 480 spaces from approximately 18:00 to 21:00hrs.

7.2.6 Total Car Parking Demand

The total car parking demand for the different peak scenarios are set out in the tables below. These comprise:

- Weekday daytimes – comprising Museum, Art Gallery, Library and Food Hall demand and a Business / Conference event at the Venue
- Weekday evenings – comprising Museum, Art Gallery, Library and Food Hall demand and a maximum capacity Music event at the Venue
- Saturday daytime – comprising Museum, Art Gallery, Library and Food Hall demand and an Exhibition / Consumer event at the Venue as well as the regular small scale activities at the Outdoor Event Space

It is noted that the assessment does not present the car parking associated with Large Scale events at the Outdoor Event Space, on a weekend daytime or evening. As identified at section 7.2.5 the peak car parking demand for these larger scale events is approx. 480 parking spaces which is similar to the maximum demand for peak Evening and Weekend events at the Venue (Exhibition / Consumer Show = 496, Evening Entertainment event = 500). It is anticipated that programming of events at both the Venue and Outdoor Event Space will need to avoid peak events at both locations at the same time or additional management implemented. The process for this will be developed through the Events Management Plan which will be agreed through the appropriate planning condition.

The car park demand for a weekday with conference / business uses at the venue is set out in Table 39 below.

Table 39: Car Parking Demand – Weekday Daytime Peak

Time Period	Museum & Art Gallery	Library	Food Hall	Venue	Total
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	153	154

09:00-10:00	3	12	1	204	220
10:00-11:00	10	17	2	204	233
11:00-12:00	13	9	5	204	231
12:00-13:00	13	9	16	204	242
13:00-14:00	11	11	19	204	245
14:00-15:00	9	14	20	204	247
15:00-16:00	3	11	20	204	239
16:00-17:00	0	4	20	153	177
17:00-18:00	0	5	25	0	30
18:00-19:00	0	0	23	0	23
19:00-20:00	0	0	20	0	19
20:00-21:00	0	0	16	0	16
21:00-22:00	0	0	13	0	13
22:00-23:00	0	0	6	0	6
23:00-24:00	0	0	0	0	0

The peak car parking demand is 247 spaces with demand just under 250 from 12:00-16:00hrs.

The car park demand for a Weekday evening with a maximum capacity music event at the venue is calculated in Table 40 below.

Table 40: Car Parking Demand – Evening Peak (Weekday)

Hour	Museum & Art Gallery	Library	Food Hall	Venue	Total
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	0	1
09:00-10:00	3	12	1	0	16
10:00-11:00	10	17	2	0	29
11:00-12:00	13	9	5	0	27
12:00-13:00	13	9	16	0	38
13:00-14:00	11	11	19	0	41
14:00-15:00	9	14	20	0	43
15:00-16:00	3	11	20	0	35
16:00-17:00	0	4	20	0	24
17:00-18:00	0	5	25	0	30
18:00-19:00	0	0	23	300	323
19:00-20:00	0	0	20	500	519
20:00-21:00	0	0	16	500	516
21:00-22:00	0	0	13	500	513
22:00-23:00	0	0	6	100	106
23:00-24:00	0	0	0	0	0

The peak car park demand is 519 with demand just under 520 spaces from 19:00-22:00hrs.

The car park demand for Saturday with a peak exhibition / consumer event at the venue and smaller scale activity at the outdoor event space is calculated in Table 41 below.

Table 41: Car Parking Demand – Saturday Daytime Peak

Hour	Museum & Art Gallery	Library	Food Hall	Venue	Outdoor	Total
07:00-08:00	0	0	0	71	0	71
08:00-09:00	0	1	5	142	0	148
09:00-10:00	3	12	11	283	20	329
10:00-11:00	10	17	16	425	40	507
11:00-12:00	13	9	23	496	40	581
12:00-13:00	13	9	41	496	40	599
13:00-14:00	11	11	33	496	40	591
14:00-15:00	9	14	25	496	40	584
15:00-16:00	3	11	23	425	40	502
16:00-17:00	0	4	31	283	40	358
17:00-18:00	0	5	37	142	20	203
18:00-19:00	0	0	36	0	0	36
19:00-20:00	0	0	31	0	0	31
20:00-21:00	0	0	22	0	0	22
21:00-22:00	0	0	14	0	0	14
22:00-23:00	0	0	4	0	0	4
23:00-24:00	0	0	2	0	0	1

The peak car park demand is 599 with demand just under 600 spaces from 11:00-15:00hrs.

7.3 KCH Scheme Parking Provision

In consideration of the requirement for new parking to serve the KCH scheme, in addition to the available town centre parking and KCH scheme demand, a number of other factors have been considered:

- In light of the Climate Emergency declared by the Council, it is important to not over provide car parking as this encourages car trips which create emissions.
- The existing car parking provision across the town is over several small to medium car parks spread out throughout the town. A single dedicated facility would be easier to promote and provides a greater welcome experience to the KCH scheme and convenience for the significant number of visitors to the venue.
- A new facility enables high quality provision, such as larger spaces (as increasingly needed), security and lighting, improved pedestrian access and EV charging. It would enable enhanced control and management systems to be introduced.
- A new facility within the site would be designed to provide high quality well-signed routes for pedestrians walking between the scheme and the car park.

On the basis of the above assessment, a new 350 space car park is proposed to serve the KCH scheme. This will accommodate the peak parking demand for weekday daytime events such as conferences / business events and the majority of parking demand for peak evening and weekend events at the Venue.

7.4 Parking Assessment

Table 42 below provides a summary of the available parking provision and the KCH scheme parking demand showing that there will be sufficient available parking to accommodate the peak events assessed.

Table 42: Parking Assessment – accommodating peak events at the Venue

	Weekday Daytime	Weekday Evening	Saturday Daytime
Available parking capacity in town centre	109	756	565
New MSCP provision at KCH Scheme	350	350	350
Total Available Parking	**459**	**1,106**	**915**
KCH Scheme Peak Parking Demand	**247**	**519**	**599**
Remaining available parking capacity in town centre	212	587	316

The 350 parking spaces within the KCH scheme provides parking to accommodate weekday events, however, for occasional peak events on evenings and weekends at the Venue the KCH scheme parking will not be sufficient and additional town centre parking will be required to accommodate the KCH scheme demand. Information provided by IPW, as described at Section 5.1.3, set out the types and frequency of events at the Venue and parking requirements as summarised in Table 43 below.

Table 43: Parking Assessment – Anticipated Event Frequency and Demand

Conference / Business – 57 per year			
Weekday daytime	300 visitors – 1 per year. Parking = 204 spaces	200-250 visitors – 12 per year. Parking = 136-170	Average 87 visitors. Parking = 59 spaces
Trade Show – 5 per year			
Weekday daytime	300 visitors across the day. Parking = 150 spaces		
Exhibition / Consumer shows – 3 x 2 day event per year			
Weekend daytime	1250 visitors across the day. Parking = 500 spaces		
Entertainment Event- 128 per year			
Weekday evening and Weekend daytime / evening	Max standing = 2,200 visitors – 3 per year. Parking = 500 spaces	Seated show = 1,288 visitors – 50 per year. Parking = 412 spaces	Average 700 visitors. Parking = 224 spaces

The total demand of 500-600 (including other uses at the site) occurs approx. 9 times per year (exhibition / consumer shows and max capacity standing event at venue) and on Weekend daytime and Weekday / Weekend evenings. When these are ongoing, approx. 150-300 car parking spaces are required from other town centre car parks.

For approximately 50 seated shows per year (Weekday and Weekend matinee and evening performances) the peak demand is 412 car parking spaces, therefore 60-100 (including other uses at the site) car parking spaces are required from other town centre car parks.

The assessment shows that there is available car parking across the town centre at these times. As identified at Section 7.1.1, parking is generally available at Kingsgate Shopping Centre (daytime), Springwood Car Park (evenings and weekends) and at the Bus Station (evenings and weekends). These larger car parks are all located within an approximate 5 minute walk of the Venue site. In addition, a few smaller car parks including the Town Hall (Wilko) car park, Civic Centre car park and Albion Street Rooftop car park have available capacity, particularly in the evenings, and are all located approximately 1-2 minutes walk from the Venue site.

7.4.1 Car Parking Management / Signing

When larger events are ongoing at the Venue and Outdoor Event Space it will be important that suitable car parking information is provided to drivers. This will include a car parking signing strategy that advises visitors where the spaces are and directing them to other convenient car parking spaces elsewhere in the town if the KCH scheme car park is full. In addition, suitable information and signing on walking routes from these car parks to the Venue will be required.

7.5 Outdoor Events Space

Peak parking demand associated with Large Scale events in the Outdoor Event Space has not been included within the above parking assessment. These events would generate car parking demand of up to approximately 480 spaces. These events are likely to occur once a month, generally on weekends and could be daytime or evening events. If such events were programmed at the same time as peak events at the venue these would generate additional parking requirements across the town centre. As noted at Section 4.5 an Events Management Plan is required to coordinate the programming of events and minimise these potential peak events at the Venue and Outdoor events space.

Ideally, larger scale events at the Outdoor Event Space (approx. 12 per year) should avoid conflict with consumer / trade shows (6 weekend days per year), peak music events (3 evenings, weekday or evening) and seated shows (50 per year, daytime and evening). If events are scheduled at the same time, the Events Management Plan would identify additional off site parking and the implementation of temporary signing and traffic management to advise drivers where to park and how to access the events.

7.6 On Street Parking

It is noted that the car park assessment does not consider on-street parking. It is likely that there will be on-street parking available within a short walk (areas to south and east of the ring road), particularly on evenings and weekends which could accommodate some the KCH scheme parking demand. For much of the on street parking, charges do not apply.

7.7 Conclusion

The car parking assessment demonstrates that the new KCH car park will provide sufficient parking for the KCH scheme for the majority of events at the venue, however for some peak weekend and evening events additional town centre parking will be required. The assessment considers available car parking across the town centre and demonstrates that the forecast KCH scheme parking peak demand can be accommodated. There is a range of parking available across the town centre including on and off street parking which will give drivers a good choice in terms of location and cost.

8. Highway Assessment

This chapter sets out the methodology and results of the modelling undertaken to assess the impact of the KCH development proposals.

8.1 Methodology

8.1.1 Model Parameters and Extents

A local highway network model has been developed using TRL TRANSYT software to assess the development's impact on the local highway network. The Cell Transmission Module (CTM) feature of the modelling software has been used to account for junction performance and potential back-blocking effects along links.

The model extents are shown in Figure 9 below. It covers the south-eastern part of the ring road between the traffic signal controlled Shorehead Roundabout (located to the north east) and the A62 Manchester Road / Outcote Bank traffic signal controlled junction (located to the south west), and several junctions along A62 Queensgate including with Zetland Street / University Street, Queen Street, Queen Street South, Alfred Street and Chapel Hill.

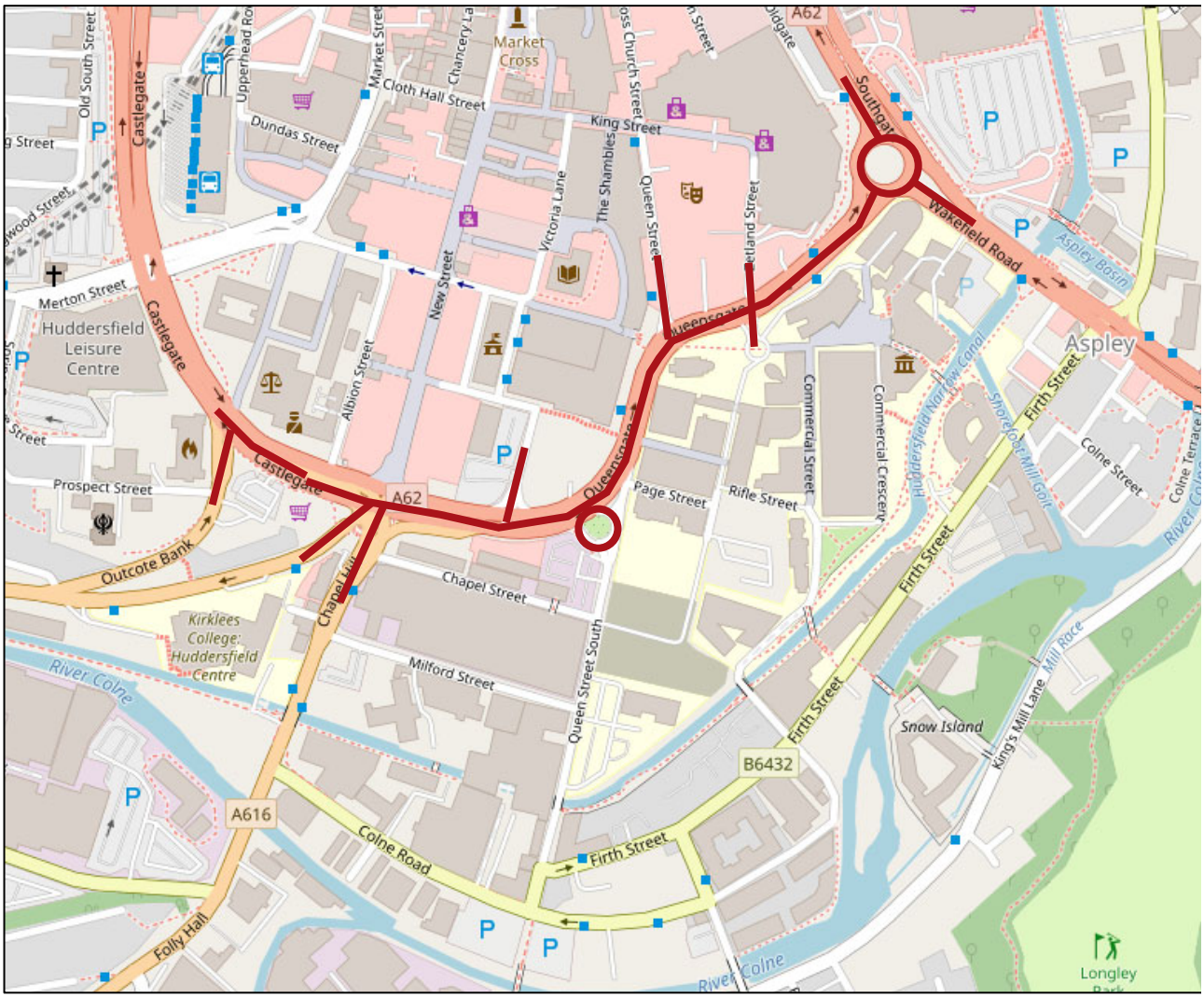


Figure 9: Model Extents

The highway models have been created using OS mapping, signal controller specifications and committed scheme design information provided by the local highway authority, and DfT research (RR67) to calculate saturation flows at stop lines. It should be noted that the junctions in the study area operate SCOOT and no call plans or ASTRID data has been provided to determine the average controller cycle times from recently capture operational data. Therefore, an average controller cycle time of 80 seconds has been applied across all models to provide comparative parameters to analyse the results against.

Traffic surveys undertaken in 2022 have been input to model the background flows with queue length information used as a sense-check against modelled results. Please note that greater weighting has been given the DfT research to calculate "typical" over the limitations that queue information could present.

TRANSYT calculates the Degree of Saturation (DoS) and Mean Maximum Queue (MMQ) for each approach to a junction (or link). The DoS indicates the performance of the junction under a given set of traffic flow conditions. To account for day-to-day variations in traffic conditions, it is normal practice to consider a DoS value greater than 90% to operate over practical capacity and values over 100% suggesting that the junction operates above theoretical maximum capacity. DoS values over 100% could result in disproportionate queue results depending on the number of movements being processed within the model.

8.1.2 2022 Vehicular Traffic Surveys

Fully classified turning counts were undertaken for the junctions within the model study area on Thursday 23rd June 2022 (for the periods AM 07:00-10:00hrs and PM 16:00-22:00hrs) and Saturday 25th June 2022 (11:00-14:00hrs). In addition, 24 hour link counts were undertaken on A62 Queensgate, close to the proposed MSCP site access location to continuously capture classified traffic flows between Tuesday 21st June to Monday 4th July 2022.

It should be noted that the traffic surveys coincided with a week of national rail strikes which could have resulted in a change in vehicular traffic flows from rail passengers temporarily switching mode from rail to car or choosing to work from home. Therefore, to validate that the junction counts are representative of typical flow conditions, the traffic flows from the link counts have been reviewed against each other for strike days and non strike days.

Analysis of the data shows that while there is some variation in the surveyed flows (both increases and decreases), generally the variances in flows are fairly modest (<100ph) for the majority of the day with the exception for a short period around 08:30-09:00hrs where the survey data shows a larger increase on the strike day.

Generally, however, the changes in traffic flows across the day are less than 5% difference (increase or decrease) other than in the early morning when a relatively minor difference in count is more significant in percentage terms. For the peak hours assessed, the percentage difference for two-way flows is 4% in the AM peak hour, 2% in the PM peak hour and 0% in the Saturday peak hour. These differences are well within normal day to day variations of traffic flow. On the basis of this assessment, it is therefore considered that the detailed surveyed traffic turning count data collected on Thursday 23rd June and Saturday 25th June represent reasonable typical traffic flows and are suitable for use in the highway assessment. The findings of the analysis are provided in Appendix H.

8.1.3 Committed Developments and Highway Scheme

Committed developments and highways schemes have been queried with the local highway authority as part of the pre-application discussions for inclusion in the future year assessment scenarios.

The highway authority has identified the proposed active travel highway improvement scheme on A62 Queensgate, being separately progressed by Kirklees Council, for inclusion the highway assessment. No committed developments have been identified by the local authority. An independent review of recent planning approvals has identified the following:

- 2021/91544 University health and innovation campus (A62 Southgate, approx. 700m north east) – The TA identified a total of 100 two-way trips in both the AM and PM peak hours, details of distribution is not provided but flows on to A62 Queensgate will be relatively minor

- 2018/9647 former College mixed use development (Portland Street / Trinity Street, approx. 1km north west) – The TA identified that given the existing uses of the site the forecast additional trips will be low. In addition, for foodstore development, the majority of trips are considered to be passby with trips generally already on the local highway network. No material impact on the highway network was concluded.

The review concludes both developments will generate minor traffic flows, particularly on the A62 Queensgate, and therefore has not been considered in isolation to background traffic growth in the future year assessments. It is reasonable to assume these movements are already accounted for in the background the traffic growth forecasts being applied to the base traffic flows.

8.1.4 Assessment Years

Pre-application discussions with the local highway authority have agreed the assessment of a base year model (2022) and a future year model that is five years beyond the year of application. The active travel improvement scheme along the A62 (between the site frontage and Shorehead Roundabout) referred to in Chapter 2 of this report has also been considered as part of a "Do Minimum" scenario assessment.

Locally adjusted traffic growth factors from the National Trip End Model (NTEM/Tempro) have been applied to the 2022 base traffic flows to derive the 2027 traffic flow conditions. Table 44 summarises the NTEM growth factors.

Table 44: Background Traffic Growth (NTEM/Tempro)

Peak Period	Growth Factor (2022-2027) - Kirklees
AM Peak period	1.0345
PM Peak period	1.0441
Saturday all day	1.0396

Therefore, in summary, the following scenarios have been assessed:

1. **2022 Base** – this is the year of application and considers 2022 traffic count data.
2. **2027 Base** – this includes the traffic count data and background traffic growth to 2027.
3. **2027 Do Minimum** – this includes the traffic count data, background traffic growth to 2027 and the proposed changes to the highway network as shown by the local authority's committed active travel improvement scheme.
4. **2027 Do Something** – this includes the forecast development trips and new site access junction applied to the 2027 Do Minimum model.

8.1.5 Assessment Periods

The trip generation exercise set out in Section 5 shows the biggest trip generators are the new venue and outdoor events space. However, the peak hours identified based on their forecast trips do not coincide with the highway network peak hours.

Therefore, the forecast KCH development traffic flows, for all site uses, have been added to the existing base traffic flows (at the link count survey point on A62 Queensgate close to the proposed MSCP access) to determine the appropriate peak hours for assessment. Figures 10 – 13 below show the cumulative two-way traffic flows for weekday and weekend.

Figure 10: Network Traffic Movement - Weekday Daytime Event

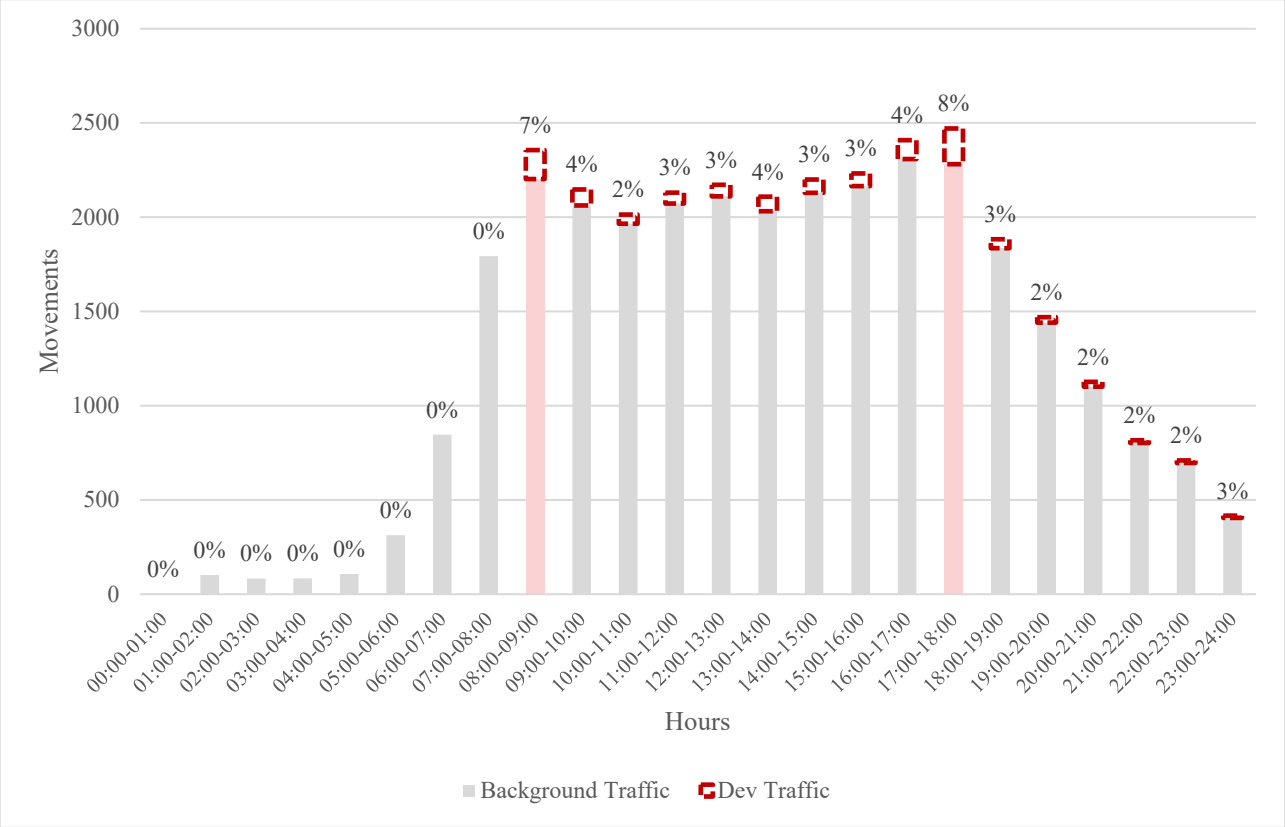


Figure 11: Network Traffic Movement - Weekday Evening Event

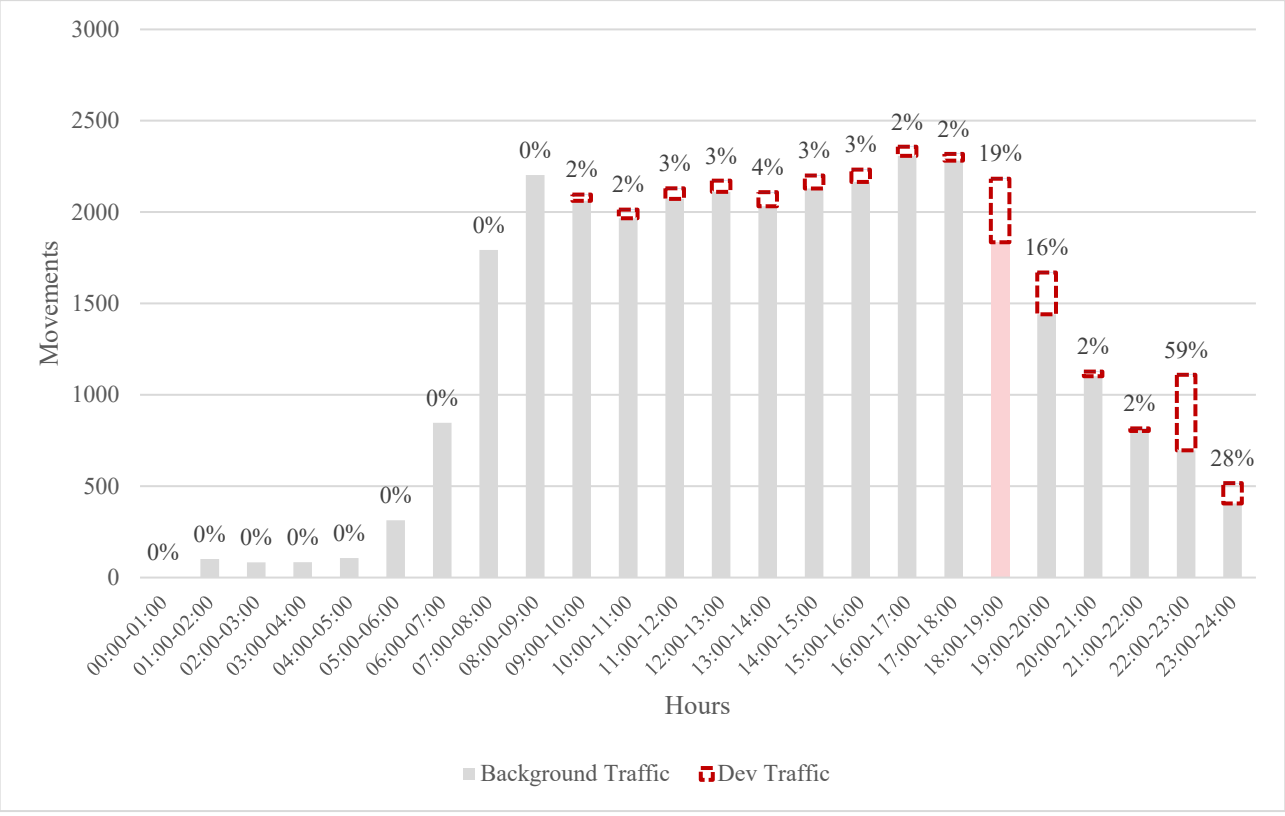


Figure 12: Network Traffic Movement - Saturday Peak Event

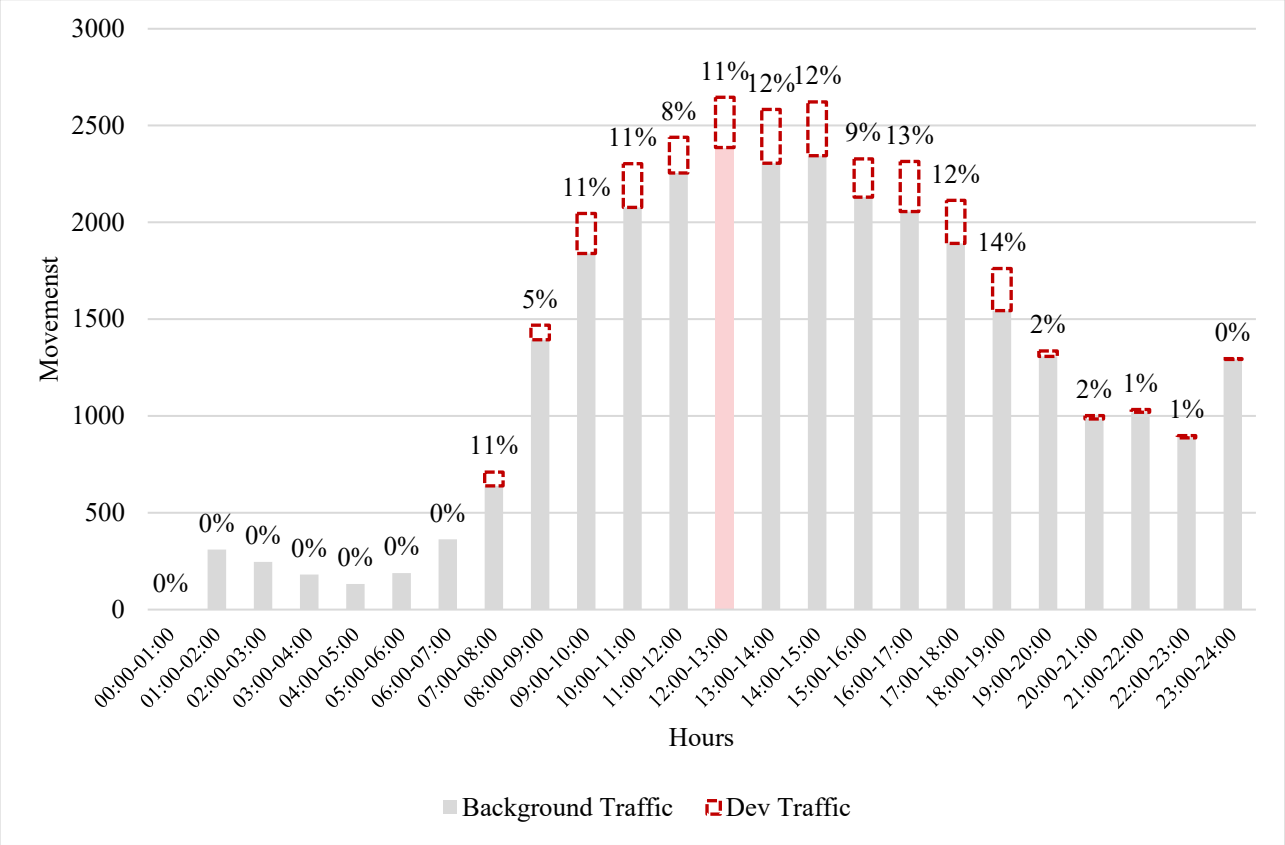
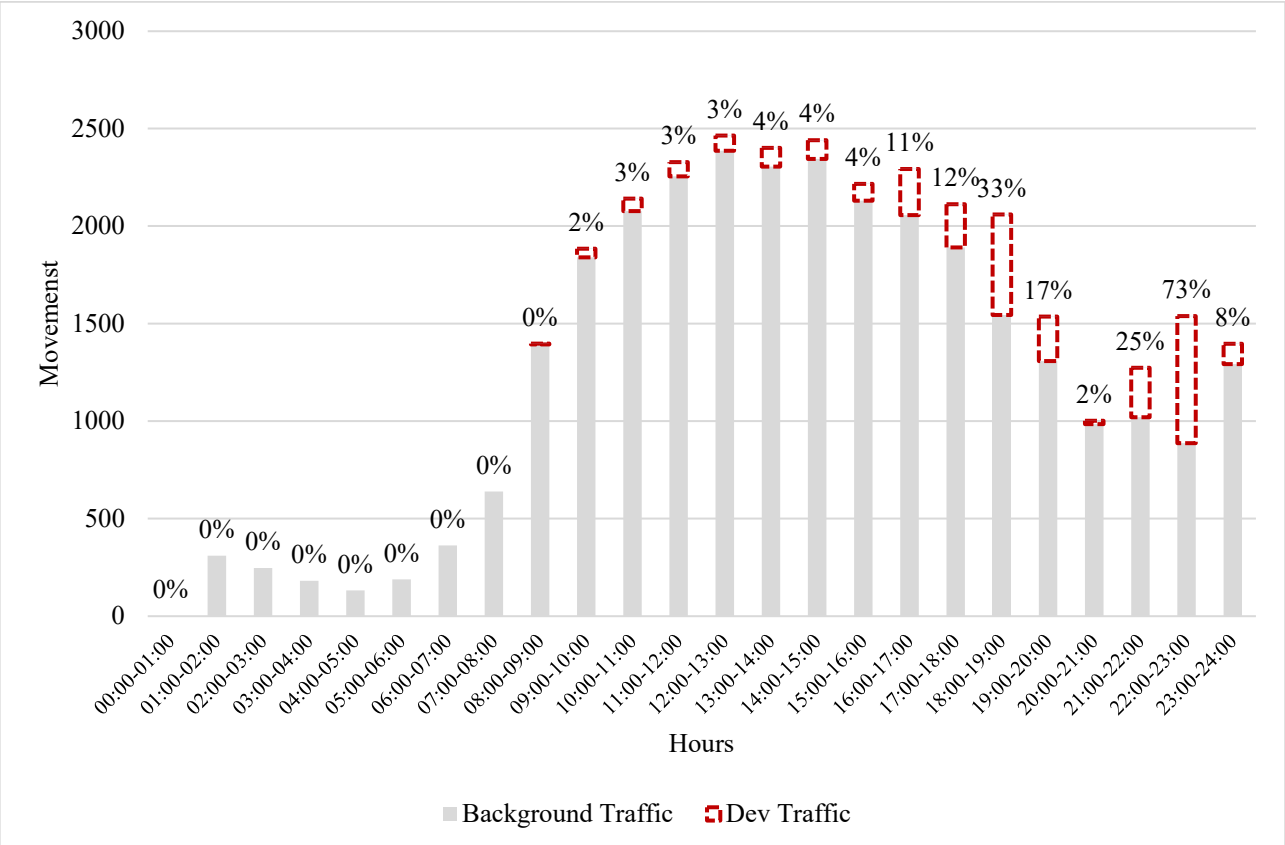


Figure 13: Network Traffic Movement - Saturday Evening Event



The exercise identifies the following times for assessment, and these have been agreed with the local highway authority as part of the pre-application discussions:

- **Weekday AM Peak (08:00 – 09:00) and PM Peak (17:00 – 18:00) Hours** – this period accounts for the forecast arrival and departure trips associated with the conference / business events in additional to the peak background traffic flows. Figure 10 shows the PM peak hour for the background traffic flow to occur in the preceding hour, however with combining the development flows, the 17:00 – 18:00 hrs period appears to show the greatest flow.
- **Evening event peak 18:00-19:00hrs –** this period accounts for the arrivals trips for events at the venue. Although the combined flows for the preceding hour are higher and is already being assessed as the PM peak hour, the assessment of this hour has been agreed with the local highway authority for robustness.
- **Saturday peak hour 12:00 – 13:00 hrs** – this period accounts for development activities throughout the day combined with high background traffic flow.

Traffic flow diagrams showing peak hour flows in each assessment year are provided in Appendix I.

It should be noted that the KCH development traffic flows on a weekday evening (22:00-23:00hrs, entertainment event departures) and Saturday evening (18:00-19:00hrs and 22:00-23:00hrs, venue and outdoor event space arrivals and departures) have not been assessed as the background traffic levels are significantly lower thereby resulting in combined traffic flows lower in comparison to the assessed peak hours.

8.2 Highway Assessment Results

The following tables summarise the results of the 2022 Base, 2027 Base, 2027 Do Minimum and 2027 Do Something models along with commentary on the results. A copy of model output results is provided in Appendix J.

8.2.1 Peak Hour Assessments

The results of the assessment show the network to perform within theoretical practical capacity during all the modelled peak hours. Tables 44 to 47 show the highest DoS at each junction and the corresponding queue value.

Analysis of the results in 2027 Base scenario show that the A62 Castlegate/Chapel Hill junction is forecast to operate with a DoS over 85% in the AM, PM and Saturday peak hours with mean max queues of 7-11pcus on some approach links. Some junctions (such as at A62/Outcote Bank, A62/Alfred Street, A62/University Road and Shorehead Roundabout) achieve DoS values 60% and moderate max queues (6-10pcus) with the forecast increase in background traffic growth.

For the 2027 Do Minimum scenario, the committed active travel improvements have negligible impact on operation of the network. The introduction of new controlled crossing points at the Shorehead Roundabout, shows some impact which is reflected by slight increase in DoS in the Do Minimum results. The marginal delays to flows at Shorehead Roundabout create increased gaps between platooning traffic along the A62 in the southbound direction which assist downstream junction to optimise junction performance thereby creating a marginal increase in junction capacity.

Table 45: TRANSYT Modelling Results AM Peak Hour

Junction	Base 2022		Base 2027		Do-Minimum		Do-Something	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
20 – A62 Castlegate / Outcote Bank	64%	6	66%	6	57%	6	71%	7
30 – A62 Castlegate / Albion Street	18%	2	19%	2	19%	2	19%	2
40 - A62 Queensgate / Chapel Hill	87%	8	88%	9	83%	8	86%	9
50 – A62 Queensgate / Alfred Street	56%	6	59%	6	56%	6	52%	6
60 – A62 Queensgate / Queens Street South	20%	0	21%	0	17%	0	17%	0
61 – A62 Queensgate / New Site Access	48%	0	50%	0	50%	0	60%	8
70 – A62 Queensgate / Queen Street	48%	0	50%	0	53%	2	57%	5
80 – A62 Queensgate / University Road	66%	10	68%	10	52%	4	56%	6
90 – Shorehead Roundabout	59%	2	62%	2	63%	2	66%	2

Table 46: TRANSYT Modelling Results PM Peak Hour

Junction	Base 2022		Base 2027		Do-Minimum		Do-Something	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
20 – A62 Castlegate / Outcote Bank	58%	6	58%	5	63%	6	76%	7
30 – A62 Castlegate / Albion Street	58%	2	60%	2	60%	2	58%	2
40 - A62 Queensgate / Chapel Hill	83%	7	86%	8	80%	7	87%	8
50 – A62 Queensgate / Alfred Street	56%	5	61%	6	54%	6	67%	6
60 – A62 Queensgate / Queens Street South	18%	0	19%	5	15%	0	16%	0
61 – A62 Queensgate / New Site Access	49%	0	51%	3	50%	0	64%	6
70 – A62 Queensgate / Queen Street	46%	0	48%	4	51%	4	54%	0
80 – A62 Queensgate / University Road	60%	7	64%	7	51%	4	61%	7
90 – Shorehead Roundabout	65%	3	61%	2	69%	5	68%	2

Table 47: TRANSYT Modelling Results Evening Peak Hour

Junction	Base 2022		Base 2027		Do-Minimum		Do-Something	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
20 – A62 Castlegate / Outcote Bank	54%	4	56%	5	61%	5	58%	5
30 – A62 Castlegate / Albion Street	32%	2	36%	2	36%	2	37%	2
40 - A62 Queensgate / Chapel Hill	56%	2	62%	2	58%	5	63%	6
50 – A62 Queensgate / Alfred Street	44%	4	47%	4	44%	5	47%	6
60 – A62 Queensgate / Queens Street South	12%	0	13%	0	11%	0	11%	0
61 – A62 Queensgate / New Site Access	39%	0	40%	0	40%	6	90%	6
70 – A62 Queensgate / Queen Street	37%	0	38%	0	41%	2	48%	0
80 – A62 Queensgate / University Road	50%	7	52%	7	41%	5	48%	4
90 – Shorehead Roundabout	62%	6	66%	6	55%	3	58%	2

Table 48: TRANSYT Modelling Results Saturday Peak Hour

Junction	Base 2022		Base 2027		Do-Minimum		Do-Something	
	DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
20 – A62 Castlegate / Outcote Bank	69%	7	64%	7	69%	7	68%	7
30 – A62 Castlegate / Albion Street	51%	2	52%	2	52%	2	53%	2
40 - A62 Queensgate / Chapel Hill	90%	11	89%	11	85%	10	90%	12
50 – A62 Queensgate / Alfred Street	75%	7	76%	7	74%	7	75%	7
60 – A62 Queensgate / Queens Street South	12%	0	12%	0	10%	0	10%	1
61 – A62 Queensgate / New Site Access	47%	3	48%	0	48%	0	59%	7
70 – A62 Queensgate / Queen Street	46%	3	48%	3	53%	6	58%	7
80 – A62 Queensgate / University Road	57%	6	67%	7	56%	6	59%	7
90 – Shorehead Roundabout	61%	7	68%	2	69%	0	77%	7

Comparing the results for the Do Something scenario (including the development proposals) against the Do Minimum scenario (highway network should the development proposals not come forward) shows the development to have a marginal impact on network performance. Slight increases in DoS and mean max queues are forecast at most junctions however do not surpass the threshold for practical capacity. Based on the above, it is reasonable to consider that the impact of the KCH development proposals can be satisfactorily accommodated within the existing and improved highway arrangements (i.e. after incorporating the active travel interventions along the A62) and, therefore, the development's impact to be acceptable in highway terms.

Site Access Junction

The new MSCP access junction benefits from connecting to a point on the highway network that currently operates a staggered controlled pedestrian crossing point. This means that the phase/green time afforded to the crossing can be reallocated to the new crossing junction thereby minimising the impact of introducing the junction and straight-across crossing (to be similar to other straight-across controlled crossings being introduced as part of the active travel improvements along the A62). The MSCP egress has been designed to run at the same time as the pedestrian crossing movements across the A62, and the smaller pedestrian crossing points along the site frontage can run whilst movements into and out of the MSCP are stopped

thereby minimising loss of green time whilst operating together. A right-turn into the site requires its own controller stage and time to run, therefore costing green time, and this is reflected in the results shown in Tables 44 to 47 within an increase in DoS and mean max queues at the site access, particularly in the 18:00-19:00hrs evening peak when the greatest arrivals to the car park are forecast.

Table 49 shows the results of the new MSCP access junction in more detail for the 2027 Do Something scenario models. The results show the junction to perform well within practical capacity for all peak hours whilst maintaining the flow along the A62 approaches to the junction.

The results also show that there is likely to be a mean maximum queue of 2 cars (PCUs) on the left-turn and right-turn approach lanes into the MSCP and on the approach lane leaving the MSCP. These queues can be accommodated within the proposed site access arrangement and with additional capacity for stacking on approaches for resilience.

Table 49: TRANSYT Modelling Results for the Proposed Site Access Junction onto the A62 (2027 Do Something)

Arm		AM Peak		PM Peak		Saturday Peak		Evening Peak	
		DoS	MMQ	DoS	MMQ	DoS	MMQ	DoS	MMQ
Queensgate North approach	Right turn in to car park	50%	2	10%	0	42%	2	53%	2
	Straight ahead	60%	8	64%	6	59%	7	43%	2
	Straight ahead	55%	8	54%	0	54%	8	41%	2
Queensgate South approach	Left turn in to the car park	7%	2	1%	0	7%	0	17%	0
	Straight ahead	46%	3	48%	3	58%	3	51%	5
	Straight ahead	49%	4	52%	3	62%	3	53%	2
New Car park exit	Left turn out	0%	0	42%	2	27%	2	5%	0
New Car park entry	Approach to car park barrier	43%	2	6%	2	40%	2	90%	2

The site access junction has been modelled with the approach to the entry barrier at the MSCP. Whilst the proposal is to provide two barriers on entry, the model accounts for one barrier to consider a worst-case scenario should a barrier malfunction. The results show that a single barrier could operate at the upper threshold of practical capacity during the arrival period of an evening event. Should this occur then the results show a mean maximum queue of two cars (PCUs) on the approach which can be accommodated. Should additional vehicles queue on this approach, this would extend back either to the right turn lane or left turn lane (in to the MSCP) which would have sufficient capacity for additional stacking after accommodating the queues on their own links as reported above. This is unlikely to affect the through movements along the A62 at the junction.

As previously mentioned, a robust approach has been taken to assess the evening events which are anticipated to occur occasionally (maximum capacity standing audience entertainment event totalling 500 arrivals by car around 3 times per year). It is also noted that seated entertainment events (total 412 arrivals by car) are likely to occur 50 times per year. These events could be programmed for a weekday or weekend evening, therefore as the weekend network flows are lower, assessment of the weekday peak hour represents a worst case scenario.

Based on the above, the new site access junction is considered to operate within the acceptable industry standard thresholds with the A62 approaches continuing to operate well within the thresholds.

9. Construction Impact

At this stage, limited information regarding construction phasing and transport impacts is known. This chapter provides a summary of indicative phasing and issues relating to construction traffic.

9.1 Indicative Construction Phasing

It is anticipated that enabling works will commence immediately after planning consent with construction due to commence by the end of 2023 and the scheme fully operational from early 2026. Detailed construction phasing is not known at this stage, an indicative construction plan has been developed and is summarised below:

- Enabling Works – from February to December 2023
- Zone 1 (Venue and MSCP) – anticipated from December 2023 to November 2025
- Zone 2, Phase 2 (Food Hall, Museum, Art Gallery and Library) – anticipated from January 2024 to November 2025
- Zone 2, Phase 2 (Public Realm / Urban Park) – anticipated from October 2024 to November 2025

9.2 Construction Management

A detailed Construction Environment Management Plan will be developed by contractors and agreed with the LPA prior to works starting on-site. This will be secured through a planning condition. A number of key issues and their likely management are set out below.

9.2.1 Working Hours

Construction work hours will typically be Monday to Friday approx. 08:00 to 18:00hrs and Saturday mornings with no working on Sundays or bank holidays. Where on-site works are to be conducted outside the core hours these will be agreed with the LPA before works commence, and any residents that may be affected by the out of hours works will be notified in advance.

9.2.2 Construction Staff

The numbers of construction staff are not known at this stage. Construction staff are anticipated to travel to the Site via the existing local road network to temporary construction parking within the Site. Given the location of the Site, however, and the excellent public transport links, there is the opportunity for a proportion of workers (those who do not need to transport tools or equipment to the Site) to access the Site by public transport. The contractor will seek to maximise sustainable transport options such as public transport, cycling and car share which will be detailed in a Construction Travel Plan agreed with the LPA before works start.

9.2.3 Construction Vehicles

Construction traffic bringing materials and equipment to and from the Site generally comprises heavy vehicles. At this stage, details are not known, however, it is anticipated that construction traffic would use the strategic road network as much as possible and access the site via the A62 ring road.

It is not yet possible at this outline stage to identify the number and size of the Heavy Good Vehicles (HGVs) that will visit the Site. Given the volume of traffic on the local road network, however, and the length of construction duration, it is anticipated that traffic associated with the construction phase would be lower than generated by the operational phase of the proposed Development and would represent a small proportion of the traffic on the surrounding network. It is therefore anticipated that the assessment of operational traffic, and associated noise, air quality and disturbance effects, represents the worst-case for the proposed Development.

Vehicles will likely be spread across the working day and access for construction traffic to the Site will be carefully co-ordinated to ensure that vehicles can enter and leave the Site with ease to minimise the impact on the local road network and pedestrians/cyclists. Construction vehicle access routes will be agreed with the LPA. Off-site vehicle holding areas may be appropriate, with vehicle movements to and from the Site controlled by appropriate communication.

A Construction Travel Plan and detailed Construction Environmental Management Plan (CEMP) will be developed for agreement with the LPA prior to works starting. These will set out specific routing for construction vehicles and controls to minimise emissions, dust and noise to local receptors. This will be reviewed and revised when detailed design is complete and construction traffic can be calculated.

Upon the completion of uploading, each vehicle will be checked for cleanliness and cleaned to a satisfactory standard at a wheel wash station before returning onto the local road network. This will be controlled through the CEMP.

9.2.4 Construction Environment Management Plan

Further detail regarding the management of construction traffic will be provided as part of a wider CEMP which will be agreed with the LPA through a planning condition.

The CEMP will identify the management measures for all construction activities, including:

- identifying the predicted construction vehicle numbers throughout all phases of works
- Site compound locations
- construction access routes and signing
- any restrictions to timing of vehicles
- traffic management controls
- details of workforce numbers and access/parking measures
- measures to maintain pedestrian access and safety at the Site boundaries
- access proposals for servicing to existing premises when works are ongoing in the tunnels, and
- measures to reduce environmental impact such as impact from noise, mud/dirt etc.

10. Summary and Conclusions

10.1 Development Proposals

The KCH scheme site is located to the southeast of the town centre core within the ring road (A62 Castlegate / Queensgate / Southgate). The site is bounded by the vehicular routes of A62 Queensgate to the south east, Queen Street to the east and Peel Street and Alfred Street to the west, and the pedestrianised routes of King Street to the north and Victoria Lane to the west.

The KCH scheme comprises a new venue, museum and food hall and relocation of the existing art gallery and library within the scheme. New areas of open space and landscaping will provide space for outdoor events and a 350 space multi storey car park provides additional town centre parking. The scheme comprises:

- Museum = 5,726sqm GIA
- Art Gallery = 2,993sqm GIA
- Library (& Archive) = 4,784sqm GIA
- Venue = 7,705sqm GIA / 2,200 person maximum capacity
- Food Hall = 2,379sqm GIA
- Multi-Storey Car Park (MSCP) – 350 spaces
- Public Realm – flexible, inclusive, safe, green character, able to host up to 3,000 person event

The public realm will provide a network of pedestrian routes through the site, providing access to the buildings and outdoor spaces and connect with existing town centre routes. A range of short and long stay cycle parking will be provided across the site, accessed from existing cycle routes surrounding the site.

The MSCP will be accessed from a new traffic signal control junction with A62 Queensgate. The new access junction will include pedestrian and cycle crossing provision and the scheme proposals integrate the wider Kirklees Council proposals for active travel improvements along Queensgate.

The existing tunnels area under the site will be retained and reconfigured to provide servicing for the site with access from Queen Street and exit from the car park access junction on A62 Queensgate.

10.2 Trip Generation

A trip generation exercise has been undertaken to consider the trip generation by all modes of transport for all proposed uses at the KCH site and to inform the sustainable modes and highway assessments. Details of likely events and their frequency have been provided by IPW in relation to the proposed Venue and from Kirklees Council in relation to the Outdoor Event Space. Assessment of impacts for peak scenarios are based on:

- Weekday daytimes – comprising Museum, Art Gallery, Library and Food Hall uses and a Business / Conference event at the Venue
- Weekday evenings – comprising Museum, Art Gallery, Library and Food Hall uses and a maximum capacity Music event at the Venue
- Saturday daytime – comprising Museum, Art Gallery, Library and Food Hall demand and an Exhibition / Consumer event at the Venue as well as the regular small scale activities at the Outdoor Event Space

It is noted that the assessment does not present detailed assessment of Large Scale events at the Outdoor Event Space, on a weekend daytime or evening. The peak trip generation and car parking demand for these is likely to be of a similar scale to the maximum demand for peak Evening and Weekend events at the Venue. It is anticipated that programming of events at both the Venue and Outdoor Event Space will need to avoid

peak events at both locations at the same time or additional management (car parking / traffic management) implemented through an Events Management Plan.

10.3 Sustainable Modes Assessment

The KCH site is located in Huddersfield town centre in a location highly accessible by sustainable modes of transport. The main bus and rail stations are located within a few minutes walk and the site will connect with the surrounding walking and cycling networks.

Whilst the Site is ideally located for access by sustainable modes of travel, given the nature of development, it is anticipated that a number of trips to/from the Site will still be made by car. The Site Travel Plan will seek to ensure that staff and visitors to the Site are fully aware of the travel choices available to them and ensure maximum opportunity is taken to promote sustainable travel options.

Public transport could have a significant role in the movement of people to and from the Site. The site is very well located for public transport accessibility. Huddersfield bus station is located at Upperhead Row/Market Street approx. 350m west of the KCH site between Market Street and the Ring Road (A62 Castlegate). The main pedestrian routes to the site are via High Street / Ramsden Street or Dundas Street / King Street which provide access to local and regional services within an approximate 5 minutes walk. In the immediate vicinity of the site, bus stops are located along Peel Street, Queensgate and Queens Street providing access to 30+ services per hour during the day.

Huddersfield Rail Station is located to the northwest of the town centre at St George's Square, approx. 500m northwest of the site. This provides access to a range of local, regional and national rail services, including frequent services to Leeds, Manchester, Hull, Sheffield, Newcastle, Liverpool and Bradford. A number walking routes through the town centre connect to the rail station within approx. 10 minute walk, including via High Street / Market Street / Railway Street or Victoria Lane / Market Place / John William Street or Victoria Lane / Wood Street.

There is a good proportion of the surrounding urban area where access by cycle and by foot is a realistic option. The scheme will provide new high quality, attractive and safe pedestrian routes through the site, connecting with the surrounding town centre network. A range of cycle parking will be provided on site, accessed via existing routes surrounding the site. Proposed works on A62 Queensgate will include pedestrian and cycle improvements, integrating with Kirklees Council wider active travel improvements. A signing and wayfinding scheme will be implemented to assist visitors in finding their way to/from and within the scheme. This will highlight routes to the bus and rail station as well as key car parks surrounding the site

10.4 Parking Assessment

A parking assessment has been undertaken for the scheme. As part of this, existing town centre parking availability was reviewed and forecast parking demand as a result of the KCH scheme uses was calculated. The assessment considered parking demand for a number of peak events at the Venue.

The scheme proposals include provision of a 350 multi storey car park. It was concluded that the 350 parking spaces proposed provides parking to accommodate peak weekday events, however for peak evening and Saturday events some parking at other town centre locations will be required. There are a range of existing town centre options available which can comfortably accommodate this additional peak parking demand.

It is noted that the assessment considers parking demand associated with peak events at the Venue and the majority of events throughout the year will be smaller scale which will have reduced parking demand.

When larger events are ongoing at the Venue and Outdoor Event Space it will be important that a suitable car parking management plan is put in place through the scheme Events Management Plan. This will include a car parking signing strategy that advises visitors where the spaces are and directs them to other convenient car parking spaces elsewhere in the town if the KCH scheme car park is full. In addition, suitable information and signing on walking routes from these car parks to the Venue will be required.

10.5 Highway Assessment

Highway assessment has been undertaken using a TRANSYT model to assess operation of the local highway network comprising eight junctions along the A62 Queensgate from the traffic signal controlled Shorehead roundabout to the north east and the A62 Manchester Road / Outcote Bank traffic signal controlled junction to the south west. Peak hours for assessment were agreed with Kirklees Council to consider both the network peak hours and the development peak hours:

- Typical weekday AM (08:00 – 09:00) and PM (17:00 – 18:00) peaks - as trips associated with the conference / business events coincide with the network peaks.
- Saturday peak hour during the day to coincide with the network peak for a Saturday, 12:00-13:00hrs.
- Evening event peak 18:00-19:00hrs – peak arrivals for events at venue coinciding with the end of network peak

The assessment was undertaken for a 2022 Base Year and 2027 Future Years; 2027 Do Minimum with traffic growth and committed developments and 2027 Do Something including the KCH development traffic and new car park access junction.

The results of the modelling show that the existing highway network is busy in the peak hours with some congestion and queueing across the network, particularly at the A62 Queensgate / Manchester Road / Chapel Hill junction.

The Do Minimum scenario includes traffic growth and incorporates the Kirklees Council planned active travel improvements along A62 Queensgate. The impact of this has a minor impact on operation of the highway network.

The introduction of the new car park access junction and forecast trips from the KCH scheme can generally be accommodated on the local highway network. Minor revisions to signal timings have been included in the Do Something models. As a result, all links are forecast to operate within capacity and increases in congestion and queues are relatively minor.

10.6 Conclusion

This transport assessment demonstrates that the proposed KCH scheme can be safely accommodated on the local transport network. The scheme proposals enhance pedestrian and cycle connectivity and connect with existing sustainable travel modes including good access to bus and rail services. New car parking is proposed that can accommodate the majority of the KCH scheme parking demand with additional car parking capacity available in the town centre. The highway assessment demonstrates that the forecast vehicle trips can be accommodated on the local highway network.

This Transport Assessment identifies some elements where further detail is required and which could be secured through appropriate planning conditions. This includes development of an Events Management Plan to manage peak events and consider parking and signing. A Construction Environmental Management Plan will also need to be developed further prior to construction.

Overall, based on the analysis presented in this Transport Assessment, it is considered that the transport impacts of the proposed Development can be satisfactorily accommodated on the transport network.

Drawings

Drawing 1: CDT430201-ARP-XX-XX-SK-C-000006 Car Park Access
Drawing 2: CDT430201-ARP-XX-XX-SK-C-000008 Tunnels Tracking
Drawing 3: CDT430201-ARP-XX-XX-SK-C-000001 Alfred Street – Coach / HGV
Drawing 4: CDT430201-ARP-XX-XX-SK-C-000002 Ramsden Street – Taxis
Drawing 5: CDT430201-ARP-XX-XX-SK-C-000009 Emergency Vehicle Tracking

A1

N

Ramsden Street

Corporation Street

HUDDERSFIELD TOWN HALL

Peel Street

Princess Street

Alfred Street

Queensgate

Queensgate

Bus stop to be removed, subject to further design development and discussions with highway authority.

Area potentially retained to minimise impacts to existing trees.

Cycle lane ends into shared space 5m prior to the crossing.

4.000

4.000

3.200

2.1m min. footway width

Narrowing of footway due to provision of left turn lane.

Shared space and crossing facilities.

Bidirectional 2.5m wide cycle lane provided due to proximity of building. Cycle lane width provided is less than the desirable minimum (3m), in accordance with LTN 1/20. Width of cycle lane to be agreed with the highway authority.

0 5 10 20 Metres

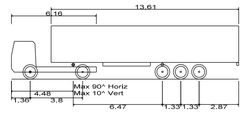
Scale 1:500

Do not scale

Notes:

1. Cycle and pedestrian facilities are shared from 5m prior to crossings. Suitability of shared space is subject to discussions with Kirklees Council.
2. Proposed signalised junction layout is subject to further design development and agreements with the local highway authority.
3. FTA Design Articulated vehicle tracked at 5mph with steering lock on.
4. Large Car tracked at 5mph with steering lock on.

Vehicle Specifications:



FTA Design Articulated Vehicle (1998)	
Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	6.550m

Large Car (2006)	
Overall Length	5.079m
Overall Width	1.872m
Overall Body Height	1.525m
Min Body Ground Clearance	0.310m
Max Track Width	1.831m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	5.900m

Key:

- Existing layout
- Proposed kerbline
- Car swept path
- HGV swept path
- Internal building layout by others

Rev	Date	By	Chkd	Appd
P02	09/09/22	PM	ID	AJ
Updated entry location				
P01	02/09/22	PM	ID	AJ
Issued for Coordination				

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Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Queensgate Junction
Combined Exit

Scale at A1 1:500

Role Civil - Highways

Suitability - S1 - Fit for co-ordination

Arup Job No **284642**

Rev **P02**

Name
CDT430201-ARP-XX-XX-SK-C-000006

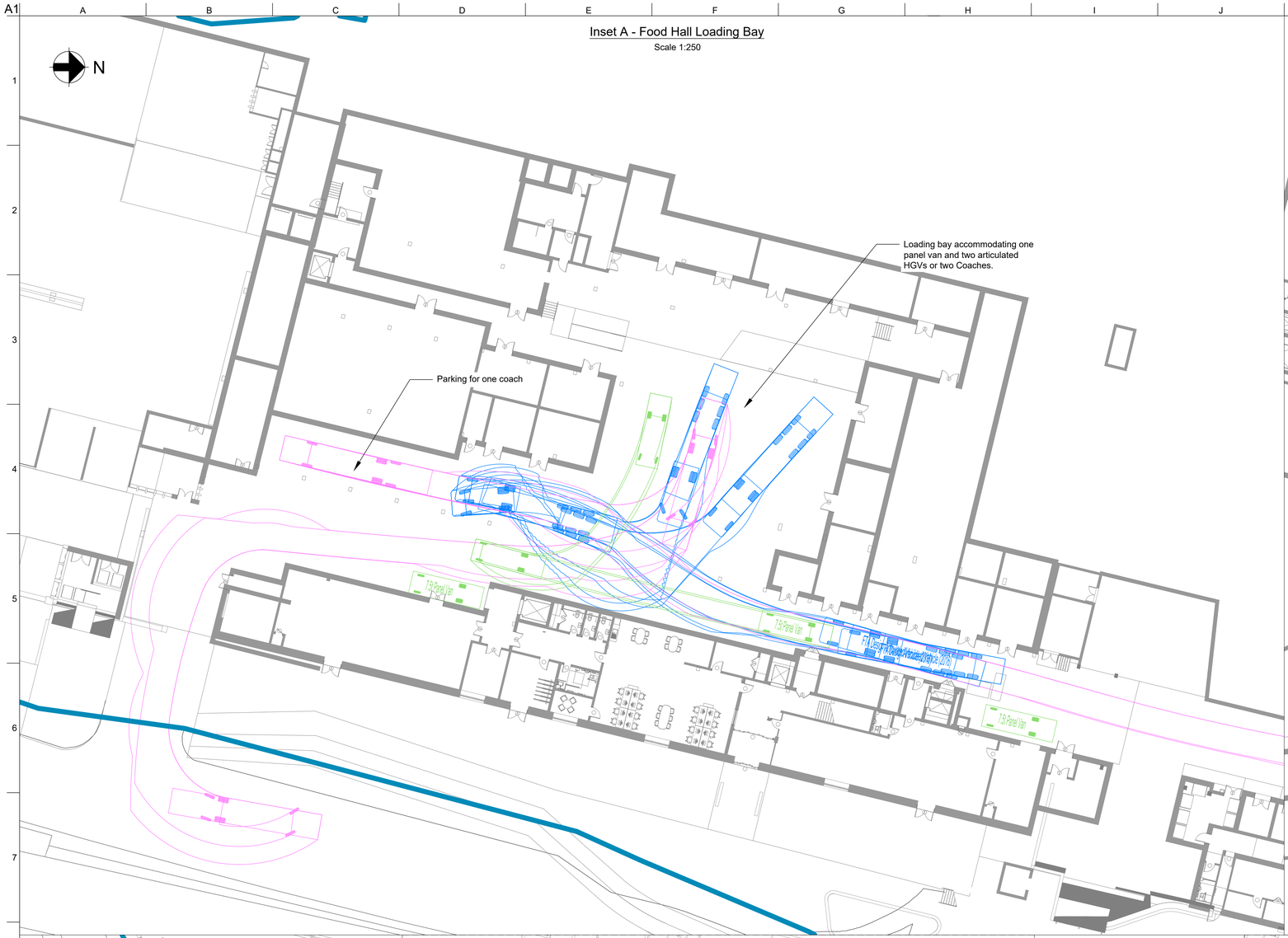
\\Globalleurope\Leeds\Jobs\280000\284642-00\0 Arup\0x01 Civil\0-01-05 Drawings\Sketches\Queensgate NSCP Access\CDT430201-ARP-XX-XX-SK-C-000006 Queensgate Junction Combined Exit.dgn

© Arup

A1

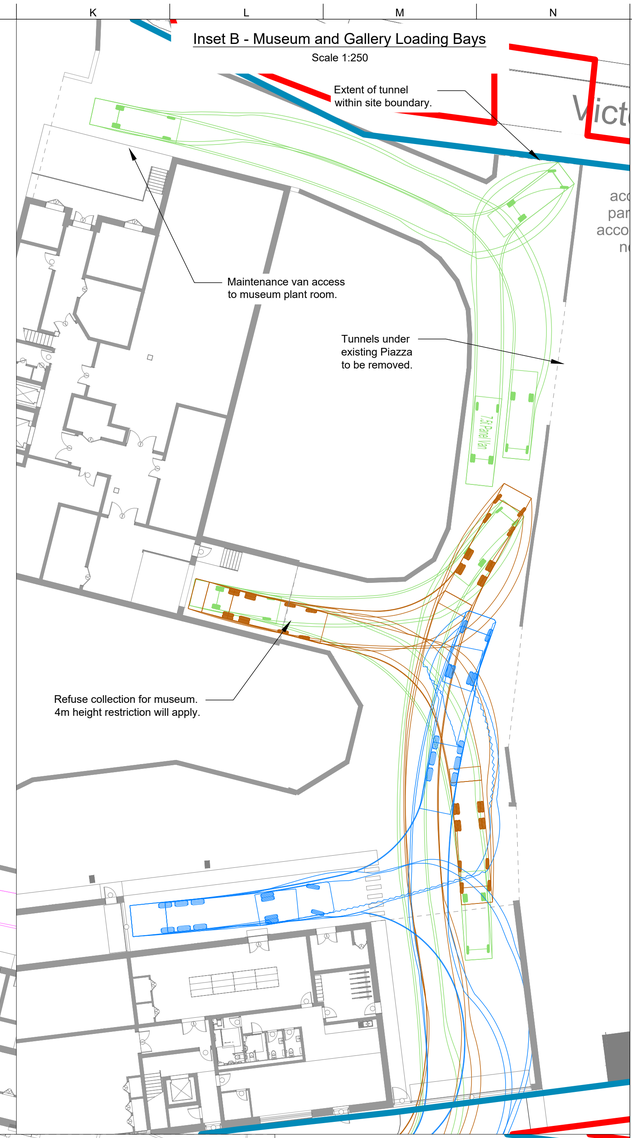
Inset A - Food Hall Loading Bay

Scale 1:250



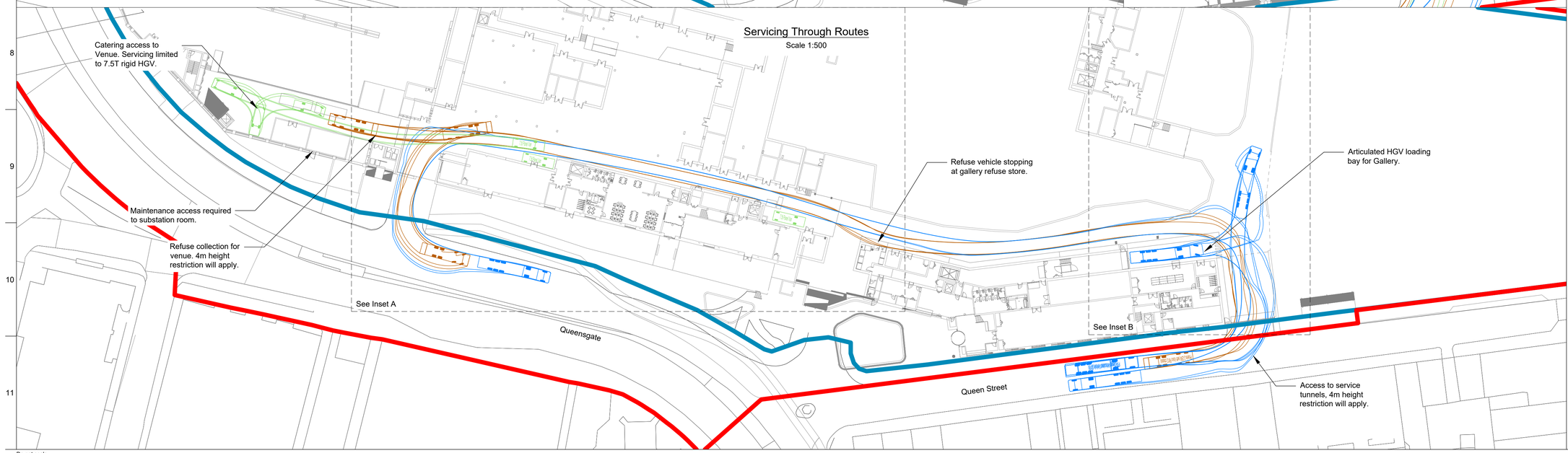
Inset B - Museum and Gallery Loading Bays

Scale 1:250



Servicing Through Routes

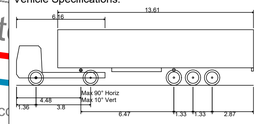
Scale 1:500



Notes:

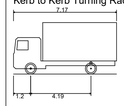
1. Tracking conducted at 5mph forward and 2.5mph in reverse.

Vehicle Specifications:



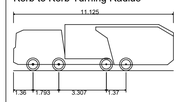
FTA Design Articulated Vehicle (2016)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	6.600m



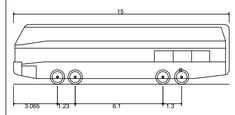
FTA Design 7.5 Tonne Rigid Vehicle (2016)

Overall Length	7.170m
Overall Width	2.300m
Overall Body Height	3.580m
Min Body Ground Clearance	0.375m
Track Width	2.120m
Lock to lock time	3.00s
Kerb to Kerb Turning Radius	7.000m



Phoenix 2-25W (with Volvo FM12 chassis)

Overall Length	11.125m
Overall Width	2.530m
Overall Body Height	3.205m
Min Body Ground Clearance	0.410m
Track Width	2.500m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	9.250m



15m 6WS Luxury Coach

Overall Length	15.000m
Overall Width	2.500m
Overall Body Height	4.157m
Min Body Ground Clearance	0.397m
Track Width	2.500m
Lock to lock time	5.00s
Wall to Wall Turning Radius	12.490m

Key:

- Articulated HGV swept path
- 7.5T Panel van swept path
- Refuse vehicle swept path
- Luxury coach swept path
- Site Boundary
- Red Line Planning Boundary

Rev	Date	By	Chkd	Appd
P01	16/09/22	PM	ID	AJ
First Issue				

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www.arup.com

Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Service Tunnel Tracking

Scale at A1: As shown

Role: Civil Engineer

Suitability: S2 - For Information

Arup Job No: 284642

Rev: P01

Name: CDT430201-ARP-XX-XX-SK-C-000008

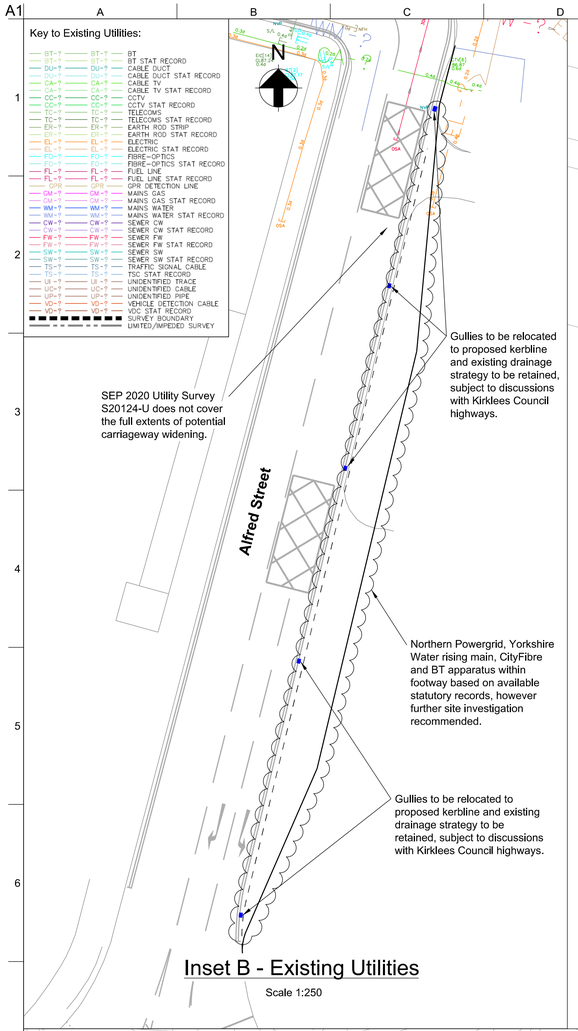
Do not scale

© Arup

A1

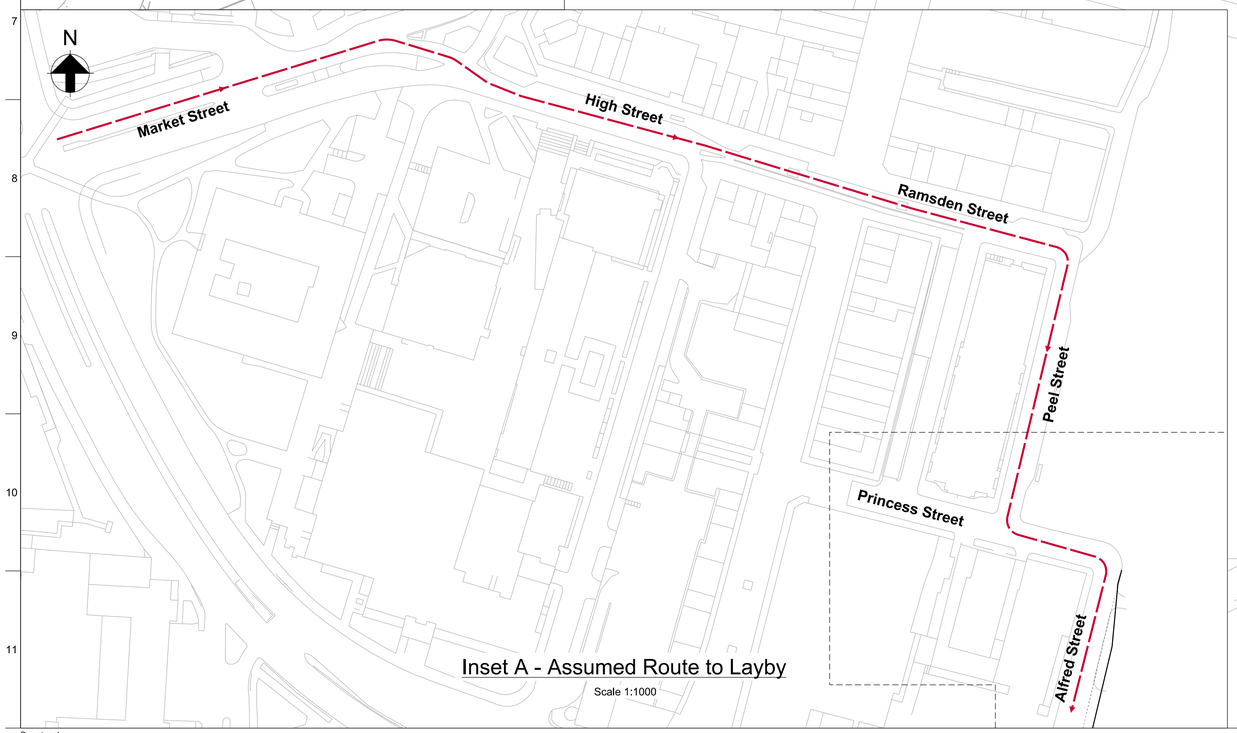
Key to Existing Utilities:

BT-?	BT
BT-T	BT STAT RECORD
DU-?	CABLE DUCT
DU-T	CABLE DUCT STAT RECORD
CA-?	CABLE TV
CA-T	CABLE TV STAT RECORD
CC-?	CCTV
CC-T	CCTV STAT RECORD
TC-?	TELECOMS
TC-T	TELECOMS STAT RECORD
ER-?	EARTH ROD STRIP
ER-T	EARTH ROD STAT RECORD
EL-?	ELECTRIC
EL-T	ELECTRIC STAT RECORD
FO-?	FIBRE-OPTICS
FO-T	FIBRE-OPTICS STAT RECORD
FL-?	FUEL LINE
FL-T	FUEL LINE STAT RECORD
GPR	GPR DETECTION LINE
GM-?	MAINS GAS
GM-T	MAINS GAS STAT RECORD
WM-?	MAINS WATER
WM-T	MAINS WATER STAT RECORD
CW-?	SEWER CW
CW-T	SEWER CW STAT RECORD
FW-?	SEWER FW
FW-T	SEWER FW STAT RECORD
SW-?	SEWER SW
SW-T	SEWER SW STAT RECORD
TS-?	TRAFFIC SIGNAL CABLE
TS-T	TSC STAT RECORD
UR-?	UNIDENTIFIED TRACE
UD-?	UNIDENTIFIED CABLE
UP-?	UNIDENTIFIED PIPE
VD-?	VEHICLE DETECTION CABLE
VD-T	VDC STAT RECORD
	SURVEY BOUNDARY
	LIMITED/IMPEDED SURVEY



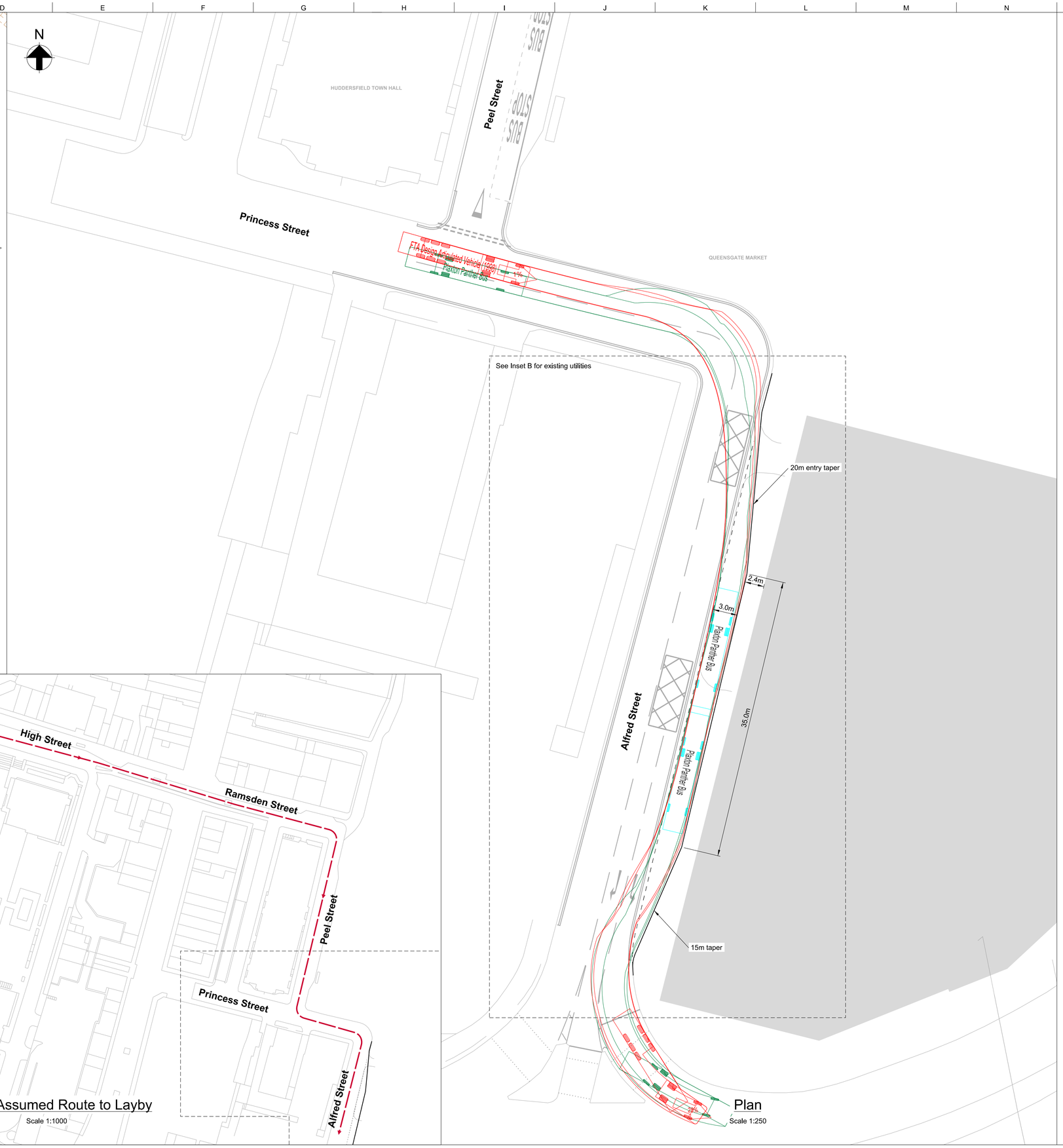
Inset B - Existing Utilities

Scale 1:250



Inset A - Assumed Route to Layby

Scale 1:1000



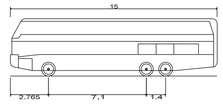
Plan

Scale 1:250

Notes:

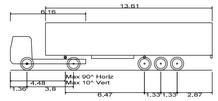
1. Dimensions shown in metres, unless stated otherwise.
2. Vehicle requirements are assumed and based on a large luxury coach as shown.
3. Drop off for a maximum 2no. coaches at one time are assumed, based on recommendations from IPW.
4. Utility information shown is based on SEP 2020 Utility Survey S20124-U.

Vehicle Specifications:



Plaxton Panther Bus

Overall Length	15.000m
Overall Width	2.500m
Overall Body Height	4.157m
Min Body Ground Clearance	0.397m
Track Width	2.500m
Lock to Lock Time	5.00s
Wall to Wall Turning Radius	12.500m



FTA Design Articulated Vehicle (1998)

Overall Length	16.480m
Overall Width	2.550m
Overall Body Height	3.870m
Min Body Ground Clearance	0.515m
Max Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	6.550m

Key:

- Existing layout
- Proposed kerbline
- Coach Swept path
- HGV swept path
- Extent of proposed venue building

Rev	Date	By	Chkd	Appd
P03	09/09/22	PM	ID	AJ
Issued for Planning				
P02	02/09/22	PM	ID	AJ
Issued for Coordination				
P01	18/08/22	SM	ID	CW
Issued for Coordination				

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www.arup.com

Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Alfred Street
Coach and Service Vehicle Layby

Scale at A1: As shown

Role: Civil - Highways

Suitability: - S1 - Fit for co-ordination

Arup Job No: 284642

Rev: P03

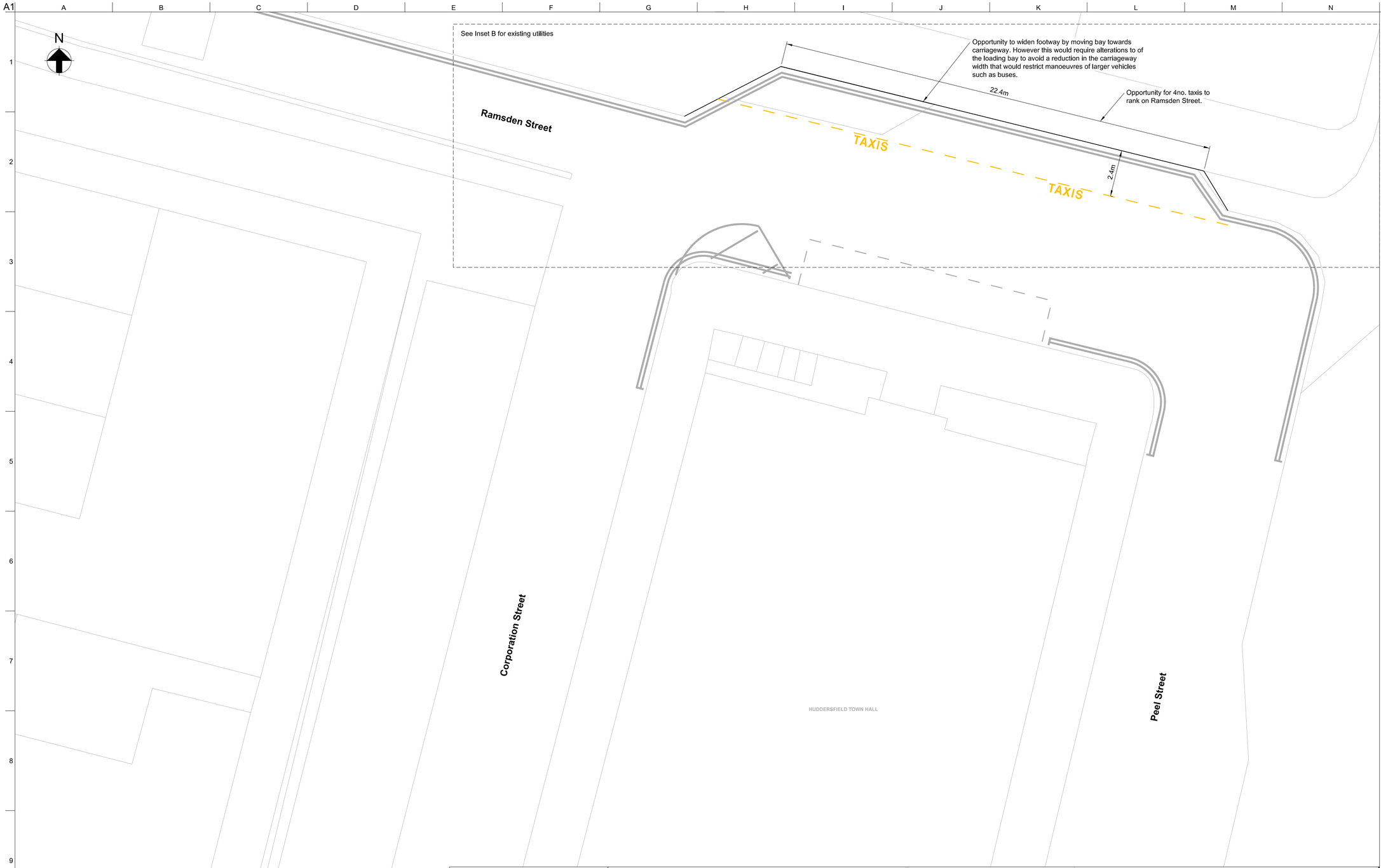
Name: CDT430201-ARP-XX-XX-SK-C-000001

\\Globalfaurope\Leeds\Jobs\250000\258482-000\Arup\0-01 Civil\0-01-05 Drawings\Sketches\Drop Off\CDT430201-ARP-XX-XX-SK-C-000001 Alfred St. Coach Drop-off.dgn

Do not scale

© Arup

A1



Notes:

1. Dimensions in metres.
4. This option is indicative and not a final design.
5. Utility information shown is based on SEP 2020 Utility Survey S20124-U.

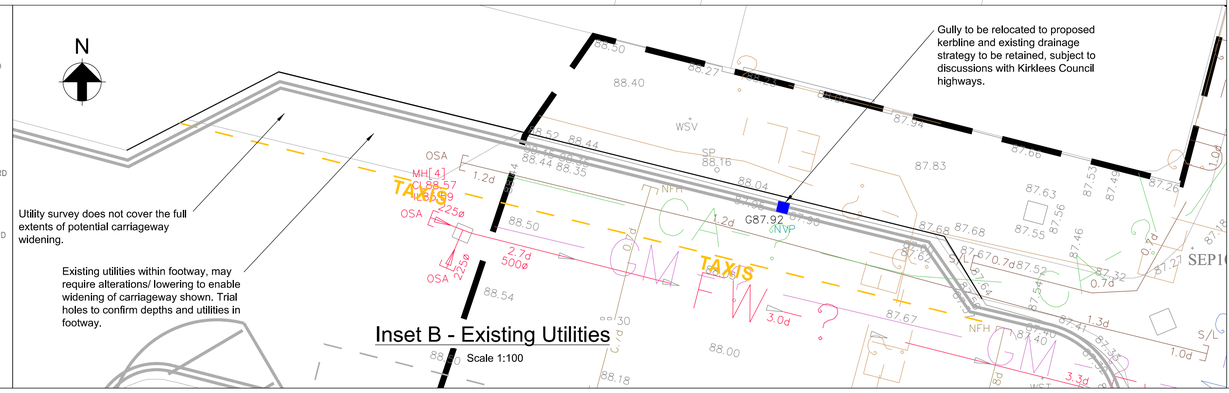
Key:

Existing layout

Proposed kerbline

Key to Existing Utilities:

BT-?	BT-?	BT
BT-?	BT-?	BT STAT RECORD
DU-?	DU-?	CABLE DUCT
DU-?	DU-?	CABLE DUCT STAT RECORD
CA-?	CA-?	CABLE TV
CA-?	CA-?	CABLE TV STAT RECORD
CC-?	CC-?	CCTV
CC-?	CC-?	CCTV STAT RECORD
TC-?	TC-?	TELECOMS
TC-?	TC-?	TELECOMS STAT RECORD
ER-?	ER-?	EARTH ROD STRIP
ER-?	ER-?	EARTH ROD STAT RECORD
EL-?	EL-?	ELECTRIC
EL-?	EL-?	ELECTRIC STAT RECORD
FO-?	FO-?	FIBRE-OPTICS
FO-?	FO-?	FIBRE-OPTICS STAT RECORD
FL-?	FL-?	FUEL LINE
FL-?	FL-?	FUEL LINE STAT RECORD
GPR	GPR	GPR DETECTION LINE
GM-?	GM-?	MAINS GAS
GM-?	GM-?	MAINS GAS STAT RECORD
WM-?	WM-?	MAINS WATER
WM-?	WM-?	MAINS WATER STAT RECORD
CW-?	CW-?	SEWER CW
CW-?	CW-?	SEWER CW STAT RECORD
FW-?	FW-?	SEWER FW
FW-?	FW-?	SEWER FW STAT RECORD
SW-?	SW-?	SEWER SW
SW-?	SW-?	SEWER SW STAT RECORD
TS-?	TS-?	TRAFFIC SIGNAL CABLE
TS-?	TS-?	TSC STAT RECORD
UI-?	UI-?	UNIDENTIFIED TRACE
UC-?	UC-?	UNIDENTIFIED CABLE
UP-?	UP-?	UNIDENTIFIED PIPE
VD-?	VD-?	VEHICLE DETECTION CABLE
VD-?	VD-?	VDC STAT RECORD
		SURVEY BOUNDARY
		LIMITED/IMPEDED SURVEY



Inset B - Existing Utilities

Scale 1:100

P02	22/09/22	SM	ID	CW
Issued for Coordination				
P01	18/08/22	SM	ID	CW
Issued for Coordination				
Rev	Date	By	Chkd	Appd

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www.arup.com

Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Taxi Ranking Sketch - Option A
Corporation Street

Scale at A1 1:100

Role Civil - Highways

Suitability - S1 - Fit for co-ordination

Arup Job No 284642

Rev P02

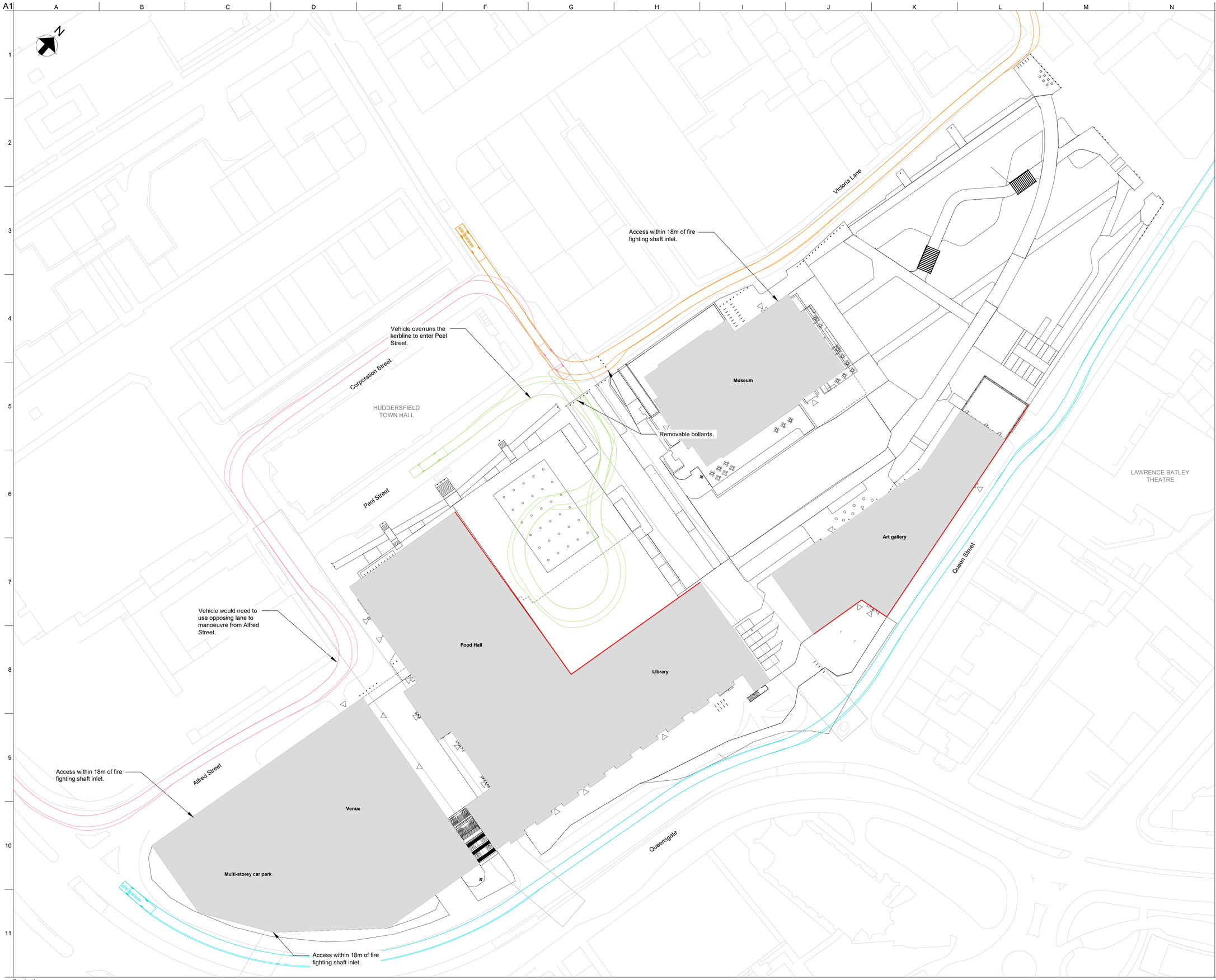
Name CDT430201-ARP-XX-XX-SK-C-000002

\\Globaleurope\Leeds\Jobs\250000\284642-00\9 Arup\0-01 Civil\2-01-05 Drawings\Sketches\Drop Off\CDT430201-ARP-XX-XX-SK-C-000002 Corporation St Taxi Stacking.dgn

Do not scale

© Arup

A1



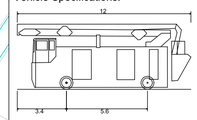
Notes:

1. Tracking undertaken at 5mph forward and 2.5mph in reverse.
2. Tracking shows fire tender access to site, access is required within 18 m of dry risers and as close as possible to the perimeter of buildings requiring perimeter access, locations are shown indicatively at this stage, subject to detailed design.
3. It is assumed other emergency vehicles will be able to use the same routes as the fire tender as they are smaller vehicles.

Key:

Fire tender perimeter access required

Vehicle Specifications:



Aerial Platform/ Turntable Ladder/ Special Appliance	
Overall Length	12.000m
Overall Width	2.550m
Overall Body Height	4.500m
Min Body Ground Clearance	0.130m
Track Width	2.550m
Lock to lock time	4.00s
Kerb to Kerb Turning Radius	13.750m

Rev	Date	By	Chkd	Appd
P01	16 /09/22	PM	ID	AJ
First Issue				

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www.arup.com

Client
Kirklees Council

Project Title
Kirklees Cultural Heart

Drawing Title
Emergency Vehicle Tracking

Scale at A1 1:500

Role Civil Engineer

Suitability S2 - For Information

Arup Job No 284642

Rev P01

Name
CDT430201-ARP-XX-XX-SK-C-000009

Do not scale

© Arup

Appendices

Appendix A: Traffic Survey Data

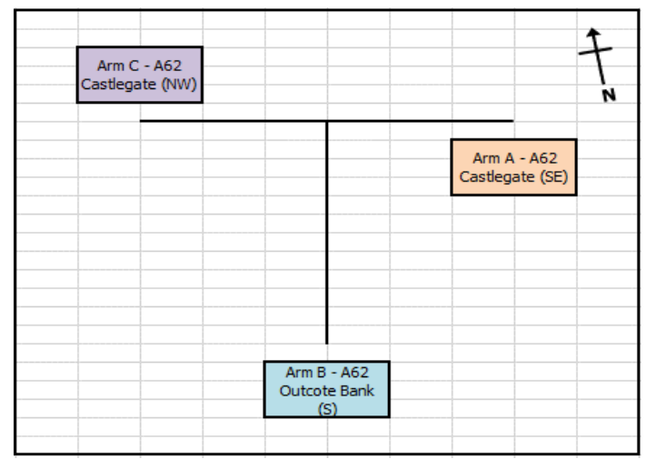
Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J20

Date of Survey: 23.06.2022
Junction Name: A62 Castlegate / A62 Outcote Bank
Junction Type: T-Junction

Arm A: A62 Castlegate (SE)
Arm B: A62 Outcote Bank (S)
Arm C: A62 Castlegate (NW)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
07:00	0	215	0	0	66	64	0	0	168
07:15	0	293	0	0	63	91	0	0	217
07:30	0	298	0	0	68	108	0	0	244
07:45	0	381	0	0	74	100	0	0	317
08:00	0	381	0	0	83	91	0	0	289
08:15	0	360	0	0	70	110	0	0	372
08:30	0	372	0	0	74	90	0	0	360
08:45	0	334	0	0	80	104	0	0	365
09:00	0	331	0	0	77	95	0	0	326
09:15	0	291	0	0	63	97	0	0	347
09:30	0	294	0	0	77	97	0	0	266
09:45	0	253	0	0	77	91	0	0	336
16:00	0	307	0	0	81	96	0	0	452
16:15	0	311	0	0	85	95	0	0	499
16:30	0	310	0	0	73	88	0	0	434
16:45	0	270	0	0	80	86	0	0	477
17:00	0	341	0	0	87	97	0	0	459
17:15	0	291	0	0	70	96	0	0	470
17:30	0	344	0	0	67	64	0	0	394
17:45	0	282	0	0	69	98	0	0	345
18:00	0	260	0	0	52	69	0	0	358
18:15	0	242	0	0	53	61	0	0	296
18:30	0	239	0	0	67	81	0	0	282
18:45	0	236	0	0	73	69	0	0	297
19:00	0	251	0	0	48	54	0	0	274
19:15	0	178	0	0	56	59	0	0	239
19:30	0	166	0	0	43	69	0	0	210
19:45	0	196	0	0	44	42	0	0	207
20:00	0	174	0	0	44	50	0	0	240
20:15	0	149	0	0	27	48	0	0	211
20:30	0	141	0	0	26	39	0	0	189
20:45	0	134	0	0	38	28	0	0	167
21:00	0	125	0	0	13	40	0	0	128
21:15	0	101	0	0	25	33	0	0	147
21:30	0	92	0	0	19	34	0	0	141
21:45	0	105	0	0	19	26	0	0	113
22:00	0	94	0	0	22	36	0	0	110
22:15	0	95	0	0	12	23	0	0	126
22:30	0	83	0	0	18	27	0	0	102
22:45	0	70	0	0	20	14	0	0	110
Start Time	**Rolling Hour**								
07:00	0	1186	0	0	271	363	0	0	946
07:15	0	1352	0	0	288	390	0	0	1067
07:30	0	1420	0	0	295	409	0	0	1222
07:45	0	1494	0	0	301	391	0	0	1338
08:00	0	1447	0	0	307	395	0	0	1387
08:15	0	1398	0	0	301	399	0	0	1424
08:30	0	1329	0	0	294	387	0	0	1399
08:45	0	1251	0	0	296	393	0	0	1304
09:00	0	1169	0	0	294	379	0	0	1275
16:00	0	1198	0	0	318	364	0	0	1860
16:15	0	1232	0	0	325	365	0	0	1868
16:30	0	1211	0	0	309	367	0	0	1839
16:45	0	1246	0	0	304	342	0	0	1799
17:00	0	1257	0	0	293	355	0	0	1668
17:15	0	1177	0	0	258	327	0	0	1566
17:30	0	1128	0	0	241	292	0	0	1392
17:45	0	1023	0	0	241	310	0	0	1281
18:00	0	977	0	0	246	281	0	0	1233
18:15	0	968	0	0	241	266	0	0	1150
18:30	0	904	0	0	244	264	0	0	1093
18:45	0	831	0	0	221	251	0	0	1021
19:00	0	791	0	0	191	225	0	0	931
19:15	0	715	0	0	188	220	0	0	896
19:30	0	686	0	0	159	209	0	0	868
19:45	0	661	0	0	141	179	0	0	847
20:00	0	599	0	0	135	164	0	0	807
20:15	0	550	0	0	104	155	0	0	695
20:30	0	501	0	0	102	140	0	0	632
20:45	0	453	0	0	95	135	0	0	584
21:00	0	423	0	0	76	133	0	0	530
21:15	0	392	0	0	85	129	0	0	511
21:30	0	386	0	0	72	119	0	0	491
21:45	0	377	0	0	71	112	0	0	451
22:00	0	342	0	0	72	100	0	0	448



Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J20

Date of Survey: 25.06.2022
Junction Name: A62 Castlegate / A62 Outcote Bank
Junction Type: T-Junction

Arm A: A62 Castlegate (SE)
Arm B: A62 Outcote Bank (S)
Arm C: A62 Castlegate (NW)

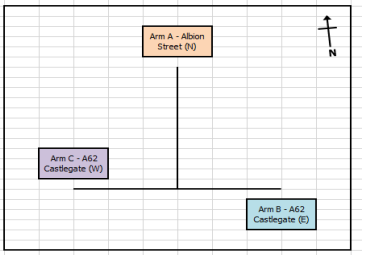
	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
11:00	0	269	0	0	89	83	0	0	357
11:15	0	292	0	0	69	70	0	0	357
11:30	0	317	0	0	93	108	0	0	385
11:45	0	315	0	0	98	102	0	0	366
12:00	0	346	0	0	89	88	0	0	392
12:15	0	300	0	0	88	108	0	0	380
12:30	0	328	0	0	85	101	0	0	415
12:45	0	328	0	0	95	99	0	0	437
13:00	0	323	0	0	91	107	0	0	399
13:15	0	315	0	0	73	87	0	0	406
13:30	0	267	0	0	90	108	0	0	381
13:45	0	305	0	0	89	101	0	0	429
Start Time	**Rolling Hour**								
11:00	0	1194	0	0	349	362	0	0	1465
11:15	0	1270	0	0	349	368	0	0	1500
11:30	0	1278	0	0	368	406	0	0	1524
11:45	0	1290	0	0	361	399	0	0	1553
12:00	0	1303	0	0	357	396	0	0	1624
12:15	0	1280	0	0	359	415	0	0	1631
12:30	0	1294	0	0	344	394	0	0	1657
12:45	0	1233	0	0	349	401	0	0	1623
13:00	0	1210	0	0	343	402	0	0	1615

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J30

Date of Survey: 23.06.2022
Junction Name: Albion Street / A62 Castlegate
Junction Type: T-Junction

Arm A: Albion Street (N)
Arm B: A62 Castlegate (E)
Arm C: A62 Castlegate (W)



	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
07:00	0	0	2	0	0	220	0	218	17
07:15	0	0	8	0	0	295	0	268	14
07:30	0	0	1	0	0	299	0	292	20
07:45	0	0	4	0	0	377	0	360	32
08:00	0	0	4	0	0	387	0	336	24
08:15	0	0	0	0	0	357	0	427	29
08:30	0	0	4	0	0	372	0	410	26
08:45	0	0	4	0	0	332	0	399	39
09:00	0	0	3	0	0	337	0	364	47
09:15	0	0	2	0	0	295	0	369	39
09:30	0	0	4	0	0	295	0	305	42
09:45	0	0	2	0	0	255	0	379	30
16:00	0	0	10	0	0	305	0	511	26
16:15	0	0	6	0	0	314	0	550	26
16:30	0	0	9	0	0	317	0	496	21
16:45	0	0	14	0	0	270	0	537	22
17:00	0	0	14	0	0	342	0	525	23
17:15	0	0	8	0	0	298	0	524	19
17:30	0	0	6	0	0	337	0	446	11
17:45	0	0	4	0	0	290	0	395	13
18:00	0	0	4	0	0	255	0	411	12
18:15	0	0	6	0	0	248	0	323	14
18:30	0	0	7	0	0	245	0	342	9
18:45	0	0	5	0	0	238	0	355	16
19:00	0	0	3	0	0	250	0	306	17
19:15	0	0	2	0	0	179	0	283	12
19:30	0	0	0	0	0	170	0	246	7
19:45	0	0	1	0	0	198	0	241	7
20:00	0	0	3	0	0	172	0	271	6
20:15	0	0	1	0	0	156	0	239	7
20:30	0	0	2	0	0	139	0	202	7
20:45	0	0	2	0	0	136	0	203	11
21:00	0	0	3	0	0	130	0	126	7
21:15	0	0	2	0	0	101	0	167	10
21:30	0	0	1	0	0	91	0	151	7
21:45	0	0	2	0	0	106	0	127	4
22:00	0	0	3	0	0	94	0	133	0
22:15	0	0	2	0	0	95	0	132	5
22:30	0	0	2	0	0	82	0	113	5
22:45	0	0	2	0	0	71	0	122	5
Start Time	**Rolling Hour**								
07:00	0	0	15	0	0	1191	0	1138	84
07:15	0	0	17	0	0	1357	0	1256	90
07:30	0	0	9	0	0	1420	0	1415	105
07:45	0	0	12	0	0	1493	0	1533	111
08:00	0	0	12	0	0	1448	0	1571	118
08:15	0	0	11	0	0	1399	0	1599	141
08:30	0	0	13	0	0	1337	0	1541	151
08:45	0	0	13	0	0	1260	0	1436	167
09:00	0	0	11	0	0	1182	0	1417	158
16:00	0	0	39	0	0	1206	0	2095	96
16:15	0	0	43	0	0	1243	0	2109	93
16:30	0	0	45	0	0	1227	0	2082	85
16:45	0	0	43	0	0	1246	0	2031	75
17:00	0	0	33	0	0	1266	0	1889	66
17:15	0	0	22	0	0	1180	0	1775	55
17:30	0	0	20	0	0	1130	0	1574	50
17:45	0	0	21	0	0	1038	0	1470	48
18:00	0	0	22	0	0	986	0	1431	51
18:15	0	0	21	0	0	981	0	1326	56
18:30	0	0	17	0	0	912	0	1286	54
18:45	0	0	10	0	0	837	0	1191	52
19:00	0	0	6	0	0	797	0	1077	43
19:15	0	0	6	0	0	720	0	1042	32
19:30	0	0	5	0	0	697	0	997	27
19:45	0	0	7	0	0	666	0	953	27
20:00	0	0	8	0	0	604	0	915	31
20:15	0	0	8	0	0	562	0	770	32
20:30	0	0	9	0	0	506	0	699	35
20:45	0	0	8	0	0	459	0	648	35
21:00	0	0	8	0	0	428	0	572	28
21:15	0	0	8	0	0	392	0	579	21
21:30	0	0	8	0	0	386	0	544	16
21:45	0	0	9	0	0	377	0	505	14
22:00	0	0	9	0	0	342	0	500	15

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J30

Date of Survey: 25.06.2022
Junction Name: Albion Street / A62 Castlegate
Junction Type: T-Junction

Arm A: Albion Street (N)
Arm B: A62 Castlegate (E)
Arm C: A62 Castlegate (W)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
11:00	0	0	5	0	0	271	0	412	32
11:15	0	0	8	0	0	288	0	391	32
11:30	0	0	9	0	0	318	0	436	35
11:45	0	0	6	0	0	318	0	440	30
12:00	0	0	5	0	0	347	0	425	49
12:15	0	0	11	0	0	299	0	446	36
12:30	0	0	5	0	0	332	0	468	32
12:45	0	0	8	0	0	330	0	481	35
13:00	0	0	5	0	0	324	0	467	37
13:15	0	0	4	0	0	300	0	426	44
13:30	0	0	5	0	0	272	0	443	37
13:45	0	0	7	0	0	313	0	476	44
Start Time	**Rolling Hour**								
11:00	0	0	28	0	0	1196	0	1679	129
11:15	0	0	28	0	0	1271	0	1692	146
11:30	0	0	31	0	0	1282	0	1747	150
11:45	0	0	27	0	0	1297	0	1779	146
12:00	0	0	29	0	0	1309	0	1820	151
12:15	0	0	29	0	0	1286	0	1863	140
12:30	0	0	22	0	0	1286	0	1843	148
12:45	0	0	22	0	0	1226	0	1817	153
13:00	0	0	21	0	0	1209	0	1812	162

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J40

Date of Survey: 23.06.2022
Junction Name: A62 Queensgate / A616 Chapel Hill / A62 Manch
Junction Type: 4-arm Junction

Arm A: A62 Queensgate (E)
Arm B: A616 Chapel Hill (S)
Arm C: A62 Manchester Road (SW)
Arm D: A62 Castlegate (W)

WebTag
TfL
Vehicles Vehicles

PCU Option TfL *Please select from the list of defaul*

PCU Factors

Car	LGV	OGV1	OGV2	Bus	M/C	P/C
1.0	1.0	1.5	2.3	2.0	0.4	0.2

Notes
PCU values taken from Webtag guidance and recent TfL project
To exclude any vehicle from calculation, enter 0 into the releva

Time	A to A	A to D	A to C	A to B	B to B	B to A	B to D	B to C	C to C	C to B	C to A	C to D	D to D	D to C	D to B	D to A
	PCU Summary															
07:00	0	104	56	42	0	50	122	0	0	0	0	0	0	25	86	111
07:15	0	123	73	47	0	76	169	0	0	0	0	0	0	39	102	123
07:30	0	128	78	57	0	53	170	0	0	0	0	0	0	45	135	125
07:45	0	174	86	62	0	72	201	3	0	0	0	0	0	58	163	138
08:00	0	209	66	66	0	73	190	7	0	0	0	0	0	56	148	135
08:15	0	171	75	49	0	63	176	4	0	0	0	0	0	78	196	164
08:30	0	202	79	56	0	71	172	3	0	0	0	0	0	66	145	186
08:45	0	181	84	67	0	92	152	6	0	0	0	0	0	90	166	154
09:00	0	199	71	56	0	80	138	4	0	0	0	0	0	76	145	162
09:15	0	160	92	58	0	75	136	10	0	0	0	0	0	77	128	151
09:30	0	135	78	73	0	80	160	5	0	0	0	0	0	62	109	147
09:45	0	147	72	75	0	82	111	5	0	0	0	0	0	79	149	160
16:00	0	185	85	72	0	65	123	4	0	0	0	0	0	92	205	228
16:15	0	170	82	67	0	64	147	2	0	0	0	0	0	94	232	218
16:30	0	158	67	68	0	69	161	7	0	0	0	0	0	104	229	190
16:45	0	165	86	82	0	56	115	6	0	0	0	0	0	106	226	210
17:00	0	186	80	62	0	81	151	4	0	0	0	0	0	90	223	209
17:15	0	168	68	79	0	57	132	4	0	0	0	0	0	118	226	208
17:30	0	185	72	78	0	64	154	7	0	0	0	0	0	84	193	162
17:45	0	141	72	70	0	70	148	4	0	0	0	0	0	77	189	133
18:00	0	127	62	61	0	43	126	1	0	0	0	0	0	85	180	159
18:15	0	124	71	62	0	69	126	7	0	0	0	0	0	61	132	130
18:30	0	111	65	46	0	51	132	6	0	0	0	0	0	82	155	128
18:45	0	119	67	47	0	59	116	5	0	0	0	0	0	71	153	138
19:00	0	114	69	51	0	60	137	3	0	0	0	0	0	75	107	112
19:15	0	98	51	37	0	43	81	7	0	0	0	0	0	54	131	108
19:30	0	84	48	49	0	43	86	3	0	0	0	0	0	47	97	103
19:45	0	96	50	36	0	44	96	6	0	0	0	0	0	44	98	94
20:00	0	79	57	39	0	38	94	5	0	0	0	0	0	59	115	106
20:15	0	75	35	44	0	30	78	4	0	0	0	0	0	47	124	76
20:30	0	63	40	35	0	37	75	4	0	0	0	0	0	40	89	72
20:45	0	60	31	24	0	35	76	2	0	0	0	0	0	39	86	71
21:00	0	39	36	19	0	35	91	1	0	0	0	0	0	33	60	40
21:15	0	50	27	30	0	23	49	2	0	0	0	0	0	25	84	62
21:30	0	32	17	35	0	34	59	0	0	0	0	0	0	43	57	51
21:45	0	51	26	27	0	35	55	1	0	0	0	0	0	35	56	36
22:00	0	33	21	28	0	26	61	4	0	0	0	0	0	35	51	53
22:15	0	43	36	21	0	15	50	3	0	0	0	0	0	29	55	46
22:30	0	31	25	19	0	19	48	6	0	0	0	0	0	29	48	38
22:45	0	21	18	15	0	16	49	1	0	0	0	0	0	26	66	32
Start Time								**Rolling Hour**								
07:00	0	529	293	208	0	250	663	3	0	0	0	0	0	166	485	496
07:15	0	635	303	232	0	273	730	10	0	0	0	0	0	197	548	520
07:30	0	682	305	234	0	261	737	14	0	0	0	0	0	237	643	561
07:45	0	756	306	233	0	279	738	17	0	0	0	0	0	258	653	622
08:00	0	762	304	238	0	299	690	20	0	0	0	0	0	290	656	638
08:15	0	752	309	227	0	306	638	17	0	0	0	0	0	310	653	665
08:30	0	741	327	236	0	318	598	23	0	0	0	0	0	308	584	652
08:45	0	674	326	253	0	326	585	25	0	0	0	0	0	305	548	613
09:00	0	641	314	261	0	316	544	24	0	0	0	0	0	294	531	619
16:00	0	679	319	289	0	254	544	19	0	0	0	0	0	396	891	845
16:15	0	680	315	279	0	270	573	19	0	0	0	0	0	394	910	827
16:30	0	678	301	291	0	263	559	21	0	0	0	0	0	417	904	817
16:45	0	704	306	301	0	258	552	21	0	0	0	0	0	397	868	790
17:00	0	680	292	289	0	272	585	19	0	0	0	0	0	368	832	713
17:15	0	621	274	288	0	235	560	16	0	0	0	0	0	363	789	663
17:30	0	577	277	271	0	246	555	19	0	0	0	0	0	307	694	584
17:45	0	504	270	240	0	234	533	18	0	0	0	0	0	304	657	550
18:00	0	482	265	216	0	222	501	19	0	0	0	0	0	298	620	555
18:15	0	469	272	206	0	239	512	21	0	0	0	0	0	289	547	508
18:30	0	443	253	181	0	213	466	21	0	0	0	0	0	281	546	487
18:45	0	416	236	183	0	205	420	18	0	0	0	0	0	247	488	462
19:00	0	392	219	172	0	190	400	19	0	0	0	0	0	220	433	418
19:15	0	358	206	161	0	169	357	21	0	0	0	0	0	204	442	411
19:30	0	335	190	168	0	156	354	18	0	0	0	0	0	197	435	379
19:45	0	314	182	154	0	149	343	19	0	0	0	0	0	190	427	348
20:00	0	278	164	142	0	141	323	15	0	0	0	0	0	185	415	325
20:15	0	238	143	122	0	138	320	11	0	0	0	0	0	159	359	259
20:30	0	212	135	108	0	131	291	9	0	0	0	0	0	137	319	245
20:45	0	182	112	108	0	128	275	5	0	0	0	0	0	141	287	224
21:00	0	172	107	112	0	127	254	4	0	0	0	0	0	137	257	189
21:15	0	166	91	121	0	118	224	7	0	0	0	0	0	139	249	202
21:30	0	160	101	112	0	110	225	8	0	0	0	0	0	143	220	186
21:45	0	158	108	96	0	95	215	14	0	0	0	0	0	129	211	173
22:00	0	128	100	84	0	76	209	14	0	0	0	0	0	120	221	169

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J40

Date of Survey: 25.06.2022
Junction Name: A62 Queensgate / A616 Chapel Hill / A62 Manch
Junction Type: 4-arm Junction

Arm A: A62 Queensgate (E)
Arm B: A616 Chapel Hill (S)
Arm C: A62 Manchester Road (SW)
Arm D: A62 Castlegate (W)

	PCU Summary															
Time	**A to A**	**A to D**	**A to C**	**A to B**	**B to B**	**B to A**	**B to D**	**B to C**	**C to C**	**C to B**	**C to A**	**C to D**	**D to D**	**D to C**	**D to B**	**D to A**
11:00	0	128	81	73	0	104	146	8	0	0	0	0	0	82	132	184
11:15	0	139	76	70	0	97	151	4	0	0	0	0	0	72	151	197
11:30	0	152	77	79	0	92	162	4	0	0	0	0	0	81	168	187
11:45	0	144	68	78	0	69	181	2	0	0	0	0	0	108	137	212
12:00	0	168	97	67	0	100	175	9	0	0	0	0	0	91	138	191
12:15	0	136	72	70	0	99	176	5	0	0	0	0	0	88	165	207
12:30	0	168	104	76	0	83	161	3	0	0	0	0	0	97	169	205
12:45	0	163	84	80	0	110	169	5	0	0	0	0	0	102	173	204
13:00	0	158	64	95	0	83	165	9	0	0	0	0	0	118	196	183
13:15	0	155	92	84	0	98	133	5	0	0	0	0	0	76	161	184
13:30	0	158	66	61	0	92	122	7	0	0	0	0	0	98	170	179
13:45	0	158	73	64	0	82	147	1	0	0	0	0	0	96	188	200
Start Time	**Rolling Hour**															
11:00	0	563	302	301	0	363	640	18	0	0	0	0	0	343	589	780
11:15	0	603	319	295	0	359	669	19	0	0	0	0	0	352	595	787
11:30	0	600	315	295	0	360	693	20	0	0	0	0	0	367	609	798
11:45	0	617	341	292	0	352	692	19	0	0	0	0	0	383	609	816
12:00	0	635	357	294	0	393	681	22	0	0	0	0	0	378	645	808
12:15	0	626	324	322	0	376	671	22	0	0	0	0	0	406	703	799
12:30	0	645	344	335	0	375	628	22	0	0	0	0	0	394	700	775
12:45	0	635	307	320	0	384	589	27	0	0	0	0	0	396	701	750
13:00	0	630	295	304	0	355	566	23	0	0	0	0	0	389	715	746

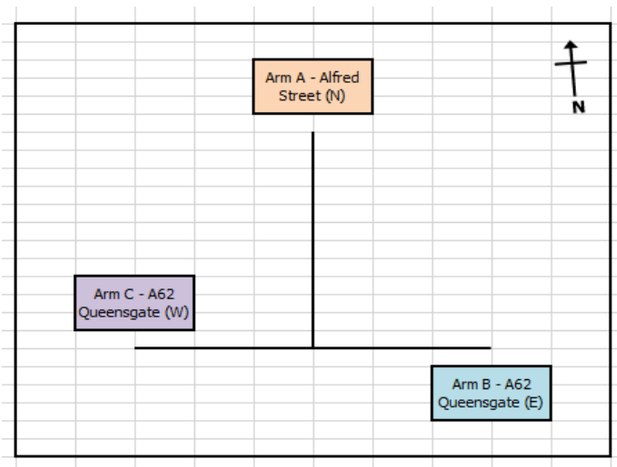
Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J50

Date of Survey: 23.06.2022
Junction Name: Alfred Street / A62 Queensgate
Junction Type: T-Junction

Arm A: Alfred Street (N)
Arm B: A62 Queensgate (E)
Arm C: A62 Queensgate (W)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
07:00	0	10	3	0	0	192	0	159	5
07:15	0	7	4	0	0	243	0	192	5
07:30	0	20	12	0	0	247	0	171	9
07:45	0	12	3	0	0	297	0	206	10
08:00	0	14	5	0	0	339	0	199	10
08:15	0	12	10	0	0	272	0	205	13
08:30	0	11	7	0	0	330	0	233	27
08:45	0	19	5	0	0	321	0	228	20
09:00	0	19	14	0	0	301	0	205	39
09:15	0	21	16	0	0	296	0	175	47
09:30	0	29	17	0	0	248	0	187	36
09:45	0	32	15	0	0	250	0	219	27
16:00	0	34	25	0	0	295	0	266	29
16:15	0	26	16	0	0	294	0	267	19
16:30	0	25	20	0	0	267	0	238	20
16:45	0	25	9	0	0	303	0	247	18
17:00	0	29	11	0	0	306	0	272	16
17:15	0	30	14	0	0	279	0	240	18
17:30	0	24	15	0	0	296	0	212	16
17:45	0	19	15	0	0	282	0	203	5
18:00	0	15	12	0	0	215	0	189	13
18:15	0	15	4	0	0	241	0	196	6
18:30	0	9	8	0	0	232	0	174	5
18:45	0	5	5	0	0	211	0	188	9
19:00	0	11	9	0	0	213	0	168	6
19:15	0	11	5	0	0	181	0	136	8
19:30	0	6	3	0	0	165	0	138	5
19:45	0	5	4	0	0	175	0	136	3
20:00	0	6	0	0	0	171	0	151	3
20:15	0	9	3	0	0	150	0	103	1
20:30	0	5	1	0	0	136	0	111	0
20:45	0	4	4	0	0	102	0	102	4
21:00	0	7	4	0	0	92	0	75	0
21:15	0	8	3	0	0	97	0	77	6
21:30	0	2	1	0	0	82	0	83	0
21:45	0	15	4	0	0	83	0	69	1
22:00	0	7	4	0	0	75	0	78	1
22:15	0	3	3	0	0	100	0	65	2
22:30	0	5	0	0	0	70	0	54	1
22:45	0	4	0	0	0	51	0	48	2
Start Time	**Rolling Hour**								
07:00	0	49	21	0	0	979	0	729	29
07:15	0	53	23	0	0	1125	0	768	34
07:30	0	58	29	0	0	1154	0	781	42
07:45	0	49	25	0	0	1237	0	843	59
08:00	0	56	27	0	0	1262	0	865	70
08:15	0	61	36	0	0	1225	0	871	99
08:30	0	70	42	0	0	1248	0	841	132
08:45	0	88	52	0	0	1166	0	795	141
09:00	0	101	62	0	0	1095	0	786	148
16:00	0	110	70	0	0	1159	0	1018	86
16:15	0	105	56	0	0	1170	0	1024	73
16:30	0	109	54	0	0	1155	0	997	72
16:45	0	108	49	0	0	1184	0	971	68
17:00	0	102	55	0	0	1163	0	927	55
17:15	0	88	56	0	0	1072	0	844	52
17:30	0	73	46	0	0	1034	0	800	40
17:45	0	58	39	0	0	970	0	762	29
18:00	0	44	29	0	0	899	0	747	33
18:15	0	40	26	0	0	896	0	726	26
18:30	0	36	27	0	0	837	0	667	28
18:45	0	33	22	0	0	770	0	631	28
19:00	0	33	21	0	0	735	0	578	22
19:15	0	28	12	0	0	692	0	561	19
19:30	0	26	10	0	0	661	0	528	12
19:45	0	25	8	0	0	632	0	501	7
20:00	0	24	8	0	0	558	0	467	8
20:15	0	25	12	0	0	480	0	392	5
20:30	0	24	12	0	0	427	0	366	10
20:45	0	21	12	0	0	373	0	338	10
21:00	0	32	12	0	0	354	0	304	7
21:15	0	32	12	0	0	337	0	307	8
21:30	0	27	12	0	0	340	0	295	4
21:45	0	30	11	0	0	328	0	266	5
22:00	0	19	7	0	0	296	0	245	6



Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J50

Date of Survey: 25.06.2022
Junction Name: Alfred Street / A62 Queensgate
Junction Type: T-Junction

Arm A: Alfred Street (N)
Arm B: A62 Queensgate (E)
Arm C: A62 Queensgate (W)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
11:00	0	31	24	0	0	255	0	241	44
11:15	0	32	26	0	0	250	0	245	53
11:30	0	33	29	0	0	289	0	241	34
11:45	0	42	16	0	0	249	0	246	36
12:00	0	24	20	0	0	292	0	246	49
12:15	0	42	32	0	0	248	0	248	57
12:30	0	33	27	0	0	296	0	234	53
12:45	0	42	18	0	0	304	0	277	37
13:00	0	35	20	0	0	265	0	219	46
13:15	0	35	28	0	0	277	0	252	35
13:30	0	31	32	0	0	272	0	225	44
13:45	0	35	23	0	0	252	0	226	58
Start Time	**Rolling Hour**								
11:00	0	138	95	0	0	1043	0	973	168
11:15	0	131	91	0	0	1080	0	979	173
11:30	0	141	97	0	0	1079	0	982	176
11:45	0	142	95	0	0	1086	0	976	195
12:00	0	142	97	0	0	1141	0	1006	196
12:15	0	153	97	0	0	1114	0	979	193
12:30	0	146	93	0	0	1142	0	983	172
12:45	0	144	98	0	0	1118	0	974	163
13:00	0	136	103	0	0	1065	0	922	184

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J60

Date of Survey: 23.06.2022
Junction Name: A62 Queensgate / Queen Street S / Page Street
Junction Type: 4-arm Junction

Arm A: A62 Queensgate (N)
Arm B: Queen Street S (S)
Arm C: A62 Queensgate (W)
Arm D: Page Street (E)

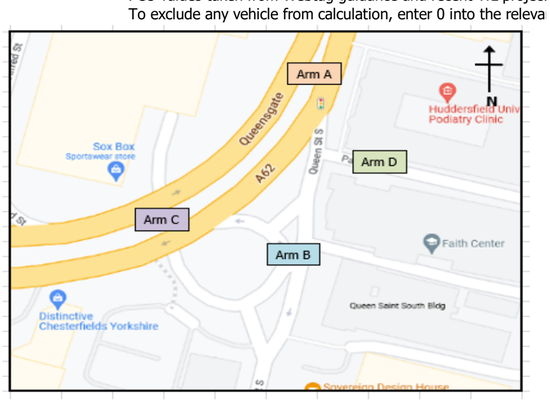
	WebTag Vehicles	TfL Vehicles
PCU Option	TfL	*Please select from the list of defaul*

PCU Factors

Car	LGV	OGV1	OGV2	Bus	M/C	P/C
1.0	1.0	1.5	2.3	2.0	0.4	0.2

Notes

PCU values taken from Webtag guidance and recent TfL project
To exclude any vehicle from calculation, enter 0 into the releva



	PCU Summary															
Time	**A to A**	**A to D**	**A to C**	**A to B**	**B to B**	**B to A**	**B to D**	**B to C**	**C to C**	**C to B**	**C to A**	**C to D**	**D to D**	**D to C**	**D to B**	**D to A**
07:00	0	0	187	20	0	0	0	10	0	0	161	0	0	0	0	0
07:15	0	0	224	46	0	0	0	16	0	0	191	0	0	1	0	0
07:30	0	3	239	40	0	0	0	13	0	0	184	0	0	0	2	0
07:45	0	0	277	42	0	0	0	24	0	0	212	0	0	0	2	0
08:00	0	1	308	29	0	0	0	35	0	0	206	0	0	0	0	0
08:15	0	2	262	39	0	0	0	18	0	0	213	0	0	1	0	0
08:30	0	1	303	55	0	0	0	24	0	0	235	0	0	0	0	0
08:45	0	1	287	49	0	0	0	31	0	0	237	0	0	0	1	0
09:00	0	1	282	43	0	0	0	22	0	0	224	0	0	0	1	0
09:15	0	1	264	42	0	0	0	25	0	0	182	0	0	0	0	0
09:30	0	1	235	34	0	0	0	17	0	0	211	0	0	0	1	0
09:45	0	2	234	42	0	0	0	13	0	0	235	0	0	0	1	0
16:00	0	1	267	41	0	0	0	39	0	0	292	0	0	3	0	0
16:15	0	0	258	58	0	0	0	28	0	0	276	0	0	0	3	0
16:30	0	0	238	67	0	0	0	31	0	0	270	0	0	1	0	0
16:45	0	1	273	59	0	0	0	32	0	0	252	0	0	0	0	0
17:00	0	2	273	58	0	0	0	32	0	0	284	0	0	1	0	0
17:15	0	6	261	44	0	0	0	32	0	0	266	0	0	1	3	0
17:30	0	0	266	61	0	0	0	23	0	0	228	0	0	1	0	0
17:45	0	3	276	64	0	0	0	13	0	0	217	0	0	2	1	0
18:00	0	3	204	57	0	0	0	21	0	0	200	0	0	0	0	0
18:15	0	5	214	41	0	0	0	16	0	0	191	0	0	1	5	0
18:30	0	7	203	41	0	0	0	23	0	0	183	0	0	4	2	0
18:45	0	4	201	49	0	0	0	16	0	0	202	0	0	4	0	0
19:00	0	1	202	42	0	0	0	17	0	0	171	0	0	1	2	0
19:15	0	1	172	45	0	0	0	13	0	0	152	0	0	1	0	0
19:30	0	0	158	31	0	0	0	9	0	0	144	0	0	0	2	0
19:45	0	1	165	30	0	0	0	13	0	0	138	0	0	2	0	0
20:00	0	0	164	37	0	0	0	7	0	0	137	0	0	0	0	0
20:15	0	0	147	26	0	0	0	7	0	0	110	0	0	0	0	0
20:30	0	0	121	36	0	0	0	8	0	0	108	0	0	0	0	0
20:45	0	6	99	24	0	0	0	6	0	0	106	0	0	3	2	0
21:00	0	5	82	30	0	0	0	6	0	0	76	0	0	3	0	0
21:15	0	1	95	16	0	0	0	3	0	0	84	0	0	4	7	0
21:30	0	0	80	25	0	0	0	4	0	0	83	0	0	0	0	0
21:45	0	1	75	15	0	0	0	10	0	0	75	0	0	1	3	0
22:00	0	0	76	20	0	0	0	3	0	0	81	0	0	0	0	0
22:15	0	0	95	21	0	0	0	4	0	0	63	0	0	0	0	0
22:30	0	0	73	15	0	0	0	3	0	0	56	0	0	0	0	0
22:45	0	0	44	16	0	0	0	3	0	0	45	0	0	0	0	0
Start Time	**Rolling Hour**															
07:00	0	3	927	148	0	0	0	63	0	0	748	0	0	1	3	0
07:15	0	4	1048	157	0	0	0	88	0	0	792	0	0	1	3	0
07:30	0	6	1085	150	0	0	0	90	0	0	814	0	0	1	3	0
07:45	0	4	1149	165	0	0	0	101	0	0	865	0	0	1	2	0
08:00	0	5	1160	172	0	0	0	108	0	0	890	0	0	1	1	0
08:15	0	5	1134	186	0	0	0	95	0	0	908	0	0	1	2	0
08:30	0	4	1136	188	0	0	0	102	0	0	878	0	0	0	2	0
08:45	0	4	1068	167	0	0	0	95	0	0	854	0	0	0	3	0
09:00	0	5	1015	160	0	0	0	77	0	0	853	0	0	0	3	0
16:00	0	2	1036	225	0	0	0	131	0	0	1090	0	0	4	3	0
16:15	0	3	1041	242	0	0	0	124	0	0	1082	0	0	2	3	0
16:30	0	9	1044	228	0	0	0	128	0	0	1072	0	0	3	3	0
16:45	0	9	1072	222	0	0	0	120	0	0	1030	0	0	3	3	0
17:00	0	11	1076	227	0	0	0	101	0	0	995	0	0	5	4	0
17:15	0	12	1006	226	0	0	0	89	0	0	911	0	0	4	4	0
17:30	0	11	960	223	0	0	0	73	0	0	836	0	0	4	6	0
17:45	0	18	897	203	0	0	0	73	0	0	791	0	0	7	8	0
18:00	0	19	822	188	0	0	0	76	0	0	776	0	0	9	7	0
18:15	0	17	820	173	0	0	0	72	0	0	747	0	0	10	9	0
18:30	0	13	778	177	0	0	0	69	0	0	709	0	0	10	4	0
18:45	0	6	733	167	0	0	0	55	0	0	670	0	0	6	4	0
19:00	0	3	697	148	0	0	0	52	0	0	605	0	0	4	4	0
19:15	0	2	660	143	0	0	0	43	0	0	571	0	0	3	2	0
19:30	0	1	635	124	0	0	0	37	0	0	529	0	0	2	2	0
19:45	0	1	598	129	0	0	0	35	0	0	493	0	0	2	0	0
20:00	0	6	532	123	0	0	0	28	0	0	461	0	0	3	2	0
20:15	0	11	450	116	0	0	0	27	0	0	401	0	0	6	2	0
20:30	0	12	398	106	0	0	0	23	0	0	375	0	0	10	9	0
20:45	0	12	357	95	0	0	0	19	0	0	350	0	0	10	9	0
21:00	0	7	333	86	0	0	0	23	0	0	318	0	0	8	10	0
21:15	0	2	326	77	0	0	0	20	0	0	323	0	0	5	10	0
21:30	0	1	326	82	0	0	0	21	0	0	302	0	0	1	3	0
21:45	0	1	319	72	0	0	0	20	0	0	275	0	0	1	3	0
22:00	0	0	288	72	0	0	0	13	0	0	246	0	0	0	0	0

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J60

Date of Survey: 25.06.2022
Junction Name: A62 Queensgate / Queen Street S / Page Street
Junction Type: 4-arm Junction

Arm A: A62 Queensgate (N)
Arm B: Queen Street S (S)
Arm C: A62 Queensgate (W)
Arm D: Page Street (E)

	PCU Summary															
Time	**A to A**	**A to D**	**A to C**	**A to B**	**B to B**	**B to A**	**B to D**	**B to C**	**C to C**	**C to B**	**C to A**	**C to D**	**D to D**	**D to C**	**D to B**	**D to A**
11:00	0	1	243	42	0	0	0	13	0	0	268	0	0	0	1	0
11:15	0	0	252	37	0	0	0	14	0	0	264	0	0	2	0	0
11:30	0	1	254	38	0	0	0	16	0	0	274	0	0	0	0	0
11:45	0	0	253	48	0	0	0	15	0	0	264	0	0	0	0	0
12:00	0	2	259	47	0	0	0	15	0	0	266	0	0	0	2	0
12:15	0	0	243	37	0	0	0	10	0	0	276	0	0	1	0	0
12:30	0	0	280	44	0	0	0	22	0	0	266	0	0	0	0	0
12:45	0	0	286	60	0	0	0	17	0	0	295	0	0	0	0	0
13:00	0	1	264	56	0	0	0	12	0	0	237	0	0	0	2	0
13:15	0	0	254	50	0	0	0	16	0	0	277	0	0	0	0	0
13:30	0	2	267	66	0	0	0	7	0	0	262	0	0	0	3	0
13:45	0	1	245	67	0	0	0	9	0	0	251	0	0	1	1	0
Start Time	**Rolling Hour**															
11:00	0	2	1002	165	0	0	0	58	0	0	1070	0	0	2	1	0
11:15	0	3	1017	170	0	0	0	60	0	0	1069	0	0	2	2	0
11:30	0	3	1009	170	0	0	0	56	0	0	1081	0	0	1	2	0
11:45	0	2	1035	176	0	0	0	63	0	0	1074	0	0	1	2	0
12:00	0	2	1068	188	0	0	0	65	0	0	1104	0	0	1	2	0
12:15	0	1	1073	197	0	0	0	62	0	0	1075	0	0	1	2	0
12:30	0	1	1084	210	0	0	0	67	0	0	1076	0	0	0	2	0
12:45	0	3	1071	232	0	0	0	52	0	0	1072	0	0	0	5	0
13:00	0	4	1030	239	0	0	0	44	0	0	1027	0	0	1	6	0

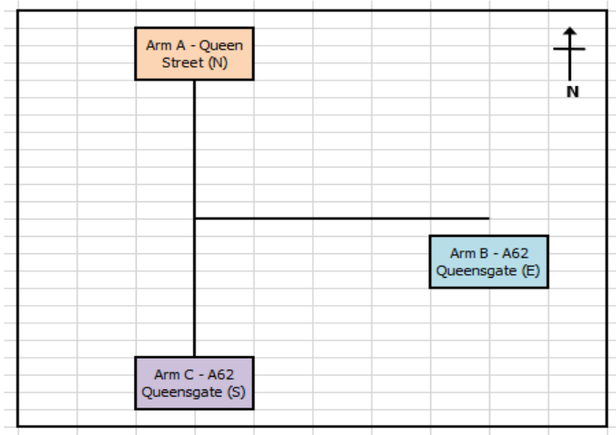
Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J70

Date of Survey: 23.06.2022
Junction Name: Queen Street / A62 Queensgate
Junction Type: T-Junction

Arm A: Queen Street (N)
Arm B: A62 Queensgate (E)
Arm C: A62 Queensgate (S)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
07:00	0	0	0	0	0	203	0	157	12
07:15	0	0	0	0	0	257	0	171	12
07:30	0	0	1	0	0	294	0	184	11
07:45	0	0	2	0	0	316	0	195	9
08:00	0	0	0	0	0	348	0	194	14
08:15	0	0	1	0	0	296	0	185	30
08:30	0	0	1	0	0	356	0	217	18
08:45	0	0	1	0	0	340	0	215	24
09:00	0	0	0	0	0	330	0	195	27
09:15	0	0	2	0	0	300	0	162	17
09:30	0	0	0	0	0	275	0	200	15
09:45	0	0	2	0	0	279	0	202	32
16:00	0	0	3	0	0	311	0	253	27
16:15	0	0	4	0	0	319	0	262	26
16:30	0	0	1	0	0	307	0	246	23
16:45	0	0	4	0	0	331	0	229	21
17:00	0	0	8	0	0	316	0	256	35
17:15	0	0	1	0	0	321	0	242	29
17:30	0	0	8	0	0	326	0	193	33
17:45	0	0	1	0	0	333	0	191	27
18:00	0	0	2	0	0	270	0	180	21
18:15	0	0	2	0	0	269	0	173	22
18:30	0	0	4	0	0	245	0	166	23
18:45	0	0	1	0	0	249	0	152	33
19:00	0	0	3	0	0	248	0	144	32
19:15	0	0	1	0	0	210	0	128	25
19:30	0	0	1	0	0	192	0	121	22
19:45	0	0	0	0	0	193	0	114	20
20:00	0	0	2	0	0	208	0	111	27
20:15	0	0	0	0	0	171	0	103	11
20:30	0	0	1	0	0	158	0	92	12
20:45	0	0	2	0	0	134	0	94	12
21:00	0	0	1	0	0	115	0	64	12
21:15	0	0	0	0	0	119	0	78	12
21:30	0	0	0	0	0	102	0	61	19
21:45	0	0	4	0	0	93	0	55	19
22:00	0	0	2	0	0	97	0	60	15
22:15	0	0	2	0	0	121	0	51	16
22:30	0	0	1	0	0	88	0	42	15
22:45	0	0	0	0	0	57	0	31	14
Start Time	**Rolling Hour**								
07:00	0	0	3	0	0	1070	0	706	43
07:15	0	0	3	0	0	1215	0	743	46
07:30	0	0	4	0	0	1254	0	757	64
07:45	0	0	4	0	0	1317	0	791	70
08:00	0	0	3	0	0	1341	0	811	85
08:15	0	0	3	0	0	1323	0	812	98
08:30	0	0	4	0	0	1326	0	789	86
08:45	0	0	3	0	0	1245	0	772	83
09:00	0	0	4	0	0	1184	0	759	91
16:00	0	0	12	0	0	1268	0	989	97
16:15	0	0	17	0	0	1273	0	992	105
16:30	0	0	14	0	0	1275	0	973	108
16:45	0	0	21	0	0	1294	0	920	119
17:00	0	0	18	0	0	1296	0	881	124
17:15	0	0	12	0	0	1250	0	805	110
17:30	0	0	13	0	0	1198	0	736	103
17:45	0	0	9	0	0	1117	0	710	93
18:00	0	0	9	0	0	1033	0	671	99
18:15	0	0	10	0	0	1011	0	635	110
18:30	0	0	9	0	0	952	0	590	113
18:45	0	0	6	0	0	899	0	544	112
19:00	0	0	5	0	0	843	0	507	99
19:15	0	0	4	0	0	804	0	474	93
19:30	0	0	3	0	0	765	0	449	79
19:45	0	0	3	0	0	731	0	421	69
20:00	0	0	5	0	0	671	0	401	62
20:15	0	0	4	0	0	578	0	353	47
20:30	0	0	4	0	0	526	0	328	48
20:45	0	0	3	0	0	470	0	297	55
21:00	0	0	5	0	0	430	0	258	62
21:15	0	0	6	0	0	412	0	254	65
21:30	0	0	8	0	0	413	0	227	69
21:45	0	0	9	0	0	399	0	209	65
22:00	0	0	5	0	0	363	0	185	60



Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J70

Date of Survey: 25.06.2022
Junction Name: Queen Street / A62 Queensgate
Junction Type: T-Junction

Arm A: Queen Street (N)
Arm B: A62 Queensgate (E)
Arm C: A62 Queensgate (S)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
11:00	0	0	3	0	0	287	0	228	39
11:15	0	0	0	0	0	295	0	227	31
11:30	0	0	1	0	0	295	0	243	41
11:45	0	0	1	0	0	300	0	218	41
12:00	0	0	3	0	0	308	0	237	33
12:15	0	0	3	0	0	286	0	234	45
12:30	0	0	1	0	0	316	0	226	36
12:45	0	0	1	0	0	347	0	266	39
13:00	0	0	3	0	0	322	0	186	44
13:15	0	0	3	0	0	295	0	248	37
13:30	0	0	4	0	0	332	0	224	39
13:45	0	0	4	0	0	320	0	206	38
Start Time	**Rolling Hour**								
11:00	0	0	5	0	0	1177	0	916	152
11:15	0	0	5	0	0	1198	0	925	146
11:30	0	0	8	0	0	1189	0	933	160
11:45	0	0	8	0	0	1210	0	916	155
12:00	0	0	8	0	0	1257	0	964	153
12:15	0	0	8	0	0	1272	0	912	165
12:30	0	0	8	0	0	1280	0	926	157
12:45	0	0	11	0	0	1296	0	924	160
13:00	0	0	14	0	0	1269	0	864	158

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J80

Date of Survey: 23.06.2022
Junction Name: Zetland Street / A62 Queensgate / University Ro
Junction Type: Crossroads

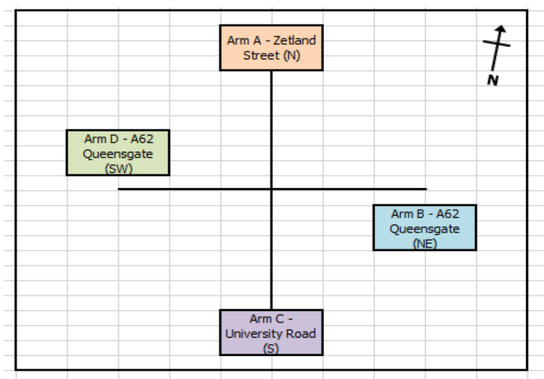
Arm A: Zetland Street (N)
Arm B: A62 Queensgate (NE)
Arm C: University Road (S)
Arm D: A62 Queensgate (SW)

		WebTag Vehicles	TfL Vehicles
PCU Option		TfL	*Please select from the list of defaul*

PCU Factors

Car	LGV	OGV1	OGV2	Bus	M/C	P/C
1.0	1.0	1.5	2.3	2.0	0.4	0.2

Notes
PCU values taken from Webtag guidance and recent TfL project
To exclude any vehicle from calculation, enter 0 into the releva



	PCU Summary															
Time	**A to A**	**A to D**	**A to C**	**A to B**	**B to B**	**B to A**	**B to D**	**B to C**	**C to C**	**C to B**	**C to A**	**C to D**	**D to D**	**D to C**	**D to B**	**D to A**
07:00	0	0	0	3	0	0	203	1	0	0	0	0	0	0	156	2
07:15	0	0	0	1	0	0	254	3	0	0	0	1	0	0	162	3
07:30	0	1	0	0	0	0	295	6	0	0	0	1	0	0	186	3
07:45	0	2	0	0	0	0	301	3	0	0	0	4	0	0	181	4
08:00	0	4	0	1	0	0	349	3	0	0	0	1	0	0	202	7
08:15	0	1	0	1	0	0	297	3	0	0	0	3	0	0	176	9
08:30	0	1	0	3	0	0	338	14	0	0	0	11	0	0	203	13
08:45	0	6	0	1	0	0	320	24	0	0	0	21	0	0	206	11
09:00	0	4	0	2	0	0	314	14	0	0	0	10	0	0	168	23
09:15	0	3	0	1	0	0	286	10	0	0	0	10	0	0	144	19
09:30	0	5	0	2	0	0	261	5	0	0	0	7	0	0	182	14
09:45	0	1	0	3	0	0	271	4	0	0	0	5	0	0	190	17
16:00	0	18	0	6	0	0	286	4	0	0	0	6	0	0	242	13
16:15	0	6	0	6	0	0	308	9	0	0	0	9	0	0	254	8
16:30	0	10	0	4	0	0	282	8	0	0	0	10	0	0	237	10
16:45	0	19	0	10	0	0	307	2	0	0	0	4	0	0	211	12
17:00	0	14	0	6	0	0	296	8	0	0	0	8	0	0	260	12
17:15	0	11	0	7	0	0	305	5	0	0	0	4	0	0	233	6
17:30	0	17	0	8	0	0	309	4	0	0	0	3	0	0	192	6
17:45	0	8	0	6	0	0	313	5	0	0	0	7	0	0	188	8
18:00	0	3	0	4	0	0	262	8	0	0	0	6	0	0	177	3
18:15	0	1	0	2	0	0	261	8	0	0	0	5	0	0	171	4
18:30	0	1	0	1	0	0	241	2	0	0	0	4	0	0	167	3
18:45	0	5	0	3	0	0	247	3	0	0	0	2	0	0	138	7
19:00	0	3	0	0	0	0	244	1	0	0	0	4	0	0	150	3
19:15	0	2	0	4	0	0	204	4	0	0	0	2	0	0	123	5
19:30	0	3	0	4	0	0	185	1	0	0	0	4	0	0	109	7
19:45	0	1	0	5	0	0	188	5	0	0	0	3	0	0	110	3
20:00	0	4	0	6	0	0	201	1	0	0	0	5	0	0	114	6
20:15	0	1	0	2	0	0	165	2	0	0	0	2	0	0	100	3
20:30	0	2	0	0	0	0	161	1	0	0	0	1	0	0	96	0
20:45	0	5	0	1	0	0	129	0	0	0	0	0	0	0	86	7
21:00	0	3	0	2	0	0	106	1	0	0	0	2	0	0	64	0
21:15	0	2	0	2	0	0	110	0	0	0	0	1	0	0	77	4
21:30	0	0	0	2	0	0	104	0	0	0	0	0	0	0	60	1
21:45	0	1	0	1	0	0	90	1	0	0	0	1	0	0	56	2
22:00	0	3	0	1	0	0	90	1	0	0	0	2	0	0	58	2
22:15	0	4	0	4	0	0	115	0	0	0	0	1	0	0	50	5
22:30	0	4	0	3	0	0	83	0	0	0	0	0	0	0	38	3
22:45	0	4	0	3	0	0	54	0	0	0	0	0	0	0	27	3
Start Time	**Rolling Hour**															
07:00	0	3	0	4	0	0	1053	13	0	0	0	6	0	0	684	12
07:15	0	7	0	2	0	0	1199	15	0	0	0	7	0	0	730	17
07:30	0	8	0	2	0	0	1242	15	0	0	0	9	0	0	744	23
07:45	0	8	0	5	0	0	1285	23	0	0	0	19	0	0	761	33
08:00	0	12	0	6	0	0	1304	44	0	0	0	36	0	0	786	40
08:15	0	12	0	7	0	0	1269	55	0	0	0	45	0	0	752	56
08:30	0	14	0	7	0	0	1258	62	0	0	0	52	0	0	721	66
08:45	0	18	0	6	0	0	1181	53	0	0	0	48	0	0	700	67
09:00	0	13	0	8	0	0	1132	33	0	0	0	32	0	0	684	73
16:00	0	53	0	26	0	0	1183	23	0	0	0	29	0	0	944	43
16:15	0	49	0	26	0	0	1193	27	0	0	0	31	0	0	961	42
16:30	0	54	0	27	0	0	1190	23	0	0	0	26	0	0	941	40
16:45	0	61	0	31	0	0	1217	19	0	0	0	19	0	0	896	36
17:00	0	50	0	27	0	0	1223	22	0	0	0	22	0	0	873	32
17:15	0	39	0	25	0	0	1189	22	0	0	0	20	0	0	790	23
17:30	0	29	0	20	0	0	1145	25	0	0	0	21	0	0	728	21
17:45	0	13	0	13	0	0	1077	23	0	0	0	22	0	0	703	18
18:00	0	10	0	10	0	0	1011	21	0	0	0	17	0	0	653	17
18:15	0	10	0	6	0	0	992	14	0	0	0	15	0	0	626	17
18:30	0	11	0	8	0	0	936	10	0	0	0	12	0	0	578	18
18:45	0	13	0	11	0	0	880	9	0	0	0	12	0	0	519	22
19:00	0	9	0	13	0	0	821	11	0	0	0	13	0	0	492	18
19:15	0	10	0	19	0	0	779	11	0	0	0	14	0	0	456	21
19:30	0	9	0	17	0	0	740	9	0	0	0	14	0	0	433	19
19:45	0	8	0	13	0	0	716	9	0	0	0	11	0	0	421	12
20:00	0	12	0	9	0	0	656	4	0	0	0	8	0	0	397	16
20:15	0	11	0	5	0	0	561	4	0	0	0	5	0	0	346	10
20:30	0	12	0	5	0	0	506	2	0	0	0	4	0	0	323	11
20:45	0	10	0	7	0	0	449	1	0	0	0	3	0	0	287	12
21:00	0	6	0	7	0	0	411	2	0	0	0	4	0	0	257	7
21:15	0	6	0	6	0	0	395	2	0	0	0	4	0	0	251	9
21:30	0	8	0	8	0	0	399	2	0	0	0	4	0	0	224	10
21:45	0	12	0	9	0	0	378	2	0	0	0	4	0	0	203	12
22:00	0	15	0	11	0	0	341	1	0	0	0	3	0	0	174	13

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J80

Date of Survey: 25.06.2022
Junction Name: Zetland Street / A62 Queensgate / University Ro
Junction Type: Crossroads

Arm A: Zetland Street (N)
Arm B: A62 Queensgate (NE)
Arm C: University Road (S)
Arm D: A62 Queensgate (SW)

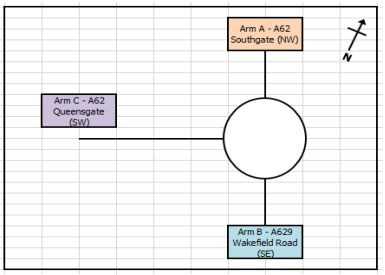
	PCU Summary															
Time	**A to A**	**A to D**	**A to C**	**A to B**	**B to B**	**B to A**	**B to D**	**B to C**	**C to C**	**C to B**	**C to A**	**C to D**	**D to D**	**D to C**	**D to B**	**D to A**
11:00	0	17	0	4	0	0	274	3	0	0	0	2	0	0	197	36
11:15	0	18	0	9	0	0	270	0	0	0	0	1	0	0	189	36
11:30	0	9	0	13	0	0	289	0	0	0	0	0	0	0	205	34
11:45	0	22	0	19	0	0	269	3	0	0	0	1	0	0	197	25
12:00	0	22	0	15	0	0	290	3	0	0	0	1	0	0	205	34
12:15	0	19	0	13	0	0	265	5	0	0	0	5	0	0	196	39
12:30	0	17	0	9	0	0	299	3	0	0	0	1	0	0	202	27
12:45	0	28	0	8	0	0	307	5	0	0	0	1	0	0	224	42
13:00	0	28	0	12	0	0	294	4	0	0	0	4	0	0	146	40
13:15	0	22	0	13	0	0	273	5	0	0	0	3	0	0	205	47
13:30	0	31	0	8	0	0	295	8	0	0	0	7	0	0	197	35
13:45	0	27	0	20	0	0	288	5	0	0	0	5	0	0	172	38
Start Time	**Rolling Hour**															
11:00	0	66	0	45	0	0	1102	6	0	0	0	4	0	0	788	131
11:15	0	71	0	56	0	0	1118	6	0	0	0	3	0	0	796	129
11:30	0	72	0	60	0	0	1113	11	0	0	0	7	0	0	804	132
11:45	0	80	0	56	0	0	1123	14	0	0	0	8	0	0	801	125
12:00	0	86	0	45	0	0	1161	16	0	0	0	8	0	0	828	142
12:15	0	92	0	42	0	0	1166	17	0	0	0	11	0	0	768	148
12:30	0	95	0	42	0	0	1173	17	0	0	0	9	0	0	777	156
12:45	0	109	0	41	0	0	1169	22	0	0	0	15	0	0	772	164
13:00	0	108	0	53	0	0	1150	22	0	0	0	19	0	0	720	160

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J90

Date of Survey: 23.06.2022
Junction Name: Shorehead Roundabout
Junction Type: 3-arm Roundabout

Arm A: A62 Southgate (NW)
Arm B: A629 Wakefield Road (SE)
Arm C: A62 Queensgate (SW)



	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
07:00	3	79	94	9	122	129	1	112	44
07:15	4	100	131	18	172	155	1	78	87
07:30	6	115	146	19	201	179	2	116	54
07:45	8	105	187	20	192	212	4	103	86
08:00	18	110	161	13	244	226	2	122	78
08:15	9	98	188	21	218	200	3	110	66
08:30	11	122	140	19	213	213	7	129	65
08:45	9	136	164	12	220	206	9	130	67
09:00	15	126	136	18	211	192	6	115	50
09:15	13	130	160	29	225	165	8	100	44
09:30	21	112	133	21	191	148	2	117	64
09:45	13	147	154	35	191	126	1	139	51
16:00	22	155	216	25	163	137	4	184	59
16:15	15	151	225	15	182	152	2	191	60
16:30	11	171	230	22	180	118	2	208	35
16:45	14	168	213	18	168	144	2	181	32
17:00	12	149	246	17	156	150	6	194	60
17:15	14	166	247	25	170	132	4	197	38
17:30	15	157	220	19	172	153	5	152	47
17:45	16	162	211	29	164	159	3	131	55
18:00	15	149	176	29	163	113	1	147	42
18:15	16	156	160	21	142	108	2	137	34
18:30	22	143	144	23	133	112	2	125	36
18:45	21	118	133	24	118	122	3	111	32
19:00	13	144	160	19	117	100	0	117	32
19:15	10	110	132	22	121	103	1	86	37
19:30	16	113	105	18	113	71	1	81	28
19:45	16	112	121	17	83	79	2	73	44
20:00	16	122	96	18	87	74	2	75	38
20:15	13	98	114	19	78	71	0	80	27
20:30	7	99	88	11	80	59	1	74	22
20:45	10	79	84	13	66	49	1	64	22
21:00	12	62	87	8	64	42	2	45	16
21:15	7	61	83	5	83	49	2	52	26
21:30	11	59	71	3	80	44	1	44	17
21:45	7	49	87	6	46	37	2	31	29
22:00	4	61	75	4	51	31	2	30	23
22:15	5	63	56	3	46	48	0	39	14
22:30	2	53	50	4	59	26	1	26	14
22:45	6	37	66	2	36	18	0	19	10
Start Time	**Rolling Hour**								
07:00	21	399	556	66	687	674	8	409	270
07:15	36	430	623	70	809	772	9	419	305
07:30	41	427	681	73	856	817	11	451	284
07:45	46	434	676	73	868	851	15	464	295
08:00	47	465	652	65	896	846	21	491	276
08:15	44	481	628	70	863	811	25	483	248
08:30	48	514	600	78	870	776	29	473	226
08:45	58	503	593	80	847	711	25	461	225
09:00	62	514	583	103	818	631	17	471	209
16:00	62	645	883	80	693	551	10	764	186
16:15	52	639	913	72	686	563	12	774	186
16:30	51	654	935	82	673	544	14	780	165
16:45	55	640	926	79	665	578	17	724	176
17:00	57	634	924	90	662	593	18	675	200
17:15	60	634	854	102	669	556	13	628	182
17:30	62	625	767	98	641	532	11	567	178
17:45	69	611	691	102	602	491	8	540	168
18:00	74	568	613	97	556	454	8	519	145
18:15	72	562	597	87	511	441	7	489	134
18:30	66	516	569	88	490	436	6	438	137
18:45	60	485	529	83	470	395	5	395	129
19:00	55	479	518	76	434	353	4	358	141
19:15	58	457	454	75	404	327	6	316	147
19:30	61	445	437	72	361	296	5	310	137
19:45	52	431	420	65	328	284	5	303	131
20:00	46	398	383	61	311	254	4	294	109
20:15	42	338	373	51	289	222	4	263	87
20:30	36	301	342	37	293	200	6	235	86
20:45	40	262	326	29	293	185	6	205	81
21:00	37	231	328	22	273	172	7	172	88
21:15	29	231	317	18	260	161	7	158	95
21:30	27	233	290	16	223	160	5	144	83
21:45	18	227	269	17	202	142	5	126	80
22:00	17	215	248	13	192	123	3	114	61

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Junction Number: Site J90

Date of Survey: 25.06.2022
Junction Name: Shorehead Roundabout
Junction Type: 3-arm Roundabout

Arm A: A62 Southgate (NW)
Arm B: A629 Wakefield Road (SE)
Arm C: A62 Queensgate (SW)

	PCU Summary								
Time	**A to A**	**A to C**	**A to B**	**B to B**	**B to A**	**B to C**	**C to C**	**C to B**	**C to A**
11:00	21	157	175	40	145	113	2	109	84
11:15	23	142	159	33	179	121	1	149	44
11:30	24	155	199	48	201	135	2	136	73
11:45	23	140	192	47	213	132	3	140	70
12:00	25	156	192	36	178	124	5	150	80
12:15	34	139	209	36	201	138	2	120	77
12:30	25	157	214	33	189	139	6	140	69
12:45	30	167	215	26	200	152	3	137	77
13:00	26	161	210	31	207	137	2	106	69
13:15	26	141	214	31	237	137	5	137	70
13:30	28	168	171	28	180	128	3	148	65
13:45	22	153	216	31	195	126	4	132	60
Start Time	**Rolling Hour**								
11:00	91	595	725	168	737	501	8	534	271
11:15	96	594	743	164	771	513	11	575	267
11:30	106	591	793	167	793	530	12	546	300
11:45	107	593	808	152	780	534	16	550	295
12:00	114	619	830	131	768	554	16	546	303
12:15	115	625	848	126	797	566	13	502	291
12:30	107	626	852	121	833	565	16	520	285
12:45	110	637	809	116	825	554	13	528	281
13:00	102	624	810	121	820	528	14	524	264

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Site Number: Site 1

Dates of Survey: 21.06.2022-27.06.2022
Site Name: A62 Queensgate
Survey Type: Multi-day Link Count

Arm A Queen Street S (S)
Arm B Queen Street (N)

PCU Summary

Time	A to B (Northbound) 21.06.2022	22.06.2022	23.06.2022	24.06.2022	25.06.2022	26.06.2022	27.06.2022	B to A (Southbound) 21.06.2022	22.06.2022	23.06.2022	24.06.2022	25.06.2022	26.06.2022	27.06.2022	Weekday NB	Weekday SB	Weekday Total	SAT NB	SAT SB	SAT Total
00:00	17	21	18	31	63	85	26	33	34	31	42	60	165	47	22	35	57	63	60	124
00:15	16	16	29	27	57	83	28	28	32	23	22	47	149	36	22	26	48	57	47	104
00:30	9	20	23	22	42	93	18	17	24	17	28	61	101	23	19	22	40	42	61	103
00:45	26	12	21	20	57	68	16	6	26	28	18	37	61	22	20	20	39	57	37	94
01:00	14	6	18	11	42	73	10	15	14	17	19	41	43	18	12	16	29	42	41	83
01:15	13	12	13	13	33	73	13	15	14	19	11	39	52	10	13	15	28	33	39	72
01:30	9	6	15	9	47	70	11	7	4	14	13	40	45	20	10	10	19	47	40	87
01:45	13	15	20	9	42	56	11	10	9	10	16	25	65	15	14	12	26	42	25	67
02:00	5	13	12	11	41	61	8	10	14	15	13	32	51	10	10	13	23	41	32	73
02:15	3	17	9	15	28	52	8	13	10	14	10	24	28	7	11	12	23	28	24	52
02:30	15	6	7	11	36	71	9	9	9	10	10	21	30	7	10	9	19	36	21	57
02:45	3	6	5	6	27	46	8	8	6	12	16	34	40	6	5	11	16	27	34	61
03:00	2	8	4	8	23	33	5	9	12	17	13	33	35	6	6	13	18	23	33	56
03:15	3	9	9	5	15	47	5	17	2	14	4	21	25	9	6	9	16	15	21	36
03:30	9	8	7	2	22	31	6	6	11	6	10	20	23	11	7	8	15	22	20	42
03:45	22	10	14	18	22	31	11	19	16	14	17	22	27	16	16	17	32	22	22	44
04:00	2	15	11	5	19	36	14	8	16	12	18	15	26	11	8	13	22	19	15	34
04:15	7	12	11	5	16	24	7	15	14	11	9	20	20	9	9	12	21	16	20	36
04:30	13	17	10	8	14	22	15	14	17	14	14	13	15	23	12	15	27	14	13	27
04:45	15	17	18	14	13	18	13	16	16	20	15	19	15	25	16	17	33	13	19	32
05:00	8	9	16	20	16	20	21	32	24	31	30	16	17	29	13	29	42	16	16	32
05:15	28	23	19	24	10	14	19	41	34	35	30	19	18	33	23	35	58	10	19	29
05:30	40	30	36	32	26	8	34	66	63	68	48	27	16	52	34	61	95	26	27	52
05:45	45	60	50	41	38	18	57	76	52	66	57	32	21	77	49	63	112	38	32	70
06:00	51	47	49	42	36	18	55	61	77	64	68	38	21	65	47	67	115	36	38	74
06:15	87	85	77	71	31	5	72	103	125	123	103	47	24	111	80	114	194	31	47	78
06:30	81	97	82	82	33	26	94	137	154	129	150	54	39	149	86	142	228	33	54	87
06:45	134	121	119	114	52	27	111	176	170	164	164	67	42	167	122	168	291	52	67	119
07:00	156	156	169	151	43	26	149	191	175	203	173	80	27	162	158	186	344	43	80	123
07:15	188	164	183	146	56	30	176	277	266	257	241	76	42	258	170	260	430	56	76	132
07:30	201	171	194	171	70	37	175	269	267	294	303	88	58	270	185	283	468	70	88	158
07:45	199	184	204	195	93	36	182	315	343	316	294	125	73	308	196	317	512	93	125	218
08:00	225	218	208	213	103	38	220	349	311	348	313	141	71	288	216	331	547	103	141	244
08:15	233	208	215	190	150	43	219	330	325	296	323	203	75	352	211	319	530	150	203	353
08:30	244	212	234	216	166	43	189	327	308	356	294	227	90	306	226	321	547	166	227	393
08:45	228	233	239	213	176	87	210	296	316	340	295	217	115	291	228	312	540	176	217	393
09:00	226	231	222	223	196	61	225	309	280	330	293	203	97	266	226	303	529	196	203	399
09:15	220	238	179	236	200	84	217	321	296	300	286	251	108	328	218	301	519	200	251	450
09:30	227	234	215	224	212	101	231	267	271	275	228	252	130	243	225	260	485	212	252	463
09:45	187	197	233	256	250	147	228	279	253	279	255	260	155	288	218	267	485	250	260	510
10:00	212	199	215	214	235	166	228	269	266	250	232	254	172	257	210	255	464	235	254	489
10:15	226	217	224	230	266	184	234	235	252	243	266	263	208	247	224	249	473	266	263	529
10:30	226	218	237	267	287	210	211	245	246	276	255	266	229	250	237	255	493	287	266	553
10:45	238	222	221	266	237	218	240	260	244	244	275	259	235	260	237	256	492	237	259	496
11:00	244	211	220	255	267	193	211	287	243	266	262	287	256	248	232	264	497	267	287	553
11:15	216	205	260	271	258	237	235	255	248	283	273	295	276	259	238	265	503	258	295	553
11:30	239	231	252	233	284	237	254	283	254	288	270	295	255	287	239	274	513	284	295	579
11:45	246	224	232	258	259	250	245	289	287	259	279	300	266	276	240	278	518	259	300	559
12:00	252	223	245	247	270	239	235	247	273	269	236	308	287	232	242	256	498	270	308	578
12:15	233	240	238	274	279	256	232	284	282	255	264	286	270	259	246	271	517	279	286	566
12:30	225	218	244	276	262	251	232	276	265	305	270	316	285	264	241	279	520	262	316	578
12:45	281	209	231	232	305	228	221	293	282	307	317	347	257	260	238	300	538	305	347	652
13:00	203	182	231	255	230	237	239	293	192	301	299	322	259	248	218	271	489	230	322	552
13:15	205	154	232	272	285	240	251	262	200	283	297	295	254	282	216	260	476	285	295	580
13:30	242	209	235	293	263	216	233	296	281	243	271	332	257	264	245	272	517	263	332	595
13:45	208	224	231	260	244	240	209	261	291	282	312	320	273	255	231	286	517	244	320	564
14:00	222	232	241	263	278	219	257	245	252	262	286	296	268	250	239	261	501	278	296	574
14:15	217	198	227	254	289	226	230	281	280	287	329	328	273	278	224	294	518	289	328	616
14:30	233	246	234	271	266	209	216	260	305	266	283	331	285	258	246	278	524	266	331	597
14:45	226	236	250	272	258	187	271	285	319	307	303	285	297	314	246	303	549	258	285	543
15:00	208	214	223	266	278	194	220	278	273	278	313	303	282	251	228	286	513	278	303	581
15:15	239	259	226	236	264	227	219	265	273	290	297	270	282	279	240	281	521	264	270	534
15:30	258	231	236	259	242	156	233	317	263	296	336	254	264	286	246	303	549	242	254	496
15:45	239	255	264	260	244	157	238	296	282	303	308	265	291	287	254	297	552	244	265	509
16:00	292	271	280	275	259	153	295	281	290	311	290	270	311	291	279	293	572	259	270	529
16:15	268	246	287	275	239	167	243	282	302	319	323	237	203	296	269	307	576	239	237	477
16:30	278	284	268	277	277	137	187	298	285	307	303	269	217	205	277	298	575	277	269	546
16:45	246	235	251	282	228	128	0	304	299	331	306	268	192	0	253	310	564	228	268	496
17:00	312	282	291	282	228	118	0	324	359	316	317	280	211	0	292	329	620	228	280	507
17:15	279	261	271	258	214	125	0	329	319	321	307	254	177	0	267	319	586	214	254	468
17:30	219	234	226	213	202	115	0	314	310	326	296	283	172	0	223	312	534	202	283	484
17:45	201	216	218	188	175	95	0	320	303	333	323	246	173	0	206	320	525	175	246	422
18:00	208	189	201	213	168	118	0	302	270	270	292	273	181	0	203	283	486	168	273	441
18:15	166	178	195	217	177	103	0	230	271	269	295	219	175	0	189	266	455	177	219	396
18:30	171	192	189	163	141	92	0	266	253	245	264	243	174	0	179	257	436	141	243	384
18:45	190	190	184	191	127	109	0	252	251	249	286	193	134	0	189	260	448	127	193	321
19:00	157	174	176	199	146	84	0	252	239	248	280	219	159	0	176	255	431	146	219	365
19:15	129	153	153	177	111	81	0	218	210	210	225	201	133	0	153	216	369	111	201	313
19:30	140	160	143	143	131	121	0	174	185	192	185	183	158	0	146	184	330	131	183	314
19:45	111	118	134	134	141	102	0	170	171	193	185	172	121	0	124	180	304	141	172	313
20:00	129	116	138	120	121	90	0	151	170	208	217	148	134	0	126	187	312	121	148	270
20:15	141	117	114	116	116	75	0	162	136	171	154	163	93	0	122	156	278	116	163	279
20:30	107	110	104	120	92	63	0	127	135	158	183	119	120	0	110	151	261	92	119	211
20:45	123	105	106	126	103	64	0	143	109	134	136	118	102	0	115	130	245	103	118	221
21:00	77	101	76	106	121	75	0	126	140	115	134	154	88	0	90	129	219	121	154	275
21:15	95	81	90	81	110	57	0	114	145	119	150	167	77	0	87	132	219	110	167	277
21:30	71	90	80	80	93	39	0	109	116	102	101	111	87	0	80	107	187	93	111	204
21:45	75	65	74	86	109	53	0	112	95	93	99	150	65	0	75	100	175	109	150	259
22:00	78	74	75	121	113	59	0	104	104	97	148	118	75	0	87	113	200	113	118	231
22:15	70	87	67	165	100	50	0	102	116	121	116	120	77	0	97	114	211	100	120	220
22:30	38	75	57	81	103	42	0	59	97	88	98	107	73	0	63	86	148	103	107	210
22:45	42	45	45	81	109	50	0	63	88	57	111	114	54	0	53	80	133	109	114	223
23:00	34	50	38	81	119	41	0	70	59	67	121	187	42	0	51	79	130	119	187	306
23:15	33	50	46	75	148	21	0	55	54	51	77	198	46	0	51	59	110	148	198	346
23:30	30	29	26	51	118	23	0	35	39	44	63	224	45	0	34	45	79	118	224	342
23:45	31	36	33	64	111	32	0	35	35	28	69	185	36	0	41	42	83	111	185	296

Start Time	Rolling Hour														NB	SB	Total	NB	SB	Total
00:00	68	69	91	100	220	330	88	84	116	99	110	205	477	128	82	102	184	220	205	426
00:15	65	54	91	80	199	318	72	66	96	85	87	186	355	99	73	84	156	199	186	385
00:30	62	50	75	66	175	308	57	53	78	81	76	178	258	73	63	72	135	175	178	353
00:45	62	36	67	53	179	284	50	43	58	78	61	157	202	70	54	60	115	179	157	336
01:00	49	39	66	42	164	272	45	47	41	60	59	145	206	63	49	52	101	164	145	309
01:15	40	46	60	42	162	260	42	42	41	59	54	136	214	55	47	49	95	162	136	298
01:30	30	51	56	44	157	239	37	40	37	54	53	122	189	52	45	46	91	157	122	279
01:45	36	51	48	46	147	240	35	42	42	50	50	103	174	39	45	46	91	147	103	250
02:00	26	42	33	43	132	230	32	39	39	52	50	112	149	30	36	45	81	132	112	244
02:15	23	37	25	40	114	202	30	38	37	54	50	113	133	26	31	45	76	114	113	227
02:30	23	29	25	30	101	197	27	42	29	54	44	110	130	29	27	42	69	101	110	211
02:45	17	31	25	21	87	157	24	39	30	50	44	109	123	33	23	41	64	87	109	196
03:00	36	35	34	33	83	142	27	51	40	52	45	96	110	43	34	47	81	83	96	179
03:15	36	42	41	30	79	144	36	50	44	47	49	78	101	47	37	47	84	79	78	157
03:30	40	45	43	30	80	121	38	48	56	43	54	77	96	47	39	50	90	80	77	157
03:45	44	54	46	37	72	113	46	56	62	51	58	70	88	59	45	57	102	72	70	142
04:00	37	61	50	33	63	100	48	53	62	57	56	67	76	67	45	57	102	63	67	130
04:15	43	55	54	48	59	84	56	77	70	76	68	69	67	86	50	73	123	59	69	128
04:30	64	66	62	66	53	74	68	103	90	100	89	68	65	109	64	96	160	53	68	121
04:45	90	79	88	90	65	59	87	155	136	154	123	81	66	139	87	142	229	65	81	146
05:00	120	121	121	116	90	59	131	214	173	199	166	94	72	191	120	188	307	90	94	184
05:15	163	160	154	138	109	57	165	243	226	233	203	116	76	226	154	226	380	109	116	225
05:30	223	222	212	186	130	48	217	305	317	321	276	144	82	304	211	305	515	130	144	274
05:45	264	289	259	236	137	67	277	376	409	383	378	171	105	401	262	386	648	137	171	308
06:00	353	351	328	309	150	76	331	476	526	481	485	206	126	491	335	492	827	150	206	357
06:15	458	459	447	419	158	84	425	606	624	620	590	248	132	588	446	610	1056	158	248	406
06:30	559	539	553	494	183	109	530	780	765	754	727	277	150	736	536	757	1293	183	277	460
06:45	679	613	665	583	221	119	610	912	878	919	881	311	169	856	635	897	1533	221	311	532
07:00	745	676	750	664	262	128	681	1051	1051	1070	1011	370	200	997	709	1046	1754	262	370	631
07:15	813	738	789	726	322	140	752	1209	1188	1215	1151	430	243	1123	766	1191	1957	322	430	752
07:30	858	781	821	770	416	153	795	1262	1246	1254	1234	557	276	1218	807	1249	2057	416	557	972
07:45	900	822	861	814	512	159	809	1320	1287	1317	1224	696	308	1254	849	1287	2136	512	696	1207
08:00	929	871	896	832	595	210	838	1302	1259	1341	1225	787	351	1237	882	1282	2164	595	787	1382
08:15	931	884	910	841	687	233	843	1262	1228	1323	1204	850	377	1215	891	1254	2146	687	850	1537
08:30	918	914	874	888	737	274	841	1253	1199	1326	1167	898	410	1191	899	1236	2135	737	898	1635
08:45	901	937	855	896	783	333	883	1194	1162	1245	1101	922	451	1129	897	1176	2073	783	922	1705
09:00	861	901	850	939	856	393	901	1177	1100	1184	1062	965	491	1125	888	1130	2018	856	965	1822
09:15	846	869	842	929	895	498	904	1136	1086	1105	1001	1017	566	1116	872	1082	1954	895	1017	1912
09:30	852	848	887	924	962	599	921	1050	1042	1048	981	1029	666	1034	878	1030	1908	962	1029	1991
09:45	851	832	908	967	1038	707	901	1028	1017	1048	1009	1043	765	1041	890	1025	1915	1038	1043	2081
10:00	902	856	896	977	1026	778	913	1008	1008	1013	1028	1042	844	1014	908	1014	1922	1026	1042	2068
10:15	934	868	902	1018	1058	805	896	1026	985	1029	1057	1075	928	1005	930	1024	1955	1058	1075	2132
10:30	925	855	938	1059	1049	857	898	1046	980	1069	1064	1107	995	1017	944	1040	1984	1049	1107	2156
10:45	937	868	954	1025	1046	884	940	1085	988	1081	1079	1136	1021	1054	946	1058	2004	1046	1136	2181
11:00	945	871	965	1017	1067	916	945	1114	1031	1096	1084	1177	1052	1070	949	1081	2030	1067	1177	2244
11:15	953	883	989	1009	1071	963	969	1073	1061	1100	1057	1198	1084	1054	959	1073	2031	1071	1198	2269
11:30	970	919	967	1012	1092	982	965	1102	1095	1072	1048	1189	1078	1054	967	1079	2046	1092	1189	2281
11:45	956	905	959	1055	1071	997	943	1095	1106	1088	1048	1210	1109	1032	969	1084	2053	1071	1210	2281
12:00	991	889	958	1030	1117	975	919	1099	1102	1136	1086	1257	1100	1015	967	1106	2073	1117	1257	2374
12:15	942	849	945	1037	1077	973	923	1145	1021	1167	1149	1272	1072	1031	943	1121	2064	1077	1272	2348
12:30	914	763	938	1035	1083	957	943	1123	940	1195	1182	1280	1055	1053	912	1110	2022	1083	1280	2363
12:45	931	754	929	1051	1084	921	944	1143	956	1133	1183	1296	1027	1053	916	1104	2020	1084	1296	2380
13:00	858	769	929	1079	1023	933	932	1111	965	1108	1178	1269	1043	1048	909	1090	1999	1023	1269	2292
13:15	877	819	938	1087	1071	915	951	1064	1025	1069	1165	1242	1052	1051	930	1080	2011	1071	1242	2313
13:30	890	863	933	1069	1074	901	929	1083	1104	1072	1197	1275	1071	1047	939	1114	2053	1074	1275	2349
13:45	881	900	932	1048	1077	894	912	1048	1129	1096	1209	1274	1099	1040	940	1120	2060	1077	1274	2351
14:00	899	912	951	1060	1090	841	974	1071	1157	1121	1200	1240	1124	1099	956	1137	2093	1090	1240	2330
14:15	884	893	934	1064	1090	816	937	1104	1177	1137	1228	1247	1137	1100	944	1162	2105	1090	1247	2338
14:30	906	955	933	1046	1065	817	926	1088	1170	1141	1196	1190	1146	1101	960	1149	2108	1065	1190	2255
14:45	931	940	935	1034	1042	764	943	1144	1128	1172	1249	1113	1125	1130	960	1173	2133	1042	1113	2154
15:00	944	959	949	1021	1028	733	909	1155	1090	1168	1254	1092	1119	1103	968	1167	2135	1028	1092	2120
15:15	1028	1016	1006	1031	1009	693	984	1158	1107	1200	1231	1059	1149	1143	1020	1174	2194	1009	1059	2068
15:30	1057	1003	1067	1070	984	633	1008	1175	1136	1229	1257	1026	1069	1160	1049	1199	2248	984	1026	2011
15:45	1077	1056	1100	1087	1019	614	962	1156	1159	1240	1224	1042	1022	1079	1080	1195	2275	1019	1042	2061
16:00	1084	1036	1086	1109	1003	585	725	1165	1176	1268	1222	1045	923	792	1079	1208	2287	1003	1045	2048
16:15	1104	1047	1097	1115	972	550	430	1208	1246	1273	1249	1055	823	501	1091	1244	2335	972	1055	2026
16:30	1115	1063	1081	1098	946	508	187	1254	1263	1275	1233	1071	798	205	1089	1256	2345	946	1071	2017
16:45	1056	1013	1038	1034	871	487	0	1271	1288	1294	1226	1085	753	0	1035	1270	2305	871	1085	1956
17:00	1011	993	1005	941	818	454	0	1286	1291	1296	1243	1063	734	0	987	1279	2266	818	1063	1881
17:15	906	900	916	873	759	453	0	1264	1202	1250	1218	1056	704	0	899	1233	2132	759	1056	1815
17:30	794	817	840	831	721	431	0	1165	1154	1198	1205	1021	702	0	820	1180	2001	721	1021	1742
17:45	746	775	803	781	661	408	0	1116	1096	1117	1174	981	703	0	776	1126	1902	661	981	1642
18:00	735	749	770	784	613	422	0	1049	1044	1033	1137	928	664	0	759	1066	1825	613	928	1541
18:15	684	734	744	770	591	388	0	1000	1014	1011	1126	874	642	0	733	1037	1770	591	874	1466
18:30	647	709	703	729	526	367	0	988	953	952	1056	857	600	0	697	987	1684	526	857	1383
18:45	616	677	656	709	516	396	0	896	885	899	977	797	584	0	665	914	1579	516	797	1313
19:00	537	604	606	653	530	389	0	814	805	843	876	775	572	0	600	835	1435	530	775	1305
19:15	509	546	568	574	505	396	0	713	736	804	813	704	547	0	549	766	1316	505	704	1209
19:30	521	510	529	513	509	389	0	657	662	765	742	666	506	0	518	706	1225	509	666	1175
19:45	488	460	490	491	470	331	0	610	612	731	740	602	468	0	482	673	1155	470	602	1072
20:00	500	447	462	482	432	292	0	583	550	671	691	549	449	0	473	624	1097	432	549	981
20:15	449	433	400	467	432	276	0	558	520	578	607	554	403	0	437	566	1003	432	554	986
20:30	403	397	376	433	426	259	0	510	529	526	603	558	387	0	402	542	944	426	558	984
20:45	367	377	352	393	427	235	0	492	510	470	522	550	354	0	372	498	871	427	550	977
21:00	318	338	320	354	434	225	0	460	496	430	485	582	317	0	333	468	800	434	582	1015
21:15	319	311	319	369	425	209	0	437	460	412	498	546	303	0	330	452	781	425	546	971
21:30	294	317	297	452	415	202	0	426	432	413	464	499	303	0	340	434	774	415	499	915
21:45	262	301	274	453	424	205	0	376	413	399	461	496	290	0	323	412	735	424	496	920
22:00	229	281	245	447	424	202	0	328	406	363	474	460	279	0	300	393	693	424	460	884
22:15	185	257	207	408	430	183	0	294	361	332	447	529	246	0	264	358	623	430	529	959
22:30	147	220	186	318	478	154	0	247	299	262	407	607	215	0	218	304	522	478	607	1085
22:45	140	174	155	288	494	135	0	223	240	219	372	724	187	0	189	263	452	494	724	1218
23:00	128	165	143	272	496	118	0	195	187	190	330	794	169	0	177	225	402	496	794	1290

Appendix B: Accessibility Index

BREEAM 2018 Tra01/02 Accessibility Index calculator

BREEAM® UK delivered by bre

Using the drop down boxes make the relevant selections and press the 'Select' button

Building type: Other building type 1

No. nodes required: 16

Select

NODE 1

Public transport type	Rail									
Distance to node (m)	600									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	4.45	4.81	1.18	0.45						

NODE 2

Public transport type	Bus									
Distance to node (m)	160									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	2.5	2	1.1	1	1	1	1	0.8	0.5	0.4

NODE 3

Public transport type	Bus									
Distance to node (m)	160									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	4.3	3.1	2.8	1.8	1.7	0.9	0.9	0.6		

NODE 4

Public transport type	Bus									
Distance to node (m)	240									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	0.2	0.9								

NODE 5

Public transport type	Bus									
Distance to node (m)	290									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	3.6									

NODE 6

Public transport type	Bus									
Distance to node (m)	300									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	0.3	0.5								

NODE 7

Public transport type	Bus									
Distance to node (m)	300									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	1.1	1.8	2.1							

NODE 8

Public transport type	Bus									
Distance to node (m)	300									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	2.2									

NODE 9

Public transport type	Bus									
Distance to node (m)	350									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	0.6									

NODE 10

Public transport type	Bus									
Distance to node (m)	350									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	0.3									

NODE 11

Public transport type	Bus									
Distance to node (m)	350									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	1.5	0.2	0.1	0.2						

NODE 12

Public transport type	Bus									
Distance to node (m)	350									
	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	1.8									

NODE 13

Public transport type	Bus
Distance to node (m)	350

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	3.6									

NODE 14

Public transport type	Bus
Distance to node (m)	400

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	2	2.1	1.1	1.1	2.3	2	0.6	2	2.3	2.1

NODE 15

Public transport type	Bus
Distance to node (m)	400

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	3.3									

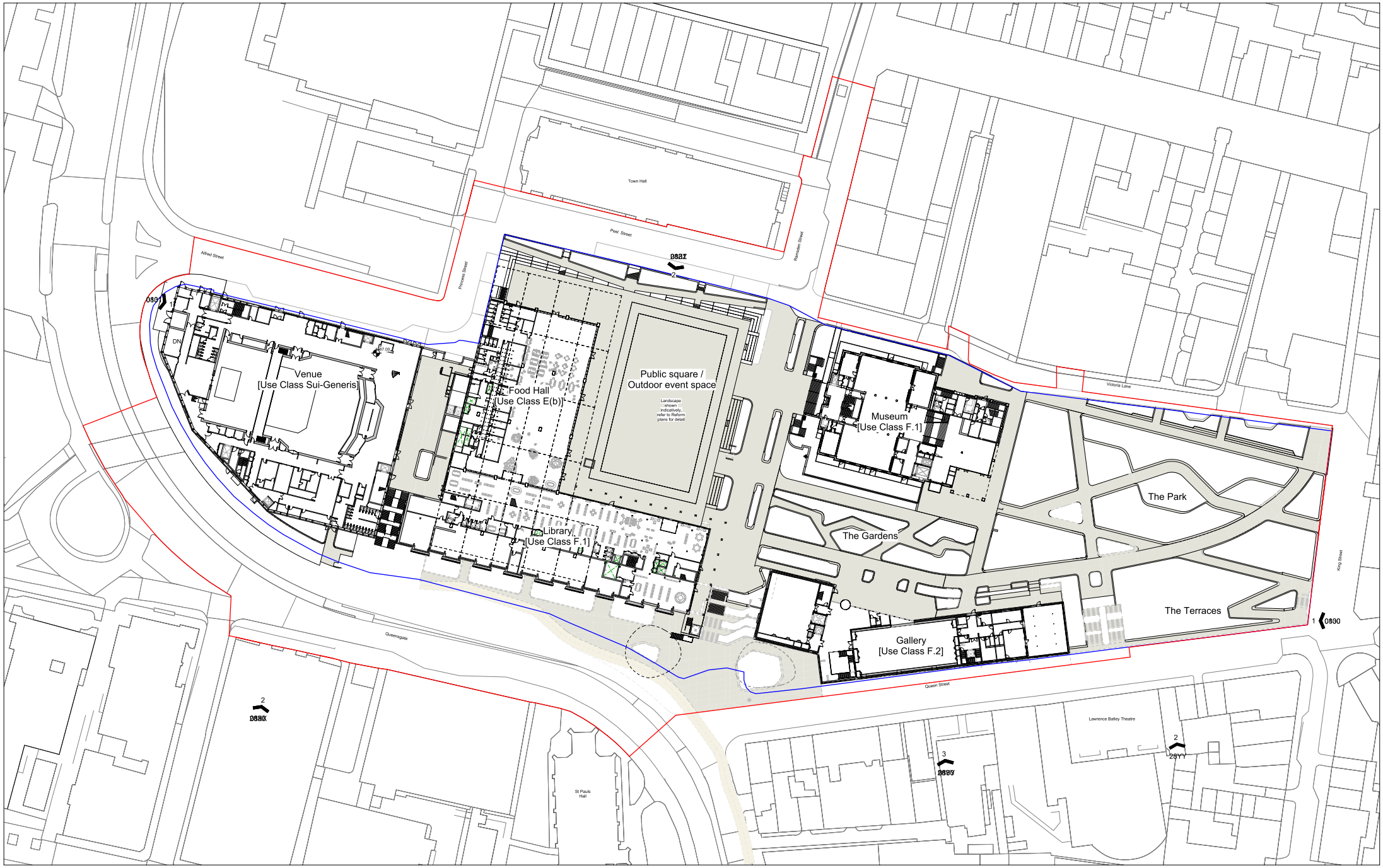
NODE 16

Public transport type	Bus
Distance to node (m)	450

	Service 1	Service 2	Service 3	Service 4	Service 5	Service 6	Service 7	Service 8	Service 9	Service 10
Average frequency per hour	0.1									

Accessibility Index	29.34

Appendix C: Scheme Masterplan & Landscape Proposals



0 10 20 m

Scale 1:500

Notes:

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- Existing building plans and elevations are based on Maltby Surveys drawings received on 2022.02.18 and 2022.03.15

Legend

- Site Ownership Boundary
- Planning Boundary discussed at meeting on 18/08/22

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Rev	Status		Date
P01	S1	Issued for Coordination	13.09.22

Job/Drawing No: CDT430201-FCB-XX-00-DR-A-02-SK0184

Revision: P01

Kirklees Cultural Heart

Huddersfield Masterplan - Proposed Planning Boundary

Status: S1

Scale: As indicated@A1

Date: 15.07.22

Drawn: London Studio

Checked: AW Group

FCBS project no: CDT430201

Do not scale

All dimensions to be checked on site

2069_Kirklees Cultural Heart, Huddersfield

FeildenCleggBradleyStudios

Huddersfield Masterplan - Accommodation Schedule

CDT430201-FCB-XX-XX-SH-A-020910 P03 27/09/2022

THIS SCHEDULE IS FOR DESIGN INTENT PURPOSES ONLY TO AID THE PLANNING APPLICATION

This document is uncontrolled and issued to enable the recipient to prepare their own documents/models/drawings for which they are solely responsible. This document is based on background information current at the time of issue FCBStudios accepts no liability for any such alterations or additions to or discrepancies arising out of changes to such background information which occur to that information after it is issued.

AREAS
Areas as noted are subject to change due to ongoing co-ordination. Areas noted are measured and calculated generally in accordance with RICS code of measuring. Construction tolerances, work and design by others may affect the areas.
FCBS do not take responsibility for areas measured and noted and anticipate T&TCost to measure their own areas as part of their cost planning

COORDINATION
The design has been coordinated upto planning submission (Mid stage RIBA Stage 3 level). As the design develops further coordination might result in loss of area or a change in area.

MASTERPLAN

	GEA m2	GEA ft2	GIA m2	GIA ft2	GEA : GIA
TOTAL (incl. Tunnel access - not incl. 3rd Party areas)	**43,892**	**472,447**	**39,852**	**428,965**	**91%**

LIBRARY

Level	Storeys	Existing used GEA m2	Existing used GIA m2	New build GEA m2	New build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
B	-2	0	0	0	0	**0**	0	**0**	0	
LG	-1	1,022	891	282	246	**1,304**	14,036	**1,137**	12,239	87%
UG	0	1,297	1,214	999	899	**2,296**	24,714	**2,113**	22,744	92%
L01	1	667	462	749	621	**1,416**	15,242	**1,083**	11,657	76%
L02	2	0	0	498	435	**498**	5,360	**435**	4,682	87%
Roof		0	0	23	17	23	247.5697	**17**	183	
TOTALS		2,986	2,567	2,551	2,217	**5,537**	59,600	**4,784**	51,505	86%

FOODHALL

Level	Storeys	Existing used GEA m2	Existing used GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
B	-2	0	0					
LG	-1	840	737	**840**	9,042	**737**	7,933	88%
UG	0	1,742	1,642	**1,742**	18,751	**1,642**	17,674	94%
L01	1	0	0	**0**	0	**0**	0	
L02	2							
TOTALS		2,581	2,379	**2,581**	27,792	**2,379**	25,607	92%

MUSEUM

Level	Storeys	Existing used GEA m2	Existing used GIA m2	New build GEA m2	New build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
LG(north)	-2	0	0	718	606	**718**	7,728	**606**	6,523	
LG(south)	-1	971	915	117	109	**1,088**	11,711	**1,024**	11,022	94%
UG	0	975	917	576	515	**1,551**	16,695	**1,432**	15,414	92%
L01	1	971	903	605	518	**1,576**	16,964	**1,421**	15,296	90%
L02	2	866	727	605	516	**1,471**	15,834	**1,243**	13,380	85%
TOTALS		3,783	3,462	2,622	2,264	**6,404**	68,932	**5,726**	61,634	89%

GALLERY

Level	Storeys	New build GEA m2	New build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
B	-2	0	0	**0**	0	**0**	0	
LG	-1	1,561	1267	**1,561**	13,638	**1267**	13,638	81%
UG	0	1,680	1317	**1,680**	14,176	**1317**	14,176	78%
L01	1	435	376	**435**	4,047	**376**	4,047	86%
L02 (roof)	2	44	33	**44**	355	**33**	355	
TOTALS		3,721	2,993	**3,721**	32,216	**2,993**	32,216	80%

MSCP

Level	Storeys	Existing used GEA m2	Existing used GIA m2	New Build GEA m2	New Build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA	No. spaces
B1	-3			4,410	4,311	**4,410**	46,403	**4,311**	47,469	98%	119
LG	-2			4,356	4,214	**4,356**	45,359	**4,214**	46,888	97%	87
Parking Mezz	-1			3,438	3,305	**3,438**	35,575	**3,305**	37,006	96%	144
UG	0			60	56	**60**	603	**56**	646	93%	
TOTALS		0	0	12,265	11,886	**12,265**	127,940	**11,886**	132,008	97%	**350**

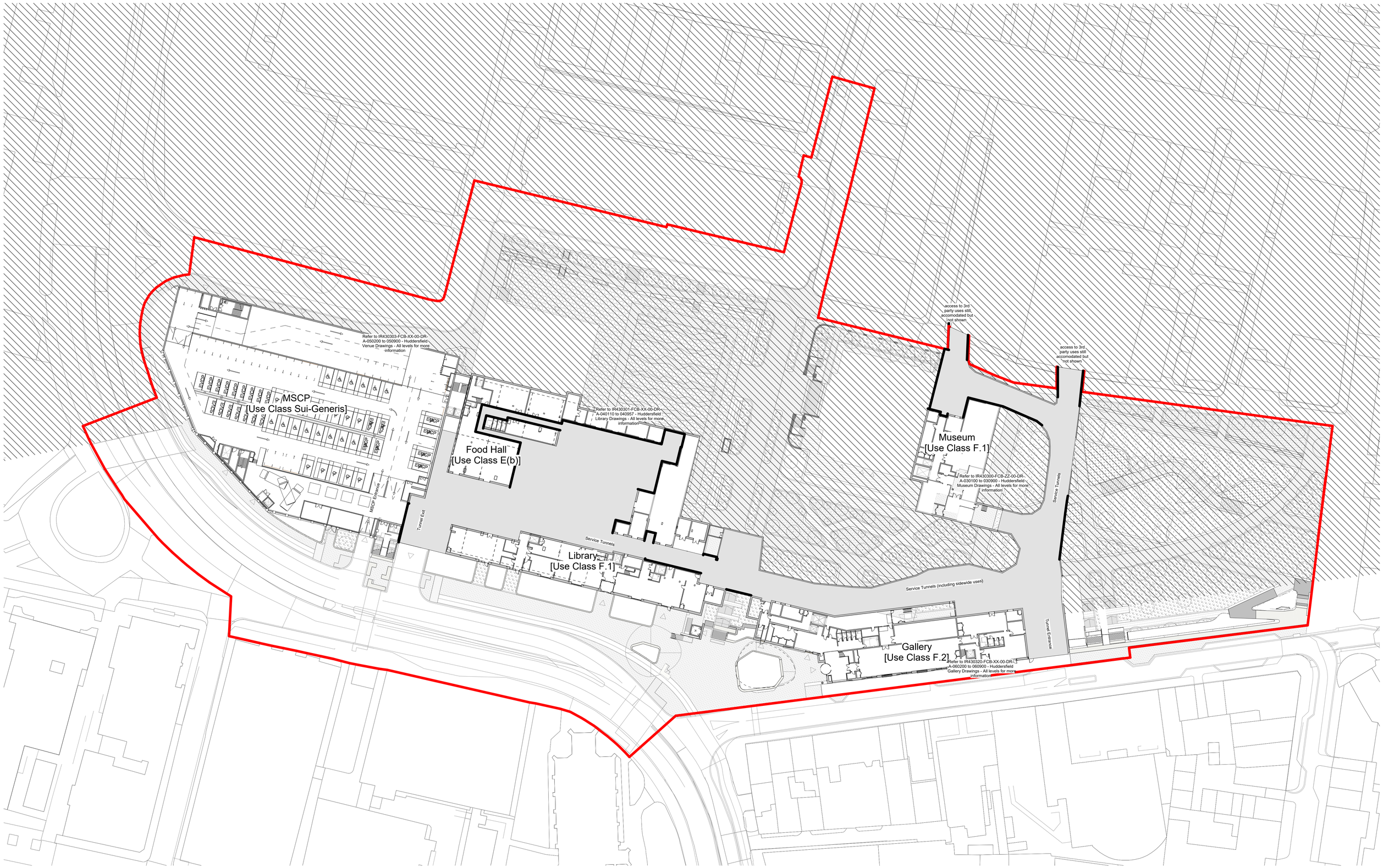
Plus 6 motorbike spaces

VENUE

Level	Storeys	New build GEA m2	New build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
B1	-2	0	0	0	0	0	0	
LGF	-1	39	35	**39**	377	**35**	420	90%
Parking Mezz	-1	87	72	**87**	775	**72**	936	83%
UGF	0	3,751	3,605	**3,751**	38,804	**3,605**	40,375	96%
L01	1	2,233	2,099	**2,233**	22,593	**2,099**	24,036	94%
L02	2	1,349	1,202	**1,349**	12,938	**1,202**	14,521	89%
L03	3	1,215	624	**1,215**	6,717	**624**	13,078	51%
Roof	4	84	66	**84**	710	**66**	904	79%
TOTALS		8,758	7,705	**8,758**	82,914	**7,705**	94,270	88%

TUNNELS + Site wide Accommodation

Level	Note	Existing used GEA m2	Existing used GIA m2	New build GEA m2	New build GIA m2	Total Proposed GEA m2	Total Proposed ft2	Total Proposed GIA m2	Total Proposed ft2	GEA : GIA
LG	These figures include 121.09m2 GEA + 109.09 GIA of 3rd Party access tunnel under Vic lane, outside of ownership boundary but inside planning boundary	4516	4293	88	68	**4605**	49563	**4361**	46944	
UG	Areas also include existing substation areas on the LG to the south of the Food Hall	21	18	0	0	**21**	229	**18**	193	
TOTALS		4,537	4,311	88	68	**4,626**	49,791	**4,379**	47,137	



0 10 20 m

Scale 1:500

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Legend

Planning Site Boundary

Existing Service tunnels and site wide accommodation

- Add updated landscape dwg

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Rev	Status		Date
P01	S2	Draft Planning Issue	12.09.22
P02	S1	Issued for Coordination	27.09.22

DRAFT

Job/Drawing No
CDT430201-FCB-XX-LG-DR-A-020200

Revision
P02

Kirklees Cultural Heart

Huddersfield Masterplan - Proposed Lower Ground Floor Plan

Status
S1

Scale As indicated@A1
Date 15.07.22
Drawn London Studio
Checked AW Group

FCBS project no
CDT430201

Do not scale

All dimensions to be checked on site

Town Hall

Peel Street

Alfred Street

Princess Street

Ramsden Street

Victoria Lane

DN

87.00

Venue
[Use Class Sui-Generis]

Food Hall
[Use Class E(b)]

Public square /
Outdoor event space

Landscape
shown
indicatively,
refer to Reform
plans for detail

Museum
[Use Class F.1]

The Park

The Gardens

Library
[Use Class F.1]

King Street

The Terraces

Queensgate

Gallery
[Use Class F.2]

Queen Street

Lawrence Batley Theatre

St Pauls
Hall

0 10 20 m

Scale 1:500

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- Existing building plans and elevations are based on Maltby Surveys drawings received on 2022.02.18 and 2022.03.15

Legend

Planning Site Boundary

- Add landscape dwg

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Rev	Status		Date
P01	S2	Draft Planning Issue	12.09.22
P02	S1	Issued for Coordination	27.09.22

DRAFT

Job/Drawing No
CDT430201-FCB-XX-00-DR-A-020201

Revision
P02

Kirklees Cultural Heart

Huddersfield Masterplan - Proposed Upper Ground Floor Plan

Status
S1

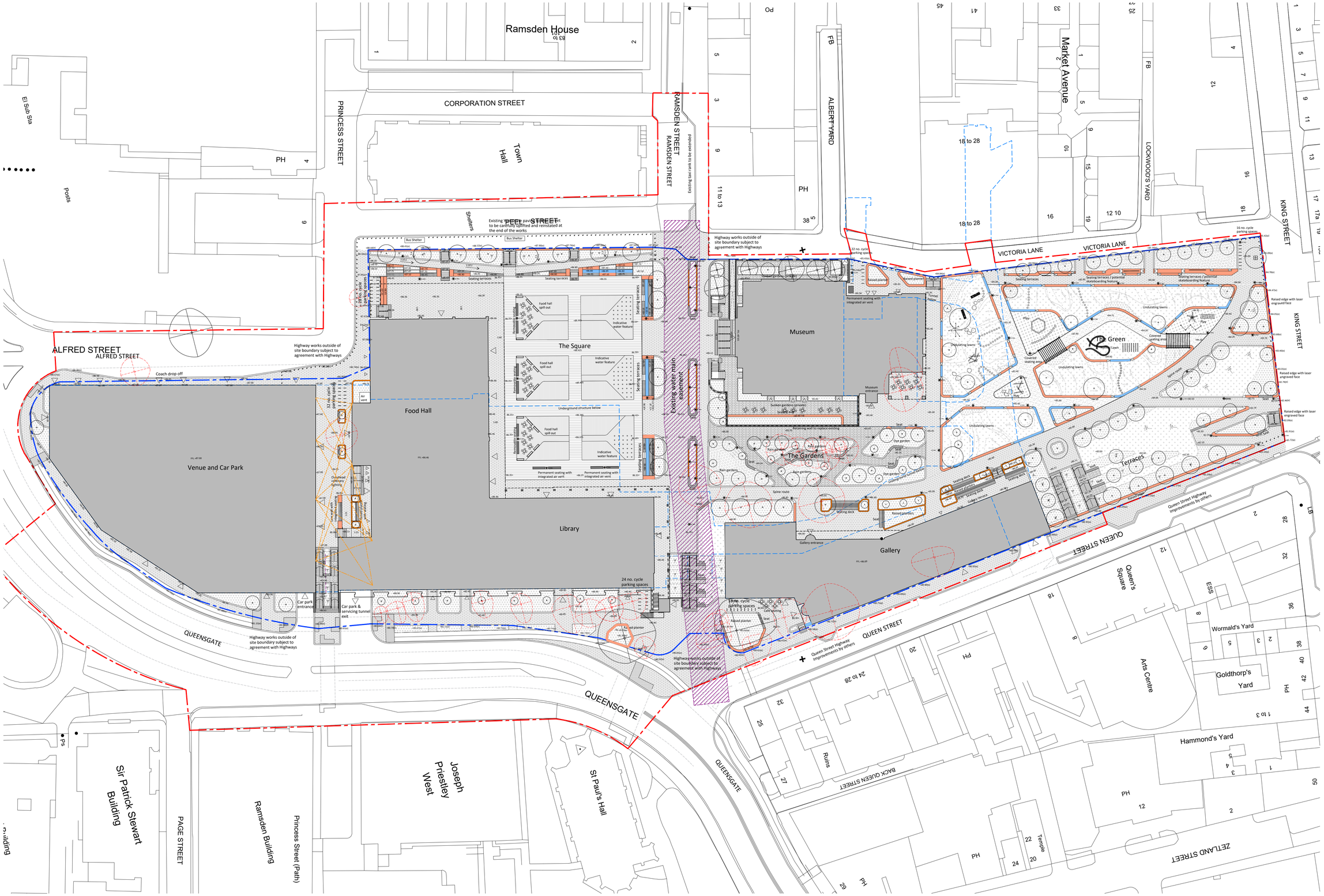
Scale As indicated@A1
Date 15.07.22

Drawn London Studio
Checked AW Group

FCBS project no
CDT430201

Do not scale

All dimensions to be checked on site



Key

- Planning application boundary
- Ownership boundary
- Proposed building
- Existing subterranean tunnels. Refer to Arup pack for retention strategy
- Water mains easement
- Natural stone paving type 1
- Natural stone paving type 2
- Natural stone paving type 3
- Resin bound gravel surface
- Bound rubber mulch play surface
- Hazard corduroy paving Natural Stone
- Hazard blister paving to match Town Centre palette
- Hazard cycleway warning paving to match Town Centre palette
- Existing retaining wall to be made good
- Proposed retaining wall
- Natural stone kerb edging
- Natural stone planter 300mm (w) 450-600mm (h)
- Natural stone edging 600mm (w) Laid flush
- Natural stone wall edging 600mm (w) 450-1350mm (h)
- Low natural stone wall with timber top seat 450-600 mm upstand
- Timber bench
- Steps units in natural stone with inlaid visibility strips 300/400 x 900 x 150mm
- Feature timber shelter
- Handrail 900-1100mm (h) to Part M Building Regs
- Ballustrade 1100mm (h) to Part K Building Regs
- Indicative play equipment details to be confirmed
- Indicative spill out furniture to be provided by operator
- Indicative lighting refer to Arup lighting strategy
- Cycle stands
- Bollard
- Wildflower meadow grass
- Mown lawns 300mm depth topsoil
- Ornamental planting 500mm depth topsoil
- Rain gardens 400mm depth free draining topsoil over 500mm depth loose gravel
- Proposed large trees 35-45cm girth tree 12m3 soil volume per tree
- Proposed small-medium trees 25-35cm girth tree 8m3 soil volume per tree
- Existing trees to be retained and protected
- Existing trees to be removed

Notes

1. All dimensions in mm, unless otherwise stated.
2. Scaling from drawing if printed incorrectly may lead to errors.
3. All information outside red line boundary shown for contextual purpose only.
4. All hatch patterns are indicative only unless stated otherwise.
6. Levels information on this drawing illustrates the design intent. The contractor is to check and verify all levels and dimensions against site survey information.

Scale

0m 10m 20m 30m 40m 50m

N

Date	Description of revision	Drawn	Checked	Approved	Revision
27.09.22	Issued for planning	MS	HT	GD	P06
09.09.22	Drawing updated and issued for coordination	MS	HT	GD	P05
02.09.22	Drawing updated and issued for coordination	MS	HT	GD	P04
15.07.22	Landscape general arragement update for costing	OC	HT	GD	P03

Paper size
A1

Drawing status
FOR INFORMATION S2

Drawing number
CDT430201-RFM-XX-00-DR-LD-000002

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Scale
1:500

Project
KIRKLEES CULTURAL HEART
RF21-914

Client
KIRKLEES COUNCIL

Revision
P06

Document title
LANDSCAPE MASTERPLAN

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Appendix D : TRICS

Calculation Reference: AUDIT-701005-211202-1235

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : I - ART GALLERIES/MUSEUMS/EXHIBITIONS
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	MS	MERSEYSIDE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	400 to 7162 (units: sqm)
Range Selected by User:	400 to 15000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 07/03/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Thursday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4
Suburban Area (PPS6 Out of Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	4

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

n/a	1 days
F1(b)	1 days
F1(c)	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
250,001 to 500,000	1 days
500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	2 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 ES-07-I-01 MUSEUM & ART GALLERY EAST SUSSEX
NEW CHURCH ROAD
BRIGHTON
HOVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1800 sqm
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

2 MS-07-I-01 WAR MUSEUM MERSEYSIDE
RUMFORD STREET
LIVERPOOL

Town Centre
Built-Up Zone
Total Gross floor area: 4645 sqm
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

3 MS-07-I-02 ART GALLERY MERSEYSIDE
WILLIAM BROWN STREET
LIVERPOOL

Town Centre
Built-Up Zone
Total Gross floor area: 7162 sqm
Survey date: THURSDAY *15/11/18* *Survey Type: MANUAL*

4 NY-07-I-01 MUSEUM NORTH YORKSHIRE
CROWN PLACE
HARROGATE

Town Centre
Built-Up Zone
Total Gross floor area: 400 sqm
Survey date: THURSDAY *25/10/18* *Survey Type: MANUAL*

5 NY-07-I-02 MILITARY MUSEUM NORTH YORKSHIRE
TRINITY CHURCH SQUARE
RICHMOND

Town Centre
Built-Up Zone
Total Gross floor area: 730 sqm
Survey date: THURSDAY *07/03/19* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00	4	3584	0.056	4	3584	0.014	4	3584	0.070
10:00 - 11:00	5	2947	0.149	5	2947	0.034	5	2947	0.183
11:00 - 12:00	5	2947	0.197	5	2947	0.142	5	2947	0.339
12:00 - 13:00	5	2947	0.156	5	2947	0.156	5	2947	0.312
13:00 - 14:00	5	2947	0.176	5	2947	0.204	5	2947	0.380
14:00 - 15:00	5	2947	0.102	5	2947	0.142	5	2947	0.244
15:00 - 16:00	5	2947	0.149	5	2947	0.237	5	2947	0.386
16:00 - 17:00	5	2947	0.081	5	2947	0.142	5	2947	0.223
17:00 - 18:00	3	4536	0.044	3	4536	0.037	3	4536	0.081
18:00 - 19:00									
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.110			1.108			2.218

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	400 - 7162 (units: sqm)
Survey date date range:	01/01/13 - 07/03/19
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1211

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : V - LIBRARY
TOTAL VEHICLES

Selected regions and areas:

05	EAST MIDLANDS		
	NR	NORTHAMPTONSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross Floor Area
Actual Range:	375 to 930 (units: sqm)
Range Selected by User:	375 to 4575 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 13/11/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	3 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	2
Suburban Area (PPS6 Out of Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	1
High Street	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

F1(d)	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	1 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CH-07-V-01 LIBRARY CHESHIRE
JORDANGATE
MACCLESFIELD

Town Centre
Built-Up Zone
Total Gross Floor Area: 930 sqm
Survey date: MONDAY *13/11/17* *Survey Type: MANUAL*

2 NR-07-V-01 LIBRARY NORTHAMPTONSHIRE
MARKET HILL
NEAR KETTERING
ROTHWELL
Town Centre
High Street
Total Gross Floor Area: 375 sqm
Survey date: THURSDAY *16/10/14* *Survey Type: MANUAL*

3 TV-07-V-01 LIBRARY TEES VALLEY
ACKLAM ROAD
MIDDLESBROUGH
ACKLAM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross Floor Area: 500 sqm
Survey date: THURSDAY *03/10/13* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/V - LIBRARY
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00	3	602	3.102	3	602	1.440	3	602	4.542
10:00 - 11:00	3	602	3.047	3	602	2.271	3	602	5.318
11:00 - 12:00	3	602	1.994	3	602	3.158	3	602	5.152
12:00 - 13:00	3	602	1.884	3	602	1.939	3	602	3.823
13:00 - 14:00	3	602	2.936	3	602	2.604	3	602	5.540
14:00 - 15:00	3	602	3.657	3	602	3.213	3	602	6.870
15:00 - 16:00	3	602	2.438	3	602	2.881	3	602	5.319
16:00 - 17:00	3	602	1.496	3	602	2.548	3	602	4.044
17:00 - 18:00	3	602	1.551	3	602	1.496	3	602	3.047
18:00 - 19:00	2	715	1.049	2	715	1.818	2	715	2.867
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			23.154			23.368			46.522

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	375 - 930 (units: sqm)
Survey date date range:	01/01/13 - 13/11/17
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1234

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
	WO	WORCESTERSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	LC	LANCASHIRE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 250 to 875 (units: sqm)
Range Selected by User: 112 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 11/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	1 days
Thursday	3 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4
Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	2
Development Zone	1
Built-Up Zone	2
High Street	1
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village,

Secondary Filtering selection:

Use Class:

Sui Generis	8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	2 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BR-06-C-01 WETHERSPOON BRISTOL CITY
THE WATERFRONT
BRISTOL
HARBOURSIDE
Town Centre
Development Zone
Total Gross floor area: 327 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

2 CH-06-C-02 PUB/RESTAURANT CHESHIRE
OXFORD ROAD
MACCLESFIELD

Edge of Town Centre
No Sub Category
Total Gross floor area: 471 sqm
Survey date: FRIDAY *10/11/17* *Survey Type: MANUAL*

3 HC-06-C-04 PUB/RESTAURANT HAMPSHIRE
APOLLO RISE
FARNBOROUGH
COVE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 615 sqm
Survey date: TUESDAY *11/06/19* *Survey Type: MANUAL*

4 LC-06-C-01 FAYRE & SQUARE LANCASHIRE
MANCHESTER ROAD
BURNLEY

Edge of Town Centre
No Sub Category
Total Gross floor area: 830 sqm
Survey date: THURSDAY *29/09/16* *Survey Type: MANUAL*

5 LC-06-C-04 PUB/RESTAURANT LANCASHIRE
ST JAMES STREET
BURNLEY

Town Centre
Built-Up Zone
Total Gross floor area: 600 sqm
Survey date: THURSDAY *29/09/16* *Survey Type: MANUAL*

6 SF-06-C-02 PUB/RESTAURANT SUFFOLK
CLIFF ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 875 sqm
Survey date: FRIDAY *18/09/15* *Survey Type: MANUAL*

7 WK-06-C-01 PUB/RESTAURANT WARWICKSHIRE
GREYFRIARS LANE
COVENTRY

Town Centre
Built-Up Zone
Total Gross floor area: 461 sqm
Survey date: THURSDAY *17/10/13* *Survey Type: MANUAL*

8 WO-06-C-03 PUB/RESTAURANT WORCESTERSHIRE
THE TYTHING
WORCESTER

Town Centre
High Street
Total Gross floor area: 250 sqm
Survey date: WEDNESDAY *23/11/16* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	600	0.000	1	600	0.000	1	600	0.000
08:00 - 09:00	1	600	0.000	1	600	0.000	1	600	0.000
09:00 - 10:00	1	600	0.000	1	600	0.000	1	600	0.000
10:00 - 11:00	8	554	0.429	8	554	0.271	8	554	0.700
11:00 - 12:00	8	554	0.903	8	554	0.474	8	554	1.377
12:00 - 13:00	8	554	3.026	8	554	1.106	8	554	4.132
13:00 - 14:00	8	554	2.393	8	554	1.919	8	554	4.312
14:00 - 15:00	8	554	1.287	8	554	1.174	8	554	2.461
15:00 - 16:00	8	554	1.377	8	554	1.287	8	554	2.664
16:00 - 17:00	8	554	1.197	8	554	1.152	8	554	2.349
17:00 - 18:00	8	554	1.558	8	554	0.835	8	554	2.393
18:00 - 19:00	8	554	2.664	8	554	2.958	8	554	5.622
19:00 - 20:00	8	554	2.619	8	554	3.184	8	554	5.803
20:00 - 21:00	8	554	2.235	8	554	2.845	8	554	5.080
21:00 - 22:00	8	554	1.174	8	554	1.580	8	554	2.754
22:00 - 23:00	8	554	0.768	8	554	1.964	8	554	2.732
23:00 - 24:00	8	554	0.655	8	554	1.648	8	554	2.303
Total Rates:			22.285			22.397			44.682

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	250 - 875 (units: sqm)
Survey date date range:	01/01/13 - 11/06/19
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1228

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 340 to 800 (units: sqm)
Range Selected by User: 112 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 11/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Saturday 3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 3 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Edge of Town Centre 1
Suburban Area (PPS6 Out of Centre) 1
Edge of Town 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Industrial Zone 1
Residential Zone 1
No Sub Category 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Sui Generis	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 HC-06-C-03 PUB/RESTAURANT HAMPSHIRE
LANGSTONE ROAD
HAVANT

Edge of Town Centre
Residential Zone
Total Gross floor area: 800 sqm
Survey date: SATURDAY 21/11/15 Survey Type: MANUAL

2 WY-06-C-03 HARVESTER WEST YORKSHIRE
CARDIGAN FIELDS
LEEDS

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 340 sqm
Survey date: SATURDAY 21/09/13 Survey Type: MANUAL

3 WY-06-C-05 PUB/RESTAURANT WEST YORKSHIRE
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 694 sqm
Survey date: SATURDAY 20/05/17 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00	1	340	0.882	1	340	0.000	1	340	0.882
09:00 - 10:00	2	570	1.579	2	570	0.614	2	570	2.193
10:00 - 11:00	3	611	2.345	3	611	1.581	3	611	3.926
11:00 - 12:00	3	611	2.890	3	611	1.636	3	611	4.526
12:00 - 13:00	3	611	5.234	3	611	2.290	3	611	7.524
13:00 - 14:00	3	611	3.435	3	611	4.744	3	611	8.179
14:00 - 15:00	3	611	3.162	3	611	4.471	3	611	7.633
15:00 - 16:00	3	611	2.999	3	611	3.435	3	611	6.434
16:00 - 17:00	3	611	4.526	3	611	3.162	3	611	7.688
17:00 - 18:00	3	611	4.198	3	611	3.217	3	611	7.415
18:00 - 19:00	3	611	3.599	3	611	3.653	3	611	7.252
19:00 - 20:00	3	611	2.399	3	611	3.217	3	611	5.616
20:00 - 21:00	3	611	0.927	3	611	2.508	3	611	3.435
21:00 - 22:00	3	611	0.709	3	611	2.017	3	611	2.726
22:00 - 23:00	3	611	0.327	3	611	1.963	3	611	2.290
23:00 - 24:00	2	570	0.175	2	570	0.614	2	570	0.789
Total Rates:			39.386			39.122			78.508

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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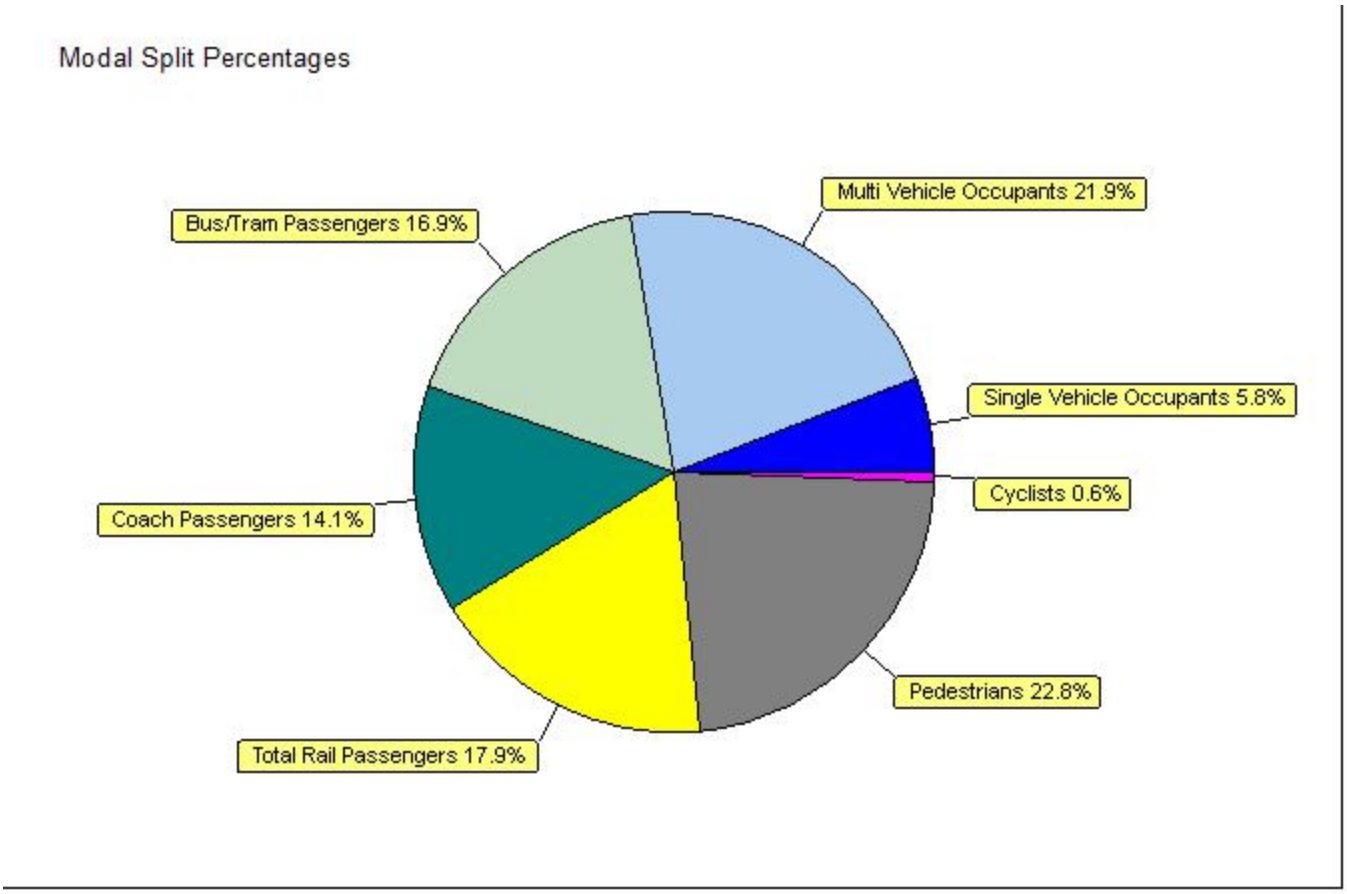
Parameter summary

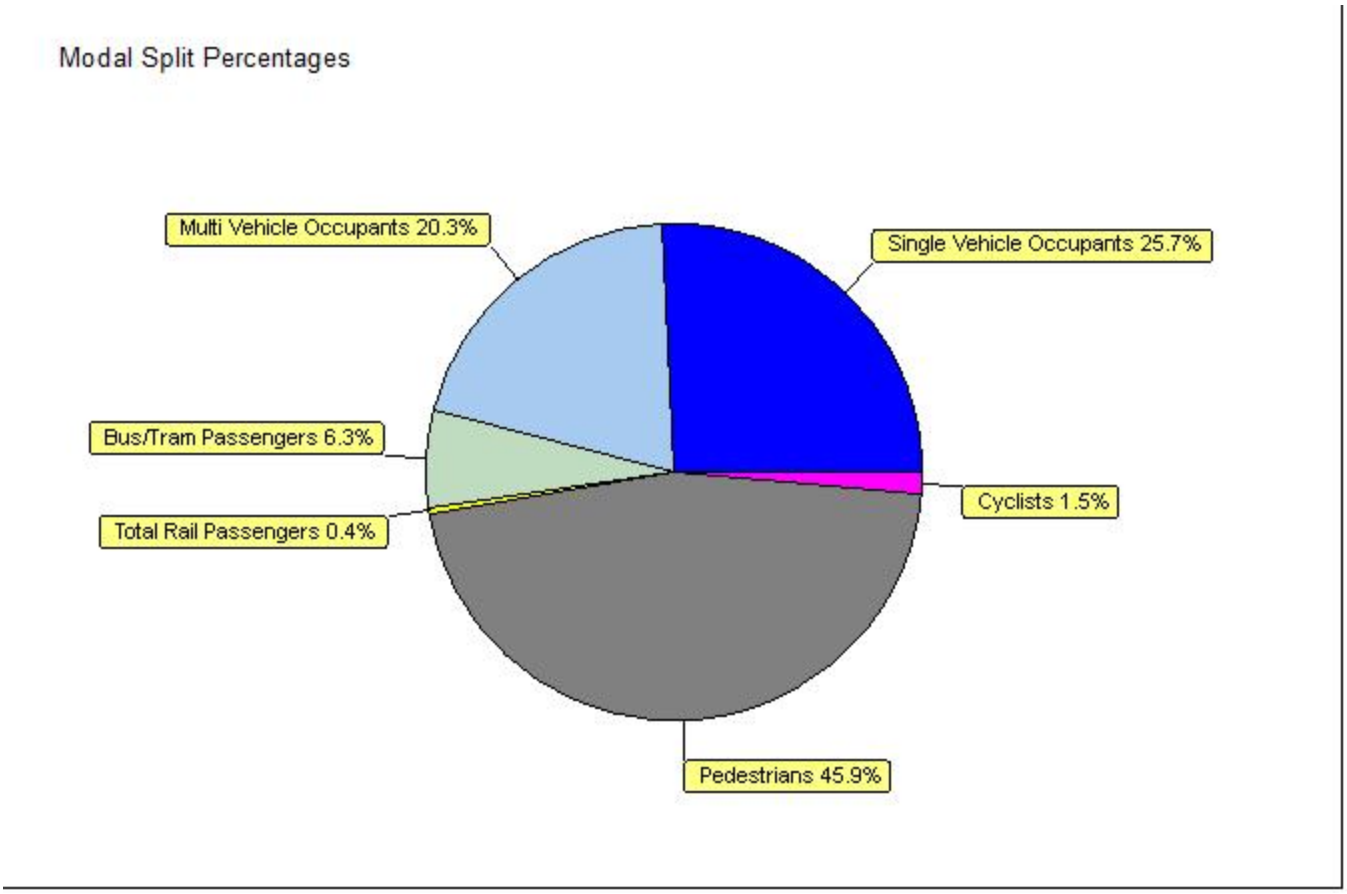
Trip rate parameter range selected:	340 - 800 (units: sqm)
Survey date date range:	01/01/13 - 11/06/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	3
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.



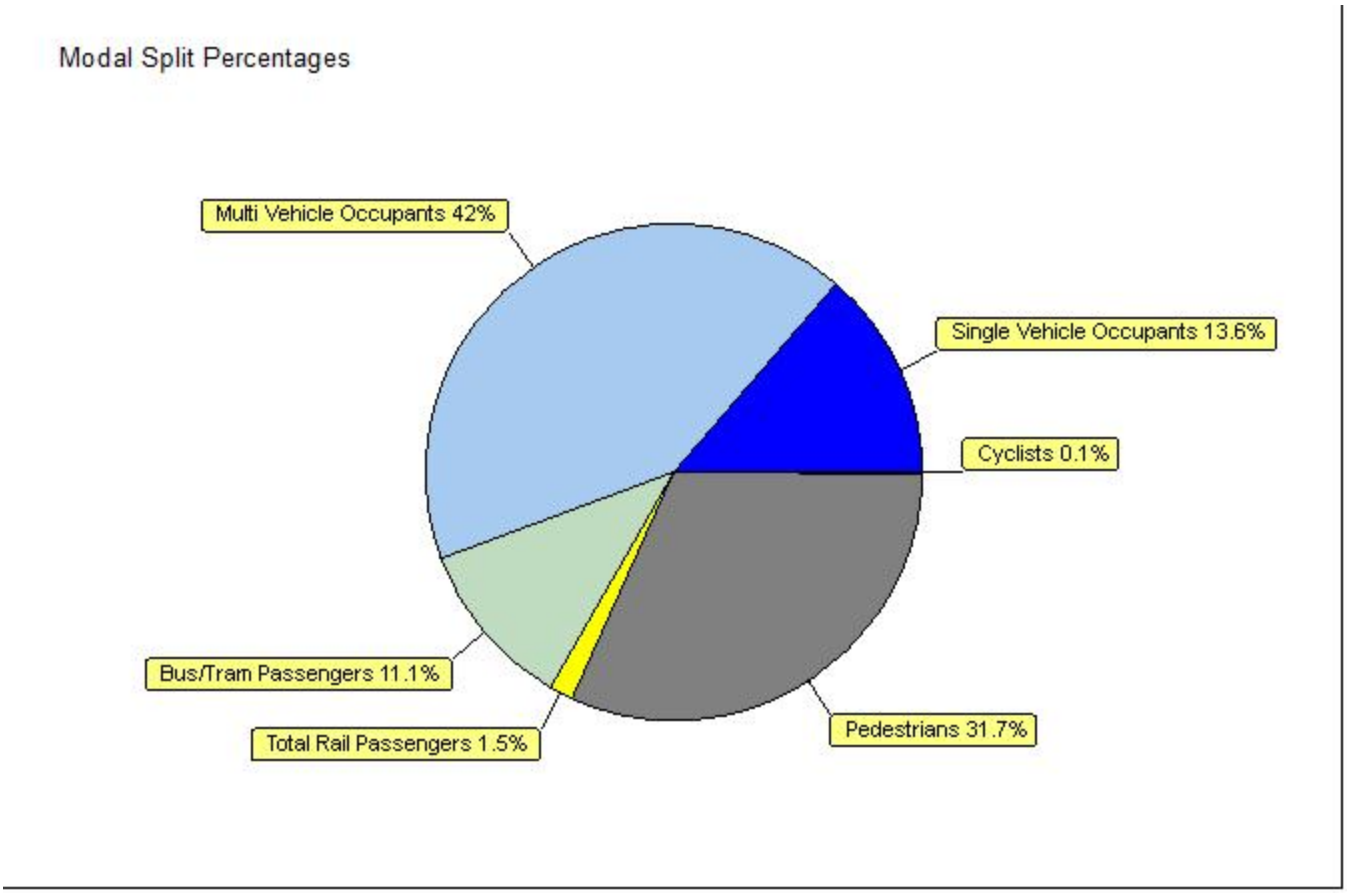
Time Range/Peak Period Selection
Direction: Totals / Use All Times

Library



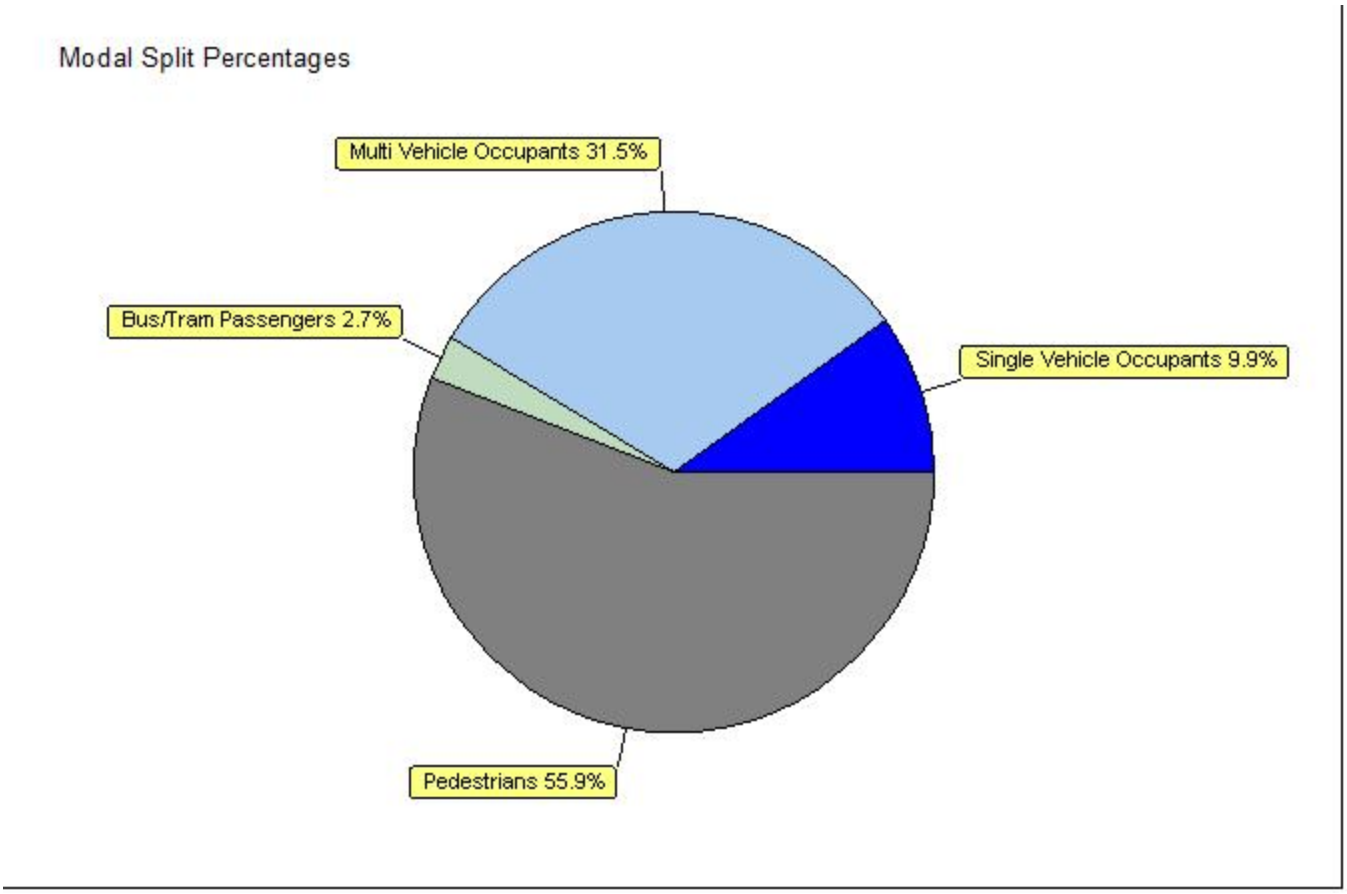
Time Range/Peak Period Selection
Direction: Totals / Use All Times

Food Hall - Weekday



Time Range/Peak Period Selection
Direction: Totals / Use All Times

Food Hall - Weekend



Time Range/Peak Period Selection
Direction: Totals / Use All Times

Appendix E : Trip Generation

TRICS 7.8.3
Trip Rate Parameter: Gross floor area

TRIP RATE for Land Use 07 - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 30% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00									
09:00-10:00	4	3584	0.056	4	3584	0.014	4	3584	0.07
10:00-11:00	5	2947	0.149	5	2947	0.034	5	2947	0.183
11:00-12:00	5	2947	0.197	5	2947	0.142	5	2947	0.339
12:00-13:00	5	2947	0.156	5	2947	0.156	5	2947	0.312
13:00-14:00	5	2947	0.176	5	2947	0.204	5	2947	0.38
14:00-15:00	5	2947	0.102	5	2947	0.142	5	2947	0.244
15:00-16:00	5	2947	0.149	5	2947	0.237	5	2947	0.386
16:00-17:00	5	2947	0.081	5	2947	0.142	5	2947	0.223
17:00-18:00	3	4536	0.044	3	4536	0.037	3	4536	0.081
18:00-19:00									
19:00-20:00									
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.11			1.108			2.218

	TRICS Trip Rate (per 100sqm)		Museum		Trip Rates discounting Linked Trips			
			8710 Sqm		Trips		70%	0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00	0.000	0.000	0	0	0	0	0	0
01:00-02:00	0.000	0.000	0	0	0	0	0	0
02:00-03:00	0.000	0.000	0	0	0	0	0	0
03:00-04:00	0.000	0.000	0	0	0	0	0	0
04:00-05:00	0.000	0.000	0	0	0	0	0	0
05:00-06:00	0.000	0.000	0	0	0	0	0	0
06:00-07:00	0.000	0.000	0	0	0	0	0	0
07:00-08:00	0.000	0.000	0	0	0	0	0	0
08:00-09:00	0.000	0.000	0	0	0	0	0	0
09:00-10:00	0.056	0.014	5	1	3	1	4	3
10:00-11:00	0.149	0.034	13	3	9	2	11	10
11:00-12:00	0.197	0.142	17	12	12	9	21	13
12:00-13:00	0.156	0.156	14	14	10	10	19	13
13:00-14:00	0.176	0.204	15	18	11	12	23	11
14:00-15:00	0.102	0.142	9	12	6	9	15	9
15:00-16:00	0.149	0.237	13	21	9	14	24	3
16:00-17:00	0.081	0.142	7	12	5	9	14	0
17:00-18:00	0.044	0.037	4	3	3	2	5	0
18:00-19:00	0.000	0.000	0	0	0	0	0	0
19:00-20:00	0.000	0.000	0	0	0	0	0	0
20:00-21:00	0.000	0.000	0	0	0	0	0	0
21:00-22:00	0.000	0.000	0	0	0	0	0	0
22:00-23:00	0.000	0.000	0	0	0	0	0	0
23:00-24:00	0.000	0.000	0	0	0	0	0	0
	1.110	1.108	**97**	**97**	**68**	**68**	135	

Mode Share Landuse - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS

Mode Share

Land Use	Vehicle Driver	Vehicle Passenger	PT - Rail	PT – Bus	PT – Coaches	Cyclist	Pedestrian	Total
Museum & Art Gallery	16.75%	11.00%	17.90%	16.90%	14.10%	0.60%	22.80%	100%

AM Peak Hour Trips (08:00-09:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	0	0	0
PT – Rail	0	0	0
PT – Bus	0	0	0
PT –Coaches	0	0	0
Cyclists	0	0	0
Pedestrians	0	0	0
Other	-	-	-
Total	0	0	0

PM Peak Hour Trips (17:00-18:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	3	2	5
PT – Rail	3	2	5
PT – Bus	3	2	5
PT –Coaches	2	2	4
Cyclists	0	0	0
Pedestrians	4	3	7
Other	-	-	-
Total	16	13	29

SAT Peak Hour Trips (12:00-13:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	10	10	19
PT – Rail	10	10	20
PT – Bus	10	10	19
PT –Coaches	8	8	16
Cyclists	0	0	1
Pedestrians	13	13	26
Other	-	-	-
Total	57	57	114

Even Peak Hour Trips (18:00-19:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	0	0	0
PT – Rail	0	0	0
PT – Bus	0	0	0
PT –Coaches	0	0	0
Cyclists	0	0	0
Pedestrians	0	0	0
Other	-	-	-
Total	0	0	0

TRICS 7.8.3
Trip Rate Param Gross Floor Area

TRIP RATE for Land Use 07 - LEISURE/V - LIBRARY
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00									
09:00-10:00	3	602	3.102	3	602	1.44	3	602	4.542
10:00-11:00	3	602	3.047	3	602	2.271	3	602	5.318
11:00-12:00	3	602	1.994	3	602	3.158	3	602	5.152
12:00-13:00	3	602	1.884	3	602	1.939	3	602	3.823
13:00-14:00	3	602	2.936	3	602	2.604	3	602	5.54
14:00-15:00	3	602	3.657	3	602	3.213	3	602	6.87
15:00-16:00	3	602	2.438	3	602	2.881	3	602	5.319
16:00-17:00	3	602	1.496	3	602	2.548	3	602	4.044
17:00-18:00	3	602	1.551	3	602	1.496	3	602	3.047
18:00-19:00	2	715	1.049	2	715	1.818	2	715	2.867
19:00-20:00									
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			23.154			23.368			46.522

Assumption - 86.5% trip on existing network, 13.25% new trips, No linked trip

	TRICS Trip Rate (per 100sqm)		Library-Wk 5000 Sqm		Trip Rates discounting Linked Trips Trips 13.25%				
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Total	Cumulative	
00:00-01:0	0.000	0.000	0	0	0	0	0	0	
01:00-02:0	0.000	0.000	0	0	0	0	0	0	
02:00-03:0	0.000	0.000	0	0	0	0	0	0	
03:00-04:0	0.000	0.000	0	0	0	0	0	0	
04:00-05:0	0.000	0.000	0	0	0	0	0	0	
05:00-06:0	0.000	0.000	0	0	0	0	0	0	
06:00-07:0	0.000	0.000	0	0	0	0	0	0	
07:00-08:0	0.000	0.000	0	0	0	0	0	0	
08:00-09:0	0.000	0.000	0	0	0	0	0	1	Assuming 1 vehicle entered the car park at 08:00hrs to reflect the negative numbers
09:00-10:0	3.102	1.440	155	72	21	10	30	12	
10:00-11:0	3.047	2.271	152	114	20	15	35	17	
11:00-12:0	1.994	3.158	100	158	13	21	34	9	
12:00-13:0	1.884	1.939	94	97	12	13	25	9	
13:00-14:0	2.936	2.604	147	130	19	17	37	11	
14:00-15:0	3.657	3.213	183	161	24	21	46	14	
15:00-16:0	2.438	2.881	122	144	16	19	35	11	
16:00-17:0	1.496	2.548	75	127	10	17	27	4	
17:00-18:0	1.551	1.496	78	75	10	10	20	5	
18:00-19:0	1.049	1.818	52	91	7	12	19	0	
19:00-20:0	0.000	0.000	0	0	0	0	0	0	
20:00-21:0	0.000	0.000	0	0	0	0	0	0	
21:00-22:0	0.000	0.000	0	0	0	0	0	0	
22:00-23:0	0.000	0.000	0	0	0	0	0	0	
23:00-24:0	0.000	0.000	0	0	0	0	0	0	
	23.154	23.368	**1158**	**1168**	**153**	**155**	**308**		

Mode Share - LEISURE/V - LIBRARY

Mode Share

Land Use	Vehicle Driver	Vehicle Passengers	PT - Rail	PT – Bus/ Coaches	Cyclist	Pedestrian	Total
Library	35.85%	10.15%	0.40%	6.30%	1.50%	45.90%	100%

AM Peak Hour Trips (08:00-09:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	0	0	0
PT – Rail	0	0	0
PT – Bus	0	0	0
PT –Coaches			
Cyclists	0	0	0
Pedestrians	0	0	0
Other	-	-	-
Total	0	0	0

PM Peak Hour Trips (17:00-18:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	10	10	20
PT – Rail	0	0	0
PT – Bus	2	2	4
PT –Coaches			
Cyclists	0	0	1
Pedestrians	13	13	26
Other	-	-	-
Total	29	28	56

SAT Peak Hour Trips (12:00-13:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	12	13	25
PT – Rail	0	0	0
PT – Bus	2	2	4
PT –Coaches			
Cyclists	1	1	1
Pedestrians	16	16	32
Other	-	-	-
Total	35	36	71

Even Peak Hour Trips (18:00-19:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	7	12	19
PT – Rail	0	0	0
PT – Bus	1	2	3
PT –Coaches			
Cyclists	0	1	1
Pedestrians	9	15	24
Other	-	-	-
Total	19	34	53

TRIPS for Conference / Business Event (data from client)

Gross floor area	8200			
Capacity	300	visitors	Car Trips	204
Mode Share by car	85%			
No of visitios/car (car occupancy)	1.25			

Count Type: TOTAL VEHICLES

	Total Trips		204	aytime Conference/ Busine			
				Total New Trips			
Time Range	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00			0	0	0	0
01:00-02:00			0	0	0	0
02:00-03:00			0	0	0	0
03:00-04:00			0	0	0	0
04:00-05:00			0	0	0	0
05:00-06:00			0	0	0	0
06:00-07:00			0	0	0	0
07:00-08:00			0	0	0	0
08:00-09:00	153		153	0	153	153
09:00-10:00	51		51	0	51	204
10:00-11:00			0	0	0	204
11:00-12:00			0	0	0	204
12:00-13:00			0	0	0	204
13:00-14:00			0	0	0	204
14:00-15:00			0	0	0	204
15:00-16:00			0	0	0	204
16:00-17:00		51	0	51	51	153
17:00-18:00		153	0	153	153	0
18:00-19:00			0	0	0	0
19:00-20:00			0	0	0	0
20:00-21:00			0	0	0	0
21:00-22:00			0	0	0	0
22:00-23:00			0	0	0	0
23:00-24:00			0	0	0	0
Total			**204**	**204**	**408**	

Mode Share - Conference / Business Event

Land Use	Vehicle Driver & Passenger	PT - Rail	PT – Bus	Cyclist	Pedestrian	Taxi/ Private	Coach	Total
Venue Weekday	85%	5%	3%	1%	1%	5%	0%	100%

Peak Hour Visitors 225

AM Peak Hour Trips (08:00-09:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver & Passenger	191	0	191
PT – Rail	11	0	11
PT – Bus	7	0	7
PT –Coaches			0
Cyclists	2	0	2
Pedestrians	2	0	2
Taxi/Private	11	0	11
Other	-	-	
Total	225	0	225

PM Peak Hour Trips (17:00-18:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	0	191	191
PT – Rail	0	11	11
PT – Bus	0	7	7
PT –Coaches			0
Cyclists	0	2	2
Pedestrians	0	2	2
Taxi/Private		11	11
Other	-	-	-
Total	0	225	225

TRIPS for Exhibition / Consumer Show (data from client)

Gross floor area	8200			
Capacity	1250	visitors	Car Trips	708
Mode Share by car	85%			
No of visitios/car	1.5			

Count Type: TOTAL VEHICLES
TRICS Trip Rate (per 100sqm)

Total Trips 708

			Total New Trips			
Time Range	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00			0	0	0	0
01:00-02:00			0	0	0	0
02:00-03:00			0	0	0	0
03:00-04:00			0	0	0	0
04:00-05:00			0	0	0	0
05:00-06:00			0	0	0	0
06:00-07:00			0	0	0	0
07:00-08:00	71		71	0	71	71
08:00-09:00	71		71	0	71	142
09:00-10:00	142		142	0	142	283
10:00-11:00	142		142	0	142	425
11:00-12:00	71		71	0	71	496
12:00-13:00	71	71	71	71	142	496
13:00-14:00	71	71	71	71	142	496
14:00-15:00	71	71	71	71	142	496
15:00-16:00		71	0	71	71	425
16:00-17:00		142	0	142	142	283
17:00-18:00		142	0	142	142	142
18:00-19:00		142	0	142	142	0
19:00-20:00			0	0	0	0
20:00-21:00			0	0	0	0
21:00-22:00			0	0	0	0
22:00-23:00			0	0	0	0
23:00-24:00			0	0	0	0
Total			**708**	**708**	**1417**	

Mode Share - Exhibition / Consumer Show

Land Use	Vehicle Driver	PT - Rail	PT – Bus	Cyclist	Pedestrian	Taxi/ Private	Coach	Total
Venue Saturday	85%	5%	3%	1%	1%	5%	0%	100%

Peak Hour Visitors 250

SAT Peak Hour Trips (12:00-13:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	106	106	213
PT – Rail	6	6	13
PT – Bus	4	4	8
PT –Coaches			0
Cyclists	1	1	3
Pedestrians	1	1	3
Taxi/ Private	6	6	13
Other	-	-	-
Total	125	125	250

TRIP RATE for Music Venue (data from client)

Gross floor area	8200			
Capacity	2200	visitors	Car Trips	500
No of emplouess				
Mode Share by car				
No of visitios/car				

Count Type: TOTAL VEHICLES

TRICS Trip Rate (per 100sqm)

	Total Trips	500	Evenings			
			Total New Trips			
Time Range	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00			0	0	0	0
01:00-02:00			0	0	0	0
02:00-03:00			0	0	0	0
03:00-04:00			0	0	0	0
04:00-05:00			0	0	0	0
05:00-06:00			0	0	0	0
06:00-07:00			0	0	0	0
07:00-08:00			0	0	0	0
08:00-09:00			0	0	0	0
09:00-10:00			0	0	0	0
10:00-11:00			0	0	0	0
11:00-12:00			0	0	0	0
12:00-13:00			0	0	0	0
13:00-14:00			0	0	0	0
14:00-15:00			0	0	0	0
15:00-16:00			0	0	0	0
16:00-17:00			0	0	0	0
17:00-18:00			0	0	0	0
18:00-19:00	300		300	0	300	300
19:00-20:00	200		200	0	200	500
20:00-21:00			0	0	0	500
21:00-22:00			0	0	0	500
22:00-23:00		400	0	400	400	100
23:00-24:00		100	0	100	100	0
Total			**500**	**500**	**1000**	

Mode Share - Music Event

Land Use	Vehicle Driver & Passenger	PT - Rail	PT – Bus	Cyclist	Pedestrian	Taxi/ Private	Coach	Total
Venue Evening	60%	15%	5%	1%	2%	15%	2%	100%

Peak Hour Visitor 1320

Even Peak Hour Trips (18:00-19:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver & Passenger	792	0	792
PT – Rail	198	0	198
PT – Bus	66	0	66
PT –Coaches	26		26
Cyclists	13	0	13
Pedestrians	26	0	26
Taxi/ Private	198	0	198
Other	-	-	-
Total	1320	0	1320

TRIPS for Outdoor event typical sat daytime (data from KMBC)
Gross floor area
Capacity 500 visitors Car Trips 160

Mode Share by car 80%
No of visitios/car 2.5

Count Type: TOTAL VEHICLES

Total Trips 160 Outdoor Event - SAT day time

	Outdoor Event		Total New Trips			
Time Range	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00			0	0	0	0
01:00-02:00			0	0	0	0
02:00-03:00			0	0	0	0
03:00-04:00			0	0	0	0
04:00-05:00			0	0	0	0
05:00-06:00			0	0	0	0
06:00-07:00			0	0	0	0
07:00-08:00			0	0	0	0
08:00-09:00			0	0	0	0
09:00-10:00	20		20	0	20	20
10:00-11:00	20		20	0	20	40
11:00-12:00	20	20	20	20	40	40
12:00-13:00	20	20	20	20	40	40
13:00-14:00	20	20	20	20	40	40
14:00-15:00	20	20	20	20	40	40
15:00-16:00	20	20	20	20	40	40
16:00-17:00	20	20	20	20	40	40
17:00-18:00		20	0	20	20	20
18:00-19:00		20	0	20	20	0
19:00-20:00			0	0	0	0
20:00-21:00			0	0	0	0
21:00-22:00			0	0	0	0
22:00-23:00			0	0	0	0
23:00-24:00			0	0	0	0
Total			**160**	**160**	**320**	

Mode Share - Outdoor Event Saturday

Land Use	Vehicle Driver & Passenger	PT - Rail	PT – Bus	Cyclist	Pedestrian	Taxi/ Private	Coach	Total
Venue Saturday	80%	6%	4%	1%	4%	5%	0%	100%

Peak Hour Visitor 125

SAT Peak Hour Trips (12:00-13:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver & Passenger	50	50	100
PT – Rail	4	4	8
PT – Bus	3	3	5
PT –Coaches			0
Cyclists	1	1	1
Pedestrians	3	3	5
Taxi/ Private	3	3	6
Other	-	-	-
Total	63	63	125

TRIPS for Outdoor event typical sat evening (data from KMBC)

Gross floor area

Capacity 1500 visitors Car Trips 480

Mode Share by car 80%

No of visitios/car 2.5

Count Type: TOTAL VEHICLES

Total Trips 480 Outdoor Event - SAT evening

	Outdoor Event		Total New Trips			
Time Range	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00			0	0	0	0
01:00-02:00			0	0	0	0
02:00-03:00			0	0	0	0
03:00-04:00			0	0	0	0
04:00-05:00			0	0	0	0
05:00-06:00			0	0	0	0
06:00-07:00			0	0	0	0
07:00-08:00			0	0	0	0
08:00-09:00			0	0	0	0
09:00-10:00			0	0	0	0
10:00-11:00			0	0	0	0
11:00-12:00			0	0	0	0
12:00-13:00			0	0	0	0
13:00-14:00			0	0	0	0
14:00-15:00			0	0	0	0
15:00-16:00			0	0	0	0
16:00-17:00	160		160	0	160	160
17:00-18:00	160		160	0	160	320
18:00-19:00	160		160	0	160	480
19:00-20:00			0	0	0	480
20:00-21:00			0	0	0	480
21:00-22:00		240	0	240	240	240
22:00-23:00		240	0	240	240	0
23:00-24:00			0	0	0	0
Total			**480**	**480**	**960**	

Mode Share - Large scale event - sat evening

Land Use	Vehicle Driver	PT - Rail	PT – Bus	Cyclist	Pedestrian	Taxi/ Private	Coach	Total
Venue Saturday	80%	6%	4%	1%	4%	5%	0%	100%

Peak Hour Visitors 500

Even Peak Hour Trips (18:00-19:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver & Passenger	400	0	400
PT – Rail	30	0	30
PT – Bus	20	0	20
PT –Coaches	0	0	0
Cyclists	5	0	5
Pedestrians	20	0	20
Taxi/ Private	25	0	25
Other	-	-	-
Total	500	0	500

TRICS 7.8.3
Trip Rate P Gross floor area

TRIP RATE FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 75% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Rang	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	600	0	1	600	0	1	600	0
08:00-09:0	1	600	0	1	600	0	1	600	0
09:00-10:0	1	600	0	1	600	0	1	600	0
10:00-11:0	8	554	0.429	8	554	0.271	8	554	0.7
11:00-12:0	8	554	0.903	8	554	0.474	8	554	1.377
12:00-13:0	8	554	3.026	8	554	1.106	8	554	4.132
13:00-14:0	8	554	2.393	8	554	1.919	8	554	4.312
14:00-15:0	8	554	1.287	8	554	1.174	8	554	2.461
15:00-16:0	8	554	1.377	8	554	1.287	8	554	2.664
16:00-17:0	8	554	1.197	8	554	1.152	8	554	2.349
17:00-18:0	8	554	1.558	8	554	0.835	8	554	2.393
18:00-19:0	8	554	2.664	8	554	2.958	8	554	5.622
19:00-20:0	8	554	2.619	8	554	3.184	8	554	5.803
20:00-21:0	8	554	2.235	8	554	2.845	8	554	5.08
21:00-22:0	8	554	1.174	8	554	1.58	8	554	2.754
22:00-23:0	8	554	0.768	8	554	1.964	8	554	2.732
23:00-24:0	8	554	0.655	8	554	1.648	8	554	2.303
Daily Trip Rates:			22.285			22.397			44.682

	TRICS Trip Rate (per 100sqm)		FoodHall - WK		Trip Rates discounting Linked Trips			
			2400 Sqm		Trips	25%		0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00	0.000	0.000	0	0	0	0	0	0
01:00-02:00	0.000	0.000	0	0	0	0	0	0
02:00-03:00	0.000	0.000	0	0	0	0	0	0
03:00-04:00	0.000	0.000	0	0	0	0	0	0
04:00-05:00	0.000	0.000	0	0	0	0	0	0
05:00-06:00	0.000	0.000	0	0	0	0	0	0
06:00-07:00	0.000	0.000	0	0	0	0	0	0
07:00-08:00	0.000	0.000	0	0	0	0	0	0
08:00-09:00	0.000	0.000	0	0	0	0	0	0
09:00-10:00	0.000	0.000	0	0	0	0	0	1
10:00-11:00	0.429	0.271	10	7	3	2	4	2
11:00-12:00	0.903	0.474	22	11	5	3	8	5
12:00-13:00	3.026	1.106	73	27	18	7	25	16
13:00-14:00	2.393	1.919	57	46	14	12	26	19
14:00-15:00	1.287	1.174	31	28	8	7	15	20
15:00-16:00	1.377	1.287	33	31	8	8	16	20
16:00-17:00	1.197	1.152	29	28	7	7	14	20
17:00-18:00	1.558	0.835	37	20	9	5	14	25
18:00-19:00	2.664	2.958	64	71	16	18	34	23
19:00-20:00	2.619	3.184	63	76	16	19	35	20
20:00-21:00	2.235	2.845	54	68	13	17	30	16
21:00-22:00	1.174	1.580	28	38	7	9	17	13
22:00-23:00	0.768	1.964	18	47	5	12	16	6
23:00-24:00	0.655	1.648	16	40	4	10	14	0
	22.285	22.397	**535**	**538**	**134**	**134**	**268**	

Mode Share - Food Hall Weekday

Land Use	Vehicle Driver	Vehicle Passenger	PT - Rail	PT – Bus/ Coaches	Cyclist	Pedestrian	Total
Food Hall Weekday	34.60%	21.00%	1.50%	11.10%	0.10%	31.70%	100%

AM Peak Hour Trips (08:00-09:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	0	0	0
PT – Rail	0	0	0
PT – Bus	0	0	0
PT –Coaches			
Cyclists	0	0	0
Pedestrians	0	0	0
Other	-	-	-
Total	0	0	0

PM Peak Hour Trips (17:00-18:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	9	5	14
PT – Rail	0	0	1
PT – Bus	3	2	5
PT –Coaches			
Cyclists	0	0	0
Pedestrians	9	5	13
Other	-	-	-
Total	27	14	41

Even Peak Hour Trips (18:00-19:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	16	18	34
PT – Rail	1	1	1
PT – Bus	5	6	11
PT –Coaches			
Cyclists	0	0	0
Pedestrians	15	16	31
Other	-	-	-
Total	46	51	97

TRICS 7.8.3
Trip Rate P Gross floor area

TRIP RATE FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 75% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
Time Rang	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:0	1	340	0.882	1	340	0	1	340	0.882
09:00-10:0	2	570	1.579	2	570	0.614	2	570	2.193
10:00-11:0	3	611	2.345	3	611	1.581	3	611	3.926
11:00-12:0	3	611	2.89	3	611	1.636	3	611	4.526
12:00-13:0	3	611	5.234	3	611	2.29	3	611	7.524
13:00-14:0	3	611	3.435	3	611	4.744	3	611	8.179
14:00-15:0	3	611	3.162	3	611	4.471	3	611	7.633
15:00-16:0	3	611	2.999	3	611	3.435	3	611	6.434
16:00-17:0	3	611	4.526	3	611	3.162	3	611	7.688
17:00-18:0	3	611	4.198	3	611	3.217	3	611	7.415
18:00-19:0	3	611	3.599	3	611	3.653	3	611	7.252
19:00-20:0	3	611	2.399	3	611	3.217	3	611	5.616
20:00-21:0	3	611	0.927	3	611	2.508	3	611	3.435
21:00-22:0	3	611	0.709	3	611	2.017	3	611	2.726
22:00-23:0	3	611	0.327	3	611	1.963	3	611	2.29
23:00-24:0	2	570	0.175	2	570	0.614	2	570	0.789
Daily Trip Rates:			39.386			39.122			78.508

	TRICS Trip Rate (per 100sqm)		FoodHall - Sat 2400 Sqm		Total Trips discounting linked Trips 25%			0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:0	0.000	0.000	0	0	0	0	0	0
01:00-02:0	0.000	0.000	0	0	0	0	0	0
02:00-03:0	0.000	0.000	0	0	0	0	0	0
03:00-04:0	0.000	0.000	0	0	0	0	0	0
04:00-05:0	0.000	0.000	0	0	0	0	0	0
05:00-06:0	0.000	0.000	0	0	0	0	0	0
06:00-07:0	0.000	0.000	0	0	0	0	0	0
07:00-08:0	0.000	0.000	0	0	0	0	0	0
08:00-09:0	0.882	0.000	21	0	5	0	5	5
09:00-10:0	1.579	0.614	38	15	9	4	13	11
10:00-11:0	2.345	1.581	56	38	14	9	24	16
11:00-12:0	2.890	1.636	69	39	17	10	27	23
12:00-13:0	5.234	2.290	126	55	31	14	45	41
13:00-14:0	3.435	4.744	82	114	21	28	49	33
14:00-15:0	3.162	4.471	76	107	19	27	46	25
15:00-16:0	2.999	3.435	72	82	18	21	39	23
16:00-17:0	4.526	3.162	109	76	27	19	46	31
17:00-18:0	4.198	3.217	101	77	25	19	44	37
18:00-19:0	3.599	3.653	86	88	22	22	44	36
19:00-20:0	2.399	3.217	58	77	14	19	34	31
20:00-21:0	0.927	2.508	22	60	6	15	21	22
21:00-22:0	0.709	2.017	17	48	4	12	16	14
22:00-23:0	0.327	1.963	8	47	2	12	14	4
23:00-24:0	0.175	0.614	4	15	1	4	5	2
	39.386	39.122	**945**	**939**	**236**	**235**	**471**	

Mode Share - Food Hall Saturday

Land Use	Vehicle Driver	Vehicle Passenger	PT - Rail	PT – Bus/ Coaches	Cyclist	Pedestrian	Total
Food Hall Weekend	25.65%	15.75%	-	2.70%	-	55.90%	100%

SAT Peak Hour Trips (12:00-13:00)			
Mode Share	Arrivals	Departures	Total
Vehicle Driver	31	14	45
PT – Rail			
PT – Bus	3	1	5
PT –Coaches			
Cyclists			
Pedestrians	68	30	98
Other	-	-	-
Total	122	54	176

Vehicle Trip Generation - Weekday

Hour Start	1 - Museum&ArtGallery		2 - Library		3 - FoodHall		4 - Venue		5-Outdoor Event		Hour Start	Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep	Total
00:00-01:00	0	0	0	0	0	0	0	0	-	-	00:00-01:0	0	0	0
01:00-02:00	0	0	0	0	0	0	0	0	-	-	01:00-02:0	0	0	0
02:00-03:00	0	0	0	0	0	0	0	0	-	-	02:00-03:0	0	0	0
03:00-04:00	0	0	0	0	0	0	0	0	-	-	03:00-04:0	0	0	0
04:00-05:00	0	0	0	0	0	0	0	0	-	-	04:00-05:0	0	0	0
05:00-06:00	0	0	0	0	0	0	0	0	-	-	05:00-06:0	0	0	0
06:00-07:00	0	0	0	0	0	0	0	0	-	-	06:00-07:0	0	0	0
07:00-08:00	0	0	0	0	0	0	0	0	-	-	07:00-08:0	0	0	0
08:00-09:00	0	0	0	0	0	0	153	0	-	-	08:00-09:0	153	0	153
09:00-10:00	3	1	21	10	0	0	51	0	-	-	09:00-10:0	75	10	85
10:00-11:00	9	2	20	15	3	2	0	0	-	-	10:00-11:0	32	19	51
11:00-12:00	12	9	13	21	5	3	0	0	-	-	11:00-12:0	31	32	63
12:00-13:00	10	10	12	13	18	7	0	0	-	-	12:00-13:0	40	29	69
13:00-14:00	11	12	19	17	14	12	0	0	-	-	13:00-14:0	45	41	86
14:00-15:00	6	9	24	21	8	7	0	0	-	-	14:00-15:0	38	37	75
15:00-16:00	9	14	16	19	8	8	0	0	-	-	15:00-16:0	33	41	75
16:00-17:00	5	9	10	17	7	7	0	51	-	-	16:00-17:0	22	83	105
17:00-18:00	3	2	10	10	9	5	0	153	-	-	17:00-18:0	22	170	192
18:00-19:00	0	0	7	12	16	18	0	0	-	-	18:00-19:0	23	30	53
19:00-20:00	0	0	0	0	16	19	0	0	-	-	19:00-20:0	16	19	35
20:00-21:00	0	0	0	0	13	17	0	0	-	-	20:00-21:0	13	17	30
21:00-22:00	0	0	0	0	7	9	0	0	-	-	21:00-22:0	7	9	17
22:00-23:00	0	0	0	0	5	12	0	0	-	-	22:00-23:0	5	12	16
23:00-24:00	0	0	0	0	4	10	0	0	-	-	23:00-24:0	4	10	14

Vehicle Trip Generation - Weekday Evening (after 18:00)

Hour Start	1 - Museum&ArtGallery		2 - Library		3 - FoodHall		4 - Venue		5-Outdoor Event		Hour Start	Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep	Total
00:00-01:00	0	0	0	0	0	0	0	0	-	-	00:00-01:0	0	0	0
01:00-02:00	0	0	0	0	0	0	0	0	-	-	01:00-02:0	0	0	0
02:00-03:00	0	0	0	0	0	0	0	0	-	-	02:00-03:0	0	0	0
03:00-04:00	0	0	0	0	0	0	0	0	-	-	03:00-04:0	0	0	0
04:00-05:00	0	0	0	0	0	0	0	0	-	-	04:00-05:0	0	0	0
05:00-06:00	0	0	0	0	0	0	0	0	-	-	05:00-06:0	0	0	0
06:00-07:00	0	0	0	0	0	0	0	0	-	-	06:00-07:0	0	0	0
07:00-08:00	0	0	0	0	0	0	0	0	-	-	07:00-08:0	0	0	0
08:00-09:00	0	0	0	0	0	0	0	0	-	-	08:00-09:0	0	0	0
09:00-10:00	3	1	21	10	0	0	0	0	-	-	09:00-10:0	24	10	34
10:00-11:00	9	2	20	15	3	2	0	0	-	-	10:00-11:0	32	19	51
11:00-12:00	12	9	13	21	5	3	0	0	-	-	11:00-12:0	31	32	63
12:00-13:00	10	10	12	13	18	7	0	0	-	-	12:00-13:0	40	29	69
13:00-14:00	11	12	19	17	14	12	0	0	-	-	13:00-14:0	45	41	86
14:00-15:00	6	9	24	21	8	7	0	0	-	-	14:00-15:0	38	37	75
15:00-16:00	9	14	16	19	8	8	0	0	-	-	15:00-16:0	33	41	75
16:00-17:00	5	9	10	17	7	7	0	0	-	-	16:00-17:0	22	32	54
17:00-18:00	3	2	10	10	9	5	0	0	-	-	17:00-18:0	22	17	39
18:00-19:00	0	0	7	12	16	18	300	0	-	-	18:00-19:0	323	30	353
19:00-20:00	0	0	0	0	16	19	200	0	-	-	19:00-20:0	216	19	235
20:00-21:00	0	0	0	0	13	17	0	0	-	-	20:00-21:0	13	17	30
21:00-22:00	0	0	0	0	7	9	0	0	-	-	21:00-22:0	7	9	17
22:00-23:00	0	0	0	0	5	12	0	400	-	-	22:00-23:0	5	412	416
23:00-24:00	0	0	0	0	4	10	0	100	-	-	23:00-24:0	4	110	114

Vehicle Trip Generation - Weekend (Sat)

Hour Start	1 - Museum&ArtGallery		2 - Library		3 - FoodHall		4 - Venue		5-Outdoor Event		Hour Start	Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep	Total
00:00-01:00	0	0	0	0	0	0	0	0	0	0	00:00-01:0	0	0	0
01:00-02:00	0	0	0	0	0	0	0	0	0	0	01:00-02:0	0	0	0
02:00-03:00	0	0	0	0	0	0	0	0	0	0	02:00-03:0	0	0	0
03:00-04:00	0	0	0	0	0	0	0	0	0	0	03:00-04:0	0	0	0
04:00-05:00	0	0	0	0	0	0	0	0	0	0	04:00-05:0	0	0	0
05:00-06:00	0	0	0	0	0	0	0	0	0	0	05:00-06:0	0	0	0
06:00-07:00	0	0	0	0	0	0	0	0	0	0	06:00-07:0	0	0	0
07:00-08:00	0	0	0	0	0	0	71	0	0	0	07:00-08:0	71	0	71
08:00-09:00	0	0	0	0	5	0	71	0	0	0	08:00-09:0	76	0	76
09:00-10:00	3	1	21	10	9	4	142	0	20	0	09:00-10:0	195	14	209
10:00-11:00	9	2	20	15	14	9	142	0	20	0	10:00-11:0	205	27	232
11:00-12:00	12	9	13	21	17	10	71	0	20	20	11:00-12:0	133	59	193
12:00-13:00	10	10	12	13	31	14	71	71	20	20	12:00-13:0	144	127	271
13:00-14:00	11	12	19	17	21	28	71	71	20	20	13:00-14:0	142	149	291
14:00-15:00	6	9	24	21	19	27	71	71	20	20	14:00-15:0	140	148	288
15:00-16:00	9	14	16	19	18	21	0	71	20	20	15:00-16:0	63	145	208
16:00-17:00	5	9	10	17	27	19	0	142	20	20	16:00-17:0	62	206	268
17:00-18:00	3	2	10	10	25	19	0	142	0	20	17:00-18:0	38	193	231
18:00-19:00	0	0	7	12	22	22	0	142	0	20	18:00-19:0	29	196	224
19:00-20:00	0	0	0	0	14	19	0	0	0	0	19:00-20:0	14	19	34
20:00-21:00	0	0	0	0	6	15	0	0	0	0	20:00-21:0	6	15	21
21:00-22:00	0	0	0	0	4	12	0	0	0	0	21:00-22:0	4	12	16
22:00-23:00	0	0	0	0	2	12	0	0	0	0	22:00-23:0	2	12	14
23:00-24:00	0	0	0	0	1	4	0	0	0	0	23:00-24:0	1	4	5

Vehicle Trip Generation - Saturday Evening (after 18:00)

Hour Start	1 - Museum&ArtGallery		2 - Library		3 - FoodHall		4 - Venue		5-Outdoor Event		Hour Start	Total		
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep	Total
00:00-01:00	0	0	0	0	0	0	0	0	0	0	01:00-02:0	0	0	0
01:00-02:00	0	0	0	0	0	0	0	0	0	0	02:00-03:0	0	0	0
02:00-03:00	0	0	0	0	0	0	0	0	0	0	03:00-04:0	0	0	0
03:00-04:00	0	0	0	0	0	0	0	0	0	0	04:00-05:0	0	0	0
04:00-05:00	0	0	0	0	0	0	0	0	0	0	05:00-06:0	0	0	0
05:00-06:00	0	0	0	0	0	0	0	0	0	0	06:00-07:0	0	0	0
06:00-07:00	0	0	0	0	0	0	0	0	0	0	07:00-08:0	0	0	0
07:00-08:00	0	0	0	0	0	0	0	0	0	0	08:00-09:0	0	0	0
08:00-09:00	0	0	0	0	5	0	0	0	0	0	09:00-10:0	5	0	5
09:00-10:00	3	1	21	10	9	4	0	0	0	0	10:00-11:0	33	14	48
10:00-11:00	9	2	20	15	14	9	0	0	0	0	11:00-12:0	43	27	70
11:00-12:00	12	9	13	21	17	10	0	0	0	0	12:00-13:0	43	39	82
12:00-13:00	10	10	12	13	31	14	0	0	0	0	13:00-14:0	53	36	89
13:00-14:00	11	12	19	17	21	28	0	0	0	0	14:00-15:0	51	58	109
14:00-15:00	6	9	24	21	19	27	0	0	0	0	15:00-16:0	49	57	106
15:00-16:00	9	14	16	19	18	21	0	0	0	0	16:00-17:0	43	54	97
16:00-17:00	5	9	10	17	27	19	0	0	160	0	17:00-18:0	202	45	247
17:00-18:00	3	2	10	10	25	19	0	0	160	0	18:00-19:0	198	31	230
18:00-19:00	0	0	7	12	22	22	300	0	160	0	19:00-20:0	489	34	523
19:00-20:00	0	0	0	0	14	19	200	0	0	0	20:00-21:0	214	19	234
20:00-21:00	0	0	0	0	6	15	0	0	0	0	21:00-22:0	6	15	21
21:00-22:00	0	0	0	0	4	12	0	0	0	240	22:00-23:0	4	252	256
22:00-23:00	0	0	0	0	2	12	0	400	0	240	23:00-24:0	2	652	654
23:00-24:00	0	0	0	0	1	4	0	100	0	0	0	1	104	105

Appendix F : Linked Trip Research Note

Non-Primary Trips Research

Definitions

It is important to distinguish between the various definitions of 'non-primary' trips i.e. the proportion of trips generated by the development which are not new or are made entirely within the site. The non-primary trip definitions are as follows:

- **Linked trips.** Trips that will have multiple destinations either within the proposed development site, between both the development site and existing adjacent sites, or between the development site and an established town centre.
- **Pass-by trips.** Trips already present on the road network directly adjacent to accesses to a development, which will turn into the site.
- **Diverted trips** are already present on the local road network but not the road(s) from which access is taken and would divert from their existing route to access the development.

Review of Discounting Methods

TRICS Research Reports

A review of the TRICS research reports has found the following for retail and leisure uses:

- **TRICS 05/1 'Trip Attraction Rates of Developments with Multiple Retail and Leisure Uses' Report.** This study found multi-use sites with 4 or more retail and leisure elements reduce on average the total number of **external trips** by about **20%** through trip linking.

  It should be noted however, that the sites included in this study did not contain any residential uses and were all located out-of-town. It is likely that this percentage will be higher for city centre-based developments which have a greater mix of uses.

- **TRICS 14/1 'Pass-by and Diverted Trips' Report.** Although the 14/1 TRICS report concludes that no real correlations were found, some of the findings for retail uses presented in the commercial research are useful. This revealed a higher prevalence of pass-by and diverted trips in town centres. A customer survey carried out for Somerfield, found **46%** of trips were linked to other shops in the town centre. Similarly, research commissioned by Tesco reported an average proportion of linked trips between the store and town centre within the range of **34% to 66%**. A pass-by level of **40%** was accepted to be a robust estimate during the weekday PM peak period.

  Given that these pieces of research have presented a correlation between the proximity of a store to the town centre, and the propensity for customers to visit other shops within the town centre, the TRICS report states that *'this should be recognised in the determination of the prediction of linked trips*'.

Review of Transport Assessments and Masterplans

A review of the discounting methods used in Transport Assessments and Masterplans has also been undertaken. The findings of this review are summarised below in Table 7. Some base their assumptions on the findings of the TRICS research reports, whilst others have either utilised survey data or made a professional judgement based on the characteristics of the development and its surroundings (usually keeping within the non-primary trip ranges reported in research).

Table 7: Review of Transport Assessments and Masterplans

Transport Assessment / Masterplan	Location Type	Land Uses / Development Proposal	Non-Primary Trip Reductions	Justification / Comments
Tonbridge Town Centre Master Plan (2007)	Town Centre	• A1 Non-Food Retail • B1 Offices • A2 Financial Services • A3 Food Retail • B2 Industrial • B8 Storage / Distribution	• Retail – 35% • Community – 30% • Restaurant – 30% • Leisure – 30%	Makes reference to the MacIver (1999) report which advises the following retail pass-by ranges: • 25-35% for superstores on major commuting routes in large urban areas; • 15-25% for other less significant commuting routes in out-of-town locations in urban areas with smaller populations; • 10% for town centres and on non-primary routes. B2260 / A26 commuter route runs through town centre.
Horrocks Quarter Mixed-Use Redevelopment Transport Assessment (2008)	Edge of Town Centre	• A1 Non-Food Retail • A3 Food Retail Store • C1 Hotel	• Linked trips – 15% (food and non-food) • Pass-by – 20% (food only) • Diverted – 30% (food only)	• **Linked:** Given proximity to retail core, is inevitable a proportion of people shopping at the site would also utilise the existing facilities in the city centre. 30% proposed but 15% agreed – considered to be extremely robust. • **Pass-by**: 30% assumed originally but lowered to 20% on the basis that Queen Street is a 'non-primary link'. • **Diverted**: Local traffic data indicated the diversion from A6 to the development could be 30%. This level of diversion is within acceptable range suggested by TRICS research.
Eastgate Quarters Transport	Town Centre	• A1/A2/A3/A4 Retail, B1 Office, D2 Gym, D1	• Retail – 21%	The research undertaken by Richard Parker in 1985 found that an increase in retail floor area leads to an overall

Assessment (2011)		Medical Centre, Creche/Nursery, Multi-faith Prayer room.		increase in the number of trips, but the derived trip rate reduced. A review of the Parker study and changes to the retail floor area in Leeds gave a corresponding reduction in trip rate of 21%.
Pasteur Retail Park Transport Assessment (2014)	Edge of Town Centre	• A1 Non-Food Retail • A3 Food Retail • A4 Drinking establishments • A5 Drive thru	• Retail – 30%	Based on the 95/2 TRICS research, a reduction of 30% will be applied to the cumulative retail trips (food and non-food) that would be non-primary.
South Shields Town Centre Masterplan (2015)	Town Centre	• A1 Non-Food Retail • A3 Food Retail; Restaurants • B1 Office • D2 Cinema	• Linked trips – 20% reduction in total retail and leisure trips	Makes reference to the 05/1 TRICS report. Assumption is made based on prevalence of development with high mix of uses, and MRUK survey which found majority of people do not travel to town centre to undertake one activity and go home.
Addlestone One – Travel Plan (2016)	Town Centre	• 104 residential units; • D2 Cinema operated by The Light Cinema; • C1 101 bed Hotel by Premier Inn; • A3/A4 (A Food Store operated by Waitrose); 6 Food & Beverage units; • A1 (11 Retail units).	• Linked trips (internal) – 30% applied to all retail and 40% to cinema trip generation • Linked trips (external) – 35% applied to all retail trip generation • Pass-by and Diverted trips – 30% applied to all retail and food trip generation	• **Linked:** Retail study found 44% of residents combine food and non-food trips; No cinema facility in Addlestone currently so likely a high proportion will have transferred from Woking and Staines; Location in core town centre. • **Pass-by and Diverted**: Studies conclude range of 6-26% - higher end of range reflects sites in accessible locations on commuter routes. Development is fronted by primary route, Station Rd, which joins commuter route A318.
Handforth Mixed-Use Retail Development Transport Assessment (2016)	Edge of Town Centre	• A1 Non-food Retail (planning permission granted) • A3 Restaurant (proposed) • A5 Drive thru (proposed)	Drive Thru PM & SAT peak - • Pass-by: 10% • Linked: 20% • Diverted: 30% • Transferred:20%	Makes reference to the 05/1 TRICS report. The proposed Handforth mixed-use retail development are within an acceptable walking distance of the Handforth Dean and Stanley Green Retail Parks. It is anticipated that many of the customers of the proposed restaurants will be customers of the adjacent Retail Park/ proposed retail park.

			Restaurant PM & SAT peak - • Pass-by: 20% • Linked: 15% • Diverted: 0% • Transferred: 0%	
Rochdale Riverside Development Transport Assessment (2016)	Town Centre	• A1 Retail, A3/A4 Restaurants/Cafes, D2 Cinema, D1 Leisure, Hotel, Residential, A1/A2/A3 Retail, B1 Office, D1 Nursery, Creche, doctors.	• 30% reduction in the total trip forecast	Many visitors will visit +1 components of the development; hence it is inappropriate to aggregate trip forecasts for each land use type. The 30% reduction is considered an understatement of the likely 'cross-visitation' numbers.
Canada Water Masterplan (2018)	Town Centre	• A1 Retail, A3 Foodstore, B1 Office, Hotel, Student Accommodation, Assisted Living, Residential, D1 Community Use, D2 Leisure Use.	• Linked trips – 20% reduction in total non-food retail trips	Makes reference to the 05/1 TRICS report. Non-food retail is reduced by a factor of 20% to take account of the fact trip generation for the proposed foodstore has been calculated separately.
Otterpool Park Transport Assessment (2019)	Proposed 'Garden Town' in the Kent countryside.	• A1 Retail • B1/B2 Work • C3 Home • D1 Health Centre	• Linked trips – 5% reduction in total number of commuting trips	The National Travel Survey (NTS) data suggests that 5% of all trips where the main trip purpose is Commuting / Business includes a linked Shopping trip.

Proposed Trip Reductions

As recommended in the 14/1 TRICS report, a site-by-site approach should be taken to justify the proportion of non-primary trips that are to be attributed to the proposed development. The proposed reductions are outlined in the following sub-sections. Justification has been made in line with evidence presented in the research undertaken by TRICS (see Section 4.2.1) and in the review of Transport Assessments and Masterplans (see Section 4.2.2). This relates to the following attributes:

- **Characteristics of the development proposal**: mix of uses and facilities; and,
- **Location of the development**: proximity to other town centre uses, and transport links.

The 14/1 TRICS report highlights that peak pass-by trips will occur at different times for different infrastructure types. This will also apply to other non-primary trip types. The proposed reductions are presented separately for each of the peak periods, in Tables 8-10.

AM Peak (08:00-09:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked to other uses (both on site and in the town centre) in the AM peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas);
- the development includes a large mix of uses on site; and,
- due to peak hour congestion, it is likely that customers will already be present on the network (as customers are much less likely to travel solely for leisure and retail purposes at these times).

Table 8: AM Peak Existing (Non-Primary) and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the retail trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	-	All trips will be external to the site as a worst-case assessment.
C1 Hotel	-	All trips will be external to the site as a worst-case assessment.

Residential	-	All trips will be external to the site as a worst-case assessment.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

PM Peak (17:00-18:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked to other uses (both on site and in the town centre) in the PM peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas);
- the development includes a large mix of uses on site; and,
- due to peak hour congestion, it is likely that customers will already be present on the network (as customers are much less likely to travel solely for leisure and retail purposes at these times).

Table 9: PM Peak Existing and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the retail trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	**Linked trips: 10% reduction** Considering the large mix of uses on site, it is anticipated that a proportion of trips generated by the office developments, will be linked with nearby retail and leisure uses. It is proposed that a 10% reduction is made to the total departure trips in the PM peak. This is supported by NTS data which identifies 5% of commuter trips being linked to shopping purposes, and 5% of commuter trips being linked to leisure and social purposes. These are technically new trips but are just assumed to be made after the PM peak hour. These	Based on the assumptions made for non-primary trip generation, new trips will represent 90% of the total office trip generation.

	trips have been moved to the subsequent hour. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	
C1 Hotel	-	All trips will be external to the site as a worst-case assessment.
Residential	**Linked trips: 10% reduction** Considering the large mix of uses on site, it is anticipated that a proportion of trips generated by the residential developments, will be linked with retail and leisure uses. It is proposed that a 10% reduction is made to the total arrival trips in the PM peak. This is supported by NTS data which identifies 5% of commuter trips being linked to shopping purposes, and 5% of commuter trips being linked to leisure and social purposes. These are technically new trips but are just assumed to be made after the PM peak hour. These trips have been moved to the subsequent hour. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 90% of the total residential trip generation.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become blocked as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

Saturday Peak (12:00-13:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked (both on site and in the city centre) in the Saturday peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas); and,
- the development includes retail and leisure uses which are complementary to other city centre uses (and so will lead to extended shopping and leisure trips rather than new trips).

Table 10: Saturday Peak Existing and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and mix of retail/leisure uses which are complementary to nearby city centre uses, it is anticipated that a proportion of the retail trips generated by the development will linked. It is likely that this proportion is significant on a Saturday, however it is proposed that 30% is assumed to provide a robust assessment. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	For the majority of office uses, it is assumed that the development will not generate any Office trips on a Saturday. At Block D there will be some occupation on a Saturday – 20% weekday trip generation is assumed. No linked trip reduction.	
C1 Hotel	Hotel trip generation on a Saturday is assumed to be same as weekdays. No linked trip reduction.	All trips will be external to the site as a worst-case assessment.
Residential	-	All trips will be external to the site as a worst-case assessment.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and mix of retail/leisure uses which are complementary to nearby city centre uses, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is likely that this proportion is significant on a Saturday, however it is proposed that 30% is assumed to provide a robust assessment. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become blocked as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

Appendix G : Parking Assessment

Kirklees MBC

Kirklees Cultural Heart

Car Parking Study

Update | 17 February 2022

This report takes into account the particular instructions and requirements of our client.

It is not intended for and should not be relied upon by any third party and no responsibility is undertaken to any third party.

Job number 284642-00

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Appendices

Appendix A

Trip Generation Calculations

Appendix B

Linked Trip Research

Appendix C

Car Parking Assessment

1 Introduction

Kirklees Council have commissioned Ove Arup & Partners (Arup) to undertake a high-level study to determine the level of new car parking required to support the Kirklees Cultural Heart (KCH) scheme in Huddersfield town centre.

Since issue of the first car park study report in December 2021, additional scheme information has been provided by FCBS in relation to the proposed use floor areas and IPW have provided more detail of likely events at the Venue. This Car Parking Report Study has therefore been updated to better inform the parking requirements as part of the scheme development.

1.1 Kirklees Cultural Heart Scheme

The existing scheme area (site) is currently occupied by the Piazza Shopping Centre, Market Hall, Huddersfield Library and Art Gallery. There are a few small shops and an area of open space public realm fronting the entrance to the library and art gallery. The recently demolished Market Hall multi-story car park is also located within the footprint of the scheme.

The KCH scheme aims to redevelop the south-eastern part of the town centre by delivering a new performance venue, museum and food hall and relocating an existing art gallery and library within the scheme.

1.2 Scheme Location

The KCH scheme site is located within the core of the town centre and located within the Ring Road (A62 Castlegate / Queensgate / Southgate). The site is in a very accessible location with great connections to non-car and car infrastructure.

The site is within 600m walk of Huddersfield rail station which provides access to a range of local, regional and national rail services, including frequent services to Leeds, Manchester, Hull, Sheffield, Newcastle, Liverpool and Bradford.

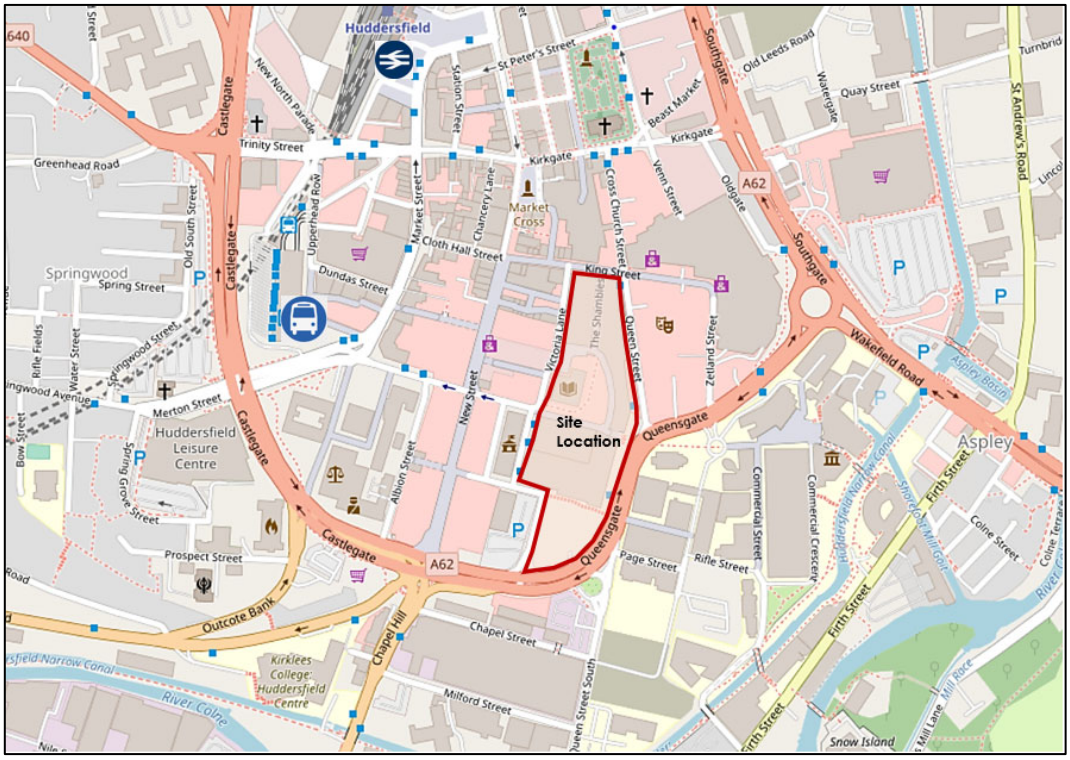
The nearest bus stops are located along Peel Street and Queens Street which front the western and eastern boundaries of KCH scheme. The site is also within 400m walk of the bus station which provides access to significant number of local and regional bus services as well as regional and national coach services.

The site is bounded by A62 Queensgate to the south and south east, Queen Street to the east, King Street to the north and Victoria Lane, Peel Street and Alfred Street to the west, as shown in Figure 1. King Street and Victoria Lane are pedestrianised routes.

Several locally important radial routes converge onto Huddersfield town centre's Ring Road. The radial routes include A616 Chapel Hill, Manchester Rd, A640 Trinity Street, A629 New N Road, A641 Bradford Road, A62 Leeds Road and A629 Wakefield Road.

The A62 Castlegate, Southgate and Queensgate form the Ring Road around the town centre and facilitates access between the radial routes and the local roads within the town centre (i.e. serving KCH, former Market Hall car park, Wilko, Albion Rooftop and Civic Centre car parks to the south; the Kingsgate Shopping Centre car park to the east; and the Bus Station, Springwood and Leisure Centre car parks to the west).

Figure 1: Kirklees Cultural Heart Site Location



Traffic flow and movements are restricted within the town centre/Ring Road to promote traffic calming and to promote public transport and active travel.

1.3 Previous Studies and Covid-19 Impact

In 2019/2020 Systra undertook a detailed Car Parking Study for Huddersfield and Dewsbury, including preparing an Evidence Base Report, Tariff Recommendation Report, Strategy Report and Delivery Plan. For Huddersfield, Systra identified provision of a new 550 space car park which would serve the town centre and KCH scheme. Information from these reports has been used to inform this study.

Since the Systra study, there has been a change in travel patterns as a result of the Covid-19 pandemic. This has broadly translated to more home/hybrid working and therefore less commuting, increase in recreational/non-work trips and greater use of the private car in lieu of public transport. Whilst this is a temporary and transitional phase towards a new ‘normal’ way of working, in principle it is reasonable to suggest that the uses proposed for the KCH scheme is likely to continue to attract car movements and travel patterns reflective of pre-pandemic times.

As part of the Arup study, a review of car park occupancy in existing car parks has been undertaken to compare against the Systra occupancy data. In addition, we have undertaken a trip generation exercise to determine the potential car parking demand as a result of the new KCH development in the town centre.

It is acknowledged that given the Climate Emergency there is a need to reduce carbon emissions, and therefore reducing car traffic and providing electric vehicle charging points can play an important part in this.

Since 2013, almost 1,500 car parking spaces have been lost within the town centre and it is important that sufficient parking, in terms of both quantity and quality, is provided to serve the KCH scheme and support the vitality of the town centre.

This study provides a high-level review of existing car parking provision in the town centre (i.e. available capacity, quality and accessibility), considers the possible impact on car parking for sites that could be lost to development and reviews the need for car parking to serve the proposed uses for the KCH scheme.

2 Proposed Cultural Heart Development

The proposed KCH scheme masterplan is currently being developed with a range of options being considered. The current preferred scheme proposals comprise Option 10b, as presented in the recently submitted Strategic Outline Case (SOC) report. Further clarification has been provided by the client team in terms of likely operations, opening hours and visitor forecasts were available, as set out below. Since issue of the first car park study report in December 2021, additional scheme information has been provided by FCBS in relation to the proposed use floor areas and IPW have provided more detail of likely events at the Venue.

2.1 KCH Development Proposals

The KCH scheme comprises a new performance venue, museum and food hall and relocating an existing art gallery and library within the scheme. Option 10b comprises:

- Museum and Art Gallery = 6,800sqm GIA
- Library (& Archive) = 5,000sqm
- Venue = 6,825sqm GIA / 2,250 person maximum capacity
- Food Hall = 2,000sqm GIA

2.2 Trip Generation

For each proposed land use within the KCH scheme a trip generation exercise has been undertaken to determine forecast vehicle trips and cumulative parking demand for a 'Weekday' and a 'Saturday' scenario.

Kirklees Council has provided details of historical visitor numbers for the existing art gallery and Tolson library and as part of the SOC, forecasts of future visitor numbers have been provided. However, the data doesn't provide the breakdown across the day or travel mode of visitors as required for trip generation purposes. Therefore, the TRICS database has been reviewed, which provides trip rates based on surveys for comparable sites across the UK. The visitor number forecasts have been referenced where appropriate. Where data is limited for the specific land uses, assumptions have been made based on our understanding of the proposed development and experience of other schemes. Further details are provided for each land use below. Appendix A includes details of the trip generation calculations as well as TRICS data outputs.

In addition, we have also considered a Linked Trip factor which discounts trips as a result of town centre mixed uses where a single trip is made to multiple land uses. The linked trip factor applied for each land use is based on previous research undertaken for town / city centre sites, as provided at Appendix B.

2.2.1 Museum and Art Gallery

Museum

The existing Tolson Museum is located outside of the town centre and currently operates limited hours being open on Saturday and Sundays only from 12:00-17:00hrs. Kirklees Council has provided some visitor data comprising daily visitor numbers throughout the year. For the 2019/20 year, typical weekday attendance was approx. 50-100, weekend and holiday attendance was 100-200 and peak attendance for occasional events was 300-400. The KCH proposals will relocate the Museum into the town centre to improve its attractiveness and increase visitor numbers. It is estimated that visitor numbers will more than double from 26,000pa to 57,000pa. Following redevelopment, opening hours for the Museum will increase with the aim that it is open through the week and likely selected evenings.

Art Gallery

The existing Art Gallery is located within the KCH site and is open on Mondays and Thursdays from 09:00-19:00hrs, on Tuesday, Wednesday and Fridays from 09:00-17:00hrs, and on Saturdays from 09:30-16:00hrs. It is closed on Sundays. Kirklees Council has provided some visitor data comprising daily visitor numbers throughout the year. For the 2019/20 year, typical weekday and weekend attendance was 50-100 with peak attendance of 300-400 for occasional events. It is anticipated that a new facility would have greater attractiveness resulting in visitor numbers more than doubling from an estimated 15,000pa to 32,000pa.

Trip Rate

As the proposed Museum development comprises relocation of the existing Tolson Museum into the town centre, it is assumed all trips to the development will be new to the local road network. In order to provide a robust assessment, all trips to the proposed Art Gallery will be treated as new to the local road network.

Kirklees Council has provided some visitor data comprising daily / monthly visitor numbers, however a breakdown of arrivals and departures across the day is not provided. It is also noted that the visitor numbers don't identify what modes of transport visitors use. Trip generation forecasts have therefore been calculated using TRICS trip rates and proposed gross floor area.

For the Museum and Art Gallery elements of the proposed development, the TRICS category 07/I – Art Galleries/Museums/Exhibitions has been used with Town Centre and Suburban area locations selected for Weekday vehicle trip rates. No Saturday data is provided in TRICS under this category.

It is noted that the Kirklees Council monthly attendance data (2019-20) doesn't provide a clear pattern for weekdays and Saturdays, with some increase at weekends but higher attendance generally related to events and holiday periods. Therefore, it has been assumed that the Weekday forecast can be applied to a Saturday profile on the basis that whilst there could be more visitors attending the museum and art gallery on weekends this will be offset by the likelihood that they will travel in larger groups (i.e. more occupants per car).

Based on research undertaken, a 30% reduction to arrivals and departures has been applied as trips are linked to other town centre retail and leisure uses, including the new KCH development.

Car Parking Demand

The forecast vehicle arrival and departure profile for a 6,800sqm development for a Weekday and Saturday has been used to determine the car park demand as shown in Table 1 below.

Table 1: Museum and Art Gallery vehicle trips and car park accumulation – Weekday & Saturday

	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	0
09:00-10:00	0.056	0.014	3	1	2
10:00-11:00	0.149	0.034	7	2	7
11:00-12:00	0.197	0.142	9	7	10
12:00-13:00	0.156	0.156	7	7	10
13:00-14:00	0.176	0.204	8	10	9
14:00-15:00	0.102	0.142	5	7	7
15:00-16:00	0.149	0.237	7	11	3
16:00-17:00	0.081	0.142	4	7	0
17:00-18:00	0.044	0.037	2	2	0
18:00-19:00	0.000	0.000	0	0	0
Total	**1.110**	**1.108**	**53**	**53**	

The peak car parking demand is forecast to be 10 spaces between approx. 11:00 and 13:00hrs.

2.2.2 Library

The existing library is located within the KCH site and is open on Wednesday to Saturdays 11:00-16:00hrs and closed Sunday to Tuesday. The existing Library currently attracts a high number of visitors (360,000pa) with large numbers of IT users and use of research facilities by students. Following redevelopment, opening hours will increase to include Sundays and evenings and the SOC identifies visitor numbers are forecast to increase modestly (by approx. 10-15%) compared to existing numbers (by 36,000-54,000pa).

Trip Rate

For the Library element of the proposed development, the TRICS category 07/V – Library has been used with Town Centre and Suburban area locations selected for Weekday trip rates. There is no Saturday data within the TRICS database, however, the weekday trip pattern is considered suitable for a Saturday. Therefore, the same vehicle trip rates for weekdays have been used to reflect Saturdays.

The forecast vehicle arrival and departure profile for a 5,000sqm development has been calculated. However, the SOC identifies that there are already a high number of users of the existing Library which should be factored into the assessment. Details of the floor area for the existing library have not been provided, therefore assessment of new trips is based on a review of the daily trip estimates and forecast uplift in visitor numbers.

Information provided in the SOC shows a forecast increase in visitor numbers of 54,000 visitors per annum, which equates to an average of 155 visitors per day (assuming the library is open 350 days per year). To be robust we assume that these additional visitors will travel by car. The TRICS trip rates (for the full development of 5,000sqm) have been factored down so that the arrival / departure profile across the day results in total daily arrivals and departures of approx. 155, as shown in the table below. These trips are the additional new trips associated with the Library with any existing Library trips included within the existing car parking numbers.

No linked trip factor has been applied.

Car Parking Demand

The forecast vehicle arrival and departure profile for the Library development for a Weekday and Saturday has been used to determine the car park demand as shown in Table 2 below.

Table 2: Library New vehicle trips and car park accumulation – Weekdays & Saturdays

	TRICS Trip Rates (per 100 sqm)		13.5% Total trips as new trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.000	0.000	0	0	1
09:00-10:00	3.102	1.440	21	10	12
10:00-11:00	3.047	2.271	21	15	17
11:00-12:00	1.994	3.158	13	21	10
12:00-13:00	1.884	1.939	13	13	9
13:00-14:00	2.936	2.604	20	18	11
14:00-15:00	3.657	3.213	25	22	14
15:00-16:00	2.438	2.881	16	19	11

16:00-17:00	1.496	2.548	10	17	4
17:00-18:00	1.551	1.496	10	10	5
18:00-19:00	1.049	1.818	7	12	0
Total	**23.154**	**23.368**	**156**	**158**	

The peak car parking demand for the uplift for the improved Library provision is 17 spaces at 11:00hrs with demand reasonably consistent across the day from approx. 09:00 to 16:00hrs.

2.2.3 New Performance Venue

The Venue proposals comprise a multi-purpose venue that can accommodate both entertainment and business events including exhibitions, conferences and entertainment events possibly occurring during the day and/or in evenings. The capacity, attendances and therefore parking requirements will vary considerably for the different events throughout the year.

Information has been provided by IPW in relation to the likely events, including type of event, frequency, maximum and average attendance and visitor profile and their likely car mode share and car occupancy:

Conferences / Business events:

- Weekday, daytime, approx. 09:00-17:00hrs
- Total = 57 per year
- Average attendance = 87 people
- Largest attendances: 300 people = 1 per year, 250 people = 4 per year, 200+ people = 8 per year
- Typically, 85% car mode share and 1.25 average car occupancy
- Therefore, for an average attendance event (87) the peak car park demand is 59 spaces and for the largest attendance event (300) the peak car park demand is 204 spaces

Exhibition / Consumer Shows:

- Saturday and Sunday daytimes
- 3 x two day events per year
- 1,250 people arrive / depart throughout the day
- 50 exhibitors arrive at start / depart at end of the day but park in service yard or off site
- 85% car mode share and 1.5 car occupancy
- Therefore, parking demand could be 708 but visitors come and go throughout the day so suggested peak parking demand is approx. 500 spaces

Trade Shows:

- Weekday, daytime
- Total = 5 per year
- 300 people – arrive / depart throughout the day
- 85% car mode share and 1.5 car occupancy
- Therefore, parking demand could be 170 but visitors come and go throughout the day so suggested peak demand is approx. 150 spaces
- Exhibitors will park in service yard or off site

Entertainment Event:

- Majority = evenings (weekday and Saturday), although some matinees
- Total = 128 per year

Average attendance = 700:

- Typically, 80% car mode share and 2.5 average car occupancy
- Therefore, peak car park demand = 224 spaces

Maximum attendance = standing audience:

- 2,250 people
- 3 per year
- Younger audience, less likely to drive – train / parent / taxi pick up
- IPW state max parking demand = 500 spaces

Seated show:

- 1,288 people
- 50 per year
- Typically, 80% car mode share and 2.5 average car occupancy
- Therefore, peak car park demand = 412 spaces

Banquets / Awards Ceremonies:

- Evening event – weekdays and weekends
- Total = 13 per year
- 150-500 people
- Max 500 = 2 per year
- car mode share and car occupancy not confirmed but peak parking demand would be less than entertainments events

This information has been used to determine peak car parking demand for weekdays, weekends and evenings, as set out below. This information is

considered more site specific than using the TRICS database which has limited data available for Venues.

No linked trip reduction has been applied to the forecast Venue car trips as a high proportion of trips will be solely for the events such as the Exhibition Centre / Conference and Music event.

Weekday (daytime) Event

The peak weekday car parking demand is likely to be the conference / business events with average parking demand of 60 and peak demand of 150-200 parking spaces. In addition, the weekday trade shows could generate a parking demand of approx. 150 spaces.

It is estimated that there would be approx. 1 event per week, although the higher attendance events (larger conferences / trade shows) would be approx. 1 per month.

The conference / business events would generally operate from 09:00-17:00hrs, therefore the majority of attendees would arrive between 08:00 and 10:00hrs and depart between 16:00 and 18:00hrs. An estimate of the arrivals and departures profile for a weekday peak event has therefore been undertaken and the peak car parking demand set out in Table 3 below

Table 3: Performance venue vehicle trips and car park accumulation – Weekday

	Total new trips		**Total car parking accumulation**
	Arrival	**Departure**	
07:00-08:00	0	0	0
08:00-09:00	153	0	153
09:00-10:00	51	0	204
10:00-11:00	0	0	204
11:00-12:00	0	0	204
12:00-13:00	0	0	204
13:00-14:00	0	0	204
14:00-15:00	0	0	204
15:00-16:00	0	0	204
16:00-17:00	0	51	153
17:00-18:00	0	153	0
18:00-19:00	0	0	0
Total	204	204	

Weekend (daytime) Event

The peak weekend daytime parking demand would likely be from an exhibition / consumer show. While the maximum attendance is forecast at 1,250, visitors can arrive and depart throughout the day, therefore a maximum parking demand of approx. 500 is assumed from approx. 11:00-15:00hrs. An estimate of the arrivals and departures profile for a weekend event has therefore been undertaken and the peak car parking demand set out in Table 4 below.

Table 4: Performance venue vehicle trips and car park accumulation – Saturday

	Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	
07:00-08:00	0	0	0
08:00-09:00	71	0	71
09:00-10:00	71	0	142
10:00-11:00	142	0	283
11:00-12:00	142	0	425
12:00-13:00	71	0	496
13:00-14:00	71	71	496
14:00-15:00	71	71	496
15:00-16:00	71	71	496
16:00-17:00	0	71	425
17:00-18:00	0	142	283
18:00-19:00	0	142	142
Total	**708**	**708**	

Evening Event

The peak evening car parking demand is likely to be the entertainment events with average parking demand of 224 spaces and higher parking demand of approx. 400 spaces for a seated event and 500 spaces for a maximum standing audience event.

There are forecast to be approx. 2-3 events per week with the higher demand events approx. once per week).

It is suggested that visitors will arrive between approx. 18:00 and 20:00hrs and leave from approx. 22:00hrs. An estimate of the arrivals and departures profile for the peak evening event has therefore been undertaken and the peak car parking demand set out in Table 5 below.

Table 5: Performance venue vehicle trips and car park accumulation – Evening (Weekday or Saturday) (2,500 max capacity)

	Total new trips		Total car parking accumulation
	Arrival	Departure	
16:00-17:00	0	0	0
17:00-18:00	0	0	0
18:00-19:00	300	0	300
19:00-20:00	200	0	500
20:00-21:00	0	0	500
21:00-22:00	0	0	500
22:00-23:00	0	400	100
23:00-24:00	0	100	0
Total	**500**	**500**	

It is considered unlikely that a significant exhibition / conference event would take place on the same day as a music event, therefore the tables above present the different arrival and departure profiles for a weekday daytime business / conference, Saturday daytime exhibition / consumer show and an evening music event (which could be weekday or Saturday).

2.2.4 Food Hall

The proposed food hall will provide a new standalone facility to serve visitors to the KCH and wider town centre during the daytime and on evenings with its operational hours tied to the KCH opening times. It will provide a bar and range of small food and drink trading units (walk up and order) and communal seating area. It is anticipated that it will likely be open daily from 10am until late.

Trip Rates

The proposed food hall is a new facility within the town centre and therefore forecast trips will be treated as new to the highway network.

For the Food Hall element of the proposed development, the TRICS category 06/C – Pub/Restaurants has been used with Town Centre, Edge of Town Centre and Suburban areas sites available for different Weekday and Saturday trip rates.

It is estimated that limited visitors will come just to the food hall and the vast majority of trips will be linked to other town centre uses, in particular the new KCH venue. Therefore a 75% reduction to arrivals and departures has been applied to Food Hall trips to account for these linked trips.

Car Parking Demand

The forecast vehicle arrival and departure profile for a 2,000 sqm development for a Weekday and Saturday has been used to determine the car park demand as shown in the tables below.

Table 6: Food Hall vehicle trips and car park accumulation – Weekday

	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
06:00-07:00	0.000	0.000	0	0	1
07:00-08:00	0.000	0.000	0	0	1
08:00-09:00	0.000	0.000	0	0	1
09:00-10:00	0.000	0.000	0	0	1
10:00-11:00	0.429	0.271	2	1	2
11:00-12:00	0.903	0.474	5	2	4
12:00-13:00	3.026	1.106	15	6	14
13:00-14:00	2.393	1.919	12	10	16
14:00-15:00	1.287	1.174	6	6	16
15:00-16:00	1.377	1.287	7	6	17
16:00-17:00	1.197	1.152	6	6	17
17:00-18:00	1.558	0.835	8	4	21
18:00-19:00	2.664	2.958	13	15	19
19:00-20:00	2.619	3.184	13	16	16
20:00-21:00	2.235	2.845	11	14	13
21:00-22:00	1.174	1.580	6	8	11
22:00-23:00	0.768	1.964	4	10	5
23:00-24:00	0.655	1.648	3	8	0
Total	**22.285**	**22.397**	**111**	**112**	

The peak car park demand is 21 spaces at 17:00hrs with demand consistently over 15 from 12:00 to 20:00hrs.

Table 7: Food Hall vehicle trips and car park accumulation – Saturday

	TRICS Trip Rates (per 100 sqm)		Total trips discounting linked trips		Total car parking accumulation
	Arrival	Departure	Arrival	Departure	
06:00-07:00	0.000	0.000	0	0	0
07:00-08:00	0.000	0.000	0	0	0
08:00-09:00	0.882	0.000	4	0	4
09:00-10:00	1.579	0.614	8	3	9
10:00-11:00	2.345	1.581	12	8	13
11:00-12:00	2.890	1.636	14	8	19
12:00-13:00	5.234	2.290	26	11	34
13:00-14:00	3.435	4.744	17	24	28
14:00-15:00	3.162	4.471	16	22	21

15:00-16:00	2.999	3.435	15	17	19
16:00-17:00	4.526	3.162	23	16	26
17:00-18:00	4.198	3.217	21	16	31
18:00-19:00	3.599	3.653	18	18	30
19:00-20:00	2.399	3.217	12	16	26
20:00-21:00	0.927	2.508	5	13	18
21:00-22:00	0.709	2.017	4	10	12
22:00-23:00	0.327	1.963	2	10	4
23:00-24:00	0.175	0.614	1	3	1
Total	**39.386**	**39.122**	**197**	**196**	

The peak car park demand is 34 spaces at 12:00hrs with demand also at a similar level from approx. 17:00 to 20:00hrs.

2.2.5 Total Car Parking Demand

The car park demand for a weekday with exhibition / conference uses at the venue is set out in Table 8 below.

Table 8: Car Parking Demand – Weekday Daytime Peak

Hour	Museum & Art Gallery	Library	Food Hall	Venue	Total
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	153	154
09:00-10:00	2	12	1	204	219
10:00-11:00	7	17	2	204	231
11:00-12:00	10	10	4	204	228
12:00-13:00	10	9	14	204	237
13:00-14:00	9	11	16	204	240
14:00-15:00	7	14	16	204	242
15:00-16:00	3	11	17	204	235
16:00-17:00	0	4	17	153	174
17:00-18:00	0	0	19	0	19
18:00-19:00	0	0	16	0	16
19:00-20:00	0	0	13	0	13
20:00-21:00	0	0	11	0	11
21:00-22:00	0	0	5	0	5
22:00-23:00	0	0	0	0	0
23:00-24:00	0	0	0	0	0

The peak car parking demand is approximately 240 spaces from 12:00-16:00hrs.

The car park demand for an evening with a maximum capacity music event at the venue is calculated in Table 10 below.

Table 9: Car Parking Demand – Evening Peak (Weekday/Saturday)

Hour	Museum & Art Gallery	Library	Food Hall	Venue	Total
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	0	1
09:00-10:00	2	12	1	0	15
10:00-11:00	7	17	2	0	27
11:00-12:00	10	10	4	0	24
12:00-13:00	10	9	14	0	33
13:00-14:00	9	11	16	0	36
14:00-15:00	7	14	16	0	38
15:00-16:00	3	11	17	0	31
16:00-17:00	0	4	17	0	21
17:00-18:00	0	0	19	0	19
18:00-19:00	0	0	16	300	316
19:00-20:00	0	0	13	500	513
20:00-21:00	0	0	11	500	511
21:00-22:00	0	0	5	500	505
22:00-23:00	0	0	0	100	100
23:00-24:00	0	0	0	0	0

The peak car park demand is just over 500 spaces from 19:00-22:00hrs.

The car park demand for a Saturday with exhibition / conference event at the venue is calculated in Table 10 below.

Table 10: Car Parking Demand – Saturday Daytime Peak

Hour	Museum & Art Gallery	Library	Food Hall	Venue	Total
07:00-08:00	0	0	0	71	71
08:00-09:00	0	1	4	142	147
09:00-10:00	2	12	9	283	307
10:00-11:00	7	17	13	425	463
11:00-12:00	10	10	19	496	535
12:00-13:00	10	9	34	496	549

13:00-14:00	9	11	28	496	544
14:00-15:00	7	14	21	496	538
15:00-16:00	3	11	19	425	458
16:00-17:00	0	4	26	283	313
17:00-18:00	0	5	31	142	177
18:00-19:00	0	0	30	0	30
19:00-20:00	0	0	26	0	26
20:00-21:00	0	0	18	0	18
21:00-22:00	0	0	12	0	11
22:00-23:00	0	0	4	0	3
23:00-24:00	0	0	1	0	1

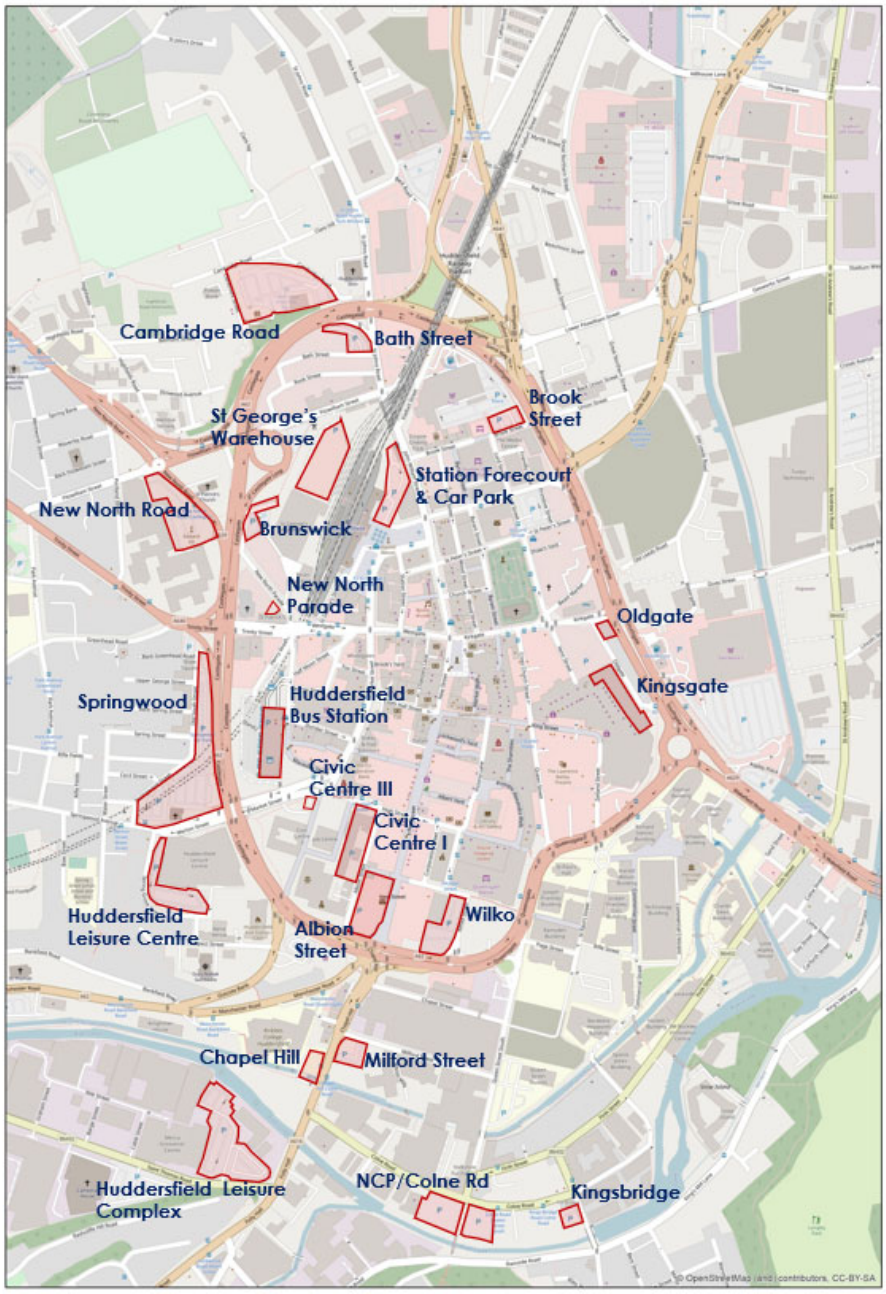
The peak car park demand is approximately 550 spaces from 12:00-15:00hrs

3 Car Parking Assessment

3.1 Town Centre Car Parks

There are currently approximately 5,000 car parking spaces in Huddersfield town centre, including off street and on street spaces. Figure 2 below shows the key off street car parks within the town centre and Table 12 provides further details. The off-street car parks provide over 3,000 spaces within an approximate 1,200m (15 minute walk) of the site. It should be noted that the Market Hall car park is excluded from the below table as it was demolished in 2020.

Figure 2: Existing Car Park Locations considered in the study



Source: Open Street Map

There are a number of supermarket car parks (Sainsbury's, Lidl and Tesco) that provide publicly accessible car parking, but as these are intended to serve the supermarket customers, these have been excluded from this study.

Table 11: Huddersfield Town Centre Car Parks

Car Parks	Operator	Operating Hours	No of Disabled spaces	Short / Long Stay	Existing Provision	Distance from the site(m)
Wilko Opp Market Hall	Private	24 Hrs	-	Long	100*	100-200
Kingsgate	Private	Closes at 18:30 hrs	-	Long	650	320
Civic Centre Car Park I	Council	24 Hrs	3	Short	124	250
Civic Centre Car Park III	Council	24 Hrs	8	Short	8	300
Albion Street Rooftop Car Park	Council	24 Hrs	-	Long	41	300
Springwood Car Park	Council	24 Hrs	0	Long	380	450
Milford Street	Council	24 Hrs	1	Long	25	480
Chapel Hill private Car park	Private	24 Hrs	-	Long	54	520
Oldgate Car Park	Council	24 Hrs	2	Short	10	500
Huddersfield Bus Station (Levels 1, 2 and 3)	Council	24 Hrs	11	Short	225	400
Huddersfield Bus Station (Levels 4, 5 and 6)	Council	24 Hrs	11	Long	225	400
Huddersfield Leisure Centre	Council	24 Hrs	10	Short	110	550
Huddersfield station car park & Forecourt (APCOA)	Council	24 Hrs	3	Short	42	650
Brook Street Car Park	Council	24 Hrs	1	Short	31	750
Leisure complex	Private	Public until 6pm	-	Long	80*	800
Kingsbridge	Council	24 Hrs	-	Long	30	650
NCP Car Park Huddersfield/ Colne Rd	NCP Car Park	24 Hrs	-	Long	200	650

St George's Warehouse	St George	Mon - Sat 0600-1800	-	Long	238	850
Bath Street Car Park	Council	24 Hrs	3	Long	54	850
New North Road	Private	24 Hrs	-	Long	180	900
Brunswick Street Car Park	Council	24 Hrs	0	Long	26	800
New North Parade Car Park	Private	24 Hrs	0	Short	19	650
Cambridge Road Car Park	Council		0	Long	206	930

*Approximate capacity

3.2 Existing Car Parking Capacity

An assessment of existing car parking capacity has been undertaken for town centre car parks based on a review of available occupancy data and information provided in relation to planned changes to car parking from town centre development. In addition, a high level of assessment of car park quality and accessibility has been undertaken to determine whether car parks are suitable to serve visitors to the KCH scheme.

3.2.1 Car Park Occupancy Data

2019 Occupancy Surveys

Systra undertook detailed occupancy surveys in June 2019, comprising hourly counts of occupancy at the majority of car parks in the town centre. Surveys were undertaken on a Thursday and Saturday to coincide with Market days when the town centre is busiest.

The surveys provided the peak occupancy and time of day that the peak occupancy occurred for each car park surveyed. The figures below provide a summary of the total occupancy across all car parks surveyed on a weekday and Saturday. The survey data indicated that on a weekday the peak occupancy across the town centre was approx. 70% from 11:00-15:00hrs. At 18:00hrs the occupancy was approx. 30%. For a Saturday, the peak occupancy was approx. 50% from 10:00-16:00hrs reducing to approx. 20% at 18:00hrs.

Figure 7-15 Weekday % occupancy – Huddersfield off-street car parks

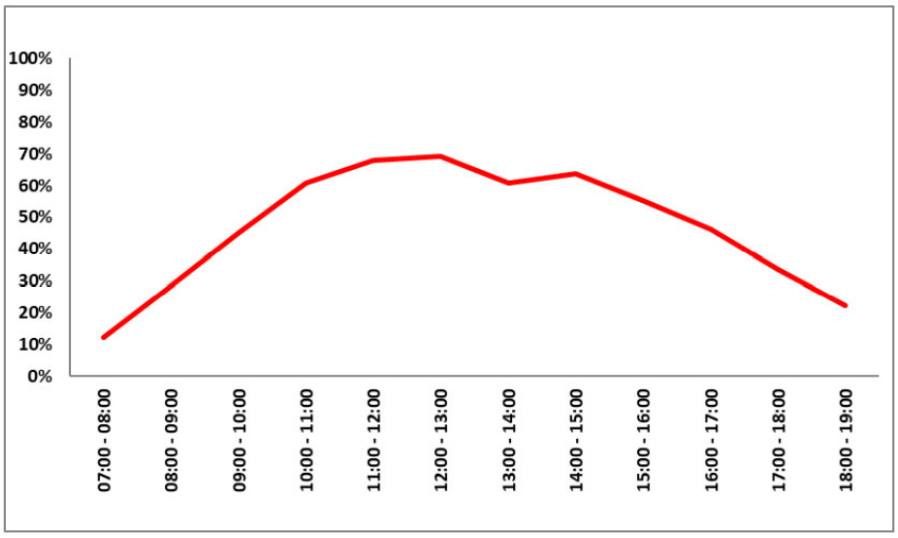
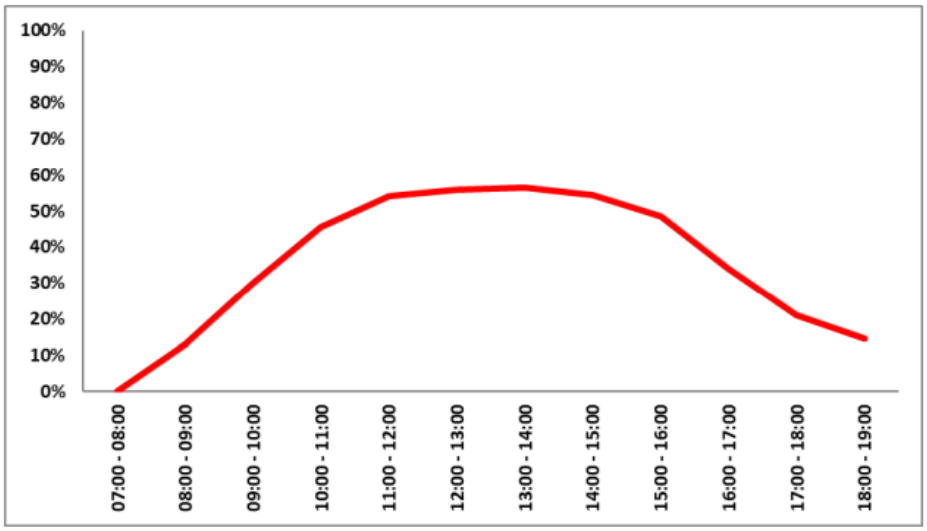


Figure 7-17 Saturday % occupancy – Huddersfield off-street car parks



Appendix C provides extracts of the Systra occupancy data for individual car parks.

2021 Spot Checks

Arup undertook spot check surveys at a number of town centre car parks on Thursday 25th November 2021. This comprised visiting the car parks at different times of the day and recording the occupancy levels. In addition, observations in relation to the quality and safety of car parks were made including review of surfacing, markings, lighting provision and pedestrian access routes.

Further detail is provided below and Appendix C provides a summary of the Arup occupancy data and general observations.

Spot check counts were undertaken on a Thursday, to coincide with the Systra weekday surveys and a busy market day. No site visit was made on a Saturday. The following observations were noted:

- Surveys at key town centre car parks including the Civic Centre, Albion Street Rooftop, and Springwood car parks show similar high occupancy levels in 2019 and 2021, at 90-95%+
- Huddersfield Bus Station car parks show slightly lower levels of occupancy in 2021 than those recorded in 2019 (49% and 80% rather than 68% and 99% for the short and long stay car parks respectively, equating to approx. 85 fewer parked cars)
- The Kingsgate shopping centre car park had 76 more cars parked at approx. midday in 2021 than the peak recorded by in 2019
- Parking levels at various smaller car parks across the town centre were broadly consistent, varying by a few more or less at individual location
- The surveys at Colne Road NCP showed the car park virtually full in 2021 with a maximum capacity of 67% in 2019 – no clear explanation for why this

might be, but it is noted below that this car park is due to close for redevelopment so is not included in our assessment

- The surveys at St George's Warehouse showed significantly less parking in 2021 than in 2019 (-100 cars). Given the car parks location close to the rail station and away from the retail core, this may be due to less commuters as a result of more people working from home during the covid-19 pandemic. Again, it is noted below that this car park is due to close for redevelopment and is not included in our assessment.

As a result of the spot check surveys, it is generally considered that the findings of the detailed 2019 occupancy surveys are broadly representative of current parking demand within the town centre. Therefore, in the subsequent car parking capacity assessment Systra survey data is generally used as this is more comprehensive, including evenings and weekend. This is supplemented by the Arup data where required.

3.2.2 Changes to Car Parking

The Systra Car Parking Study identifies strategic interventions in relation to car parking at Table 5-15 in the 2020 Strategy Report. These have been reviewed and discussions with Kirklees Council officers confirmed likely changes in the medium and longer term. Our assessment considers the longer term position in relation to parking rather than a medium or interim scenario. In particular, to note:

- Market Hall car park has recently been demolished
- Oldgate, New North Parade and Bath Street car parks will reduce capacity to provide mobility hubs
- Brook Street car park will close to accommodate the open market refurbishment
- Colne Road car park will close for provision of apartments and student housing
- Chapel Hill car park will close to enable the Waterfront development
- New North Road car park (Trinity West) will close to enable mixed use development
- St George's Warehouse car park will close to enable station area redevelopment. In the longer term additional new parking will be provided, however is to serve the Rail Station
- Cambridge Road car park will close in the longer term, while there is currently no permission, it is allocated in the Local Plan for future housing development

Excluding the Markets Hall car park which has already been demolished, the future proposals will result in the removal of just over 900 off street car parking spaces. It is noted a number of on street parking spaces will also be removed, however, on street parking has not been considered in this assessment as they are unlikely to serve the long stay nature of the proposed KCH uses.

It should be noted that, KC identified that Kingsgate will be redeveloping to provide a Cinema and Bowling Alley and therefore the car park will likely alter its hours to open during the evenings to serve these evening leisure amenities. Development of the KCH does not assume to rely on any private car parks that serve other uses.

Appendix C shows the changes to parking across the town centre in the future

3.2.3 Quality and Accessibility Review

During the Arup site visit a high level review of the quality of parking provision and pedestrian accessibility was undertaken. Key observations are:

- Within approx. 400m (5 minutes) walk of the centre of the site, there are a number of car parks (Wilko, Civic Centre, Albion Street Rooftop). These are well located, and town centre walking routes provide reasonable walking connections to the KCH development. They are generally of reasonable quality in terms of surfacing and lighting but are small to moderately sized.
- The Kingsgate shopping centre is well located (approx. 320m) to serve the KCH development and is of good quality in terms of markings, lighting and security. However, it is a privately run car park to serve the shopping centre and currently closes at 18:30hrs.
- Slightly further from the site (approx. 400-550m, 5-10minutes walk) are a number of larger car parks (Springwood, Huddersfield Bus Station and Huddersfield Leisure Centre). The quality of these car parks is generally good with lighting and security. There are generally well lit and signed walking routes into the town centre and while the routes follow busy trafficked routes which is good for security reasons, they are potentially less attractive in terms of vehicles, pollution and noise. While the subway route under the ring road appears reasonable, there may be safety concerns at night.
- Other car parks, located further from the site (650-1000m) and beyond the ring road are generally poorer quality in terms of surfacing and markings although some have lighting and CCTV or security. They are more remotely located in terms of surrounding land uses and activity and may not feel safe at night. Walking routes are not ideal as they are 10-15+ minutes and involve crossing busy roads including the ring road. It is noted above that a number of these have been identified for redevelopment.

3.2.4 Summary of Capacity

Following the review of car park locations and quality as well as planned future changes to provision, 13 car parks were identified that could potentially provide parking to serve the KCH development.

The capacity of car parks during a Weekday daytime, Weekday evening and Saturday daytime has been reviewed as the forecast peak periods for forecast demand from the KCH scheme, as set out at Section 2.2.6. Table 12 below provides the occupancy details for these car park and potential numbers of spaces available for a Weekday daytime, Weekday evening and Saturday.

As part of the assessment, we have considered the existing car parks due to close as a result of redevelopment (Colne Road NCP, St George's Warehouse, New North Road and Cambridge Street). To account for existing users of these car parks relocating to different car parks, the occupancy of these car parks, as surveyed in 2021 has been totalled and taken from the total forecast available spaces.

Table 12: Future Car Park Occupancy and Potential Capacity

Car Parks	Future Spaces	Weekday				Saturday	
		11:00 - 15:00		after 18:00		10:00 - 16:00	
		Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces
Wilko Opp Market Hall	100	94	6	30	70	94	6
Kingsgate	650	358	293	closed	0	501	150
Civic Centre Car Park I	124	114	10	58	66	97	27
Albion Street Rooftop Car Park	41	39	2	23	18	29	12
Springwood Car Park	380	372	8	114	266	236	144
Oldgate Car Park**	*5*	8	-3	2	4	8	-3
Huddersfield Bus Station (Levels 1, 2 and 3)	225	153	72	68	158	99	126
Huddersfield Bus Station (Levels 4, 5 and 6)	225	223	2	68	158	61	164
Huddersfield Leisure Centre	110	86	24	33	77	96	14
Leisure complex	80	30	50		0	30	50
NCP/ Colne Rd*	0	198	-198	40	-40	12	-12
St George's Warehouse*	0	21	-21	30	-30	44	-44
Bath Street Car Park**	*24*	36	-12	7	17	28	-4
New North Road*	0	70	-70	31	-31	70	-70
Brunswick Street Car Park	26	26	0	8	18	12	14
New North Parade Car Park**	*9*	17	-8	3	6	19	-10
Cambridge Road Car Park*	0	45	-45	29	-29	22	-22
Total	**1999**	**1890**	**109**	**513**	**756**	**1434**	**565**

**Car parks that will be closed in the future year*
*** Parking capacity reduced to accommodate development*

The assessment indicates that on a weekday during the peak occupancy period approx. 11:00-15:00hrs, there are forecast to be approx. 110 spaces available across the car parks.

The assessment indicates that on a weekday evening after 18:00hrs, there are forecast to be approx. 750 spaces available across the car parks. It is noted that this excludes the Kingsgate shopping centre which closes at 18:30hrs and the Leisure complex which restricts public parking after 18:00hrs to be only available for complex visitors.

The assessment indicates that on a Saturday during the peak occupancy period approx. 10:00-16:00hrs, there are forecast to be approx. 560 spaces available across the car parks.

3.3 Total KCH Development Parking Demand

The trip generation assessment at Chapter 2 identified the peak car parking demand as approx. 250 on weekdays (museum, art gallery, library, exhibition /conference centre, food hall uses), approx. 500 on evenings (max capacity event at the venue and food hall uses) and approx. 550 on Saturdays (museum, art gallery, library, exhibition /conference centre, food hall uses). It is noted that usage of the performance venue will vary across the week and year depending on the scale of events.

Table 13: Parking Assessment

	Weekday Daytime	Evening	Saturday Daytime
Available Parking Capacity	109	756	565
KCH Scheme Peak Parking Demand	242	513	549
Parking Shortfall	-133	+243	+16

Therefore, based on the analysis of existing car parking provision, at Section 3.2.4 above, this indicates that there is likely to be a requirement for additional car parking to support the KCH scheme during weekday daytime peaks with likely sufficient car parking available within the town centre on evenings and Saturdays.

3.4 Other Factors to Consider

Considering the requirement for new parking to serve the KCH scheme there are a number of other factors that should be considered:

- The existing car parking provision across the town is over several small to medium car parks spread out throughout the town. A single dedicated facility

would be easier to signpost (particularly for promotion and marketing for events), provides a greater welcome experience to the KCH scheme and convenience for the significant number of visitors to the performance venue.

- A new facility will provide revenue. It would enable enhanced control and management systems to be introduced as well as a potential pricing strategy to be determined to suit the enhanced parking facility provided by the KCH scheme, rather than align with the existing provision.
- A new facility enables high quality provision, such as larger spaces (as increasingly needed), security and lighting, improved pedestrian access and EV charging/mobility hub.
- A new facility within the site would be designed to provide high quality well-signed routes for pedestrians walking between the scheme and the car park.

4 Summary and Recommendations

This Study has been prepared to determine the level of new car parking required to support development of the Kirklees Cultural Heart (KCH) in Huddersfield town centre. The KCH scheme aims to redevelop an area of Huddersfield town centre by delivering a new performance venue, museum and food hall and relocating an existing art gallery and library within the scheme.

It is acknowledged that given the Climate Emergency there is a need to reduce carbon emissions, and therefore reducing car traffic and providing electric vehicle charging points can play an important part in this. However, since 2013, almost 1,500 car parking spaces have been lost within the town centre and a further 900 spaces are due to be lost due to redevelopment. It is therefore important that sufficient parking, in terms of both quantity and quality, is provided to serve the KCH scheme and support the vitality of the town centre.

This study provides a high-level review of existing car parking provision in the town centre (i.e. available capacity, quality and accessibility), considers the possible impact on car parking for sites that could be lost to development and reviews the need for car parking to serve the proposed uses for the KCH scheme.

Based on a high-level review of town centre car parks, a number were not considered suitable to serve the KCH scheme, due to walking distance, pedestrian accessibility and quality. In addition, a number of car parks are due to be closed as a result of planned redevelopment. 13 car parks were therefore identified as potentially providing car parking to serve the KCH scheme and included in the assessment. Assessment of their available capacity has been undertaken for weekday daytime peak period (11:00-15:00hrs), evening (after 18:00hrs) and Saturday peak period (10:00-16:00hrs). The assessment identified limited available car parking capacity on a weekday (approx. 110 spaces) with a greater number available on evenings (750 spaces) and on Saturdays (560 spaces).

A high-level trip generation exercise has been undertaken for the proposed KCH development, identifying forecast vehicle trips and car parking demand across a weekday, evening and Saturday. The assessment identified the peak car parking demand as just over 240 spaces on weekdays (museum, art gallery, library, business /conference centre, food hall uses), just over 500 spaces on evenings (max capacity event at the venue and food hall uses) and approx. 550 spaces on Saturdays (museum, art gallery, library, exhibition /consumer show, food hall uses). It is noted that usage of the performance venue will vary across the week and year with different scale events including exhibitions and conferences and maximum capacity music events likely only occasionally.

The analysis therefore indicates that there is a requirement for additional car parking during weekday daytime peaks while there is potentially sufficient parking on evenings and Saturdays to serve the KCH scheme demand, although only just on Saturdays. It is considered a 150-200 space car park would provide for the weekday demand and would be the minimum level of parking recommended to serve the KCH scheme. Additional demand on Saturdays and evenings could use existing town centre parking which is available. A maximum

500-550 space car park would provide for KCH scheme parking demand in all scenarios including peak capacity events at the performance venue on evenings and weekends.

On the basis of the above assessment, a new 250-350 space car park is recommended to serve the KCH scheme.

In consideration of the requirement for new parking to serve the KCH scheme there are a number of other factors to consider:

- The existing car parking provision across the town is over several small to medium car parks spread out throughout the town. A single dedicated facility would be easier to signpost (particularly for promotion and marketing for events), provides a greater welcome experience to the KCH scheme and convenience for the significant number of visitors to the performance venue.
- A new facility would provide revenue. It would enable enhanced control and management systems to be introduced as well as a potential pricing strategy to be determined to suit the enhanced parking facility provided by the KCH scheme, rather than align with the existing provision.
- A new facility enables high quality provision, such as larger spaces (as increasingly needed), security and lighting, improved pedestrian access and EV charging/mobility hub.
- A new facility within the site would be designed to provide high quality well-signed routes for pedestrians walking between the scheme and the car park.

Appendix A

Trip Generation Calculations

Calculation Reference: AUDIT-701005-211202-1235

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : I - ART GALLERIES/MUSEUMS/EXHIBITIONS
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	ES	EAST SUSSEX	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	MS	MERSEYSIDE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross floor area
Actual Range:	400 to 7162 (units: sqm)
Range Selected by User:	400 to 15000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 07/03/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Thursday	3 days
Friday	1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4
Suburban Area (PPS6 Out of Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	4

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

n/a	1 days
F1(b)	1 days
F1(c)	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	2 days
25,001 to 50,000	1 days
50,001 to 100,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
250,001 to 500,000	1 days
500,001 or More	2 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.5 or Less	2 days
1.1 to 1.5	3 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	5 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	5 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 ES-07-I-01 MUSEUM & ART GALLERY EAST SUSSEX
NEW CHURCH ROAD
BRIGHTON
HOVE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 1800 sqm
Survey date: FRIDAY *22/09/17* *Survey Type: MANUAL*

2 MS-07-I-01 WAR MUSEUM MERSEYSIDE
RUMFORD STREET
LIVERPOOL

Town Centre
Built-Up Zone
Total Gross floor area: 4645 sqm
Survey date: TUESDAY *13/11/18* *Survey Type: MANUAL*

3 MS-07-I-02 ART GALLERY MERSEYSIDE
WILLIAM BROWN STREET
LIVERPOOL

Town Centre
Built-Up Zone
Total Gross floor area: 7162 sqm
Survey date: THURSDAY *15/11/18* *Survey Type: MANUAL*

4 NY-07-I-01 MUSEUM NORTH YORKSHIRE
CROWN PLACE
HARROGATE

Town Centre
Built-Up Zone
Total Gross floor area: 400 sqm
Survey date: THURSDAY *25/10/18* *Survey Type: MANUAL*

5 NY-07-I-02 MILITARY MUSEUM NORTH YORKSHIRE
TRINITY CHURCH SQUARE
RICHMOND

Town Centre
Built-Up Zone
Total Gross floor area: 730 sqm
Survey date: THURSDAY *07/03/19* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00	4	3584	0.056	4	3584	0.014	4	3584	0.070
10:00 - 11:00	5	2947	0.149	5	2947	0.034	5	2947	0.183
11:00 - 12:00	5	2947	0.197	5	2947	0.142	5	2947	0.339
12:00 - 13:00	5	2947	0.156	5	2947	0.156	5	2947	0.312
13:00 - 14:00	5	2947	0.176	5	2947	0.204	5	2947	0.380
14:00 - 15:00	5	2947	0.102	5	2947	0.142	5	2947	0.244
15:00 - 16:00	5	2947	0.149	5	2947	0.237	5	2947	0.386
16:00 - 17:00	5	2947	0.081	5	2947	0.142	5	2947	0.223
17:00 - 18:00	3	4536	0.044	3	4536	0.037	3	4536	0.081
18:00 - 19:00									
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.110			1.108			2.218

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	400 - 7162 (units: sqm)
Survey date date range:	01/01/13 - 07/03/19
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1211

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : V - LIBRARY
TOTAL VEHICLES

Selected regions and areas:

05	EAST MIDLANDS		
	NR	NORTHAMPTONSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
09	NORTH		
	TV	TEES VALLEY	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter:	Gross Floor Area
Actual Range:	375 to 930 (units: sqm)
Range Selected by User:	375 to 4575 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 13/11/17

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Monday	1 days
Thursday	2 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	3 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	2
Suburban Area (PPS6 Out of Centre)	1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	1
Built-Up Zone	1
High Street	1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

F1(d)	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	1 days
25,001 to 50,000	2 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

50,001 to 75,000	1 days
75,001 to 100,000	1 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	2 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 CH-07-V-01 LIBRARY CHESHIRE
JORDANGATE
MACCLESFIELD

Town Centre
Built-Up Zone
Total Gross Floor Area: 930 sqm
Survey date: MONDAY *13/11/17* *Survey Type: MANUAL*

2 NR-07-V-01 LIBRARY NORTHAMPTONSHIRE
MARKET HILL
NEAR KETTERING
ROTHWELL
Town Centre
High Street
Total Gross Floor Area: 375 sqm
Survey date: THURSDAY *16/10/14* *Survey Type: MANUAL*

3 TV-07-V-01 LIBRARY TEES VALLEY
ACKLAM ROAD
MIDDLESBROUGH
ACKLAM
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross Floor Area: 500 sqm
Survey date: THURSDAY *03/10/13* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/V - LIBRARY
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00									
09:00 - 10:00	3	602	3.102	3	602	1.440	3	602	4.542
10:00 - 11:00	3	602	3.047	3	602	2.271	3	602	5.318
11:00 - 12:00	3	602	1.994	3	602	3.158	3	602	5.152
12:00 - 13:00	3	602	1.884	3	602	1.939	3	602	3.823
13:00 - 14:00	3	602	2.936	3	602	2.604	3	602	5.540
14:00 - 15:00	3	602	3.657	3	602	3.213	3	602	6.870
15:00 - 16:00	3	602	2.438	3	602	2.881	3	602	5.319
16:00 - 17:00	3	602	1.496	3	602	2.548	3	602	4.044
17:00 - 18:00	3	602	1.551	3	602	1.496	3	602	3.047
18:00 - 19:00	2	715	1.049	2	715	1.818	2	715	2.867
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			23.154			23.368			46.522

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	375 - 930 (units: sqm)
Survey date date range:	01/01/13 - 13/11/17
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211123-1136

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : S - EXHIBITION CENTRE
TOTAL VEHICLES

Selected regions and areas:

06	WEST MIDLANDS		
	HE	HEREFORDSHIRE	1 days
	SH	SHROPSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	TW	TYNE & WEAR	1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 250 to 29792 (units: sqm)
Range Selected by User: 250 to 29792 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 01/03/21

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Thursday	2 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	6 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	2
Edge of Town	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Residential Zone	2
Built-Up Zone	1
Out of Town	1
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

F1(e)	6 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	4 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	1 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	1 days
1.1 to 1.5	5 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	6 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	6 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 GM-07-S-01 CONFERENCE CENTRE GREATER MANCHESTER
HUDDERSFIELD ROAD
OLDHAM
SCOUTHEAD
Edge of Town
Out of Town
Total Gross floor area: 2100 sqm
Survey date: FRIDAY *24/05/13* *Survey Type: MANUAL*

2 HE-07-S-01 CONFERENCE CENTRE HEREFORDSHIRE
CONINGSBY STREET
HEREFORD

Edge of Town Centre
Built-Up Zone
Total Gross floor area: 932 sqm
Survey date: TUESDAY *22/10/13* *Survey Type: MANUAL*

3 NY-07-S-01 EXHIBITION CEN. NORTH YORKSHIRE
WETHERBY ROAD
HARROGATE

Edge of Town
Residential Zone
Total Gross floor area: 6044 sqm
Survey date: FRIDAY *13/10/06* *Survey Type: MANUAL*

4 SH-07-S-01 EXHIBITION CENTRE SHROPSHIRE
SAINT QUENTIN GATE
TELFORD

Edge of Town Centre
No Sub Category
Total Gross floor area: 30000 sqm
Survey date: THURSDAY *27/04/06* *Survey Type: MANUAL*

5 SH-07-S-02 CONFERENCE CENTRE SHROPSHIRE
WELLINGTON RD
TELFORD
DONNINGTON
Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 450 sqm
Survey date: THURSDAY *20/09/07* *Survey Type: MANUAL*

6 TW-07-S-01 CONFERENCE CEN. TYNE & WEAR
RED WALK
NEWCASTLE
JESMOND DENE
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 250 sqm
Survey date: FRIDAY *10/11/06* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 07 - LEISURE/S - EXHIBITION CENTRE

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	5	7486	0.264	5	7486	0.083	5	7486	0.347
08:00 - 09:00	6	6589	1.374	6	6589	0.172	6	6589	1.546
09:00 - 10:00	6	6589	1.030	6	6589	0.200	6	6589	1.230
10:00 - 11:00	6	6589	0.721	6	6589	0.220	6	6589	0.941
11:00 - 12:00	6	6589	0.772	6	6589	0.347	6	6589	1.119
12:00 - 13:00	6	6589	0.701	6	6589	0.443	6	6589	1.144
13:00 - 14:00	6	6589	0.453	6	6589	0.491	6	6589	0.944
14:00 - 15:00	6	6589	0.354	6	6589	0.708	6	6589	1.062
15:00 - 16:00	6	6589	0.367	6	6589	1.255	6	6589	1.622
16:00 - 17:00	6	6589	0.273	6	6589	1.561	6	6589	1.834
17:00 - 18:00	6	6589	0.311	6	6589	0.976	6	6589	1.287
18:00 - 19:00	5	7486	0.246	5	7486	0.363	5	7486	0.609
19:00 - 20:00	4	9296	0.255	4	9296	0.210	4	9296	0.465
20:00 - 21:00	3	12244	0.098	3	12244	0.196	3	12244	0.294
21:00 - 22:00	3	12244	0.057	3	12244	0.245	3	12244	0.302
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			7.276			7.470			14.746

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	250 - 29792 (units: sqm)
Survey date date range:	01/01/05 - 01/03/21
Number of weekdays (Monday-Friday):	6
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1234

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
04	EAST ANGLIA		
	SF	SUFFOLK	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
	WO	WORCESTERSHIRE	1 days
08	NORTH WEST		
	CH	CHESHIRE	1 days
	LC	LANCASHIRE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 250 to 875 (units: sqm)
Range Selected by User: 112 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 11/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:

Tuesday	1 days
Wednesday	1 days
Thursday	3 days
Friday	3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:

Town Centre	4
Edge of Town Centre	2
Suburban Area (PPS6 Out of Centre)	2

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:

Industrial Zone	2
Development Zone	1
Built-Up Zone	2
High Street	1
No Sub Category	2

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village,

Secondary Filtering selection:

Use Class:

Sui Generis	8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
5,001 to 10,000	1 days
10,001 to 15,000	1 days
15,001 to 20,000	1 days
20,001 to 25,000	1 days
25,001 to 50,000	3 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

25,001 to 50,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	5 days
1.1 to 1.5	2 days
1.6 to 2.0	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	8 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	8 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 BR-06-C-01 WETHERSPOON BRISTOL CITY
THE WATERFRONT
BRISTOL
HARBOURSIDE
Town Centre
Development Zone
Total Gross floor area: 327 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

2 CH-06-C-02 PUB/RESTAURANT CHESHIRE
OXFORD ROAD
MACCLESFIELD

Edge of Town Centre
No Sub Category
Total Gross floor area: 471 sqm
Survey date: FRIDAY *10/11/17* *Survey Type: MANUAL*

3 HC-06-C-04 PUB/RESTAURANT HAMPSHIRE
APOLLO RISE
FARNBOROUGH
COVE
Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 615 sqm
Survey date: TUESDAY *11/06/19* *Survey Type: MANUAL*

4 LC-06-C-01 FAYRE & SQUARE LANCASHIRE
MANCHESTER ROAD
BURNLEY

Edge of Town Centre
No Sub Category
Total Gross floor area: 830 sqm
Survey date: THURSDAY *29/09/16* *Survey Type: MANUAL*

5 LC-06-C-04 PUB/RESTAURANT LANCASHIRE
ST JAMES STREET
BURNLEY

Town Centre
Built-Up Zone
Total Gross floor area: 600 sqm
Survey date: THURSDAY *29/09/16* *Survey Type: MANUAL*

6 SF-06-C-02 PUB/RESTAURANT SUFFOLK
CLIFF ROAD
IPSWICH

Suburban Area (PPS6 Out of Centre)
Industrial Zone
Total Gross floor area: 875 sqm
Survey date: FRIDAY *18/09/15* *Survey Type: MANUAL*

7 WK-06-C-01 PUB/RESTAURANT WARWICKSHIRE
GREYFRIARS LANE
COVENTRY

Town Centre
Built-Up Zone
Total Gross floor area: 461 sqm
Survey date: THURSDAY *17/10/13* *Survey Type: MANUAL*

8 WO-06-C-03 PUB/RESTAURANT WORCESTERSHIRE
THE TYTHING
WORCESTER

Town Centre
High Street
Total Gross floor area: 250 sqm
Survey date: WEDNESDAY *23/11/16* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	600	0.000	1	600	0.000	1	600	0.000
08:00 - 09:00	1	600	0.000	1	600	0.000	1	600	0.000
09:00 - 10:00	1	600	0.000	1	600	0.000	1	600	0.000
10:00 - 11:00	8	554	0.429	8	554	0.271	8	554	0.700
11:00 - 12:00	8	554	0.903	8	554	0.474	8	554	1.377
12:00 - 13:00	8	554	3.026	8	554	1.106	8	554	4.132
13:00 - 14:00	8	554	2.393	8	554	1.919	8	554	4.312
14:00 - 15:00	8	554	1.287	8	554	1.174	8	554	2.461
15:00 - 16:00	8	554	1.377	8	554	1.287	8	554	2.664
16:00 - 17:00	8	554	1.197	8	554	1.152	8	554	2.349
17:00 - 18:00	8	554	1.558	8	554	0.835	8	554	2.393
18:00 - 19:00	8	554	2.664	8	554	2.958	8	554	5.622
19:00 - 20:00	8	554	2.619	8	554	3.184	8	554	5.803
20:00 - 21:00	8	554	2.235	8	554	2.845	8	554	5.080
21:00 - 22:00	8	554	1.174	8	554	1.580	8	554	2.754
22:00 - 23:00	8	554	0.768	8	554	1.964	8	554	2.732
23:00 - 24:00	8	554	0.655	8	554	1.648	8	554	2.303
Total Rates:			22.285			22.397			44.682

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	250 - 875 (units: sqm)
Survey date date range:	01/01/13 - 11/06/19
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211209-1223

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : S - EXHIBITION CENTRE
TOTAL VEHICLES

Selected regions and areas:
07 YORKSHIRE & NORTH LINCOLNSHIRE
NY NORTH YORKSHIRE 1 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 6044 to 6044 (units: sqm)
Range Selected by User: 250 to 29792 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/05 to 29/03/14

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Friday 1 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 1 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Edge of Town 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Residential Zone 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:
F1(e) 1 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:
10,001 to 15,000 1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:
75,001 to 100,000 1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:
1.1 to 1.5 1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:
No 1 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:
No PTAL Present 1 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 NY-07-S-01 EXHIBITION CEN. NORTH YORKSHIRE
WETHERBY ROAD
HARROGATE

Edge of Town
Residential Zone
Total Gross floor area: 6044 sqm
Survey date: FRIDAY *13/10/06* *Survey Type: MANUAL*

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DV-07-S-01	-
GM-07-S-01	-
HE-07-S-01	-
SH-07-S-01	-
SH-07-S-02	-
TW-07-S-01	-

TRIP RATE for Land Use 07 - LEISURE/S - EXHIBITION CENTRE

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	1	6044	0.298	1	6044	0.017	1	6044	0.315
08:00 - 09:00	1	6044	0.844	1	6044	0.165	1	6044	1.009
09:00 - 10:00	1	6044	1.026	1	6044	0.232	1	6044	1.258
10:00 - 11:00	1	6044	0.811	1	6044	0.480	1	6044	1.291
11:00 - 12:00	1	6044	2.283	1	6044	0.579	1	6044	2.862
12:00 - 13:00	1	6044	2.614	1	6044	0.778	1	6044	3.392
13:00 - 14:00	1	6044	1.042	1	6044	0.513	1	6044	1.555
14:00 - 15:00	1	6044	0.496	1	6044	1.009	1	6044	1.505
15:00 - 16:00	1	6044	0.579	1	6044	3.177	1	6044	3.756
16:00 - 17:00	1	6044	0.298	1	6044	1.870	1	6044	2.168
17:00 - 18:00	1	6044	0.281	1	6044	0.943	1	6044	1.224
18:00 - 19:00	1	6044	0.314	1	6044	0.563	1	6044	0.877
19:00 - 20:00	1	6044	0.017	1	6044	0.199	1	6044	0.216
20:00 - 21:00	1	6044	0.050	1	6044	0.314	1	6044	0.364
21:00 - 22:00	1	6044	0.000	1	6044	0.116	1	6044	0.116
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			10.953			10.955			21.908

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	6044 - 6044 (units: sqm)
Survey date date range:	01/01/05 - 29/03/14
Number of weekdays (Monday-Friday):	1
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	6

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

Calculation Reference: AUDIT-701005-211202-1228

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : C - PUB/RESTAURANT
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	HC	HAMPSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	WY	WEST YORKSHIRE	2 days

This section displays the number of survey days per TRICS® sub-region in the selected set

Primary Filtering selection:

This data displays the chosen trip rate parameter and its selected range. Only sites that fall within the parameter range are included in the trip rate calculation.

Parameter: Gross floor area
Actual Range: 340 to 800 (units: sqm)
Range Selected by User: 112 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/13 to 11/06/19

This data displays the range of survey dates selected. Only surveys that were conducted within this date range are included in the trip rate calculation.

Selected survey days:
Saturday 3 days

This data displays the number of selected surveys by day of the week.

Selected survey types:
Manual count 3 days
Directional ATC Count 0 days

This data displays the number of manual classified surveys and the number of unclassified ATC surveys, the total adding up to the overall number of surveys in the selected set. Manual surveys are undertaken using staff, whilst ATC surveys are undertaking using machines.

Selected Locations:
Edge of Town Centre 1
Suburban Area (PPS6 Out of Centre) 1
Edge of Town 1

This data displays the number of surveys per main location category within the selected set. The main location categories consist of Free Standing, Edge of Town, Suburban Area, Neighbourhood Centre, Edge of Town Centre, Town Centre and Not Known.

Selected Location Sub Categories:
Industrial Zone 1
Residential Zone 1
No Sub Category 1

This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Secondary Filtering selection:

Use Class:

Sui Generis	3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	1 days
10,001 to 15,000	1 days
25,001 to 50,000	1 days

This data displays the number of selected surveys within stated 1-mile radii of population.

Population within 5 miles:

125,001 to 250,000	1 days
250,001 to 500,000	1 days
500,001 or More	1 days

This data displays the number of selected surveys within stated 5-mile radii of population.

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	1 days

This data displays the number of selected surveys within stated ranges of average cars owned per residential dwelling, within a radius of 5-miles of selected survey sites.

Travel Plan:

No	3 days

This data displays the number of surveys within the selected set that were undertaken at sites with Travel Plans in place, and the number of surveys that were undertaken at sites without Travel Plans.

PTAL Rating:

No PTAL Present	3 days

This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1 HC-06-C-03 PUB/RESTAURANT HAMPSHIRE
LANGSTONE ROAD
HAVANT

Edge of Town Centre
Residential Zone
Total Gross floor area: 800 sqm
Survey date: SATURDAY 21/11/15 Survey Type: MANUAL

2 WY-06-C-03 HARVESTER WEST YORKSHIRE
CARDIGAN FIELDS
LEEDS

Suburban Area (PPS6 Out of Centre)
No Sub Category
Total Gross floor area: 340 sqm
Survey date: SATURDAY 21/09/13 Survey Type: MANUAL

3 WY-06-C-05 PUB/RESTAURANT WEST YORKSHIRE
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 694 sqm
Survey date: SATURDAY 20/05/17 Survey Type: MANUAL

This section provides a list of all survey sites and days in the selected set. For each individual survey site, it displays a unique site reference code and site address, the selected trip rate calculation parameter and its value, the day of the week and date of each survey, and whether the survey was a manual classified count or an ATC count.

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00									
08:00 - 09:00	1	340	0.882	1	340	0.000	1	340	0.882
09:00 - 10:00	2	570	1.579	2	570	0.614	2	570	2.193
10:00 - 11:00	3	611	2.345	3	611	1.581	3	611	3.926
11:00 - 12:00	3	611	2.890	3	611	1.636	3	611	4.526
12:00 - 13:00	3	611	5.234	3	611	2.290	3	611	7.524
13:00 - 14:00	3	611	3.435	3	611	4.744	3	611	8.179
14:00 - 15:00	3	611	3.162	3	611	4.471	3	611	7.633
15:00 - 16:00	3	611	2.999	3	611	3.435	3	611	6.434
16:00 - 17:00	3	611	4.526	3	611	3.162	3	611	7.688
17:00 - 18:00	3	611	4.198	3	611	3.217	3	611	7.415
18:00 - 19:00	3	611	3.599	3	611	3.653	3	611	7.252
19:00 - 20:00	3	611	2.399	3	611	3.217	3	611	5.616
20:00 - 21:00	3	611	0.927	3	611	2.508	3	611	3.435
21:00 - 22:00	3	611	0.709	3	611	2.017	3	611	2.726
22:00 - 23:00	3	611	0.327	3	611	1.963	3	611	2.290
23:00 - 24:00	2	570	0.175	2	570	0.614	2	570	0.789
Total Rates:			39.386			39.122			78.508

This section displays the trip rate results based on the selected set of surveys and the selected count type (shown just above the table). It is split by three main columns, representing arrivals trips, departures trips, and total trips (arrivals plus departures). Within each of these main columns are three sub-columns. These display the number of survey days where count data is included (per time period), the average value of the selected trip rate calculation parameter (per time period), and the trip rate result (per time period). Total trip rates (the sum of the column) are also displayed at the foot of the table.

*To obtain a trip rate, the average (mean) trip rate parameter value (TRP) is first calculated for all selected survey days that have count data available for the stated time period. The average (mean) number of arrivals, departures or totals (whichever applies) is also calculated (COUNT) for all selected survey days that have count data available for the stated time period. Then, the average count is divided by the average trip rate parameter value, and multiplied by the stated calculation factor (shown just above the table and abbreviated here as FACT). So, the method is: COUNT/TRP*FACT. Trip rates are then rounded to 3 decimal places.*

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Parameter summary

Trip rate parameter range selected:	340 - 800 (units: sqm)
Survey date date range:	01/01/13 - 11/06/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	3
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	0

This section displays a quick summary of some of the data filtering selections made by the TRICS® user. The trip rate calculation parameter range of all selected surveys is displayed first, followed by the range of minimum and maximum survey dates selected by the user. Then, the total number of selected weekdays and weekend days in the selected set of surveys are show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

CALCULATIONS

TRICS 7.8.3
Trip Rate Parameter: Gross floor area

TRIP RATE for Land Use 07 - LEISURE/I - ART GALLERIES/MUSEUMS/EXHIBITIONS
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 30% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00									
09:00-10:00	4	3584	0.056	4	3584	0.014	4	3584	0.07
10:00-11:00	5	2947	0.149	5	2947	0.034	5	2947	0.183
11:00-12:00	5	2947	0.197	5	2947	0.142	5	2947	0.339
12:00-13:00	5	2947	0.156	5	2947	0.156	5	2947	0.312
13:00-14:00	5	2947	0.176	5	2947	0.204	5	2947	0.38
14:00-15:00	5	2947	0.102	5	2947	0.142	5	2947	0.244
15:00-16:00	5	2947	0.149	5	2947	0.237	5	2947	0.386
16:00-17:00	5	2947	0.081	5	2947	0.142	5	2947	0.223
17:00-18:00	3	4536	0.044	3	4536	0.037	3	4536	0.081
18:00-19:00									
19:00-20:00									
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			1.11			1.108			2.218

	TRICS Trip Rate (per 100sqm)		Museum-Wk Trip Rates for 6800 sqm		Trip Rates discounting Linked Trips			
			6800 Sqm		Trips	70%		0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Total	Cumulative
00:00-01:00	0.000	0.000	0	0	0	0	0	0
01:00-02:00	0.000	0.000	0	0	0	0	0	0
02:00-03:00	0.000	0.000	0	0	0	0	0	0
03:00-04:00	0.000	0.000	0	0	0	0	0	0
04:00-05:00	0.000	0.000	0	0	0	0	0	0
05:00-06:00	0.000	0.000	0	0	0	0	0	0
06:00-07:00	0.000	0.000	0	0	0	0	0	0
07:00-08:00	0.000	0.000	0	0	0	0	0	0
08:00-09:00	0.000	0.000	0	0	0	0	0	0
09:00-10:00	0.056	0.014	4	1	3	1	3	2
10:00-11:00	0.149	0.034	10	2	7	2	9	7
11:00-12:00	0.197	0.142	13	10	9	7	16	10
12:00-13:00	0.156	0.156	11	11	7	7	15	10
13:00-14:00	0.176	0.204	12	14	8	10	18	9
14:00-15:00	0.102	0.142	7	10	5	7	12	7
15:00-16:00	0.149	0.237	10	16	7	11	18	3
16:00-17:00	0.081	0.142	6	10	4	7	11	0
17:00-18:00	0.044	0.037	3	3	2	2	4	0
18:00-19:00	0.000	0.000	0	0	0	0	0	0
19:00-20:00	0.000	0.000	0	0	0	0	0	0
20:00-21:00	0.000	0.000	0	0	0	0	0	0
21:00-22:00	0.000	0.000	0	0	0	0	0	0
22:00-23:00	0.000	0.000	0	0	0	0	0	0
23:00-24:00	0.000	0.000	0	0	0	0	0	0
	1.110	1.108	**75**	**75**	**53**	**53**	106	

TRICS 7.8.3
Trip Rate Param Gross Floor Area

TRIP RATE for Land Use 07 - LEISURE/V - LIBRARY
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - 86.5% trip on existing network, 13.5% new trips, No linked trip

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:00									
09:00-10:00	3	602	3.102	3	602	1.44	3	602	4.542
10:00-11:00	3	602	3.047	3	602	2.271	3	602	5.318
11:00-12:00	3	602	1.994	3	602	3.158	3	602	5.152
12:00-13:00	3	602	1.884	3	602	1.939	3	602	3.823
13:00-14:00	3	602	2.936	3	602	2.604	3	602	5.54
14:00-15:00	3	602	3.657	3	602	3.213	3	602	6.87
15:00-16:00	3	602	2.438	3	602	2.881	3	602	5.319
16:00-17:00	3	602	1.496	3	602	2.548	3	602	4.044
17:00-18:00	3	602	1.551	3	602	1.496	3	602	3.047
18:00-19:00	2	715	1.049	2	715	1.818	2	715	2.867
19:00-20:00									
20:00-21:00									
21:00-22:00									
22:00-23:00									
23:00-24:00									
Daily Trip Rates:			23.154			23.368			46.522

	TRICS Trip Rate (per 100sqm)		Library-Wk 5000 Sqm		Trip Rates discounting Linked Trips Trips 13.5%			
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Cumulative	
00:00-01:0	0.000	0.000	0	0	0	0	0	
01:00-02:0	0.000	0.000	0	0	0	0	0	
02:00-03:0	0.000	0.000	0	0	0	0	0	
03:00-04:0	0.000	0.000	0	0	0	0	0	
04:00-05:0	0.000	0.000	0	0	0	0	0	
05:00-06:0	0.000	0.000	0	0	0	0	0	
06:00-07:0	0.000	0.000	0	0	0	0	0	
07:00-08:0	0.000	0.000	0	0	0	0	0	
08:00-09:0	0.000	0.000	0	0	0	0	1	Assuming 1 vehicle entred the
09:00-10:0	3.102	1.440	155	72	21	10	12	car park at 08:00hrs to reflect the
10:00-11:0	3.047	2.271	152	114	21	15	17	negative numbers
11:00-12:0	1.994	3.158	100	158	13	21	10	
12:00-13:0	1.884	1.939	94	97	13	13	9	
13:00-14:0	2.936	2.604	147	130	20	18	11	
14:00-15:0	3.657	3.213	183	161	25	22	14	
15:00-16:0	2.438	2.881	122	144	16	19	11	
16:00-17:0	1.496	2.548	75	127	10	17	4	
17:00-18:0	1.551	1.496	78	75	10	10	5	
18:00-19:0	1.049	1.818	52	91	7	12	0	
19:00-20:0	0.000	0.000	0	0	0	0	0	
20:00-21:0	0.000	0.000	0	0	0	0	0	
21:00-22:0	0.000	0.000	0	0	0	0	0	
22:00-23:0	0.000	0.000	0	0	0	0	0	
23:00-24:0	0.000	0.000	0	0	0	0	0	
	23.154	23.368	**1158**	**1168**	**156**	**158**		

TRIPS for Conference / Business Event (data from client)

Gross floor area	6825			
Capacity	300	visitors	Car Trips	204
Mode Share by car	85%			
No of visitios/car	1.25			

Count Type: TOTAL VEHICLES

	Total Trips	204	Music Venue - Evenings		
	Music Venue		Total New Trips		
Time Range	Arrival	Departure	Arrival	Departure	Cumulative
00:00-01:00			0	0	0
01:00-02:00			0	0	0
02:00-03:00			0	0	0
03:00-04:00			0	0	0
04:00-05:00			0	0	0
05:00-06:00			0	0	0
06:00-07:00			0	0	0
07:00-08:00			0	0	0
08:00-09:00	153		153	0	153
09:00-10:00	51		51	0	204
10:00-11:00			0	0	204
11:00-12:00			0	0	204
12:00-13:00			0	0	204
13:00-14:00			0	0	204
14:00-15:00			0	0	204
15:00-16:00			0	0	204
16:00-17:00		51	0	51	153
17:00-18:00		153	0	153	0
18:00-19:00			0	0	0
19:00-20:00			0	0	0
20:00-21:00			0	0	0
21:00-22:00			0	0	0
22:00-23:00			0	0	0
23:00-24:00			0	0	0
Total			**204**	**204**	

TRIPS for Exhibition / Consumer Show (data from client)

Gross floor area	6825			
Capacity	1250	visitors	Car Trips	708
Mode Share by car	85%			
No of visitios/car	1.5			

Count Type: TOTAL VEHICLES

TRICS Trip Rate (per 100sqm)

	Total Trips	708.3333	Music Venue - Evenings		
	Music Venue		Total New Trips		
Time Range	Arrival	Departure	Arrival	Departure	Cumulative
00:00-01:00			0	0	0
01:00-02:00			0	0	0
02:00-03:00			0	0	0
03:00-04:00			0	0	0
04:00-05:00			0	0	0
05:00-06:00			0	0	0
06:00-07:00			0	0	0
07:00-08:00	71		71	0	71
08:00-09:00	71		71	0	142
09:00-10:00	142		142	0	283
10:00-11:00	142		142	0	425
11:00-12:00	71		71	0	496
12:00-13:00	71	71	71	71	496
13:00-14:00	71	71	71	71	496
14:00-15:00	71	71	71	71	496
15:00-16:00		71	0	71	425
16:00-17:00		142	0	142	283
17:00-18:00		142	0	142	142
18:00-19:00		142	0	142	0
19:00-20:00			0	0	0
20:00-21:00			0	0	0
21:00-22:00			0	0	0
22:00-23:00			0	0	0
23:00-24:00			0	0	0
Total			**708**	**708**	

TRIP RATE for Music Venue (data from client)

Gross floor area	6825			
Capacity	2250	visitors	Car Trips	500
No of emplouess				
Mode Share by car				
No of visitios/car				

Count Type: TOTAL VEHICLES

TRICS Trip Rate (per 100sqm)

	Total Trips	500	Music Venue - Evenings		
	Music Venue		Total New Trips		
Time Range	Arrival	Departure	Arrival	Departure	Cumulative
00:00-01:00			0	0	0
01:00-02:00			0	0	0
02:00-03:00			0	0	0
03:00-04:00			0	0	0
04:00-05:00			0	0	0
05:00-06:00			0	0	0
06:00-07:00			0	0	0
07:00-08:00			0	0	0
08:00-09:00			0	0	0
09:00-10:00			0	0	0
10:00-11:00			0	0	0
11:00-12:00			0	0	0
12:00-13:00			0	0	0
13:00-14:00			0	0	0
14:00-15:00			0	0	0
15:00-16:00			0	0	0
16:00-17:00			0	0	0
17:00-18:00			0	0	0
18:00-19:00	300		300	0	300
19:00-20:00	200		200	0	500
20:00-21:00			0	0	500
21:00-22:00			0	0	500
22:00-23:00		400	0	400	100
23:00-24:00		100	0	100	0
Total			**500**	**500**	

TRICS 7.8.3
Trip Rate P Gross floor area

TRIP RATE : FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 75% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:0	1	600	0	1	600	0	1	600	0
08:00-09:0	1	600	0	1	600	0	1	600	0
09:00-10:0	1	600	0	1	600	0	1	600	0
10:00-11:0	8	554	0.429	8	554	0.271	8	554	0.7
11:00-12:0	8	554	0.903	8	554	0.474	8	554	1.377
12:00-13:0	8	554	3.026	8	554	1.106	8	554	4.132
13:00-14:0	8	554	2.393	8	554	1.919	8	554	4.312
14:00-15:0	8	554	1.287	8	554	1.174	8	554	2.461
15:00-16:0	8	554	1.377	8	554	1.287	8	554	2.664
16:00-17:0	8	554	1.197	8	554	1.152	8	554	2.349
17:00-18:0	8	554	1.558	8	554	0.835	8	554	2.393
18:00-19:0	8	554	2.664	8	554	2.958	8	554	5.622
19:00-20:0	8	554	2.619	8	554	3.184	8	554	5.803
20:00-21:0	8	554	2.235	8	554	2.845	8	554	5.08
21:00-22:0	8	554	1.174	8	554	1.58	8	554	2.754
22:00-23:0	8	554	0.768	8	554	1.964	8	554	2.732
23:00-24:0	8	554	0.655	8	554	1.648	8	554	2.303
Daily Trip Rates:			22.285			22.397			44.682

	TRICS Trip Rate (per 100sqm)		FoodHall - WK		Trip Rates discounting Linked Trips		
			2000 Sqm		Trips	25%	0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Cumulative
00:00-01:0	0.000	0.000	0	0	0	0	0
01:00-02:0	0.000	0.000	0	0	0	0	0
02:00-03:0	0.000	0.000	0	0	0	0	0
03:00-04:0	0.000	0.000	0	0	0	0	0
04:00-05:0	0.000	0.000	0	0	0	0	0
05:00-06:0	0.000	0.000	0	0	0	0	0
06:00-07:0	0.000	0.000	0	0	0	0	0
07:00-08:0	0.000	0.000	0	0	0	0	0
08:00-09:0	0.000	0.000	0	0	0	0	0
09:00-10:0	0.000	0.000	0	0	0	0	1
10:00-11:0	0.429	0.271	9	5	2	1	2
11:00-12:0	0.903	0.474	18	9	5	2	4
12:00-13:0	3.026	1.106	61	22	15	6	14
13:00-14:0	2.393	1.919	48	38	12	10	16
14:00-15:0	1.287	1.174	26	23	6	6	16
15:00-16:0	1.377	1.287	28	26	7	6	17
16:00-17:0	1.197	1.152	24	23	6	6	17
17:00-18:0	1.558	0.835	31	17	8	4	21
18:00-19:0	2.664	2.958	53	59	13	15	19
19:00-20:0	2.619	3.184	52	64	13	16	16
20:00-21:0	2.235	2.845	45	57	11	14	13
21:00-22:0	1.174	1.580	23	32	6	8	11
22:00-23:0	0.768	1.964	15	39	4	10	5
23:00-24:0	0.655	1.648	13	33	3	8	0
	22.285	22.397	**446**	**448**	**111**	**112**	

TRICS 7.8.3
Trip Rate P Gross floor area

TRIP RATE : FOOD & DRINK/C - PUB/RESTAURANT
Calculation Factor: 100 sqm
Count Type: TOTAL VEHICLES

Assumption - Removed 75% for linked trips

	ARRIVALS			DEPARTURES			TOTALS		
	No.	Ave.	Trip	No.	Ave.	Trip	No.	Ave.	Trip
Time Range	Days	GFA	Rate	Days	GFA	Rate	Days	GFA	Rate
00:00-01:00									
01:00-02:00									
02:00-03:00									
03:00-04:00									
04:00-05:00									
05:00-06:00									
06:00-07:00									
07:00-08:00									
08:00-09:0	1	340	0.882	1	340	0	1	340	0.882
09:00-10:0	2	570	1.579	2	570	0.614	2	570	2.193
10:00-11:0	3	611	2.345	3	611	1.581	3	611	3.926
11:00-12:0	3	611	2.89	3	611	1.636	3	611	4.526
12:00-13:0	3	611	5.234	3	611	2.29	3	611	7.524
13:00-14:0	3	611	3.435	3	611	4.744	3	611	8.179
14:00-15:0	3	611	3.162	3	611	4.471	3	611	7.633
15:00-16:0	3	611	2.999	3	611	3.435	3	611	6.434
16:00-17:0	3	611	4.526	3	611	3.162	3	611	7.688
17:00-18:0	3	611	4.198	3	611	3.217	3	611	7.415
18:00-19:0	3	611	3.599	3	611	3.653	3	611	7.252
19:00-20:0	3	611	2.399	3	611	3.217	3	611	5.616
20:00-21:0	3	611	0.927	3	611	2.508	3	611	3.435
21:00-22:0	3	611	0.709	3	611	2.017	3	611	2.726
22:00-23:0	3	611	0.327	3	611	1.963	3	611	2.29
23:00-24:0	2	570	0.175	2	570	0.614	2	570	0.789
Daily Trip Rates:			39.386			39.122			78.508

	TRICS Trip Rate (per 100sqm)		FoodHall - Sat 2000 Sqm		Total Trips discounting linked Trips 25%		0
	Arrival	Departure	Arrival	Departure	Arrival	Departure	Cumulative
00:00-01:0	0.000	0.000	0	0	0	0	0
01:00-02:0	0.000	0.000	0	0	0	0	0
02:00-03:0	0.000	0.000	0	0	0	0	0
03:00-04:0	0.000	0.000	0	0	0	0	0
04:00-05:0	0.000	0.000	0	0	0	0	0
05:00-06:0	0.000	0.000	0	0	0	0	0
06:00-07:0	0.000	0.000	0	0	0	0	0
07:00-08:0	0.000	0.000	0	0	0	0	0
08:00-09:0	0.882	0.000	18	0	4	0	4
09:00-10:0	1.579	0.614	32	12	8	3	9
10:00-11:0	2.345	1.581	47	32	12	8	13
11:00-12:0	2.890	1.636	58	33	14	8	19
12:00-13:0	5.234	2.290	105	46	26	11	34
13:00-14:0	3.435	4.744	69	95	17	24	28
14:00-15:0	3.162	4.471	63	89	16	22	21
15:00-16:0	2.999	3.435	60	69	15	17	19
16:00-17:0	4.526	3.162	91	63	23	16	26
17:00-18:0	4.198	3.217	84	64	21	16	31
18:00-19:0	3.599	3.653	72	73	18	18	30
19:00-20:0	2.399	3.217	48	64	12	16	26
20:00-21:0	0.927	2.508	19	50	5	13	18
21:00-22:0	0.709	2.017	14	40	4	10	12
22:00-23:0	0.327	1.963	7	39	2	10	4
23:00-24:0	0.175	0.614	4	12	1	3	1
	39.386	39.122	**788**	**782**	**197**	**196**	

Vehicle Trip Generation - Weekday

Vehicle Trips from TRICS (Monday to Friday)

Hour Start	1 - Museum&ArtGallery		3 - Library		4 - FoodHall		5 - Venue		Hour Start	Total	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep
00:00-01:00	0	0	0	0	0	0	0	0	00:00-01:00	0	0
01:00-02:00	0	0	0	0	0	0	0	0	01:00-02:00	0	0
02:00-03:00	0	0	0	0	0	0	0	0	02:00-03:00	0	0
03:00-04:00	0	0	0	0	0	0	0	0	03:00-04:00	0	0
04:00-05:00	0	0	0	0	0	0	0	0	04:00-05:00	0	0
05:00-06:00	0	0	0	0	0	0	0	0	05:00-06:00	0	0
06:00-07:00	0	0	0	0	0	0	0	0	06:00-07:00	0	0
07:00-08:00	0	0	0	0	0	0	0	0	07:00-08:00	0	0
08:00-09:00	0	0	0	0	0	0	153	0	08:00-09:00	153	0
09:00-10:00	3	1	21	10	0	0	51	0	09:00-10:00	75	10
10:00-11:00	7	2	21	15	2	1	0	0	10:00-11:00	30	18
11:00-12:00	9	7	13	21	5	2	0	0	11:00-12:00	27	30
12:00-13:00	7	7	13	13	15	6	0	0	12:00-13:00	35	26
13:00-14:00	8	10	20	18	12	10	0	0	13:00-14:00	40	37
14:00-15:00	5	7	25	22	6	6	0	0	14:00-15:00	36	34
15:00-16:00	7	11	16	19	7	6	0	0	15:00-16:00	30	37
16:00-17:00	4	7	10	17	6	6	0	51	16:00-17:00	20	81
17:00-18:00	2	2	10	10	8	4	0	153	17:00-18:00	20	169
18:00-19:00	0	0	7	12	13	15	0	0	18:00-19:00	20	27
19:00-20:00	0	0	0	0	13	16	0	0	19:00-20:00	13	16
20:00-21:00	0	0	0	0	11	14	0	0	20:00-21:00	11	14
21:00-22:00	0	0	0	0	6	8	0	0	21:00-22:00	6	8
22:00-23:00	0	0	0	0	4	10	0	0	22:00-23:00	4	10
23:00-24:00	0	0	0	0	3	8	0	0	23:00-24:00	3	8

Car Parking Accumulation for development - Weekday (11:00 - 15:00)Day Time - Exhibition/Conference

Hour Start	Museum&.	Library	FoodHall	Venue	Car Park Accumulation
00:00-01:00	0	0	0	0	0
01:00-02:00	0	0	0	0	0
02:00-03:00	0	0	0	0	0
03:00-04:00	0	0	0	0	0
04:00-05:00	0	0	0	0	0
05:00-06:00	0	0	0	0	0
06:00-07:00	0	0	0	0	0
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	153	154
09:00-10:00	2	12	1	204	219
10:00-11:00	7	17	2	204	231
11:00-12:00	10	10	4	204	228
12:00-13:00	10	9	14	204	237
13:00-14:00	9	11	16	204	240
14:00-15:00	7	14	16	204	242
15:00-16:00	3	11	17	204	235
16:00-17:00	0	4	17	153	174
17:00-18:00	0	0	19	0	19
18:00-19:00	0	0	16	0	16
19:00-20:00	0	0	13	0	13
20:00-21:00	0	0	11	0	11
21:00-22:00	0	0	5	0	5
22:00-23:00	0	0	0	0	0
23:00-24:00	0	0	0	0	0

Vehicle Trip Generation - Evening (after 18:00)

Hour Start	1 - Museum&ArtGallery		3 - Library		4 - FoodHall		5 - Venue		Hour Start	Total	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep
00:00-01:00	0	0	0	0	0	0	0	0	00:00-01:00	0	0
01:00-02:00	0	0	0	0	0	0	0	0	01:00-02:00	0	0
02:00-03:00	0	0	0	0	0	0	0	0	02:00-03:00	0	0
03:00-04:00	0	0	0	0	0	0	0	0	03:00-04:00	0	0
04:00-05:00	0	0	0	0	0	0	0	0	04:00-05:00	0	0
05:00-06:00	0	0	0	0	0	0	0	0	05:00-06:00	0	0
06:00-07:00	0	0	0	0	0	0	0	0	06:00-07:00	0	0
07:00-08:00	0	0	0	0	0	0	0	0	07:00-08:00	0	0
08:00-09:00	0	0	0	0	0	0	0	0	08:00-09:00	0	0
09:00-10:00	3	1	21	10	0	0	0	0	09:00-10:00	24	10
10:00-11:00	7	2	21	15	2	1	0	0	10:00-11:00	30	18
11:00-12:00	9	7	13	21	5	2	0	0	11:00-12:00	27	30
12:00-13:00	7	7	13	13	15	6	0	0	12:00-13:00	35	26
13:00-14:00	8	10	20	18	12	10	0	0	13:00-14:00	40	37
14:00-15:00	5	7	25	22	6	6	0	0	14:00-15:00	36	34
15:00-16:00	7	11	16	19	7	6	0	0	15:00-16:00	30	37
16:00-17:00	4	7	10	17	6	6	0	0	16:00-17:00	20	30
17:00-18:00	2	2	10	10	8	4	0	0	17:00-18:00	20	16
18:00-19:00	0	0	7	12	13	15	300	0	18:00-19:00	320	27
19:00-20:00	0	0	0	0	13	16	200	0	19:00-20:00	213	16
20:00-21:00	0	0	0	0	11	14	0	0	20:00-21:00	11	14
21:00-22:00	0	0	0	0	6	8	0	0	21:00-22:00	6	8
22:00-23:00	0	0	0	0	4	10	0	400	22:00-23:00	4	410
23:00-24:00	0	0	0	0	3	8	0	100	23:00-24:00	3	108

Car Parking Accumulation for development - Evening (after 18:00)/ Peak capacity event

Hour Start	Museum&.	Library	FoodHall	Venue	Car Park Accumulation
00:00-01:00	0	0	0	0	0
01:00-02:00	0	0	0	0	0
02:00-03:00	0	0	0	0	0
03:00-04:00	0	0	0	0	0
04:00-05:00	0	0	0	0	0
05:00-06:00	0	0	0	0	0
06:00-07:00	0	0	0	0	0
07:00-08:00	0	0	0	0	0
08:00-09:00	0	1	0	0	1
09:00-10:00	2	12	1	0	15
10:00-11:00	7	17	2	0	27
11:00-12:00	10	10	4	0	24
12:00-13:00	10	9	14	0	33
13:00-14:00	9	11	16	0	36
14:00-15:00	7	14	16	0	38
15:00-16:00	3	11	17	0	31
16:00-17:00	0	4	17	0	21
17:00-18:00	0	0	19	0	19
18:00-19:00	0	0	16	300	316
19:00-20:00	0	0	13	500	513
20:00-21:00	0	0	11	500	511
21:00-22:00	0	0	5	500	505
22:00-23:00	0	0	0	100	100
23:00-24:00	0	0	0	0	0

Vehicle Trip Generation - Weekend (Sat)

Hour Start	1 - Museum&ArtGallery		3 - Library		4 - FoodHall		5 - Venue		Hour Start	Total	
	Arr	Dep	Arr	Dep	Arr	Dep	Arr	Dep		Arr	Dep
00:00-01:00	0	0	0	0	0	0	0	0	00:00-01:00	0	0
01:00-02:00	0	0	0	0	0	0	0	0	01:00-02:00	0	0
02:00-03:00	0	0	0	0	0	0	0	0	02:00-03:00	0	0
03:00-04:00	0	0	0	0	0	0	0	0	03:00-04:00	0	0
04:00-05:00	0	0	0	0	0	0	0	0	04:00-05:00	0	0
05:00-06:00	0	0	0	0	0	0	0	0	05:00-06:00	0	0
06:00-07:00	0	0	0	0	0	0	0	0	06:00-07:00	0	0
07:00-08:00	0	0	0	0	0	0	71	0	07:00-08:00	71	0
08:00-09:00	0	0	0	0	4	0	71	0	08:00-09:00	75	0
09:00-10:00	3	1	21	10	8	3	142	0	09:00-10:00	173	13
10:00-11:00	7	2	21	15	12	8	142	0	10:00-11:00	181	25
11:00-12:00	9	7	13	21	14	8	71	0	11:00-12:00	108	36
12:00-13:00	7	7	13	13	26	11	71	71	12:00-13:00	117	103
13:00-14:00	8	10	20	18	17	24	71	71	13:00-14:00	116	122
14:00-15:00	5	7	25	22	16	22	71	71	14:00-15:00	116	122
15:00-16:00	7	11	16	19	15	17	0	71	15:00-16:00	39	119
16:00-17:00	4	7	10	17	23	16	0	142	16:00-17:00	37	181
17:00-18:00	2	2	10	10	21	16	0	142	17:00-18:00	34	170
18:00-19:00	0	0	7	12	18	18	0	142	18:00-19:00	25	172
19:00-20:00	0	0	0	0	12	16	0	0	19:00-20:00	12	16
20:00-21:00	0	0	0	0	5	13	0	0	20:00-21:00	5	13
21:00-22:00	0	0	0	0	4	10	0	0	21:00-22:00	4	10
22:00-23:00	0	0	0	0	2	10	0	0	22:00-23:00	2	10
23:00-24:00	0	0	0	0	1	3	0	0	23:00-24:00	1	3

Car Parking Accumulation for development - Weekend (Sat)

Hour Start	Museum&	Library	FoodHall	Venue	Car Park Accumulation
00:00-01:00	0	0	0	0	0
01:00-02:00	0	0	0	0	0
02:00-03:00	0	0	0	0	0
03:00-04:00	0	0	0	0	0
04:00-05:00	0	0	0	0	0
05:00-06:00	0	0	0	0	0
06:00-07:00	0	0	0	0	0
07:00-08:00	0	0	0	71	71
08:00-09:00	0	1	4	142	147
09:00-10:00	2	12	9	283	307
10:00-11:00	7	17	13	425	463
11:00-12:00	10	10	19	496	535
12:00-13:00	10	9	34	496	549
13:00-14:00	9	11	28	496	544
14:00-15:00	7	14	21	496	538
15:00-16:00	3	11	19	425	458
16:00-17:00	0	4	26	283	313
17:00-18:00	0	5	31	142	177
18:00-19:00	0	0	30	0	30
19:00-20:00	0	0	26	0	26
20:00-21:00	0	0	18	0	18
21:00-22:00	0	0	12	0	11
22:00-23:00	0	0	4	0	3
23:00-24:00	0	0	1	0	1

Appendix B

Linked Trip Research

Non-Primary Trips Research

Definitions

It is important to distinguish between the various definitions of 'non-primary' trips i.e. the proportion of trips generated by the development which are not new or are made entirely within the site. The non-primary trip definitions are as follows:

- **Linked trips.** Trips that will have multiple destinations either within the proposed development site, between both the development site and existing adjacent sites, or between the development site and an established town centre.
- **Pass-by trips.** Trips already present on the road network directly adjacent to accesses to a development, which will turn into the site.
- **Diverted trips** are already present on the local road network but not the road(s) from which access is taken and would divert from their existing route to access the development.

Review of Discounting Methods

TRICS Research Reports

A review of the TRICS research reports has found the following for retail and leisure uses:

- **TRICS 05/1 'Trip Attraction Rates of Developments with Multiple Retail and Leisure Uses' Report.** This study found multi-use sites with 4 or more retail and leisure elements reduce on average the total number of **external trips** by about **20%** through trip linking.

  It should be noted however, that the sites included in this study did not contain any residential uses and were all located out-of-town. It is likely that this percentage will be higher for city centre-based developments which have a greater mix of uses.

- **TRICS 14/1 'Pass-by and Diverted Trips' Report.** Although the 14/1 TRICS report concludes that no real correlations were found, some of the findings for retail uses presented in the commercial research are useful. This revealed a higher prevalence of pass-by and diverted trips in town centres. A customer survey carried out for Somerfield, found **46%** of trips were linked to other shops in the town centre. Similarly, research commissioned by Tesco reported an average proportion of linked trips between the store and town centre within the range of **34% to 66%**. A pass-by level of **40%** was accepted to be a robust estimate during the weekday PM peak period.

  Given that these pieces of research have presented a correlation between the proximity of a store to the town centre, and the propensity for customers to visit other shops within the town centre, the TRICS report states that *'this should be recognised in the determination of the prediction of linked trips*'.

Review of Transport Assessments and Masterplans

A review of the discounting methods used in Transport Assessments and Masterplans has also been undertaken. The findings of this review are summarised below in Table 7. Some base their assumptions on the findings of the TRICS research reports, whilst others have either utilised survey data or made a professional judgement based on the characteristics of the development and its surroundings (usually keeping within the non-primary trip ranges reported in research).

Table 7: Review of Transport Assessments and Masterplans

Transport Assessment / Masterplan	Location Type	Land Uses / Development Proposal	Non-Primary Trip Reductions	Justification / Comments
Tonbridge Town Centre Master Plan (2007)	Town Centre	• A1 Non-Food Retail • B1 Offices • A2 Financial Services • A3 Food Retail • B2 Industrial • B8 Storage / Distribution	• Retail – 35% • Community – 30% • Restaurant – 30% • Leisure – 30%	Makes reference to the MacIver (1999) report which advises the following retail pass-by ranges: • 25-35% for superstores on major commuting routes in large urban areas; • 15-25% for other less significant commuting routes in out-of-town locations in urban areas with smaller populations; • 10% for town centres and on non-primary routes. B2260 / A26 commuter route runs through town centre.
Horrocks Quarter Mixed-Use Redevelopment Transport Assessment (2008)	Edge of Town Centre	• A1 Non-Food Retail • A3 Food Retail Store • C1 Hotel	• Linked trips – 15% (food and non-food) • Pass-by – 20% (food only) • Diverted – 30% (food only)	• **Linked:** Given proximity to retail core, is inevitable a proportion of people shopping at the site would also utilise the existing facilities in the city centre. 30% proposed but 15% agreed – considered to be extremely robust. • **Pass-by**: 30% assumed originally but lowered to 20% on the basis that Queen Street is a 'non-primary link'. • **Diverted**: Local traffic data indicated the diversion from A6 to the development could be 30%. This level of diversion is within acceptable range suggested by TRICS research.
Eastgate Quarters Transport	Town Centre	• A1/A2/A3/A4 Retail, B1 Office, D2 Gym, D1	• Retail – 21%	The research undertaken by Richard Parker in 1985 found that an increase in retail floor area leads to an overall

Assessment (2011)		Medical Centre, Creche/Nursery, Multi-faith Prayer room.		increase in the number of trips, but the derived trip rate reduced. A review of the Parker study and changes to the retail floor area in Leeds gave a corresponding reduction in trip rate of 21%.
Pasteur Retail Park Transport Assessment (2014)	Edge of Town Centre	• A1 Non-Food Retail • A3 Food Retail • A4 Drinking establishments • A5 Drive thru	• Retail – 30%	Based on the 95/2 TRICS research, a reduction of 30% will be applied to the cumulative retail trips (food and non-food) that would be non-primary.
South Shields Town Centre Masterplan (2015)	Town Centre	• A1 Non-Food Retail • A3 Food Retail; Restaurants • B1 Office • D2 Cinema	• Linked trips – 20% reduction in total retail and leisure trips	Makes reference to the 05/1 TRICS report. Assumption is made based on prevalence of development with high mix of uses, and MRUK survey which found majority of people do not travel to town centre to undertake one activity and go home.
Addlestone One – Travel Plan (2016)	Town Centre	• 104 residential units; • D2 Cinema operated by The Light Cinema; • C1 101 bed Hotel by Premier Inn; • A3/A4 (A Food Store operated by Waitrose); 6 Food & Beverage units; • A1 (11 Retail units).	• Linked trips (internal) – 30% applied to all retail and 40% to cinema trip generation • Linked trips (external) – 35% applied to all retail trip generation • Pass-by and Diverted trips – 30% applied to all retail and food trip generation	• **Linked:** Retail study found 44% of residents combine food and non-food trips; No cinema facility in Addlestone currently so likely a high proportion will have transferred from Woking and Staines; Location in core town centre. • **Pass-by and Diverted**: Studies conclude range of 6-26% - higher end of range reflects sites in accessible locations on commuter routes. Development is fronted by primary route, Station Rd, which joins commuter route A318.
Handforth Mixed-Use Retail Development Transport Assessment (2016)	Edge of Town Centre	• A1 Non-food Retail (planning permission granted) • A3 Restaurant (proposed) • A5 Drive thru (proposed)	Drive Thru PM & SAT peak - • Pass-by: 10% • Linked: 20% • Diverted: 30% • Transferred:20%	Makes reference to the 05/1 TRICS report. The proposed Handforth mixed-use retail development are within an acceptable walking distance of the Handforth Dean and Stanley Green Retail Parks. It is anticipated that many of the customers of the proposed restaurants will be customers of the adjacent Retail Park/ proposed retail park.

			Restaurant PM & SAT peak - • Pass-by: 20% • Linked: 15% • Diverted: 0% • Transferred: 0%	
Rochdale Riverside Development Transport Assessment (2016)	Town Centre	• A1 Retail, A3/A4 Restaurants/Cafes, D2 Cinema, D1 Leisure, Hotel, Residential, A1/A2/A3 Retail, B1 Office, D1 Nursery, Creche, doctors.	• 30% reduction in the total trip forecast	Many visitors will visit +1 components of the development; hence it is inappropriate to aggregate trip forecasts for each land use type. The 30% reduction is considered an understatement of the likely 'cross-visitation' numbers.
Canada Water Masterplan (2018)	Town Centre	• A1 Retail, A3 Foodstore, B1 Office, Hotel, Student Accommodation, Assisted Living, Residential, D1 Community Use, D2 Leisure Use.	• Linked trips – 20% reduction in total non-food retail trips	Makes reference to the 05/1 TRICS report. Non-food retail is reduced by a factor of 20% to take account of the fact trip generation for the proposed foodstore has been calculated separately.
Otterpool Park Transport Assessment (2019)	Proposed 'Garden Town' in the Kent countryside.	• A1 Retail • B1/B2 Work • C3 Home • D1 Health Centre	• Linked trips – 5% reduction in total number of commuting trips	The National Travel Survey (NTS) data suggests that 5% of all trips where the main trip purpose is Commuting / Business includes a linked Shopping trip.

Proposed Trip Reductions

As recommended in the 14/1 TRICS report, a site-by-site approach should be taken to justify the proportion of non-primary trips that are to be attributed to the proposed development. The proposed reductions are outlined in the following sub-sections. Justification has been made in line with evidence presented in the research undertaken by TRICS (see Section 4.2.1) and in the review of Transport Assessments and Masterplans (see Section 4.2.2). This relates to the following attributes:

- **Characteristics of the development proposal**: mix of uses and facilities; and,
- **Location of the development**: proximity to other town centre uses, and transport links.

The 14/1 TRICS report highlights that peak pass-by trips will occur at different times for different infrastructure types. This will also apply to other non-primary trip types. The proposed reductions are presented separately for each of the peak periods, in Tables 8-10.

AM Peak (08:00-09:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked to other uses (both on site and in the town centre) in the AM peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas);
- the development includes a large mix of uses on site; and,
- due to peak hour congestion, it is likely that customers will already be present on the network (as customers are much less likely to travel solely for leisure and retail purposes at these times).

Table 8: AM Peak Existing (Non-Primary) and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the retail trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	-	All trips will be external to the site as a worst-case assessment.
C1 Hotel	-	All trips will be external to the site as a worst-case assessment.

Residential	-	All trips will be external to the site as a worst-case assessment.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

PM Peak (17:00-18:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked to other uses (both on site and in the town centre) in the PM peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas);
- the development includes a large mix of uses on site; and,
- due to peak hour congestion, it is likely that customers will already be present on the network (as customers are much less likely to travel solely for leisure and retail purposes at these times).

Table 9: PM Peak Existing and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the retail trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	**Linked trips: 10% reduction** Considering the large mix of uses on site, it is anticipated that a proportion of trips generated by the office developments, will be linked with nearby retail and leisure uses. It is proposed that a 10% reduction is made to the total departure trips in the PM peak. This is supported by NTS data which identifies 5% of commuter trips being linked to shopping purposes, and 5% of commuter trips being linked to leisure and social purposes. These are technically new trips but are just assumed to be made after the PM peak hour. These	Based on the assumptions made for non-primary trip generation, new trips will represent 90% of the total office trip generation.

	trips have been moved to the subsequent hour. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	
C1 Hotel	-	All trips will be external to the site as a worst-case assessment.
Residential	**Linked trips: 10% reduction** Considering the large mix of uses on site, it is anticipated that a proportion of trips generated by the residential developments, will be linked with retail and leisure uses. It is proposed that a 10% reduction is made to the total arrival trips in the PM peak. This is supported by NTS data which identifies 5% of commuter trips being linked to shopping purposes, and 5% of commuter trips being linked to leisure and social purposes. These are technically new trips but are just assumed to be made after the PM peak hour. These trips have been moved to the subsequent hour. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 90% of the total residential trip generation.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and the large mix of uses on site, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is proposed that a 30% reduction is made to the total external trips. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become blocked as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

Saturday Peak (12:00-13:00) Trip Reductions

It has been assumed that a proportion of the trips generated by the development will be linked (both on site and in the city centre) in the Saturday peak hour. This assumption is considered to be reasonable considering that:

- the development is centrally located (it is within the core business area and is near the core retail areas); and,
- the development includes retail and leisure uses which are complementary to other city centre uses (and so will lead to extended shopping and leisure trips rather than new trips).

Table 10: Saturday Peak Existing and New Trip Generation Assumptions by Land Use

Land Use	Existing (Non-Primary) Trips	New Trips
A1/A3 Retail	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and mix of retail/leisure uses which are complementary to nearby city centre uses, it is anticipated that a proportion of the retail trips generated by the development will linked. It is likely that this proportion is significant on a Saturday, however it is proposed that 30% is assumed to provide a robust assessment. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become restricted as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total retail trip generation.
B1 Office	For the majority of office uses, it is assumed that the development will not generate any Office trips on a Saturday. At Block D there will be some occupation on a Saturday – 20% weekday trip generation is assumed. No linked trip reduction.	
C1 Hotel	Hotel trip generation on a Saturday is assumed to be same as weekdays. No linked trip reduction.	All trips will be external to the site as a worst-case assessment.
Residential	-	All trips will be external to the site as a worst-case assessment.
Leisure	**Linked trips: 30% reduction** Considering the development's central location (within the core business area, and near core retail areas), and mix of retail/leisure uses which are complementary to nearby city centre uses, it is anticipated that a proportion of the leisure trips generated by the development will be linked. It is likely that this proportion is significant on a Saturday, however it is proposed that 30% is assumed to provide a robust assessment. **Pass-by and Diverted trips: 0% reduction** The roads serving the site function more as access roads rather than through-routes. It is also possible that Rockingham Street in the vicinity, could become blocked as a through-route – this is a key component of the transport proposals which will be tested in the modelling work in Stage 2.	Based on the assumptions made for non-primary trip generation, new trips will represent 70% of the total leisure trip generation.

Appendix C

Car Parking Assessment

Car Park Information

Car Parks	Operator	Operating Ho	Number of	Short Stay/	Existing Ca	Distance from	Quality/Observation	Charges
Wilko Opp Market Hall	Private	24 Hrs	-	Long	100	100-200	lighting, tarmac surfacing, marked bays, CCTV, poor ped routes within car park, ped access, close	£1 per hour, £1.50 for 2 hours, £3 for 3 hours, £15 all day
Kingsgate	Private	24 Hrs	-	Long	650	320	Good Lighting, Good surfacing, Good Marking, Ped walking routes	£0.50p for 30 mins, £2 for 2hours, £3 for 3 hours, £10 for 6 hours, £1.50 per visit on sundays
Civic Centre Car Park I	Council	24 Hrs	3	Short	124	250	lighting, tarmac surfacing, marked bays, poor ped routes within car park, close, reasonable walking route to site	80p per hour, £1.00 for 4 hours maximum stay on Sundays
Civic Centre Car Park III	Council	24 Hrs	8	Short	8	300	Good Lighting, Good surfacing, Good Marking, Adacent road, reasonable route to site but far for disabled	No Charges (90 mins no return within 2 hours)
Albion Street Rooftop Car Park	Council	24 Hrs	-	Long	41	300	Good Lighting, Good surfacing, Good Marking, reasonable ped route to site through town centre	80p per hour, £1.00 for 4 hours maximum stay on Sundays
Springwood Car Park	Council	24 Hrs	0	Long	380	450	Good Lighting, Good surfacing, Good Marking, CCTV, well lit and signed walking route to town centre. Uses underpass which is not idea	£2.50 for 5hours, £4 all day, £1.00 per visit after 16.30, Charges after 12 noon - £1.00 for 4 hours on Sundays
Milford Street	Council	24 Hrs	1	Long	25	480	Small, No lighting, poor markings, remote industrial location	£2.50 for 5 hrs, £4.00 all day, £1.00 per visit on Sundays
Chapel Hill Private Car park	Private	24 Hrs	-	Long	54	520	College Car Park - private	
Oldgate Car Park	Council	24 Hrs	2	Short	10	500	Good Lighting, Good sufacing, mainroad access, 2 EV charging point	80p per hour, £1.00 for 4 hours maximum stay on Sundays
Huddersfield Bus Station (Levels 1, 2 and 3)	Council	24 Hrs	11	short	225	400	Good Lighting, Good surfacing, Good Marking, security, well lit, traffcked walking route throuth towns with crossings	80p per hour, £2.00 for 3 hours,£1.00 per visit after 6pm, Charges after 12 noon - £1.00 for 4 hours on Sundays
Huddersfield Bus Station (Levels 4, 5 and 6)	Council	24 Hrs	11	Long	225	400	Good Lighting, Good surfacing, Good Marking, security, well lit, traffcked walking route throuth towns with crossings	£2.50 for 5hours, £4 all day, £1.00 per visit after 6pm, Charges after 12 noon - £1.00 for 4 hours on Sundays
Huddersfield Leisure Centre	Council	24 Hrs	10	Short	110	550	Good Lighting, Good surfacing, Good Marking, well lit and signed route to town, through underpass and along main roads, ped crossing	70p per hour, £1.00 for 4 hours maximum stay on Sundays
Huddersfield station car park & Forecourt (APCOA	Council	24 Hrs	3	Short	42	650	Good Lighting, Good surfacing, Good Marking, security, well lit, busy trafficked walking route through town with crossings	80p per hour, £1.00 for 4 hours maximum stay on Sundays
HTAFC Gasworks Car Park	York House	24 Hrs	0	Long	NA	1020	No Lighting, Poor marking, Good surface, Remote location	£1 per day. £30 Monthly
Brook Street Car Park	Council	24 Hrs	1	Short	31	750	Partial availability of acr park during market days, limited Lighting, Good markings, far from site	70p per hour, £1.00 for 4 hours maximum stay on Sundays
Leisure complex	Private	Until 6pm	-	Long	80	800	Leisure complex parking only after 6pm, Good Lighting, Good marking, Good pedestrian access	£2 for 2hours, £3 for 3 hours, £5 all day
Kingsbridge	Council	24 Hrs	-	Long	30	650	Lighting, Surface marking faded, poor surfacing, Remote location (Not secure)	£2.50 for 5 hrs, £4.00 all day, £1.00 per visit on Sundays
NCP Car Park Huddersfield/ Colne Rd	NCP Car Pa	24 Hrs	-	Long	200	650	No Lighting, Gravel surface, Poor pedestrain access, Industrial area (Not secure)	£4 - all day
St George's Warehouse	St George	Mon - Sat 06	-	Long	238	850	No lighting, unmade poor surfacing, no marking, warden Patrol, ANPR Cameras	£3 -2hrs, £4 - 12 Hrs, £5 - all day
Bath Street Car Park	Council	24 Hrs	3	Long	54	850	Lighting, surfacing, main road access, 2 EV charging point, remote from site - 12-15min walk, lit, busy trafficked route with crossings	70p per hour, £1.00 for 4 hours maximum stay on Sundays
New North Road	Private	24 Hrs	-	Long	180	900	No lighting, Security managed, poor marking, remote from site, across the ring road	80p per hour, £1 - 4 hours
Brunswick Street Car Park	Council	24 Hrs	0	Long	26	800	No Lighting, Good marking, Poor Pedestrain access	£2.50 for 5 hrs, £4.00 all day, £1.00 per visit on Sundays
New North Parade Car Park	Private	24 Hrs	0	Short	19	650	lighting, Good pedestrain access, Good surfacing, Good marking	80p per hour, £1.00 for 4 hours maximum stay on Sundays
Cambridge Road Car Park	Council		0	Long	206	930	Good Lighting, Good surfacing, CCTV, Good Ped access, remote from site - 15-20min walk across ring road, lit, busy trafficked route wit	50p for 1 hr, £1.00 for 2 hrs, £1.50 for 3 hrs, £2.50 for 5 hrs, £3.00 all day, £1.00 per visit on Sundays
Aspley Car Park	Aspley A1 p	24 Hrs	-	Long	100	850	Poor Lighting, Poor marking and surfacing, Remote industrial location	£2 all day

Note -

1. Council car parks charges between 8AM- 6PM. The car parks are accessible 24hrs, leaving free parking facility after 6pm
2. Estimated car park for Leisure complex, Wilko and Aspley as not included in Systra report

Private Car Parks	Included in	Notes
Tesco Viaduct Street	No	Tesco
Sainsbury's Market Street	No	Sainsbury
Sainsbury's Shorehead	No	Sainsbury
Lidl Castlegate	No	Lidl

Future Car Park Strategy

Car Parks	Existing Car Park Spaces	Future Car Park Spaces	Future Car Park Removed	Comments on future car park strategy
Wilko Opp Market Hall	100	100	0	0
Kingsgate	650	650	0	0
Civic Centre Car Park I	124	124	0	Reassigning as long stay (181)
Civic Centre Car Park III	8	8	0	0
Albion Street Rooftop Car Park	41	41	0	0
Springwood Car Park	380	380	0	0
Milford Street	25	25	0	0
Chapel Hill Private Car park	54	0	54	Remove to allocated in the proposed Waterfront development
Oldgate Car Park	10	5	6	Removed partially to provide mobility Hubs
Huddersfield Bus Station (Levels 1, 2 and 3)	225	225	0	0
Huddersfield Bus Station (Levels 4, 5 and 6)	225	225	0	0
Huddersfield Leisure Centre	110	110	0	0
Huddersfield station car park & Forecourt (APCOA	42	42	0	0
HTAFC Gasworks Car Park	NA	NA	0	0
Brook Street Car Park	31	0	31	Remove to accomadate open market refrurbishment in the Blueprint
Leisure complex	80	80	0	0
Kingsbridge	30	30	0	0
NCP Car Park Huddersfield/ Colne Rd	200	30	170	Remove to accomadate planning permission for apartments and student housing
St George's Warehouse	238	0	238	Removed due to planning permission for office development and +381 redeveloped for station
Bath Street Car Park	54	24	30	Removed partially to provide mobility Hubs
New North Road	180	0	180	Removed for planning permission for mixed use development
Brunswick Street Car Park	26	26	0	0
New North Parade Car Park	19	9	10	Removed partially to provide mobility Hubs
Cambridge Road Car Park	206	0	206	Removed for local plan allocation for redevelopment
Aspley Car Park	100	NA	0	0
Total	**3158**	**2133**	**925**	

Weekday Occupancy - Huddersfield Car Park Study

Car Park	Spaces	SYSTRA			Arup Survey Data - Thursday	
		Time of Peak Occupancy	Peak Occupancy %	Peak Occupancy	Time	Occupancy
Wilko Opp Market Hall	100	NA	NA	NA	13:45	94
Kingsgate	650	13:00-14:00	55%	358	12:00 17:00	434 169
Civic Centre Car Park I	124	11:00 - 12:00	92%	114	13:50 17:50	104 58
Civic Centre Car Park III (Disabled Car Park ONLY)	8	11:00 - 12:00	63%	5	14:00	0
Albion Street Rooftop Car Park	41	11:00 - 14:00	96%	39	13:50 17:50	41 23
Springwood Car Park	380	11:00 - 12:00	98%	372	11:05 14:05 17:25	379 367 168
Milford Street	25	13:00 - 14:00	79%	20	11:40	24
Chapel Hill Private Car park		11:00 - 12:00	69%	0	NA	NA
Oldgate Car Park	10	12:00 - 13:00	83%	8	16:30	4
Huddersfield Bus Station (Levels 1, 2 and 3)	225	11:00 - 12:00	68%	153	11:18 14:14 17:40	111 98 38
Huddersfield Bus Station (Levels 4, 5 and 6)	225	11:00 - 12:00	99%	223	11:20 14:16 17:42	180 157 45
Huddersfield Leisure Centre	110	10:00 - 11:00	78%	86	11:00 14:15 17:30	77 32 68
Huddersfield station car park & Forecourt (APCOA)	42	11:00 - 12:00	99%	42	10:20 18:00	37 4
HTAFC Gasworks Car Park	NA	NA	NA	NA	NA	NA
Brook Street Car Park	31	12:00 - 13:00	94%	29	10:20	13
Leisure complex	80	NA	NA	NA	11:45	30
Kingsbridge	30	13:00 - 14:00	67%	20	12:04	30
NCP Car Park Huddersfield/ Colne Rd	200	11:00 - 13:00	67%	134	12:00	198
St George's Warehouse	150	11:00 - 12:00	86%	129	09:50 14:50	19 21
Bath Street Car Park	54	13:00-14:00	67%	36	10:00 14:45	16 21
New North Road	180	NA	NA	NA	10:30 17:10	70 31
Brunswick Street Car Park	26	10:00 - 11:00	100%	26	10:50	17
New North Parade Car Park	19	13:00 - 16:00	89%	17	10:53	16
Cambridge Road Car Park	220	12:00 - 13:00	31%	68	10:10 14:40 15:00	42 45 29
Aspley Car Park		NA	NA	NA	NA	NA

Note -
1. All council car parks charges between 8AM- 6PM. The car parks are accessible 24hrs, leaving free parking facility between 6pm to 8am the next day
2. Estimated car park for Leisure complex and Wilko
3. Highlighted carparks are removed due to either redevelopment/mobiloty hubs

Huddersfield off-street car parks – weekday

Table 7-4 Weekday occupancy and length of stay – Huddersfield off-street car parks

CAR PARK	PEAK OCCUPANCY	TIME OF PEAK OCCUPANCY	MINIMUM OCCUPANCY	AVERAGE LENGTH OF STAY (HRS:MINS)
Albion Street rooftop	96%	11:00 - 14:00	42%	05:07
Bath Street	67%	13:00 - 14:00	9%	03:07
Brook Street	94%	12:00 - 13:00	7%	01:54
Brunswick Street	100%	10:00 - 11:00	4%	06:39
Cambridge Road	31%	12:00 - 13:00	1%	04:22
Chapel Hill	69%	11:00 - 12:00	11%	04:29
Civic Centre I	92%	11:00 - 12:00	19%	02:47
Civic Centre III	63%	11:00 - 12:00	0%	02:30
Colne Road	67%	11:00 - 13:00	5%	06:42
Huddersfield Bus Station (1-3)	68%	11:00 - 12:00	11%	03:42
Huddersfield Bus Station (4-6)	99%	11:00 - 12:00	7%	07:06
Huddersfield Leisure Centre	78%	10:00 - 11:00	21%	02:14
Huddersfield station car park (APCOA)	99%	11:00 - 12:00	82%	08:57
Kingsbridge	67%	13:00 - 14:00	25%	05:01
Kingsgate, King Street	55%	13:00 - 14:00	1%	01:59
Lord Street	103%	12:00 - 15:00	13%	06:36
Market Hall multi-storey (1-6)	66%	11:00 - 12:00	2%	01:54
Market Hall multi-storey (7-8)	40%	12:00 - 13:00	3%	05:48
Milford Street	79%	13:00 - 14:00	0%	04:54
New North Parade	89%	13:00 - 16:00	5%	02:12
Oldgate	83%	12:00 - 13:00	5%	01:58
Sainsbury's, Market Street	74%	11:00 - 12:00	5%	02:05
Sainsbury's, Shorehead	56%	10:00 - 11:00	13%	01:27
Springwood	98%	11:00 - 12:00	18%	08:50
St George's Warehouse	86%	11:00 - 12:00	31%	07:39
Tesco, Viaduct Street	87%	14:00 - 15:00	10%	01:30
Wilko, Alfred Street	83%	12:00 - 13:00	2%	01:13
TOTAL	**70%**	**12:00 - 13:00**	**12%**	**02:56**

Sat Occupancy - Huddersfield Car Park Study

Car Park	Spaces	SYSTRA		
		Time of Peak Occupancy	Peak Occupancy %	Peak Occupancy
Wilko Opp Market Hall	100	NA	NA	0
Kingsgate	650	07:00- 08:00	77%	501
Civic Centre Car Park I	124	11:00 - 12:00	78%	97
Civic Centre Car Park III	8	11:00 - 12:00	25%	2
Albion Street Rooftop Car Park	41	14:00- 15:00	71%	29
Springwood Car Park	380	14:00-15:00	62%	236
Milford Street	25	11:00-12:00	7%	2
Chapel Hill Private Car park	54	NA	0%	0
Oldgate Car Park	10	10:00-12:00	75%	8
Huddersfield Bus Station (Levels 1, 2 and 3)	225	14:00-15:00	44%	99
Huddersfield Bus Station (Levels 4, 5 and 6)	225	11:00- 13:00	27%	61
Huddersfiedl Leisure Centre	110	11:00-12:00	87%	96
Huddersfield station car park & Forecourt (APCOA)	42	15:00- 16:00	79%	33
HTAFC Gasworks Car Park	NA	NA	NA	0
Brook Street Car Park	31	13:00 - 14:00	97%	30
Leisure complex	80	NA	NA	0
Kingsbridge	30	07:00- 08:00	21%	6
NCP Car Park Huddersfield/ Colne Rd	200	12:00-15:00	6%	12
St George's Warehouse	150	13:00- 14:00	29%	44
Bath Street Car Park	54	13:00-14:00	52%	28
New North Road	180	NA	NA	
Brunswick Street Car Park	26	10:00-11:00	46%	12
New North Parade Car Park	19	09:00-10:00	100%	19
Cambridge Road Car Park	220	13:00-14:00	10%	22
Aspley Car Park	NA	NA	NA	
Total				

Note -
1. All council car parks charges between 8AM- 6PM. The car parks are accessible 24hrs, leaving free parking facility between 6pm to 8am the next day.
2. Estimated car park for Leisure complex and Wilko
3. Highlighted carparks are removed due to either redevelopment/mobiloty hubs

Huddersfield off-street car parks – Saturday

Table 7-5 Saturday occupancy and length of stay – Huddersfield off-street car parks

CAR PARK	PEAK OCCUPANCY	TIME OF PEAK OCCUPANCY	MINIMUM OCCUPANCY	AVERAGE LENGTH OF STAY (HRS:MINS)
Albion Street rooftop	71%	14:00 - 15:00	4%	02:10
Bath Street	52%	13:00 - 14:00	9%	02:07
Brook Street	97%	13:00 - 14:00	3%	01:33
Brunswick Street	46%	10:00 - 11:00	4%	03:42
Cambridge Road	10%	13:00 - 14:00	1%	03:44
Chapel Hill	0%	–	0%	00:00
Civic Centre I	78%	11:00 - 12:00	9%	02:06
Civic Centre III	25%	10:00 - 11:00	0%	01:12
Colne Road	6%	12:00 - 15:00	0%	03:00
Huddersfield Bus Station (1-3)	44%	14:00 - 15:00	0%	03:12
Huddersfield Bus Station (4-6)	27%	11:00 – 13:00	0%	06:30
Huddersfield Leisure Centre	87%	11:00 - 12:00	4%	02:48
Huddersfield station car park (APCOA)	79%	15:00 - 16:00	38%	06:38
Kingsbridge	21%	07:00 - 08:00	8%	03:27
Kingsgate, King Street	77%	12:00 - 13:00	0%	01:52
Lord Street	100%	13:00 - 14:00	24%	04:51
Market Hall multi-storey (1-6)	80%	11:00 - 12:00	0%	01:54
Market Hall multi-storey (7-8)	40%	12:00 - 13:00	0%	05:46
Milford Street	7%	11:00 - 12:00	0%	02:19
New North Parade	100%	09:00 - 10:00	16%	01:53
Oldgate	75%	10:00 - 12:00	17%	02:08
Sainsbury's, Market Street	73%	10:00 - 11:00	0%	02:01
Sainsbury's, Shorehead	62%	11:00 - 12:00	11%	01:22
Springwood	62%	14:00 - 15:00	7%	03:49
St George's Warehouse	29%	13:00 - 14:00	0%	06:30
Tesco, Viaduct Street	92%	13:00 - 14:00	0%	01:25
Wilko, Alfred Street	59%	14:00 - 15:00	1%	01:06
TOTAL	**57%**	**13:00 - 14:00**	**0%**	**02:03**

Summary

Car Parks	Future Spaces	Weekday				Saturday	
		11:00 - 15:00		after 18:00		10:00 - 16:00	
		Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces	Peak Occupancy	No of available spaces
Wilko Opp Market Hall	100	94	6	30	70	94	6
Kingsgate	650	358	293		0	501	150
Civic Centre Car Park I	124	114	10	58	66	97	27
Albion Street Rooftop Car Park	41	39	2	23	18	29	12
Springwood Car Park	380	372	8	114	266	236	144
Oldgate Car Park**	*5*	8	-3	2	4	8	-3
Huddersfield Bus Station (Levels 1, 2 and 3)	225	153	72	68	158	99	126
Huddersfield Bus Station (Levels 4, 5 and 6)	225	223	2	68	158	61	164
Huddersfield Leisure Centre	110	86	24	33	77	96	14
Leisure complex	80	30	50		0	30	50
NCP/ Colne Rd*	0	198	-198	40	-40	12	-12
St George's Warehouse*	0	21	-21	30	-30	44	-44
Bath Street Car Park**	*24*	36	-12	7	17	28	-4
New North Road*	0	70	-70	31	-31	70	-70
Brunswick Street Car Park	26	26	0	8	18	12	14
New North Parade Car Park**	*9*	17	-8	3	6	19	-10
Cambridge Road Car Park*	0	45	-45	29	-29	22	-22
Total	**1999**	**1890**	**109**	**513**	**756**	**1434**	**565**

Notes

1. Weekday peak occupancy (11:00 -15:00) - SYSTRA data used, Wilko and Leisure complex Peak occupancy from Arup Survey data as no data available in SYSTRA repor
2. Evening occupancy (after 18:00) - Civic Centre and Albion occupancy after 18:00 was obtained from Arup survey data, rest was calculated for 30% occupancy from SYSTRA repor
3. Wilko Sat Occupancy - assumed same as weekday peak occupancy
4. **Oldgate, Bath Street and New North Parade car park capacities reduced - 'negative' cars will relocate to other car park
5. *Car parks that will be closed in the future year - cars relocate to other car parks - 'negative' cars will relocate to other car park
6. Kingsgate and Lesiure complex car parks are not accessible to public after 18:00hrs

Appendix H : ATC comparison for Strike and Non Strike day

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Site Number: Site 1

Dates of Survey: 21.06.2022-27.06.2022
Site Name: A62 Queensgate
Survey Type: Multi-day Link Count

Arm A: ueen Street S (S)
Arm B: ueen Street (N)

	PCU Summary													
	A to B (Northbound)							B to A (Southbound)						
Time	**21.06.2022**	**22.06.2022**	**23.06.2022**	**24.06.2022**	**25.06.2022**	**26.06.2022**	**27.06.2022**	**21.06.2022**	**22.06.2022**	**23.06.2022**	**24.06.2022**	**25.06.2022**	**26.06.2022**	**27.06.2022**
00:00	17	21	18	31	63	85	26	33	34	31	42	60	165	47
00:15	16	16	29	27	57	83	28	28	32	23	22	47	149	36
00:30	9	20	23	22	42	93	18	17	24	17	28	61	101	23
00:45	26	12	21	20	57	68	16	6	26	28	18	37	61	22
01:00	14	6	18	11	42	73	10	15	14	17	19	41	43	18
01:15	13	12	13	13	33	73	13	15	14	19	11	39	52	10
01:30	9	6	15	9	47	70	11	7	4	14	13	40	45	20
01:45	13	15	20	9	42	56	11	10	9	10	16	25	65	15
02:00	5	13	12	11	41	61	8	10	14	15	13	32	51	10
02:15	3	17	9	15	28	52	8	13	10	14	10	24	28	7
02:30	15	6	7	11	36	71	9	9	9	10	10	21	30	7
02:45	3	6	5	6	27	46	8	8	6	12	16	34	40	6
03:00	2	8	4	8	23	33	5	9	12	17	13	33	35	6
03:15	3	9	9	5	15	47	5	17	2	14	4	21	25	9
03:30	9	8	7	2	22	31	6	6	11	6	10	20	23	11
03:45	22	10	14	18	22	31	11	19	16	14	17	22	27	16
04:00	2	15	11	5	19	36	14	8	16	12	18	15	26	11
04:15	7	12	11	5	16	24	7	15	14	11	9	20	20	9
04:30	13	17	10	8	14	22	15	14	17	14	14	13	15	23
04:45	15	17	18	14	13	18	13	16	16	20	15	19	15	25
05:00	8	9	16	20	16	20	21	32	24	31	30	16	17	29
05:15	28	23	19	24	10	14	19	41	34	35	30	19	18	33
05:30	40	30	36	32	26	8	34	66	63	68	48	27	16	52
05:45	45	60	50	41	38	18	57	76	52	66	57	32	21	77
06:00	51	47	49	42	36	18	55	61	77	64	68	38	21	65
06:15	87	85	77	71	31	5	72	103	125	123	103	47	24	111
06:30	81	97	82	82	33	26	94	137	154	129	150	54	39	149
06:45	134	121	119	114	52	27	111	176	170	164	164	67	42	167
07:00	156	156	169	151	43	26	149	191	175	203	173	80	27	162
07:15	188	164	183	146	56	30	176	277	266	257	241	76	42	258
07:30	201	171	194	171	70	37	175	269	267	294	303	88	58	270
07:45	199	184	204	195	93	36	182	315	343	316	294	125	73	308
08:00	225	218	208	213	103	38	220	349	311	348	313	141	71	288
08:15	233	208	215	190	150	43	219	330	325	296	323	203	75	352
08:30	244	212	234	216	166	43	189	327	308	356	294	227	90	306
08:45	228	233	239	213	176	87	210	296	316	340	295	217	115	291
09:00	226	231	222	223	196	61	225	309	280	330	293	203	97	266
09:15	220	238	179	236	200	84	217	321	296	300	286	251	108	328
09:30	227	234	215	224	212	101	231	267	271	275	228	252	130	243
09:45	187	197	233	256	250	147	228	279	253	279	255	260	155	288
10:00	212	199	215	214	235	166	228	269	266	250	232	254	172	257
10:15	226	217	224	230	266	184	234	235	252	243	266	263	208	247
10:30	226	218	237	267	287	210	211	245	246	276	255	266	229	250
10:45	238	222	221	266	237	218	240	260	244	244	275	259	235	260
11:00	244	211	220	255	267	193	211	287	243	266	262	287	256	248
11:15	216	205	260	271	258	237	235	255	248	283	273	295	276	259
11:30	239	231	252	233	284	237	254	283	254	288	270	295	255	287
11:45	246	224	232	258	259	250	245	289	287	259	279	300	266	276
12:00	252	223	245	247	270	239	235	247	273	269	236	308	287	232
12:15	233	240	238	274	279	256	232	284	282	255	264	286	270	259
12:30	225	218	244	276	262	251	232	276	265	305	270	316	285	264
12:45	281	209	231	232	305	228	221	293	282	307	317	347	257	260
13:00	203	182	231	255	230	237	239	293	192	301	299	322	259	248
13:15	205	154	232	272	285	240	251	262	200	283	297	295	254	282
13:30	242	209	235	293	263	216	233	296	281	243	271	332	257	264
13:45	208	224	231	260	244	240	209	261	291	282	312	320	273	255
14:00	222	232	241	263	278	219	257	245	252	262	286	296	268	250
14:15	217	198	227	254	289	226	230	281	280	287	329	328	273	278
14:30	233	246	234	271	266	209	216	260	305	266	283	331	285	258
14:45	226	236	250	272	258	187	271	285	319	307	303	285	297	314
15:00	208	214	223	266	278	194	220	278	273	278	313	303	282	251
15:15	239	259	226	236	264	227	219	265	273	290	297	270	282	279
15:30	258	231	236	259	242	156	233	317	263	296	336	254	264	286
15:45	239	255	264	260	244	157	238	296	282	303	308	265	291	287
16:00	292	271	280	275	259	153	295	281	290	311	290	270	311	291
16:15	268	246	287	275	239	167	243	282	302	319	323	237	203	296
16:30	278	284	268	277	277	137	187	298	285	307	303	269	217	205
16:45	246	235	251	282	228	128	0	304	299	331	306	268	192	0
17:00	312	282	291	282	228	118	0	324	359	316	317	280	211	0
17:15	279	261	271	258	214	125	0	329	319	321	307	254	177	0
17:30	219	234	226	213	202	115	0	314	310	326	296	283	172	0
17:45	201	216	218	188	175	95	0	320	303	333	323	246	173	0
18:00	208	189	201	213	168	118	0	302	270	270	292	273	181	0
18:15	166	178	195	217	177	103	0	230	271	269	295	219	175	0
18:30	171	192	189	163	141	92	0	266	253	245	264	243	174	0
18:45	190	190	184	191	127	109	0	252	251	249	286	193	134	0
19:00	157	174	176	199	146	84	0	252	239	248	280	219	159	0
19:15	129	153	153	177	111	81	0	218	210	210	225	201	133	0
19:30	140	160	143	143	131	121	0	174	185	192	185	183	158	0
19:45	111	118	134	134	141	102	0	170	171	193	185	172	121	0
20:00	129	116	138	120	121	90	0	151	170	208	217	148	134	0
20:15	141	117	114	116	116	75	0	162	136	171	154	163	93	0
20:30	107	110	104	120	92	63	0	127	135	158	183	119	120	0
20:45	123	105	106	126	103	64	0	143	109	134	136	118	102	0
21:00	77	101	76	106	121	75	0	126	140	115	134	154	88	0
21:15	95	81	90	81	110	57	0	114	145	119	150	167	77	0
21:30	71	90	80	80	93	39	0	109	116	102	101	111	87	0
21:45	75	65	74	86	109	53	0	112	95	93	99	150	65	0
22:00	78	74	75	121	113	59	0	104	104	97	148	118	75	0
22:15	70	87	67	165	100	50	0	102	116	121	116	120	77	0
22:30	38	75	57	81	103	42	0	59	97	88	98	107	73	0
22:45	42	45	45	81	109	50	0	63	88	57	111	114	54	0
23:00	34	50	38	81	119	41	0	70	59	67	121	187	42	0
23:15	33	50	46	75	148	21	0	55	54	51	77	198	46	0
23:30	30	29	26	51	118	23	0	35	39	44	63	224	45	0
23:45	31	36	33	64	111	32	0	35	35	28	69	185	36	0

	PCU Summary													
	A to B (Northbound)							B to A (Southbound)						
Time	21.06.2022	22.06.2022	23.06.2022	24.06.2022	25.06.2022	26.06.2022	27.06.2022	21.06.2022	22.06.2022	23.06.2022	24.06.2022	25.06.2022	26.06.2022	27.06.2022
Start Time	Rolling Hour													
00:00	68	69	91	100	220	330	88	84	116	99	110	205	477	128
00:15	65	54	91	80	199	318	72	66	96	85	87	186	355	99
00:30	62	50	75	66	175	308	57	53	78	81	76	178	258	73
00:45	62	36	67	53	179	284	50	43	58	78	61	157	202	70
01:00	49	39	66	42	164	272	45	47	41	60	59	145	206	63
01:15	40	46	60	42	162	260	42	42	41	59	54	136	214	55
01:30	30	51	56	44	157	239	37	40	37	54	53	122	189	52
01:45	36	51	48	46	147	240	35	42	42	50	50	103	174	39
02:00	26	42	33	43	132	230	32	39	39	52	50	112	149	30
02:15	23	37	25	40	114	202	30	38	37	54	50	113	133	26
02:30	23	29	25	30	101	197	27	42	29	54	44	110	130	29
02:45	17	31	25	21	87	157	24	39	30	50	44	109	123	33
03:00	36	35	34	33	83	142	27	51	40	52	45	96	110	43
03:15	36	42	41	30	79	144	36	50	44	47	49	78	101	47
03:30	40	45	43	30	80	121	38	48	56	43	54	77	96	47
03:45	44	54	46	37	72	113	46	56	62	51	58	70	88	59
04:00	37	61	50	33	63	100	48	53	62	57	56	67	76	67
04:15	43	55	54	48	59	84	56	77	70	76	68	69	67	86
04:30	64	66	62	66	53	74	68	103	90	100	89	68	65	109
04:45	90	79	88	90	65	59	87	155	136	154	123	81	66	139
05:00	120	121	121	116	90	59	131	214	173	199	166	94	72	191
05:15	163	160	154	138	109	57	165	243	226	233	203	116	76	226
05:30	223	222	212	186	130	48	217	305	317	321	276	144	82	304
05:45	264	289	259	236	137	67	277	376	409	383	378	171	105	401
06:00	353	351	328	309	150	76	331	476	526	481	485	206	126	491
06:15	458	459	447	419	158	84	425	606	624	620	590	248	132	588
06:30	559	539	553	494	183	109	530	780	765	754	727	277	150	736
06:45	679	613	665	583	221	119	610	912	878	919	881	311	169	856
07:00	745	676	750	664	262	128	681	1051	1051	1070	1011	370	200	997
07:15	813	738	789	726	322	140	752	1209	1188	1215	1151	430	243	1123
07:30	858	781	821	770	416	153	795	1262	1246	1254	1234	557	276	1218
07:45	900	822	861	814	512	159	809	1320	1287	1317	1224	696	308	1254
08:00	929	871	896	832	595	210	838	1302	1259	1341	1225	787	351	1237
08:15	931	884	910	841	687	233	843	1262	1228	1323	1204	850	377	1215
08:30	918	914	874	888	737	274	841	1253	1199	1326	1167	898	410	1191
08:45	901	937	855	896	783	333	883	1194	1162	1245	1101	922	451	1129
09:00	861	901	850	939	856	393	901	1177	1100	1184	1062	965	491	1125
09:15	846	869	842	929	895	498	904	1136	1086	1105	1001	1017	566	1116
09:30	852	848	887	924	962	599	921	1050	1042	1048	981	1029	666	1034
09:45	851	832	908	967	1038	707	901	1028	1017	1048	1009	1043	765	1041
10:00	902	856	896	977	1026	778	913	1008	1008	1013	1028	1042	844	1014
10:15	934	868	902	1018	1058	805	896	1026	985	1029	1057	1075	928	1005
10:30	925	855	938	1059	1049	857	898	1046	980	1069	1064	1107	995	1017
10:45	937	868	954	1025	1046	884	940	1085	988	1081	1079	1136	1021	1054
11:00	945	871	965	1017	1067	916	945	1114	1031	1096	1084	1177	1052	1070
11:15	953	883	989	1009	1071	963	969	1073	1061	1100	1057	1198	1084	1054
11:30	970	919	967	1012	1092	982	965	1102	1095	1072	1048	1189	1078	1054
11:45	956	905	959	1055	1071	997	943	1095	1106	1088	1048	1210	1109	1032
12:00	991	889	958	1030	1117	975	919	1099	1102	1136	1086	1257	1100	1015
12:15	942	849	945	1037	1077	973	923	1145	1021	1167	1149	1272	1072	1031
12:30	914	763	938	1035	1083	957	943	1123	940	1195	1182	1280	1055	1053
12:45	931	754	929	1051	1084	921	944	1143	956	1133	1183	1296	1027	1053
13:00	858	769	929	1079	1023	933	932	1111	965	1108	1178	1269	1043	1048
13:15	877	819	938	1087	1071	915	951	1064	1025	1069	1165	1242	1052	1051
13:30	890	863	933	1069	1074	901	929	1083	1104	1072	1197	1275	1071	1047
13:45	881	900	932	1048	1077	894	912	1048	1129	1096	1209	1274	1099	1040
14:00	899	912	951	1060	1090	841	974	1071	1157	1121	1200	1240	1124	1099
14:15	884	893	934	1064	1090	816	937	1104	1177	1137	1228	1247	1137	1100
14:30	906	955	933	1046	1065	817	926	1088	1170	1141	1196	1190	1146	1101
14:45	931	940	935	1034	1042	764	943	1144	1128	1172	1249	1113	1125	1130
15:00	944	959	949	1021	1028	733	909	1155	1090	1168	1254	1092	1119	1103
15:15	1028	1016	1006	1031	1009	693	984	1158	1107	1200	1231	1059	1149	1143
15:30	1057	1003	1067	1070	984	633	1008	1175	1136	1229	1257	1026	1069	1160
15:45	1077	1056	1100	1087	1019	614	962	1156	1159	1240	1224	1042	1022	1079
16:00	1084	1036	1086	1109	1003	585	725	1165	1176	1268	1222	1045	923	792
16:15	1104	1047	1097	1115	972	550	430	1208	1246	1273	1249	1055	823	501
16:30	1115	1063	1081	1098	946	508	187	1254	1263	1275	1233	1071	798	205
16:45	1056	1013	1038	1034	871	487	0	1271	1288	1294	1226	1085	753	0
17:00	1011	993	1005	941	818	454	0	1286	1291	1296	1243	1063	734	0
17:15	906	900	916	873	759	453	0	1264	1202	1250	1218	1056	704	0
17:30	794	817	840	831	721	431	0	1165	1154	1198	1205	1021	702	0
17:45	746	775	803	781	661	408	0	1116	1096	1117	1174	981	703	0
18:00	735	749	770	784	613	422	0	1049	1044	1033	1137	928	664	0
18:15	684	734	744	770	591	388	0	1000	1014	1011	1126	874	642	0
18:30	647	709	703	729	526	367	0	988	953	952	1056	857	600	0
18:45	616	677	656	709	516	396	0	896	885	899	977	797	584	0
19:00	537	604	606	653	530	389	0	814	805	843	876	775	572	0
19:15	509	546	568	574	505	396	0	713	736	804	813	704	547	0
19:30	521	510	529	513	509	389	0	657	662	765	742	666	506	0
19:45	488	460	490	491	470	331	0	610	612	731	740	602	468	0
20:00	500	447	462	482	432	292	0	583	550	671	691	549	449	0
20:15	449	433	400	467	432	276	0	558	520	578	607	554	403	0
20:30	403	397	376	433	426	259	0	510	529	526	603	558	387	0
20:45	367	377	352	393	427	235	0	492	510	470	522	550	354	0
21:00	318	338	320	354	434	225	0	460	496	430	485	582	317	0
21:15	319	311	319	369	425	209	0	437	460	412	498	546	303	0
21:30	294	317	297	452	415	202	0	426	432	413	464	499	303	0
21:45	262	301	274	453	424	205	0	376	413	399	461	496	290	0
22:00	229	281	245	447	424	202	0	328	406	363	474	460	279	0
22:15	185	257	207	408	430	183	0	294	361	332	447	529	246	0
22:30	147	220	186	318	478	154	0	247	299	262	407	607	215	0
22:45	140	174	155	288	494	135	0	223	240	219	372	724	187	0
23:00	128	165	143	272	496	118	0	195	187	190	330	794	169	0

PCU Summary (21.06.2022 - 27.06.2022)						
Rolling Hour						
Time	Avg Weekday			SAT		
Start Time	NB	SB	Total	NB	SB	Total
00:00	82	102	184	220	205	426
00:15	73	84	156	199	186	385
00:30	63	72	135	175	178	353
00:45	54	60	115	179	157	336
01:00	49	52	101	164	145	309
01:15	47	49	95	162	136	298
01:30	45	46	91	157	122	279
01:45	45	46	91	147	103	250
02:00	36	45	81	132	112	244
02:15	31	45	76	114	113	227
02:30	27	42	69	101	110	211
02:45	23	41	64	87	109	196
03:00	34	47	81	83	96	179
03:15	37	47	84	79	78	157
03:30	39	50	90	80	77	157
03:45	45	57	102	72	70	142
04:00	45	57	102	63	67	130
04:15	50	73	123	59	69	128
04:30	64	96	160	53	68	121
04:45	87	142	229	65	81	146
05:00	120	188	307	90	94	184
05:15	154	226	380	109	116	225
05:30	211	305	515	130	144	274
05:45	262	386	648	137	171	308
06:00	335	492	827	150	206	357
06:15	446	610	1056	158	248	406
06:30	536	757	1293	183	277	460
06:45	635	897	1533	221	311	532
07:00	709	1046	1754	262	370	631
07:15	766	1191	1957	322	430	752
07:30	807	1249	2057	416	557	972
07:45	849	1287	2136	512	696	1207
08:00:00	**882**	**1282**	**2164**	**595**	**787**	**1382**
08:15	891	1254	2146	687	850	1537
08:30	899	1236	2135	737	898	1635
08:45	897	1176	2073	783	922	1705
09:00	888	1130	2018	856	965	1822
09:15	872	1082	1954	895	1017	1912
09:30	878	1030	1908	962	1029	1991
09:45	890	1025	1915	1038	1043	2081
10:00	908	1014	1922	1026	1042	2068
10:15	930	1024	1955	1058	1075	2132
10:30	944	1040	1984	1049	1107	2156
10:45	946	1058	2004	1046	1136	2181
11:00	949	1081	2030	1067	1177	2244
11:15	959	1073	2031	1071	1198	2269
11:30	967	1079	2046	1092	1189	2281
11:45	969	1084	2053	1071	1210	2281
12:00:00	**967**	**1106**	**2073**	**1117**	**1257**	**2374**
12:15	943	1121	2064	1077	1272	2348
12:30	912	1110	2022	1083	1280	2363
12:45	916	1104	2020	1084	1296	2380
13:00	909	1090	1999	1023	1269	2292
13:15	930	1080	2011	1071	1242	2313
13:30	939	1114	2053	1074	1275	2349
13:45	940	1120	2060	1077	1274	2351
14:00	956	1137	2093	1090	1240	2330
14:15	944	1162	2105	1090	1247	2338
14:30	960	1149	2108	1065	1190	2255
14:45	960	1173	2133	1042	1113	2154
15:00	968	1167	2135	1028	1092	2120
15:15	1020	1174	2194	1009	1059	2068
15:30	1049	1199	2248	984	1026	2011
15:45	1080	1195	2275	1019	1042	2061
16:00	1079	1208	2287	1003	1045	2048
16:15	1091	1244	2335	972	1055	2026
16:30	1089	1256	2345	946	1071	2017
16:45	1035	1270	2305	871	1085	1956
17:00:00	**987**	**1279**	**2266**	**818**	**1063**	**1881**
17:15	899	1233	2132	759	1056	1815
17:30	820	1180	2001	721	1021	1742
17:45	776	1126	1902	661	981	1642
18:00	759	1066	1825	613	928	1541
18:15	733	1037	1770	591	874	1466
18:30	697	987	1684	526	857	1383
18:45	665	914	1579	516	797	1313
19:00	600	835	1435	530	775	1305
19:15	549	766	1316	505	704	1209
19:30	518	706	1225	509	666	1175
19:45	482	673	1155	470	602	1072
20:00	473	624	1097	432	549	981
20:15	437	566	1003	432	554	986
20:30	402	542	944	426	558	984
20:45	372	498	871	427	550	977
21:00	333	468	800	434	582	1015
21:15	330	452	781	425	546	971
21:30	340	434	774	415	499	915
21:45	323	412	735	424	496	920
22:00	300	393	693	424	460	884
22:15	264	358	623	430	529	959
22:30	218	304	522	478	607	1085
22:45	189	263	452	494	724	1218
23:00	177	225	402	496	794	1290

Intelligent Data Collection Limited

Client: Arup
Project Number: ID06568
Site Number: Site 1

Dates of Survey: 28.06.2022-04.07.2022
Site Name: A62 Queensgate
Survey Type: Multi-day Link Count

Arm A: Queen Street S (S)
Arm B: Queen Street (N)

	PCU Summary													
	A to B (Northbound)							B to A (Southbound)						
Time	**28.06.2022**	**29.06.2022**	**30.06.2022**	**01.07.2022**	**02.07.2022**	**03.07.2022**	**04.07.2022**	**28.06.2022**	**29.06.2022**	**30.06.2022**	**01.07.2022**	**02.07.2022**	**03.07.2022**	**04.07.2022**
00:00	0	24	24	21	75	89	9	0	34	23	38	67	69	32
00:15	0	15	18	20	49	68	20	0	29	22	24	66	74	26
00:30	0	17	22	19	66	71	19	0	26	14	16	46	83	20
00:45	0	7	18	23	52	75	16	0	22	24	21	37	51	22
01:00	0	15	24	20	47	57	5	0	23	17	23	41	60	21
01:15	0	9	15	12	49	60	11	0	10	23	16	41	50	16
01:30	0	14	17	7	24	64	10	0	13	15	14	26	53	9
01:45	0	7	11	16	43	55	11	0	5	11	12	22	51	15
02:00	0	14	11	8	31	53	16	0	20	8	13	27	60	13
02:15	0	10	15	8	28	47	5	0	11	4	11	23	45	10
02:30	0	12	6	11	26	44	10	0	12	14	8	20	35	11
02:45	0	7	11	5	22	37	7	0	10	8	2	24	50	13
03:00	0	1	3	5	27	52	8	0	11	13	10	20	44	6
03:15	0	2	6	3	20	47	6	0	13	8	10	19	27	9
03:30	0	2	11	3	19	43	4	0	8	12	9	30	46	6
03:45	0	9	18	11	19	33	11	0	18	26	20	19	31	17
04:00	0	6	8	5	10	32	9	0	8	10	13	15	21	9
04:15	0	10	11	7	15	34	9	0	13	10	12	17	27	14
04:30	0	9	6	7	15	20	7	0	20	31	13	20	28	23
04:45	0	11	21	6	11	17	16	0	25	25	29	9	14	23
05:00	0	8	14	14	17	11	16	0	28	22	27	17	12	33
05:15	0	34	36	31	17	16	23	0	30	36	34	27	16	31
05:30	0	45	48	28	26	16	42	0	50	58	50	21	24	71
05:45	0	53	53	42	29	10	53	0	59	73	59	28	19	66
06:00	0	63	55	51	20	16	62	0	71	88	54	41	29	78
06:15	0	72	84	63	34	22	60	0	113	104	98	39	27	116
06:30	0	83	84	69	54	24	80	0	136	157	113	66	35	131
06:45	0	123	116	101	57	25	110	0	196	173	172	65	37	171
07:00	0	175	158	126	45	37	149	0	193	213	166	66	34	189
07:15	0	151	177	145	66	24	187	0	266	267	226	77	38	245
07:30	0	192	175	176	69	32	180	0	301	327	275	95	49	307
07:45	0	202	208	197	90	40	194	0	376	322	312	138	40	292
08:00	0	212	227	201	109	35	214	0	343	347	326	113	69	349
08:15	0	224	238	218	116	41	198	0	305	340	304	146	63	320
08:30	0	214	219	216	143	48	232	0	312	312	336	225	79	369
08:45	0	249	222	184	151	45	236	0	319	291	289	208	102	291
09:00	0	242	191	220	166	58	220	0	271	240	298	192	100	282
09:15	0	236	221	212	194	77	211	0	274	287	256	267	118	288
09:30	0	223	260	240	211	103	233	0	237	272	250	237	129	240
09:45	0	234	227	218	236	126	224	0	291	299	308	238	153	262
10:00	0	246	221	259	243	147	182	0	263	262	251	240	177	291
10:15	0	231	252	250	267	187	228	0	222	275	259	277	225	211
10:30	0	226	192	258	281	188	214	0	272	243	244	285	204	208
10:45	0	223	236	255	271	180	237	0	231	266	286	301	224	255
11:00	0	227	255	269	298	189	187	0	263	265	246	262	218	240
11:15	0	222	234	245	291	211	226	0	252	272	292	326	226	246
11:30	0	241	237	246	280	221	214	0	233	286	290	317	235	239
11:45	0	233	221	291	278	223	253	0	297	289	296	302	262	254
12:00	0	239	260	239	292	195	211	0	250	249	273	294	239	271
12:15	0	216	281	266	300	210	230	0	261	288	320	300	262	267
12:30	0	243	248	239	311	244	237	0	282	282	301	308	245	242
12:45	0	246	250	251	266	225	221	0	250	300	309	323	264	251
13:00	0	246	247	234	284	232	200	0	308	259	324	309	240	265
13:15	0	237	220	264	232	209	245	0	281	281	282	323	283	251
13:30	0	229	234	272	271	239	229	0	264	288	291	316	254	267
13:45	0	229	248	295	272	242	246	0	267	281	294	308	232	280
14:00	0	247	245	263	260	201	241	0	233	281	304	323	233	268
14:15	0	224	243	237	247	213	224	0	271	281	301	286	275	267
14:30	0	262	251	250	279	231	243	0	285	301	311	317	288	282
14:45	219	254	232	250	242	199	243	261	307	320	300	311	289	302
15:00	233	245	265	258	256	197	181	310	312	296	297	304	241	271
15:15	208	228	233	230	229	205	201	288	301	310	289	292	241	281
15:30	226	197	210	252	220	168	210	314	311	266	327	273	269	290
15:45	234	266	251	238	212	143	229	296	289	301	336	289	243	306
16:00	278	271	308	259	232	139	274	275	296	306	315	288	259	291
16:15	256	269	277	259	232	129	245	307	321	287	297	273	211	271
16:30	290	248	292	252	194	157	277	288	301	272	296	265	213	247
16:45	228	273	255	277	213	127	240	299	326	329	315	275	189	319
17:00	280	297	314	289	205	103	271	319	336	347	329	259	153	250
17:15	282	255	257	261	207	103	241	314	314	290	329	231	166	319
17:30	229	244	239	235	186	97	249	286	329	326	327	250	168	288
17:45	222	199	207	195	169	114	176	303	309	283	323	235	175	274
18:00	193	221	202	196	147	104	197	277	319	305	298	210	129	257
18:15	170	189	177	181	145	92	182	257	281	278	308	210	153	256
18:30	191	191	171	155	150	101	153	253	258	270	230	204	148	244
18:45	171	186	170	162	150	97	150	252	259	263	250	193	157	260
19:00	173	151	180	176	131	90	166	238	224	235	243	183	112	187
19:15	116	170	124	153	122	82	152	207	192	248	200	179	141	190
19:30	132	143	110	138	129	83	123	171	192	181	192	157	119	174
19:45	112	113	147	149	126	78	109	189	188	193	206	174	141	156
20:00	120	126	131	131	126	101	125	195	168	214	156	154	110	149
20:15	101	100	110	131	102	69	129	170	158	172	188	162	121	158
20:30	99	111	101	97	106	76	114	135	136	148	136	151	95	115
20:45	93	81	112	87	109	56	87	110	129	145	137	107	95	126
21:00	86	110	82	103	102	59	94	113	133	148	149	139	98	130
21:15	100	76	74	88	107	65	79	120	143	121	148	120	93	129
21:30	81	92	71	77	107	74	67	95	123	100	138	136	74	92
21:45	75	48	78	90	112	40	61	85	124	88	133	119	72	85
22:00	63	59	80	84	92	53	76	84	96	107	106	90	88	63
22:15	54	71	69	93	100	54	63	95	91	98	95	101	63	82
22:30	41	56	55	80	87	55	50	59	80	70	109	107	76	72
22:45	41	38	57	77	94	44	38	65	52	62	82	85	58	41
23:00	39	38	37	64	90	38	21	54	70	58	99	97	48	57
23:15	29	32	41	65	71	34	31	60	39	40	87	79	39	40
23:30	29	37	40	81	79	28	30	37	36	40	90	90	37	32
23:45	33	29	35	68	92	36	23	36	58	43	52	62	44	29

	PCU Summary													
	A to B (Northbound)							B to A (Southbound)						
Time	28.06.2022	29.06.2022	30.06.2022	01.07.2022	02.07.2022	03.07.2022	04.07.2022	28.06.2022	29.06.2022	30.06.2022	01.07.2022	02.07.2022	03.07.2022	04.07.2022
Start Time	Rolling Hour													
00:00	0	63	82	83	241	303	64	0	108	83	99	216	277	100
00:15	0	53	82	81	213	271	60	0	98	77	83	190	268	89
00:30	0	47	79	73	213	263	50	0	80	78	75	165	244	79
00:45	0	45	74	61	171	256	41	0	67	79	73	145	213	68
01:00	0	45	67	54	163	236	36	0	51	66	64	130	213	61
01:15	0	44	54	43	146	232	47	0	48	57	55	115	212	53
01:30	0	45	54	39	125	219	42	0	49	38	50	97	207	47
01:45	0	43	43	42	127	199	42	0	47	37	44	91	190	49
02:00	0	43	42	31	107	181	38	0	52	33	34	93	189	45
02:15	0	30	34	28	103	180	30	0	43	38	31	86	174	39
02:30	0	22	25	23	95	180	31	0	44	42	30	83	156	38
02:45	0	12	29	16	88	179	25	0	41	39	31	93	167	33
03:00	0	14	36	22	85	175	29	0	48	57	47	88	148	38
03:15	0	19	41	22	68	153	30	0	45	53	50	83	125	41
03:30	0	26	45	25	63	141	31	0	44	55	51	80	125	45
03:45	0	32	41	29	59	118	35	0	56	72	55	69	107	60
04:00	0	34	43	24	51	102	39	0	63	70	64	59	90	66
04:15	0	36	49	32	58	82	47	0	83	82	78	60	81	88
04:30	0	60	74	56	59	64	61	0	101	107	100	70	70	106
04:45	0	97	115	77	70	60	94	0	130	137	137	73	66	154
05:00	0	139	148	112	88	52	131	0	164	187	166	92	72	196
05:15	0	192	188	150	90	56	175	0	206	250	193	116	89	240
05:30	0	229	234	181	105	62	211	0	287	317	256	128	99	323
05:45	0	265	270	220	129	71	249	0	371	412	316	172	110	380
06:00	0	332	330	278	156	85	304	0	504	508	429	209	128	485
06:15	0	441	431	351	183	106	390	0	621	629	537	234	133	594
06:30	0	519	522	433	215	108	513	0	772	787	664	270	144	723
06:45	0	624	609	539	233	116	610	0	931	953	822	297	158	894
07:00	0	703	702	632	266	131	694	0	1107	1102	957	367	161	1014
07:15	0	737	768	706	329	129	758	0	1257	1238	1116	412	196	1174
07:30	0	812	831	776	381	146	770	0	1296	1313	1191	482	221	1247
07:45	0	834	875	815	452	161	821	0	1308	1302	1251	614	251	1311
08:00	0	882	888	804	513	166	860	0	1252	1269	1230	685	311	1308
08:15	0	911	853	819	569	190	866	0	1180	1162	1201	765	342	1241
08:30	0	919	832	815	647	225	877	0	1148	1108	1153	886	397	1207
08:45	0	926	868	836	714	281	879	0	1076	1069	1068	897	446	1081
09:00	0	907	875	868	799	361	867	0	1048	1076	1084	930	498	1051
09:15	0	914	905	907	877	449	828	0	1043	1100	1039	978	575	1055
09:30	0	910	936	940	949	560	847	0	990	1085	1041	988	682	981
09:45	0	915	875	956	1019	645	828	0	1022	1056	1038	1037	756	951
10:00	0	905	882	994	1054	699	841	0	966	1024	1018	1099	828	945
10:15	0	886	914	1004	1107	742	845	0	964	1028	1012	1121	869	898
10:30	0	877	900	1003	1131	766	841	0	993	1028	1047	1170	869	933
10:45	0	892	942	994	1132	799	842	0	955	1072	1090	1202	901	961
11:00	0	903	925	1026	1139	842	856	0	1021	1094	1098	1203	937	962
11:15	0	916	929	1000	1131	848	881	0	1008	1077	1126	1235	959	991
11:30	0	913	975	1021	1139	847	887	0	1019	1092	1155	1210	996	1013
11:45	0	914	984	1014	1168	870	910	0	1067	1085	1170	1199	1006	1018
12:00	0	928	1013	977	1157	870	882	0	1023	1095	1188	1219	1010	1014
12:15	0	934	1001	972	1152	906	871	0	1080	1107	1239	1234	1010	1010
12:30	0	950	940	968	1085	905	885	0	1099	1099	1202	1256	1032	994
12:45	0	938	927	1001	1046	901	878	0	1084	1108	1194	1264	1040	1020
13:00	0	920	927	1047	1053	920	902	0	1100	1092	1178	1248	1009	1050
13:15	0	923	927	1073	1029	890	942	0	1029	1113	1160	1261	1002	1053
13:30	0	912	950	1049	1044	894	917	0	1019	1114	1179	1223	993	1069
13:45	0	943	970	1025	1050	884	929	0	1041	1126	1196	1224	1028	1081
14:00	215	968	954	980	1020	840	924	255	1080	1163	1199	1228	1084	1101
14:15	445	968	975	976	1017	835	866	562	1159	1179	1191	1209	1091	1105
14:30	650	976	967	972	999	827	850	845	1190	1208	1180	1215	1057	1116
14:45	874	911	926	978	942	765	821	1155	1217	1175	1198	1172	1037	1124
15:00	889	925	946	966	913	709	808	1193	1200	1160	1236	1150	992	1129
15:15	935	952	989	968	889	652	902	1159	1185	1168	1256	1137	1011	1149
15:30	984	991	1033	996	892	577	947	1178	1206	1147	1264	1118	981	1144
15:45	1048	1043	1115	995	866	566	1013	1155	1197	1154	1234	1111	926	1105
16:00	1042	1051	1120	1036	868	550	1026	1161	1235	1183	1214	1097	872	1118
16:15	1044	1077	1128	1068	841	513	1023	1205	1276	1226	1227	1068	766	1080
16:30	1070	1065	1111	1069	815	487	1019	1216	1270	1228	1259	1027	720	1127
16:45	1011	1060	1061	1054	806	427	992	1214	1299	1284	1288	1012	675	1169
17:00	1007	988	1014	973	762	415	929	1216	1282	1239	1298	973	659	1126
17:15	920	911	901	879	705	416	855	1175	1264	1197	1268	925	635	1131
17:30	809	846	820	802	645	405	798	1118	1230	1187	1247	904	622	1069
17:45	772	795	752	724	609	407	703	1086	1160	1132	1153	857	602	1026
18:00	720	782	716	691	591	390	676	1036	1110	1112	1080	815	585	1012
18:15	700	713	695	671	574	376	644	997	1015	1042	1027	789	568	944
18:30	646	694	641	643	551	367	615	947	928	1013	920	758	557	878
18:45	588	646	581	625	531	351	587	865	861	924	881	711	528	808
19:00	530	573	556	610	506	331	547	802	791	854	837	693	511	705
19:15	477	549	508	566	501	342	506	760	737	832	751	663	509	665
19:30	462	479	494	543	481	329	483	723	702	755	738	646	487	633
19:45	429	447	485	504	458	321	474	687	647	723	683	640	463	575
20:00	411	415	451	444	442	300	452	609	589	675	614	573	418	545
20:15	376	398	401	417	418	258	421	527	555	610	608	558	406	528
20:30	375	373	365	375	423	254	371	477	540	560	568	516	379	499
20:45	357	355	336	354	423	252	324	437	526	512	570	501	357	476
21:00	338	323	302	357	425	237	298	412	520	456	566	513	335	434
21:15	317	274	302	339	416	230	280	384	481	415	522	464	327	367
21:30	271	269	298	344	408	219	264	359	429	392	470	446	297	320
21:45	232	233	281	347	388	200	247	323	386	362	441	418	299	299
22:00	198	223	260	333	372	204	224	303	316	336	391	384	285	257
22:15	174	201	217	313	369	189	171	272	291	287	384	391	245	251
22:30	149	163	188	285	341	169	139	237	239	229	375	367	220	209
22:45	137	143	174	285	334	143	117	215	196	199	356	350	182	169
23:00	128	133	152	276	331	135	103	186	201	179	326	327	167	157

Analysis of Rail Strike and Non Strike Traffic Flows

	Weekday (Thursday)									Saturday								
	strike			non-strike			Differences			strike			non-strike			Differences		
	23.06.2022			30.06.2022						25.06.2022			02.07.2022					
	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total	NB	SB	Total
Time																		
00:00	18	31	49	24	23	47	-29%	30%	4%	63	60	124	75	67	142	-17%	-11%	-14%
00:15	29	23	52	18	22	40	47%	4%	26%	57	47	104	49	66	115	16%	-33%	-9%
00:30	23	17	40	22	14	36	4%	19%	11%	42	61	103	66	46	112	-44%	28%	-8%
00:45	21	28	49	18	24	42	15%	15%	15%	57	37	94	51	37	88	12%	1%	7%
01:00	18	17	35	24	17	41	-29%	0%	-16%	42	41	83	47	41	89	-11%	-1%	-6%
01:15	13	19	32	15	23	38	-14%	-19%	-17%	33	39	72	49	40	89	-39%	-3%	-21%
01:30	15	14	29	17	15	32	-13%	-7%	-10%	47	40	87	24	26	50	66%	42%	54%
01:45	20	10	30	11	11	22	56%	-6%	30%	42	25	67	43	22	65	-2%	13%	3%
02:00	12	15	27	11	8	19	9%	58%	34%	41	32	73	31	27	58	27%	18%	23%
02:15	9	14	23	15	4	19	-47%	113%	23%	28	24	52	28	22	49	2%	12%	6%
02:30	7	10	17	6	14	20	15%	-30%	-14%	36	21	57	26	20	46	32%	7%	22%
02:45	5	12	17	11	7	17	-71%	60%	1%	27	34	61	22	24	46	20%	35%	29%
03:00	4	17	21	3	13	16	29%	25%	26%	23	33	56	27	20	47	-16%	49%	17%
03:15	9	14	24	5	8	13	55%	57%	56%	15	21	36	20	19	39	-27%	10%	-7%
03:30	7	6	13	10	11	22	-38%	-57%	-48%	22	20	42	19	30	49	13%	-39%	-15%
03:45	14	14	28	17	24	42	-21%	-54%	-39%	22	22	44	19	19	38	16%	15%	16%
04:00	11	12	23	8	10	18	32%	23%	27%	19	15	34	10	15	25	63%	-3%	30%
04:15	11	11	22	10	10	20	12%	10%	11%	16	20	36	15	16	31	6%	22%	15%
04:30	10	14	24	6	28	34	45%	-64%	-35%	14	13	27	15	19	34	-7%	-33%	-21%
04:45	18	20	38	20	23	42	-9%	-13%	-11%	13	19	32	11	9	20	18%	71%	47%
05:00	16	31	46	14	22	35	14%	35%	27%	16	16	32	17	16	33	-4%	-2%	-3%
05:15	19	35	54	34	35	70	-58%	0%	-25%	10	19	29	17	26	43	-49%	-30%	-37%
05:30	36	68	104	47	57	104	-27%	17%	-1%	26	27	52	26	21	47	-1%	21%	10%
05:45	50	66	116	53	73	125	-4%	-10%	-8%	38	32	70	29	28	57	28%	13%	21%
06:00	49	64	114	54	85	139	-9%	-27%	-20%	36	38	74	19	41	59	62%	-6%	22%
06:15	77	123	200	81	103	184	-5%	18%	8%	31	47	78	31	38	70	-3%	21%	11%
06:30	82	129	212	83	152	235	0%	-16%	-10%	33	54	87	51	65	116	-43%	-19%	-29%
06:45	119	164	283	112	168	281	6%	-2%	1%	52	67	119	56	65	121	-8%	3%	-2%
07:00	169	203	373	155	207	361	9%	-2%	3%	43	80	123	45	66	111	-5%	20%	11%
07:15	183	257	440	172	260	433	6%	-1%	2%	56	76	132	64	75	138	-12%	2%	-5%
07:30	194	294	488	169	318	487	14%	-8%	0%	70	88	158	69	92	160	2%	-4%	-2%
07:45	204	316	520	205	318	523	-1%	-1%	-1%	93	125	218	89	135	224	4%	-7%	-2%
08:00	208	348	557	221	342	563	-6%	2%	-1%	103	141	244	108	111	219	-4%	24%	11%
08:15	215	296	511	235	335	571	-9%	-12%	-11%	150	203	353	116	145	261	26%	33%	30%
08:30	234	356	590	214	307	521	9%	15%	13%	166	227	393	140	224	364	17%	1%	8%
08:45	239	340	579	218	285	504	9%	18%	14%	176	217	393	149	205	355	16%	6%	10%
09:00	222	330	552	185	235	420	18%	34%	27%	196	203	399	164	191	356	17%	6%	11%
09:15	179	300	479	215	282	496	-18%	6%	-4%	200	251	450	193	266	459	3%	-6%	-2%
09:30	215	275	491	250	267	517	-15%	3%	-5%	212	252	463	207	235	442	2%	7%	5%
09:45	233	279	512	225	293	518	4%	-5%	-1%	250	260	510	235	238	473	6%	9%	7%
10:00	215	250	465	216	258	474	-1%	-3%	-2%	235	254	489	242	239	481	-3%	6%	2%
10:15	224	243	467	245	267	512	-9%	-9%	-9%	266	263	529	265	276	540	1%	-5%	-2%
10:30	237	276	512	189	238	428	22%	15%	18%	287	266	553	277	284	561	4%	-6%	-1%
10:45	221	244	465	232	261	493	-5%	-7%	-6%	237	259	496	270	300	570	-13%	-15%	-14%
11:00	220	266	486	248	262	510	-12%	1%	-5%	267	287	553	295	261	556	-10%	9%	0%
11:15	260	283	543	230	268	498	12%	6%	9%	258	295	553	289	325	614	-11%	-10%	-10%
11:30	252	288	540	232	282	513	8%	2%	5%	284	295	579	278	316	594	2%	-7%	-3%
11:45	232	259	491	215	283	497	8%	-9%	-1%	259	300	559	276	301	578	-7%	0%	-3%
12:00	245	269	514	252	245	497	-3%	9%	3%	270	308	578	287	293	580	-6%	5%	0%
12:15	238	255	493	276	282	559	-15%	-10%	-12%	279	286	566	298	299	597	-6%	-5%	-5%
12:30	244	305	549	241	275	516	1%	10%	6%	262	316	578	308	305	613	-16%	3%	-6%
12:45	231	307	538	244	292	536	-5%	5%	0%	305	347	652	265	322	586	14%	8%	11%
13:00	231	301	532	240	257	497	-4%	16%	7%	230	322	552	282	308	590	-20%	5%	-6%
13:15	232	283	515	215	275	490	7%	3%	5%	285	295	580	231	322	553	21%	-9%	5%
13:30	235	243	478	228	284	511	3%	-16%	-7%	263	332	595	269	313	582	-2%	6%	2%
13:45	231	282	513	243	276	519	-5%	2%	-1%	244	320	564	271	305	576	-10%	5%	-2%
14:00	241	262	502	241	279	519	0%	-6%	-3%	278	296	574	258	320	578	8%	-8%	-1%
14:15	227	287	514	238	276	514	-5%	4%	0%	289	328	616	246	285	530	16%	14%	15%
14:30	234	266	500	248	295	543	-6%	-11%	-8%	266	331	597	276	314	590	-4%	5%	1%
14:45	250	307	557	227	313	541	9%	-2%	3%	258	285	543	240	309	549	7%	-8%	-1%
15:00	223	278	502	262	294	556	-16%	-6%	-10%	278	303	581	255	301	556	9%	1%	4%
15:15	226	290	517	231	306	536	-2%	-5%	-4%	264	270	534	228	291	519	14%	-7%	3%
15:30	236	296	532	206	262	468	13%	12%	13%	242	254	496	218	271	489	10%	-7%	1%
15:45	264	303	567	248	298	546	6%	2%	4%	244	265	509	211	287	499	14%	-8%	2%
16:00	280	311	591	304	302	607	-8%	3%	-3%	259	270	529	231	287	518	11%	-6%	2%
16:15	287	319	606	274	285	560	5%	11%	8%	239	237	477	232	272	504	3%	-14%	-6%
16:30	268	307	575	289	269	557	-7%	13%	3%	277	269	546	192	264	457	36%	2%	18%
16:45	251	331	582	253	327	579	-1%	1%	0%	228	268	496	212	274	486	7%	-2%	2%
17:00	291	316	607	313	346	658	-7%	-9%	-8%	228	280	507	204	258	462	11%	8%	9%
17:15	271	321	592	257	288	545	5%	11%	8%	214	254	468	206	231	437	4%	10%	7%
17:30	226	326	552	238	324	563	-5%	0%	-2%	202	283	484	184	250	434	9%	12%	11%
17:45	218	333	550	206	282	488	5%	17%	12%	175	246	422	168	234	402	4%	5%	5%
18:00	201	270	472	200	304	504	1%	-12%	-7%	168	273	441	147	210	357	13%	26%	21%
18:15	195	269	464	176	277	453	10%	-3%	2%	177	219	396	145	210	355	19%	4%	11%
18:30	189	245	434	170	270	440	11%	-10%	-1%	141	243	384	148	203	352	-5%	18%	9%
18:45	184	249	433	170	262	432	8%	-5%	0%	127	193	321	150	192	342	-16%	1%	-6%
19:00	176	248	424	179	234	413	-1%	6%	3%	146	219	365	130	183	314	12%	18%	15%
19:15	153	210	363	123	247	370	22%	-16%	-2%	111	201	313	122	179	302	-9%	12%	4%
19:30	143	192	335	109	180	290	26%	6%	14%	131	183	314	129	156	285	2%	16%	10%
19:45	134	193	328	145	193	338	-8%	0%	-3%	141	172	313	125	174	299	12%	-1%	4%
20:00	138	208	346	130	212	342	6%	-2%	1%	121	148	270	125	153	278	-3%	-3%	-3%
20:15	114	171	285	109	170	279	4%	0%	2%	116	163	279	102	162	265	12%	0%	5%
20:30	104	158	262	100	148	248	4%	7%	6%	92	119	211	106	150	256	-14%	-23%	-19%
20:45	106	134	240	112	145	256	-5%	-8%	-7%	103	118	221	109	107	216	-5%	10%	2%
21:00	76	115	191	80	148	228	-5%	-25%	-17%	121	154	275	101	139	240	18%	10%	14%
21:15	90	119	209	73	120	193	20%	-1%	8%	110	167	277	107	120	227	2%	33%	20%
21:30	80	102	182	71	100	171	12%	2%	6%	93	111	204	106	135	241	-13%	-20%	-16%
21:45	74	93	167	78	88	166	-5%	5%	0%	109	150	259	111	119	230	-1%	23%	12%
22:00	75	97	173	80	106	187	-6%	-9%	-8%	113	118	231	92	90	183	20%	27%	23%
22:15	67	121	188	69	97	166	-2%	21%	12%	100	120	220	99	101	200	1%	17%	9%
22:30	57	88	145	54	70	124	6%	22%	15%	103	107	210	86	107	193	18%	1%	9%
22:45	45	57	102	57	62	119	-24%	-8%	-15%	109	114	223	94	85	180	15%	29%	22%
23:00	38	67	105	37	58	95	3%	14%	10%	119	187	306	90	97	187	28%	63%	48%
23:15	46	51	97	40	39	79	14%	27%	20%	148	198	346	71	78	149	70%	87%	80%
23:30	26	44	70	40	40	80	-42%	10%	-13%	118	224	342	79	90	169	40%	85%	68%
23:45	33	28	61	35	42	77	-6%	-39%	-23%	111	185	296	92	62	154	19%	100%	63%

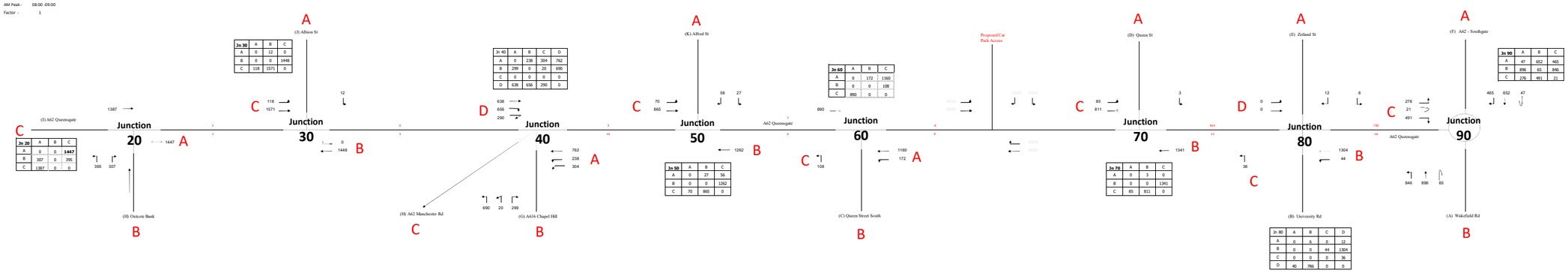
Analysis of Rail Strike and Non Strike Traffic Flows

	Weekday (Thursday)									Saturday								
	strike			non-strike			Differences			strike			non-strike			Differences		
	23.06.2022			30.06.2022						25.06.2022			02.07.2022					
Time	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**	**NB**	**SB**	**Total**
Start Time	Rolling Hour																	
00:00	91	99	190	82	83	165	10%	18%	14%	220	205	426	241	216	456	-9%	-5%	-7%
00:15	91	85	176	82	77	159	10%	10%	10%	199	186	385	213	190	403	-7%	-2%	-4%
00:30	75	81	156	79	78	157	-5%	4%	-1%	175	178	353	213	165	378	-20%	8%	-7%
00:45	67	78	145	74	79	153	-10%	-1%	-5%	179	157	336	171	145	316	5%	8%	6%
01:00	66	60	126	67	66	133	-2%	-9%	-5%	164	145	309	163	130	293	1%	11%	5%
01:15	60	59	118	54	57	111	10%	2%	6%	162	136	298	146	115	262	10%	17%	13%
01:30	56	54	110	54	38	92	4%	34%	17%	157	122	279	125	97	222	23%	23%	23%
01:45	48	50	98	43	37	79	11%	30%	20%	147	103	250	127	91	218	14%	13%	13%
02:00	33	52	85	42	33	75	-24%	46%	13%	132	112	244	107	93	199	21%	19%	20%
02:15	25	54	79	34	38	72	-31%	36%	10%	114	113	227	103	86	188	11%	28%	19%
02:30	25	54	79	25	42	66	2%	26%	18%	101	110	211	95	83	178	6%	28%	17%
02:45	25	50	76	29	39	68	-14%	24%	10%	87	109	196	88	93	181	-1%	15%	8%
03:00	34	52	86	36	57	93	-5%	-9%	-7%	83	96	179	85	88	173	-3%	9%	3%
03:15	41	47	88	41	53	94	1%	-13%	-7%	79	78	157	68	83	151	14%	-6%	4%
03:30	43	43	86	45	55	101	-5%	-24%	-15%	80	77	157	63	80	144	23%	-4%	9%
03:45	46	51	97	41	72	113	10%	-33%	-15%	72	70	142	59	69	128	19%	2%	10%
04:00	50	57	107	43	70	113	13%	-20%	-6%	63	67	130	51	59	110	20%	13%	16%
04:15	54	76	130	49	82	131	10%	-8%	-1%	59	69	128	58	60	118	3%	13%	8%
04:30	62	100	162	74	107	181	-17%	-7%	-11%	53	68	121	59	70	129	-11%	-4%	-7%
04:45	88	154	242	115	137	251	-26%	12%	-4%	65	81	146	70	73	143	-8%	10%	2%
05:00	121	199	320	148	187	334	-20%	7%	-4%	90	94	184	88	92	180	2%	2%	2%
05:15	154	233	387	188	250	438	-20%	-7%	-12%	109	116	225	90	116	206	19%	0%	9%
05:30	212	321	533	234	317	552	-10%	1%	-3%	130	144	274	105	128	233	21%	11%	16%
05:45	259	383	641	270	412	682	-4%	-7%	-6%	137	171	308	129	172	301	6%	0%	2%
06:00	328	481	809	330	508	838	-1%	-5%	-4%	150	206	357	156	209	365	-4%	-1%	-2%
06:15	447	620	1068	431	629	1060	4%	-1%	1%	158	248	406	183	234	417	-15%	6%	-3%
06:30	553	754	1307	522	787	1309	6%	-4%	0%	183	277	460	215	270	485	-16%	3%	-5%
06:45	665	919	1584	609	953	1561	9%	-4%	1%	221	311	532	233	297	530	-6%	5%	0%
07:00	750	1070	1820	702	1102	1804	7%	-3%	1%	262	370	631	266	367	633	-2%	1%	0%
07:15	789	1215	2004	768	1238	2006	3%	-2%	0%	322	430	752	329	412	741	-2%	4%	2%
07:30	821	1254	2075	831	1313	2144	-1%	-5%	-3%	416	557	972	381	482	863	9%	14%	12%
07:45	861	1317	2177	875	1302	2177	-2%	1%	0%	512	696	1207	452	614	1067	12%	12%	12%
08:00	**896**	**1341**	**2237**	**888**	**1269**	**2158**	**1%**	**6%**	**4%**	595	787	1382	513	685	1198	15%	14%	14%
08:15	910	1323	2232	853	1162	2015	6%	13%	10%	687	850	1537	569	765	1335	19%	10%	14%
08:30	874	1326	2200	832	1108	1941	5%	18%	13%	737	898	1635	647	886	1533	13%	1%	6%
08:45	855	1245	2100	868	1069	1937	-1%	15%	8%	783	922	1705	714	897	1611	9%	3%	6%
09:00	850	1184	2034	875	1076	1951	-3%	10%	4%	856	965	1822	799	930	1729	7%	4%	5%
09:15	842	1105	1947	905	1100	2005	-7%	0%	-3%	895	1017	1912	877	978	1855	2%	4%	3%
09:30	887	1048	1935	936	1085	2020	-5%	-3%	-4%	962	1029	1991	949	988	1936	1%	4%	3%
09:45	908	1048	1956	875	1056	1931	4%	-1%	1%	1038	1043	2081	1019	1037	2056	2%	1%	1%
10:00	896	1013	1909	882	1024	1906	2%	-1%	0%	1026	1042	2068	1054	1099	2153	-3%	-5%	-4%
10:15	902	1029	1930	914	1028	1942	-1%	0%	-1%	1058	1075	2132	1107	1121	2228	-5%	-4%	-4%
10:30	938	1069	2007	900	1028	1928	4%	4%	4%	1049	1107	2156	1131	1170	2301	-8%	-6%	-7%
10:45	954	1081	2035	942	1072	2014	1%	1%	1%	1046	1136	2181	1132	1202	2335	-8%	-6%	-7%
11:00	965	1096	2061	925	1094	2019	4%	0%	2%	1067	1177	2244	1139	1203	2342	-6%	-2%	-4%
11:15	989	1100	2089	929	1077	2006	6%	2%	4%	1071	1198	2269	1131	1235	2365	-5%	-3%	-4%
11:30	967	1072	2039	975	1092	2066	-1%	-2%	-1%	1092	1189	2281	1139	1210	2348	-4%	-2%	-3%
11:45	959	1088	2048	984	1085	2069	-2%	0%	-1%	1071	1210	2281	1168	1199	2367	-9%	1%	-4%
12:00	958	1136	2094	1013	1095	2108	-6%	4%	-1%	**1117**	**1257**	**2374**	**1157**	**1219**	**2376**	**-3%**	**3%**	**0%**
12:15	945	1167	2112	1001	1107	2108	-6%	5%	0%	1077	1272	2348	1152	1234	2386	-7%	3%	-2%
12:30	938	1195	2133	940	1099	2039	0%	8%	4%	1083	1280	2363	1085	1256	2341	0%	2%	1%
12:45	929	1133	2061	927	1108	2035	0%	2%	1%	1084	1296	2380	1046	1264	2311	4%	2%	3%
13:00	929	1108	2036	927	1092	2018	0%	1%	1%	1023	1269	2292	1053	1248	2301	-3%	2%	0%
13:15	938	1069	2007	927	1113	2040	1%	-4%	-2%	1071	1242	2313	1029	1261	2289	4%	-1%	1%
13:30	933	1072	2006	950	1114	2064	-2%	-4%	-3%	1074	1275	2349	1044	1223	2267	3%	4%	4%
13:45	932	1096	2028	970	1126	2096	-4%	-3%	-3%	1077	1274	2351	1050	1224	2274	2%	4%	3%
14:00	951	1121	2072	954	1163	2117	0%	-4%	-2%	1090	1240	2330	1020	1228	2247	7%	1%	4%
14:15	934	1137	2071	975	1179	2153	-4%	-4%	-4%	1090	1247	2338	1017	1209	2225	7%	3%	5%
14:30	933	1141	2074	967	1208	2176	-4%	-6%	-5%	1065	1190	2255	999	1215	2214	6%	-2%	2%
14:45	935	1172	2107	926	1175	2101	1%	0%	0%	1042	1113	2154	942	1172	2114	10%	-5%	2%
15:00	949	1168	2117	946	1160	2106	0%	1%	1%	1028	1092	2120	913	1150	2063	12%	-5%	3%
15:15	1006	1200	2206	989	1168	2157	2%	3%	2%	1009	1059	2068	889	1137	2025	13%	-7%	2%
15:30	1067	1229	2296	1033	1147	2180	3%	7%	5%	984	1026	2011	892	1118	2010	10%	-8%	0%
15:45	1100	1240	2339	1115	1154	2269	-1%	7%	3%	1019	1042	2061	866	1111	1977	16%	-6%	4%
16:00	1086	1268	2354	1120	1183	2302	-3%	7%	2%	1003	1045	2048	868	1097	1965	14%	-5%	4%
16:15	1097	1273	2370	1128	1226	2354	-3%	4%	1%	972	1055	2026	841	1068	1908	14%	-1%	6%
16:30	1081	1275	2356	1111	1228	2339	-3%	4%	1%	946	1071	2017	815	1027	1842	15%	4%	9%
16:45	1038	1294	2332	1061	1284	2345	-2%	1%	-1%	871	1085	1956	806	1012	1819	8%	7%	7%
17:00	**1005**	**1296**	**2301**	**1014**	**1239**	**2253**	**-1%**	**4%**	**2%**	818	1063	1881	762	973	1734	7%	9%	8%
17:15	916	1250	2166	901	1197	2099	2%	4%	3%	759	1056	1815	705	925	1630	7%	13%	11%
17:30	840	1198	2038	820	1187	2007	2%	1%	2%	721	1021	1742	645	904	1548	11%	12%	12%
17:45	803	1117	1920	752	1132	1884	7%	-1%	2%	661	981	1642	609	857	1466	8%	13%	11%
18:00	770	1033	1803	716	1112	1828	7%	-7%	-1%	613	928	1541	591	815	1406	4%	13%	9%
18:15	744	1011	1755	695	1042	1737	7%	-3%	1%	591	874	1466	574	789	1362	3%	10%	7%
18:30	703	952	1655	641	1013	1654	9%	-6%	0%	526	857	1383	551	758	1309	-5%	12%	5%
18:45	656	899	1555	581	924	1504	12%	-3%	3%	516	797	1313	531	711	1242	-3%	11%	6%
19:00	606	843	1449	556	854	1410	9%	-1%	3%	530	775	1305	506	693	1199	4%	11%	8%
19:15	568	804	1372	508	832	1340	11%	-3%	2%	505	704	1209	501	663	1164	1%	6%	4%
19:30	529	765	1293	494	755	1249	7%	1%	3%	509	666	1175	481	646	1127	6%	3%	4%
19:45	490	731	1221	485	723	1207	1%	1%	1%	470	602	1072	458	640	1098	3%	-6%	-2%
20:00	462	671	1134	451	675	1126	2%	0%	1%	432	549	981	442	573	1015	-2%	-4%	-3%
20:15	400	578	979	401	610	1012	0%	-5%	-3%	432	554	986	418	558	976	3%	-1%	1%
20:30	376	526	902	365	560	925	3%	-6%	-3%	426	558	984	423	516	938	1%	8%	5%
20:45	352	470	822	336	512	848	5%	-9%	-3%	427	550	977	423	501	924	1%	9%	6%
21:00	320	430	749	302	456	758	6%	-6%	-1%	434	582	1015	425	513	938	2%	13%	8%
21:15	319	412	731	302	415	717	5%	-1%	2%	425	546	971	416	464	881	2%	16%	10%
21:30	297	413	710	298	392	690	0%	5%	3%	415	499	915	408	446	854	2%	11%	7%
21:45	274	399	673	281	362	643	-3%	10%	4%	424	496	920	388	418	806	9%	17%	13%
22:00	245	363	608	260	336	596	-6%	8%	2%	424	460	884	372	384	756	13%	18%	16%
22:15	207	332	539	217	287	504	-5%	14%	7%	430	529	959	369	391	760	15%	30%	23%
22:30	186	262	449	188	229	417	-1%	14%	7%	478	607	1085	341	367	708	33%	49%	42%
22:45	155	219	374	174	199	373	-12%	10%	0%	494	724	1218	334	350	684	39%	70%	56%
23:00	143	190	333	152	179	331	-6%	6%	0%	496	794	1290	331	327	658	40%	83%	65%

Appendix I : Traffic Flow Diagram

Network Flow Diagram - 2022 Base

AM Peak - 08:00 -09:00
Factor - 1



Jn 20	A	B	C
A	0	0	1447
B	307	0	395
C	1387	0	0

Jn 30	A	B	C
A	0	12	0
B	0	0	1448
C	118	1571	0

Jn 40	A	B	C	D
A	0	238	304	762
B	299	0	20	690
C	0	0	0	0
D	638	656	290	0

Jn 50	A	B	C
A	0	27	56
B	0	0	1262
C	70	865	0

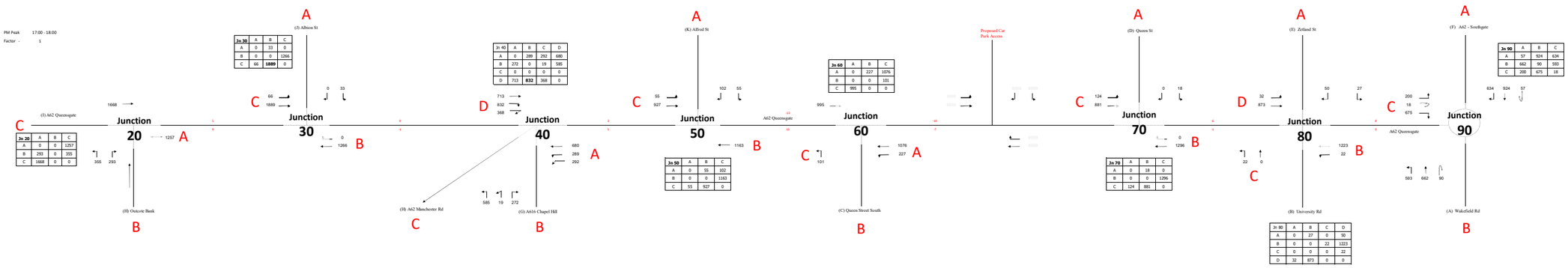
Jn 60	A	B	C
A	0	172	1160
B	0	0	108
C	890	0	0

Jn 70	A	B	C
A	0	3	0
B	0	0	1341
C	85	811	0

Jn 80	A	B	C	D
A	0	6	0	12
B	0	0	44	1304
C	0	0	0	36
D	40	786	0	0

Jn 90	A	B	C
A	47	652	465
B	896	65	846
C	276	491	21

PM Peak 17:00 - 18:00
Factor - 1



Jn 20	A	B	C
A	0	0	1257
B	293	0	355
C	1668	0	0

Jn 30	A	B	C
A	0	33	0
B	0	0	1266
C	66	1889	0

Jn 40	A	B	C	D
A	0	289	292	680
B	272	0	19	585
C	0	0	0	0
D	713	832	368	0

Jn 50	A	B	C
A	0	55	102
B	0	0	1163
C	55	927	0

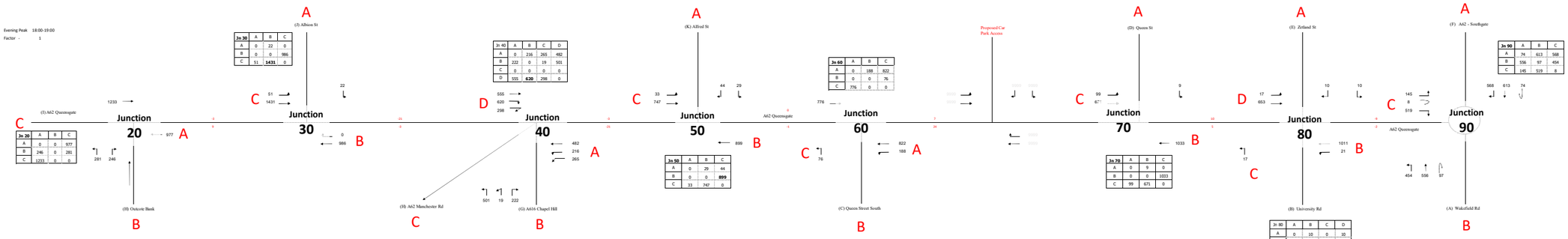
Jn 60	A	B	C
A	0	227	1076
B	0	0	101
C	995	0	0

Jn 70	A	B	C
A	0	18	0
B	0	0	1296
C	124	881	0

Jn 80	A	B	C	D
A	0	27	0	50
B	0	0	22	1223
C	0	0	0	22
D	32	873	0	0

Jn 90	A	B	C
A	57	924	634
B	662	90	593
C	200	675	18

Evening Peak 18:00-19:00
Factor - 1



Jn 20	A	B	C
A	0	0	977
B	246	0	281
C	1233	0	0

Jn 30	A	B	C
A	0	22	0
B	0	0	986
C	51	1431	0

Jn 40	A	B	C	D
A	0	216	265	482
B	222	0	19	501
C	0	0	0	0
D	555	620	298	0

Jn 50	A	B	C
A	0	29	44
B	0	0	899
C	33	747	0

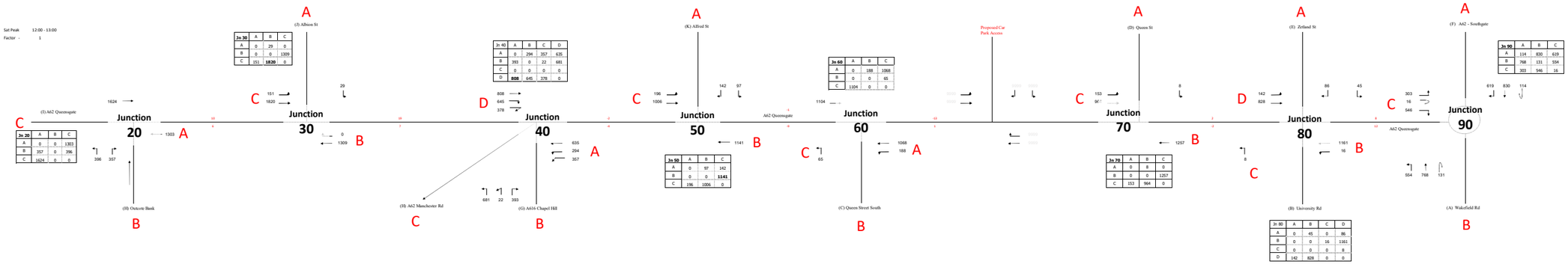
Jn 60	A	B	C
A	0	188	822
B	0	0	76
C	776	0	0

Jn 70	A	B	C
A	0	9	0
B	0	0	1033
C	99	671	0

Jn 80	A	B	C	D
A	0	10	0	10
B	0	0	21	1011
C	0	0	0	17
D	17	653	0	0

Jn 90	A	B	C
A	74	613	568
B	556	97	454
C	145	519	8

Sat Peak 12:00 - 13:00
Factor - 1



Jn 20	A	B	C
A	0	0	1303
B	357	0	396
C	1624	0	0

Jn 30	A	B	C
A	0	29	0
B	0	0	1309
C	151	1820	0

Jn 40	A	B	C	D
A	0	294	357	635
B	393	0	22	681
C	0	0	0	0
D	808	645	378	0

Jn 50	A	B	C
A	0	97	142
B	0	0	1141
C	196	1006	0

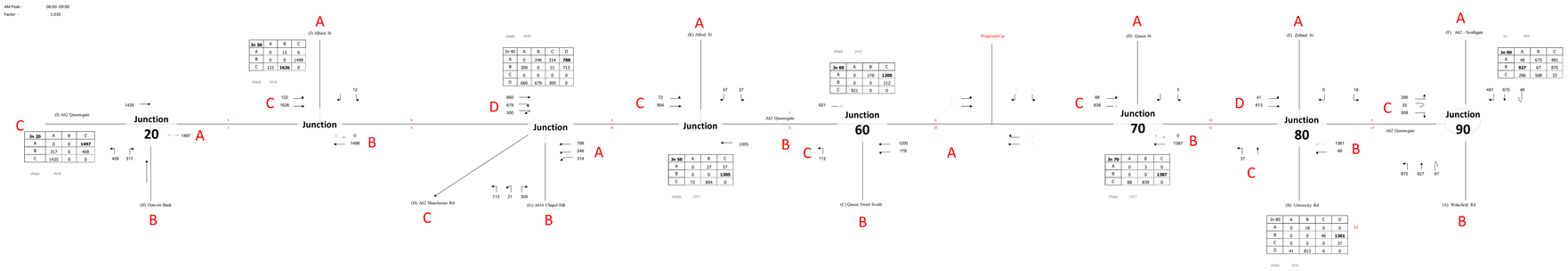
Jn 60	A	B	C
A	0	188	1068
B	0	0	65
C	1104	0	0

Jn 70	A	B	C
A	0	8	0
B	0	0	1257
C	153	964	0

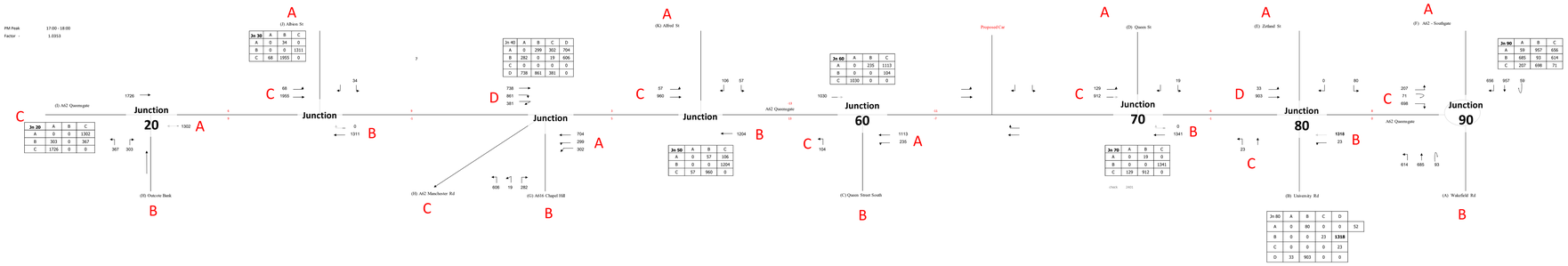
Jn 80	A	B	C	D
A	0	45	0	86
B	0	0	16	1161
C	0	0	0	8
D	142	828	0	0

Jn 90	A	B	C
A	114	830	619
B	788	131	554
C	303	546	16

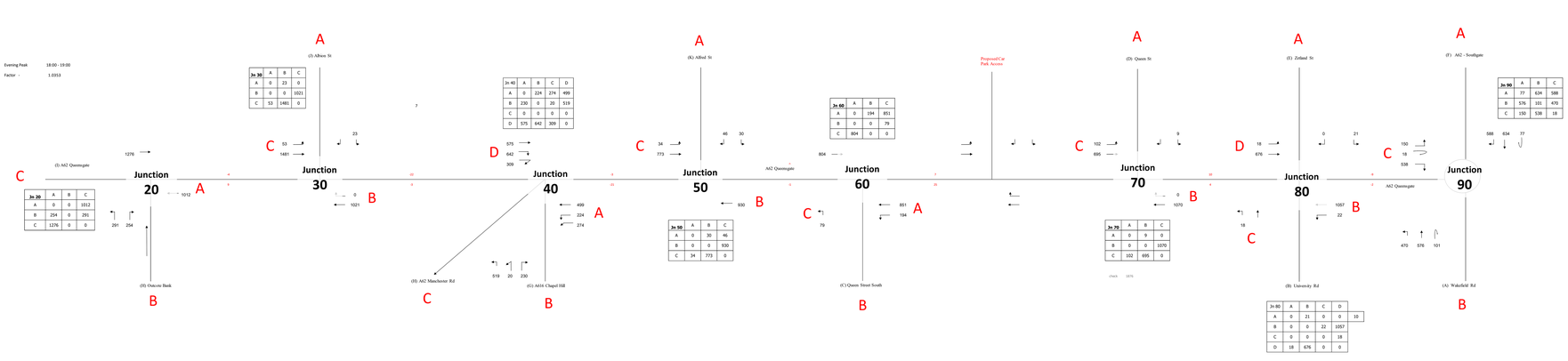
AM Peak - 08:00-09:00
Factor - 1.035



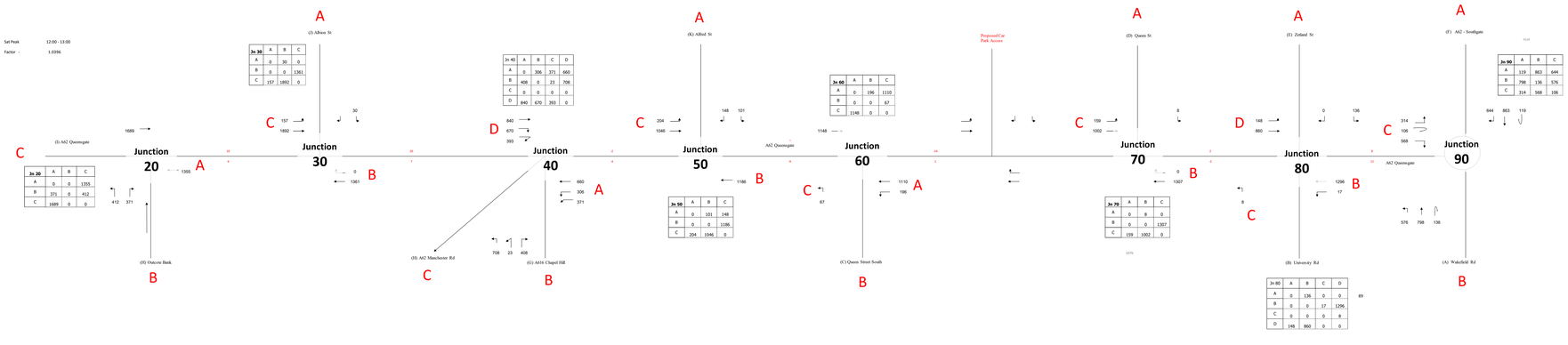
PM Peak 17:00 - 18:00
Factor - 1.0353



Evening Peak 18:00 - 19:00
Factor - 1.0353

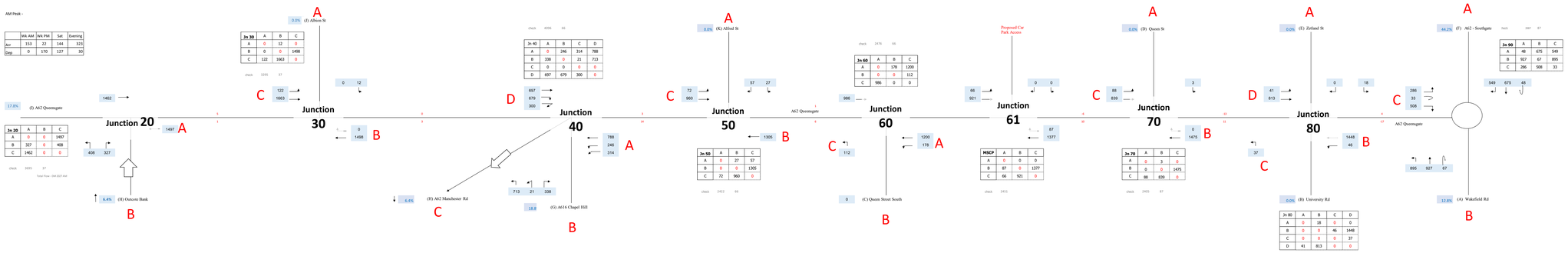


Sat Peak 12:00 - 13:00
Factor - 1.0396



AM Peak -

	WK AM	WK PM	Sat	Evening
Arr	153	22	144	323
Dep	0	170	127	30



Jn 20	A	B	C
A	0	0	1497
B	327	0	408
C	1462	0	0

check 3695 37

Total Flow - DM 2027-AM

Jn 30	A	B	C
A	0	12	0
B	0	0	1498
C	122	1663	0

check 3295 37

Jn 40	A	B	C	D
A	0	246	314	788
B	338	0	21	713
C	0	0	0	0
D	697	679	300	0

check 4096 66

Jn 50	A	B	C
A	0	27	57
B	0	0	1305
C	72	960	0

check 2412 66

Jn 60	A	B	C
A	0	178	1200
B	0	0	112
C	986	0	0

check 2476 66

MSCP	A	B	C
A	0	0	0
B	87	0	1377
C	66	921	0

check 2451

Jn 70	A	B	C
A	0	3	0
B	0	0	1475
C	88	839	0

check 2405 87

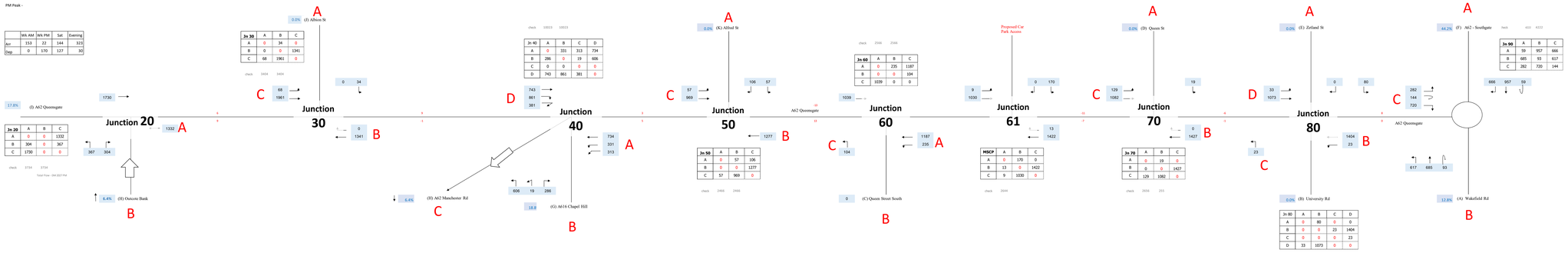
Jn 80	A	B	C	D
A	0	18	0	0
B	0	0	46	1448
C	0	0	0	37
D	41	813	0	0

Jn 90	A	B	C
A	48	675	549
B	927	67	895
C	286	508	33

check 1887 87

PM Peak -

	WK AM	WK PM	Sat	Evening
Arr	153	22	144	323
Dep	0	170	127	30



Jn 20	A	B	C
A	0	0	1332
B	304	0	367
C	1730	0	0

check 3734 3734

Total Flow - DM 2027-PM

Jn 30	A	B	C
A	0	34	0
B	0	0	1341
C	68	1961	0

check 3404 3404

Jn 40	A	B	C	D
A	0	331	313	724
B	286	0	19	606
C	0	0	0	0
D	743	861	381	0

check 10033 10033

Jn 50	A	B	C
A	0	57	106
B	0	0	1277
C	57	969	0

check 2466 2466

Jn 60	A	B	C
A	0	235	1187
B	0	0	104
C	1039	0	0

check 2566 2566

MSCP	A	B	C
A	0	170	0
B	13	0	1422
C	9	1030	0

check 2644

Jn 70	A	B	C
A	0	19	0
B	0	0	1427
C	129	1082	0

check 2656 255

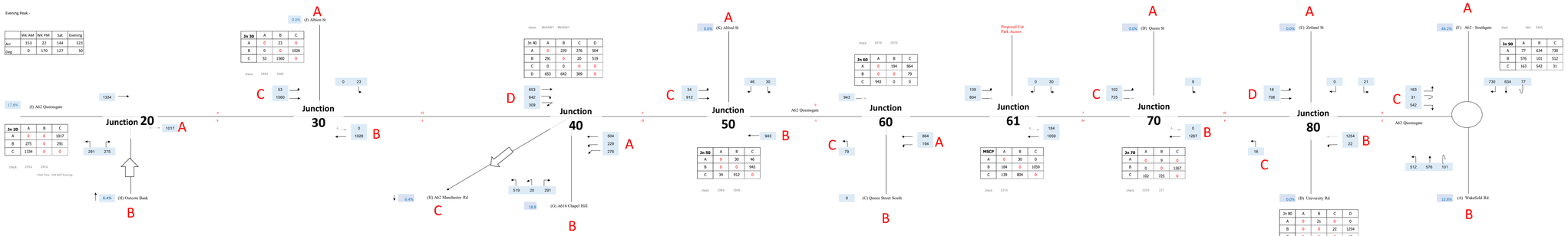
Jn 80	A	B	C	D
A	0	80	0	0
B	0	0	23	1404
C	0	0	0	23
D	33	1073	0	0

Jn 90	A	B	C
A	59	957	666
B	685	93	617
C	282	720	144

check 4222 4222

Evening Peak -

	WK AM	WK PM	Sat	Evening
Arr	153	22	144	323
Dep	0	170	127	30



Jn 20	A	B	C
A	0	0	1017
B	275	0	291
C	1334	0	0

check 2916 2916

Total Flow - DM 2027-Evening

Jn 30	A	B	C
A	0	23	0
B	0	0	1026
C	53	1560	0

check 2682 2682

Jn 40	A	B	C	D
A	0	229	276	504
B	291	0	20	519
C	0	0	0	0
D	653	642	309	0

check #NAME? #NAME?

Jn 50	A	B	C
A	0	30	46
B	0	0	943
C	34	912	0

check 1966 1966

Jn 60	A	B	C
A	0	194	864
B	0	0	79
C	943	0	0

check 2079 2079

MSCP	A	B	C
A	0	30	0
B	184	0	1059
C	139	804	0

check 2715

Jn 70	A	B	C
A	0	9	0
B	0	0	1267
C	102	725	0

check 2555 237

Jn 80	A	B	C	D
A	0	21	0	0
B	0	0	22	1254
C	0	0	0	18
D	18	706	0	0

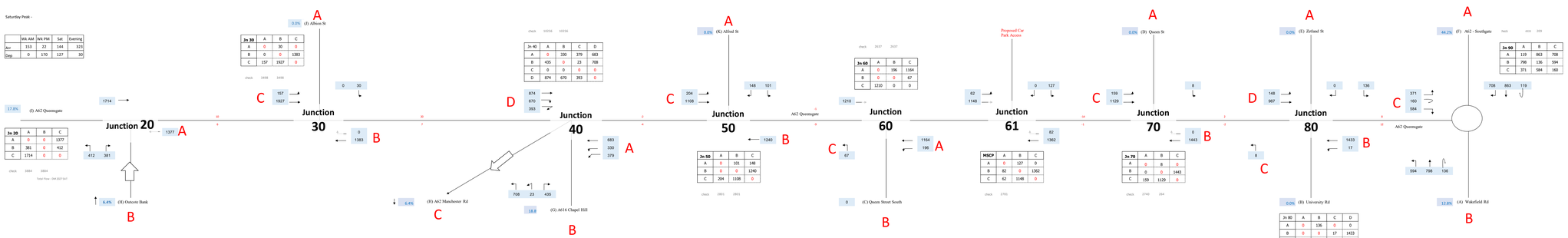
check 2038 2038

Jn 90	A	B	C
A	77	634	730
B	576	101	512
C	163	542	31

check 1861 2355

Saturday Peak -

	WK AM	WK PM	Sat	Evening
Arr	153	22	144	323
Dep	0	170	127	30



Jn 20	A	B	C
A	0	0	1377
B	381	0	412
C	1714	0	0

check 3884 3884

Total Flow - DM 2027-SAT

Jn 30	A	B	C
A	0	30	0
B	0	0	1383
C	157	1927	0

check 3498 3498

Jn 40	A	B	C	D
A	0	330	379	683
B	435	0	23	708
C	0	0	0	0
D	874	670	393	0

check 10256 10256

Jn 50	A	B	C
A	0	101	148
B	0	0	1240
C	204	1108	0

check 2801 2801

Jn 60	A	B	C
A	0	196	1164
B	0	0	67
C	1210	0	0

check 2637 2637

MSCP	A	B	C
A	0	127	0
B	82	0	1362
C	62	1148	0

check 2781

Jn 70	A	B	C
A	0	8	0
B	0	0	1443
C	159	1129	0

check 2740 264

Jn 80	A	B	C	D
A	0	136	0	0
B	0	0	17	1433
C	0	0	0	8
D	148	987	0	0

check 2729 264

Jn 90	A	B	C
A	119	863	708
B	798	136	594
C	371	584	160

check 4101 209