Shearer Property Regen Limited

City Centre South Transport Assessment

November 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

Insets

Figures

19	Baseline 2037 + Development traffic flows – AM Weekday
20	Baseline 2037 + Development traffic flows – PM Weekday
21	Baseline 2037 + Development traffic flows – Saturday Peak Hour

Drawings

31176/AC/013_C	Swept path analysis of servicing and access arrangements.
31176/AC/014_C	Swept path analysis of fire tender including accessing First Floor/Podium court yard
31176/AC/026_C	Option 2 - Croft Road /Queen Victoria Road layout
31176/AC/062	Proposed Lower Market Way all movements junction arrangement
31176/AC/063	Proposed Greyfriars Lane/ New Union Street junction arrangement
31176/AC/054_B	Proposed replacement ramp access into Coventry Market basement Swept path and visibility analysis

Technical Appendices

A	TPP report D012c - Summary of junction modelling
B	TPP report D009 - Initial findings of car park surveys
C	TPP report D008 - Initial findings of servicing surveys
D	TPP report D010c - Pedestrian Comfort Assessment Note
E	TPP report D019a - Initial findings of the taxi surveys
F	Proposed ground and first floor plans
G	Pedestrian access and routes through the development
H	Proposed location and type of the visitor cycle
I	TPP report D018a - Trip Generation Note - Servicing Vehicles
J	Proposed access strategy
K	TPP report D013a - Trip Generation Note - Vehicular Modes
L	TPP report D017a - Trip Generation Note – Sustainable Modes
M	Car park capacity impact assessment calculations
N	Bus utilisation assessment calculations
O	TPP report D022 - Accident data review

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) have been commissioned by Shearer Property Regen Limited (SPRL) to provide transport planning advice to support a hybrid planning application for the redevelopment of Coventry City Centre South referred to herein as City Centre South (CCS). Figure 1 shows the site location plan.

1.1.2 Throughout the preparation of this Transport Assessment, TPP have consulted with Coventry City Council (CCC) Highways. This includes meetings held on:

- 12th September 2019;
- 6th February 2020;
- 20th February 2020;
- 27th May 2020;
- 3rd June 2020; and
- 18th September 2020.

1.1.3 The full component of the hybrid planning application is for:

A Full Application for removal of bridge link between Coventry Market roof top car park and roof top parking over existing retail units on Market Way and associated reinstatement works to roof top car park surface and balustrade, removal of existing Coventry Market basement ramp from Rover Road and associated infilling and reinstatement works, works to retaining wall to north-east of Coventry Market, removal of existing pedestrian ramp into Coventry Market off Rover Road, creation of new Coventry Market basement ramp from Queen Victoria Road and associated works to Coventry Market basement, and removal and relocation of William Mitchell mural from front elevation of the former Three Tuns Public House building in Bull Yard.

1.1.4 The outline component of the hybrid planning application is for a:

Mixed use redevelopment comprising the provision of up to 1,300 residential units (Class C3), up to 150 hotel rooms (Class C1), up to 37,500 sqm of mixed-use non-residential floorspace including Class E Commercial, Business and

Service uses, Class F.1 Learning and Non-Residential Institutions, and Sui Generis Pub or Drinking Establishment / Hot Food Takeaway / Cinema uses, hard and soft landscaping and new public open spaces including sustainable urban drainage systems, car parking provision and formation of new pedestrian and vehicular access.

1.1.5 As this is a hybrid planning application with the built form submitted in outline, it would be unreasonable to assess the proposed development based on its maximum parameters as the total of these maxima would exceed the quantum of development permitted and therefore would not be a realistic scenario to assess.

1.1.6 Therefore, this Transport Assessment has been based on the Illustrative Masterplan proposals as this represents a justifiable development scenario that can be assessed. However, in order to provide a robust assessment of the proposals, the residential aspects have been assessed on the maximum parameter of 1,300 units

1.1.7 Overall the Illustrative Masterplan proposals comprise the demolition of the existing retail and office development, and the city centre car parks within the CCS site, and the provision of circa:

- 75,892m^2 of C3 Residential use class development, for which 1,300 units as a maximum have been assessed;
- 19,842m^2 of Class E use, proposed as Retail;
- 3,240m^2 of Class E use, proposed as Food & Beverage;
- 2,699m^2 of B1 use class Office development;
- 5,994m^2 of C1 use class Hotel development, comprising circa 150 bedrooms;
- 2,159m^2 of Sui Generis, proposed as a cinema with approximately 200 seats;
- 2,391m^2 of D1 use class Community development, comprising a health centre with up to 15 treatment rooms;

- two car parks currently comprising 130 spaces and 36 spaces respectively, with a third smaller parking area of 8 spaces for the medical centre and hotel; and
- the removal of the existing Coventry Market basement ramp, with the provision of a new ramp directly accessed from Queen Victoria Road.

1.1.8 The remainder of this Transport Assessment comprises the following chapters:

- Chapters 2 and 3 set out baseline transport conditions including the results of surveys;
- Chapter 4 sets out the future transport conditions within the city centre which CCC are looking to bring forward;
- Chapter 5 sets out the development proposals;
- Chapter 6 sets out the predicted trip generation and travel mode share for the development proposals;
- Chapter 7 sets out the impact of the development on the local highway network;
- Chapter 8 sets out the impact of the development on the city centre parking provision;
- Chapter 9 sets out the impact of the development on the local sustainable transport network;
- Chapter 10 sets out the construction vehicle routeing and access, and impacts of the construction period on the local highway network;
- Chapter 11 sets out the proposed measures to mitigate the impact of the proposals on the local transport network;
- Chapter 12 sets out the transport policy on which the development proposals will be assessed against; and
- Chapter 13 sets out the summary and conclusions of this Transport Assessment.

1.1.9 The Coventry Connected (Transport and Accessibility) Supplementary Planning Document January 2019 herein referred to as the Coventry Connected SPG has been consulted in preparing this Transport Assessment. The Local Plan Policy AC3: *Demand Management* and Coventry Connected SPG Chapter 4 has been given particular regard in defining the scope and methodology of this Transport Assessment.

1.1.10 The ring road that surrounds Coventry city centre has been referred to by its correct name, the A4053 Ringway in this Transport Assessment. However, in reports that are prepared by others which accompany the planning application, the road is referred to as the Ring Road.

2 BASELINE TRANSPORT CONDITIONS - OVERVIEW

2.1.1 This chapter summarises the existing transport conditions within the vicinity of the site based on supplied material and published information. The findings of surveys commissioned by TPP are set out in the next chapter.

2.1.2 Coventry has a bus station and railway station providing good links by public transport. As well as having good public transport facilities, Coventry is easily accessible by road, being served by a network of strategic roads.

2.1.3 The existing site encompasses the southern section of the city centre and comprises the following:

- City Arcade shopping centre which includes a Argos department store and Iceland supermarket;
- City Arcade car park with 170 spaces;
- Barracks car park with 479 spaces;
- Bull Yard and Shelton Square shopping areas; and
- the pedestrian retail streets of Hertford Street and Market Way.

2.1.4 The CCS site currently comprises the following floor areas:

- Circa 25,000m^2 of A1 Retail use class development;
- Circa 4,000m^2 of A3 use class Food & Beverage development; and
- Circa 5,900m^2 of B1 use class Office development.

2.2 Pedestrian access

2.2.1 Queen Victoria Road and Greyfriars Road bound the site to the west and south-west respectively. Both roads provide wide footways on both sides of the carriageway.

2.2.2 Queen Victoria Road facilitates access to the site via Rover Road which also provides footways on both sides of the carriageway. Rover Road leads to Coventry Market and other facilities within the site. Furthermore, Queen Victoria Road provides access onto the site via City Arcade shopping centre, which is

located to the south of the Rover Road access. City Arcade enables access to a number of facilities within the site (e.g. Holland and Barrett, Coventry Exchange, etc.).

2.2.3 There is an access point from Greyfriars Road which facilitates access to the City Arcade car park and a service yard at the southern end of the site. This is referred to further in this report as Service Yard 1.

2.2.4 Pedestrian access to the site can also be taken from the east via Warwick Row or New Union Street which provide access to Bull Yard and Shelton Square, and from Hertford Street and Market Way.

2.2.5 The local pedestrian infrastructure provides crossing facilities on Queen Victoria Road and Greyfriars Road. There are signal controlled crossing facilities located on Queen Victoria Road, in the vicinity of the access to City Arcade shopping centre and the junction with Rover Road. There is a Zebra crossing facility on Greyfriars Road, near the roundabout with Warwick Road. Another signal controlled pedestrian crossing is located where Warwick Road turns into New Union Street giving pedestrian access into Bull Yard.

2.3 Cycle access

2.3.1 There are a number of cycle routes that connect the site to the Coventry conurbation as well as nearby towns. There are six routes (which are either on-road or traffic-free) which extend from the inner ring road to a number of destinations. The routes and their relative destinations are summarised below and shown in Figures 2 and 3:

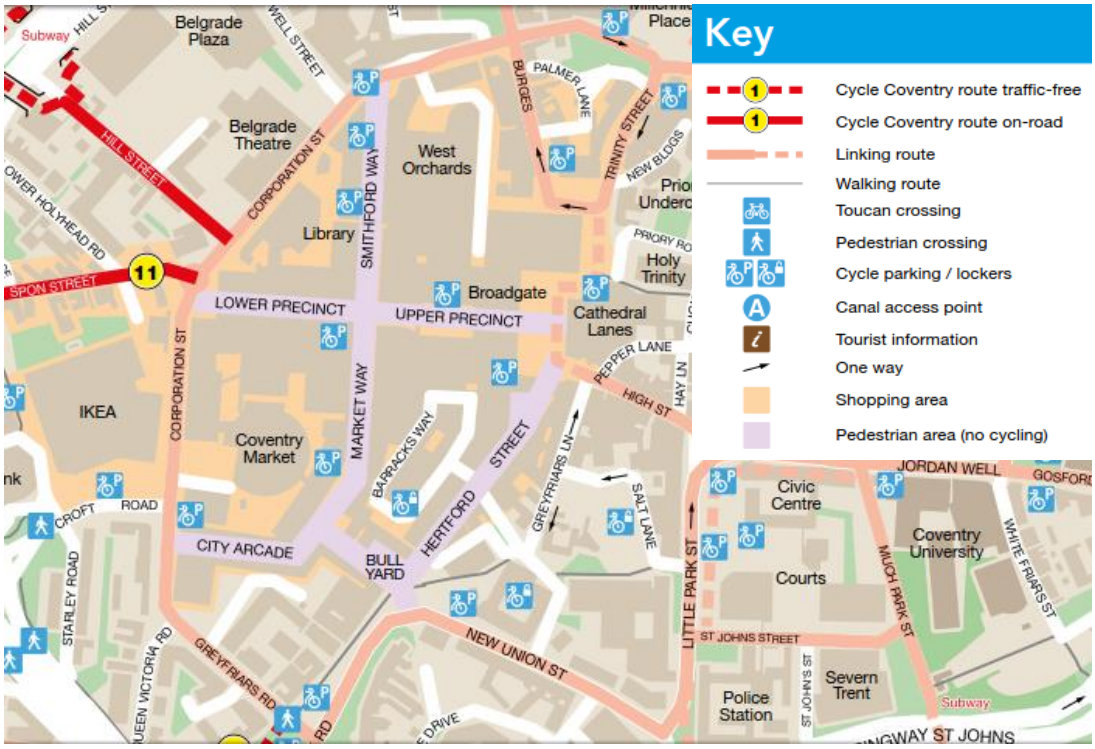
- Route 1 – extends from Ringway St Nicholas (to the north of the site) to Rowley's Green and Keresley
- Route 2 – extends from Ringway St Nicholas (to the north of the site) to Longford and Hawkesbury Junction
- Route 3 – extends from Fairfax Street (to the north-east of the site) to Henley Green and Potters Green
- Route 10 – extends from Greyfriars Road (to the south of the site) to Earlsdon and University of Warwick

- Route 11 – extends from Corporation Street (to the west of the site) to Canley, University of Warwick, Westwood Business Park and Tile Hill

- An additional route is provided to the north-west of the site and extends from Corporation Street to Coundon and Allesley

2.3.2 There is currently cycle parking provided throughout the town centre as shown on Inset 2.1. Cycle parking and lockers are provided at Barracks car park with spaces for 125 cycles (108 racks and seven lockers are in a compound). A number of cycle hoops are provided around the city centre, with four spaces on Market Way, 24 spaces on New Union Street, six spaces at City Arcade, and 24 spaces on Croft Road/IKEA.

Inset 2.1 - Cycle parking facilities



2.4 Bus services

2.4.1 A number of bus stops are located within a short walking distance of the CCS site. The nearest bus stops are stops VR2 and VR3, located on Queen Victoria Road (to the west of the site), stops CR2 and CR4, located on Croft Road (to the west of the site) and stops GR1 and GR2, located on Greyfriars Road (to the south of the site).

2.4.2 Bus stop VR2 is served by the 3/3A, 9/9A, 10A, 11, 21/21A and 585/585A/585B routes. Bus stop VR3 is served by the 4/4A, 8/8A, 9/9A, 10/10A, 21/21A, 585/585A/585B and X17 routes. Bus stop CR2 is served by route 6/6A and bus stop CR4 is served by routes 4/4A, 6/6A, 8/8A and 10.

2.4.3 Bus stop GR1 is served by the same routes as stop VR2, with the addition of route X18. Bus stop GR2 is served by routes 9/9A, 10A, 21/21A, 585/585A/585B, X17 and X18. These bus routes are summarised in Table 2.1 with their respective destinations and frequencies during peak times.

Table 2.1: Summary of frequent bus services

Bus route	Route	Weekday AM peak hour	Weekday PM peak hour	Weekday Inter-peak hour	Sat. hour freq.	Sun. hour freq.
3	Arena Shopping Park - Fenside	2	2	2	2	1
3A	Arena Shopping Park - Fenside	2	2	2	2	1
4	University Hospital - Tile Hill South	3	3	2	2	1
4A	Westwood Business Park - City Centre	1	2	3 per day out of peak hours	0	0
6/6A	Victoria Farm - Tile Hill	6	6	4	6	2
8	Walsgrave - Eastern Green	2	2	2	2	1
8A	Wood End - Eastern Green	2	2	2	2	1
9/9A	Uni. Hosp. – City Centre – Rail Station - Finham	3	3	2	3	2
10	Bell Green - Tile Hill	1	1	1-2	1	2
10A	Bell Green - Westwood Business Park	2	2	0-1	2	0
11	Leamington Spa - Coventry City Centre	3	3	2	3	2
21	Wood End - Bell Green - City Centre - Willenhall	6	7	2	3	3
21A	Middlemarch Business Park - Wood End	2	2	0	0	0
585/585 A/585B	Coventry Station - Rugby via Brinklow	1	1	1	1	0
X17	Coventry - Warwick via Leamington	3	3	2	2	1
X18	Coventry - Warwick via Stratford	1	3	1-2	2	1
Total		**40**	**44**	**28-31**	**33**	**18**

2.4.4 In total, the bus routes serving the vicinity of the site provide 40 services during the AM peak and 44 services during the PM peak. The local bus network provides

28-31 services per hour on weekdays in between the peak hours, 33 services per hour on Saturdays and 18 services per hour on Sundays.

2.4.5 Additionally, Pool Meadow Bus Station is located on Fairfax Street, to the north east of the site (within a 10-minute walk), directly to the east of the Whittle Arch and Coventry Transport Museum. The bus station has 19 stands. Bus parking and layover facilities are provided on the central islands. The bus station is served by a total of 29 local bus routes serving the Coventry conurbation and linking it to other nearby towns and cities.

2.5 Park & Ride

2.5.1 There is Park & Ride service (Stagecoach route X17) that serves Coventry (Monday to Sunday) from the War Memorial Park to the south.. The Park & Ride site can accommodate over 400 vehicles and the buses operate a service into the centre of town every 20 minutes with an approximate journey time of 10-15 minutes. Wheelchair accessible buses operate on the Park & Ride route.

2.6 Rail

2.6.1 Coventry Railway Station is located to the south of the CCS site, within approximately a 600m walking distance (6-8 minute walk). The station provides a multi-storey car park comprising 358 spaces, including two wheelchair accessible spaces. Additionally, the station provides cycle parking facilities.

2.6.2 The station is on the Birmingham loop of the West Coast Main Line and is served by West Midlands Trains, CrossCountry and Avanti West Coast. The services provided at the station serve a range of destinations including:

- London Euston (calling at none, some or all of Rugby, Northampton, Milton Keynes Central or Watford Junction);
- Birmingham New Street;
- Bournemouth (via Southampton, Reading, Oxford and Leamington Spa);
- Manchester Piccadilly (via Birmingham New Street);
- Liverpool (via Stafford and Crewe);

- Rugeley Town;
- Glasgow Central / Edinburgh Waverley (via Preston & Carlisle);
- Nuneaton; and
- Leamington Spa (via Kenilworth).

2.6.3 A summary of direct rail journeys, times and frequencies to key destinations during peak times is provided in Table 2.2.

Table 2.2: Summary of rail services to key destinations from Coventry

Destination	Weekday AM peak hour	Weekday PM peak hour	Weekday Inter-peak hour	Sat. peak hour	Sun. peak hour
London Euston	7	7	1-4	6	4
Birmingham New Street	7	7	3	7	4
Bournemouth	1	1	1	1	1
Manchester	1	1	1	1	1
Nuneaton	1	1	1	1	1
Leamington Spa	2	2	1	1	1
Crewe	3	3	1	1	1
Total	**22**	**22**	**9-12**	**18**	**13**

Source: *www.nationalrail.com and* TA for Coventry Station Masterplan (FUL/2018/1732), TS for Abbots Lane (OUT/2019/2454), TA for Former Coventry Telegraph Site (OUT/2018/0188) due to COVID-19 restricted timetable.

2.7 Taxis

2.7.1 There are a number of taxi ranks located within the city centre including at the following locations (see Figure 9):

- Rover Road
- Greyfriars Lane
- Queen Victoria Road

2.7.2 A summary of the capacity within each of the taxi drop-offs along the above roads is provided in Chapter 3. A taxi rank is also provided at Coventry Railway Station with the stand located at the front of the station.

2.8 Highway network

Strategic Road Network (SRN)

2.8.1 The Highways Agency is responsible for England's Strategic Road Network (SRN). The SRN in the vicinity of Coventry comprises:

- The A45, the Birmingham to Daventry Trunk Road which forms a southern bypass to Coventry and connects with several radial routes serving the city (although it is not SRN between the junction with A46 and M42);
- The A46 Trunk Road forms the Coventry Eastern Bypass which links with the M69 to the north and the M5 at Tewkesbury;
- The M6 to the north of Coventry runs from Rugby to Carlisle.

2.8.2 At its nearest (the junction of the A45 and A46), the SRN is 6.8km from the site. A number of radial routes connect Coventry and its hinterland and the SRN.

Local highway network

2.8.3 Vehicular access to the site can be taken from Queen Victoria Road, Greyfriars Road and Barracks Way. Queen Victoria Road links to Croft Road which provides access to the A4053 Ringway at Junction 7. Figure 4 shows the local highway network including Coventry Ringway.

2.8.4 Greyfriars Road links to the B4544 Warwick Road which bypasses the CCS site to the north and to the south joins the A4053 Ringway at Junction 6. Barracks Way changes into Greyfriars Lane which then joins the B4544 New Union Street which bypasses the CCS site to the west and joins the A4053 Ringway at Junction 5 to the east.

2.8.5 The A4053 Ringway links to the following A and B roads:

- A4114 Holyhead Road / Pickford Way –extends to the west of the Coventry Ringway and links with the A45 at a roundabout with the A45, Parkhill Drive and Rye Hill.
- B4098 – extends to the north-west of the Coventry Ringway and runs through Corley, Corley Ash, Over Whitacre, Furnace End, Botts Green

and Nether Whitacre. The road forms a four-arm roundabout with the A51, A4097 and Piccadilly Way.

- B4119 Foleshill Road – extends to the north of the Coventry Ringway and forms a four-arm roundabout with the A444 and the B4113.
- A4600 Sky Blue Way – extends to the east of the Coventry Ringway and forms a roundabout with the A44 as well as a roundabout with the M6 to the north-east of the Coventry Ringway.
- A4114 London Road – extends southbound from the Coventry Ringway and forms a roundabout with the A444 and A4082. The A444 extends further south to form the Stivichall Interchange with the A45.
- A429 Warwick Road – extends southbound from the Coventry Ringway and forms a four-arm signalised junction with the A45 to the south-west of the site. The A429 then extends further south towards Kenilworth.
- B4101 Butts Road – extends to the west to form a roundabout with the A4114, B4076 and Birmingham Road.

2.9 Road safety

2.9.1 Personal Injury Accident (PIA) data has been provided by Transport for West Midlands (TfWM). A review of the accident clusters has been undertaken and is discussed in more detail in TPP report D022 contained within Technical Appendix O.

2.10 Car parking

2.10.1 There are approximately 4,000 public parking spaces in the vicinity of the site and a further 400 spaces available from the Park and Ride service provided at War Memorial Park.

2.10.2 The public car parking spaces within the vicinity of the site are provided at the following locations (see Figure 6):

- City Arcade – 170 spaces

- Barracks – 479 spaces
- Market – 244 spaces
- Lower Precinct – 340 spaces
- Salt lane – 569 spaces
- Skydome – 891 spaces
- Ikea – 943 spaces (It should be noted that the as of the date of the planning submission, the IKEA store and car park has closed)
- New Union Street and Cheylesmore – 300 spaces

2.10.3 A summary of the utilisation of each car park is provided in Chapter 3.

2.11 Servicing areas

2.11.1 The existing CCS site comprises four service yards located at the following locations:

- Service Yard 1: City Arcade – accessible from Greyfriars Road;
- Service Yard 2: Rover Road (to the south of Coventry Market) – accessible from Queen Victoria Road;
- Service Yard 3: Rover Road / Lower Precinct (to the north of Coventry Market) – accessible from Queen Victoria Road; and
- Service Yard 4: Barracks – accessible from Barracks Way via Greyfriars Lane and New Union Street.

2.11.2 A summary of the servicing activity within each of the aforementioned service yards is provided in Chapter 3.

2.12 Summary

2.12.1 Overall, the site is in-line with the Local Plan Policy AC1: *Accessible Transport Network* and Coventry Connected SPG Chapter 2 with regard to being located where the development can integrate with the existing transport network. The site is well served by walking, cycling, bus and rail routes, and by the highway

network and benefits from being located adjacent to other city centre facilities to which future users of the site can walk or cycle to.

3 BASELINE TRANSPORT CONDITIONS - SURVEYS

3.1.1 This chapter summarises the surveys that were undertaken to inform this Transport Assessment. Surveys were undertaken of the local road network, the CCS site's four service yards, the city centre car parks, taxi ranks and of pedestrian and cycle links within the CCS site demise.

3.1.2 TPP commissioned the independent survey company Nationwide Data Collection to undertake a number of transport related surveys. The scope and timing of the surveys were discussed and agreed with CCC Highways during the highways meeting on 12th September 2019.

3.2 Traffic surveys

3.2.1 Automatic Traffic Counter (ATC) surveys were undertaken for a seven day period between 21st and 27th November 2019. The ATC locations are shown on Figure 5 and summarised below:

- ATC A: Little Park Street
- ATC B: New Union Street
- ATC C: Greyfriars Lane
- ATC D: Warwick Road
- ATC E: Queen Victoria Road
- ATC F: Croft Road
- ATC G: Corporation Street
- ATC H: Upper Well Street
- ATC I: Corporation Street

3.2.2 Fully classified turning count surveys were undertaken at a number of road junctions within close proximity of the CCS site. The surveys were undertaken on Thursday 21st and Saturday 23rd November 2019. The junction locations are shown on Figure 5 and summarised below:

- Salt Lane / Little Park Street Junction.

- New Union Street / Little Park Street Roundabout.
- New Union Street / Greyfriars Lane Junction.
- Greyfriars Road / Warwick Road Roundabout.
- Greyfriars Road / City Arcade car park access Junction.
- Queen Victoria Road / Croft Road / Rover Road Junction.
- Queen Victoria Road / Lower Precinct car park and service road access Junction.
- Upper Well Street / Corporation Street Junction.
- Corporation Street / West Orchard car park and service yard access Junction.
- Corporation Street / The Burges / Hales Street / Bishop Street Junction.

3.2.3 These surveys included recording data for the pedestrian crossings at the junction where appropriate. TPP report D012c contained within Technical Appendix A summarises the results of the junction capacity assessments undertaken for the existing road junctions.

3.3 Car park surveys

3.3.1 Surveys of the main city centre car parks were undertaken on the same days as the fully classified turning count surveys. Therefore the surveys were undertaken on Thursday 21st and Saturday 23rd November 2019. The surveys recorded the vehicle arrivals and departures in five minute intervals between 07:00 – 19:00. The car park locations are shown on Figure 6 and summarised below:

- City Arcade
- Barracks
- Market
- Lower Precinct

- Salt lane
- Skydome
- Ikea
- New Union Street and Cheylesmore

3.3.2 TPP report D009 contained within Technical Appendix B summarises the results of the car park surveys. City Arcade and Barracks car parks will be demolished and not replaced as part of the development proposals.

3.3.3 The findings of the report are discussed further in Chapter 8 of this report.

3.4 Servicing surveys

3.4.1 Surveys of the four service yards that serve the existing development on the site were surveyed on Thursday 21st and Saturday 23rd November 2019. The surveys recorded the number and class of the delivery vehicles accessing the yards, the time they arrived and their departure time with dwell time calculated. The service yard locations are shown on Figure 7 and summarised below:

- Service Yard 1: City Arcade.
- Service Yard 2: Rover Road - South of Coventry Market.
- Service Yard 3: Rover Road / Lower Precinct - North of Coventry Market.
- Service Yard 4: Barracks, with separate details for the northern and southern sections of the yard.

3.4.2 TPP report D008 contained within Technical Appendix C summarises the results of the service yard surveys.

3.5 Pedestrian and cycle surveys

3.5.1 Pedestrian and cycle surveys were undertaken at a number of entrance points and links within the proposed development site. The surveys recorded the number of pedestrians and cyclists arriving and departing if at an entrance, or the direction if on a link, (i.e. north-south or east-west) per 15 minute period. The surveys covered a period of 07:00 - 19:00 on the same weekday and

Saturday as the traffic surveys. The entrance points and link locations are shown on Figure 8 and summarised below:

- City Arcade
- Rover Road - through to service yard
- Rover Road - Coventry Market - south west entrance
- Rover Road – Coventry Market - south east entrance
- Coventry Market - east entrance
- Market Way
- Bull Yard - east-west direction
- Bull Yard - north-south direction
- Hertford Street

3.5.2 TPP report D010c contained within Technical Appendix D summarises the results of the pedestrian comfort assessment undertaken for the existing pedestrian routes within and surrounding the development site.

3.6 Taxi ranks

3.6.1 Surveys of the taxi ranks near the development site were undertaken on Thursday 21st and Saturday 23rd November 2019. The surveys recorded the number of taxis waiting and passenger pick-ups including occupancy between 07:00 - 19:00. The taxi rank locations are shown on Figure 9 and summarised below:

- Rover Road
- Greyfriars Lane
- Queen Victoria Road
- Fleet Street*
- Spon Street*

- Warwick Road*
- Lower Holyhead Road*

3.6.2 The taxi ranks with an asterix were requested by CCC Highways to be surveyed although it was advised that the ranks may no longer be in operation. The survey company undertook an investigation of the taxi ranks and found them to be non- operational during the time of the surveys. TPP report D019a contains the initial findings of the taxi surveys and is contained within Technical Appendix E.

4 FUTURE TRANSPORT CONDITIONS

4.1.1 This chapter sets out the future of transport for Coventry which is being investigated by CCC and TfWM.

4.2 Very Light Rail

4.2.1 Very Light Rail (VLR) is a research and development project for Coventry city centre, using the latest automotive expertise developed in the region to deliver an innovative and affordable light rail system that would run through the city. The proposed route would utilise Queen Victoria Road to the west of the development site.

4.2.2 The scheme is aware of these proposals and can accommodate them with minimal impact.

4.3 Cycle hire scheme and cycle infrastructure

4.3.1 A city centre cycle hire scheme is being investigated. CCC Highways have confirmed that TfWM have stated a supplier will be appointed for the cycle hire scheme in 2020. The cycle scheme will be a docked system. In addition to the cycle hire scheme, CCC are investigating improvements to the cycle route infrastructure.

4.4 Electric Scooter trials

4.4.1 Coventry will undertake electric scooter trials to see how e-scooters can safely be used in public places to ease the pressure on public transport. The development supports these proposals.

4.5 Removal of through traffic

4.5.1 CCC Highways are investigating a number of schemes that will restrict traffic crossing through the city by using bus only lanes, no-through roads and other measures. Drivers will instead make use of the A4053 Ringway to transverse the city with vehicles entering the city for access only. This will reduce traffic on the local roads and could improve the capacity at some of the key junctions.

5 PROPOSED DEVELOPMENT

5.1.1 This chapter provides a description of the proposed development scenario assessed in this Transport Assessment. The outline planning application is for a:

Mixed use redevelopment comprising the provision of up to 1,300 residential units (Class C3), up to 150 hotel rooms (Class C1), up to 37,500 sqm of mixed-use non-residential floorspace including Class E Commercial, Business and Service uses, Class F.1 Learning and Non-Residential Institutions and Sui Generis Pub or Drinking Establishment / Hot Food Takeaway / Cinema uses, hard and soft landscaping and new public open spaces including sustainable urban drainage systems, car parking provision and formation of new pedestrian and vehicular access.

5.1.2 As this is a hybrid planning application with the built form submitted in outline, it would be unreasonable to assess the proposed development based on its maximum parameters as the total of these maxima would exceed the quantum of development permitted and therefore would not be a realistic scenario to assess.

5.1.3 This Transport Assessment has been therefore based on the Illustrative Masterplan proposals as this represents a justifiable development scenario that can be assessed. However, in order to provide a robust assessment of the proposals, the residential aspects have been assessed on the maximum parameter of 1,300 units.

5.1.4 Overall the Illustrative Masterplan proposals comprise the demolition of the existing retail and office development, and the city centre car parks within the CCS site, and the provision of circa:

- 75,892m^2 of C3 Residential use class development, for which 1,300 units as a maximum have been assessed;
- 19,842m^2 of Class E use, proposed as Retail;
- 3,240m^2 of Class E use, proposed as Food & Beverage;
- 2,699m^2 of B1 use class Office development;

- 5,994m^2 of C1 use class Hotel development, comprising circa 150 bedrooms;
- 2,159m^2 of Sui Generis, proposed as a cinema with approximately 200 seats;
- 2,391m^2 of D1 use class Community development, comprising a health centre with up to 15 treatment rooms;
- two car parks currently comprising 130 spaces and 36 spaces respectively, with a third smaller parking area of 8 spaces for the medical centre and hotel; and
- the removal of the existing Coventry Market basement ramp, with the provision of a new ramp directly accessed from Queen Victoria Road.

5.1.5 The proposals can be broadly described as four development blocks situated around a fifth 'block' to be known as the Pavilion. Due to differing ground floor levels across the site, access for pedestrians and vehicles is spread across the ground and first floor levels. Technical Appendix F contains the proposed ground and first floor plans.

5.2 Access

Pedestrian and cycle

5.2.1 Pedestrian and cycle access to the site will be from:

- Queen Victoria Road via the realigned Rover Road to be renamed as Rover Walk;
- Coventry Market which also links to Lower Precinct Shopping Centre;
- The existing route of Market Way, linking to Lower and Upper Precinct;
- The existing route of Hertford Street, linking to Broadgate;
- Warwick Road / New Union Street into what is currently known as Bull Yard; and

- The realigned City Arcade car park access to be renamed as Lower Market Way.

5.2.2 Technical Appendix G contains a plan prepared by Chapman Taylor, the Architects, showing the pedestrian access and routes through the development.

Vehicles

5.2.3 The outline proposals of the hybrid planning application are based on a minimum of 90 car parking spaces and a maximum of 300 car parking spaces. However, the car parking numbers set out within this Transport Assessment have been based on the Illustrative Masterplan which is indicative but represents a justifiable development scenario that can be assessed.

5.2.4 The exact number of car parking spaces will be determined at reserved matters application stage. The Illustrative Masterplan proposes vehicle access for servicing and operational vehicles only. Vehicle access will be via the three locations as set out below:

- Barracks Way as per the existing situation for the Block B service yard and a car park for up to 130 spaces;
- the realigned City Arcade car park access to be renamed as Lower Market Way for the Block C service yard and parking area for 8 cars; Block D service area and a 36 space car park; and the Pavilion and Coventry Market restricted hours servicing arrangements; and
- via the existing service route to the north of Coventry Market via the Lower Precinct service yard.

5.2.5 The Queen Victoria Road / Croft Road junction will be adjusted to include pedestrian crossing facilities, egress from the CCS site for the Pavilion and Coventry Market restricted hours servicing arrangements and the new Coventry Market basement ramp. Drawing 31176/AC/026_C shows the currently preferred proposed junction arrangement. The arrangement can be refined to allow for the future provision of Very Light Rail. This is in-line with the Coventry Connected SPG Chapter 6.

5.3 Cycle parking

5.3.1 Cycle parking for the proposed CCS development will accord with the standards set out in the *Coventry Local Plan 2016, Appendix 5, Car and Cycle Parking Standards for New Development.* Based on the development scenario assessed within this Transport Assessment i.e. the Illustrative Masterplan, the development will provide cycle parking as set out in Table 5.1.

Table 5.1: Cycle parking provision based on the standards

Use Class	Parking Type	Block A1	Block A2	Block B	Block C	Block D	Pavilion	Total
A1 Retail	Customers (short stay)	3	2	27	5	4	8	**49**
	Staff (long stay)	3	2	27	5	4	8	**49**
A3 F&B	Customers (short stay)	0	2	13	0	0	1	**16**
	Staff (long stay)	0	2	13	0	0	1	**16**
B1 Office	Visitors (short stay)	0	0	7	0	0	0	**7**
	Staff (long stay)	0	0	7	0	0	0	**7**
C1 Hotel	Customers (short stay)	0	0	0	19	0	0	**19**
	Staff (long stay)	0	0	0	5	0	0	**5**
C3 Residential	long stay	82	69	352	129	478	0	**1,110**
D1 Medical Centre	Visitors (short stay)	0	0	0	0	8	0	**8**
	Staff (long stay)	0	0	0	0	7	0	**7**
D2 Leisure (Cinema)	Visitors (short stay)	0	0	10	0	0	0	**10**
	Staff (long stay)	0	0	1	0	0	0	**1**
	Total	**88**	**77**	**457**	**163**	**501**	**18**	**1,304**

5.3.2 In summary, to accord with the standards, the development should provide:

- 109 short-stay visitor cycle parking spaces.
- 1,195 long-stay staff and resident cycle parking spaces.

5.3.3 The visitor cycle parking will be located at 'access points' to the development to allow visitors to cycle directly to the development but not cycle through the pedestrianised areas. As part of the detailed design these cycle parking locations will be reviewed to ensure they are in convenient locations to maximise potential cycle use. Some parking areas will also include mini bike repair stations with robust permanent cycle pumps. The visitor cycle parking will be located to make best use of the radial cycle routes which provide cycle access to the city from its outer areas. Technical Appendix H shows the indicative location and type of the visitor cycle parking spaces prepared by the Landscape Architect HED. This is in-

line with Local Plan policy AC4: *Walking and Cycling* and Chapter 5 of the Coventry Connected SPG.

5.3.4 The type of visitor cycle parking is in line with the advice set out within the *Coventry Local Plan 2016, Appendix 5, Car and Cycle Parking Standards for New Development.* Paragraph 3.5 of the Appendix 5 standards states:

For large developments, or in exceptional circumstances, the cycle parking allocation can be open to negotiation. In these cases the applicant will be required to provide justification regarding the level of expected provision bearing in mind the characteristics of the development site and the nature of the proposed development. The phasing of provision may be appropriate.

5.3.5 A cycle hire scheme is being investigated by TfWM. The proposed residential aspects of the development will result in a significant area of floorspace dedicated to cycle parking. Professional experience shows that a large proportion of residential cycle parking tend not to be used. Therefore this area could be better utilised for other uses if residents had access to cycles on a flexible basis. There is therefore potential to incorporate areas for the cycle hire scheme within and around the development.

5.4 Car parking

5.4.1 The proposed development will remove all public car parking within the boundary of the site and there is no intention to re-provide public car parking elsewhere, either within or off the site. Coventry currently has a large car parking supply within the city centre with tariffs that are unlikely to encourage modal shift to more sustainable forms of transport.

5.4.2 TPP report D009 contained within Technical Appendix B summarises the results of the car park surveys. The report looks in further detail on pages 11 and 20 of the utilisation of car parks within the boundary of the site, City Arcade and Barracks car parks, and those nearby i.e. the car parks patrons are likely to use if visiting the proposed development, Market, Lower Precinct and Salt Lane car parks.

5.4.3 The development scenario assessed within this Transport Assessment i.e. the Illustrative Masterplan will provide a total of 174 residential and operational car

parking spaces. These will be located in three car parks, with 130 spaces within Block B, 8 in a parking area outside Block C and 36 within Block D.

5.4.4 The spaces within Block B will provide operational parking spaces including wheelchair accessible spaces for the residential aspects of the proposals. The spaces outside Block C will provide operational parking spaces including wheelchair accessible spaces for the medical centre and potentially the hotel. The spaces within Block D will provide operational parking spaces including wheelchair accessible spaces for the residential aspects of the proposals.

5.4.5 The residential parking provision has been based on disabled parking requirements, operational needs, site constraints and expected requirements.

5.4.6 To help formulate the proposed parking provision the following points have been considered:

- Discussions with potential Build-to-Rent operators with regard to their requirements and operational needs.
- The possible accessible parking provision for the scheme (Part M of the Building Regulations suggest 10% of units are accessible and therefore have an accessible parking space).
- The desire for family homes to have access to a car parking space.
- The provision of car club bays.
- Accessible and key staff parking spaces for certain uses such as the medical centre.
- The desire to provide the minimum adequate quantum of parking to avoid use of the surrounding car parks by those unable to operate / work without access to a car, e.g. plumbers, electricians, care workers etc.

5.4.7 As per the Council's Air Quality Plan, Policy EM7 of the Local Plan and the emerging Air Quality SPD, all allocated spaces will have an electric vehicle charging point. The developer is also reviewing the allocation of a number of the bays to car clubs to facilitate more sustainable travel and minimise car ownership. This is in-line with the Coventry Connected SPG section 4.3.8.

5.4.8 Access to the parking spaces in Block B will be via the existing Barracks Way underpass. Access to the parking spaces in Blocks C and D will be via the realigned City Arcade car park access to be renamed as Lower Market Way.

5.5 Shopmobility

5.5.1 As part of the demolition of the Barracks car park the existing Shopmobility provision will need to be relocated. The intention is to re-provide the offer within the city centre although this is unlikely to be within the CCS development site. Following discussions with CCC they are looking at alternative locations within the city centre. The relocation of the Shopmobility will be secured through an appropriately worded planning condition.

5.6 Servicing

5.6.1 The proposed servicing strategy uses existing points of access from the local highway network where possible. The servicing vehicle trip generation and required number of service vehicle bays has been calculated for Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs). The full servicing trip generation analysis is set out within TPP report D018a – Trip Generation Note - Servicing Vehicles which is contained within Technical Appendix I.

5.6.2 Technical Appendix J shows the proposed access strategy prepared by the Landscape Architect HED which includes servicing vehicle routes. Drawing 31176/AC/013_C shows the swept path analysis of servicing vehicles.

Block A1 and A2

5.6.3 Block A1 will be serviced from a lay-by provided on Queen Victoria Road. Based on the servicing trip generation analysis, it is expected that the lay-by will be need to be sufficiently sized to accommodate one HGV and therefore will be large enough to accommodate two LGVs. Drawing 31176/AC/026_C shows one possible option with an adjusted Queen Victoria Road / Croft Road junction which incorporates the loading bay.

5.6.4 Legitimate servicing could also take place from the proposed Rover Walk to the south of the block during the allocated servicing times.

5.6.5 Block A2 will be serviced via the Lower Precinct service area to the north of Coventry Market. This route is already used to service this area and the eastern side of the market. This provides unrestricted service access.

5.6.6 Based on the servicing trip generation analysis, it is expected that sufficient servicing space will need to be provided to accommodate one HGV or two LGVs for Block A2. The servicing surveys showed that on a weekday there were 29 service vehicles passing through the raising arm barrier in the Lower Precinct service yard to access Rover Road. On Saturday there were 17. It is expected that approximately a third of these vehicles were servicing the units which front onto Market Way. This equates to approximately 20 service vehicles over a 12 hour period on a weekday servicing the Market, which equates to 1-2 vehicles an hour. Therefore, in order to maintain the current servicing arrangements for this side of the Market and Block A2, two loading bays, one of which capable of accommodating a HGV, is considered to be appropriate. This can be accommodated within the existing arrangement, either within the service area or from the public realm adjacent to the market in a similar manner to the existing situation.

5.6.7 SPG and TPP have consulted with Royal London, the operators of the Lower Precinct shopping centre, with regard to servicing for their development, the northern element of the market, and Block A2. Feasibility options have been worked up to demonstrate the capability to service all three locations and tabled at a meeting with Royal London. These in principle arrangements can be further refined at the Reserved Matters stage.

5.6.8 In addition, Block A2 could also be serviced from the Block B service yard via the corridor running to the north of Block B. This route may be more appropriate for smaller deliveries such as those undertaken by couriers.

Block B

5.6.9 Block B will be serviced from a basement service yard accessed via the Barracks Way underpass which currently provides servicing access for retail units located within the development site on Bull Yard, Market Way and Hertford Street. The existing service yard also provides loading facilities for retail units located to the north of the CCS development site on Market Way, Hertford Street and Upper

Precinct. These units will continue to be serviced from the Block B service yard in addition to the proposals for Block B.

5.6.10 The Block B service yard will provide a mixture of:

- Circa 3 x 16.5m articulated HGV bays;
- Circa 4 x 10m rigid HGV bays;
- At least 2 x 8m rigid HGV bays; and
- Circa 10 x LGV bays.

5.6.11 Based on the servicing trip generation analysis, it is expected that 9 LGV and 5 HGV bays would be required to provide servicing facilities for Block B and the retained retail units to the north. This level of provision does not require any undue management of the service yard. Therefore the loading space within Block B could be further optimised, albeit that the minimum requirement will always be provided. The proposed service yard will be sufficiently sized to accommodate the demand.

Block C

5.6.12 Block C will be serviced from a dedicated loading area located to its rear and accessed via the realigned City Arcade car park access to be renamed as Lower Market Way. Based on the servicing trip generation analysis, the proposals are to provide 2 LGV bays and 1 HGV bay. The service yard, including swept path analysis, is shown on drawing 31176/AC/013_C.

Block D

5.6.13 Vehicles will access Block D via a service road accessed from the realigned City Arcade car park access to be renamed as Lower Market Way. Two lay-bys will be provided on the service road for loading, with some ancillary servicing / waste collection taking place from Queen Victoria Road. Based on the servicing trip generation analysis, the proposals are to provide 2 LGV bays and 1 HGV bay.

Block E (Pavilion)

5.6.14 The Pavilion will be serviced by vehicles stopping to load alongside the building on the pedestrianised area surrounding it. Access to this area will be restricted,

the timing of which is yet to be determined. Vehicles will circulate the building in a one-way 'anti-clockwise' loop to allow vehicles to pass those already loading. This adds a further element of safety in the pedestrianised area.

5.6.15 Access to the pedestrianised area will be from a controlled access point at the northern end of the realigned City Arcade car park access road to be renamed as Lower Market Way. Egress will be via the realigned Rover Road to be renamed as Rover Walk. Rover Walk will have an access control point which restricts vehicles from accessing the pedestrianised area. Vehicles will join Queen Victoria Road via an adjusted signalised junction with Croft Road. Drawing 31176/AC/026_C shows the adjusted Queen Victoria Road / Croft Road junction.

Coventry Market

5.6.16 Whilst Coventry Market does not form part of the development proposals, the area to its east and south will be re-landscaped to provide a greatly improved pedestrianised area where there is currently service vehicle access. However, service vehicles will still be able to access these areas to unload adjacent to the building on a restricted basis, the timing of which is yet to be determined.

5.6.17 Service vehicle access to the north of the market will be gained from the Lower Precinct service yard. Restricted service vehicle access to the southern side of the market will be from a controlled access point at the northern end of Lower Market Way. Vehicles will drive through the pedestrian area and stop adjacent to the market. The vehicle route past the market will be one-way, to allow vehicles to pass those already loading. Egress will be via Rover Walk as detailed previously.

5.6.18 The Market basement will continue to be accessible via a new vehicle ramp proposed in this planning application under Block A1, which will access directly onto Queen Victoria Road. The ramp to the basement is subject to a detailed planning application. Drawing 31176/AC/054_B therefore shows the proposed new ramp arrangement based on the existing highway layout indicating that the proposals meet highway standards with regard to visibility and geometry. The swept path analysis shows that a 4.6t Transit van can enter and exit the Market basement in forward gear as per the existing situation.

Summary

5.6.19 The proposed development will provide sufficient servicing facilities to accommodate the demand on-site and will provide on-site turning facilities where required. This is in-line with Local Plan policy AC7: *Freight* and Chapter 8 of the Coventry Connected SPG.

5.7 Taxi ranks

5.7.1 As part of the realignment and proposed pedestrianisation of Rover Road, the proposal is for the existing taxi stand for three Hackney carriages to be re-provided on Warwick Road by utilising the loading lay-by outside the Reform Club. This lay-by should no longer be required as the majority of deliveries will now be able to take place from the rear of the properties.

5.7.2 TPP report D019a contains the initial findings of the taxi surveys and is contained within Technical Appendix E

5.7.3 A review of the taxi survey data indicates that the maximum existing number of boarders per hour between 07:00 – 19:00 for the Rover Road taxi stand on a weekday is 42 persons. The proposed CCS development is predicted to generate up to 2 additional taxi person trips per hour on a weekday. This provides an overall total of 44 taxi person trips per hour. Assuming a worst case of 1 person boarding each taxi equates to an assumed usage of 44 taxis per hour.

5.7.4 The Saturday taxi survey data indicates that the maximum existing number of boarders per hour between 07:00 – 19:00 for the Rover Road taxi stand is 45 persons. As with the weekday, the proposed CCS development is predicted to generate up to 2 additional taxi person trips per hour on a Saturday. This provides an overall total of 47 taxi person trips per hour. Assuming a worst case of 1 person boarding each taxi equates to an assumed usage 47 taxis per hour.

5.7.5 Based on the above, during the peak periods the assumed usage results in a taxi leaving circa every one / one and a half minutes. The three space taxi rank can accommodate a rolling cycle of two taxis leaving every minute whilst still providing spare capacity for the third taxi. On this basis the taxis would be able to cycle through the rank every few minutes, with additional taxis arriving at the rear of the rank as the full vehicles leave. This indicates the proposed taxi stand is adequate to supply the maximum predicted demand.

5.8 Emergency access

5.8.1 As part of the overall vehicle access design strategy, emergency vehicle access has been considered throughout. Fire engineering consultants JGA have prepared a separate report detailing the fire strategy for the proposals including fire vehicle access.

5.8.2 A standard fire tender will be able to access all areas of the site that service vehicles can including the pedestrianised areas. In addition, fire vehicles will be able to access additional areas such as Hertford Street and Market Way and the podium area in Block B accessed from Hertford Street. The swept path analysis of a fire tender accessing the site is shown on drawing 31176/AC/014_C.

5.9 Coach parking

5.9.1 CCS may require some provision for coach parking, possibly for the hotel element of the scheme. White Street Coach Park is located to the north east of the site and has capacity for seven coaches and is accessible from junction 2 of the A4053 Ringway.

6 TRIP GENERATION AND TRAVEL MODE SHARE

6.1.1 This chapter sets out the trip generation and travel mode share predicted for the proposed development. The trip generation calculations have been broken down into:

- Vehicular modes;
- Sustainable modes; and
- Servicing vehicles.

6.2 Trip generation

6.2.1 The trip generation has been based on person trip rates obtained from the TRICS database to derive person trips for each existing and proposed land use. As the proposal involves the redevelopment of existing retail and offices uses, which currently generate person trips, the number of person trips estimated for the existing site have been deducted from the person trips predicted for proposed development. This provides the net impact of person trips associated with the CCS development proposals. The full trip generation calculations are contained within the following TPP reports:

- TPP report *D013a Trip Generation Note - Vehicular Modes*, contained within Technical Appendix K;
- TPP report *D017a Trip Generation Note – Sustainable Modes*, contained within Technical Appendix L; and
- TPP report *D018a Trip Generation Note - Servicing*, contained within Technical Appendix I.

6.2.2 It should be noted that the modal split for the development has been assumed prior to any modal shift associated with the use of the Travel Plans that will be submitted for each land use for each development block as part of the reserved matters. Because of this the assessment represents an overly robust scenario in relation to car movements which should be further improved upon during the reserved matters applications.

6.3 Consultation

6.3.1 The trip generation and travel mode share calculation methodology was discussed and agreed with CCC Highways at meetings on the 6th and 20th February 2020 prior to undertaking the assessment.

6.3.2 The three trip generation reports outlined above were issued to CCC Highways on 27th May 2020 and discussed during a meeting with CCC Highways on the same day. CCC Highways confirmed via email on 5th June 2020 that the methodologies and TRICS/trip generation figures within the three reports are accepted and agreed for use within the Transport Assessment and for the modelling requirements. The scoping methodology is in-line with the Connected SPG Chapter 3.

6.4 Vehicle modes - all land uses

6.4.1 The peak hours calculated for the vehicle modes impact assessment are:

- 09:00 – 10:00 and 17:00 – 18:00 on a weekday; and
- 14:00 -15:00 on a Saturday.

6.4.2 The assessed times were based on the background traffic peaks as agreed with CCC Highways. TPP report D013a Trip Generation Note - Vehicular Modes, sets out the full trip generation assessment for vehicle modes.

Weekday trip generation

6.4.3 The total net person trip generation for the development proposals on a weekday for the vehicular impact assessment peak hours is shown in Table 6.1.

Table 6.1: All uses net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	187	509	696
17:00-18:00	968	375	1,343
Daily	**4,864**	**4,689**	**9,553**

6.4.4 As can be seen from Table 6.1, there would be 4,864 new person arrivals across a 12 hour period between 07:00 – 19:00 and 4,689 new departures resulting in a total of 9,553 new person trips on a weekday.

All uses vehicle travel mode share – Weekday

6.4.5 The vehicular travel mode share for all uses of the proposed development during the AM and PM peak hours is shown in Table 6.2.

Table 6.2: Net vehicle travel mode share – All uses – Weekday peak hours

Mode	AM peak hour			PM peak hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	70	153	223	275	107	382
Car or van pass	11	27	38	53	20	73
Taxi	0	0	0	0	0	0
Motorcycle	2	5	7	11	5	16
Total	**83**	**185**	**268**	**339**	**132**	**471**

6.4.6 As can be seen from Table 6.2, there would be a total of 268 new person trips travelling by vehicle on the highway network in the AM peak hour of which 223 would be car or van trips. In the PM peak hour there would be a total of 471 new person trips travelling by vehicle on the highway network of which 382 would be car or van trips.

Saturday trip generation

6.4.7 The total net trip generation for the development proposals on a Saturday for the vehicular impact assessment is shown in Table 6.3.

Table 6.3: All uses net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	291	367	658
Daily	**4,466**	**3,771**	**8,237**

6.4.8 As can be seen from Table 6.3, there would be 4,466 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,771 new departures resulting in a total of 8,237 new person trips on a Saturday.

All land uses vehicle travel mode share – Saturday

6.4.9 The vehicular travel mode share for all uses of the proposed development during the Saturday peak hour is shown in Table 6.4

Table 6.4: Net vehicle travel mode share – All uses – Saturday peak hour

Mode	Saturday peak hour		
	Arr.	**Dep.**	**Total**
Car or van	128	140	268
Car or van pass	19	23	42
Taxi	0	0	0
Motorcycle	3	4	7
Total	**150**	**167**	**317**

6.4.10 As can be seen from Table 6.4, there would be a total of 317 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 268 would be car or van trips.

6.5 Sustainable modes - all land uses

6.5.1 The peak hours calculated for the sustainable travel modes impact assessment are:

- 17:00 – 18:00 on a weekday; and
- 13:00 -14:00 on a Saturday.

6.5.2 The Saturday peak hour has been changed for the purposes of this assessment, to be based on the peak person trip generation rather than the highway use peak. This represents a robust scenario for assessing the sustainable trips as they are not affected by the highway peak hours. TPP report D017a Trip Generation Note – Sustainable Modes, sets out the full trip generation assessment for sustainable modes. The AM peak has not been assessed as this is much lower than the PM peak.

Weekday trip generation

6.5.3 The total net trip generation for the sustainable modes impact assessment for the development proposals on a weekday is shown in Table 6.5.

Table 6.5: All uses net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	968	375	1,343
Daily	**4,864**	**4,689**	**9,553**

6.5.4 As can be seen from Table 6.5, there would be 4,864 new person arrivals across a 12 hour period between 07:00 – 19:00 and 4,689 new departures resulting in a total of 9,553 new person trips on a weekday.

All uses sustainable travel mode share - Weekday

6.5.5 The travel mode share for all uses of the proposed development during the PM peak hour is shown in Table 6.6.

Table 6.6: Net sustainable travel mode share – All uses – Weekday

Mode	PM peak hour		
	Arr.	Dep.	Total
Walking	321	124	445
Cycle	23	9	32
Bus	216	85	301
Train	69	27	96
Total	**629**	**245**	**874**

6.5.6 As can be seen from Table 6.6, there would be a total of 874 new sustainable travel mode trips in the PM peak hour.

Saturday trip generation

6.5.7 The total net trip generation for the development proposals on a Saturday is shown in Table 6.7.

Table 6.7: All uses net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	612	713	1,325
Daily	**4,466**	**3,771**	**8,237**

6.5.8 As can be seen from Table 6.7, there would be 4,466 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,771 new departures resulting in a total of 8,237 new person trips on a Saturday.

All uses sustainable travel mode share - Saturday

6.5.9 The travel mode share for all uses of the proposed development during the Saturday peak hour is shown in Table 6.8.

Table 6.8: Net sustainable travel mode share – All uses – Saturday

Mode	Saturday peak hour		
	Arr.	Dep.	Total
Walking	178	221	399
Cycle	15	18	33
Bus	132	155	287
Train	41	48	89
Total	**366**	**442**	**808**

6.5.10 As can be seen from Table 6.8, there would be a total of 808 new sustainable travel mode trips during the Saturday peak hour.

6.6 Servicing vehicle trips

6.6.1 TPP report D018a Trip Generation Note - Servicing, sets out the full trip generation assessment for servicing vehicles. The resultant net CCS development servicing trips for a weekday and Saturday are set out in Table 6.9 and Table 6.10 respectively.

Table 6.9: Net servicing trip generation - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	8	5	9	5	17	10	27
08:00-09:00	27	7	22	8	49	15	63
09:00-10:00	26	10	27	6	53	16	68
10:00-11:00	23	-2	11	2	34	0	34
11:00-12:00	16	10	20	7	36	17	53
12:00-13:00	17	-2	24	3	41	1	42
13:00-14:00	17	5	13	1	30	6	36
14:00-15:00	3	3	15	1	18	4	22
15:00-16:00	22	-1	15	1	37	0	37
16:00-17:00	19	0	21	1	40	1	41
17:00-18:00	7	2	10	1	17	3	20
18:00-19:00	3	0	4	0	7	0	7
Total	**187**	**36**	**191**	**36**	**378**	**72**	**450**

Table 6.10: Net servicing trip generation - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	3	3	10	3	13	6	19
08:00-09:00	11	4	7	5	18	9	27
09:00-10:00	25	7	24	6	49	13	62
10:00-11:00	15	1	8	0	23	1	24
11:00-12:00	9	7	18	9	27	16	43
12:00-13:00	23	0	20	-2	43	-2	41
13:00-14:00	16	5	12	5	28	10	38
14:00-15:00	1	2	14	0	15	2	17
15:00-16:00	17	0	13	2	30	2	32
16:00-17:00	13	0	17	0	30	0	30
17:00-18:00	14	2	7	2	21	4	25
18:00-19:00	-2	1	4	1	2	2	4
Total	**145**	**32**	**154**	**31**	**299**	**63**	**362**

6.6.2 As can be seen from Table 6.9, the net servicing trip generation results in a total of an additional 68 service vehicles in the weekday highway AM peak hour of 09:00 – 10:00 and a total of 20 in the PM peak hour of 17:00 – 18:00 will be on the local highway network. During the Saturday highway peak hour of 14:00 – 15:00, Table 6.10 indicates a total of an additional 17 service vehicles will be on the local highway network.

6.7 Summary

6.7.1 The trip generation predicted for the vehicle modes and servicing trips have been used within the junction capacity assessment set out in Chapter 7. The trip generation calculated for the sustainable modes has been used within the sustainable modes impact assessment set out in Chapter 9.

7 IMPACT ASSESSMENT – HIGHWAY NETWORK

7.1.1 This chapter sets out the findings of the impact assessment undertaken on the highway network.

7.2 Traffic distribution

7.2.1 A traffic distribution model has been built to apply the predicted vehicular trip generation including service vehicles for the proposed CCS development to the existing vehicle flows on the assessed highway network. Figures 10, 11 and 12 show the assessed road network with the 2019 Baseline traffic flows obtained from the traffic surveys for the weekday AM and PM peak hours, and Saturday peak hour respectively.

7.2.2 The CCS development vehicle trip generation has been applied and distributed onto the local highway network based on the each development block's location in relation to the A053 Coventry Ringway junctions and professional judgement. Existing vehicle trips associated with car parking within the site has been redirected to Salt Lane car park. Car Table 7.1 shows the trip distribution for the CCS development arrivals.

Table 7.1: Trip distribution matrix - Arrivals

Block	Coventry Ringway Junctions					
	Jct. 5	Jct. 6	Jct. 7	Jct. 9	Jct. 10	Total
A1	3%	0%	90%	4%	3%	100%
A2	3%	0%	90%	4%	3%	100%
B	50%	48%	2%	0%	0%	100%
C	6%	30%	60%	4%	0%	100%
D	6%	30%	60%	4%	0%	100%
Pav	6%	30%	60%	4%	0%	100%

7.2.3 Table 7.2 shows the trip distribution for the CCS development departures.

Table 7.2: Trip distribution matrix - Departures

Block	Coventry Ringway Junctions					
	Jct. 5	Jct. 6	Jct. 7	Jct. 9	Jct. 10	Total
A1	2%	0%	90%	5%	3%	100%
A2	2%	0%	90%	5%	3%	100%
B	50%	48%	2%	0%	0%	100%
C	30%	5%	60%	3%	2%	100%
D	30%	5%	60%	3%	2%	100%
Pav	2%	0%	90%	5%	3%	100%

7.3 Scope of assessment

7.3.1 The traffic model includes links to the A4053 Coventry Ringway Junctions 5, 6, 7, 9 and 10. The assessed road network does not connect Junction 8 of the A4053 Coventry Ringway.

7.3.2 The traffic model indicates that the predicted traffic flows on links to junctions on the A4053 Coventry Ringway will not increase by more than 30%. A review of Department for Transport (DfT) Count Point data for the A4053 Coventry Ringway shows the predicted development traffic will be well below 10% of the ring road flows for the weekday peak hours. Therefore, the A4053 Coventry Ringway junctions have not been assessed within this Transport Assessment.

7.4 Cumulative schemes

7.4.1 The following cumulative schemes have been agreed with CCC and included within the impact assessment.

- Friargate - The site is outside of the A4053 Ringway and vehicles associated with the site are unlikely to drive into the city. Therefore impact on the capacity of the assessed road network will be negligible. It is expected any traffic associated with the development would be captured within the background growth of the assessed network. However, the pedestrian, cycle and bus trips have been included within the impact assessment.

- Two Friargate - The site is outside of the A4053 Ringway and vehicles associated with the site are unlikely to drive into the city. Therefore impact on the capacity of the assessed road network will be negligible. It is expected any traffic associated with the development would be captured within the background growth of the assessed network. However, the pedestrian, cycle and bus trips have been included within the impact assessment.

- 21-31 Parkside, Coventry, CV1 2NE - The site is outside of the A4053 Ringway and located to the south east of the development. It is a car-free student accommodation development. No Transport Statement / Assessment has been prepared. Therefore impact on the capacity of the assessed road network will be negligible. It is expected any traffic associated with the development would be

captured within the background growth of the assessed network. Due to the site's location on the Mile Lane Campus of Coventry University, students are unlikely to walk or cycle through CCS other than when they are visiting. They are also unlikely to have an impact on the buses servicing CCS.

- Student Car Park, Coventry University, Gulson Road – The site is a new academic building for Coventry University. The proposals result in a reduction in car parking on the site and the site is located on the eastern side of the city outside of the A4053 Ringway. Therefore impact on the capacity of the assessed road network will be negligible. It is expected any traffic associated with the development would be captured within the background growth of the assessed network. Due to the site's location on the eastern side of the city outside of the A4053 Ringway, students are unlikely to walk or cycle through CCS other than when they are visiting. They are also unlikely to have an impact on the buses servicing CCS.

- 23, 25 and 29 Warwick Road - This development has not received planning consent but has been included for robustness. It is forecasted to generate a total six vehicle trips in the AM peak hour and 7 in the PM peak hour. This level of traffic impact is considered negligible. It is expected any traffic associated with the development would be captured within the background growth of the assessed network. However, the pedestrian and cycle trips have been included within the impact assessment but bus trips haven't given the sites location to the University Campus meaning they are unlikely to use the bus network.

7.5 Traffic growth

7.5.1 The year of opening for the development is 2027. Therefore, traffic growth rates have been obtained from the DfT's TEMPro software.

7.5.2 To assess the opening year and ten years after opening, the following National Transport Model (NTM) local growth rates have been obtained for the purposes of the highway impact assessment:

- 2019 – 2027 AM Weekday: 1.0848

- 2019 – 2027 PM Weekday: 1.0809
- 2019 – 2027 Saturday: 1.0885
- 2019 – 2037 AM Weekday: 1.0936
- 2019 – 2037 PM Weekday: 1.0905
- 2019 – 2037 Saturday: 1.0954

7.6 Assessment scenarios

7.6.1 The following assessment scenarios have been undertaken for the weekday AM and PM peak hours and the Saturday peak hour:

- **2019 Baseline** – See Figures 10, 11 and 12 for the traffic flow diagrams.
- **2027 Future Baseline** - See Figures 13, 14 and 15 for the traffic flow diagrams.
- **2027 + Development** - See Figures 16, 17 and 18 for the traffic flow diagrams.
- **2037 + Development** - See Figures 19, 20 and 21 for the traffic flow diagrams.

7.7 Junction capacity assessment

7.7.1 The junction capacity assessment results of the assessed highway network for the 2019 Baseline scenario is set out within TPP report D012c *Junction Capacity Assessment* which is contained within Technical Appendix A.

7.7.2 Salt Lane / Little Park Street junction (Site 1), whilst surveyed, was not assessed in terms of capacity as Little Park Street is one-way northbound and Salt Lane is a one-way egress off of Little Park Street. Therefore, there would be no opposing movements resulting in no capacity issues. Junction capacity assessments have therefore been undertaken of the following junctions:

- Site 2 – New Union Street / Little Park Street roundabout
- Site 3 – New Union Street / Greyfriars Lane junction

- Site 4 – Greyfriars Road / Warwick Road roundabout
- Site 5 – Greyfriars Road / City Arcade car park access junction
- Site 6 – Queen Victoria Road / Croft Road / Rover Road junction
- Site 7 – Queen Victoria Road / Lower Precinct car park access and service road access junction
- Site 8 – Upper Well Street / Corporation Street junction
- Site 9 –Corporation Street / West Orchard car park and service road access junction
- Site 10 – Corporation Street / The Burges / Hales Street / Bishop Street junction

7.7.3 Models of Sites 2 to 10 were built using Junctions 9 software with geometry being taken from topographical survey data. The traffic flows were obtained from traffic surveys undertaken on Thursday 21st and Saturday 23rd November 2019. The existing junction capacity modelling results have then been validated against queue length surveys undertaken on the same dates.

7.7.4 The model for the future scenario for site 6 has been assessed using LinSig to explore the potential of introducing signals on this junction.

7.7.5 The assessment of a junction's capacity is provided by its Ratio of Flow to Capacity (RFC). RFC is measured as a percentage with 85% - 90% generally recognised as the threshold at which a junction is reaching its theoretical capacity to allow for daily variation in traffic. In addition, the queue lengths predicted by the models indicate potential issues with junction capacity and design. The queue lengths for this assessment have been provided in PCU's (Passenger Car Unit's).

7.7.6 When reviewing this assessment it should be noted that the modelling is based on a worst case vehicle trip generation which assumes the existing modal split, resulting in a high car usage. As the scheme progresses and detailed Travel Plans are provided for the different elements of the wider scheme it is expected that the development car trips will reduce further as sustainable travel modes

are encouraged. This includes by limiting the resident car parking in the City Centre.

7.7.7 The junction capacity assessment of the existing situation demonstrates that all junctions currently operate within their theoretical capacity. Only Site 8 – Upper Well Street / Corporation Street junction exceeds the theoretical capacity threshold to allow for daily variation. However, it only exceeds this threshold by 2%. This is not considered significant, particularly when the maximum average queue of 5.8 PCUs is taken into consideration. When assessing against the junction's theoretical capacity, there is a latent capacity of 13%.

7.7.8 The junction capacity for the proposed situation demonstrates that junctions 2, 5 7 and 9 operate within their theoretical capacity in 2037.

7.7.9 Junction 3 would operate above capacity in 2037 and so it is proposed that Greyfriars Lane is widened by 1m. The junction is likely to still exceed capacity on the Saturday, although for the reasons explained in Chapter 3, this is also likely to be the case in the 'do nothing' scenarios by this time. Drawing 31176/AC/063 shows the proposed widened Greyfriars Lane.

7.7.10 Junction 4 has been assessed to operate above capacity in the future when modelled as a mini roundabout. However Junction 4 could be considered to operate more like a standard roundabout due to its size and configuration. If it was modelled as such then the junction operates within capacity.

7.7.11 Junction 6 would be above its capacity in 2027 without the development and servicing flows. It has therefore been proposed the junction should be signalised. Whilst the signalised junction will operate at capacity in the 2037 (dev+serv) scenario, it is still an improvement over the existing junction.

7.7.12 The proposed mitigation, by way of alterations to the junctions, demonstrates one possible option that could be used to accommodate the development traffic on the highway network. However it is noted that the vehicle flows may be further refined and CCC are already implementing other initiatives that may impact on the quantum of vehicles in the City Centre, vehicle routeings and general accessibility. There will also be other considerations to take into account when reviewing the final detailed designs including CCC's preferred junction types and their general approach to discouraging traffic in the City Centre. In light of this, these proposals show that it is possible to mitigate against the

impact of the proposed development on the highway network albeit that alternative options may be preferred as the design progresses.

8 IMPACT ASSESSMENT - CITY CENTRE PARKING

8.1.1 The proposed development will remove all public car parking within the boundary of the site and there is no intention to re-provide public car parking elsewhere. Coventry currently has a large car parking supply within the city centre with tariffs that are unlikely to encourage modal shift to more sustainable forms of transport.

8.1.2 TPP report D009 contained within Technical Appendix B summarises the results of the car park surveys. The report looks in further detail on pages 11 and 20 of the utilisation of car parks within the boundary of the site, City Arcade and Barracks car parks, and those nearby i.e. the car parks patrons are likely to use if visiting the proposed development, Market, Lower Precinct and Salt Lane car parks.

8.1.3 The assessment highlights that on a weekday, the combined parking demand of the City Arcade and Barracks car parks requires 477 car parking spaces. The combined spare capacity within the Lower Precinct and Market car parks provides 215 car spaces. This results in a shortfall of 262 spaces. However, if the spare parking capacity of Salt Lane car park is used, there is a surplus of 181 car parking spaces within a short walk of the proposed development.

8.1.4 On a Saturday, the findings of the report demonstrate that the combined parking demand of the City Arcade and Barracks car parks requires 532 car parking spaces. The combined spare capacity within the Lower Precinct and Market car parks provide 42 car spaces. This results in a shortfall of 490 spaces. If the spare parking capacity of Salt Lane car park is used, there a shortfall of just 28 parking spaces.

8.1.5 However, if the spare parking capacity available within the New Union Street and Cheylesmore car parks are included in the weekend assessment there is sufficient supply to meet the existing parking demand following the removal of the City Arcade and Barracks car parks. This is without taking into account other nearby private car parks such as the Skydome car park which further mitigate against any parking provision issues relating to the removal of the public car parking. It is noted the New Union Street and Cheylesmore car parks are long stay. However, given the development proposals are likely to increase visitors/patrons length of stay i.e. retail shopping followed by a meal or the

cinema, this car park option is considered reasonable, especially during the weekend.

8.1.6 It is worth noting that on a Saturday, the New Union Street and Cheylesmore car park is only 20% occupied providing circa 240 available parking spaces. This car park is only approximately 350m from the site which equates to a 4-5 minute walk at 80m/min (3mph).

8.1.7 During consultation with CCC Highways, they advised that further analysis was required to establish the proposed CCS development's impact on the proposed parking supply with the City Arcade and Barracks car parks demolished. The full results are contained within Technical Appendix M.

8.1.8 The parking surveys recorded arrivals and departures in five minute intervals for the City Arcade, Barracks, Market, Lower Precinct, Salt Lane and New Union Street & Cheylesmore car parks. The total accumulation for these car parks was calculated and assessed against the existing parking supply i.e. including all of the above car parks' capacity and the proposed supply i.e. without the City Arcade and Barracks car parks. The assessment shows that without City Arcade and Barracks car parks, the combined remaining parking supply would reach 82.2% of the capacity on a weekday and 80% on a Saturday.

8.1.9 As the trip generation for the CCS development is calculated in hourly intervals, the highest accumulation for each 5 minute interval per hour between 07:00 – 19:00 has been taken for the existing demand to provide a baseline on which to apply the proposed CCS development parking demand to in order to establish the impact on capacity. Table 8.1 shows the resultant impact assessment of the existing demand on the proposed parking supply and CCS development parking demand on the proposed parking supply during a weekday.

Table 8.1: Proposed CCS parking demand on proposed nearby car parking supply - Weekday

Time	Existing Accumulation	CCS Accumulation	Proposed Parking Demand	Proposed Capacity Utilisation
07:00:00	151	-6	145	10.0%
08:00:00	462	-4	458	31.5%
09:00:00	894	-16	878	60.5%
10:00:00	1116	-2	1114	76.6%
11:00:00	1161	-3	1158	79.7%
12:00:00	1193	18	1211	83.4%
13:00:00	1194	9	1203	82.8%
14:00:00	1131	6	1137	78.2%
15:00:00	949	13	962	66.2%
16:00:00	734	9	743	51.1%
17:00:00	541	53	594	40.9%
18:00:00	307	89	396	27.3%

8.1.10 As can be seen from Table 8.1 the proposed parking supply is sufficient to accommodate the proposed demand, even without utilising other nearby third party car parks.

8.1.11 Table 8.2 shows the resultant impact assessment of the existing demand on the proposed parking supply and CCS development parking demand on the proposed parking supply on a Saturday.

Table 8.2: Proposed CCS parking demand on proposed nearby car parking supply - Saturday

Time	Existing Accumulation	CCS Accumulation	Proposed Parking Demand	Proposed Capacity Utilisation
07:00:00	53	-2	51	3.5%
08:00:00	224	33	257	17.7%
09:00:00	632	76	708	48.7%
10:00:00	916	101	1017	70.0%
11:00:00	1095	66	1161	79.9%
12:00:00	1162	97	1259	86.6%
13:00:00	1163	113	1276	87.8%
14:00:00	1172	123	1295	89.1%
15:00:00	1161	100	1261	86.8%
16:00:00	859	82	941	64.8%
17:00:00	527	78	605	41.6%
18:00:00	274	134	408	28.1%

8.1.12 As can be seen from Table 8.2 the proposed parking supply is sufficient to accommodate the proposed demand even without utilising other nearby third party car parks.

8.1.13 The proposals will result in the loss of circa 3,200m^2 of existing B1 Office space much of which generates parking demand throughout the week. In addition, circa 5,000m^2 of retail will be lost as part of the proposals, although the net retail trips have been factored up to account for the improved retail offer. The proposals include circa 3250m^2 of F&B and circa 2,150m^2 of leisure use which would account for the increase in parking demand in the evenings.

8.1.14 Whilst the proposals to remove two city centre car parks will put increased demand on the remaining existing car parks, the city's car park Variable Message Signs (VMS) located on the approaches to the car parks from the A4053 Ringway will provide real time updates to drivers on the utilisation of the car parks and guide drivers to those with spare capacity.

9 IMPACT ASSESSMENT - SUSTAINABLE TRAVEL MODES

9.1.1 The impact of the development proposals on the walking links within the development and cycle routes to key destinations has been assessed. In addition the increase in bus and train patronage has been calculated and reviewed.

9.2 Walking

9.2.1 The proposed development will provide improved pedestrian amenity through the provision of significant public realm improvements and enhanced passive surveillance due to increased active frontage and night-time economy. In addition, gradient improvements to the site improve accessibility for all. This is in-line with Local Plan policy AC4: *Walking and Cycling* and Chapter 5 of the Coventry Connected SPG.

9.2.2 Being located in the city centre, the proposed development provides excellent connectivity via walking routes to established trip generators such as residential areas, education, employment, healthcare, retail destinations, leisure attractions and public transport interchanges. This is also in-line with Local Plan policy AC4: *Walking and Cycling* and Chapter 5 of the Coventry Connected SPG.

9.2.3 An assessment of the pedestrian links within the proposed CCS development site has been undertaken for the existing situation and the proposed development. TPP report D010c contained within Technical Appendix D summarises the results of the pedestrian comfort assessment.

9.2.4 The Coventry Connected SPG sets out guidelines on undertaking audits of walking routes. However, as the proposed pedestrian routes through the development will be new, providing improved permeability, we have undertaken a more robust assessment in order to assess the impact of the proposals on the effective width and level of use on the footways in the city centre. Therefore, a pedestrian level of service assessment has been undertaken using Transport for London's (TfL) Pedestrian Comfort Level Assessment tool. Whilst the development site is not located within London, the TfL tool goes further than existing assessment measures, such as a Fruin Level of Service which simply assesses crowding, as it is based on comfort whilst taking into account user perceptions as well as observed behaviours. Therefore, this method of assessment is considered appropriate for assessing the impact of the proposals on pedestrian comfort within Coventry City Centre.

9.2.5 The assessment indicates that the footway links within the CCS development site do not suffer from a poor level of service under either the 'standard' or 'worst case' scenario assessment conditions. The existing pedestrian routes within the site are currently wide enough to accommodate the existing flows with a 'comfortable' level of service.

9.2.6 The proposed pedestrian flows associated with the mixed use element of the development, (excluding the residential aspects of the proposals), have been distributed on the assessed pedestrian routes pro-rata as per the existing pedestrian flows. For the purposes of the Transport Assessment the entire pedestrian trips for the residential aspects of the development have been applied to each assessed route as a robust assessment. As it would be difficult to predict which direction these pedestrians would walk this assessment assumes that they are all walking through every assessment point. The results indicate that even under these circumstances the proposed pedestrian routes would continue to have a 'comfortable' level of service, indicating no negative impact on these pedestrian routes.

9.2.7 The cumulative development pedestrian trip generation has been distributed on the assessed pedestrian routes pro-rata as per the existing pedestrian flows. The results indicate the proposed pedestrian routes would continue to have a 'comfortable' level of service when the proposed development and cumulative development pedestrian trip generation is applied to the assessed links, indicating no negative impact on these pedestrian routes. It should be emphasised that this represents a very robust scenario and the improvements to the public realm and increased permeability will greatly improve the walking experience throughout the City Centre.

9.3 Cycling

9.3.1 The development proposals will provide 109 short-stay visitor cycle parking spaces and 1,195 long-stay staff and resident cycle parking spaces. The visitor cycle parking will be will be located at 'access points' to the development to allow visitors to cycle to the development but not cycle through the pedestrianised areas.

9.3.2 The visitor cycle parking will be located to make best use of the radial cycle routes which provide cycle access to the city from its outer areas. Some parking areas will also include mini bike repair stations with robust permanent cycle

pumps. This is in-line with Local Plan policy AC4: *Walking and Cycling* and Chapter 5 of the Coventry Connected SPG.

9.3.3 The development is predicted to generate a total of 32 cycle trips on a weekday and 33 on a Saturday during the peak hours. This is considered to have a minimal impact on existing cycle routes and the proposed cycle parking supply is considered sufficient to supply the demand. The high level of cycle parking will encourage an increase in cycle usage which will be further enforced by the Travel Plans. From a capacity perspective, the increase in utilisation of cycle routes associated with the development proposals will have negligible impact on the existing cycle route infrastructure and therefore no external mitigation is considered necessary. However, we have undertaken a review of accidents along cycle routes to establish any patterns which may indicate sections of the cycle routes that require mitigation. The full accident data review is contained within Appendix O, with a summary in Chapter 11.

9.3.4 Being located in the city centre, the proposed development provides excellent connectivity via cycle routes to established trip generators such as residential areas, education, employment, healthcare, retail destinations, leisure attractions and public transport interchanges. This is also in-line with Local Plan policy AC4: *Walking and Cycling* and Chapter 5 of the Coventry Connected SPG.

9.4 Bus

9.4.1 Being part of the city centre, the site is well located to make use of the local bus network. Pool Meadow Bus Station is located on Fairfax Street, to the north east of the site within a 10-minute walk and the route is mostly car-free bar the need to cross Fairfax Street. A number of bus stops are located within a short walking distance of the CCS site on Queen Victoria Road, Croft Road and Greyfriars Road. This is in-line with Local Plan policy AC5: *Bus and Rapid Transit* and Chapter 6 of the Coventry Connected SPG.

9.4.2 The proposed development is predicted to generate a net total increase of 301 bus trips in the PM peak hour on a weekday based on 216 arrivals and 85 departures. On a Saturday it is predicted to generate a net total increase of 287 bus trips during the assessed peak hour based on 132 arrivals and 155 departures.

9.4.3 Bus utilisation data obtained from the Coventry Cordon 2019 survey has been provided by TfWM. The survey includes bus data for a weekday and Saturday between 07:30 – 12:30 but does not include data for the afternoon and evening periods. The sustainable modes assessment within this TA is based on the weekday PM peak hour of 17:00 – 18:00 and Saturday peak hour of 13:00 – 14:00. The weekday PM peak hour has four additional bus services per hour when compared to the AM peak hour. Therefore, it is considered reasonable and robust to assess the CCS development PM peak hour bus trip generation using the AM peak period bus survey data.

9.4.4 Similarly, the frequency of bus services on a Saturday are fairly consistent per hour throughout the day. Therefore, it is considered reasonable to assess the CCS development Saturday peak hour bus trip generation using the calculated Saturday average hour based on the survey data AM peak period.

9.4.5 In addition to assessing the CCS development impact on the existing bus services, the cumulative development bus trip generation has also been assessed. The full bus utilisation assessment calculations are included in Technical Appendix N.

9.4.6 Table 9.1 shows the results of the inbound bus utilisation assessment for the weekday and a Saturday. The Site Numbers refer to the survey cordon locations.

Table 9.1: Existing + Cumulative +Development inbound bus utilisation

Site Number	Weekday			Saturday Average Hour
	09:00-10:00	08:00-09:00	Average AM Hour	
201 Foleshill Road	48%	55%	46%	36%
202 Stoney Stanton Road	43%	46%	38%	27%
203 Harnell Lane East	46%	54%	40%	28%
204 Walsgrave Road	35%	45%	40%	29%
205 Binley Road	47%	33%	30%	21%
206 - Charterhouse Road	35%	42%	36%	20%
207 - London Road	42%	29%	25%	17%
208 - Mile Lane	26%	34%	30%	21%
209 - Quinton Road	60%	39%	40%	29%
210 - Warwick Road	18%	15%	19%	14%
211 - Butts Radial Road	37%	39%	36%	26%
212 - Holyhead Road	24%	32%	29%	21%
213 - Coundon Road	83%	42%	41%	29%
214 - Radford Road	39%	49%	39%	28%
217 - Stoney Road	39%	22%	21%	15%
Average	**41%**	**38%**	**34%**	**24%**

9.4.7 As can be seen from Table 9.1, the maximum bus utilisation at a cordon point between 09:00 – 10:00 would be 83%, and 55% between 08:00 – 09:00, with a utilisation of 46% during the average AM hour. During the average Saturday hour, the maximum utilisation is 36%. Therefore, the current inbound bus service capacity is sufficient to accommodate the predicted future bus patronage demand and the increased patronage will help these routes to be financially viable.

9.4.8 Table 9.2 shows the results of the outbound bus utilisation assessment for the weekday and a Saturday.

Table 9.2: Existing + Cumulative +Development outbound bus utilisation

Site Number	Weekday			Saturday Average Hour
	09:00-10:00	08:00-09:00	Average AM Hour	
201 Foleshill Road	27%	24%	28%	26%
202 Stoney Stanton Road	23%	30%	28%	18%
203 Harnell Lane East	25%	36%	29%	19%
204 Walsgrave Road	19%	30%	29%	19%
205 Binley Road	26%	22%	21%	14%
206 - Charterhouse Road	10%	38%	29%	14%
207 - London Road	23%	19%	18%	12%
208 - Mile Lane	14%	22%	21%	14%
209 - Quinton Road	33%	26%	29%	19%
210 - Warwick Road	10%	10%	14%	9%
211 - Butts Radial Road	18%	31%	27%	15%
212 - Holyhead Road	13%	22%	21%	14%
213 - Coundon Road	46%	28%	30%	20%
214 - Radford Road	21%	33%	28%	19%
217 - Stoney Road	21%	15%	15%	10%
Average	**22%**	**26%**	**25%**	**16%**

9.4.9 As can be seen from Table 9.2, the maximum bus utilisation at a cordon point between 09:00 – 10:00 is 46% and 38% between 08:00 – 09:00, with a utilisation of 30% during the average AM hour. During the average Saturday hour, the maximum utilisation is 26%. Therefore, the current outbound bus service capacity is sufficient to accommodate the predicted future bus patronage demand.

9.4.10 This impact assessment is in-line with the guidance set out in the Coventry Connected SPG section 6.3.6.1. It should be noted that the bus impact assessment is based on the Illustrative Masterplan proposals as this represents a justifiable development scenario that can be assessed. However, the impact on

the bus network can be further assessed at the reserved matters stage and appropriate mitigation can be proposed if there is a marked alteration in the expected bus passenger numbers.

9.5 Rail

9.5.1 The proposed development is predicted to generate a net total increase of 96 rail trips in the PM peak hour on a weekday based on 69 arrivals and 27 departures. On the Saturday peak hour it is predicted the development will generate a net total increase of 89 rail trips during the assessed peak hour based on 41 arrivals and 48 departures.

9.5.2 Table 2.2 shows there are 22 rail services during the weekday PM peak hour and 18 services per hour on a Saturday to key destinations. Rail services stopping at Coventry Station range from two to ten coaches per train. Based on an average of six carriages per train, this would equate to less than one person per carriage during the PM weekday peak hour and Saturday peak hour. Therefore it is considered the CCS development will have an imperceptible impact on the rail services stopping at Coventry Station.

10 CONSTRUCTION

10.1.1 A Demolition Traffic Management Plan (DTMP) and Construction Traffic Management Plan (CTMP) will be prepared as part of the reserved matters application. This is in-line with Local Plan policy AC7: *Freight* and Chapter 8 of the Coventry Connected SPG. The DMP and CMP will be secured by the use of appropriately worded planning conditions, with separate DMPs and CMPs being required for each of the individual construction areas / blocks/phases. The DMPs and CMPs will include vehicle routeing and the expected vehicle trip numbers and the expected number of staff per development phase.

10.1.2 However, it is anticipated that all construction vehicles will as far as reasonably possibly use the national strategic road network and Coventry's primary roads to access the site. All vehicles will arrive and depart via the A4053 Ringway, but the junctions used will depend on each development site. Therefore it is expected the following Ringway junctions will be used for each development block:

- Block A Junction 7
- Block B Junction 5
- Block C Junction 5
- Block D Junction 7
- Pavilion Junction 7

10.1.3 It is proposed to avoid Junction 6 as this junction has high pedestrian flows due to its proximity to the Rail station.

10.1.4 The demolition period start and end dates are expected to be Q3 2022 and Q2 2023 respectively. The construction period start and end dates are expected to be Q1 2023 and Q3 2025 respectively.

10.1.5 The initial estimation for construction vehicle trip generation is 2,800 lorry movements over a 52 week period. Based on a 5.5 day working week, this equates to 10 lorry movements a day on a weekday and five on a Saturday. On average, this equates to one vehicle an hour. This is level of lorry movements is not considered to be significant and is unlikely to have a discernible impact on the local highway network.

10.1.6 All 'noisy activities' for demolition and construction (such as piling) will be carried out within the following restricted hours:

- 08:00 to 18:00 Mondays to Fridays; and
- 08:00 to 14:00 during Saturdays; and
- At no other times, including Sundays or Public Holidays.

10.1.7 The demolition period is estimated to have 70 staff, with 600 staff estimated for the construction period. Based on most staff arriving and departing during the typical weekday peak hours, the demolition and construction staff will have minimal impact on the local transport network as the existing site generates circa 900 person arrivals between 08:00 – 09:00 and circa 950 person departures between 17:00 – 18:00. On a Saturday, the existing site generates circa 1,000 person arrivals between 08:00 – 09:00 and circa 1,600 person departures between 14:00 – 15:00. Therefore the construction staff are likely to have minimal impact on the local transport network.

11 MITIGATION

11.1.1 This chapter sets out the proposed improvements to the local transport network in order to mitigate the impacts of the proposed development on it.

11.2 Walking

11.2.1 The entire public realm within the CCS development site will be improved as part of the proposals. This includes the pedestrianisation of the realigned Rover Road, to be known as Rover Way. The scheme also increases permeability across the site and designs out many of the level issues currently impacting on the pedestrian experience. The proposals will also provide an improved level passive surveillance for pedestrians.

11.2.2 A review of the accident data, see TPP report D022 contained within Technical Appendix O, indicates the majority of the accidents on the assessed walking routes involving pedestrians occurred due to human error. However, three areas indicated patterns that could be attributed to the highway layout. These occurred at:

- The walking routes on or near the Bishop Street/ Hales Street/The Burges/Corporation junction.
- The walking routes on or near the Cox Street/Gosford Street/Whitefriars Street/Jordan Well junction.
- An area on Walking Route 6 where the pedestrian cut through from West Orchard Way joins Corporation Street.

11.2.3 The accidents that occurred at or near the junctions indicted there may be some confusion between drivers and pedestrians as to who has right of way at the uncontrolled pedestrian crossings on each arm. These crossings are indicated by tactile paving and a slightly contrasting surface to the rest of the carriageway. However, the locations of the crossings to drivers are not obvious and there is a lack of clarity on who has right of way. Therefore, it is recommended that the crossings are made more visible with the use of contrasting surface treatments.

11.2.4 The accidents at the pedestrian cut through from West Orchard Way on Corporation Street are anticipated to be a result of a lack of a crossing on the desire line across Corporation Street. It is not expected that this route will carry

significant CCS pedestrian traffic and is more it is expected that students associated with Coventry University will benefit more from upgrades in pedestrian amenity in this area.

11.3 Cycling

11.3.1 The proposals will include the provision of long-stay cycle parking for staff and residents and increased short-stay visitor cycle parking at key locations. The cycle parking will accord with the standards.

11.3.2 The visitor cycle parking will be will be located at 'access points' to the development to allow visitors to cycle to the development but not cycle through the pedestrianised areas. As part of the detailed design these cycle parking locations will be reviewed to ensure they are in convenient locations to maximise potential cycle use. Some parking areas will also include mini bike repair stations with robust permanent cycle pumps. The visitor cycle parking will be located to make best use of the radial cycle routes which provide cycle access to the city from its outer areas.

11.3.3 The key cycle routes have been reviewed to ensure that they provide safe and direct access to the city centre, but it is noted that due to the other vehicular uses the majority of these routes will continue to be shared with other motor vehicles.

11.3.4 A review of the accident data, see TPP report D022 contained within Technical Appendix O, indicates the majority of the accidents reviewed on the cycle routes involving cyclists occurred due to human error. There were no clear patterns indicating where intervention in cycle infrastructure or highway design is required. Therefore, no mitigation is considered necessary.

11.4 Buses

11.4.1 An utilisation assessment of the development proposals on the bus network has been undertaken based on the Illustrative Masterplan proposals. Being in the town centre the development benefits from being surrounded by an extensive network of bus services. Whilst the current analysis demonstrates that the expected increase in bus passengers can be accommodated by the existing services it is noted that during the reserved matters applications there may be instances where increased passenger capacity on certain affected routes may be required in the form of additional buses / more frequent service.

11.5 Highway

11.5.1 The junction capacity assessment indicates that the Greyfriars Lane / New Union Street junction exceeds capacity when traffic associated with the development proposals and growth allowing for the increase in traffic associated with future development is applied to it. Therefore, it is proposed to widen Greyfriars Lane on its eastern side to improve capacity and mitigate the impact of the development proposals. The proposed layout is indicated in drawing 31176/AC/063.

11.5.2 The Queen Victoria Road / Croft Road junction will be improved as part of the development proposals to allow for the integration of the realigned Rover Road (to be known as Rover Way) and the proposed new Coventry Market basement ramp. This results in a signalised junction arrangement which also provides enhanced pedestrian crossing facilities and allows for loading pad associated with Block A1 to be incorporated into the junction. Drawing 31176/AC/026_C shows the adjusted Queen Victoria Road / Croft Road junction.

11.5.3 The City Arcade car park access, to be known as Lower Market Way, is currently left-turn out only. As part of the proposals this restriction will be removed and the junction geometry adjusted to allow right-turning vehicles out of Lower Market Way. The proposed layout is indicated in drawing 31176/AC/063.

11.5.4 The accident data review, see TPP report D022 contained within Technical Appendix O, indicated there were instances where vehicles mounted the pavement and collided with pedestrians. This was mainly due to human error/ alcohol or similar impairment. In addition to mitigating this possible issue, the development will be required to protect the pedestrianised areas from hostile vehicles. This has been considered within the illustrative layout, but can be further refined at the reserved matters stage and subsequently at the detailed design stage.

11.6 Sustainable transport

11.6.1 Whilst not direct mitigation, TPP have been liaising with CCC Highways in relation to incorporating / accommodating their future aspirations for VLR, a city centre cycle hire scheme, electric scooter hire and removal of through traffic from the city centre. Further details on these proposals are set out in Chapter 4.

11.6.2 As part of the reserved matters submission, a Travel Plan will be prepared setting out the measures proposed for the CCS development to encourage mode shift from private car to more sustainable modes of travel. It is worth noting this Transport Assessment is based on existing mode share obtained from 2011 Census data. However as part of the development proposals, cycle parking will be provided and a number of other measures could be implemented to reduce private car mode share.

11.6.3 A number of the proposed development parking spaces could be utilised by car clubs. In addition, all allocated parking spaces will be provided with an electric vehicle charging point in accordance with the local standards. This is in-line with Local Plan policy AC3: *Demand Management* and Chapter 4 section 4.3.7 of the Coventry Connected SPG.

12 TRANSPORT POLICY CONTEXT

12.1.1 This chapter provides a summary of the relevant transport policy against which the proposals are assessed. The main policy documents in this regard are:

- National Planning Policy Framework (February 2019)
- Coventry City Council Local Plan (2017)
- Coventry Connected SPD (2018)
- Coventry City Council City Centre Area Action Plan (2017)

12.2 National Policy

National Planning Policy Framework (2019)

12.2.1 The NPPF sets out the Government's planning policies for England and how these should be applied. It provides a framework within which locally-prepared plans for housing and other development can be produced. The document was published on 24th July 2018 (and updated on 19th February 2019) and replaced the first NPPF (published in March 2012).

12.2.2 The NPPF recognises that the transport system should be balanced in favour of sustainable transport modes so that people are given a real choice about how they travel. It encourages solutions which support reductions in both greenhouse gas emissions and congestion.

12.2.3 Chapter 9 – Promoting sustainable transport states that "*Transport issues should be considered from the earliest stages of plan-making and development proposals, so that:*

- *the potential impacts of development on transport networks can be addressed;*
- *opportunities from existing or proposed transport infrastructure, and changing transport technology and usage, are realised – for example in relation to the scale, location or density of development that can be accommodated;*
- *opportunities to promote walking, cycling and public transport use are identified and pursued;*

- *the environmental impacts of traffic and transport infrastructure can be identified, assessed and taken into account – including appropriate opportunities for avoiding and mitigating any adverse effects, and for net environmental gains; and*

- *patterns of movement, streets, parking and other transport considerations are integral to the design of schemes, and contribute to making high quality places".*

12.2.4 Also, paragraph 109 sets out that development should only be prevented or refused on highways grounds if there would be an unacceptable impact on highway safety, or the residual cumulative impacts on the road network would be severe.

12.3 Local Policy

Coventry City Council Local Plan (2017)

12.3.1 This document was adopted in December 2017 and sets out Coventry's blueprint and vision to enhance Coventry's position to contribute towards the West Midlands engine for growth.

12.3.2 Policy AC2: Road Network states that "New development proposals which are predicted to have a negative impact on the capacity and/or safety of the highway network should:

- *Mitigate and manage the traffic growth which they are predicted to generate to ensure that they do not cause unacceptable levels of traffic congestion, highway safety problems and poor air quality. Highway mitigation and management measures should focus firstly on demand management measures (Policy AC3) including the promotion of sustainable modes of travel, and secondly on the delivery of appropriate highway capacity interventions. Highway capacity interventions should be appropriate to the scale of development and expected impact and will be determined through the associated Transport Assessment.*

- *Developments should seek to support and accommodate, where appropriate, measures which facilitate enhancements to the wider*

transport network including those set out in the Infrastructure Delivery Plan.

- *Be served by routes which are suitable for that purpose. Where this is not achievable, proposals will only be considered acceptable if appropriate interventions can be applied to suitably mitigate any negative impacts, including the construction of new access link roads."*

12.3.3 With regards to Transport Assessments, the document states that "New developments will need to be considered on a case by case basis to determine the accessibility requirements by all transport modes, the anticipated levels of traffic generated and the impact this would have on the highway network. Transport Assessments will be required for larger developments which create significant additional trips on the network, and will be used to determine the severity of the impact, including congestion and road safety, and the appropriate type and level of mitigation required".

12.3.4 Additionally, the document states the following with regards to Travel Plans: "Travel Plans play an essential role in encouraging sustainable transport and flexible and agile working practices to support the management and generation of traffic associated with trip attractors such as local businesses, schools, universities, hospitals, railway stations and new residential developments. They are the first step in mitigating transport related issues before implementing physical road infrastructure measures".

12.3.5 The client SPRL and TPP are fully supportive of Travel Plans and their essential role in encouraging travel mode shift to more sustainable modes. However as this application is hybrid with much of the built form in outline, it would be speculative to prepare a Travel Plan on the current proposals which could change significantly within the parameters applied for. Therefore, the need for a Travel Plan at this stage is considered unnecessary. However, appropriate Travel Plans for the land uses applied for at the reserved matters stage will be prepared and submitted as supporting documents. Policy AC3: Demand Management states that "Proposals for the provision of car parking associated with new development will be assessed on the basis of parking standards set out in Appendix 5". With regard to the provision of car parking within the City Centre, Appendix 5 states that "The level of privately allocated car parking for applications within the City

Centre will be determined on a site by site basis on the merits of the application and criteria in the NPPF".

12.3.6 Policy AC4: Walking and Cycling states that "Development proposals should incorporate appropriate safe and convenient access to walking and cycling routes. Where these links do not exist, new and upgraded routes will be required and these must appropriately link into established networks to ensure that routes are continuous. The expected type of provision will depend on the scale, use and location of the site. For larger developments, financial contributions may be required to support improved pedestrian and /or cycling routes on the wider network". It further states that "High quality cycle parking and associated facilities, such as changing, shower and storage, as part of new development proposals".

12.3.7 With regard to disabled car parking, Appendix 5 states that "New developments, excluding individual dwellings with private off street parking, will be expected to allocate 5% of the total parking provision for blue badge holders". Blue Badge spaces should be at least 3.6m wide and 6.0 metres long, equivalent to 2.4m x 4.8m with an additional 1.2m at the side and end of the bay.

12.3.8 Appendix 5 also states that 5% of all new parking spaces should include provision for electric car charging points. Where this is demonstrated to be impractical, 5% of spaces should have the capacity to be easily retrofitted for the provision of electric car charging points; including provision of ducting to accommodate a suitable power supply which facilitates high speed charging.

12.3.9 Appendix 5 sets the following cycle parking standards relevant to the proposals.

Table 12.1: Cycle parking standards

Use Class	Cycle Parking Requirements per sqm
A1 - Shops (m^2) Food	Under 2500 m^2 1 per 200 m^2 for customers 1 per 400 m^2 for staff Minimum of 2 spaces
A1 - Shops (m^2) Non-food	1 per 400 m^2 for customers 1 per 400 m^2 for staff Minimum of 2 spaces
A2 - Financial and Professional Services	1 per 400 m^2 for customers 1 per 400 m^2 for staff A minimum of 2 spaces
A3 - Restaurants and Cafes (dining area m^2) A4 - Drinking Establishments (bar area m^2) A5 - Hot Food Takeaways (public area m^2)	1 per 10 staff members (FTE) 1 per 200 m^2 for customers Minimum of 2 spaces
B1- Business/Research & Development	1 per 400 m^2 for staff 1 per 400 m^2 for visitors Minimum of 2 spaces
C1- Hotels	1 per 10 staff members (FTE) 1 per 8 bedrooms for customers Minimum of 2 spaces
C3- Residential Dwellings (per unit) 1 bedroom house/flat	1 per dwelling
C3- Residential Dwellings (per unit) 2 bedroom house/flat	1 per dwelling
C3- Residential Dwellings (per unit) 3 or more bedroom house/flat	2 per dwelling
D1- Medical or Health Services (Non Residential)	1 per 6 staff members (FTE) 0.5 per treatment room for visitors Minimum of 2 spaces
D1 - Art Gallery/ Museum/ Library/ Public Hall	1 per 10 staff members (FTE) 1 per 20 people expected to use the facility at any one time
D2 - Assembly and Leisure	1 per 10 staff members (FTE) 1 per 20 people expected to use the facility at any one time

Coventry Connected SPD (2019)

12.3.10 The relevant policies and guidance adhered to within this Transport Assessment with regard to the Coventry Connected SPG have been incorporated within the body of the text so that direct reference can be made to them.

Coventry City Council City Centre Area Action Plan (2017)

12.3.11 The City Council has prepared an Area Action Plan to help guide, inform and consider development proposals within Coventry City Centre. This Area Action Plan sits alongside the Council's Local Plan, but provides greater detail and build upon the policy basis provided in that document.

12.3.12 Policy CC1: Coventry City Centre – Development Strategy states that "The city centre will continue to be developed and regenerated to ensure it is a truly world class city centre, leading in design, sustainability and culture". This would be achieved with the following:

- Provision of high quality office space;
- Including a variety of places to live which cater for different needs;
- A connected public realm including public squares and green spaces, easily accessible through the creation of desirable and legible pedestrian routes;
- Accessibility for all;
- Providing an attractive and safe environment for pedestrians, cyclists and motorists;
- Provide a high quality public transport system that benefits from seamless integration and is well connected to existing and new infrastructure;
- Providing opportunities to improve health and wellbeing.

12.3.13 Policy CC6: Public Realm states that "Where relevant, all development proposals will be required to integrate high quality soft and hard landscape designs".

12.3.14 Policy CC10: Environmental Management states that "New development must be designed to minimise environmental impact within the city centre and ensure that any impacts of pollution are appropriately considered and mitigated. In doing so new development schemes (including conversions and changes of use where appropriate) must ensure that all construction and demolition schemes adhere to a construction environmental management plan which must be submitted to and approved by the council before works commences. The CEMP must specify how the developer will mitigate noise and dust emissions from the works".

12.3.15 Policy CC11: Accessibility states that "Development proposals should support the needs of pedestrians and cyclists by incorporating new dedicated safe and direct pedestrian and cycle routes which integrate seamlessly into established networks

including connecting to the public transport network, interchanges and stops to deliver seamless integration together with provision of high quality cycle parking". The policy also indicates that development proposals in the city centre should incorporate improvement to the significant routes and linkages which include links such as Hertford Street, City Arcade and Market Way. The policy also states that "Development proposal should have regard to, and where appropriate, make provision for:

- *Infrastructure which supports the intelligent mobility agenda;*
- *The inclusion of public transport infrastructure;*
- *The development of Mobility Hubs;*
- *The delivery of the Coventry Station Masterplan;*
- *The provision of high quality cycle parking; and*
- *The development of Rapid Transit".*

12.3.16 Policy CC11 also encourages proposals for the redevelopment, intensification and enhancement of selected car parks as part of the wider regeneration of the city centre, including Barracks Car Park and City Arcade Car Park. The policy requires the redevelopment for these car parks to consider the following factors:

- *"Changes which affect the provision of public car parking spaces must be clearly justified as part of an on-going strategic review process and shown to have an acceptable impact on the performance and accessibility of the city centre and overall car parking provision.*
- *The redevelopment and improvement of surface level car parks will be prioritised.*
- *New car parking should be accommodated in a multi-storey format.*
- *Proposals for multi storey car parks should respect the charter and scale of the surrounding environment and maximise opportunities for high quality aesthetics.*
- *Changes should have regard to other relevant policies including the Coventry Connected SPD, Coventry Car Parking Strategy and TfWM*

Strategic Transport Plan parking policy objectives, including any future metropolitan wide parking strategy. Parking needs and the role of the car will also be balanced with promoting the use of public transport, cycling and walking".

13 SUMMARY AND CONCLUSION

13.1 Summary

13.1.1 As this is a hybrid planning application with the built form submitted in outline, it would be unreasonable to assess the proposed development based on its maximum parameters as the total of these maxima would exceed the quantum of development permitted and therefore would not be a realistic scenario to assess. This Transport Assessment has been therefore based on the Illustrative Masterplan proposals as this represents a justifiable development scenario that can be assessed. However, in order to provide a robust assessment of the proposals, the residential aspects have been assessed on the maximum parameter of 1,300 units.

13.1.2 The proposals will remove the City Arcade and Barracks car parks. The proposed reduction in car parking accords with Coventry City Council City Centre Area Action Plan Policy CC11, as it is demonstrated that there is existing capacity in nearby car parks that can compensate for loss of car parking, and the reduction in public car parking accords with planning policy objectives to support more sustainable modes of travel. In addition, the proposed car parking will meet the needs of residents and the medical centre, recognising the need for a level of car parking to ensure the scheme is deliverable. The policy is also met by the inclusion of private and public cycle parking at appropriate locations.

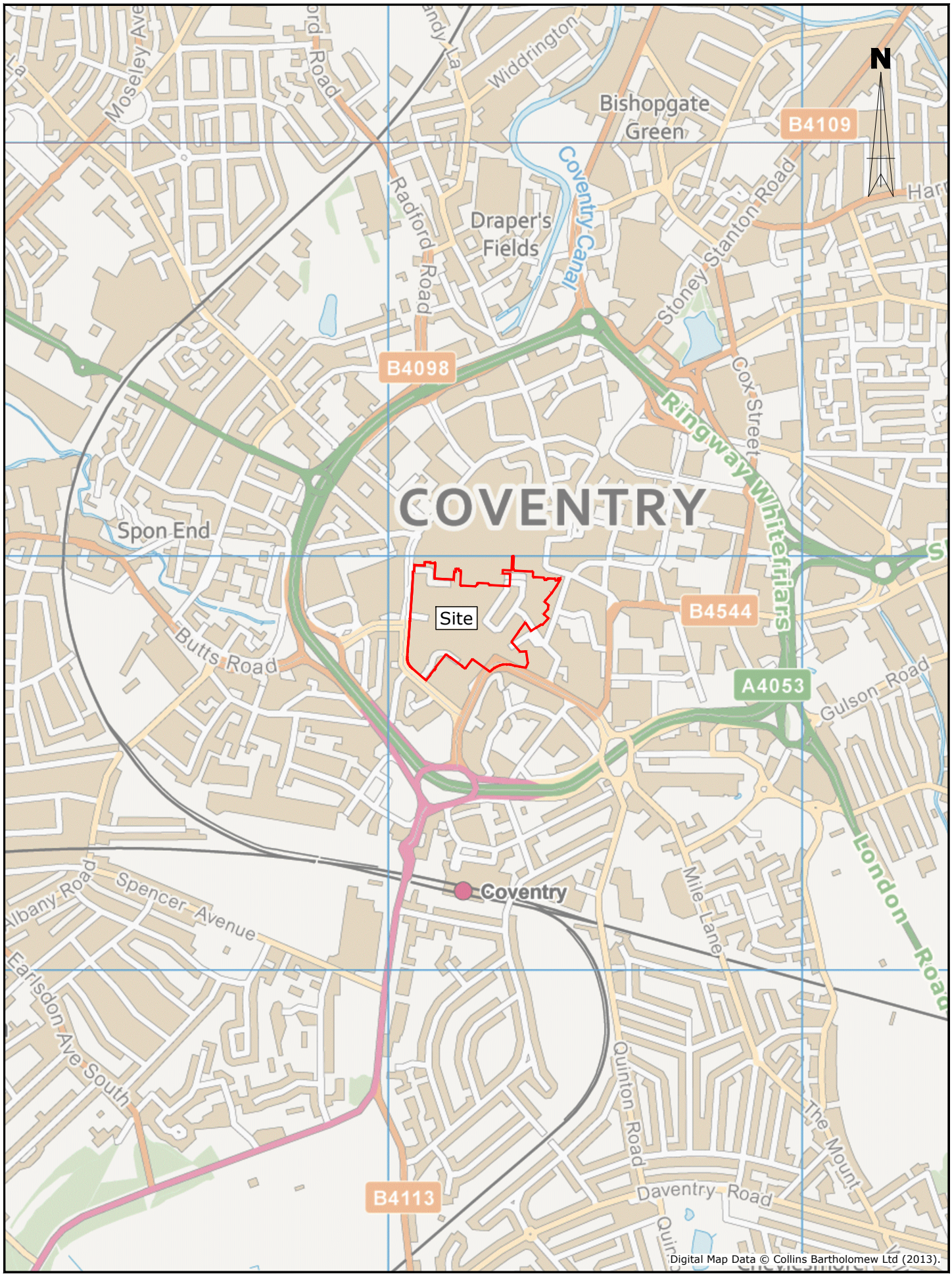
13.1.3 As part of the junction capacity assessment, three junctions have been identified for adjustment to mitigate the impact of the development and improve vehicle and pedestrian access to the site. In addition, a number of sustainable transport measures will be provided including cycle parking and cycle infrastructure such as maintenance points.

13.1.4 The servicing facilities for each development block will be appropriately sized to accommodate the predicted demand.

13.1.5 The Coventry Connected SPG has been consulted in preparing this Transport Assessment. The Local Plan Policy AC3: *Demand Management* and Coventry Connected SPG Chapter 4 has been given particular regard in defining the scope and methodology of this Transport Assessment.

13.2 Conclusion

13.2.1 The findings of this Transport Assessment demonstrate that provided that appropriate mitigation is provided where the impacts of the development have been identified, there is no reason not to grant planning permission on transport grounds.

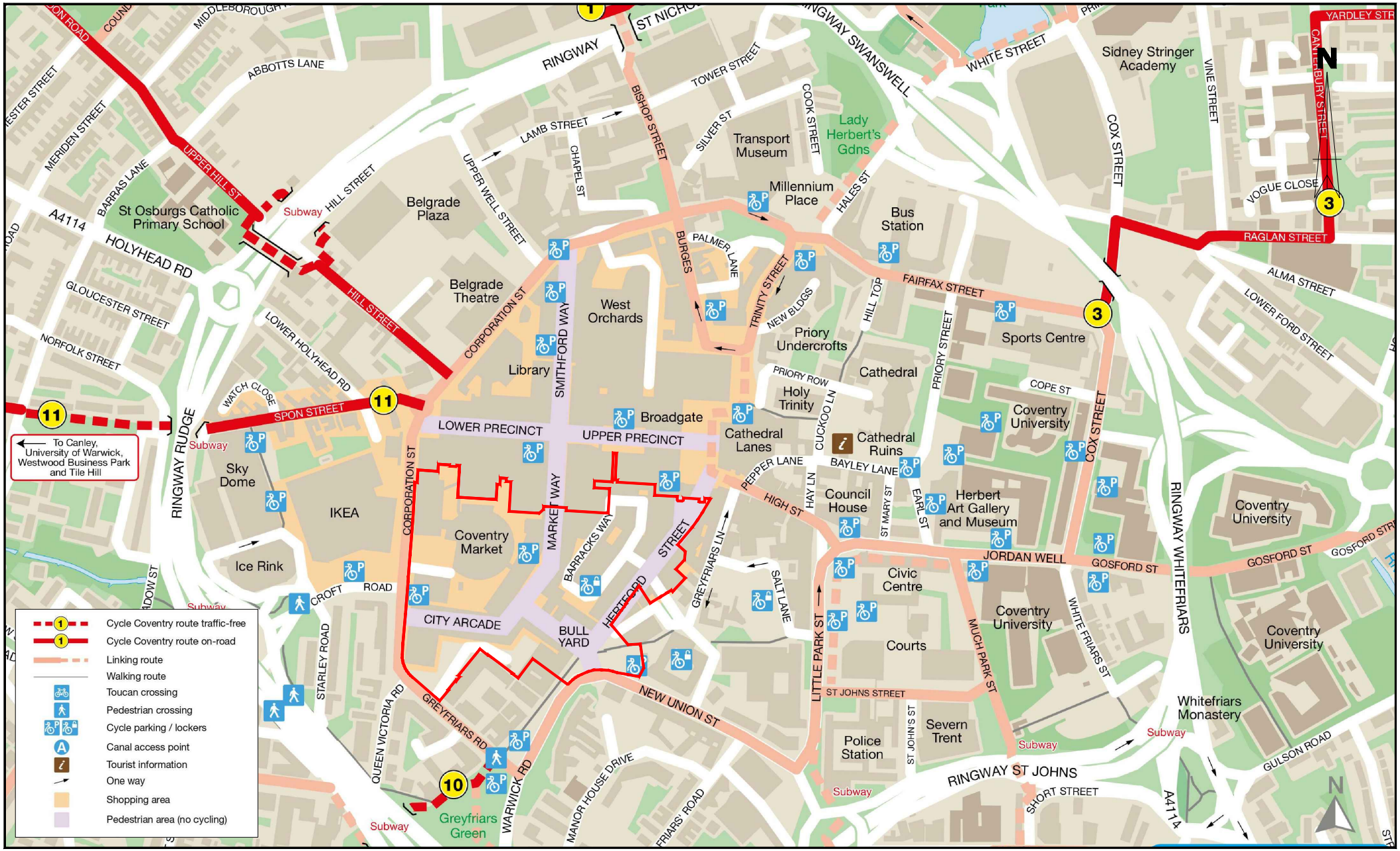


T:\30000_Projects\31176 Coventry City Centre South\ACAD\027 - 032.dwg

Site location plan

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 1

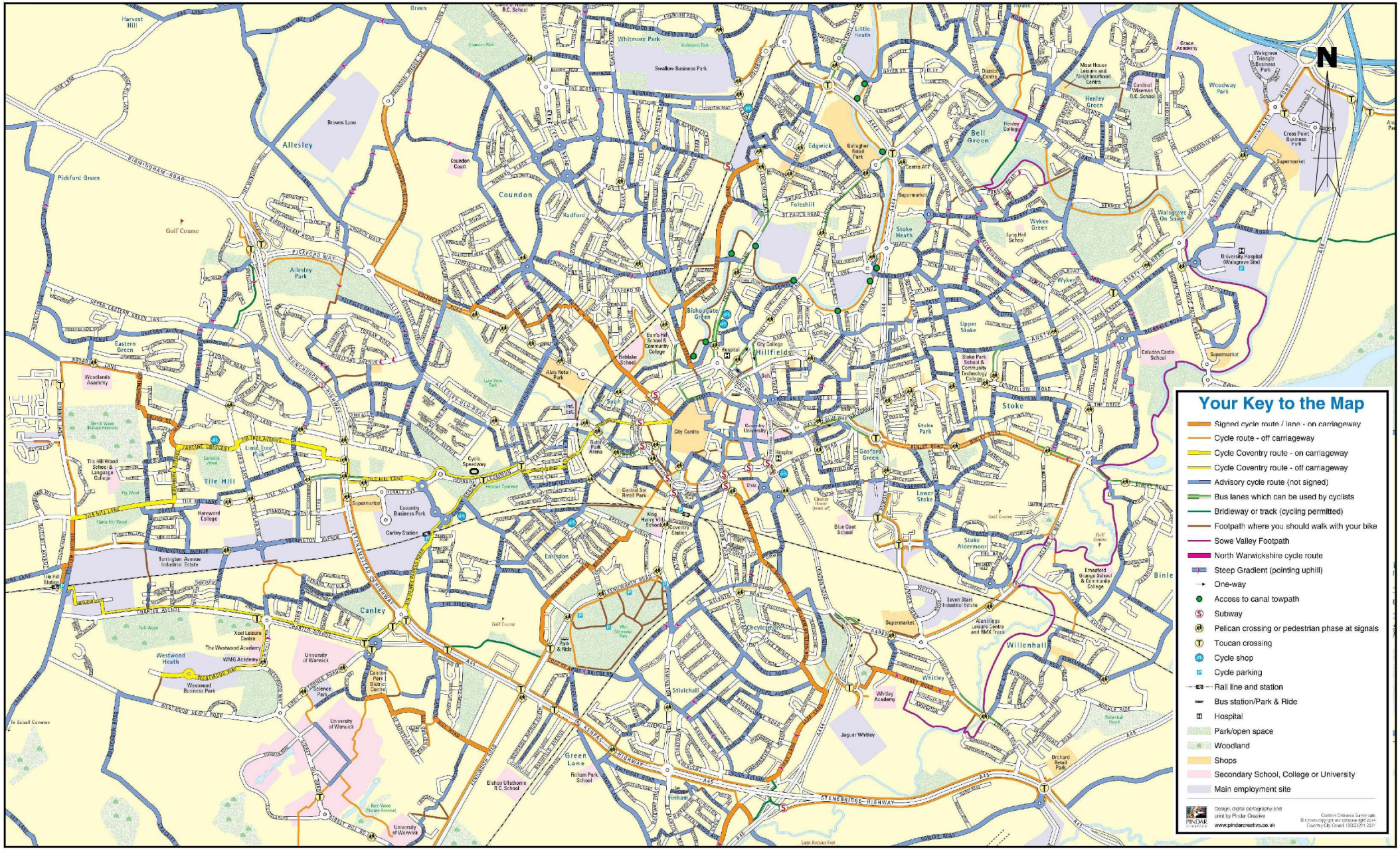


T:\30000_Projects\31176 Coventry City Centre South\ACAD\027 - 032.dwg

Cycle network - city center

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 2



T:\30000_Projects\31176 Coventry City Centre South\ACAD\027 - 032.dwg

Cycle network - Coventry conurbation

TPP
transport planning practice

70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

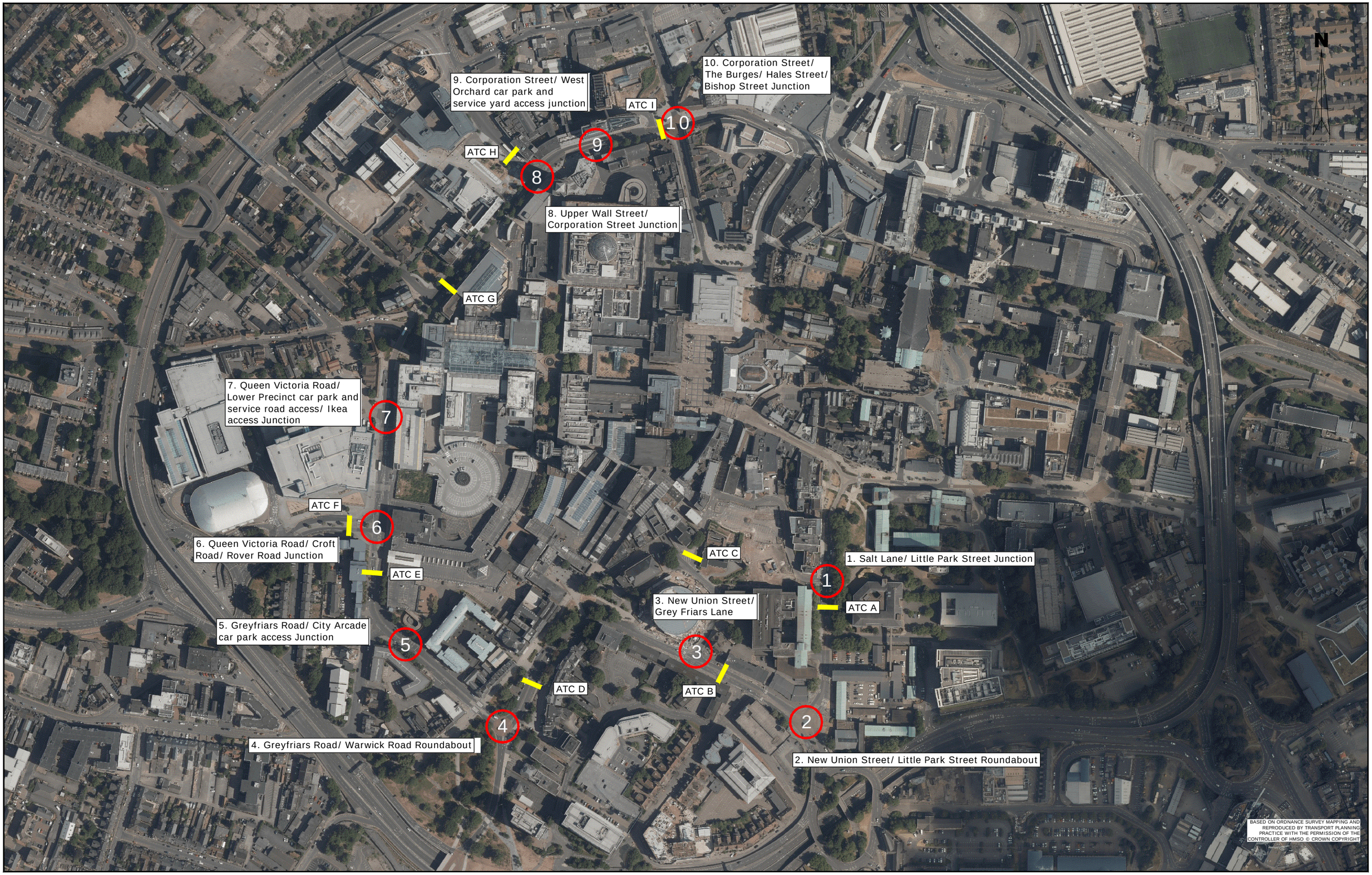
Figure 3

T:\30000_Projects\31176 Coventry City Centre South\ACAD\027 - 032.dwg

Local highway network

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 4



T:\30000_Projects\31176 Coventry City Centre South\ACAD\006_A - 010_A.dwg

Turning count surveys and ATC locations

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 5

	Car park names
1	City Arcade
2	Barracks
3	Market
4	Lower Precinct
5	Salt Lane
6	Skydome
7	Ikea
8	New Union Street and Cheylesmore

T:\30000_Projects\31176 Coventry City Centre South\ACAD\006_A - 010_A.dwg

Surveyed car park locations

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Scale:NTS

Figure 6

T:\30000_Projects\31176 Coventry City Centre South\ACAD\006_A - 010_A.dwg

Surveyed service yard locations

TPP
transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Scale:NTS

Figure 7

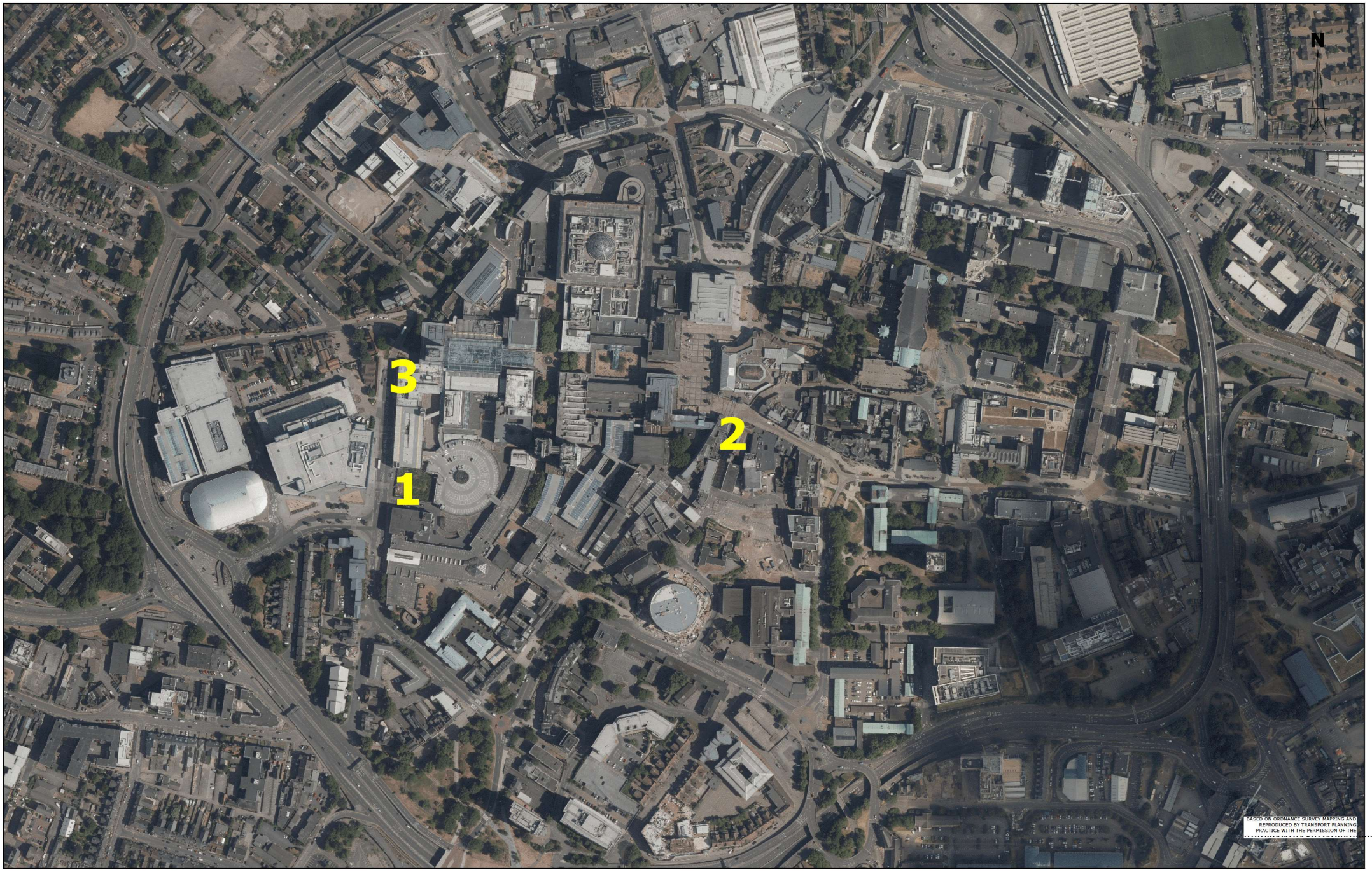
T:\30000_Projects\31176 Coventry City Centre South\ACAD\006_A - 010_A.dwg

Pedestrian and Cycle survey locations

TPP
transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Scale:NTS

Figure 8



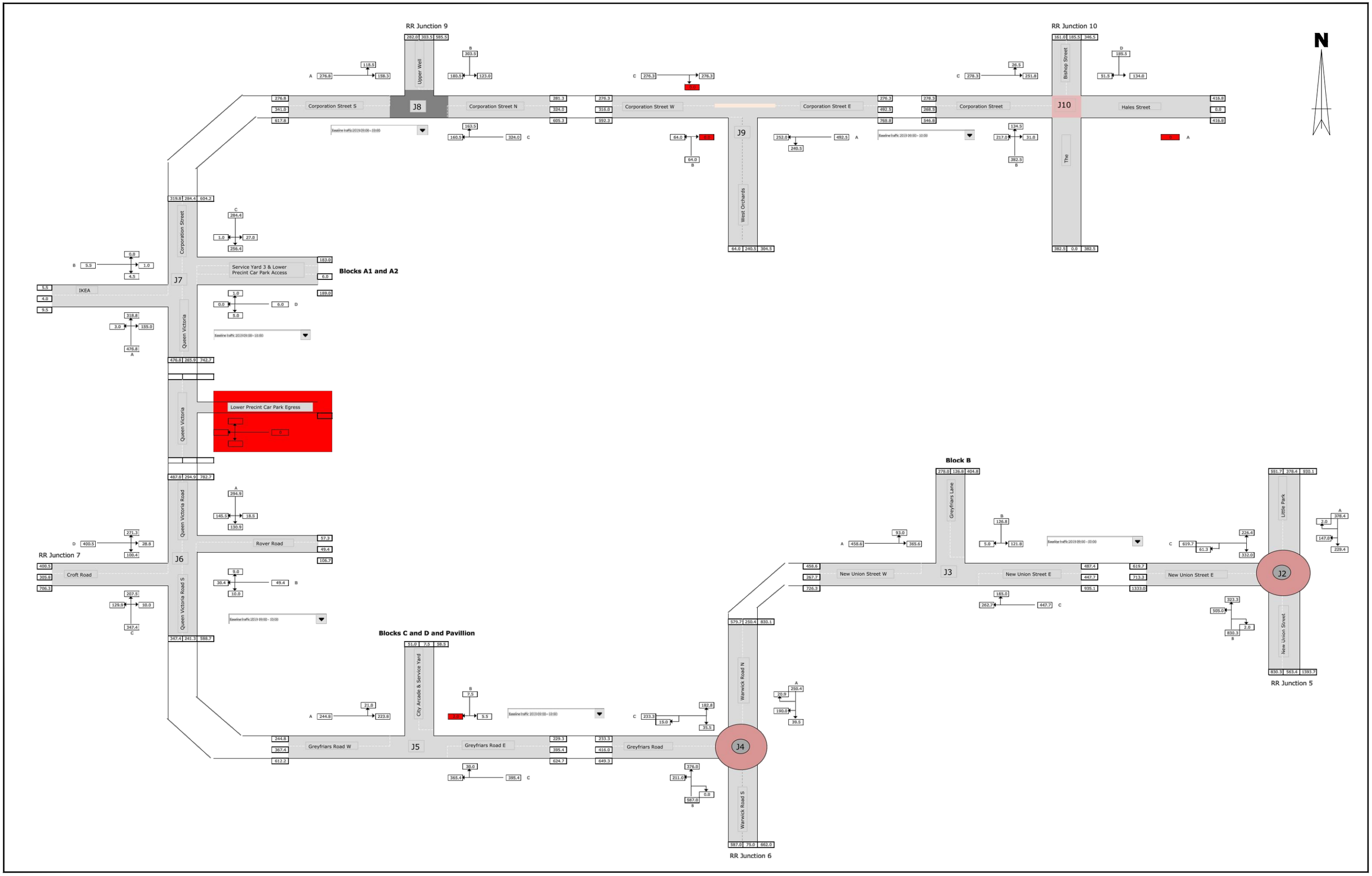
T:\30000_Projects\31176 Coventry City Centre South\ACAD\006_A - 010_A.dwg

Taxi rank survey Locations

TPP
transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Scale:NTS

Figure 9

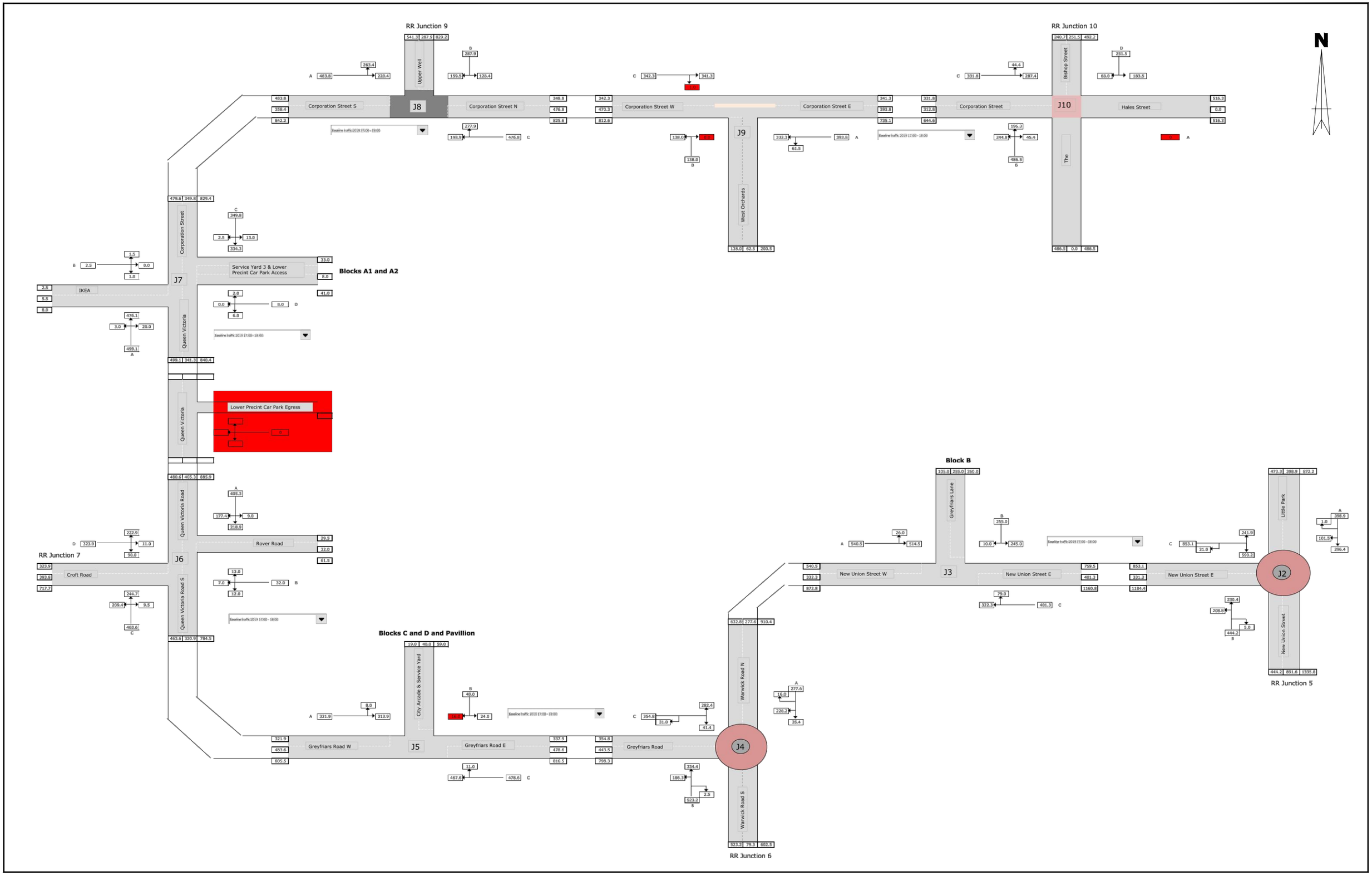


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2019 traffic flows - AM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 10

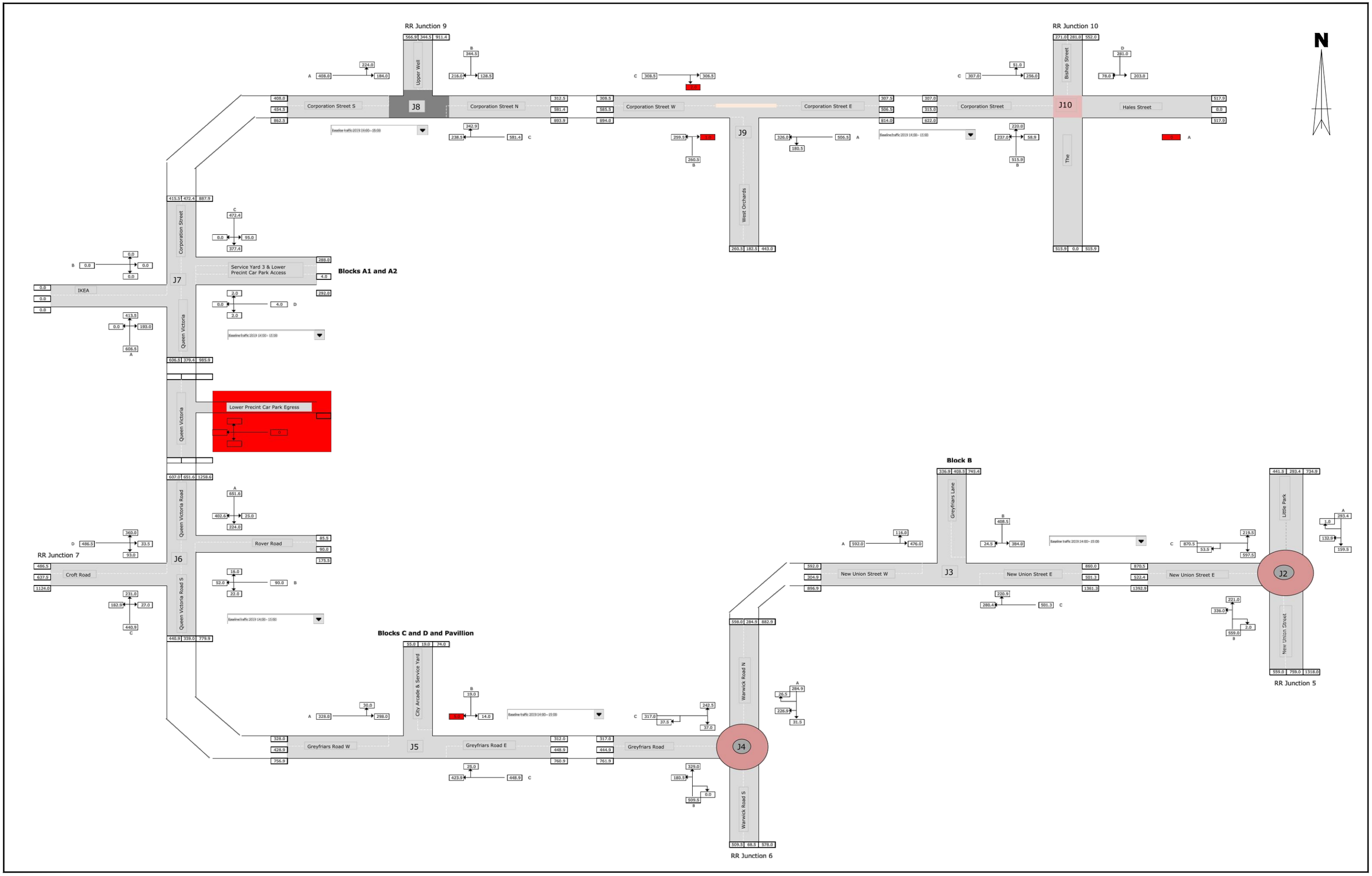


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2019 traffic flows - PM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 11

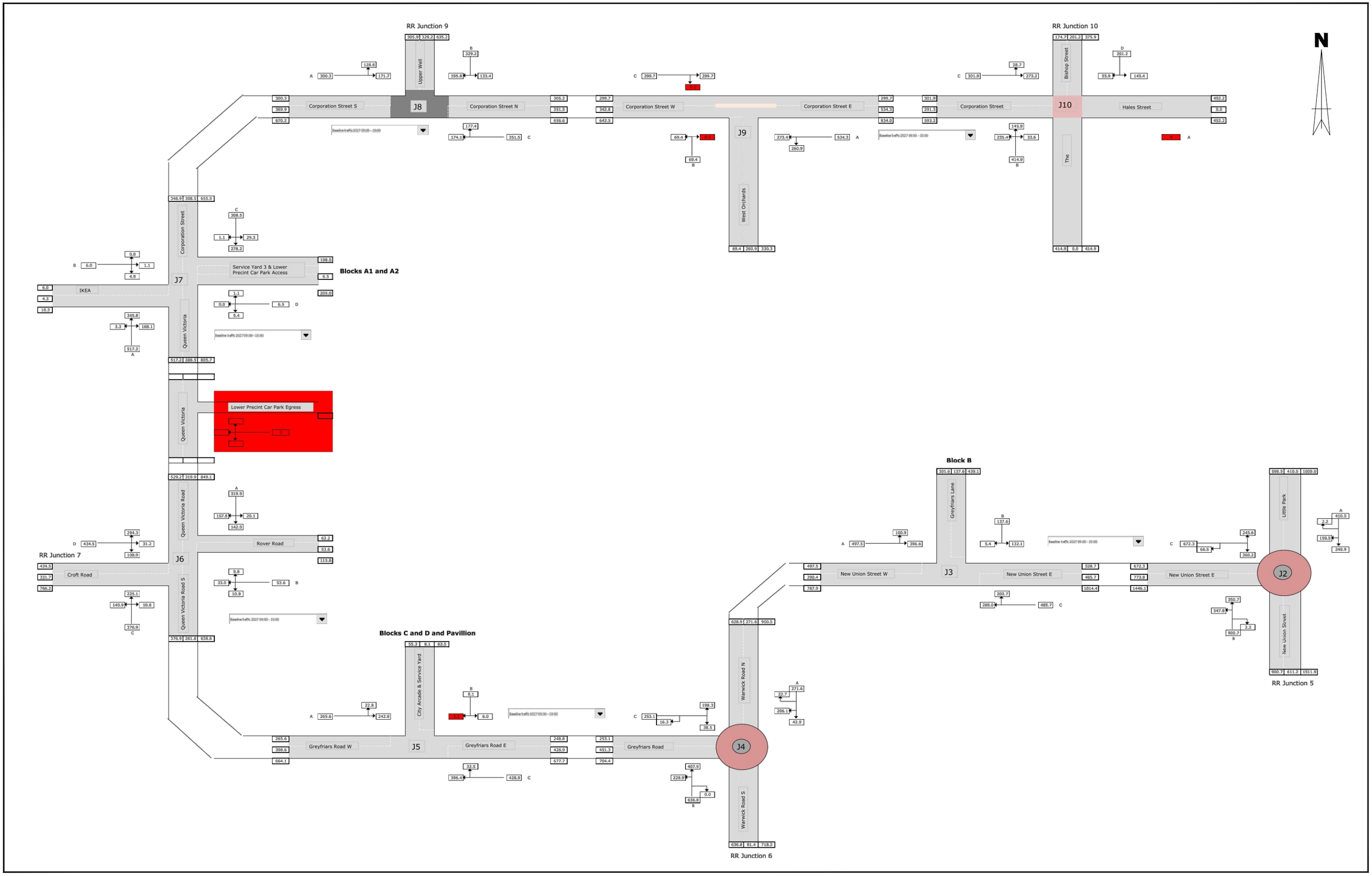


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2019 traffic flows - Saturday Peak Hour

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 12

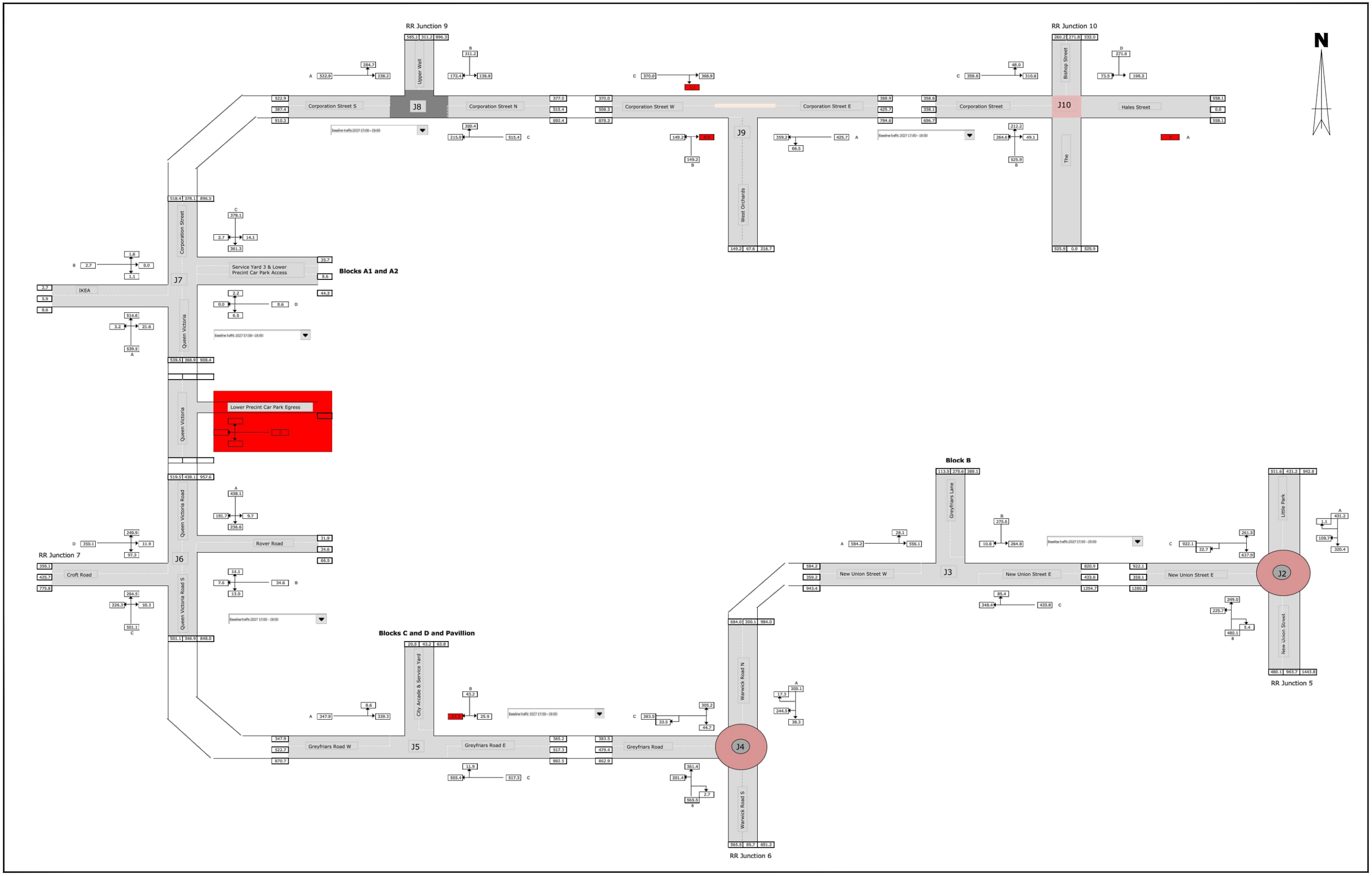


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Future Baseline 2027 traffic flows - AM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 13

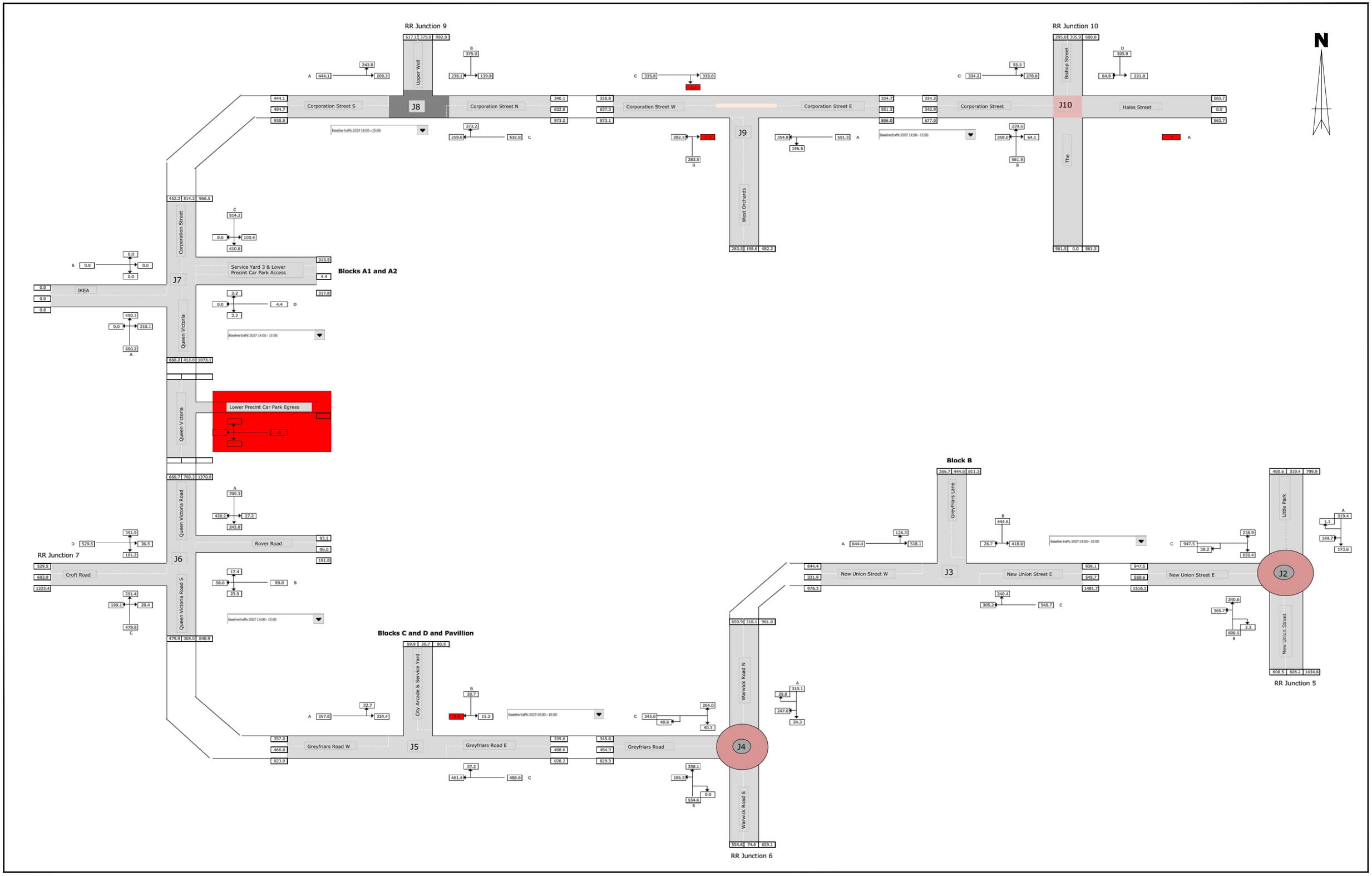


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Future Baseline 2027 traffic flows - PM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 14

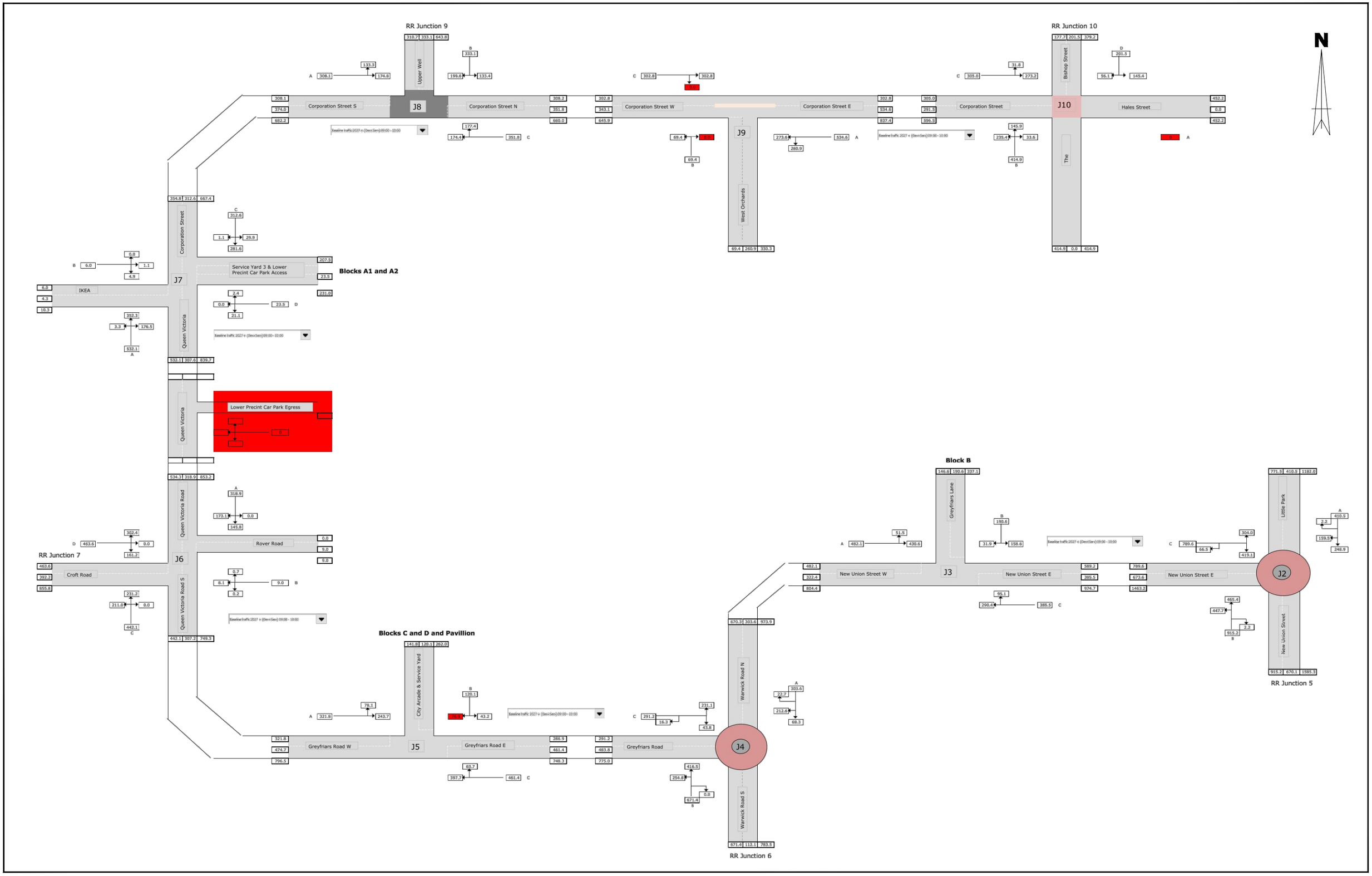


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Future Baseline 2027 traffic flows - Saturday Peak Hour

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 15

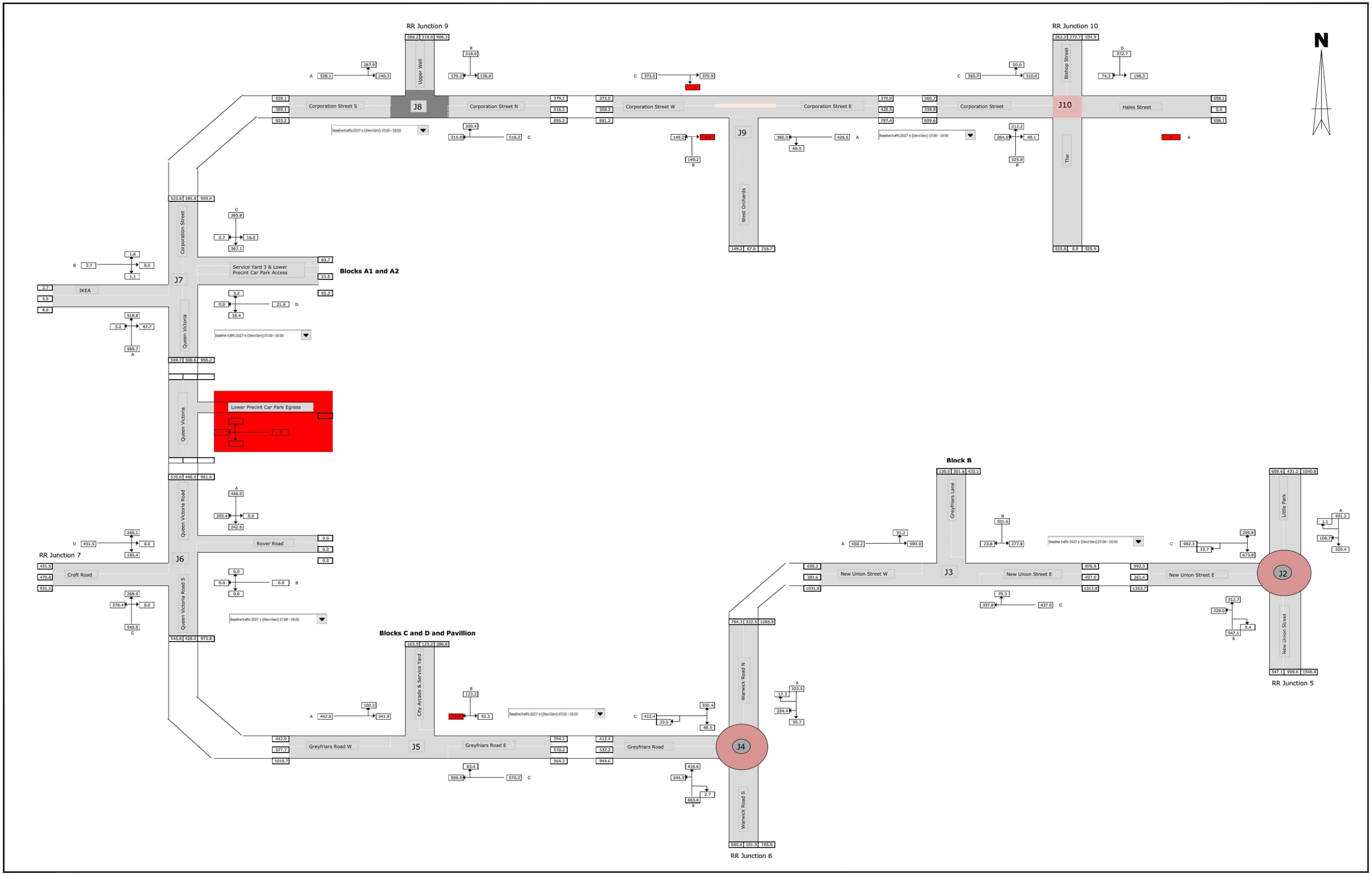


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2027 + Development traffic flows - AM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 16

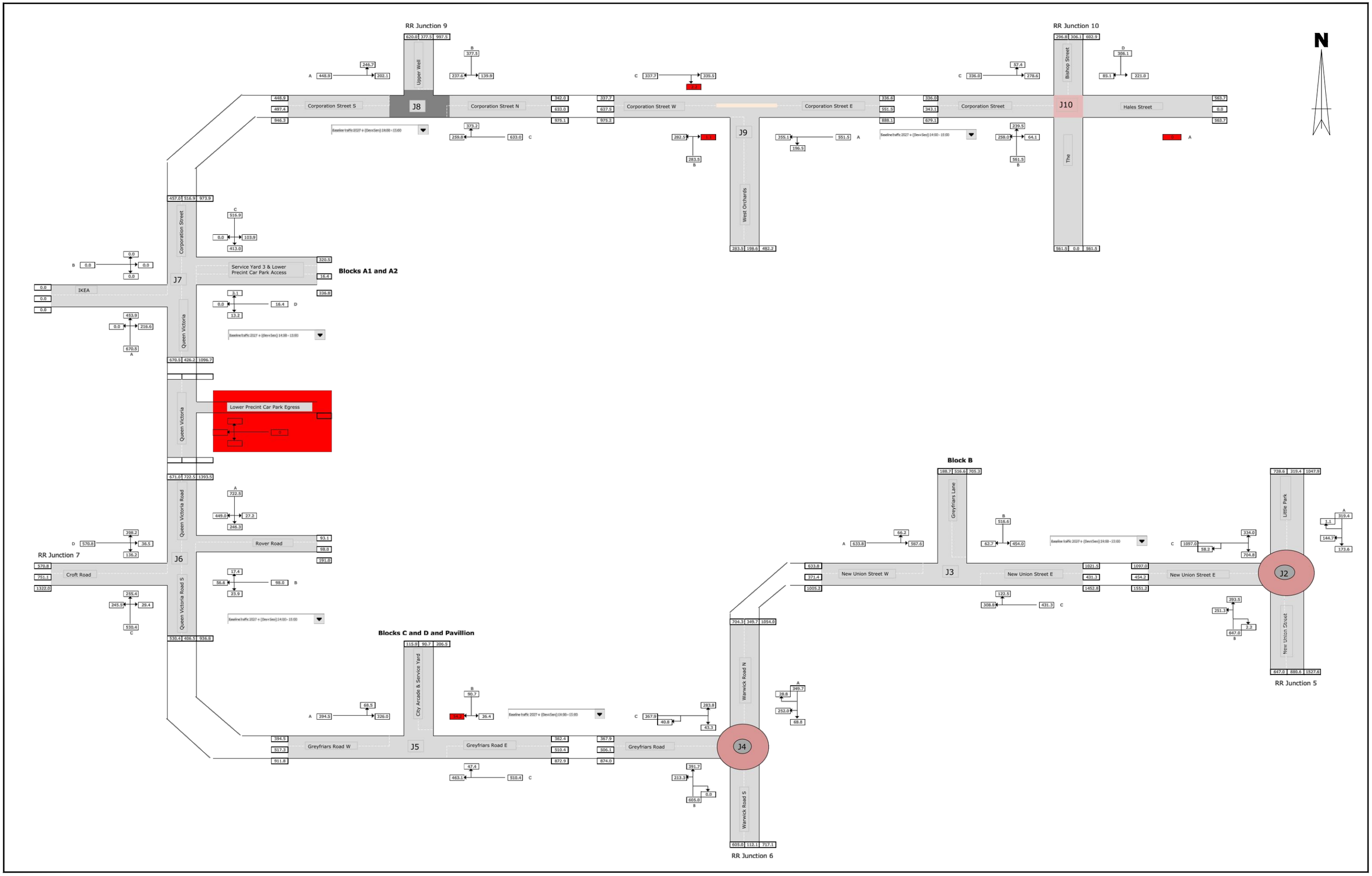


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2027 + Development traffic flows - PM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 17

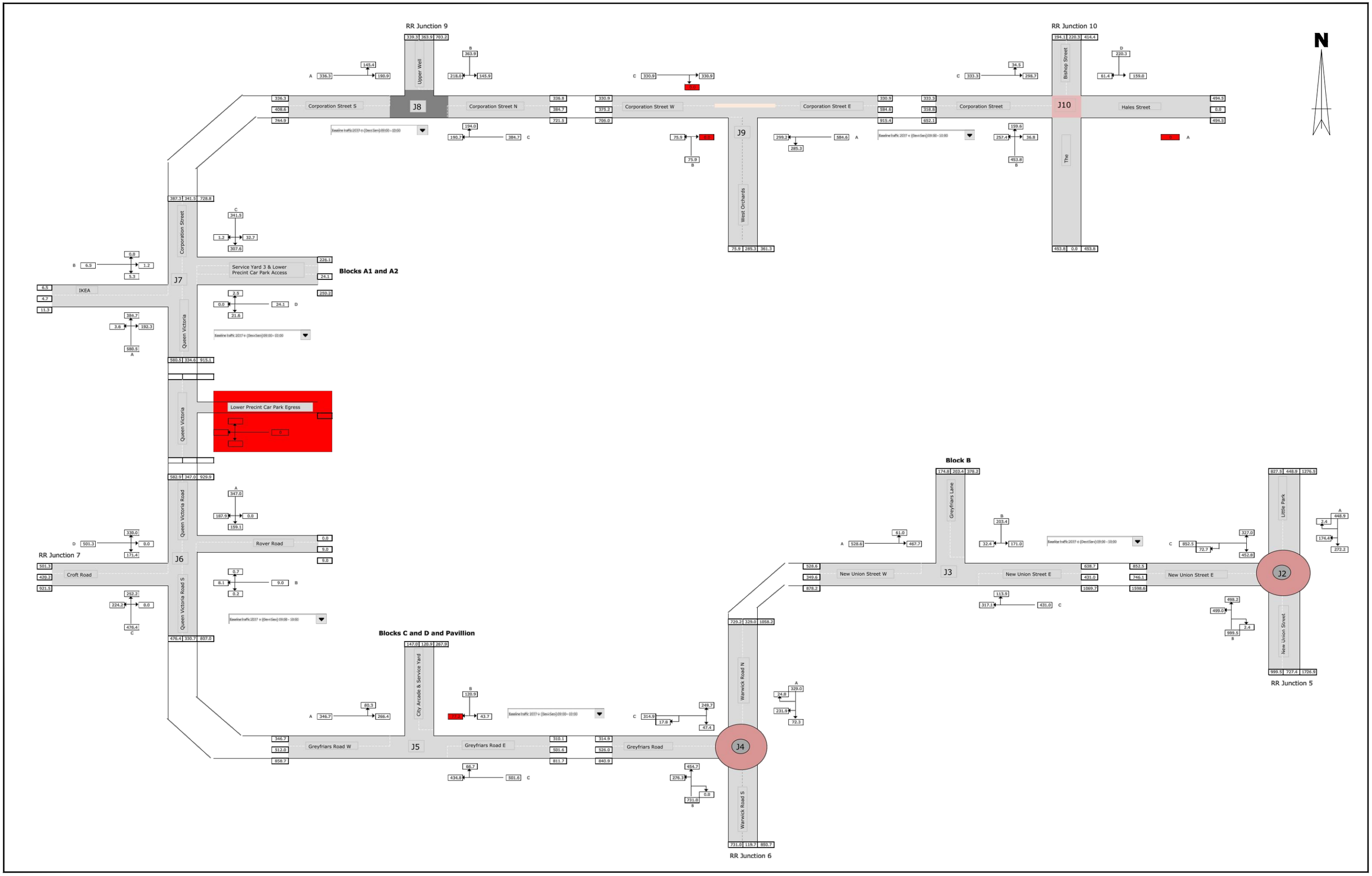


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2027 + Development traffic flows - Saturday Peak Hour

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 18

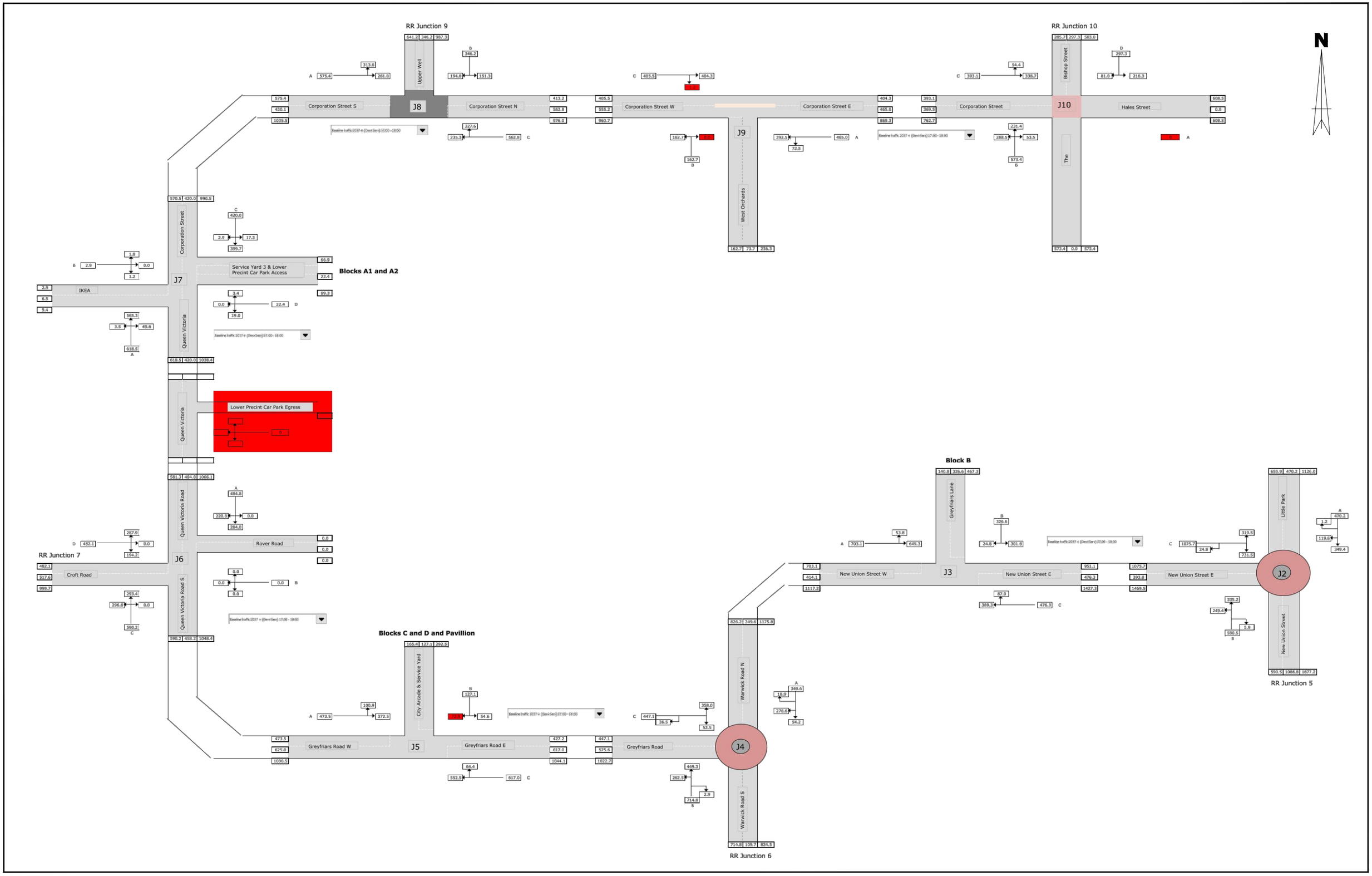


T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

Baseline 2037 + Development traffic flows - AM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 19



T:\30000_Projects\31176 Coventry City Centre South\ACAD\034_B - 045_B.dwg

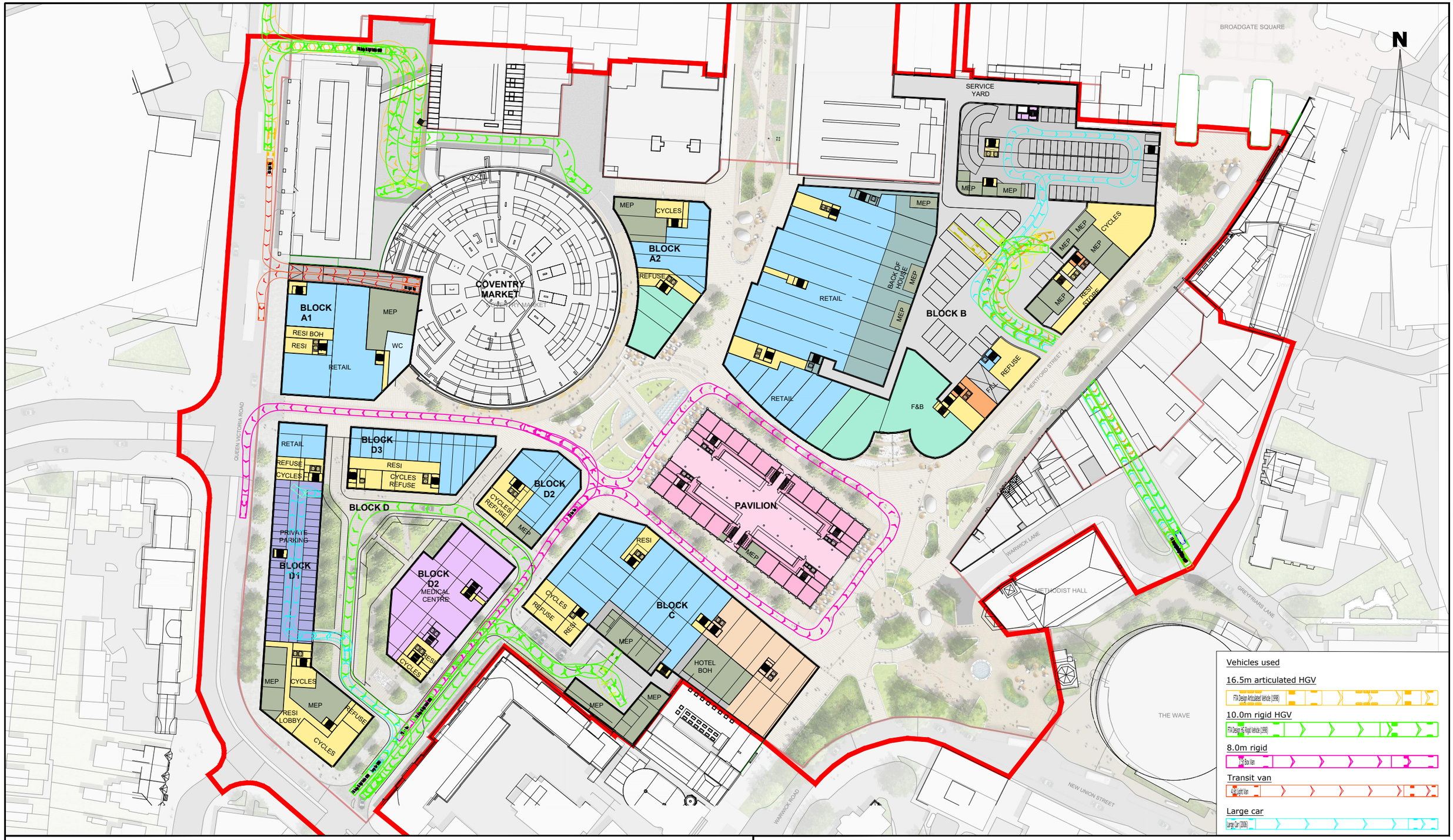
Baseline 2037 + Development traffic flows - PM Weekday

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 20

Drawings

TPP
transport planning practice



This drawing has been prepared for planning purposes and should not be used for construction. It should be read in conjunction with TPP document D002c.

Based on drawing number 200804-CCS--Sheet - 4002 - First Floor Plan. TPP REF - IN_100.

CITY CENTRE SOUTH

Indicative layout - Swept path analysis of servicing and access arrangements

TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL

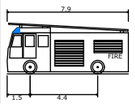
t: 020 7608 0008
w: www.tppweb.co.uk

TPP transport planning practice

SCALE @ A3	DATE	DRAWN BY	CHECKED	DRAWING NUMBER	REV
1:2000	09/11/20	LD	CWP	31176/AC/013	C

T:\30000_Projects\31176 Coventry City Centre South\ACAD\013_C.dwg

Vehicle used



Pumping Appliance	
Overall Length	7.900m
Overall Width	2.500m
Overall Body Height	3.300m
Min Body Ground Clearance	0.140m
Track Width	2.500m
Lock to Lock Time	4.00s
Kerb to Kerb Turning Radius	7.750m

This drawing has been prepared for planning purposes and should not be used for construction. It should be read in conjunction with TPP document D002c.

Based on drawing number 200804-CCS--Sheet - 4002 - First Floor Plan. TPP REF - IN_100.

CITY CENTRE SOUTH

Indicative layout - Swept path analysis of fire tender including First Floor/Podium court yard

SCALE @ A3	DATE	DRAWN BY	CHECKED
1:2000	09/11/20	LD	CWP

TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL

t: 020 7608 0008
w: www.tppweb.co.uk

TPP transport planning practice

DRAWING NUMBER	REV
31176/AC/014	C

T:\30000_Projects\31176 Coventry City Centre South\ACAD\014_C.dwg

Bus stop to be relocated further south (see below)

Indicative 26m ramp to Coventry Market basement

Loading pad located within footway and carriageway

Existing location of relocated pedestrian

Existing location of relocated pedestrian

Relocated bus stop location

BLOCK A1

MEP

RESI BOH

RESI

WC

RETAIL

RETAIL

REFUSE

CYCLES

BLOCK D3

RESI

CYCLES

REFUSE

BLOCK D

PRIVATE PARKING

BLOCK D1

BLOCK D2

MEDICAL CENTRE

RESI

CYCLES

MEP

CYCLES

Queen Victoria Road

Croft Road

BUS STOP

BUS STOP

CAR PARK

KEEP CLEAR

KEEP CLEAR

N

This drawing has been prepared for planning purposes and should not be used for construction.

T:\30000_Projects\31176 Coventry City Centre South\ACAD\026_C.dwg

BASED ON ORDNANCE SURVEY MAPPING AND REPRODUCED BY TRANSPORT PLANNING PRACTICE WITH THE PERMISSION OF THE CONTROLLER OF HMSO © CROWN COPYRIGHT

Based on drawing number 2020-01-17-ccs mplan. TPP REF - IN_54.

COVENTRY CITY CENTRE SOUTH

Possible Croft Road/ Queen Victoria Road junction arrangment

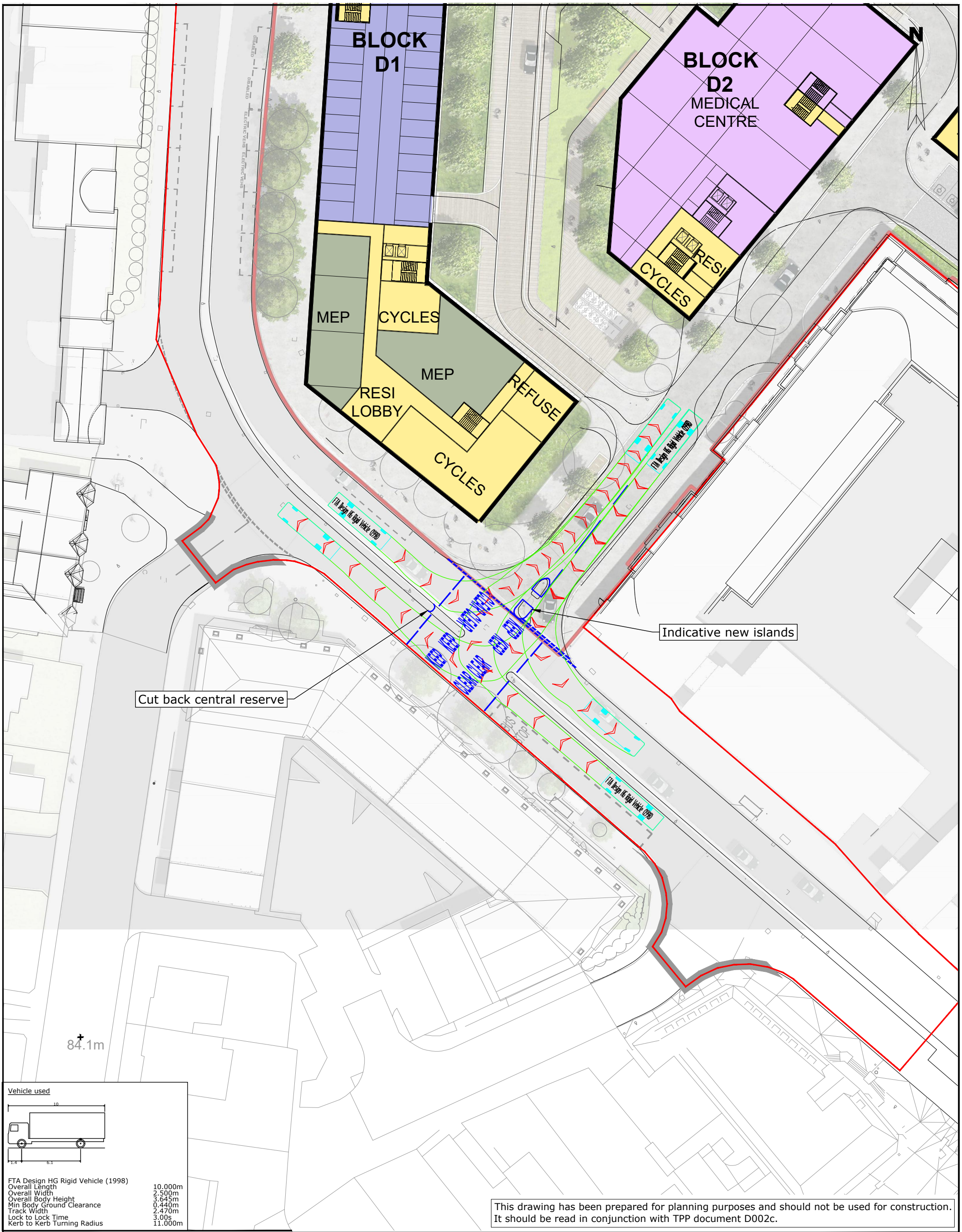
TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL

t: 020 7608 0008
w: www.tppweb.co.uk

TPP transport planning practice

SCALE @ A3 1:500 (0 5 10m)	DATE	DRAWN BY	CHECKED	DRAWING NUMBER	REV
	13/08/20	LD	REV	31176/AC/026	C



Vehicle used

FTA Design HG Rigid Vehicle (1998)	
Overall Length	10.000m
Overall Width	2.500m
Overall Body Height	3.645m
Min Body Ground Clearance	0.440m
Track Width	2.470m
Lock to Lock Time	3.00s
Kerb to Kerb Turning Radius	11.000m

This drawing has been prepared for planning purposes and should not be used for construction. It should be read in conjunction with TPP document D002c.

Based on drawing number 2020-01-17-ccs mplan. TPP REF - IN_54.

T:\30000_Projects\31176 Coventry City Centre South\ACAD\062 - 063.dwg

CITY CENTRE SOUTH

Indicative layout - Proposed Lower Market Way all movements junction arrangement

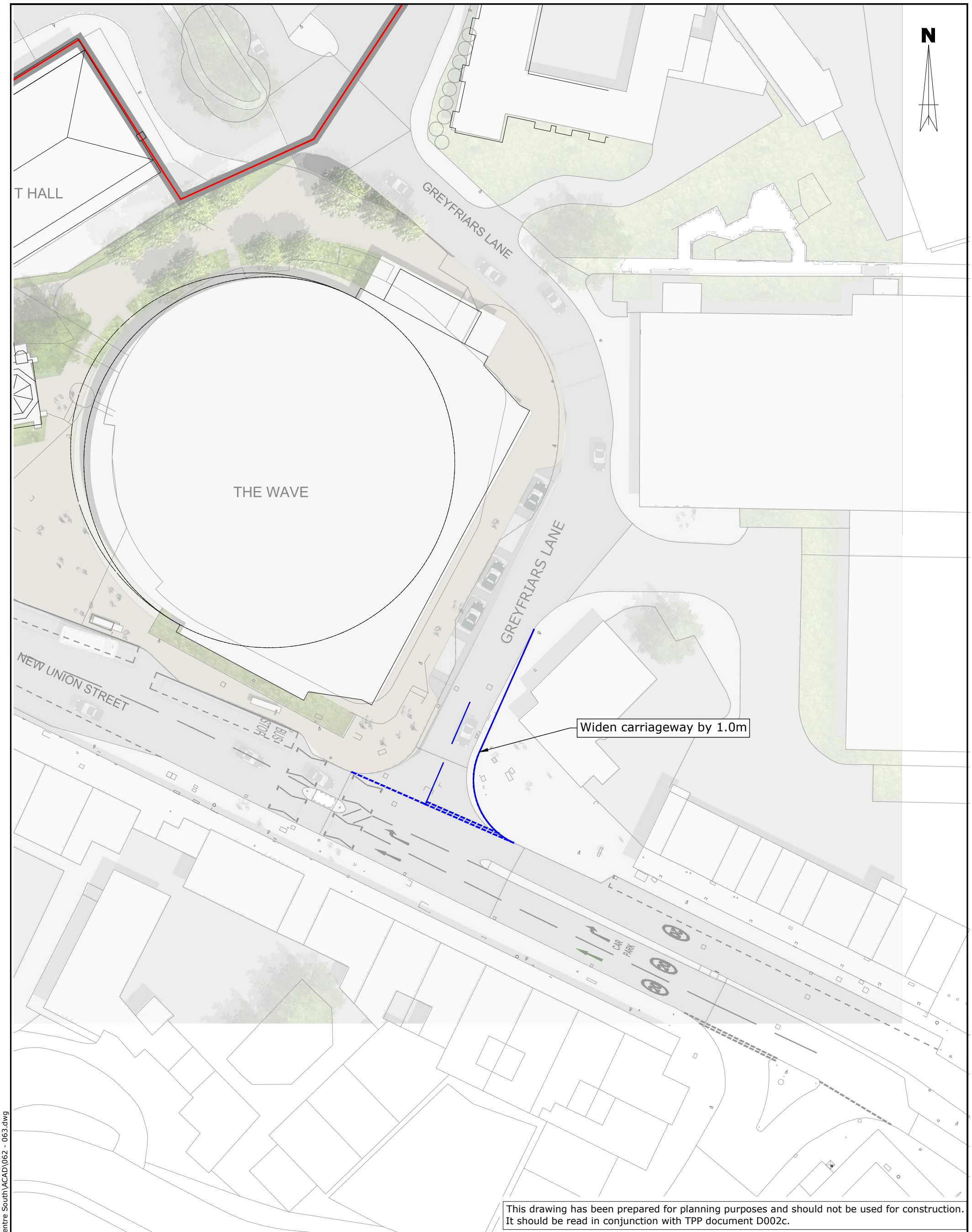
TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL

t: 020 7608 0008
w: www.tppweb.co.uk

TPP transport planning practice

SCALE @ A3	DATE	DRAWN BY	CHECKED	DRAWING NUMBER	REV
1:500 (0 5 10m)	09/11/20	LD	REV	31176/AC/062	-



This drawing has been prepared for planning purposes and should not be used for construction. It should be read in conjunction with TPP document D002c.

T:\30000_Projects\31176 Coventry City Centre South\ACAD\062 - 063.dwg

Based on drawing number 2020-01-17-ccs mplan. TPP REF - IN_54.

CITY CENTRE SOUTH

Indicative layout - Proposed Greyfriars Lane/ New Union Street junction arrangement

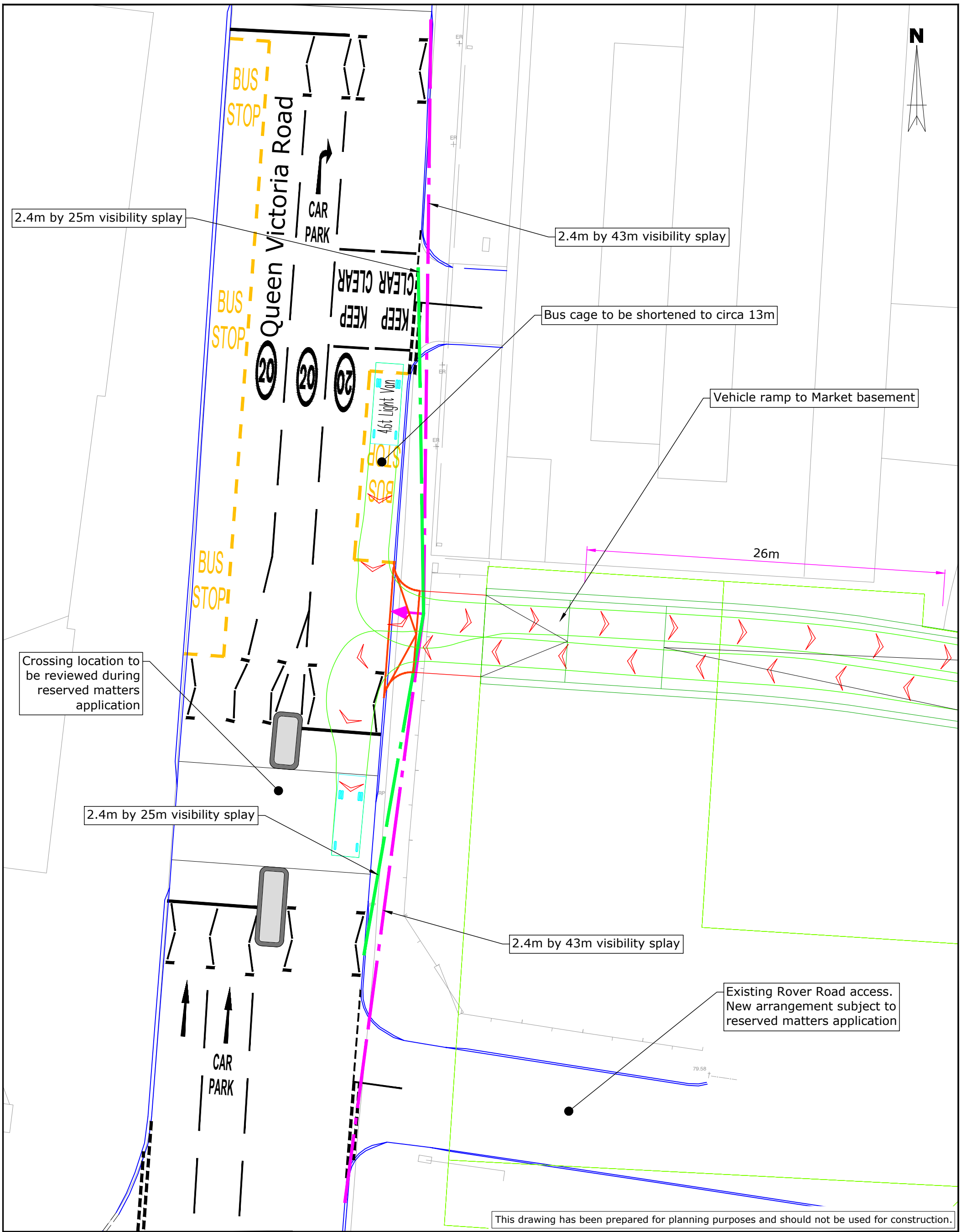
TRANSPORT PLANNING PRACTICE

70 Cowcross Street
London, EC1M 6EL

t: 020 7608 0008
w: www.tppweb.co.uk

TPP transport planning practice

SCALE @ A3	DATE	DRAWN BY	CHECKED	DRAWING NUMBER	REV
1:500 (0 5 10m)	09/11/20	LD	REV	31176/AC/063	-



T:\30000_Projects\31176 Coventry City Centre South\ACAD\054_B.dwg

CITY CENTRE SOUTH

Proposed replacement ramp access into Coventry Market basement
Swept path and visibility analysis

TRANSPORT PLANNING PRACTICE
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk
TPP transport planning practice

SCALE @ A3 1:250 (0 2.5 5m)	DATE	DRAWN BY	CHECKED	DRAWING NUMBER	REV
	12/10/20	REV	REV	31176/AC/054	B

Technical Appendix A

TPP report D012c - Summary of junction modelling

TPP
transport planning practice

Shearer Property Regan Limited

City Centre South Junction Capacity Assessment

September 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) have been commissioned by Shearer Property Regen Limited to provide transport planning advice with regards to the proposal to redevelop Coventry City Centre South (CCS). This note sets out a summary of the existing and proposed junction capacity assessment results.

1.1.2 The scope of the junction modelling assessment was discussed and agreed during meetings with Coventry City Council (CCC) Highways on 12th September 2019. This note has been prepared to set out the results of the junction modelling assessment.

1.2 Junctions

1.2.1 Salt Lane / Little Park Street junction (Site 1), whilst surveyed, was not assessed in terms of capacity as Little Park Street is one-way northbound and Salt Lane is a one-way egress off of Little Park Street. Therefore, there would be no opposing movements resulting in no capacity issues. Junction capacity assessments have therefore been undertaken of the following junctions:

- Site 2 – New Union Street / Little Park Street roundabout
- Site 3 – New Union Street / Greyfriars Lane junction
- Site 4 – Greyfriars Road / Warwick Road roundabout
- Site 5 – Greyfriars Road / City Arcade car park access junction
- Site 6 – Queen Victoria Road / Croft Road / Rover Road junction
- Site 7 – Queen Victoria Road / Lower Precinct car park access and service road access junction
- Site 8 – Upper Well Street / Corporation Street junction
- Site 9 –Corporation Street / West Orchard car park and service road access junction
- Site 10 – Corporation Street / The Burges / Hales Street / Bishop Street junction

1.2.2 Models of Sites 2 to 10 were built using Junctions 9 software with geometry being taken from topographical survey data. The traffic flows were obtained from traffic surveys undertaken on Thursday 21st and Saturday 23rd November 2019. The existing junction capacity modelling results have then been validated against queue length surveys undertaken on the same dates.

1.2.3 Four scenarios for each junction has been prepared to take into account background traffic growth and development flows:

- 2019 baseline
- 2027 baseline
- 2027 (development + servicing)
- 2037 (development + servicing)

1.2.4 The AM Peak (09:00-10:00), PM Peak (17:00-18:00) and Saturday Peak (14.00-15.00) have been assessed for each scenario.

1.2.5 The model for the future scenario for site 6 has been assessed using LinSIG to explore the potential of introducing signals on this junction.

1.2.6 The results of the junction capacity assessment modelling are shown in the following tables. The assessment of a junction's capacity is provided by its Ratio of Flow to Capacity (RFC). RFC is measured as a percentage with 85% - 90% generally recognised as the threshold at which a junction is reaching its theoretical capacity to allow for daily variation in traffic. In addition, the queue lengths predicted by the models indicate potential issues with junction capacity and design. The queue lengths for this assessment have been provided in PCU's (Passenger Car Unit's).

1.2.7 When reviewing this assessment it should be noted that the modelling is based on a worst case vehicle trip generation which assumes the existing modal split, resulting in a high car usage. As the scheme progresses and detailed Travel Plans are provided for the different elements of the wider scheme it is expected that the development car trips will reduce further as sustainable travel modes are encouraged. This includes by limiting the resident car parking in the City Centre.

1.2.8 The proposed mitigation, by way of alterations to the junctions, demonstrates one possible option that could be used to accommodate the development traffic on the highway network. However it is noted that the vehicle flows may be further refined and CCC are already implementing other initiatives that may impact on the quantum of vehicles in the City Centre, vehicle routeings and general accessibility. There will also be other considerations to take into account when reviewing the final detailed designs including CCC's preferred junction types and their general approach to discouraging traffic in the City Centre. In light of this, these proposals show that it is possible to mitigate against the impact of the proposed development on the highway network albeit that alternative options may be preferred as the design progresses.

2 JUNCTION 2 RESULTS

2.1.1 A summary of Junction 2, New Union Street / Little Park Street roundabout modelling results for each scenario are shown in Table 2.1.

Table 2.1 - Summary of New Union Street / Little Park Street junction

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019 baseline	Little Park St	34%	0.5	41%	0.7	31%	0.5
	New Union St (s)	42%	0.7	22%	0.3	28%	0.4
	New Union St (n)	44%	0.9	59%	1.5	60%	1.5
2027 baseline	Little Park St	38%	0.6	45%	0.8	35%	0.6
	New Union St (s)	46%	0.9	24%	0.3	31%	0.5
	New Union St (n)	49%	1	64%	1.8	65%	1.9
2027 (development + servicing)	Little Park St	43%	0.8	46%	0.9	36%	0.6
	New Union St (s)	47%	0.9	27%	0.4	33%	0.5
	New Union St (n)	61%	1.7	68%	2.2	81%	4.3
2037 (development + servicing)	Little Park St	44%	0.8	53%	1.1	41%	0.7
	New Union St (s)	52%	1.1	29%	0.4	36%	0.6
	New Union St (n)	66%	2.1	78%	3.5	89%	7.5

2.1.2 The model shows the highest existing RFC is 60% which occurs during the Saturday peak hour and results in a maximum average queue of 1.5 PCUs on the New Union Street northern arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues are in line with results of the model and therefore this demonstrates the model provides a good representation of the existing junction and how it operates.

2.1.3 The model shows in 2037 (dev+serv) the highest RFC is 89% which occurs during the Saturday peak hour and results in a maximum average queue of 7.5 PCUs on the New Union Street northern arm. This is the only occasion where the RFC is above 85% which indicates the junction is starting to reach its theoretical capacity. However the junction should be able to accommodate the expected vehicle flows in the future, with this possible congestion only leading to a small queue.

3 JUNCTION 3 RESULTS

3.1.1 A summary of Junction 3, the New Union Street / Greyfriars Lane priority junction modelling results are shown in Table 3.1. In the future scenarios (2027 and 2037 with Dev+serv) arm B has been widened by 1m to increase the capacity for vehicles exiting Greyfriars Lane.

Table 3.1 - Junction 3 New Union Street/Greyfriars Lane junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Greyfriars Lane left turn out	22%	0.3	47%	0.9	76%	3.0
	Greyfriars Lane right turn out	2%	0.0	4%	0.0	18%	0.2
	New Union St right turn in	38%	0.6	17%	0.2	48%	0.9
2027	Greyfriars Lane left turn out	24%	0.3	52%	1.1	86%	5.2
	Greyfriars Lane right turn out	2%	0.0	5%	0.0	31%	0.4
	New Union St right turn in	42%	0.7	19%	0.2	54%	1.2
2027 (dev+serv)	Greyfriars Lane left turn out	29%	0.4	54%	1.2	96%	11.0
	Greyfriars Lane right turn out	10%	0.1	11%	0.1	92%	3.7
	New Union St right turn in	20%	0.2	18%	0.2	28%	0.4
2037 (dev+serv)	Greyfriars Lane left turn out	31%	0.5	61%	1.5	110%	31.7
	Greyfriars Lane right turn out	11%	0.1	13%	0.1	107%	6.1
	New Union St right turn in	24%	0.3	20%	0.3	34%	0.5

3.1.2 The highest existing RFC predicted for this junction is 76% which occurs during the Saturday peak hour and results in a maximum average queue of 3.0 PCUs on Greyfriars Lane left turn out arm. The queues predicted by the model have been checked against the queue lengths obtained from the surveys.

3.1.3 It should be noted that whilst the 2019 (and therefore the 2027) baseline data is accurate and has been validated, the surveys were undertaken soon after the opening of the salt lane car park when this car park was still lightly used. It would therefore be expected that the actual baseline results would be more congested than currently indicated as both the existing Barracks and Salt Lane car parks exit via this route. In the future scenario only Salt Lane car park and a much smaller private car park will be utilised. Therefore the existing (do nothing) scenarios may well have reached capacity on the Saturday by 2027

3.1.4 Notwithstanding this, as indicated by the difference between the 2027 and the 2027 (dev+serv) data the impact of the development is an increase of 10% in the RFC for the Saturday, pushing the flows close to their capacity. This results in an additional 6 vehicles in the queue.

3.1.5 The 2037 (dev+serv) highest RFC is 110% which occurs during the Saturday peak hour and results in a maximum average queue of 31.7 PCUs on the Greyfriars Lane left turn out. All arms are within capacity at all other times. While the 2037 (dev+serv) scenario may exceed the junction's capacity, for the reasons explained above this is also likely to be the case in the 'do nothing' scenarios by this time.

3.1.6 If following the detailed planning applications this junction was still over capacity further mitigation could be reviewed. This includes signalising the junction, although this has not been undertaken at this time as we are aware the CCC seek to remove / avoid new signal junctions in the city centre where possible.

4 JUNCTION 4 RESULTS

4.1.1 A summary of Junction 4, the Greyfriars Road / Warwick Road roundabout modelling results are shown in Table 4.1. The Greyfriars Road / Warwick Road roundabout is a mini-roundabout.

Table 4.1 - Junction 4 Greyfriars Road/Warwick Road mini roundabout results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Warwick Rd (n)	35%	0.6	39%	0.7	41%	0.7
	Warwick Rd (s)	70%	2.4	64%	1.9	65%	1.9
	Greyfriars Rd	43%	0.9	62%	1.7	57%	1.4
2027	Warwick Rd (n)	38%	0.7	43%	0.8	44%	0.8
	Warwick Rd (s)	77%	3.4	71%	2.6	71%	2.5
	Greyfriars Rd	48%	1.1	69%	2.4	63%	1.8
2027 (dev+serv)	Warwick Rd (n)	42%	0.8	46%	0.9	50%	1.1
	Warwick Rd (s)	82%	4.5	85%	5.3	78%	3.6
	Greyfriars Rd	56%	1.5	79%	3.8	69%	2.4
2037 (dev+serv)	Warwick Rd (n)	46%	0.9	50%	1.1	55%	1.3
	Warwick Rd (s)	91%	8.7	94%	11.1	88%	6.5
	Greyfriars Rd	64%	2.0	89%	7.0	79%	3.8

4.1.2 The highest existing RFC predicted for this junction is 70% which occurs during the weekday AM peak hour and results in a maximum average queue of 2.4 PCUs on the Warwick Road southern arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues of one to two vehicles are in line with results of the model and therefore this demonstrates the model provides a reasonable representation of the existing junction and how it operates.

4.1.3 As indicated by the difference between the 2027 and the 2027 (dev+serv) data the impact of the development is an increase of 14% in the RFC for the PM peak on Warwick Road South, with an RFC of 85%. This results in an additional 3 vehicles in the queue.

4.1.4 The 2037 (dev+serv) scenario highest RFC is 94% which occurs in the weekday PM peak and results in a maximum average queue of 11.1 PCUs on the Warwick Road south arm. This indicates that the roundabout may be operating very close to capacity (and possibly at times exceeding it) as the Warwick Road South arm is above 90% RFC in the AM and PM peak.

4.1.5 However, it should be noted that the Greyfriars Road / Warwick Road roundabout has been modelled as a mini-round about. Whilst the size and lack of a physical island mean it would be categorised as a mini roundabout, it is an unusually large mini roundabout and is likely to operate in a similar way to a 'standard' roundabout with regard to its deflection and how it is perceived by the driver. The model has therefore also been assessed as a 'standard' roundabout. The results for a standard roundabout of these dimensions indicate there is ample capacity both in the existing and future scenarios. A summary of the Greyfriars Road / Warwick Road roundabout modelling, as a 'standard' roundabout results are shown Table 4.2.

Table 4.2 - Junction 4 Greyfriars Road/Warwick Road roundabout as a 'standard' roundabout results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Warwick Rd (n)	18%	0.2	20%	0.3	20%	0.3
	Warwick Rd (s)	46%	0.9	42%	0.8	42%	0.8
	Greyfriars Rd	27%	0.4	40%	0.7	39%	0.7
2027	Warwick Rd (n)	19%	0.3	21%	0.3	22%	0.3
	Warwick Rd (s)	51%	1.1	46%	0.9	46%	0.9
	Greyfriars Rd	30%	0.5	44%	0.9	40%	0.7
2027 (dev+serv)	Warwick Rd (n)	21%	0.3	23%	0.3	25%	0.4
	Warwick Rd (s)	54%	1.2	55%	1.3	50%	1.0
	Greyfriars Rd	35%	0.6	49%	1.0	43%	0.8
2037 (dev+serv)	Warwick Rd (n)	23%	0.3	25%	0.4	27%	0.4
	Warwick Rd (s)	59%	1.6	60%	1.6	56%	1.3
	Greyfriars Rd	38%	0.7	54%	1.3	48%	1.0

5 JUNCTION 5 RESULTS

5.1.1 A summary of Junction 5, the Greyfriars Road – City Arcade car park access modelling results are shown in Table 5.1.

Table 5.1 - Summary of Junction 5, Greyfriars Road / City Arcade car park access junction

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	City Arcade left turn out	1%	0.0	8%	0.1	4%	0.0
	City Arcade right turn in	6%	0.1	2%	0.0	5%	0.1
2027	City Arcade left turn out	1%	0.0	9%	0.1	4%	0.0
	City Arcade right turn in	7%	0.1	2%	0.0	6%	0.1
2027 (dev+serv)	City Arcade exit	27%	0.4	29%	0.4	20%	0.3
	City Arcade right turn in	13%	0.1	13%	0.2	10%	0.1
2037 (dev+serv)	City Arcade exit	27%	0.4	31%	0.4	22%	0.3
	City Arcade right turn in	14%	0.2	14%	0.2	11%	0.1

5.1.2 The highest existing RFC for the 2019 baseline is 8% which occurs during the weekday PM peak hour and results in a maximum average queue of 0.1 PCUs on the City Arcade left turn out arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues are in line with results of the model and therefore this demonstrates the model provides a good representation of the existing junction and how it operates.

5.1.3 The 2037 (dev+serv) highest RFC is 31% which occurs during the weekday PM peak hour and results in a maximum average queue of 0.4 PCUs.

5.1.4 The results indicate the access road (referred to as Lower Market Way in the new scheme) is and will remain well below capacity for all of the assessed scenarios, resulting in queues of less than 1 vehicle.

6 JUNCTION 6 RESULTS

6.1.1 Junction 6 is the Queen Victoria Road / Croft Road / Rover Road junction. The junction is currently a priority junction and therefore the existing situation and the 2027 forecast traffic growth have been assessed using the Junctions 9 programme. The junction has been changed to a signalised junction for the future scenarios. The junction has therefore been modelled as a signal controlled junction in LinSIG for the 2027 (dev+serv) and 2037 (dev+serv) scenarios.

6.1.2 In the future scenario, Rover Road / Rover Walk will become an 'exit only' for delivery and servicing vehicles, during restricted hours. As these times have yet to be agreed it has been assumed that this will occur during the AM and PM peak, but not during the Saturday peak hour.

6.1.3 As part of the junction configuration 3 parking bays along Queen Victoria Road to the south of the junction have been removed an additional left turn lane has been provided on Croft Road to the west of the junction. The LinSIG model is running on a 100 second cycle.

6.1.4 A summary of Junction 6, Queen Victoria Road / Croft Road / Rover Road junction modelling results are shown in Table 6.1.

Table 6.1 - Junction 6 Queen Victoria Road/Croft Road/Rover Road junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Rover Rd out	10%	0.1	8%	0.1	22%	0.3
	Croft Rd right turn in	31%	0.5	34%	0.6	83%	5.0
	Croft Rd left turn out	53%	1.2	42%	0.8	78%	3.4
	Croft Rd right turn out	30%	0.4	27%	0.4	52%	1.0
	Rover Rd right turn in	7%	0.1	4%	0.0	12%	0.1
2027	Rover Rd out	11%	0.1	8%	0.1	313%	37.2
	Croft Rd right turn in	34%	0.6	37%	0.6	85%	5.5
	Croft Rd left turn out	59%	1.5	46%	1.0	95%	9.3
	Croft Rd right turn out	36%	0.6	31%	0.4	92%	4.3
	Rover Rd right turn in	7%	0.1	4%	0.0	13%	0.2
2027 (dev+ serv)	Queen Victoria Rd (n) ahead	45%	3.6	80%	6.5	39%	4.4
	Queen Victoria Rd (n) right	62%	4.4	78%	5.4	83%	8.1
	Rover Rd egress out	7%	0.2	0%	0	n/a	n/a
	Queen Victoria Rd (s) ahead and left	71.6%	5.8	87%	7.8	83%	5.7
	Croft Road left right	69%:65%	6.7	80%	5.9	76%	3.3
2037 (dev+ serv)	Queen Victoria Rd (n) ahead	47%	3.5	87%	6.0	43%	4.9
	Queen Victoria Rd (n) right	64%	4.2	84%	5.0	91%	8.9
	Rover Rd egress out	7%	0.2	0%	0.0	n/a	n/a
	Queen Victoria Rd (s) ahead and left	78%	5.6	93%	6.5	90%	6.3
	Croft Road left right	80%:71%	4.1	84%	4.6	82%:80%	3.6

6.1.5 The highest existing RFC predicted for the existing junction is 83% which occurs during the Saturday peak hour and results in a maximum average queue of 5.0 PCUs on the Croft Road right turn arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues are in line with results of the model and therefore this demonstrates the model provides a good representation of the existing junction and how it operates.

6.1.6 The Rover Road exit movement on the Saturday in the 2027 (do nothing) scenario has an RFC of 313% which results in a maximum average queue of 37.2 PCUs. The Croft Road out left and right turn would also have RFC's over 90% in the 2027 scenario. This shows the Queen Victoria Road / Croft Road / Rover Road junction will be operating above capacity by 2027 as a result from the increase in background traffic, based on the current highway arrangement.

6.1.7 The 2027 (dev+serv) scenario has a maximum RFC of 83% on the Queen Victoria Road (n) right turn and Queen Victoria Road (s) ahead and left turn which leads to a maximum average queue of 8.1 and 5.7 PCUs respectively. The capacity on this junction, which also includes the additional development traffic and a dedicated pedestrian crossing phase, has been improved by signalising this junction when compared to the 2027 priority junction.

6.1.8 Whilst the 2037 scenario leads to higher RFC values (max of 91% and a maximum average queue of 8.9), it will still operate at a better capacity than priority junction.

6.1.9 This assessment shows that by signalising the junction the capacity can be improved to the extent where it can accommodate the development traffic and background growth. However following discussions with CCC we are aware that other initiatives being implemented by CCC around the City Centre could result in a reduction in background traffic which may enable an alternative junction design to be reviewed and implemented as the scheme progresses.

7 JUNCTION 7 RESULTS

7.1.1 A summary of Junction 7, the Queen Victoria Road / Lower Precinct car park access junction modelling results are shown in Table 7.1.

Table 7.1 - Summary of Junction 7, Queen Victoria Road/Lower Precinct car park access junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Croft Rd out	1%	0.0	0%	0.0	0%	0.0
	Car park/Service yard right turn in	27%	0.4	4%	0.0	36%	0.6
	Service yard exit	1%	0.0	2%	0.0	0%	0.0
	Croft Rd right turn in	0%	0.0	1%	0.0	0%	0.0
2027	Croft Rd out	1%	0.0	0%	0.0	0%	0.0
	Car park/Service yard right turn in	29%	0.4	4%	0.0	39%	0.7
	Service yard exit	1%	0.0	2%	0.0	0%	0.0
	Croft Rd right turn in	0%	0.0	1%	0.0	0%	0.0
2027 (dev+serv)	Croft Rd out	1%	0.0	0%	0.0	0%	0.0
	Car park/Service yard right turn in	31%	0.4	9%	0.1	41%	0.7
	Service yard exit	5%	0.1	5%	0.1	4%	0.0
	Croft Rd right turn in	0%	0.0	1%	0.0	0%	0.0
2037 (dev+serv)	Croft Rd out	2%	0.0	0%	0.0	0%	0.0
	Car park/Service yard right turn in	34%	0.5	9%	0.1	45%	0.8
	Service yard exit	5%	0.1	5%	0.1	4%	0.0
	Croft Rd right turn in	0%	0.0	1%	0.0	0%	0.0

7.1.2 The highest existing RFC predicated for this junction is 36% which occurs during the Saturday peak hour and results in a maximum average queue of 0.6 PCUs on the car park/service yard right turn in.

7.1.3 The 2037 (dev+serv) highest RFC is 45% which occurs during the Saturday peak hour and results in a maximum average queue of 0.8 PCUs.

7.1.4 The results indicate the car park access is and will remain well below capacity with all arms across all of the assessed scenarios having queues less than 1 PCU.

8 JUNCTION 8 RESULTS

8.1.1 A summary of Junction 8, the Upper Well Street / Corporation Street junction modelling results are shown in Table 8.1.

Table 8.1 - Summary of Junction 8, Upper Well Street/Corporation Street Junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Upper Well St left turn out	62%	1.9	67%	2.2	87%	5.8
	Upper Well St right turn out	31%	0.6	57%	1.6	68%	2.7
	Corporation St right turn in	18%	0.3	32%	0.5	27%	0.4
2027	Upper Well St left turn out	69%	2.4	76%	3.2	99%	14.1
	Upper Well St right turn out	33%	0.7	63%	2.2	75%	3.9
	Corporation St right turn in	20%	0.3	34%	0.6	29%	0.5
2027 (serv+dev)	Upper Well St left turn out	70%	2.6	78%	3.6	101%	15.4
	Upper Well St right turn out	33%	0.7	63%	2.2	75%	4.0
	Corporation St right turn in	20%	0.3	35%	0.6	29%	0.5
2037 (serv+dev)	Upper Well St left turn out	78%	3.9	90%	7.1	118%	41.6
	Upper Well St right turn out	37%	0.8	70%	3.1	84%	6.9
	Corporation St right turn in	22%	0.3	38%	0.7	32%	0.5

8.1.2 The highest existing RFC predicted for this junction is 87% which occurs during the Saturday peak hour and results in a maximum average queue of 5.8 PCUs on the Upper Well Street left turn out arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues are in line with results of the model and therefore this demonstrates the model provides a good representation of the existing

junction and how it operates. This suggests that the junction is already close to capacity.

8.1.3 The 2037 (dev+serv) highest RFC is 118% which occur during the Saturday peak hour and results in a maximum average queue of 41.6 PCUs on the Upper Well Street left turn out arm. This is in excess of the capacity of this junction. However the development proposal (dev+serv flows) contribute very little to this increase in traffic, with the RFC only increasing from 99% to 101% and the maximum average queue increasing from 14.1PCUs to 15.4PCUs between the 2027 and 2027 (dev+serv) scenarios on the Upper Well Street left turn out arm.

8.1.4 Therefore Junction 8 is likely to experience capacity problems in 2037 due to the forecast growth of background traffic, with the development proposals having little impact on the junction capacity.

9 JUNCTION 9 RESULTS

9.1.1 The summary of Junction 9, the Corporation Street / West Orchard car park access junction modelling results are shown in Table 9.1. The junction is a left in-left out only enforced by a kerbed central reserve.

Table 9.1 - Junction 9 Corporation Street/West Orchard car park access junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	Car park left turn out	13%	0.2	28%	0.4	54%	1.1
2027	Car park left turn out	15%	0.2	31%	0.4	60%	1.5
2027 (dev+serv)	Car park left turn out	15%	0.2	31%	0.4	60%	1.5
2037 (dev+serv)	Car park left turn out	16%	0.2	34%	0.5	66%	1.9

9.1.2 The existing highest RFC predicted for this junction is 54% which occurs during the Saturday peak hour and results in a maximum average queue of 1.1 PCUs. The queue length survey indicated an average queue of 12 PCUs during the Saturday peak hour. The videos for the access were reviewed which showed that there was a constant queue along Corporation Street which was blocking traffic from exiting the car park. This indicates that whilst the junction itself has sufficient capacity, there is a queuing problem along Corporation Street in this location during this hour. It should also be noted, while a kerbed central reserve stops traffic turning right into or out of the car park, it was observed some vehicles performing this manoeuvre. However this is not expected to impact on the junction capacity.

9.1.3 The 2037 (serv+dev) highest RFC is 66% which occurs during the Saturday peak hour and results in a maximum average queue of 1.9 PCUs.

9.1.4 The results indicate the car park access is and will remain well below capacity with all arms across all of the assessed scenarios having queues less than 2 PCUs.

10 JUNCTION 10 RESULTS

10.1.1 The summary for Junction 10, Corporation Street – The Burges – Hales Street – Bishop Street junction modelling results are shown in Table 10.1.

Table 10.1 - Junction 10 Corporation Street/The Burges/Hales Street/Bishop Street junction results

Scenario	Arm	AM Peak 0900 - 1000		PM Peak 1700 – 1800		Saturday Peak 1400 - 1500	
		RFC	Queue (PCUs)	RFC	Queue (PCUs)	RFC	Queue (PCUs)
2019	The Burges out	55%	2.0	74%	4.0	79%	4.8
	Bishop St out	40%	0.9	57%	1.5	64%	1.9
2027	The Burges out	61%	2.5	82%	5.9	89%	8.7
	Bishop St out	45%	1.0	64%	1.9	72%	2.6
2027 (dev+serv)	The Burges out	61%	2.5	82%	5.9	89%	8.7
	Bishop St out	45%	1.0	64%	1.9	72%	2.6
2037 (dev+serv)	The Burges out	68%	3.3	93%	11.6	103%	21.3
	Bishop St out	50%	1.3	73%	2.8	83%	4.5

10.1.2 The highest RFC predicted for this junction is 79% which occurs during the Saturday peak hour and results in a maximum average queue of 4.8 PCUs on The Burges out arm. The queues predicted by the model have been checked and validated against the queue lengths obtained from the surveys. The surveyed queues are in line with results of the model and therefore this demonstrates the model provides a reasonable representation of the existing junction and how it operates.

10.1.3 It is worth noting that the junction does not operate as a 'normal' crossroads. CCC Highways were contacted to request the modelling undertaken for the design of the junction so that further calibration of the TPP model could be undertaken. However CCC Highways were unable to supply their model.

10.1.4 The 2037 (dev+serv) highest RFC is 103% which occur during the Saturday peak hour and results in a maximum average queue of 11.6 PCUs on The Burges out arm. This is in excess of the capacity of this junction. However the development proposal (dev+serv flows) contribute very little to this increase in traffic, with the RFC and the maximum average queue being the same between the 2027 and 2027 (dev+serv) scenarios.

11 SUMMARY

11.1.1 The modelling is based on a worst case vehicle trip generation which assumes the existing modal split, resulting in a high car usage. As the scheme progresses and detailed Travel Plans are provided for the different elements of the wider scheme it is expected that the development car trips will reduce further as sustainable travel modes are encouraged. This includes by limiting the resident car parking in the City Centre.

11.1.2 The junction capacity assessment of the existing situation demonstrates that all junctions currently operate within their theoretical capacity. Only Site 8 – Upper Well Street / Corporation Street junction exceeds the theoretical capacity threshold to allow for daily variation. However, it only exceeds this threshold by 2%. This is not considered significant, particularly when the maximum average queue of 5.8 PCUs is taken into consideration. When assessing against the junction's theoretical capacity, there is a latent capacity of 13%.

11.1.3 The junction capacity for the proposed situation demonstrates that junctions 2, 5 7 and 9 operate within their theoretical capacity in 2037.

11.1.4 Junction 3 would operate above capacity in 2037 and so it is proposed that Greyfriars Lane is widened by 1m. The junction is likely to still exceed capacity on the Saturday, although for the reasons explained in Chapter 3, this is also likely to be the case in the 'do nothing' scenarios by this time.

11.1.5 Junction 4 has been assessed to operate above capacity in the future when modelled as a mini roundabout. However Junction 4 could be considered to operate more like a standard roundabout due to its size and configuration. If it was modelled as such then the junction operates within capacity.

11.1.6 Junction 6 would be above its capacity in 2027 without the development and servicing flows. It has therefore been proposed the junction should be signalised. Whilst the signalised junction will operate at capacity in the 2037 (dev+serv) scenario, it is still an improvement over the existing junction.

11.1.7 The proposed mitigation, by way of alterations to the junctions, demonstrates one possible option that could be used to accommodate the development traffic on the highway network. However it is noted that the vehicle flows may be further refined and CCC are already implementing other initiatives that may

impact on the quantum of vehicles in the City Centre, vehicle routeings and general accessibility. There will also be other considerations to take into account when reviewing the final detailed designs including CCC's preferred junction types and their general approach to discouraging traffic in the City Centre. In light of this these proposals show that it is possible to mitigate against the impact of the proposed development on the highway network albeit that alternative options may be preferred as the design progresses.

Transport Planning Practice
70 Cowcross Street
London EC1M 6EL
020 7608 0008
email@tppweb.co.uk

www.tppweb.co.uk

Technical Appendix B

TPP report D009 –
Initial findings of car
park surveys

TPP
transport planning practice

City Centre South
Initial findings of car park surveys

Transport Planning Practice| 70 Cowcross Street | London | EC1M 6EL| Tel: 020 7608 0008 | email@tppweb.co.uk

INTRODUCTION

This note has been prepared by Transport Planning Practice (TPP) to provide a high level summary of the results of the car park surveys for the Coventry City Centre South development area.

The car park surveys were undertaken on Thursday 21st and Saturday 23rd November 2019. The surveys were undertaken for a period of 12hrs between 07:00 to 19:00.

The surveys recorded the number and class of vehicles accessing and egressing the car parks in five minute intervals, from which the accumulation was calculated. The car parks surveyed were:

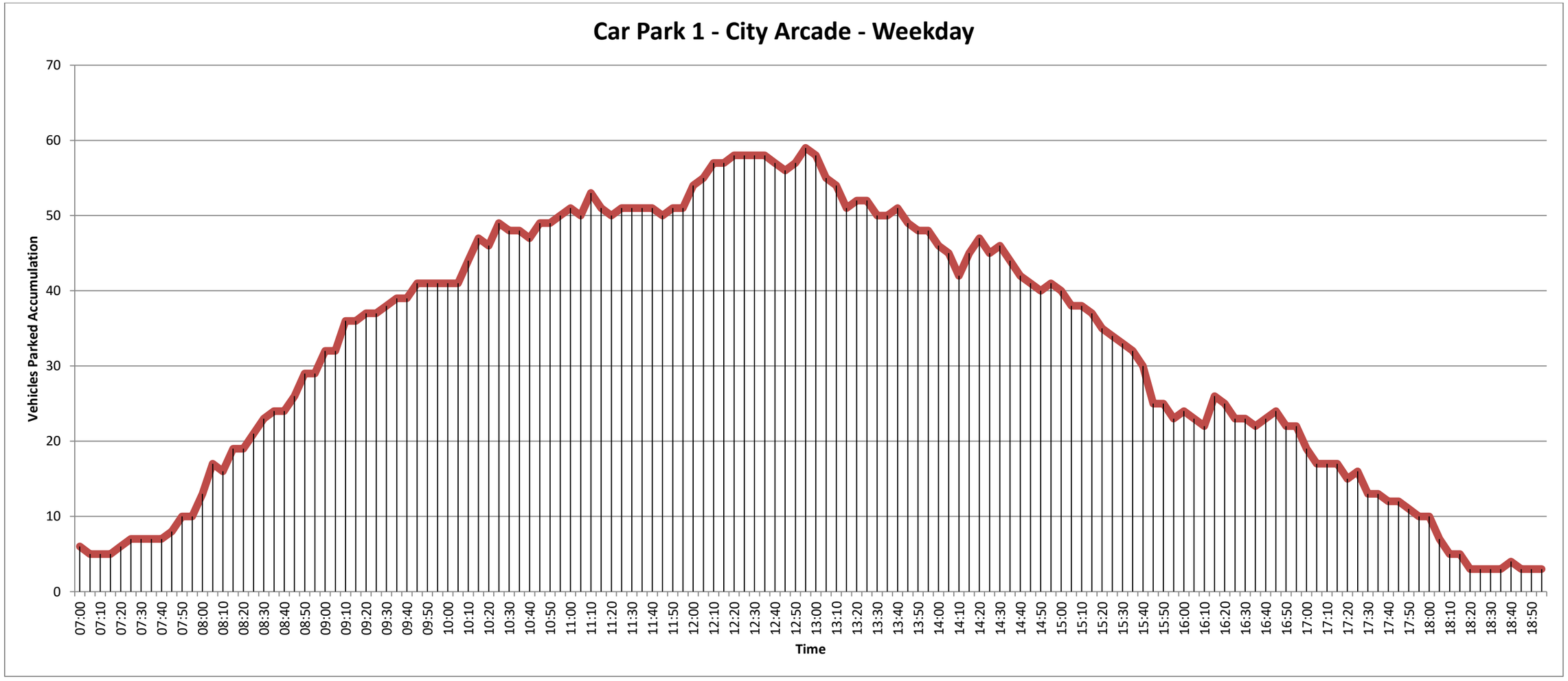
- City Arcade
- Barracks
- Market
- Lower Precinct
- Salt lane
- Skydome
- Ikea
- New Union Street and Cheylesmore

Transport Planning Practice| 70 Cowcross Street | London | EC1M 6EL| Tel: 020 7608 0008 | email@tppweb.co.uk

CAR PARK 1 – CITY ARCADE – WEEKDAY

- Total number of spaces: 170
- Peak accumulation of vehicles: 59
- Maximum utilisation of car park: 34.7%

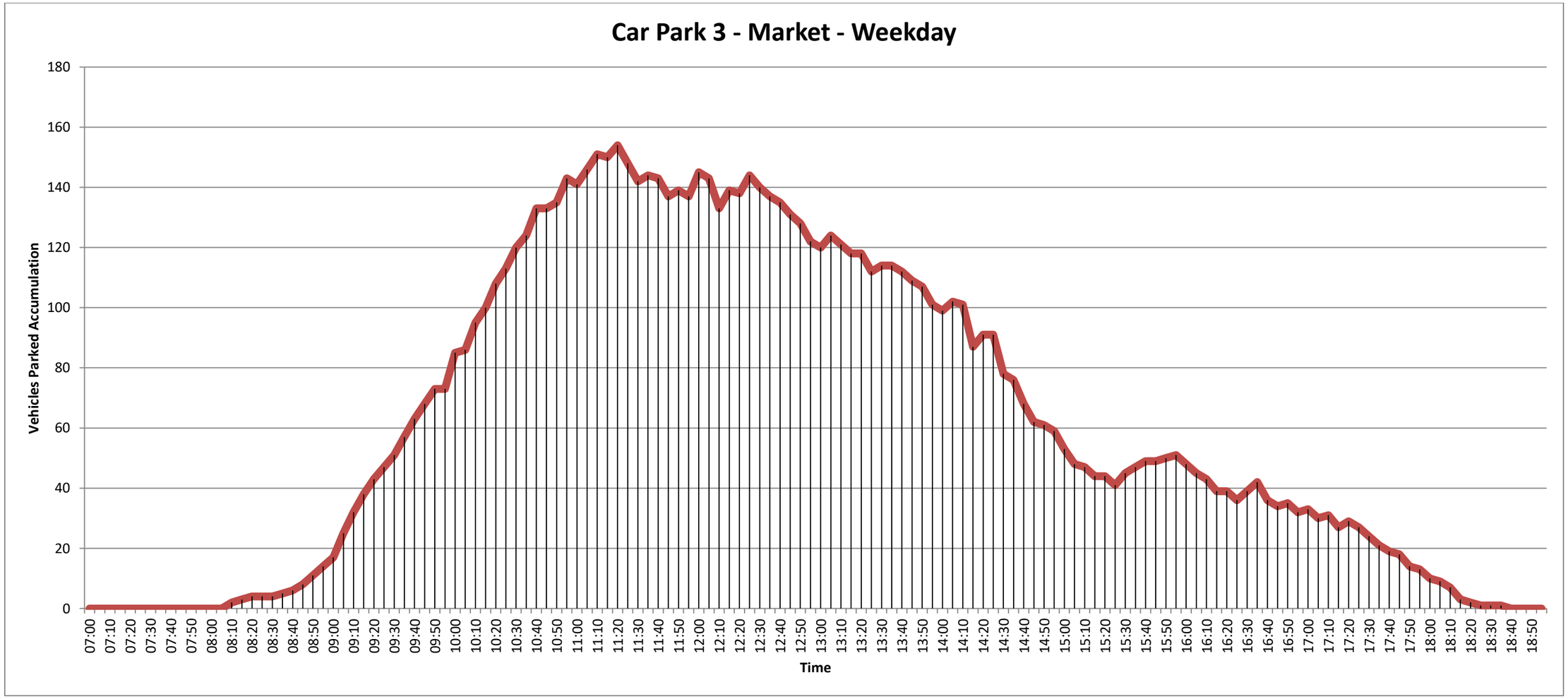
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 3 – MARKET – WEEKDAY

- Total number of spaces: 244
- Peak accumulation of vehicles: 154
- Maximum utilisation of car park: 63.1%

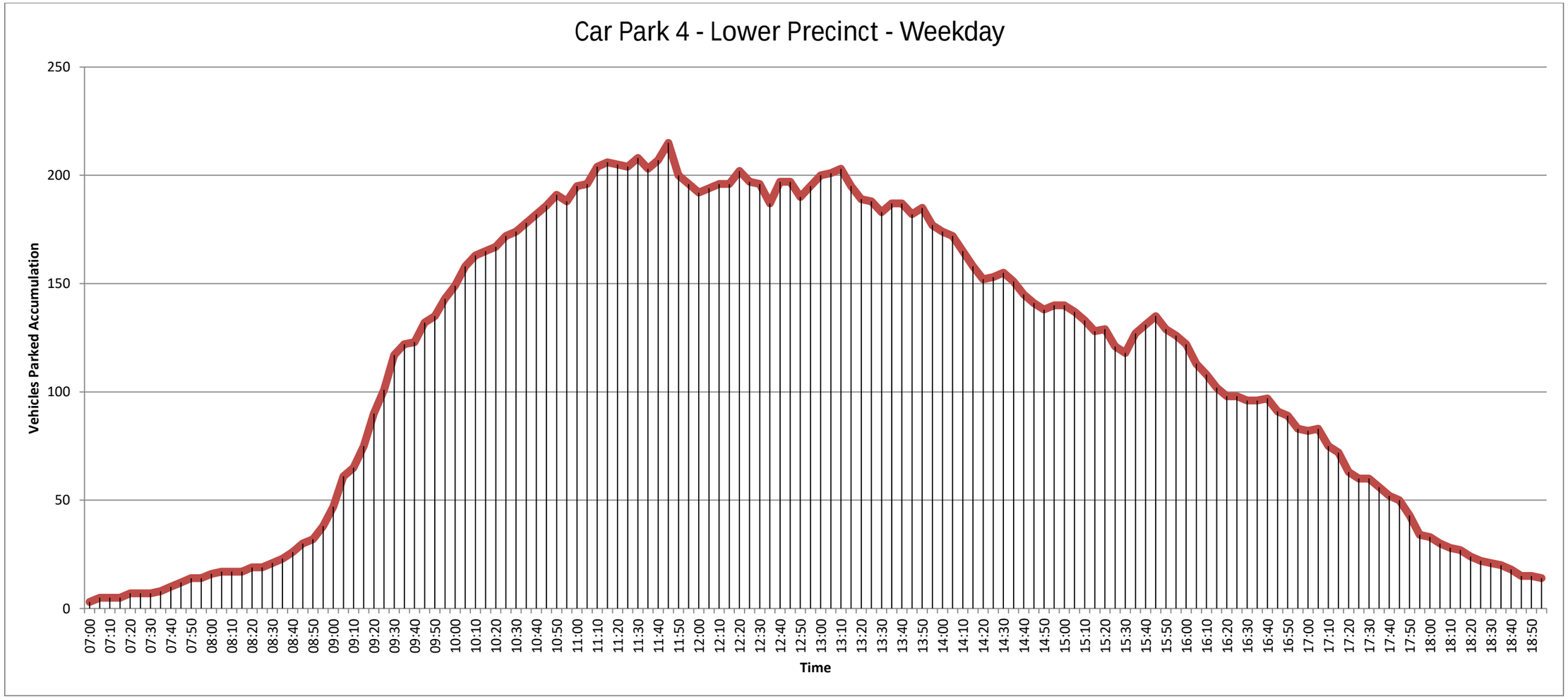
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 4 **– LOWER PRECINCT – WEEKDAY**

- Total number of spaces: 340
- Peak accumulation of vehicles: 215
- Maximum utilisation of car park: 63.2%

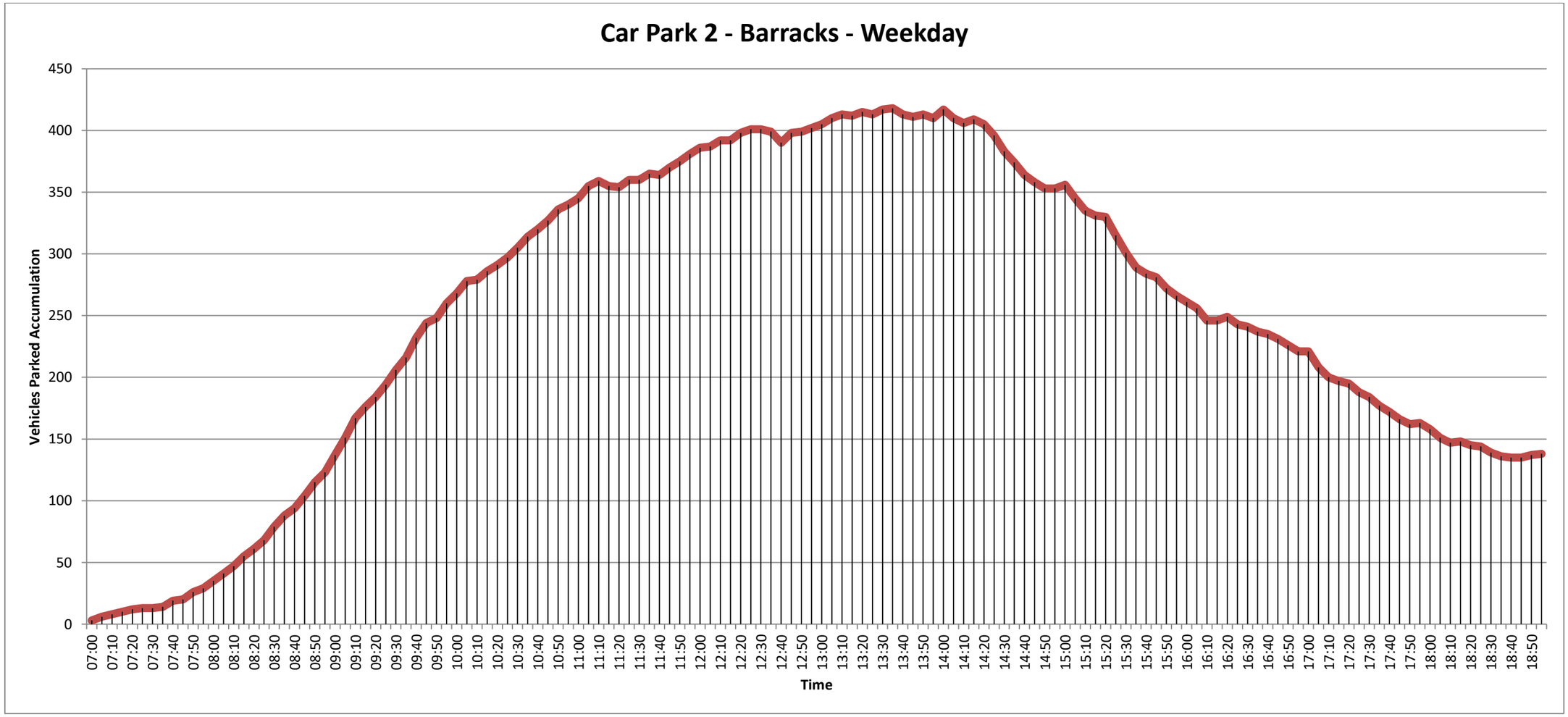
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 2 – BARRACKS – WEEKDAY

- Total number of spaces: 479
- Peak accumulation of vehicles: 418
- Maximum utilisation of car park: 87.3%

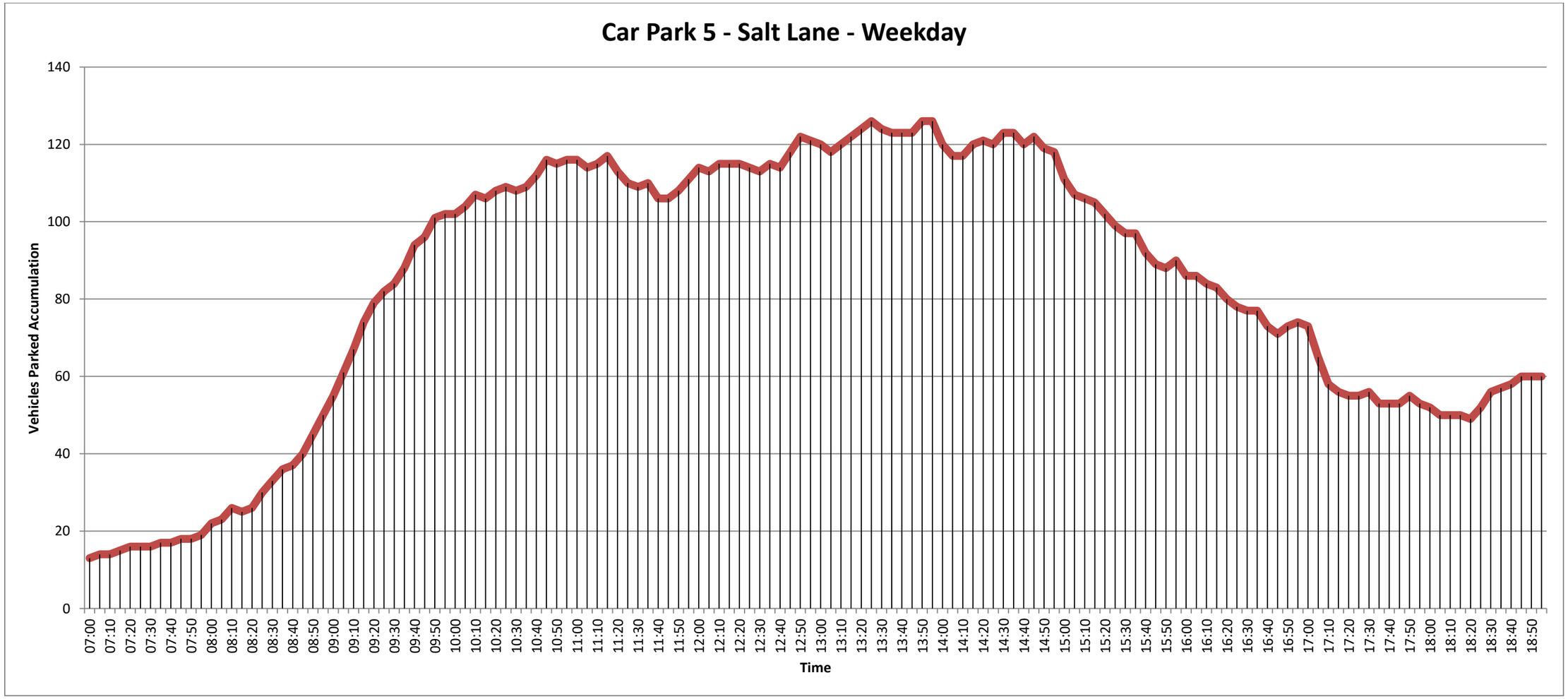
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 5 – SALT LANE – WEEKDAY

- Total number of spaces: 569
- Peak accumulation of vehicles: 126
- Maximum utilisation of car park: 22.1%

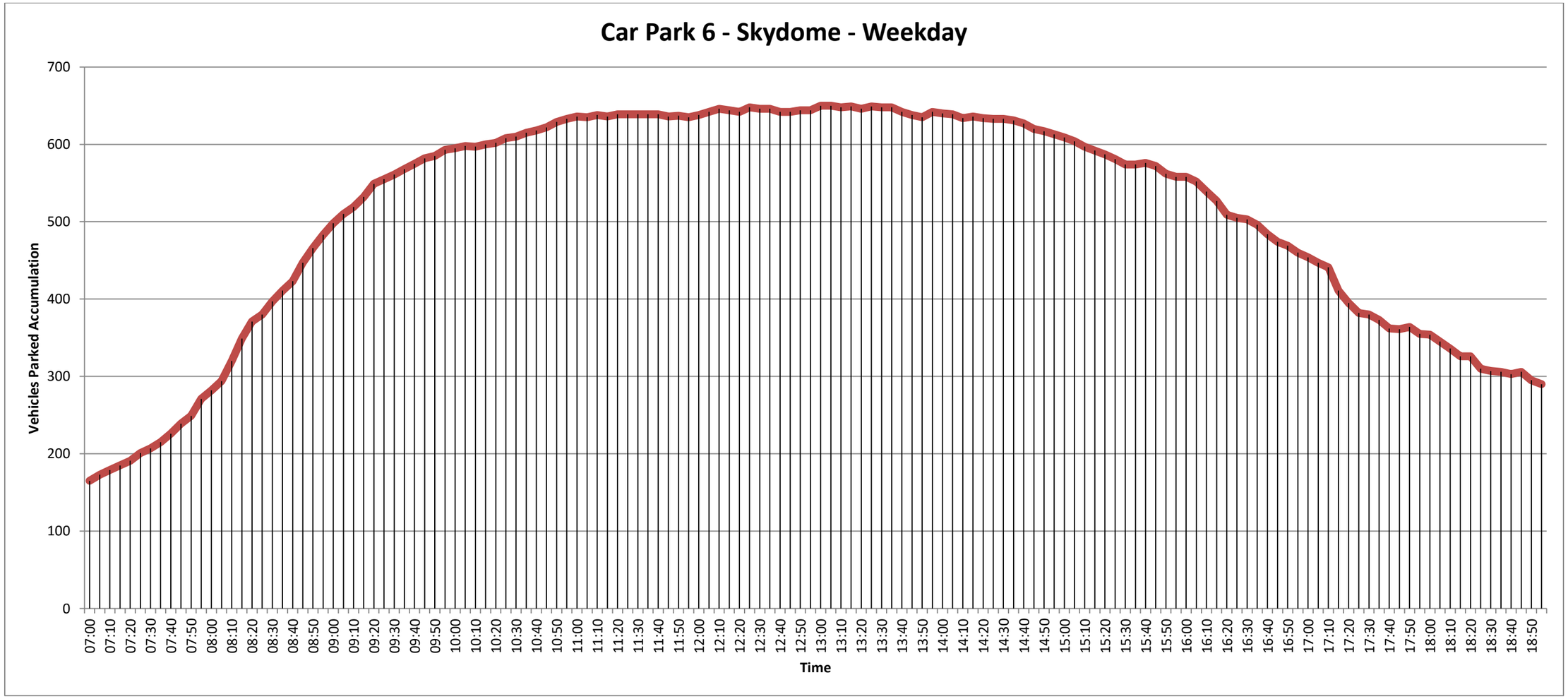
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 6 – SKYDOME – WEEKDAY

- Total number of spaces: 891
- Peak accumulation of vehicles: 650
- Maximum utilisation of car park: 73.0%

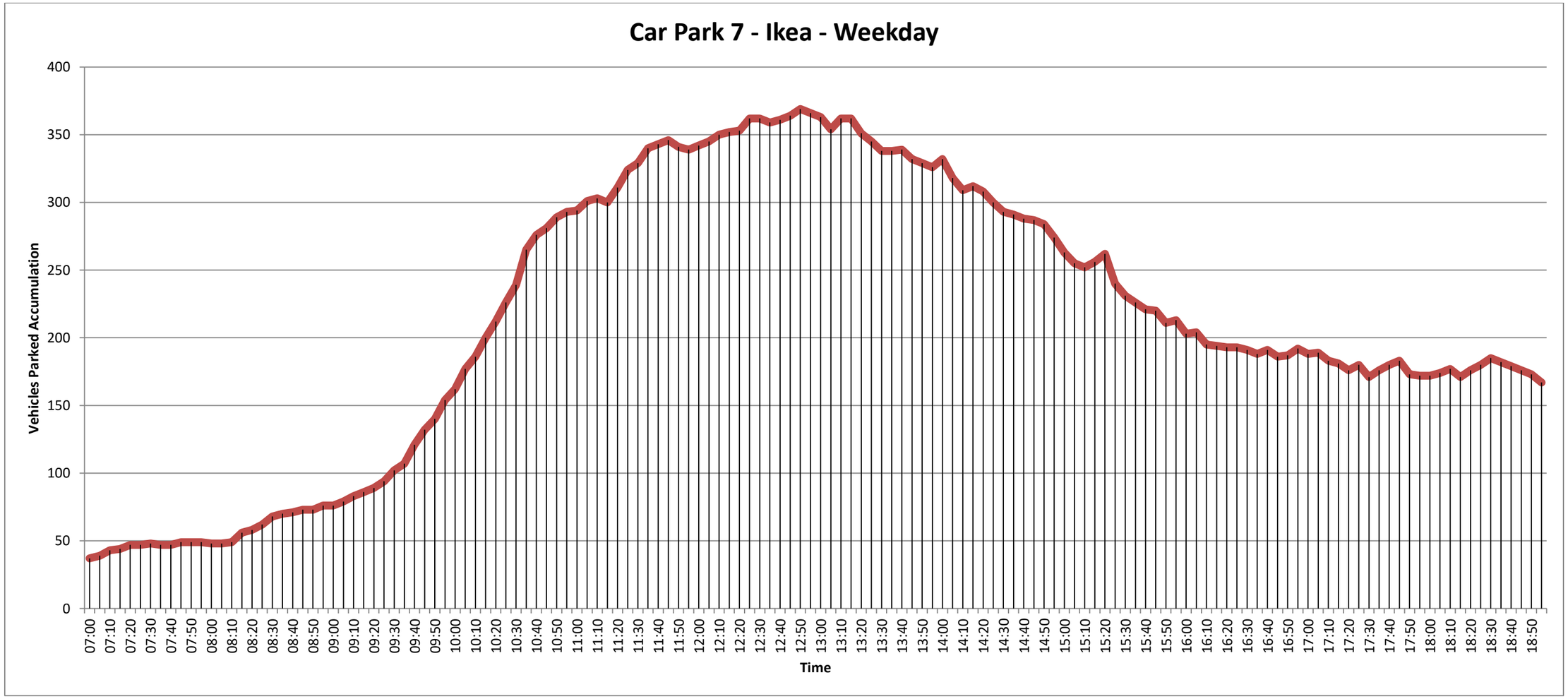
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 7 – IKEA – WEEKDAY

- Total number of spaces: 943
- Peak accumulation of vehicles: 369
- Maximum utilisation of car park: 39.1%

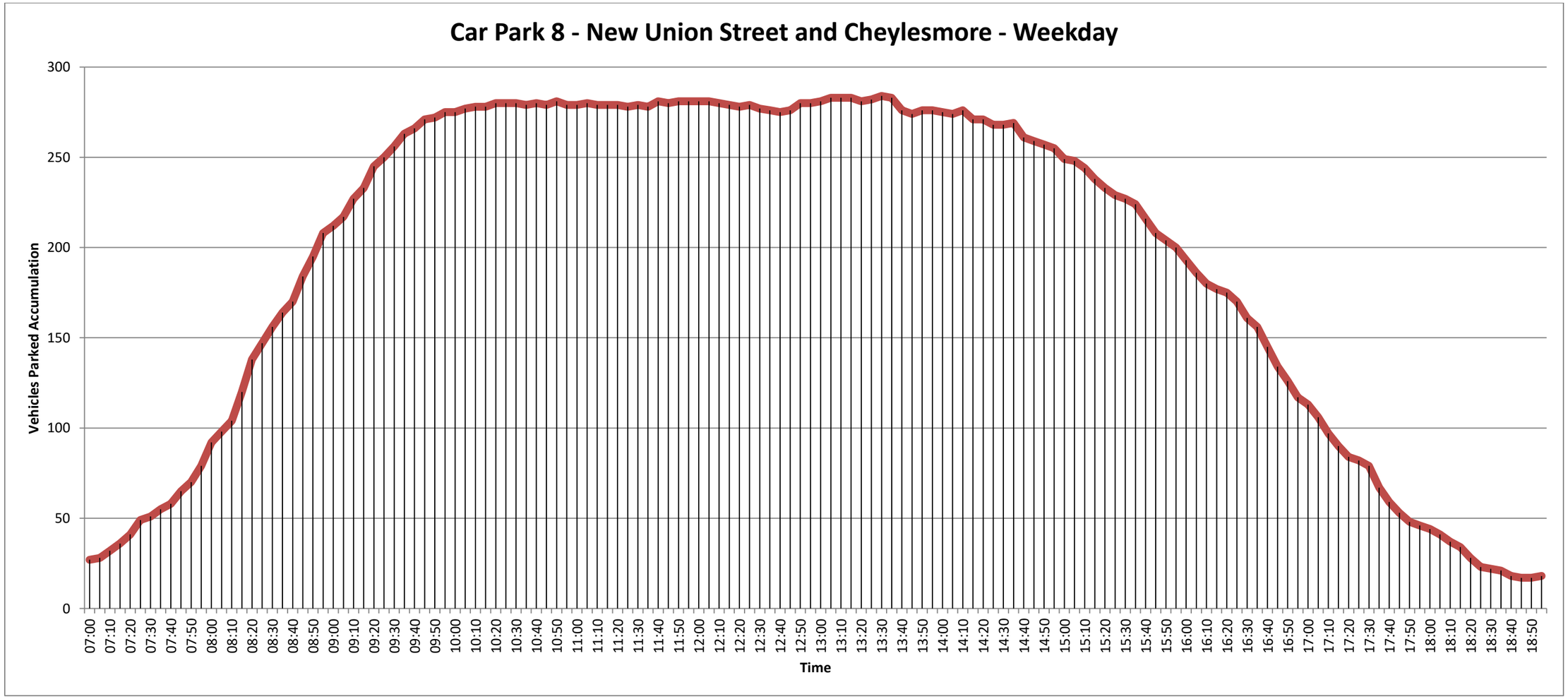
The chart below shows the car park vehicle accumulation across the surveyed weekday.



CAR PARK 8 – NEW UNION AND CHEYLESMORE – WEEKDAY

- Total number of spaces: 300
- Peak accumulation of vehicles: 284
- Maximum utilisation of car park: 94.7%

The chart below shows the car park vehicle accumulation across the surveyed weekday.



SUMMARY OF PARKING SPACE CAPACITY AND DEMAND FOR A WEEKDAY

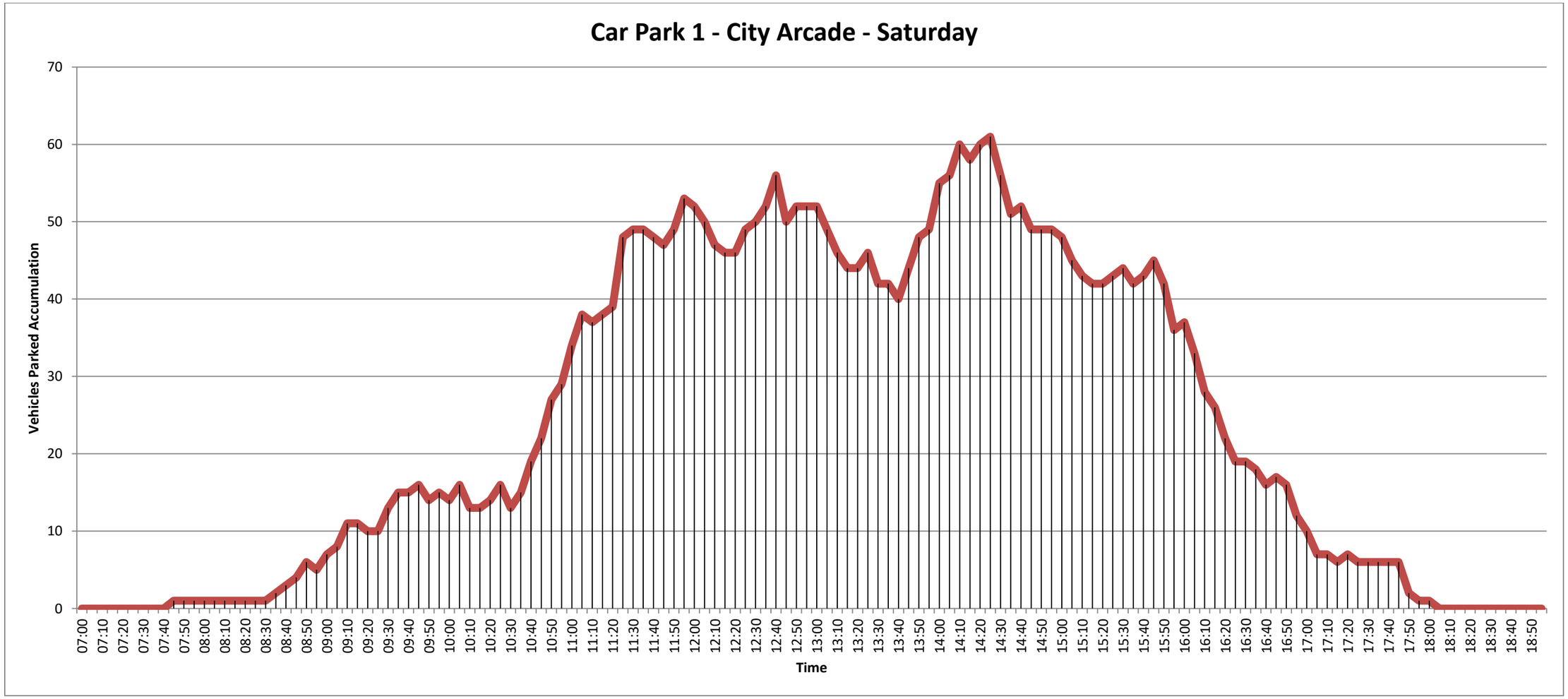
Market			**City Arcade**		
	Peak Accumulation	**154**		**Peak Accumulation**	**59**
	Capacity	244		**Capacity**	170
	% of capacity	63.1%		% of **capacity**	34.7%
Lower Precinct			**Barracks**		
	Peak Accumulation	**215**		**Peak Accumulation**	**418**
	Capacity	340		**Capacity**	479
	% of capacity	63.2%		**% of capacity**	87.3%
Combined			**Combined**		
	Peak Accumulation	**369**		**Peak Accumulation**	**477**
	Capacity	584		**Capacity**	649
	% of capacity	63.2%		**% of capacity**	73.5%
Spare Capacity		215	**Demand**		477
	Shortfall	262			
Salt Lane					
	Peak Accumulation	**126**			
	Capacity	569			
	% of capacity	22.1%			
Combined					
	Peak Accumulation	**495**			
	Capacity	1153			
	% of capacity	42.9%			
Spare Capacity		658			
	Surplus	181			

The summary above shows that there will be a shortfall of 262 spaces if the Market and Lower Precinct car parks are relied upon to accommodate displaced parking from the City Arcade and Barracks car parks. However, if Salt Lane car park is included in the parking provision, there would be a surplus of 181 spaces on a weekday.

CAR PARK 1 – CITY ARCADE – SATURDAY

- Total number of spaces: 170
- Peak accumulation of vehicles: 61
- Maximum utilisation of car park: 35.9%

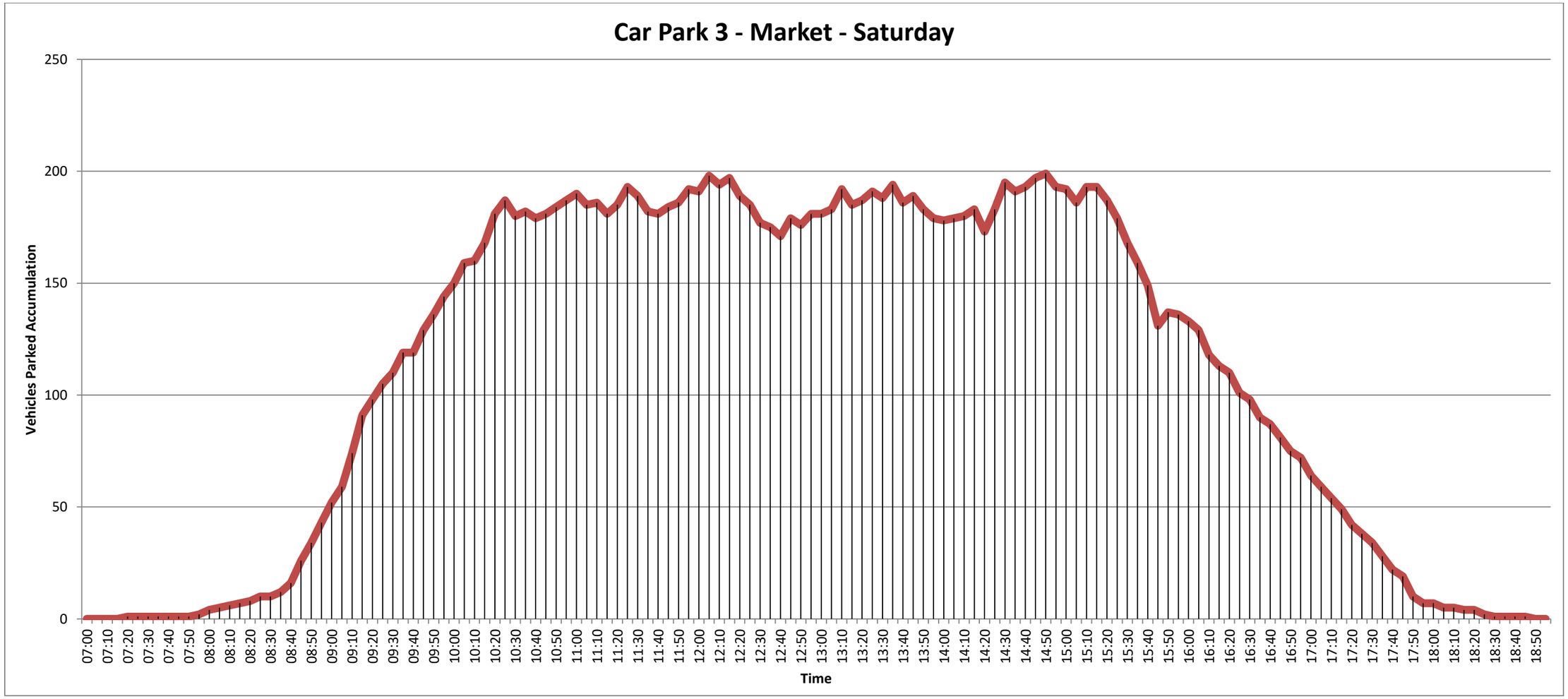
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 3 – MARKET – SATURDAY

- Total number of spaces: 244
- Peak accumulation of vehicles: 199
- Maximum utilisation of car park: 81.6%

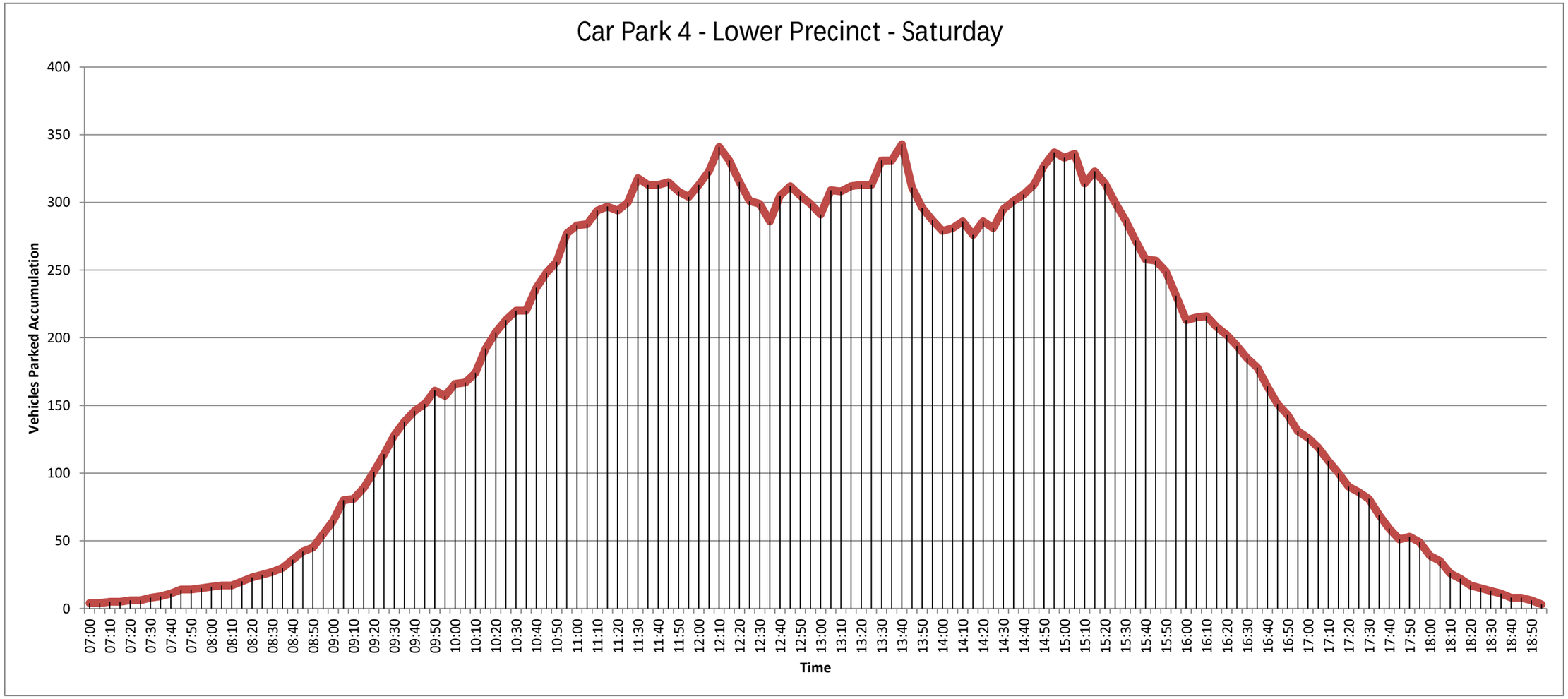
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 4 **– LOWER PRECINCT – SATURDAY**

- Total number of spaces: 340
- Peak accumulation of vehicles: 343
- Maximum utilisation of car park: 100.9%

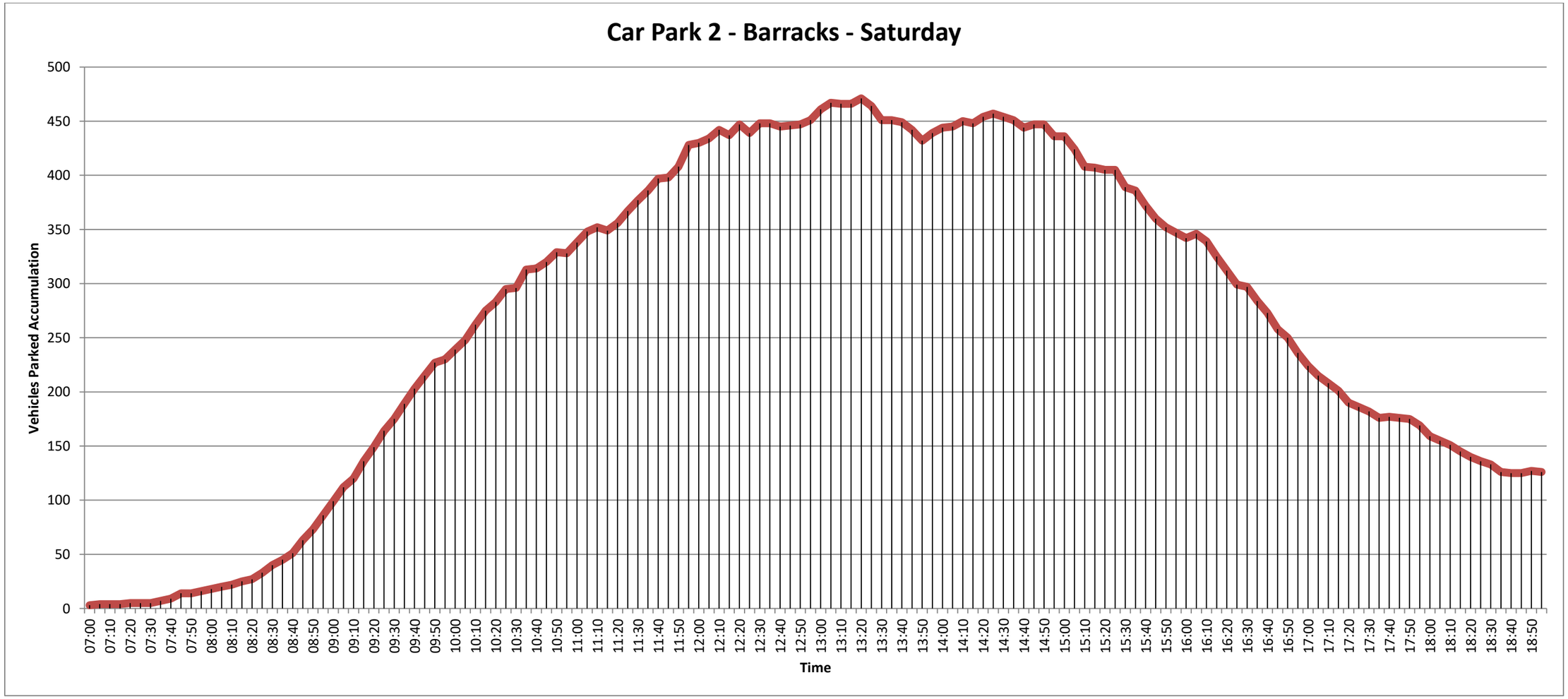
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 2 – BARRACKS – SATURDAY

- Total number of spaces: 479
- Peak accumulation of vehicles: 471
- Maximum utilisation of car park: 98.3%

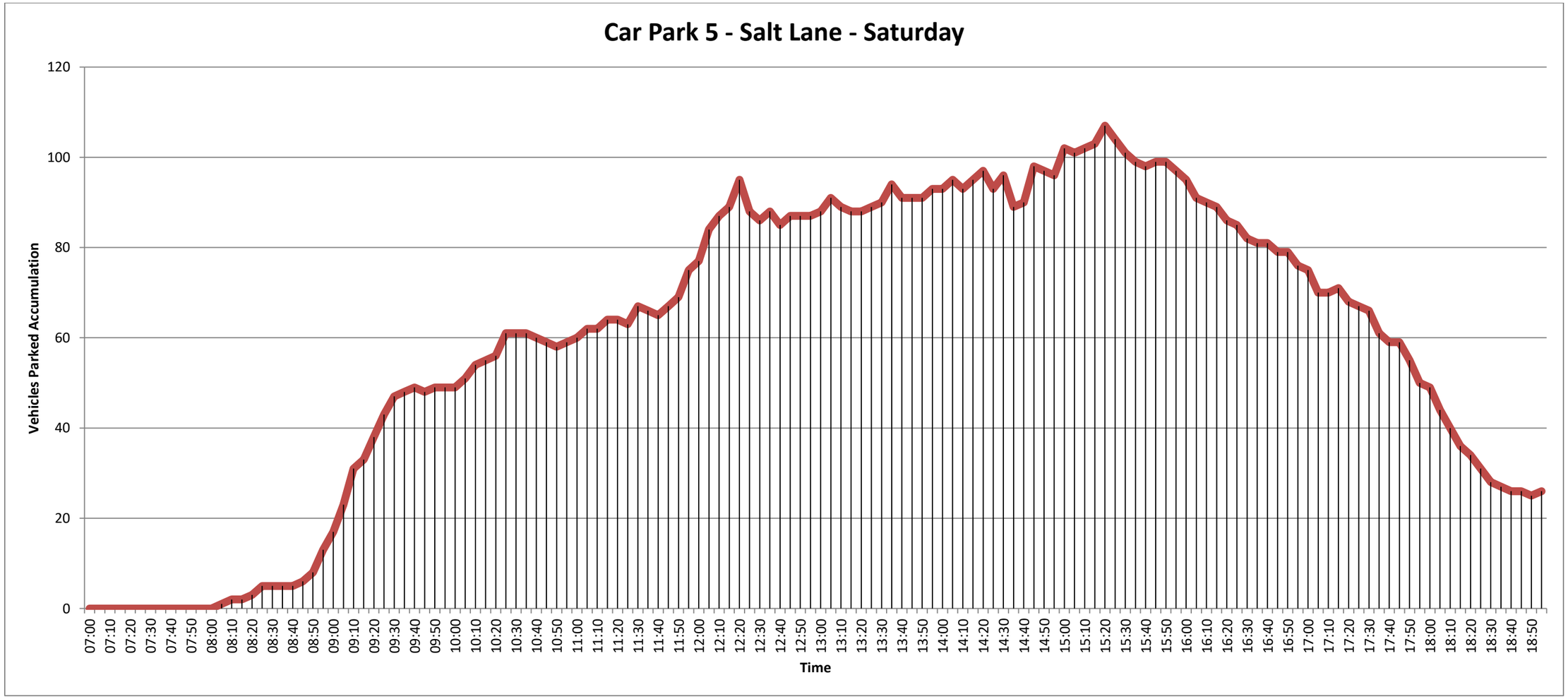
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 5 – SALT LANE – SATURDAY

- Total number of spaces: 569
- Peak accumulation of vehicles: 107
- Maximum utilisation of car park: 18.8%

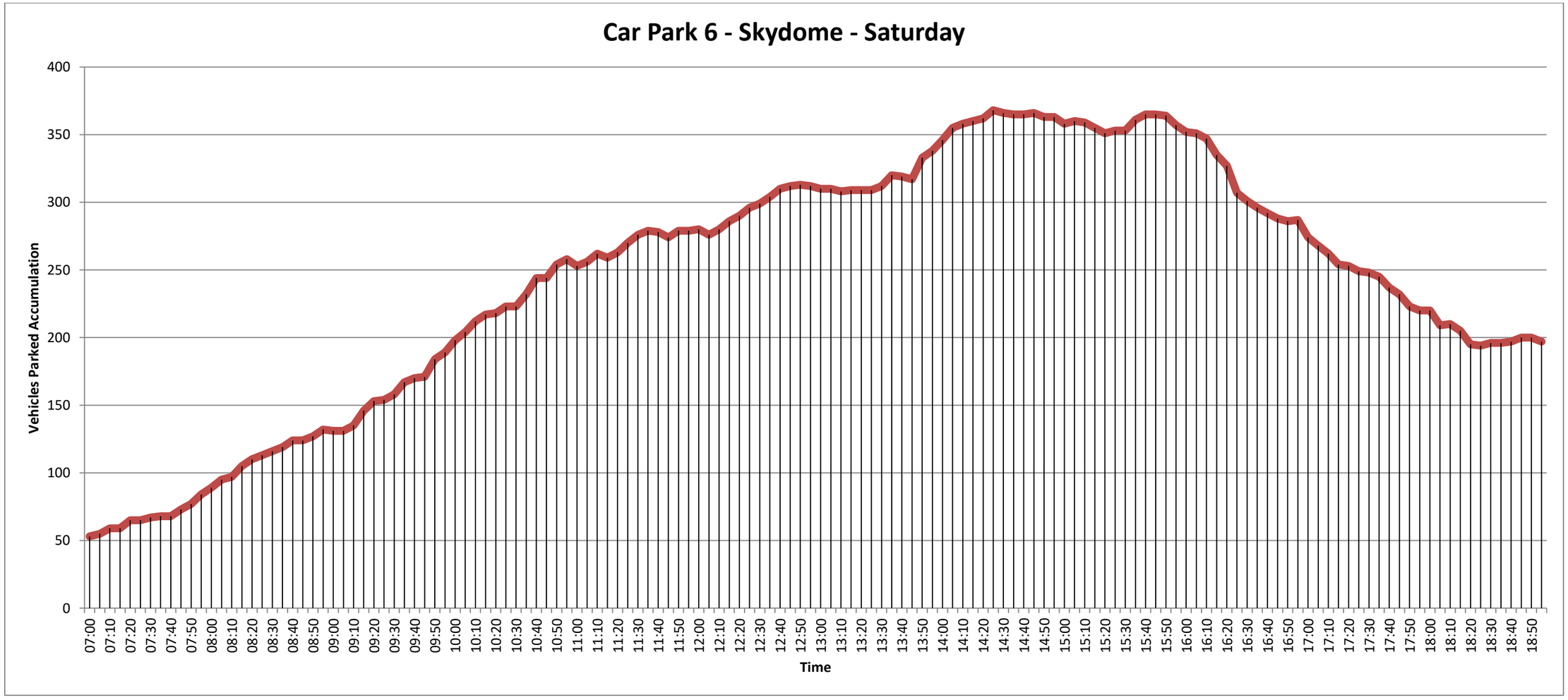
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 6 – SKYDOME – SATURDAY

- Total number of spaces: 891
- Peak accumulation of vehicles: 368
- Maximum utilisation of car park: 41.3%

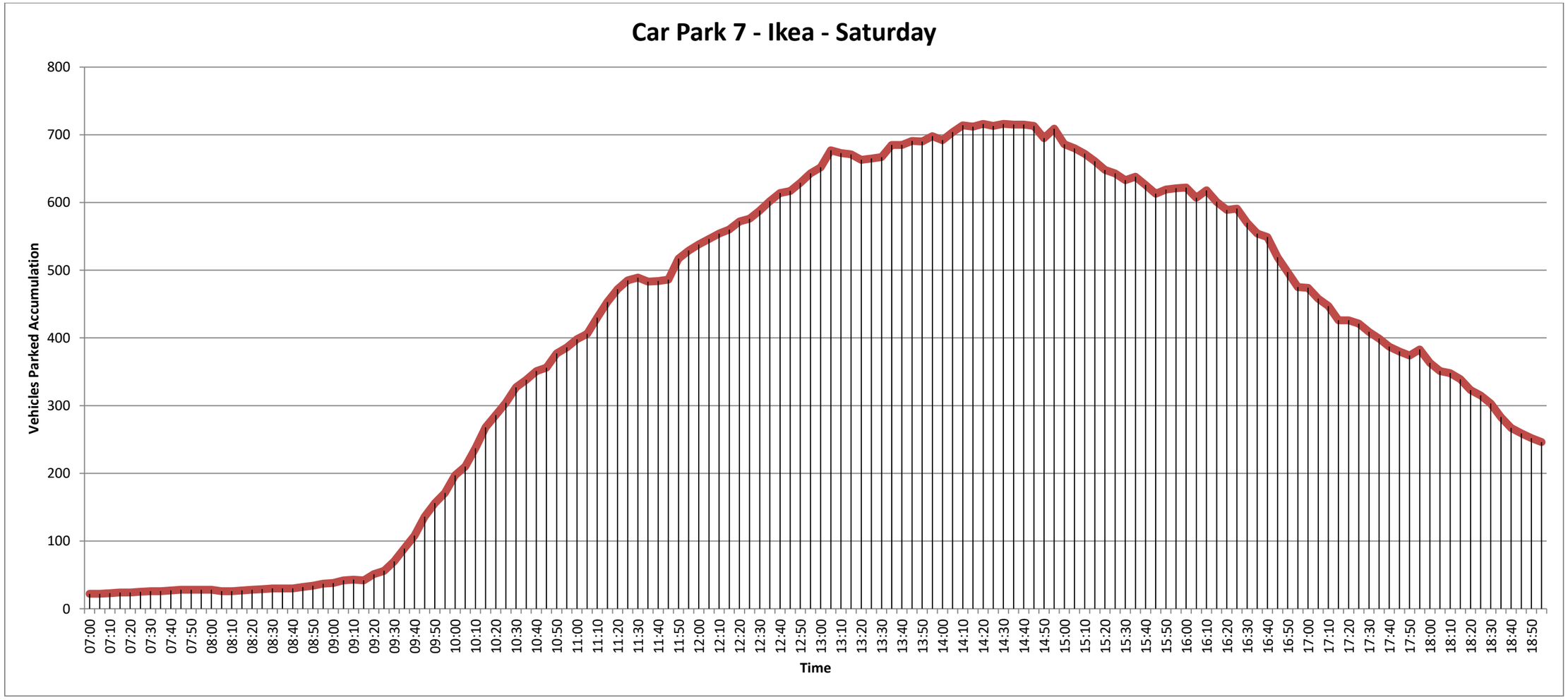
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 7 – IKEA – SATURDAY

- Total number of spaces: 943
- Peak accumulation of vehicles: 716
- Maximum utilisation of car park: 75.9%

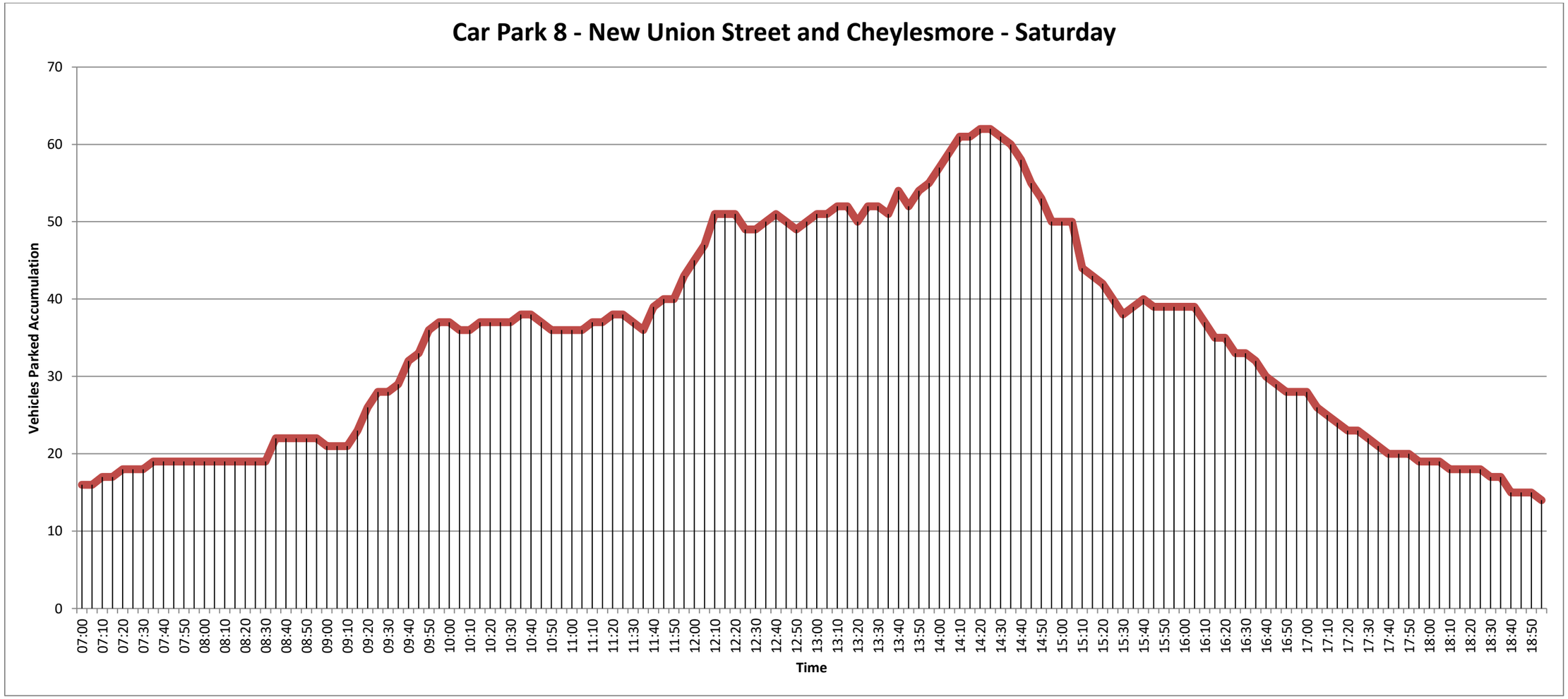
The chart below shows the car park vehicle accumulation across the surveyed Saturday.



CAR PARK 8 – NEW UNION AND CHEYLESMORE – SATURDAY

- Total number of spaces: 300
- Peak accumulation of vehicles: 62
- Maximum utilisation of car park: 20.7%

The chart below shows the car park vehicle accumulation across the surveyed Saturday.



SUMMARY OF PARKING SPACE CAPACITY AND DEMAND FOR A SATURDAY

Market			**City Arcade**		
	Peak Accumulation	**199**		**Peak Accumulation**	**61**
	Capacity	244		**Capacity**	170
	% of capacity	81.6%		% of **capacity**	35.9%
Lower Precinct			**Barracks**		
	Peak Accumulation	**343**		**Peak Accumulation**	**471**
	Capacity	340		**Capacity**	479
	% of capacity	**100.9%**		**% of capacity**	98.3%
Combined			**Combined**		
	Peak Accumulation	**542**		**Peak Accumulation**	**532**
	Capacity	584		**Capacity**	649
	% of capacity	92.8%		**% of capacity**	82.0%
Spare Capacity		42	**Demand**		532
	Shortfall	490			

Salt Lane		
	Peak Accumulation	**107**
	Capacity	569
	% of capacity	18.8%
Combined		
	Peak Accumulation	**649**
	Capacity	1153
	% of capacity	56.3%
Spare Capacity		504
	Shortfall	28

The summary above shows that there will be a shortfall of 490 spaces if the Market and Lower Precinct car parks are relied upon to accommodate displaced parking from the City Arcade and Barracks car parks. However, if Salt Lane car park is included in the parking provision, the short fall reduces to 28 spaces on a Saturday.

Technical Appendix C

TPP report D008 –
Initial findings of
servicing surveys

TPP
transport planning practice

City Centre South
Initial findings of servicing surveys

Transport Planning Practice| 70 Cowcross Street | London | EC1M 6EL| Tel: 020 7608 0008 | email@tppweb.co.uk

INTRODUCTION

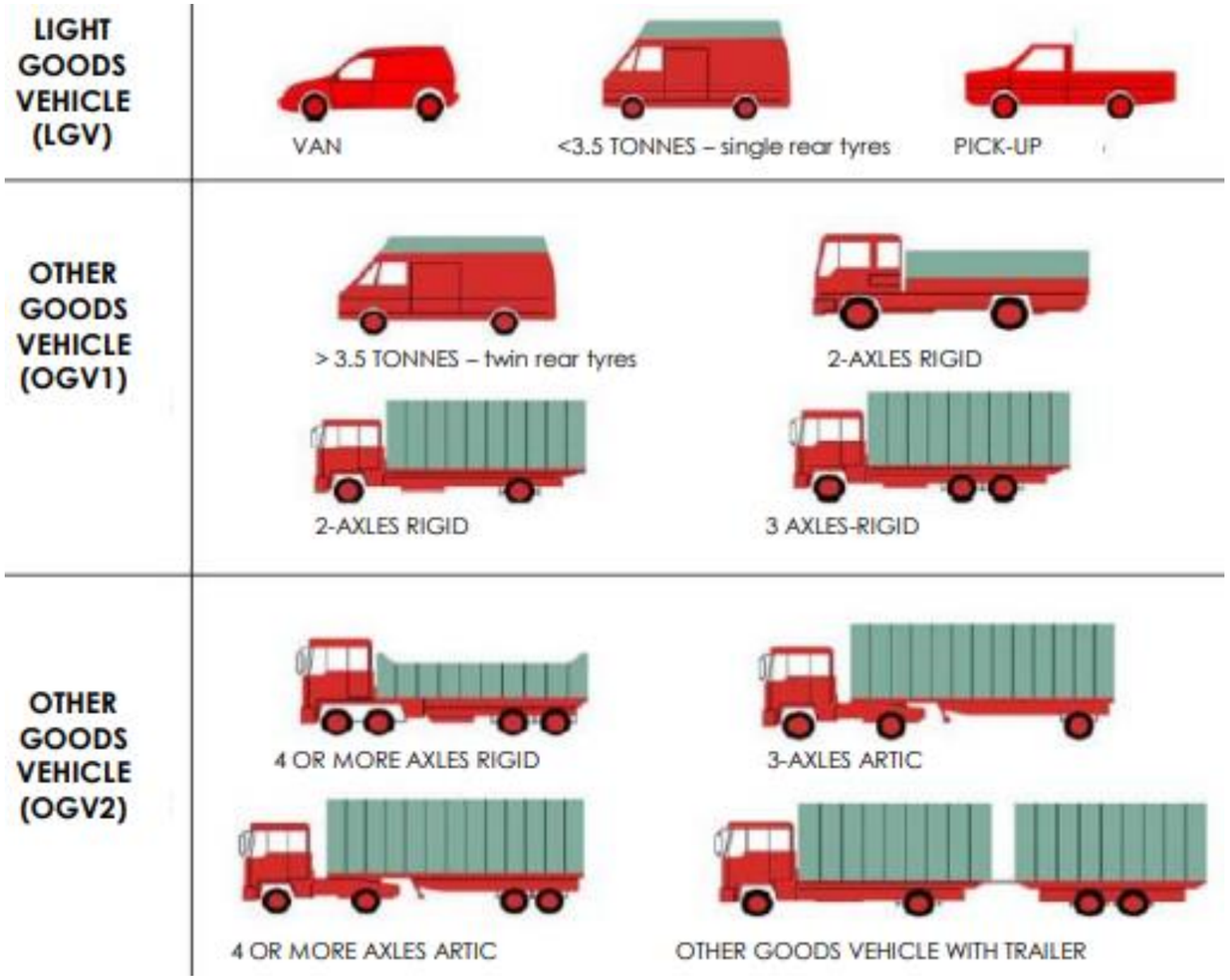
This note has been prepared by Transport Planning Practice (TPP) to provide a high level summary of the results of the servicing surveys for the Coventry City Centre South development area.

The servicing surveys were undertaken on Thursday 21st and Saturday 23rd November 2019. The surveys were undertaken for a period of 12hrs between 07:00 to 19:00.

The surveys recorded the number and class of delivery vehicles accessing the yards, and recorded arrival times, dwell times and departure times. The service yards surveyed were:

- Service Yard 1: City Arcade.
- Service Yard 2: Rover Road - South of Coventry Market.
- Service Yard 3: Rover Road / Lower Precinct - North of Coventry Market.
- Service Yard 4: Barracks, including separate details for the northern and southern sections of the yard.

The vehicle classifications used for the servicing surveys are as follows:



Transport Planning Practice| 70 Cowcross Street | London | EC1M 6EL| Tel: 020 7608 0008 | email@tppweb.co.uk

SERVICE YARD 1 – CITY ARCADE – WEEKDAY

Table 1 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the surveyed weekday.

Table 1: Service Yard 1 – Daily Vehicles

Type	Vehicles	%
LGV	38	88%
OGV1	5	12%
OGV2	0	0%
Total	**43**	**100%**
Average Dwell Time	**01:05:46**	

Table 2 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the weekday AM.

Table 2: Service Yard 1 – AM Vehicles

Type	Vehicles	%
LGV	20	87%
OGV1	3	13%
OGV2	0	0%
Total	**23**	**100%**
Average Dwell Time	**01:00:19**	

Table 3 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the weekday PM.

Table 3: Service Yard 1 – PM Vehicles

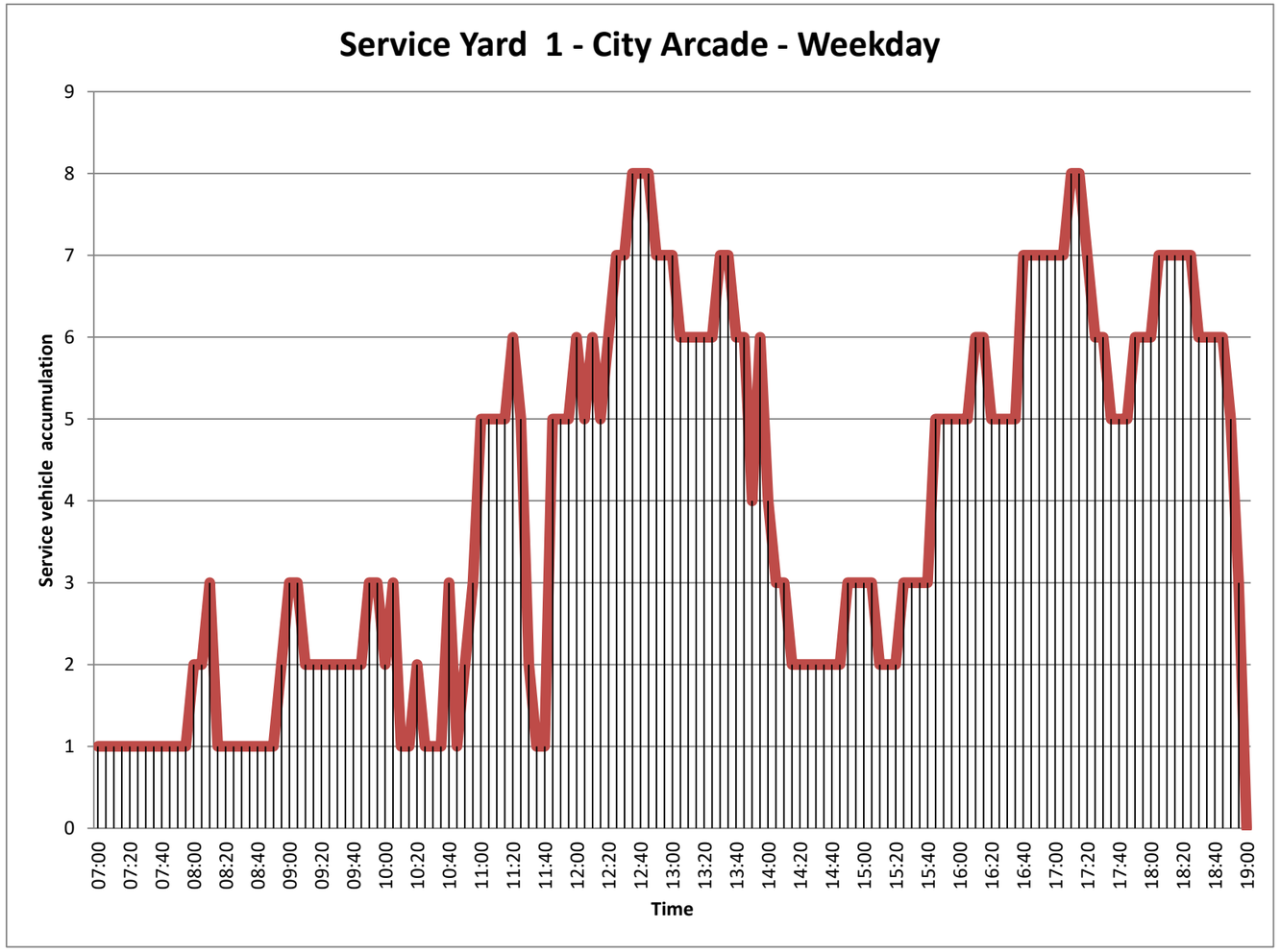
Type	Vehicles	%
LGV	18	90%
OGV1	2	10%
OGV2	0	0%
Total	**20**	**100%**
Average Dwell Time	**01:12:02**	

Table 4 shows the percentage split between service vehicles accessing Service Yard 1 in the AM and PM on the weekday.

Table 4: Service Yard 1 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	53%
PM	47%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 8 vehicles.



There were 3 vehicles recorded with a dwell time of more than 5 hours. Therefore, these have been assumed to be parked vehicles and have been removed from the service vehicle count.

SERVICE YARD 2 – ROVER ROAD – SOUTH OF MARKET – WEEKDAY

Table 5 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the surveyed weekday.

Table 5: Service Yard 2 – Daily Vehicles

Type	Vehicles	%
LGV	55	87%
OGV1	7	11%
OGV2	1	2%
Total	**63**	**100%**
Average Dwell Time	**00:44:56**	

Table 6 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the weekday AM.

Table 6: Service Yard 2 – AM Vehicles

Type	Vehicles	%
LGV	40	89%
OGV1	5	11%
OGV2	0	0%
Total	**45**	**100%**
Average Dwell Time	**00:49:38**	

Table 7 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the weekday PM.

Table 7: Service Yard 2 – PM Vehicles

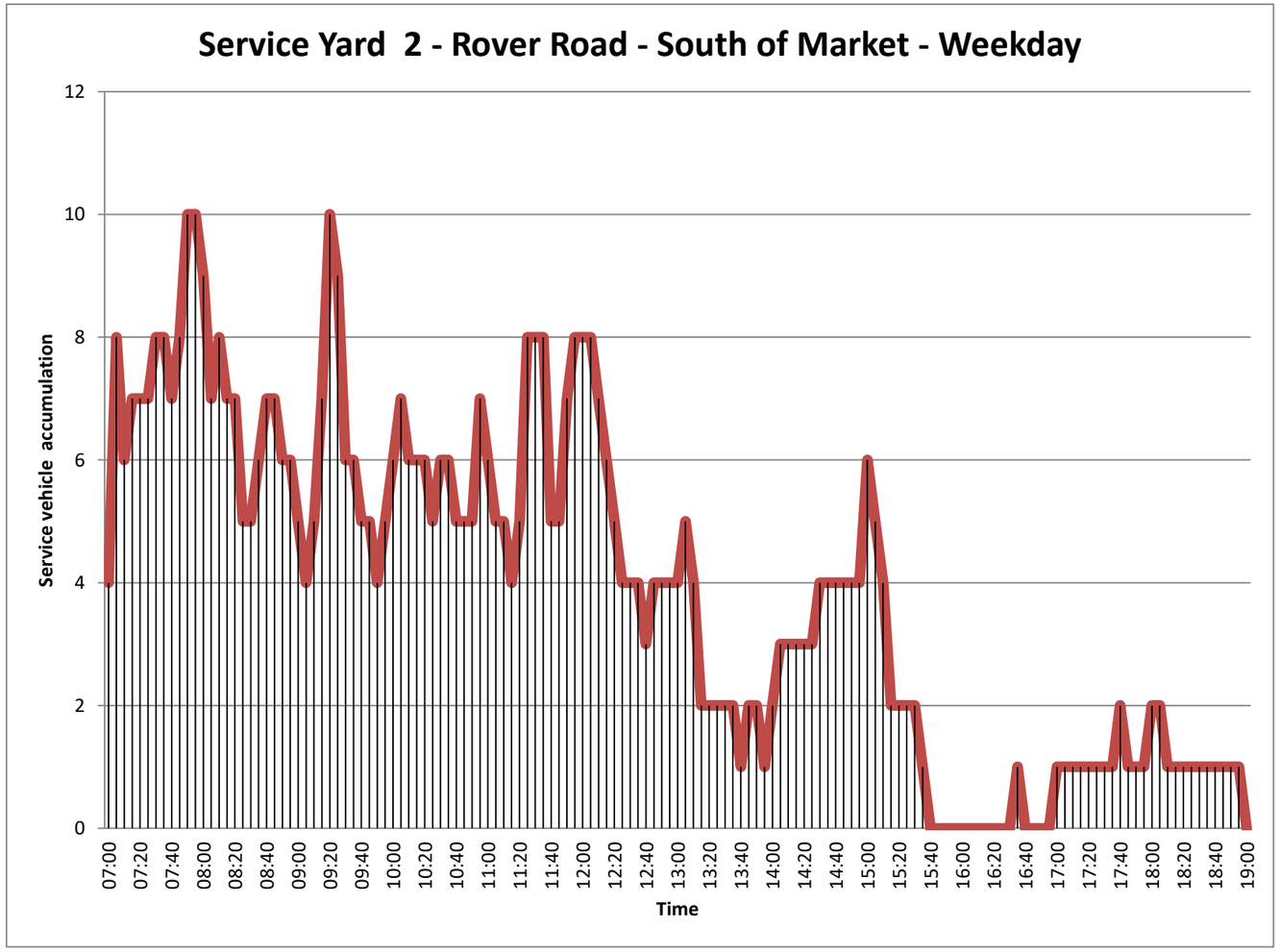
Type	Vehicles	%
LGV	15	83%
OGV1	2	11%
OGV2	1	6%
Total	**18**	**100%**
Average Dwell Time	**00:33:09**	

Table 8 shows the percentage split between service vehicles accessing Service Yard 2 in the AM and PM on the weekday.

Table 8: Service Yard 2 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	71%
PM	29%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 10 vehicles.



There were no vehicles recorded with a dwell time of more than 5 hours. Therefore, no vehicles have been removed from the service vehicle count.

SERVICE YARD 3 – ROVER ROAD – NORTH OF MARKET – WEEKDAY

Table 9 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the surveyed weekday.

Table 9: Service Yard 3 – Daily Vehicles

Type	Vehicles	%
LGV	46	71%
OGV1	18	28%
OGV2	1	2%
Total	**65**	**100%**
Average Dwell Time	**00:43:03**	

Table 10 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the weekday AM.

Table 10: Service Yard 3 – AM Vehicles

Type	Vehicles	%
LGV	23	68%
OGV1	11	32%
OGV2	0	0%
Total	**34**	**100%**
Average Dwell Time	**00:41:16**	

Table 11 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the weekday PM.

Table 11: Service Yard 3 – PM Vehicles

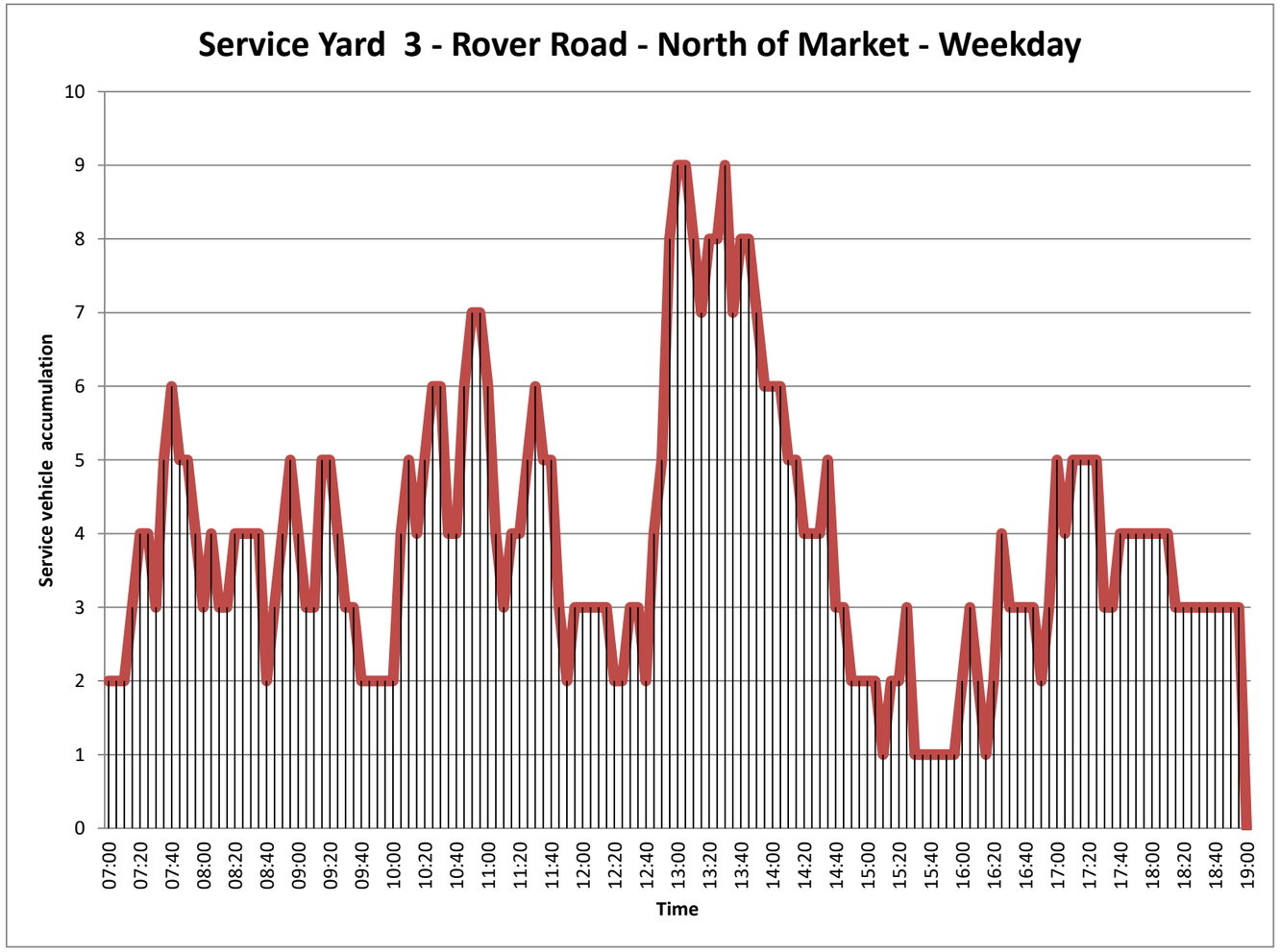
Type	Vehicles	%
LGV	23	74%
OGV1	7	23%
OGV2	1	3%
Total	**31**	**100%**
Average Dwell Time	**00:45:00**	

Table 12 shows the percentage split between service vehicles accessing Service Yard 3 in the AM and PM on the weekday.

Table 12: Service Yard 3 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	52%
PM	48%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 9 vehicles.



There were 3 vehicles recorded with a dwell time of more than 5 hours. Therefore, these have been assumed to be parked vehicles and have been removed from the service vehicle counts.

SERVICE YARD 4 – BARRACKS – NORTH– WEEKDAY

Table 13 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the surveyed weekday.

Table 13: Service Yard 4 – North – Daily Vehicles

Type	Vehicles	%
LGV	31	69%
OGV1	14	31%
OGV2	0	0%
Total	**45**	**100%**
Average Dwell Time	**00:37:05**	

Table 14 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the weekday AM.

Table 14: Service Yard 4– North – AM Vehicles

Type	Vehicles	%
LGV	15	63%
OGV1	9	38%
OGV2	0	0%
Total	**24**	**100%**
Average Dwell Time	**00:37:13**	

Table 15 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the weekday PM.

Table 15: Service Yard 4– North – PM Vehicles

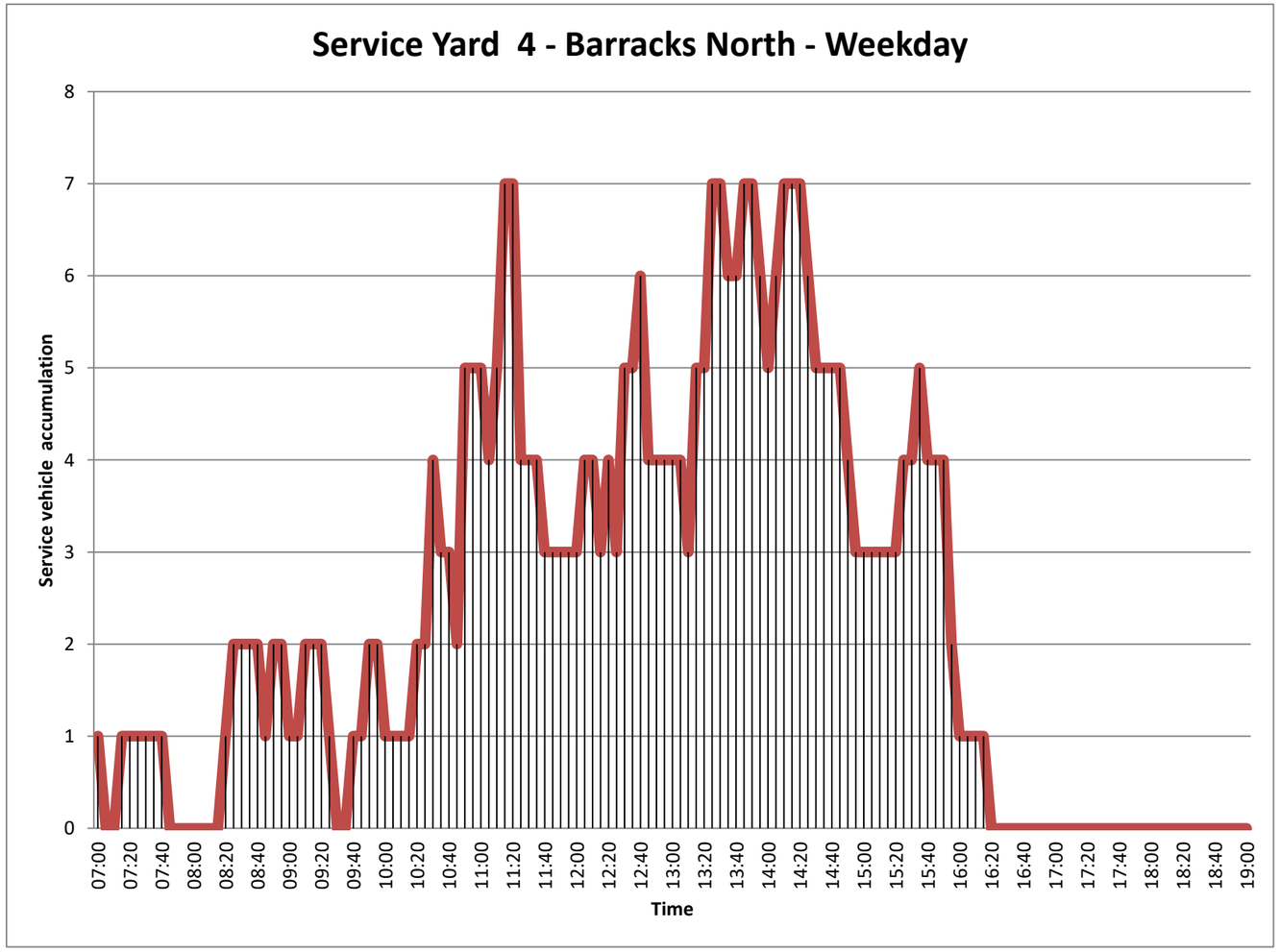
Type	Vehicles	%
LGV	16	76%
OGV1	5	24%
OGV2	0	0%
Total	**21**	**100%**
Average Dwell Time	**00:44:10**	

Table 16 shows the percentage split between service vehicles accessing Service Yard 4 in the AM and PM on the weekday.

Table 16: Service Yard 4 – North – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	53%
PM	47%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 7 vehicles.



There were 13 vehicles recorded to be circulating the northern and southern sections of the service yard without stopping. These have been removed from the analysis. One vehicle was recorded with a dwell time of more than 5 hours in the northern section of the service yard. Therefore, this vehicle has been assumed to be parked and has been removed from the service vehicle count.

SERVICE YARD 4 – BARRACKS – SOUTH– WEEKDAY

Table 17 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the surveyed weekday.

Table 17: Service Yard 4 – South – Daily Vehicles

Type	Vehicles	%
LGV	32	65%
OGV1	14	29%
OGV2	3	6%
Total	**49**	**100%**
Average Dwell Time	**00:21:41**	

Table 18 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the weekday AM.

Table 18: Service Yard 4 – South – AM Vehicles

Type	Vehicles	%
LGV	12	44%
OGV1	12	44%
OGV2	3	11%
Total	**27**	**100%**
Average Dwell Time	**00:27:06**	

Table 19 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the weekday PM.

Table 19: Service Yard 4 – South – PM Vehicles

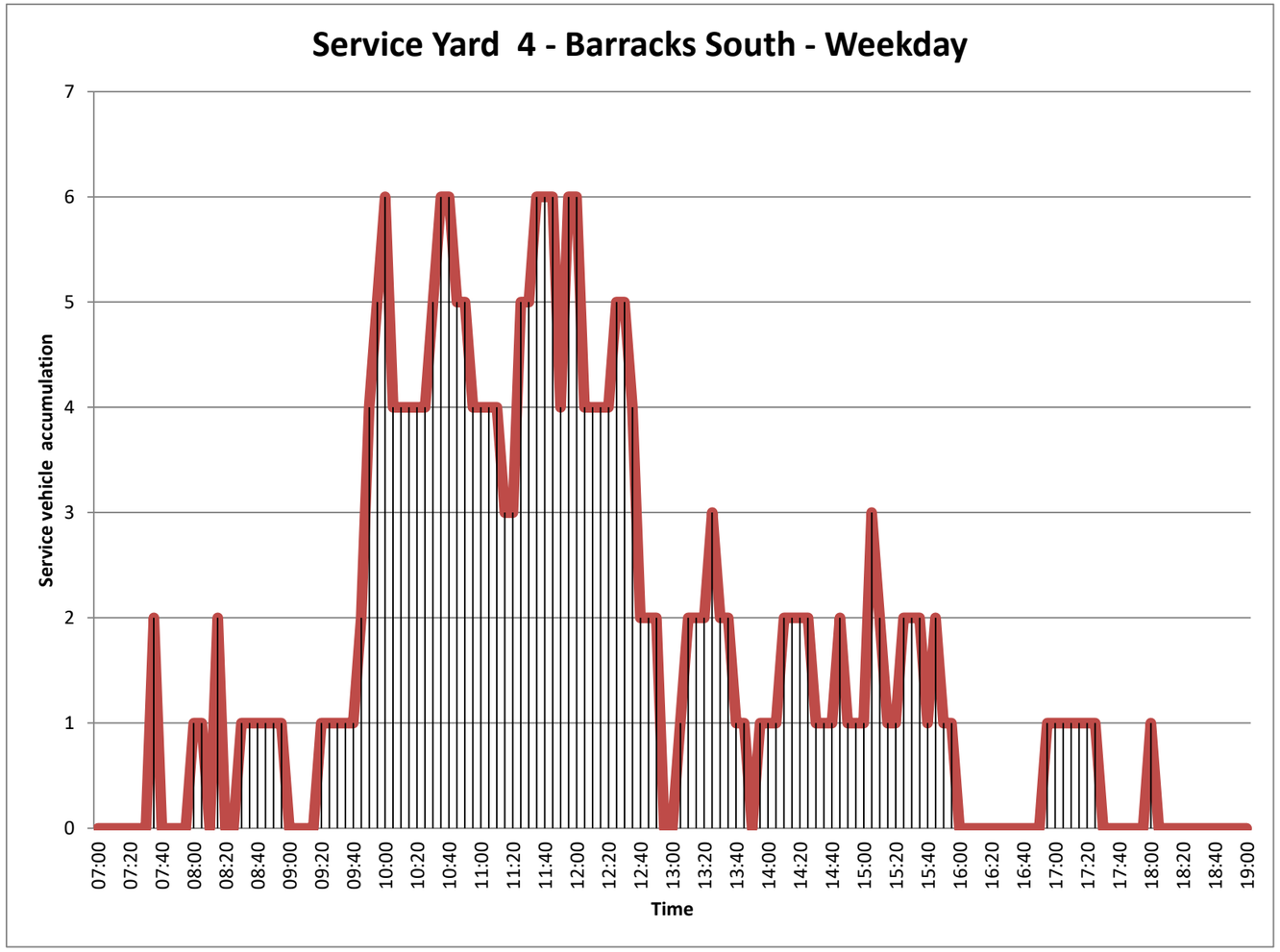
Type	Vehicles	%
LGV	20	91%
OGV1	2	9%
OGV2	0	0%
Total	**22**	**100%**
Average Dwell Time	**00:15:02**	

Table 20 shows the percentage split between service vehicles accessing Service Yard 4 in the AM and PM on the weekday.

Table 20: Service Yard 4 – South – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	55%
PM	45%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 6 vehicles.



There were 13 vehicles recorded to be circulating the northern and southern sections of the site without stopping. These have been removed from the analysis.

SERVICE YARD 1 – CITY ARCADE – SATURDAY

Table 21 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the Saturday surveyed.

Table 21: Service Yard 1 – Daily Vehicles

Type	Vehicles	%
LGV	27	90%
OGV1	3	10%
OGV2	0	0%
Total	**30**	**100%**
Average Dwell Time	**00:56:39**	

Table 22 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the Saturday AM.

Table 22: Service Yard 1 – AM Vehicles

Type	Vehicles	%
LGV	8	73%
OGV1	3	27%
OGV2	0	0%
Total	**11**	**100%**
Average Dwell Time	**00:31:25**	

Table 23 shows the number and type of service vehicles that accessed Service Yard 1 – City Arcade during the Saturday PM.

Table 23: Service Yard 1 – PM Vehicles

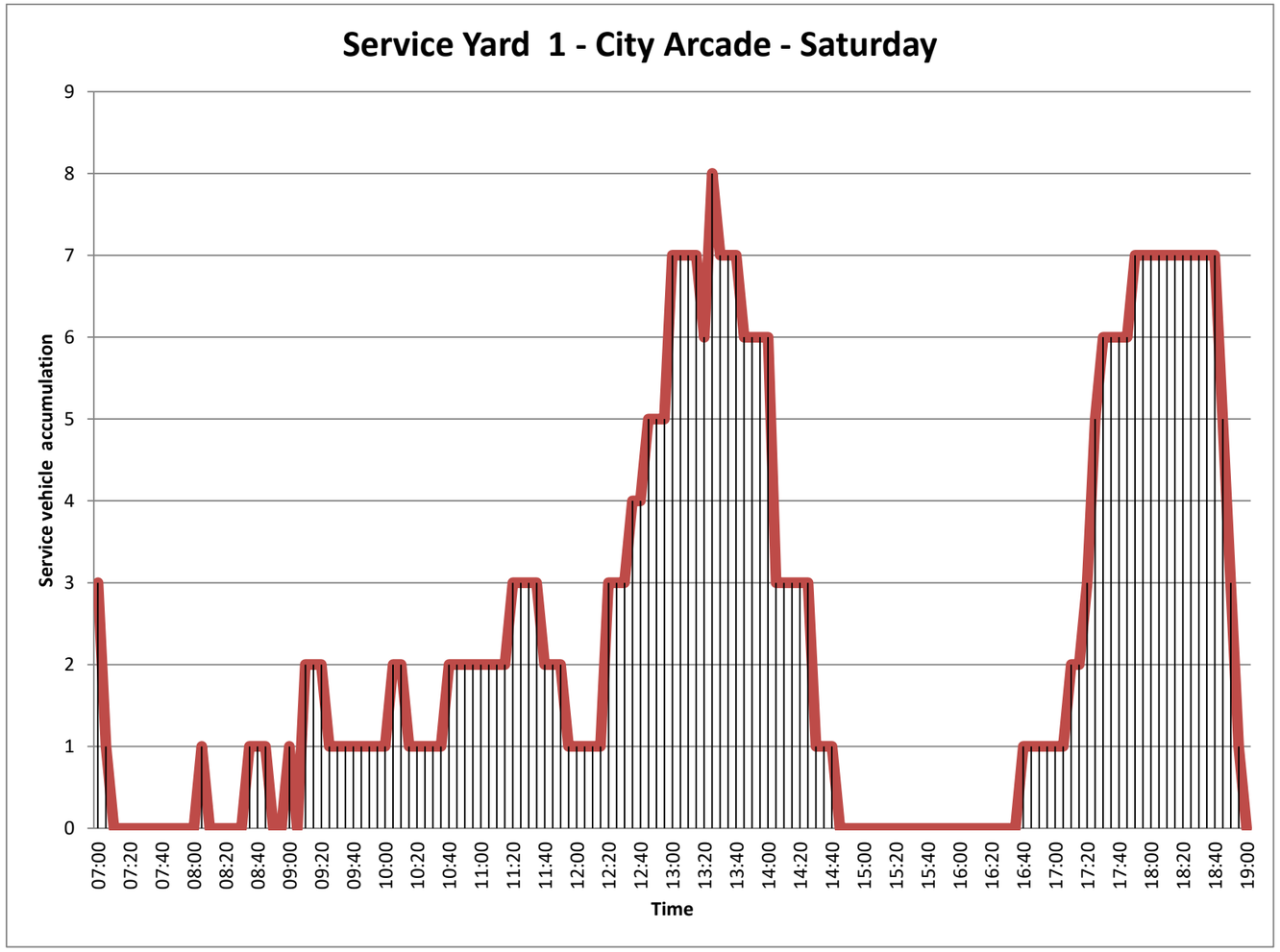
Type	Vehicles	%
LGV	19	100%
OGV1	0	0%
OGV2	0	0%
Total	**19**	**100%**
Average Dwell Time	**01:11:16**	

Table 24 shows the percentage split between service vehicles accessing Service Yard 1 in the AM and PM on the Saturday.

Table 24: Service Yard 1 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	37%
PM	63%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed Saturday. The maximum accumulation has been calculated as 8 vehicles.



There were 4 vehicles recorded with a dwell time of more than 5 hours. Therefore, these have been assumed to be parked vehicles and have been removed from the service vehicle count.

SERVICE YARD 2 – ROVER ROAD – SOUTH OF MARKET – SATURDAY

Table 25 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the Saturday surveyed.

Table 25: Service Yard 2 – Daily Vehicles

Type	Vehicles	%
LGV	41	93%
OGV1	2	5%
OGV2	1	2%
Total	**44**	**100%**
Average Dwell Time	**00:36:50**	

Table 26 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the Saturday AM.

Table 26: Service Yard 2 – AM Vehicles

Type	Vehicles	%
LGV	30	97%
OGV1	1	3%
OGV2	0	0%
Total	**31**	**100%**
Average Dwell Time	**00:40:29**	

Table 27 shows the number and type of service vehicles that accessed Service Yard 2 – Rover Road – South of Market during the Saturday PM.

Table 27: Service Yard 2 – PM Vehicles

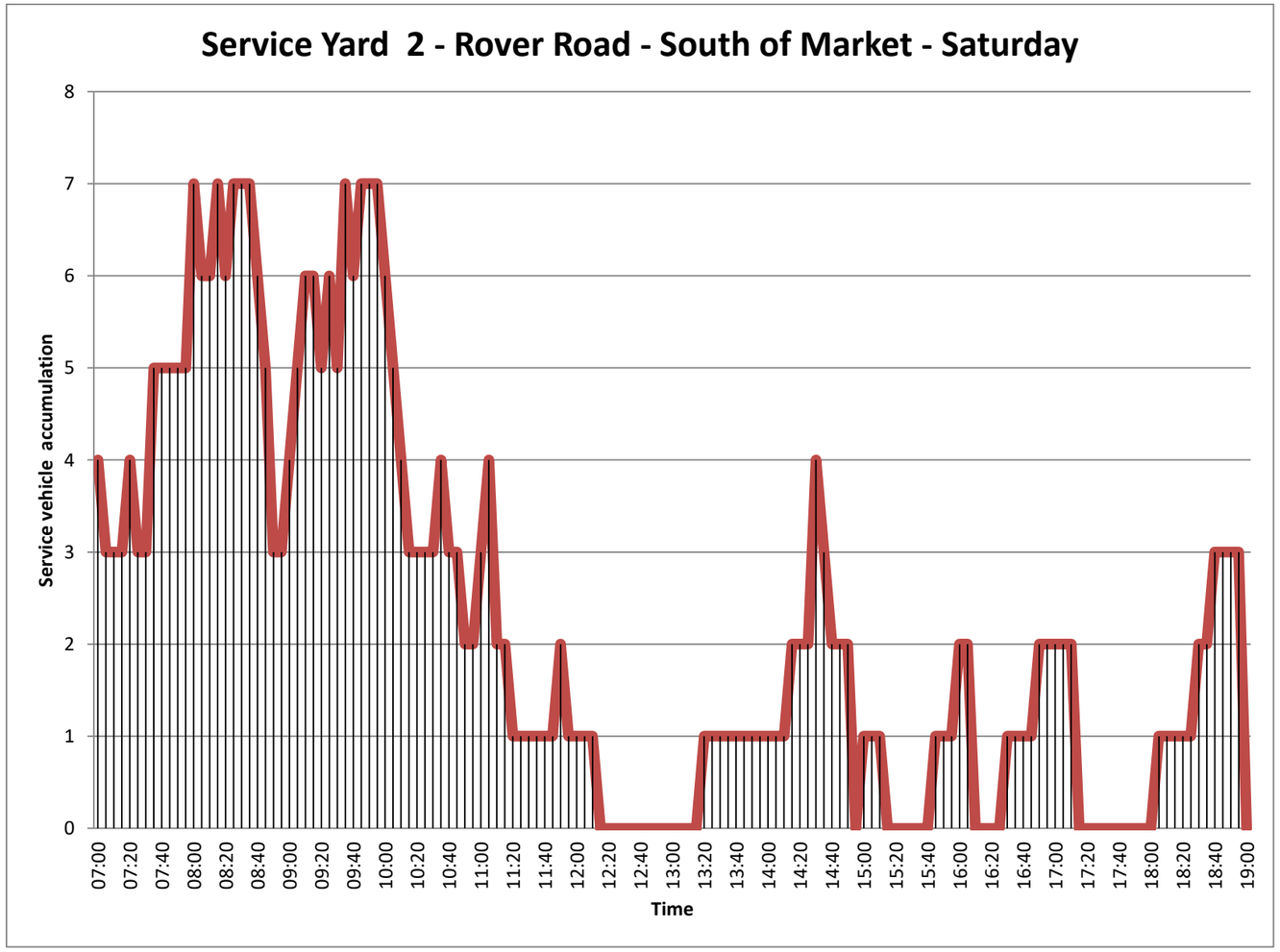
Type	Vehicles	%
LGV	11	85%
OGV1	1	8%
OGV2	1	8%
Total	**13**	**100%**
Average Dwell Time	**00:28:08**	

Table 28 shows the percentage split between service vehicles accessing Service Yard 2 in the AM and PM on the Saturday.

Table 28: Service Yard 2 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	70%
PM	30%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed Saturday. The maximum accumulation has been calculated as 7 vehicles.



There were 4 vehicles recorded with a dwell time of more than 5 hours. Therefore, these have been assumed to be parked vehicles and have been removed from the service vehicle count.

SERVICE YARD 3 – ROVER ROAD – NORTH OF MARKET – SATURDAY

Table 29 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the Saturday surveyed.

Table 29: Service Yard 3 – Daily Vehicles

Type	Vehicles	%
LGV	27	84%
OGV1	5	16%
OGV2	0	0%
Total	**32**	**100%**
Average Dwell Time	**00:35:40**	

Table 30 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the Saturday AM.

Table 30: Service Yard 3 – AM Vehicles

Type	Vehicles	%
LGV	13	76%
OGV1	4	24%
OGV2	0	0%
Total	**17**	**100%**
Average Dwell Time	**00:26:00**	

Table 31 shows the number and type of service vehicles that accessed Service Yard 3 – Rover Road – North of Market during the Saturday PM.

Table 31: Service Yard 3 – PM Vehicles

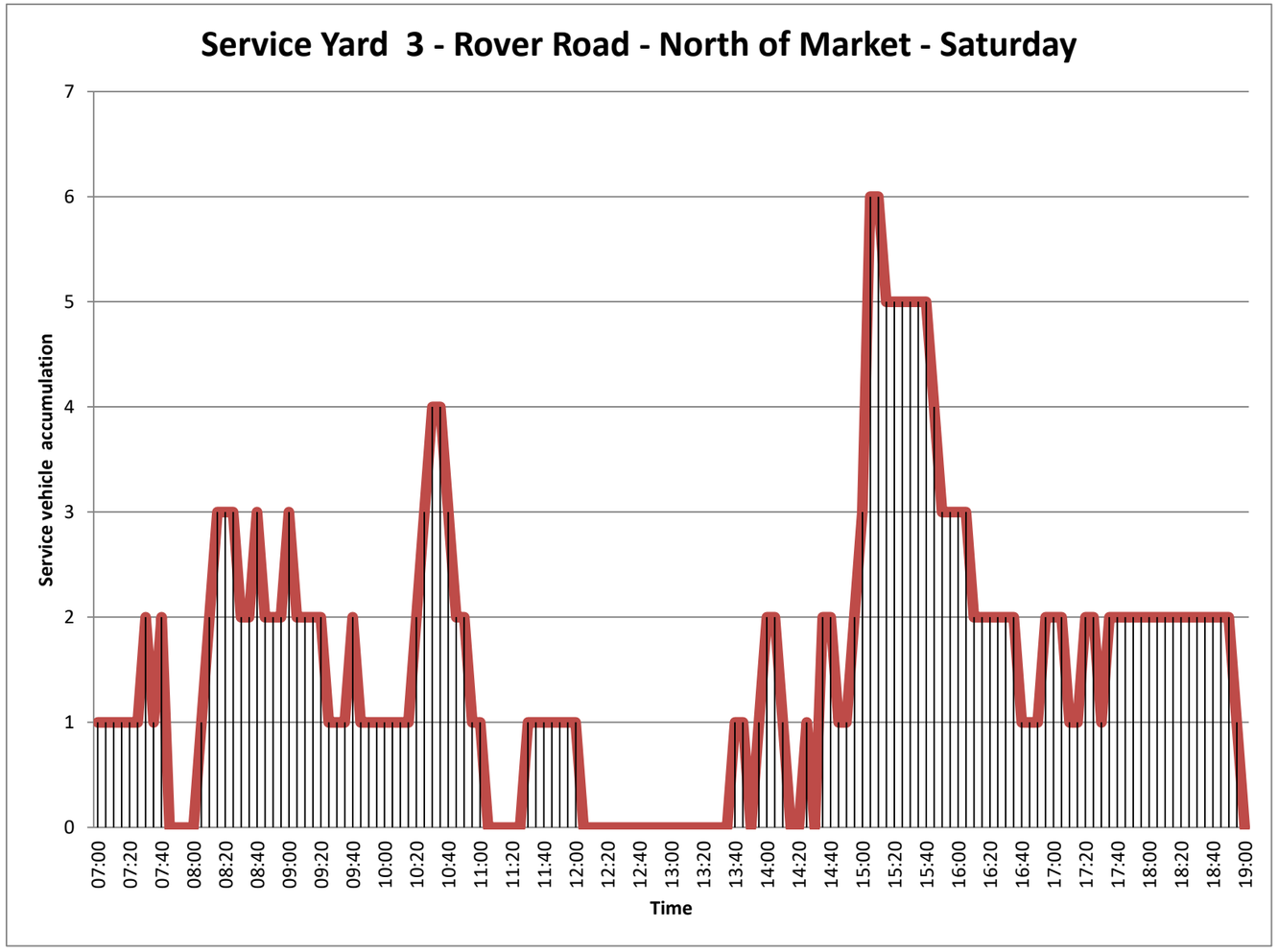
Type	Vehicles	%
LGV	14	93%
OGV1	1	7%
OGV2	0	0%
Total	**15**	**100%**
Average Dwell Time	**00:46:36**	

Table 32 shows the percentage split between service vehicles accessing Service Yard 3 in the AM and PM on the Saturday.

Table 32: Service Yard 3 – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	53%
PM	47%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed Saturday. The maximum accumulation has been calculated as 6 vehicles.



There were 4 vehicles recorded with a dwell time of more than 5 hours. Therefore, these have been assumed to be parked vehicles and have been removed from the service vehicle counts.

SERVICE YARD 4 – BARRACKS – NORTH– SATURDAY

Table 33 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the Saturday surveyed.

Table 33: Service Yard 4 – North – Daily Vehicles

Type	Vehicles	%
LGV	17	89%
OGV1	2	11%
OGV2	0	0%
Total	**19**	**100%**
Average Dwell Time	**00:19:35**	

Table 34 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the Saturday AM.

Table 34: Service Yard 4– North – AM Vehicles

Type	Vehicles	%
LGV	5	83%
OGV1	1	17%
OGV2	0	0%
Total	**6**	**100%**
Average Dwell Time	**00:20:42**	

Table 35 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – North during the Saturday PM.

Table 35: Service Yard 4– North – PM Vehicles

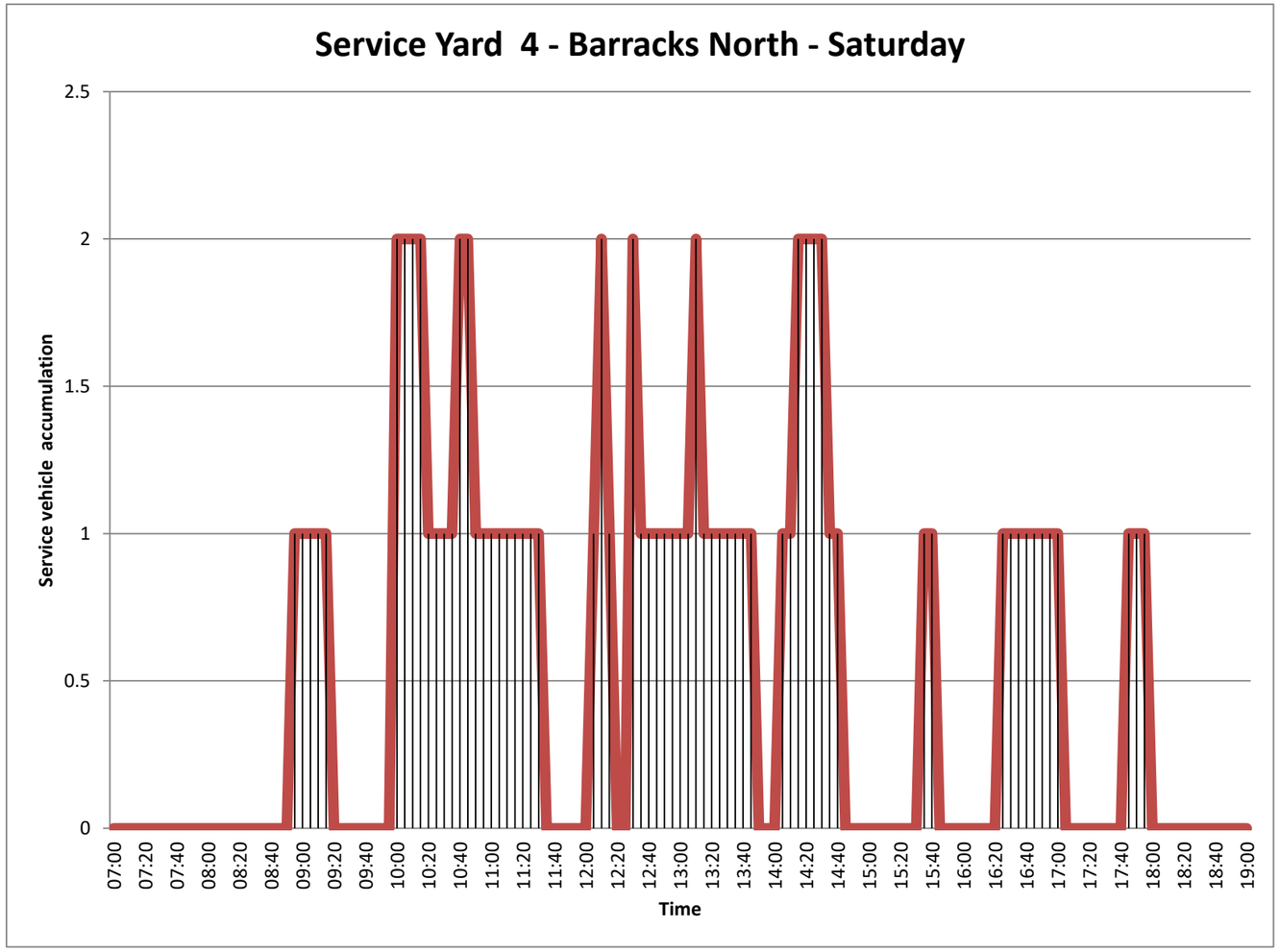
Type	Vehicles	%
LGV	12	92%
OGV1	1	8%
OGV2	0	0%
Total	**13**	**100%**
Average Dwell Time	**00:18:03**	

Table 36 shows the percentage split between service vehicles accessing Service Yard 4 in the AM and PM on the Saturday.

Table 36: Service Yard 4 – North – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	32%
PM	68%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed weekday. The maximum accumulation has been calculated as 2 vehicles.



There were 15 vehicles recorded to be circulating the northern and southern sections of the site without stopping. These have been removed from the analysis.

SERVICE YARD 4 – BARRACKS – SOUTH– SATURDAY

Table 37 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the Saturday surveyed.

Table 37: Service Yard 4 – South – Daily Vehicles

Type	Vehicles	%
LGV	7	78%
OGV1	1	11%
OGV2	1	11%
Total	**9**	**100%**
Average Dwell Time	**00:15:00**	

Table 38 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the Saturday AM.

Table 38: Service Yard 4 – South – AM Vehicles

Type	Vehicles	%
LGV	4	67%
OGV1	1	17%
OGV2	1	17%
Total	**6**	**100%**
Average Dwell Time	**00:16:51**	

Table 39 shows the number and type of service vehicles that accessed Service Yard 4 – Barracks – South during the Saturday PM.

Table 39: Service Yard 4 – South – PM Vehicles

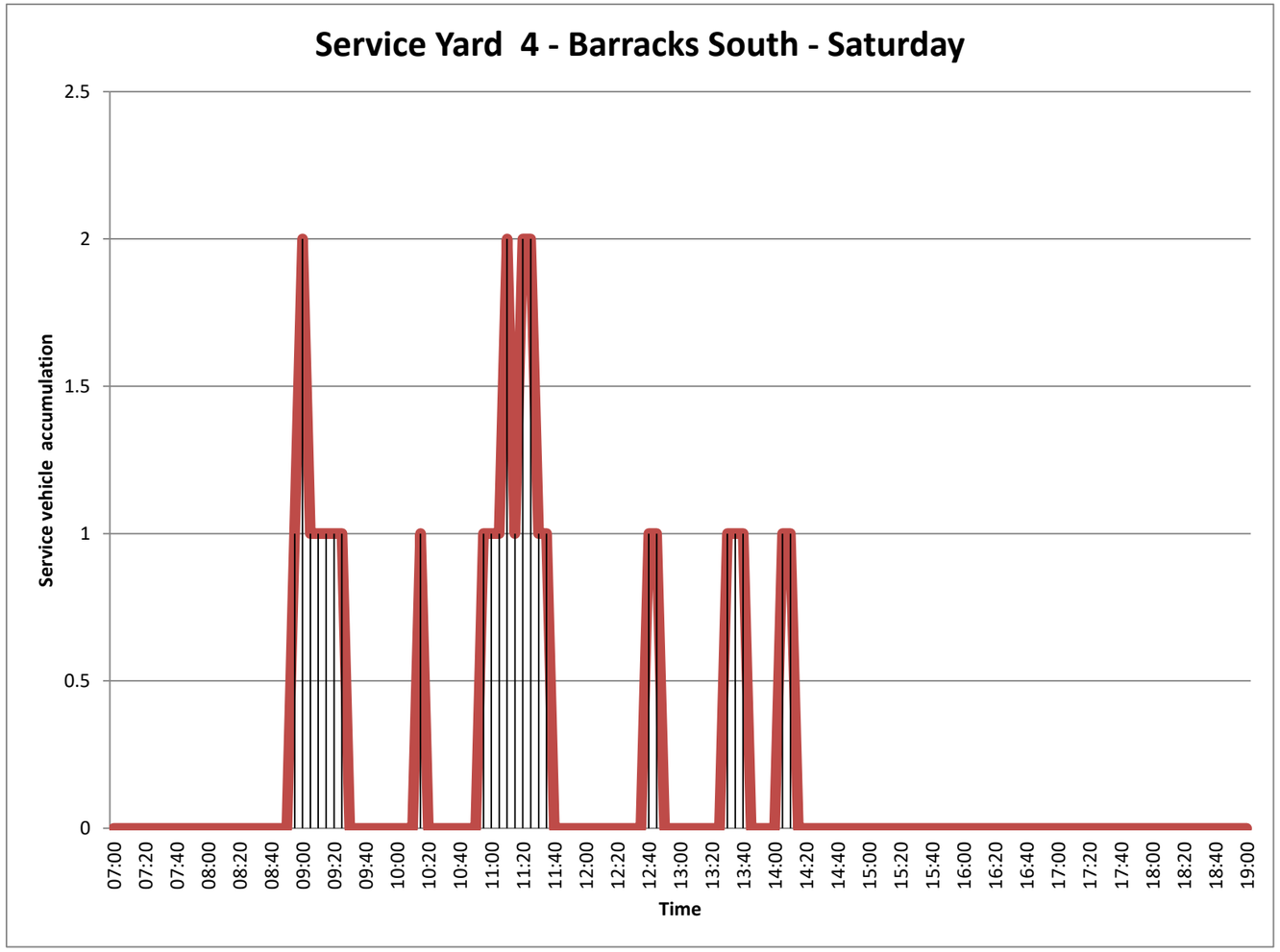
Type	Vehicles	%
LGV	3	100%
OGV1	0	0%
OGV2	0	0%
Total	**3**	**100%**
Average Dwell Time	**00:11:18**	

Table 40 shows the percentage split between service vehicles accessing Service Yard 4 in the AM and PM on the Saturday.

Table 40: Service Yard 4 – South – AM / PM Vehicle percentage

Time Period	Servicing Vehicle %
AM	67%
PM	33%
Total	**100%**

The chart below shows the service vehicle accumulation across the surveyed Saturday. The maximum accumulation has been calculated as 2 vehicles.



There were 15 vehicles recorded to be circulating the northern and southern sections of the site without stopping. These have been removed from the analysis.

Technical Appendix D

TPP report D008c - Pedestrian Comfort Assessment Note

TPP
transport planning practice

City Centre South

Pedestrian Comfort Assessment Note

Introduction

1. Transport Planning Practice (TPP) have been commissioned by Shearer Property Regen Limited to provide transport planning advice with regards to the proposal to redevelop Coventry City Centre South (CCS).

2. In order to assess the impact of the proposals on the effective width and level of use on the footways in the city centre, a pedestrian level of service assessment has been undertaken using Transport for London's (TfL) Pedestrian Comfort Level Assessment tool. Whilst the development site is not located within London, the TfL tool goes further than existing assessment measures, such as a Fruin Level of Service which simply assesses crowding, as it is based on comfort whilst taking into account user perceptions as well as observed behaviours. Therefore, this method of assessment is considered appropriate for assessing the impact of the proposals on pedestrian comfort within Coventry City Centre.

Pedestrian surveys

3. In order to establish the existing use of the footway links within the CCS development site, TPP commissioned the independent survey company, Nationwide Data Collection (NDC) to undertake pedestrian surveys.

4. Pedestrian and cycle surveys were undertaken at a number of entrance points and links within the proposed CCS development site. The surveys recorded the number of pedestrians and cyclists arriving and departing if at an entrance or the direction if on a link, i.e. north-south or east-west per 15 minute period. The surveys covered a period of 07:00 - 19:00 on Thursday 21st November 2019 and Saturday 23rd November 2019. The entrance points and link locations with their assessment reference identifications (e.g. PED 1) are summarised below:

- City Arcade – PED 1
- Rover Road - through to service yard – PED 2
- Market Way – PED 3
- Bull Yard/Shelton Square - east-west direction – PED 4
- Bull Yard - north-south direction – PED 5
- Hertford Street – PED 6

Transport Planning Practice| 70 Cowcross Street | London | EC1M 6EL| Tel: 020 7608 0008 | email@tppweb.co.uk

Pedestrian Comfort Level assessment methodology

5. To undertake a Pedestrian Comfort Level (PCL) assessment, data on the footway width, location and type of street furniture is required. This is used to calculate the clear footway width, which is the space available for walking after street furniture and its associated buffers are taken into account.

6. The PCL scoring regime is summarised in Table 1. The scoring regime is based on pedestrian crowding which is measured in *pedestrians per metre of clear footway per minute* (ppmm). This is calculated using the following formula:

People per hour / 60 / clear footway width in metres

Table 1: PCL assessment scoring regime

PCL	PPMM	Restricted Movement	Description
A+	<3	<3%	The pedestrian environment is very comfortable at PCL A+ to A- with plenty of space for people to walk at the speed and the route that they choose.
A	3 to 5	13%	
A-	6 to 8	22%	
B+	9 to 11	31%	PCL B+ is the recommended level of comfort for all area types. This level provides enough space for normal walking speeds and some choices in routes taken. At PCL B and PLC B- normal walking speed is still possible but confits are becoming more frequent and in retail areas, people start to consider avoiding the area.
B	12 to 14	41%	
B-	15 to 17	50%	
C+	18 to 20	59%	The pedestrian environment is becoming increasingly uncomfortable, with the majority of people experiencing conflict or closeness with other pedestrians and bi-directional movement becoming difficult.
C	21 to 23	69%	
C-	24 to 26	78%	
D	27 to 35	100%	At PCL D walking speeds are restricted and reduced and there are difficulties in bypassing slower pedestrians or moving in reverse flows.
E	>35	100%	At PCL E people have very little personal space and speed and movement is very restricted. Extreme difficulties are experienced if moving in reverse flows.

Key assumptions in PCA methodology

7. The existing pedestrian flows were taken from the surveys undertaken by NDC. The pedestrian flows included cyclists that were using the footways or pedestrian routes being accessed.

8. The peak hour flow for Thursday the 21st November and Saturday 23rd November was decided by taking the most common peak hour from each location surveyed for each

day. The peak hour weekday flow was 13:00-14:00 and the peak hour Saturday flow was from 12:00-13:00.

9. At PED 1 and 2 the survey flows accounted for movement on the footways on both sides of the carriageway, with no way of differentiating between the two. Therefore at these locations, the footway widths on both sides of the carriageway have been combined and are assessed against the full pedestrian flows at these locations. As there are two footways at these locations, an additional buffer has been added (0.4m) to account for the extra kerb and building edge.

10. Street furniture assessed within this PCA had been assigned a 0.2m buffer, except in the case where the Pedestrian Comfort Assessment Guidance recommends a particular buffer for street furniture (i.e. café or cycle parking). This is as it is presumed that pedestrians will actively avoid walking too close to items such as lamp columns etc.

11. The assessment allows for 3 pieces of street furniture to be accounted for at any location. In some cases, there are more than 3 pieces of street furniture present. When this is the case, the width of the extra street furniture and the associated buffer has been added to 'any unusable footway'. Any section of footway that is less than 0.6m wide has also been assigned to 'unusable footway'.

12. Tree stump widths were inserted manually, with the size of the tree stumps being based on the Topographical Survey and Google Street View imagery.

13. Footway widths do not take into account overgrown vegetation. Overgrown vegetation can impact on practical footway widths, as shown Image 1 below, which is from PED 1. It has been presumed that vegetation will normally be cut back and will not impact on effective width of the footway.

Image 1: PED 1 – City Arcade car park access overgrown vegetation

14. A worst case scenario assessment for PED 1, 3, 4, 5 and 6 has been undertaken. This assessment takes into account temporary street furniture such as market stalls, café tables and shop signs, all of which is not displayed within the topographical survey. Image 2 below shows café tables reducing the effective footway width at PED 3.

Image 2: Market Way PED 6 temporary street furniture

15. For PED 3 and 6, it is expected that all of the footway within the undercroft is 'unusable' and it has therefore been discounted from the assessment.

16. Each PED assessment point is split into multiple locations which represent where a measurement of the footway width has taken place. These locations provide the positions where a PCL assessment takes place and a score is provided.

17. Some assessments are also split into two scenarios, standard and worst case. The standard assessment scenario is where the full width of the footway is accessible to pedestrians and the worst case scenario is where the width is at its minimum i.e. where vegetation impacts on the effective width or where undercroft footways are located and are likely to be avoided. Locations that did not have 'factors' that are likely to impact on footway width did not require a worst case scenario assessment.

18. For the cumulative assessment, no average pedestrian flows were available. Therefore the peak flows were adjusted using factors calculated from the baseline peak hours and average flows.

Pedestrian flows

19. The weekday and Saturday pedestrian flows for each of the four scenarios assessed are shown in Table 2 and 3 below:

Table 2 - Weekday pedestrian flows for each scenario

Location	Existing		Existing plus cumulative development		Existing plus development		Existing plus development plus cumulative development	
	Average flow	Peak hour flow	Average flow	Peak hour flow	Average flow	Peak hour flow	Average flow	Peak hour flow
PED 1	12	14	14	17	382	749	384	752
PED 2	391	604	452	701	775	1354	836	1451
PED 3	911	1582	1052	1808	1315	2353	1456	2579
PED 4	1079	2041	1247	2309	1489	2819	1657	3086
PED 5	69	137	80	154	442	875	452	892
PED 5	969	1500	1119	1740	1375	2273	1525	2513

Table 3 - Saturday pedestrian flows for each scenario

Location	Existing		Existing plus cumulative development		Existing plus development		Existing plus development plus cumulative development	
	Average flow	Peak hour flow	Average flow	Peak hour flow	Average flow	Peak hour flow	Average flow	Peak hour flow
PED 1	11	11	12	12	211	609	212	610
PED 2	635	1072	675	1131	861	1700	901	1759
PED 3	1234	2209	1312	2324	1486	2866	1564	2981
PED 4	1168	2031	1241	2139	1417	2684	1491	2792
PED 5	92	129	98	138	295	730	301	739
PED 5	1229	1950	1306	2064	1481	2606	1558	2720

20. The output reports are significantly and therefore have not been appended to this report. However the data can be provided upon request.

Existing situation results

PED 1

21. The PED 1 results for the existing weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 4. The location of PED 1 and the footway measurements for the normal and worst-case scenario are shown in Figure 1 and 2.

Table 4 - PED 1: existing scenario results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Saturday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Weekday Peak worst-case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Saturday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0

22. The peak hour crowding for PED 1 is 0 at all the locations during the weekday and Saturday peak. This includes the worst case scenario. The peak hour crowding is zero due to the low flows at this location, with the peak hour flow being 14 in the weekday peak and 11 in the Saturday peak.

PED 2

23. The PED 2 results for the existing weekday and Saturday assessment are summarised in Table 5. The location and the footway measurements for PED2 are shown in Figure 3.

Table 5 - PED 2: existing scenario results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	4
	Location 3	A	3
	Location 4	F	8
Saturday Peak	Location 1	A	5
	Location 2	A-	7
	Location 3	A-	6
	Location 4	F	14

24. Location 4 has been given an F rating for both the weekday and Saturday peak. At location 4, the footway narrows, due to the presence of the Coventry Market south-west entrance ramp on the northern side of Rover Road. However in practical terms, this section of footway at PED 2 is suitable for current pedestrian use along this section of Rover Road.

PED 3

25. The PED 3 results for the existing weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 6. The location of PED 3 and the footway measurements for the normal and worst case scenario are shown in Figures 4 and 5.

Table 6 - PED 3: existing results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	2
	Location 4	A+	2
	Location 5	A+	2
Saturday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A	3
	Location 4	A+	2
	Location 5	A+	2
Weekday Peak worst case scenario	Location 1	A+	2
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2
	Location 5	A	3
Saturday Peak worst case scenario	Location 1	A	3
	Location 2	A	4
	Location 3	A	4
	Location 4	A	3
	Location 5	A	4

26. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of either A or A+, with the highest peak hour crowding being 4. This indicates the existing footway at PED 3 accommodates the existing pedestrian flows comfortably.

PED 4

27. The PED 4 results for the existing weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 7. The location of PED 4 and the footway measurements for the normal and worst case scenarios are shown in Figures 6 and 7.

Table 7 - PED 4: existing results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A-	6
Saturday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A-	6
Weekday Peak worst case scenario	Location 1	A-	6
	Location 2	A-	8
	Location 3	B+	9
	Location 4	A-	6
	Location 5	A	5
Saturday Peak worst case scenario	Location 1	A-	6
	Location 2	A-	8
	Location 3	A-	8
	Location 4	A-	6
	Location 5	A	5

28. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of B+ or above, with the highest peak hour crowding being 9. This indicates the existing footways at PED 4 can accommodate the existing pedestrian flows comfortably, with location 3 being considered the section of footway with lowest pedestrian comfort.

PED 5

29. The PED 5 results for the existing weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 8. The location of PED 5 and the footway measurements for the normal and worst case scenarios are shown in Figure 8 and 9.

Table 8 - PED 5: existing results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Saturday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Weekday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Saturday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0

30. The peak hour crowding for PED 5 is 0 at all the locations during the weekday and Saturday. This includes the worst case scenario. The peak hour crowding is zero due to the low pedestrian flows at this location, with the peak hour flow being 137 in the weekday peak and 129 in the Saturday peak.

PED 6

31. The PED 6 results for the existing weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 9. The location of PED 6 and the footway measurements for the normal and worst case scenarios are shown in Figure 10 and 11.

Table 9 - PED 6: existing results summary

Peak hour	Location	Existing peak hour flow PCL	Existing peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A+	2
	Location 3	A+	2
	Location 4	A	3
Saturday Peak	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A	4
Weekday Peak worst case scenario	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A	5
Saturday Peak worst case scenario	Location 1	A	4
	Location 2	A	4
	Location 3	A	4
	Location 4	A-	6

32. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of A- or above, with the highest peak hour crowding being 6. This indicates the existing footway at PED 6 can accommodate the existing pedestrian flows comfortably.

Summary

33. The PCL assessment indicates that the footway links within the CCS development site do not suffer from a poor level of service under standard or worst case scenario conditions. Where the footway was assigned an F rating (PED 2), this was due to the narrow width of the footway. In practice, this footway is wide enough to accommodate the existing flows however it is noted that it may suffer from crowding issues.

Existing plus cumulative development results

34. The person trip generation for the cumulative developments has been obtained from their respective Transport Assessment/Statements and applied to this assessment. The trips arising from the cumulative assessment have been split across the 6 PED assessment locations. The split has been based on the existing use of each link as a percentage of the total pedestrian flow through CCS. This assessment is based on the existing layout of CCS.

PED 1

35. The PED results for the existing plus cumulative development weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 10. The location of PED 1 and the footway measurements for the normal and worst-case scenario are shown in Figure 1 and 2.

Table 10 - PED 1: existing plus cumulative development results summary

Peak hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Saturday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Weekday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0
Saturday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
	Location 5	A+	0
	Location 6	A+	0

36. The peak hour crowding for PED 1 is 0 at all the locations during the weekday and Saturday. This includes the worst case scenario. The peak hour crowding is zero due to the low flows at this location, with the peak hour flow being 17 in the weekday peak and 12 in the Saturday peak. This indicates the existing footways at PED 1 can accommodate the existing and cumulative pedestrian flows comfortably.

PED 2

37. The PED results for the existing plus cumulative development weekday and Saturday assessments are summarised in Table 11. The location of PED 2 and the footway measurements are shown in Figure 3.

Table 11 - PED 2: existing plus cumulative development results summary

Peak Hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	5
	Location 3	A	3
	Location 4	F	9
Saturday Peak	Location 1	A	5
	Location 2	A-	8
	Location 3	A-	6
	Location 4	F	15

38. Location 4 has been given an F rating for both the weekday and Saturday peak. At location 4, the footway narrows, due to the presence of the Coventry Market south-west entrance ramp on the northern side of Rover Road. However in practical terms, this section of footway would be suitable for current pedestrian use and the pedestrian flow arising from the cumulative developments (97 and 59 additional pedestrians in the weekday and Saturday peaks respectively) along this section of Rover Road.

PED 3

39. The PED results for the existing plus cumulative development weekday and Saturday assessment for both the standard and worst case scenarios are summarised in Table 12. The location of PED 3 and the footway measurements for the standard and worst case scenarios are shown in Figure 4 and 5.

Table 12 - PED 3: existing plus cumulative development results summary

Peak hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	2
	Location 4	A+	2
	Location 5	A+	2
Saturday Peak	Location 1	A+	2
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2
	Location 5	A	3
Weekday Peak worst case scenario	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A	3
	Location 5	A	3
Saturday Peak worst case scenario	Location 1	A	4
	Location 2	A	4
	Location 3	A	4
	Location 4	A	4
	Location 5	A	4

40. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates the existing footways at PED 3 can accommodate the existing and cumulative pedestrian flows comfortably.

PED 4

41. The PED results for the existing plus cumulative development weekday and Saturday assessment for both standard and worst case scenarios are summarised in Table 13. The location of PED 4 and the footway measurements for the standard and worst case scenarios are shown in Figure 6 and 7.

Table 13 - PED 4: existing and cumulative development results summary

Peak hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	5
	Location 2	A-	6
	Location 3	A-	6
Saturday Peak	Location 1	A	5
	Location 2	A	5
	Location 3	A-	6
Weekday Peak worst case scenario	Location 1	A-	7
	Location 2	B+	9
	Location 3	B+	10
	Location 4	A-	7
	Location 5	A-	6
Saturday Peak worst case scenario	Location 1	A-	6
	Location 2	A-	8
	Location 3	B+	9
	Location 4	A-	6
	Location 5	A-	6

42. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of B+ or above, with the highest peak hour crowding being 10. This indicates the existing footways at PED 4 can accommodate the existing and cumulative pedestrian flows comfortably. The PCL rating is only below an A in the worst case scenarios, however a B+ rating means the footway should still be comfortable most of the time.

PED 5

43. The PED results for the existing plus cumulative development weekday and Saturday assessment for both standard and worst case scenarios are summarised in Table 14. The location of PED 5 and the footway measurements for the standard and worst case scenarios are shown in Figure 8 and 9.

Table 14 - PED 5: existing and cumulative development results summary

Peak hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Saturday Peak	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Weekday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0
Saturday Peak worst case scenario	Location 1	A+	0
	Location 2	A+	0
	Location 3	A+	0
	Location 4	A+	0

44. The peak hour crowding for PED 5 is 0 at all the locations during the weekday and Saturday. This includes the worst case scenario. The peak hour crowding is zero due to the low flows at this location, with the peak hour flow being 154 in the weekday peak and 138 in the Saturday peak.

PED 6

45. The PED results for the existing plus cumulative development weekday and Saturday assessment for both standard and worst case scenarios are summarised in Table 15. The location of PED 6 and the footway measurements for the standard and worst case scenarios are shown in Figure 10 and 11.

Table 15 - PED 6: existing and cumulative development results summary

Peak hour	Location	Existing and cumulative peak hour flow PCL	Existing and cumulative peak hour crowing (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A	4
Saturday Peak	Location 1	A	4
	Location 2	A	3
	Location 3	A	3
	Location 4	A	5
Weekday Peak hour worst case scenario	Location 1	A	3
	Location 2	A	3
	Location 3	A	4
	Location 4	A	5
Saturday Peak hour worst case scenario	Location 1	A	4
	Location 2	A	4
	Location 3	A	4
	Location 4	A-	6

46. The footway in each location assessed for the standard and worst case scenarios and weekday and Saturday peaks had a PCL rating of A- or above, with the highest peak hour crowing being 6. This indicates the existing footways at PED 6 can accommodate the existing and cumulative pedestrian flows comfortably.

Summary

47. The PCL assessment indicates that the footway links within the CCS development site will not suffer from a poor level of service under standard or worst case scenario conditions when the cumulative development flows are taken into account. Where a footway was assigned an F rating (PED 2), this was due to the narrow width of the footway. In practice, this footway is currently wide enough to accommodate the existing and cumulative flows however it is noted that it may currently suffer from crowding issues.

Existing plus development results

48. The proposed PCL assessment assesses the same links as the existing PCL assessment in order to examine the impact of the development proposals on the pedestrian environment within the proposed CCS development site.

49. The development PCL assessment does not have a worst case scenario as vegetation within the CCS development site is expected to be maintained and not impact on the footways, and locations where seating may be provided on the footway (i.e. café seating) have been accounted for in the layout.

50. Trips made by cycling, bus, train and taxi have also been added to this assessment, as site users will have to walk through the site to access public transport facilities (i.e. bus stops).

51. Development person trips generated by the retail, hotel, community and leisure uses have been split across the 6 PED assessment locations. This split has been based on the existing use of each PED link as a percent of the total surveyed pedestrian flow.

52. The trips generated by the residential aspect of the proposals could travel in any direction across the CCS development. To ensure a robust assessment the full residential flows were assigned to each PED link to assess the maximum possible pedestrian flows along each link.

PED 1

53. The PED results for the existing plus development weekday and Saturday assessments are summarised in Table 16. The location of PED 1 and the footway measurements are shown in Figure 12.

Table 16 - PED 1: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	2
	Location 4	A+	2
	Location 5	A+	2
	Location 6	A	4
Saturday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	1
	Location 4	A+	1
	Location 5	A+	1
	Location 6	A	3

54. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED1 can accommodate the existing and development pedestrian flows comfortably.

PED 2

55. The PED results for the existing plus development weekday and Saturday assessments are summarised in Table 17. The location of PED 2 and the footway measurements are shown in Figure 13.

Table 17 - PED 2: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2
Saturday Peak	Location 1	A	4
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2

56. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED 2 can accommodate the existing and development pedestrian flows comfortably.

PED 3

57. The PED results for the existing plus development weekday and Saturday assessments are summarised in Table 18. The location of PED 3 and the footway measurements are shown in Figure 14.

Table 18 – PED 3: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	3
	Location 3	A	3
	Location 4	A	4
	Location 5	A	3
Saturday Peak	Location 1	A	3
	Location 2	A	4
	Location 3	A	4
	Location 4	A	4
	Location 5	A	4

58. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED 3 can accommodate the existing and development pedestrian flows comfortably.

PED 4

59. The PED results for the existing plus development weekday and Saturday assessments are summarised in Table 19. The location of PED 4 and the footway measurements are shown in Figure 15.

Table 19 - PED 4: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A	5
	Location 4	A-	6
	Location 5	A-	6
Saturday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A	5
	Location 4	A	5
	Location 5	A-	6

60. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A- or above, with the highest peak hour crowding being 6. This indicates that the proposed footways at PED 4 can accommodate the existing and development pedestrian floes comfortably.

PED 5

61. The PED results for the existing plus development weekday and Saturday assessments are summarised in Figure 20. The location of PED 5 and the footway measurements are shown in Figure 16.

Table 20 – PED 5: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	1
	Location 2	A+	1
	Location 3	A+	1
	Location 4	A	3
	Location 5	A	3
Saturday Peak	Location 1	A+	1
	Location 2	A+	1
	Location 3	A+	0
	Location 4	A+	2
	Location 5	A	3

62. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 3. This indicates that the proposed footways at PED 5 can accommodate the existing and development pedestrian flows comfortably.

PED 6

63. The PED results for the existing plus development weekday and Saturday assessments are summarised in Table 21. The location of PED 6 and the footway measurements are shown in Figure 17.

Table 21 - PED 6: existing plus development results summary

Peak hour	Location	Proposed peak hour flow PCL	Proposed peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A	4
	Location 3	A	3
	Location 4	A	3
	Location 5	A	3
Saturday Peak	Location 1	A+	2
	Location 2	A	4
	Location 3	A	3
	Location 4	A	4
	Location 5	A	4

64. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED 6 can accommodate the existing and development pedestrian flows comfortably.

Summary

65. The PCL assessment indicates that the proposed footway links within the CCS development site will not suffer from a poor level of service when the existing and development flows are taken into account, with every link having a PCL of A- or above. This means even when the footway is under additional stress, the footway link should be comfortable.

Existing plus development and cumulative results

66. The cumulative development flows have been added to the existing and development pedestrian flows to understand the likely future stress on the proposed pedestrian links through CCS.

67. The cumulative pedestrian flows are the same as those that were added to the existing flows in scenario two, and have been distributed using the same method. However this assessment is based on the proposed layout of CCS.

PED 1

68. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 22. The location of PED 1 and the footway measurements are shown in Figure 12.

Table 22 - PED 1: Existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	2
	Location 4	A+	2
	Location 5	A+	2
	Location 6	A	4
Saturday Peak	Location 1	A+	2
	Location 2	A+	2
	Location 3	A+	1
	Location 4	A+	1
	Location 5	A+	1
	Location 6	A	3

69. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED1 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

PED 2

70. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 23. The location of PED 2 and the footway measurements are shown in Figure 13.

Table 23 - PED 2: existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	4
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2
Saturday Peak	Location 1	A	5
	Location 2	A	3
	Location 3	A	3
	Location 4	A+	2

71. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 5. This indicates that the proposed footways at PED 2 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

PED 3

72. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 24. The location of PED 3 and the footway measurements are shown in Figure 14.

Table 24 - PED 3: existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	3
	Location 2	A	4
	Location 3	A	3
	Location 4	A	4
	Location 5	A	4
Saturday Peak	Location 1	A	3
	Location 2	A	4
	Location 3	A	4
	Location 4	A	5
	Location 5	A	4

73. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A, with the highest peak hour crowding being 5. This indicates that the proposed footways at PED 3 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

PED 4

74. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 25. The location of PED 4 and the footway measurements are shown in Figure 15.

Table 25 - PED 4: existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A-	6
	Location 4	A-	6
	Location 5	A-	7
Saturday Peak	Location 1	A	4
	Location 2	A	5
	Location 3	A	5
	Location 4	A-	6
	Location 5	A-	6

75. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A- or above, with the highest peak hour crowding being 7. This indicates that the proposed footways at PED 4 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

PED 5

76. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 26. The location of PED 5 and the footway measurements are shown in Figure 16.

Table 26 - PED 5: existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	1
	Location 2	A+	1
	Location 3	A+	1
	Location 4	A	3
	Location 5	A	4
Saturday Peak	Location 1	A+	1
	Location 2	A+	1
	Location 3	A+	1
	Location 4	A+	2
	Location 5	A	3

77. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED 5 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

Ped 6

78. The PED results for the existing plus development and cumulative weekday and Saturday assessments are summarised in Table 27. The location of PED 6 and the footway measurements are shown in Figure 17.

Table 27 - PED 6: existing plus development plus cumulative results summary

Peak Hour	Location	Proposed plus cumulative peak hour flow PCL	Proposed plus cumulative peak hour flow crowding (ppmm)
Weekday Peak	Location 1	A+	2
	Location 2	A	4
	Location 3	A	3
	Location 4	A	4
	Location 5	A	4
Saturday Peak	Location 1	A+	2
	Location 2	A	4
	Location 3	A	4
	Location 4	A	4
	Location 5	A	4

79. The footway in each location assessed for the weekday and Saturday peaks had a PCL rating of A or above, with the highest peak hour crowding being 4. This indicates that the proposed footways at PED 6 can accommodate the existing and development, and cumulative development pedestrian flows comfortably.

Summary

80. The PCL assessment indicates that the proposed footway links within the CCS development site will not suffer from a poor level of service when the existing, proposed development and cumulative development pedestrian flows are applied to the proposed pedestrian routes within the CCS site. Every assessed link recorded a PCL of A- or above. This means when the footway has increased pedestrian flows associated with new development, the footway links will be comfortable.

Summary and conclusions

81. TPP have been appointed by Shearer Property Regen Limited to undertake a Pedestrian Comfort Assessment for the existing and proposed pedestrian layout through CCS.

82. Four scenarios have been assessed, which include:

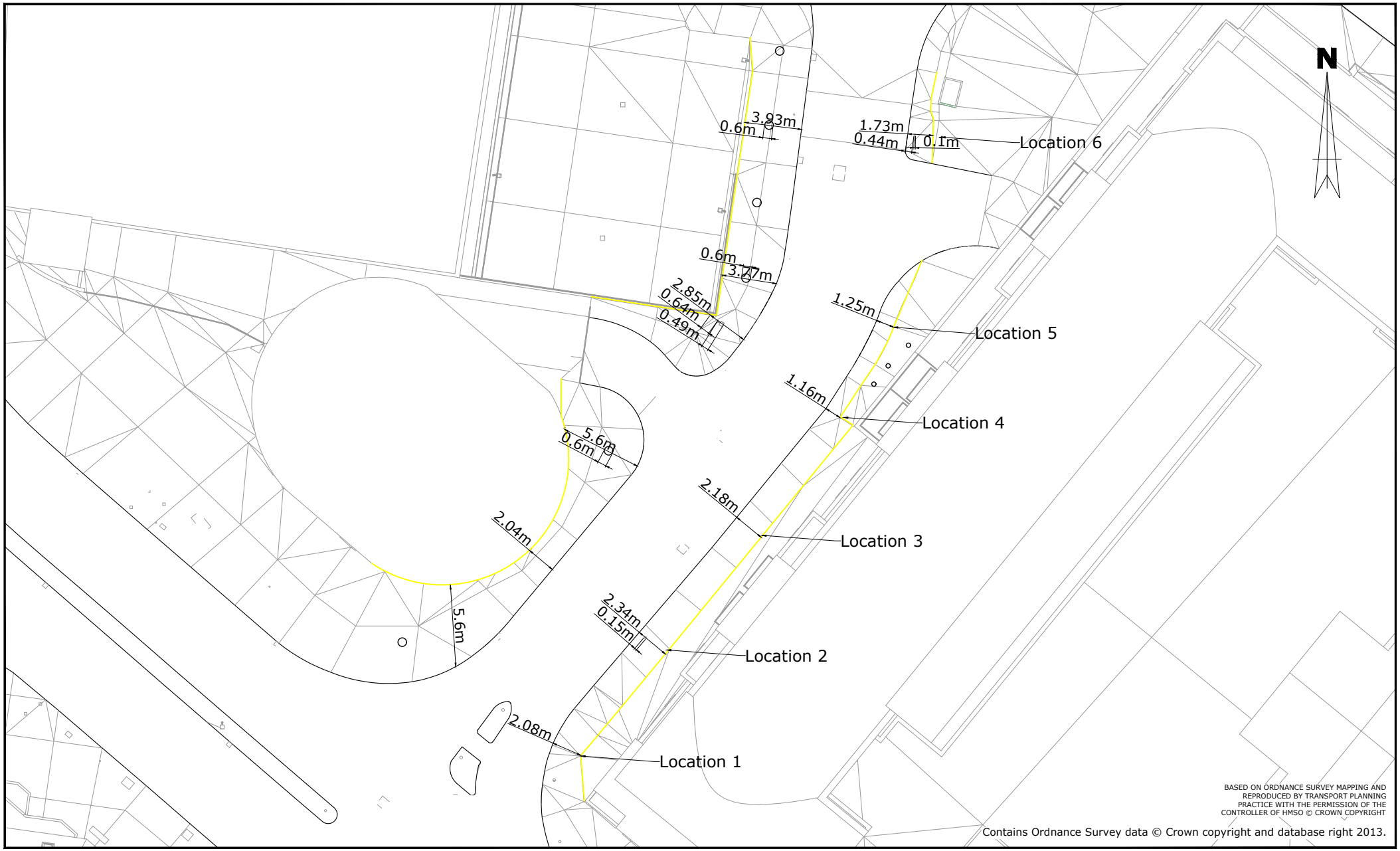
- existing development flows;
- existing development plus cumulative development flows on the existing CCS layout;
- existing development plus development flows on the proposed CCS layout; and
- existing development plus cumulative development plus development flows on the proposed CCS layout.

83. The first two scenarios indicate that most of the existing pedestrian links have a good level of service; however there are sections that have been assigned an F rating. This is due to this section of pedestrian link being narrow. However in practice these sections are suitable for pedestrian use but would suffer higher pedestrian crowding when compared to other sections.

84. The second two scenarios indicate that the proposed CCS development layout pedestrian links would have a good level of service, with no section having lower than an A- PCL. This means even if each link is exposed to higher pedestrian flows than usual, they will still have a good level of service.

Figures

TPP
transport planning practice

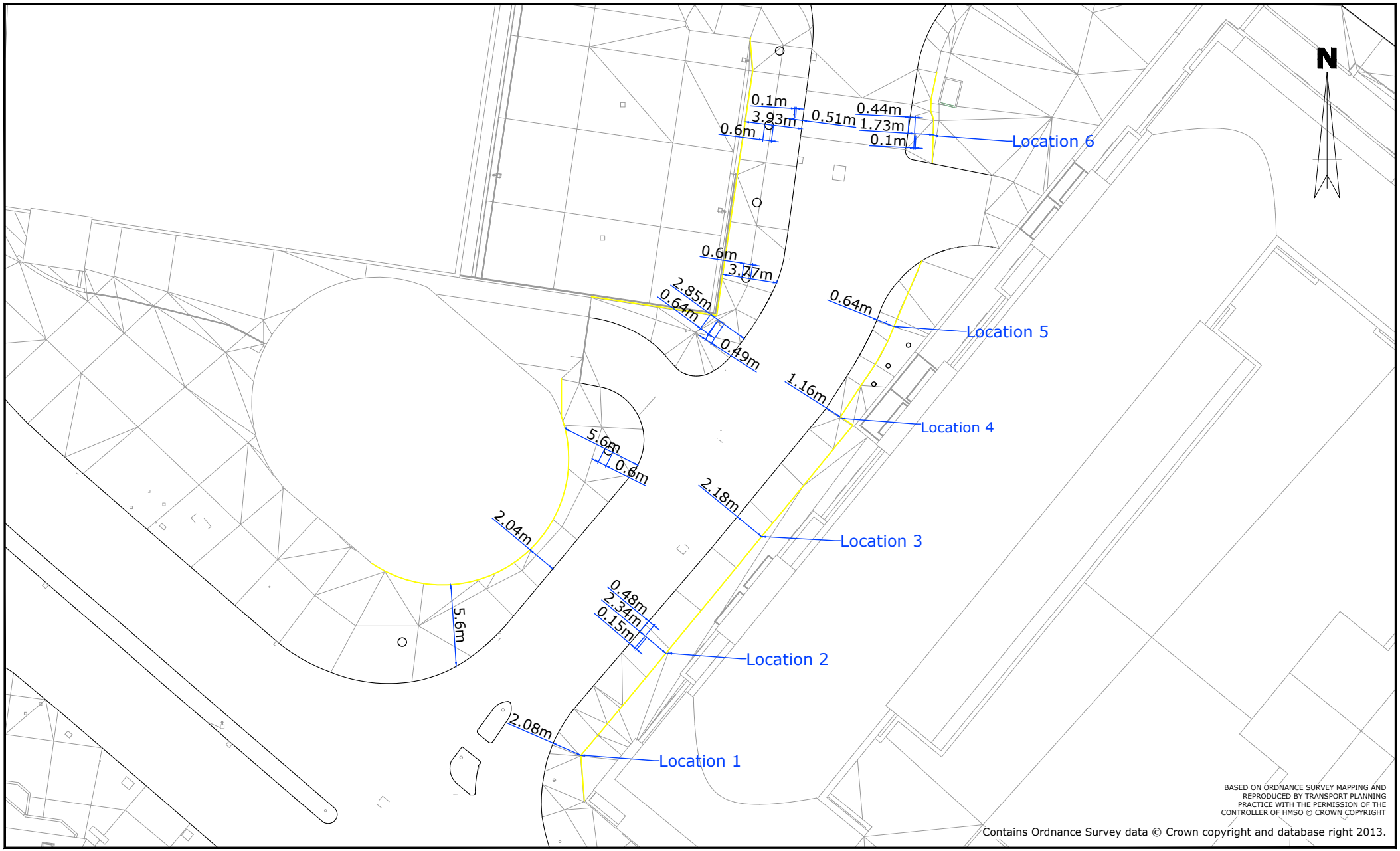


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 1 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 1

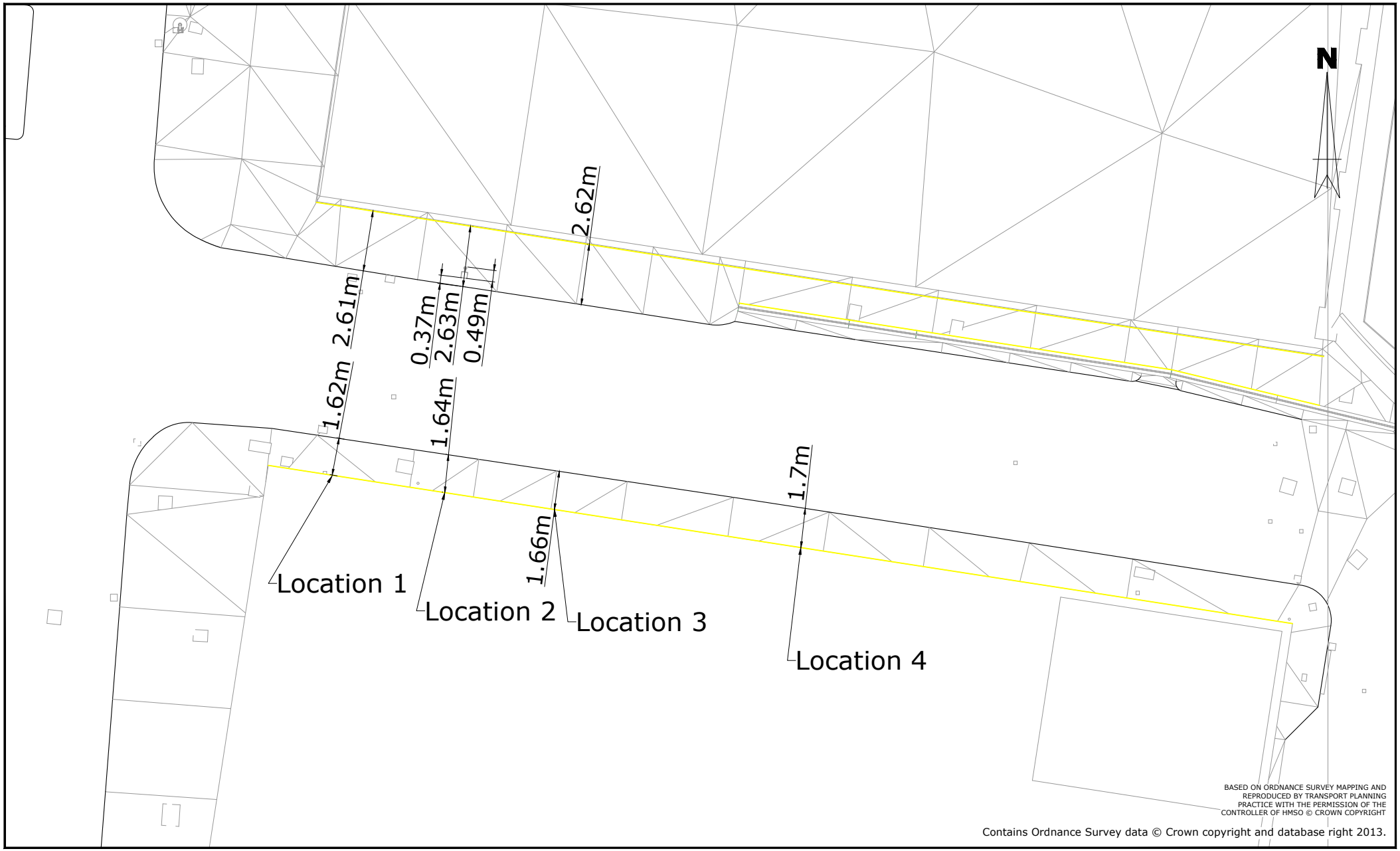


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 1 worst case footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 2

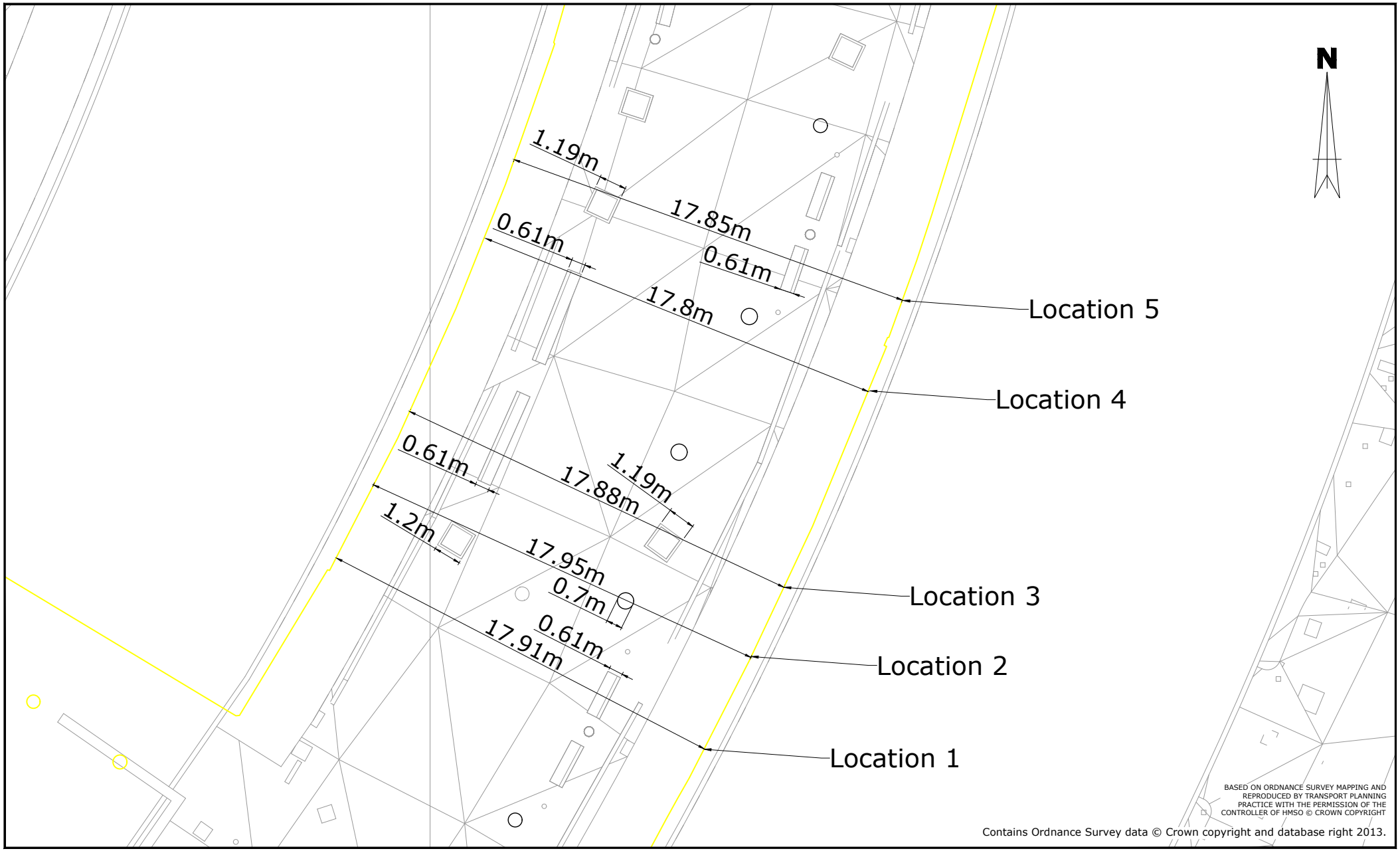


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 2 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 3

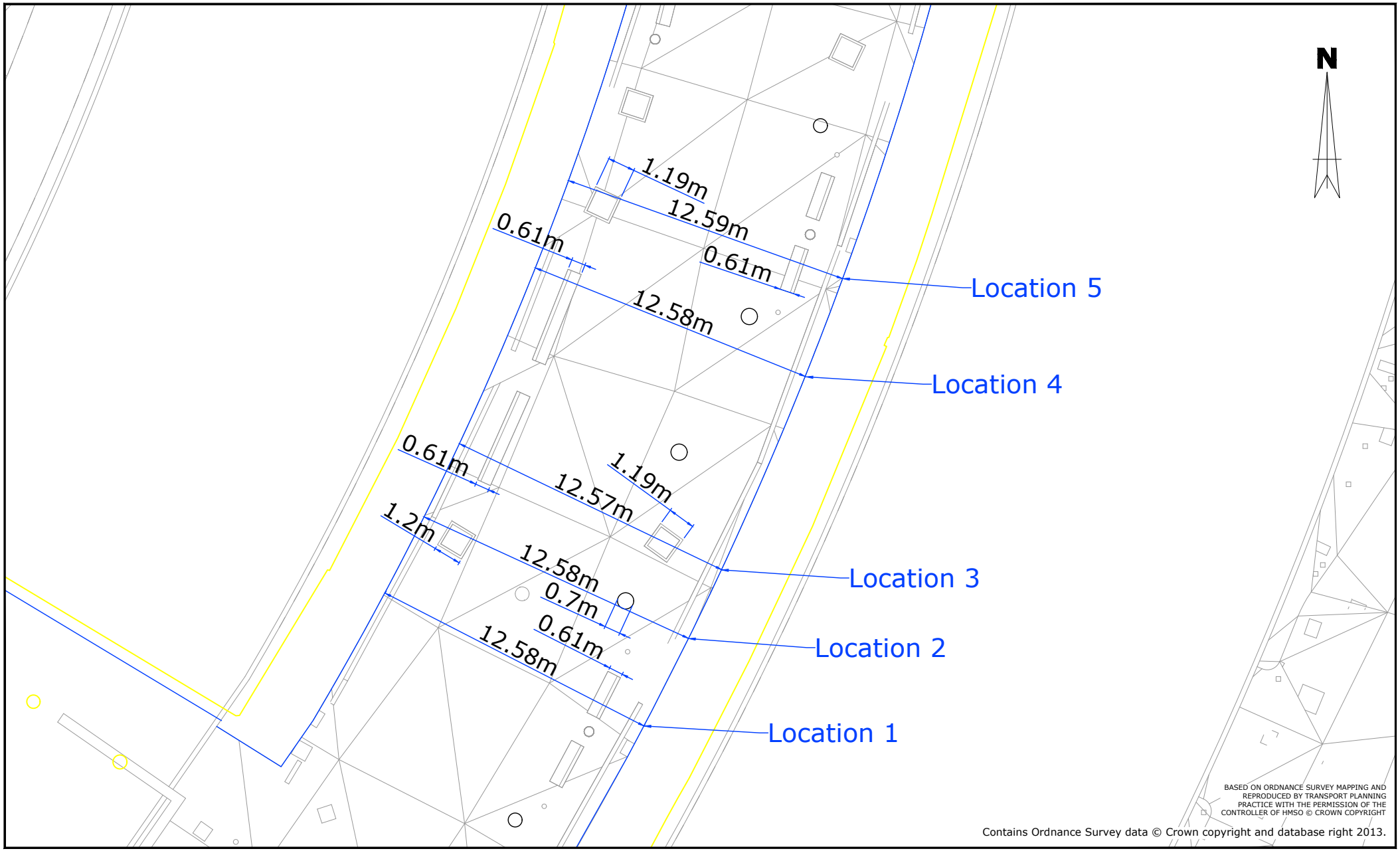


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 3 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 4

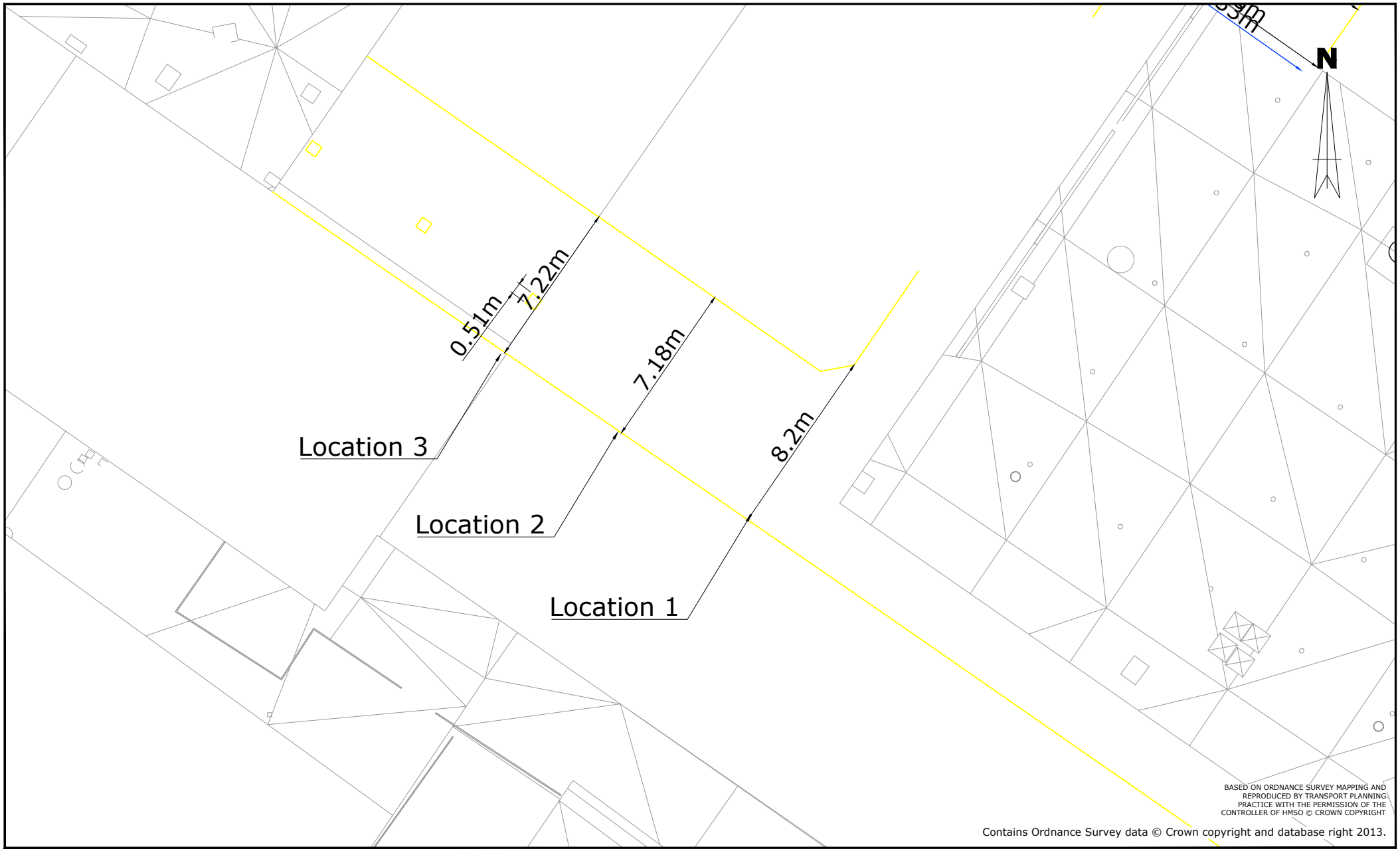


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 3 worst case footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 5

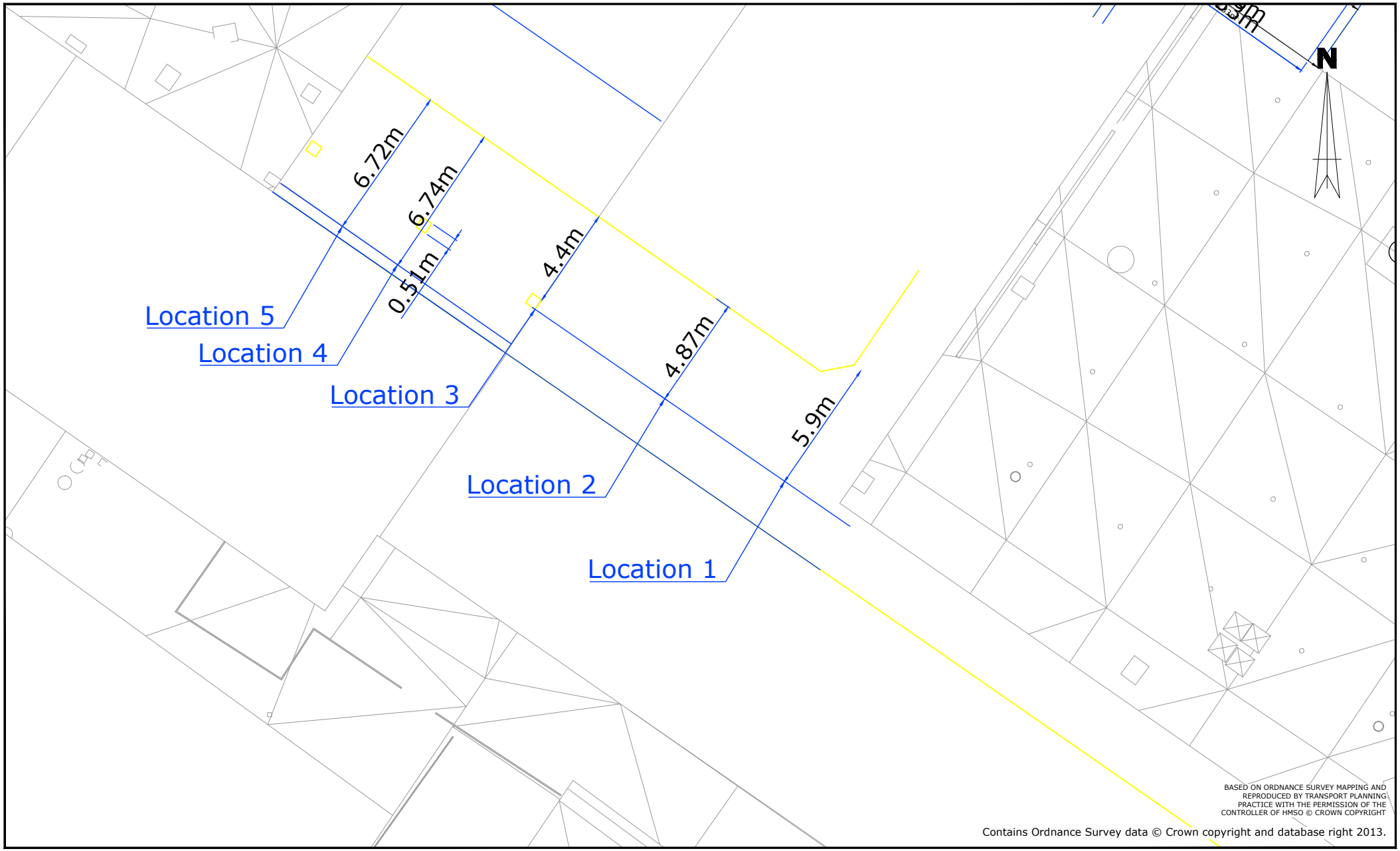


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 4 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 6

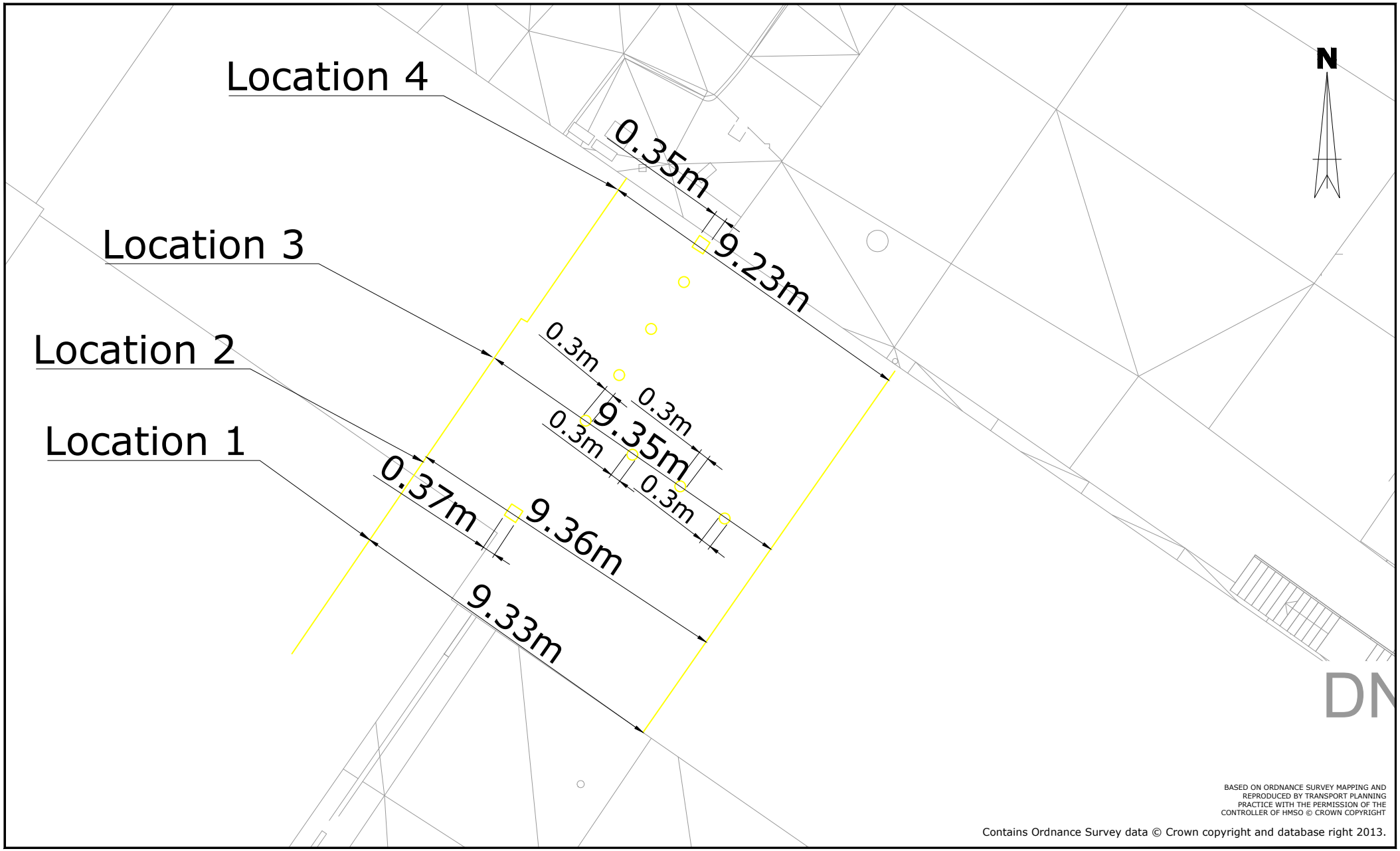


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 4 worst case footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 7

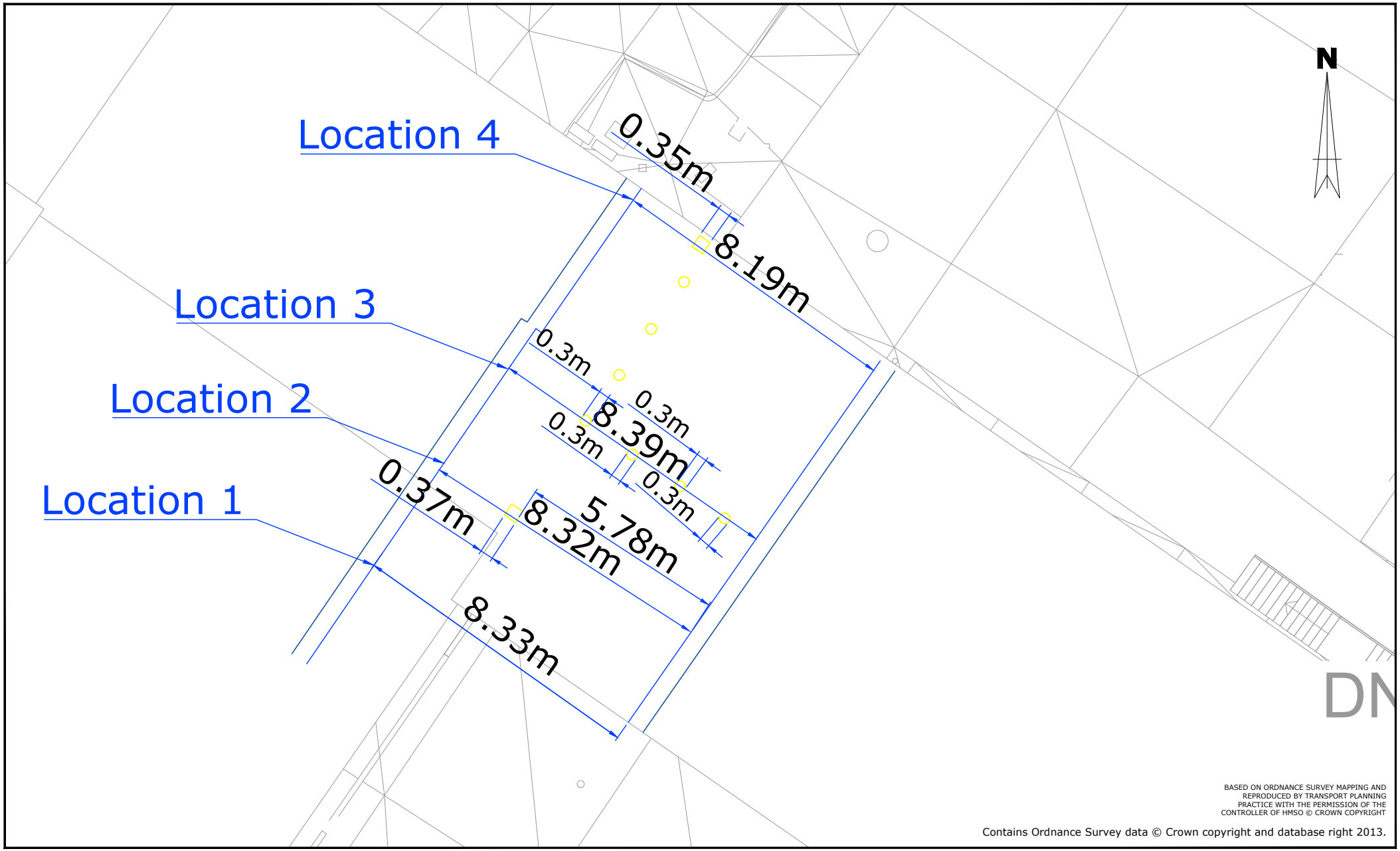


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 5 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 8

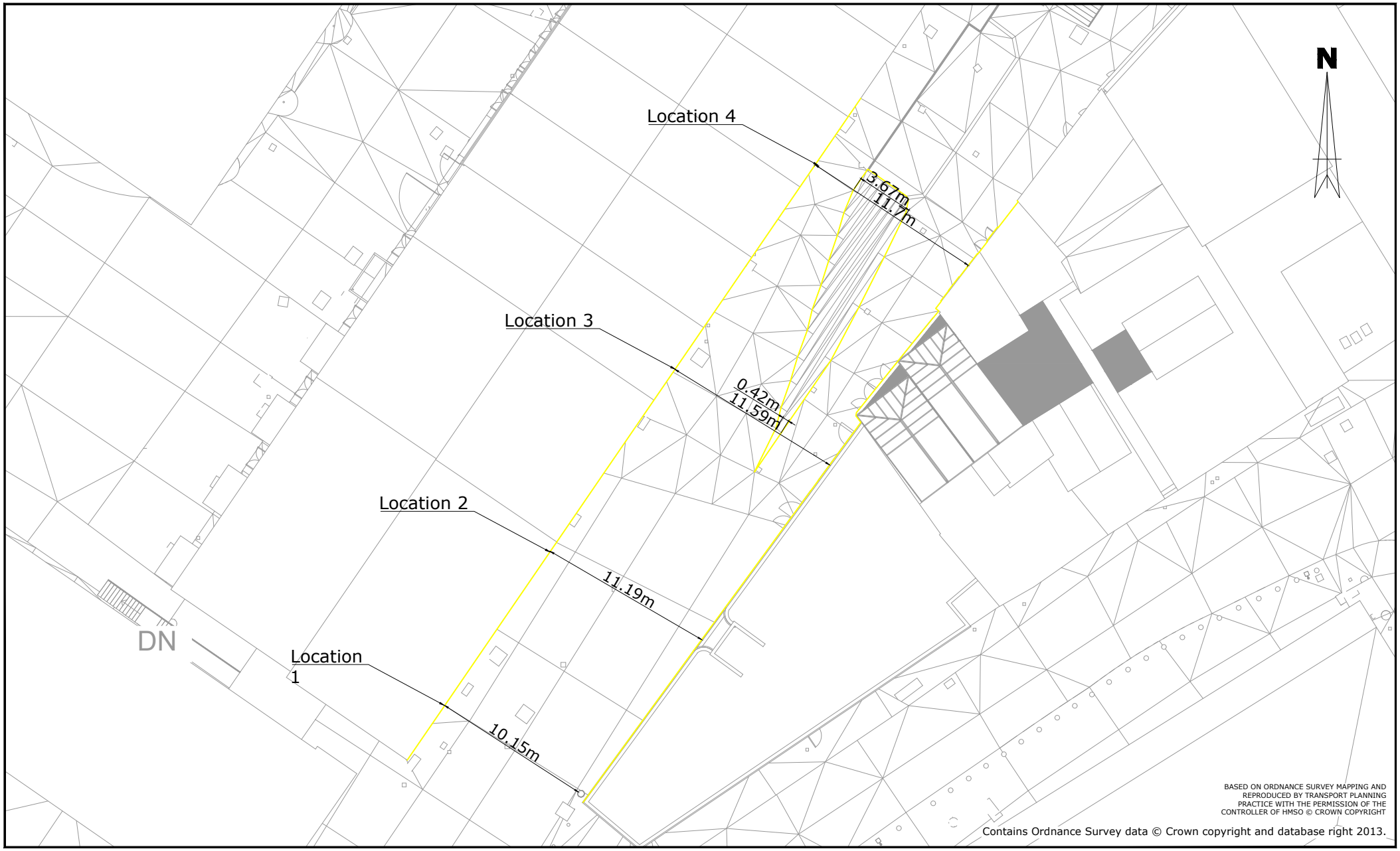


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 5 worst case footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 9

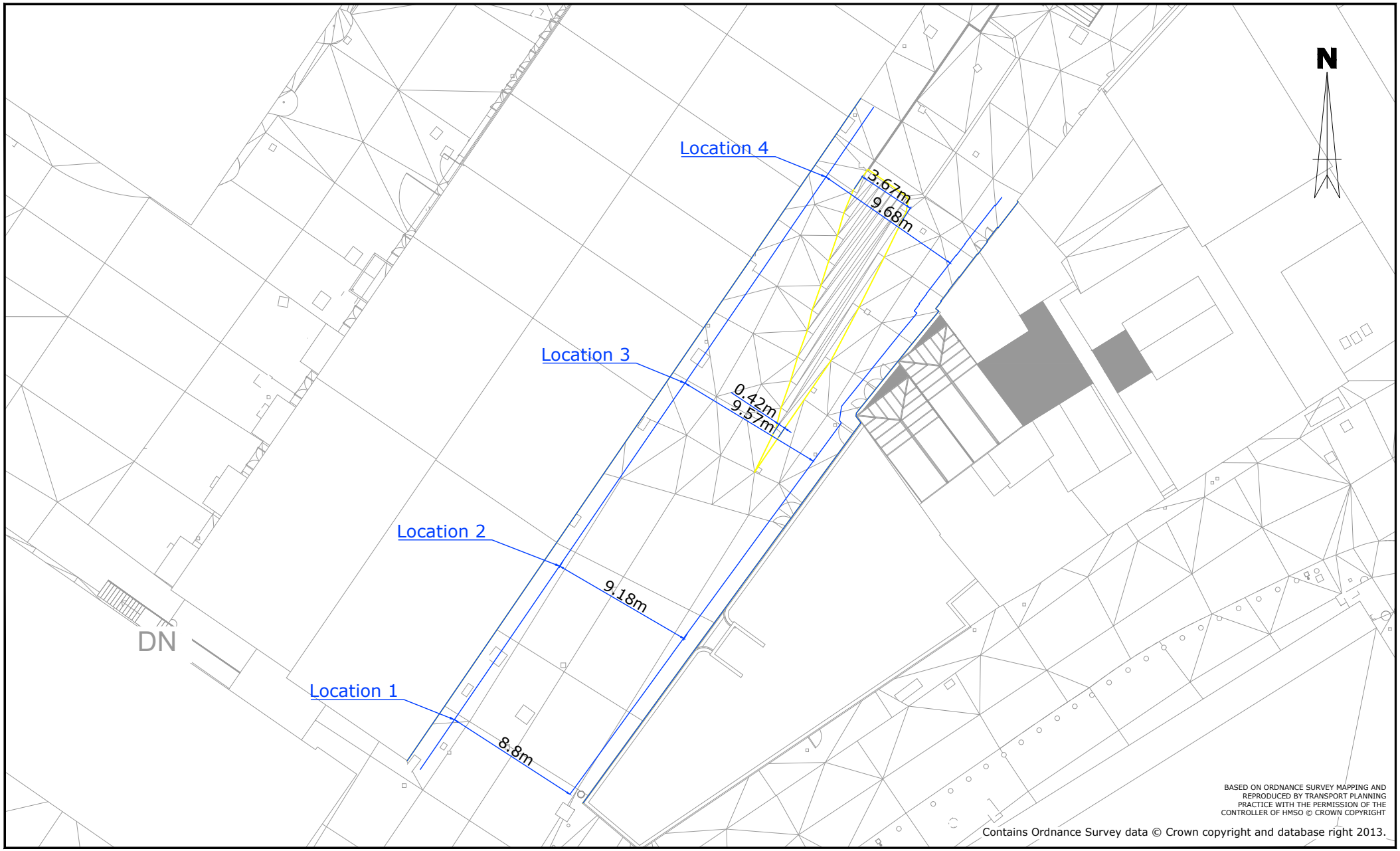


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 6 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 10

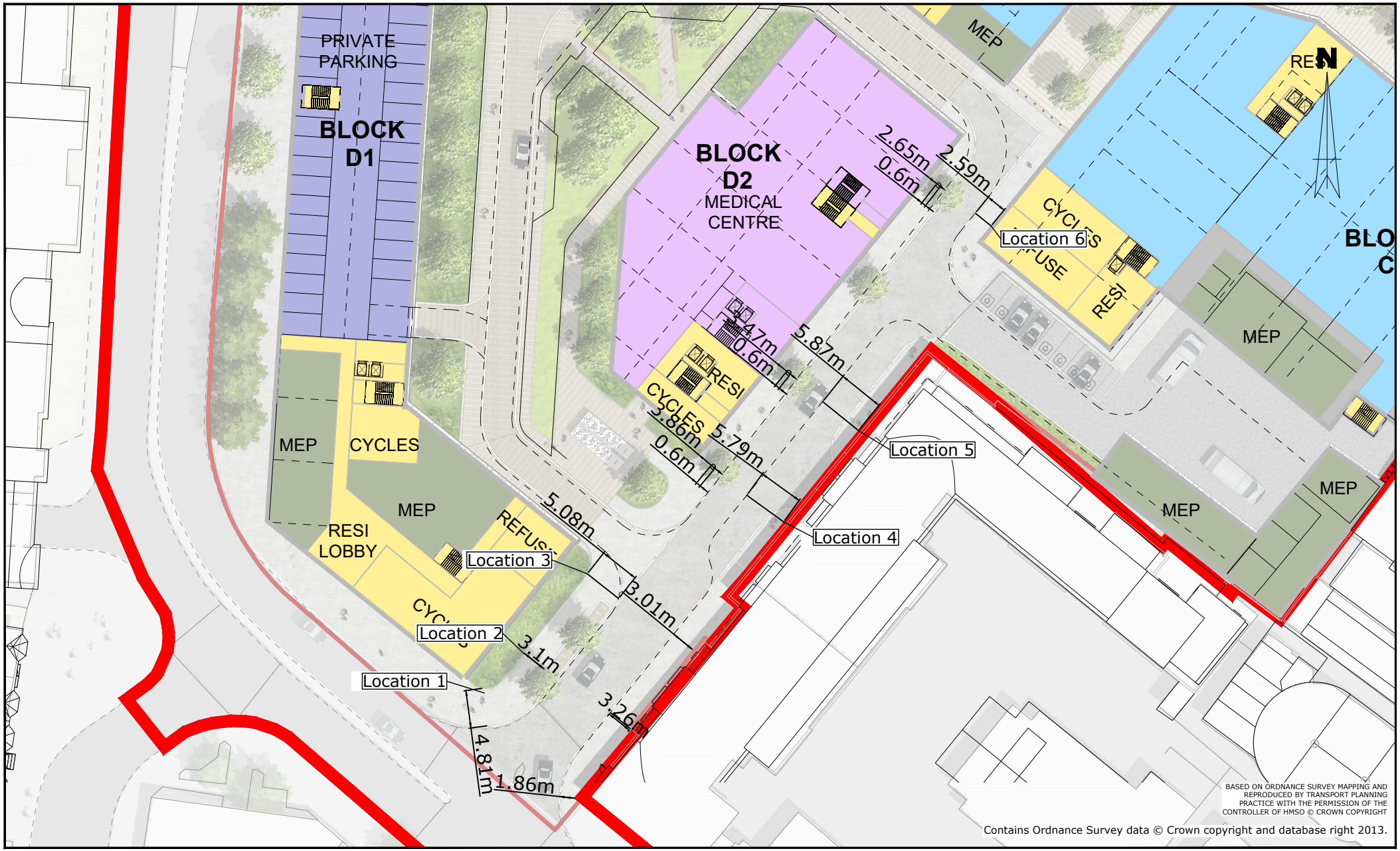


T:\30000_Projects\31176 Coventry City Centre South\ACAD\022_C.dwg

Existing PED 6 worst case footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 11

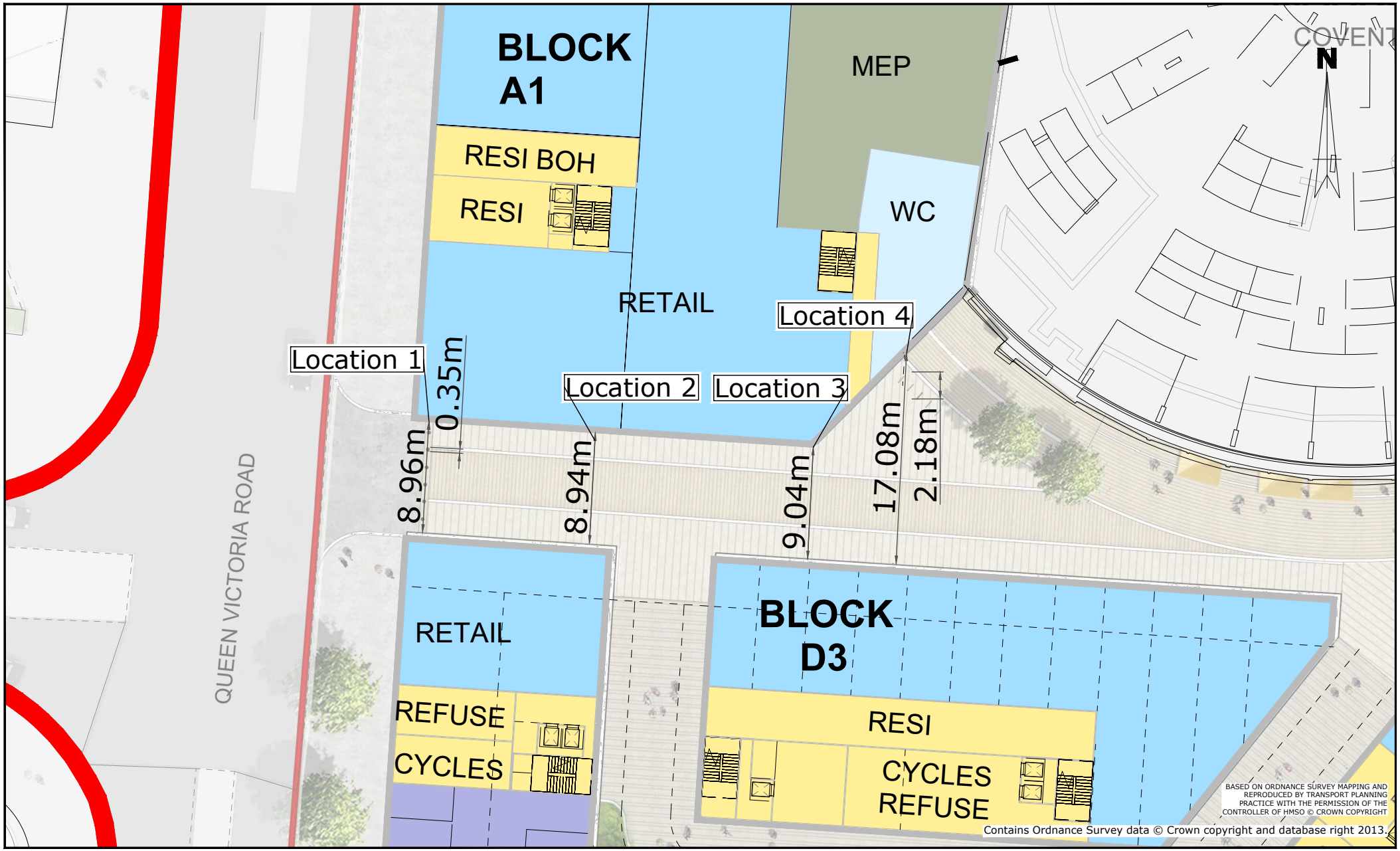


T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 1 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 12

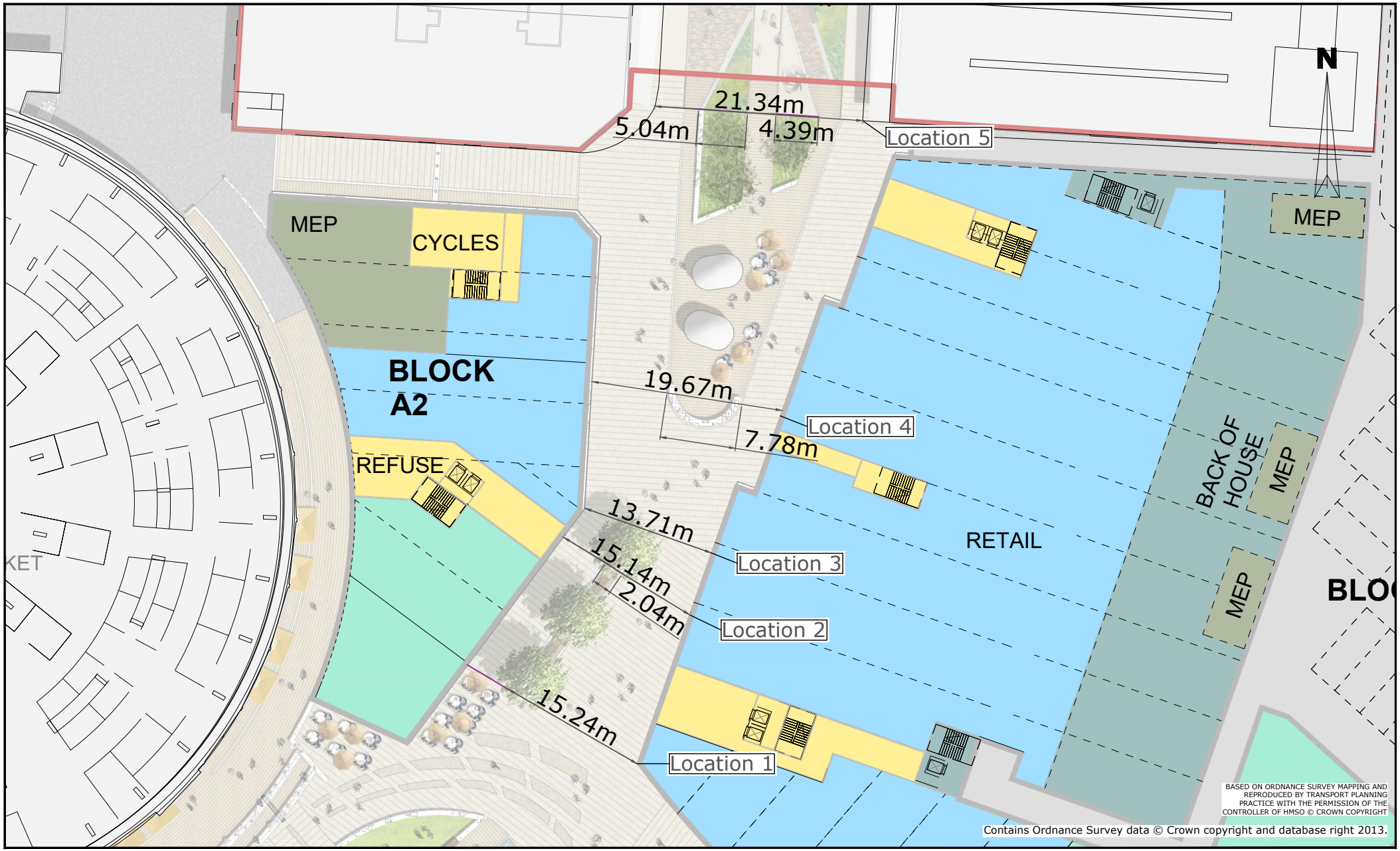


T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 2 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 13

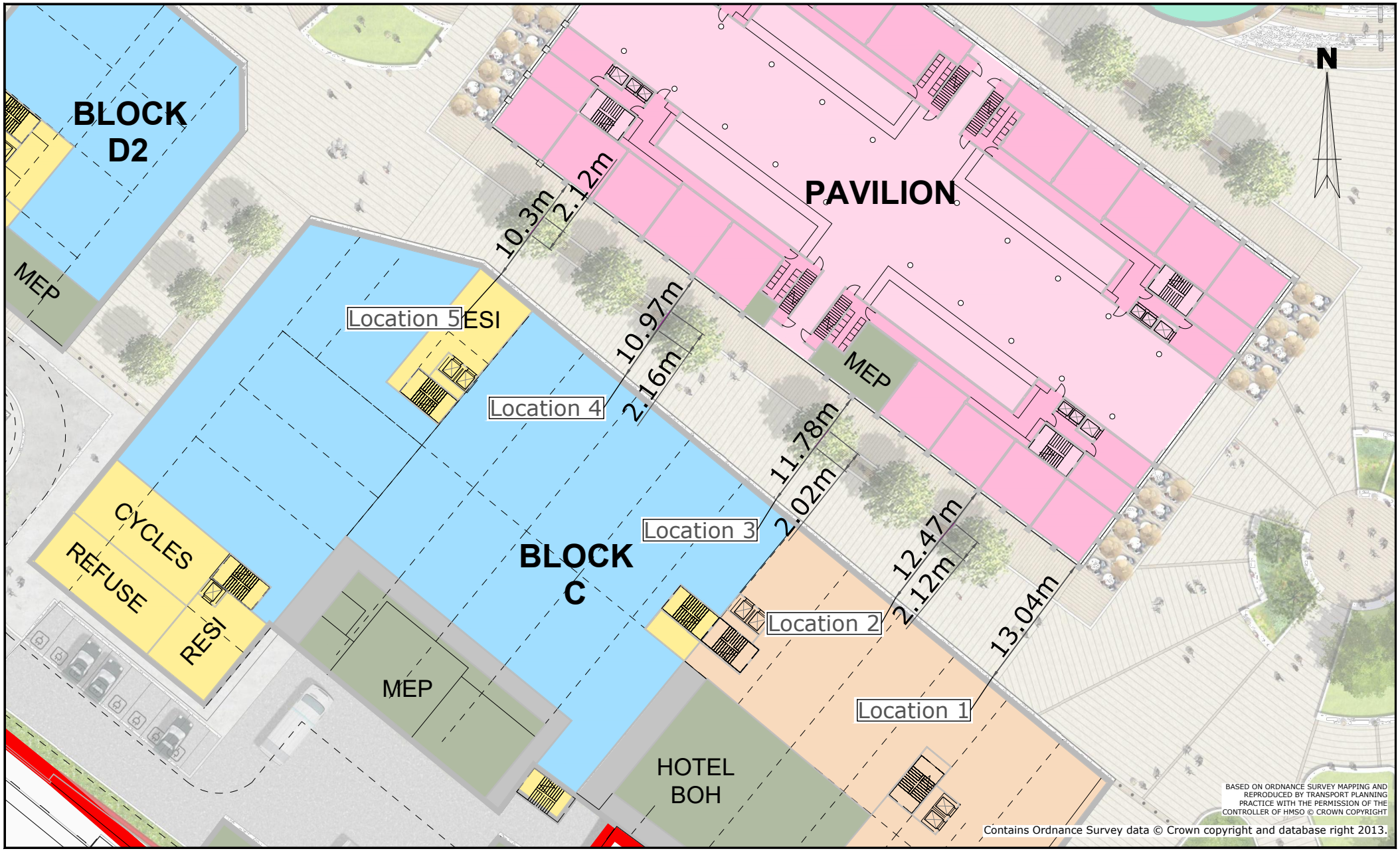


T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 3 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 14

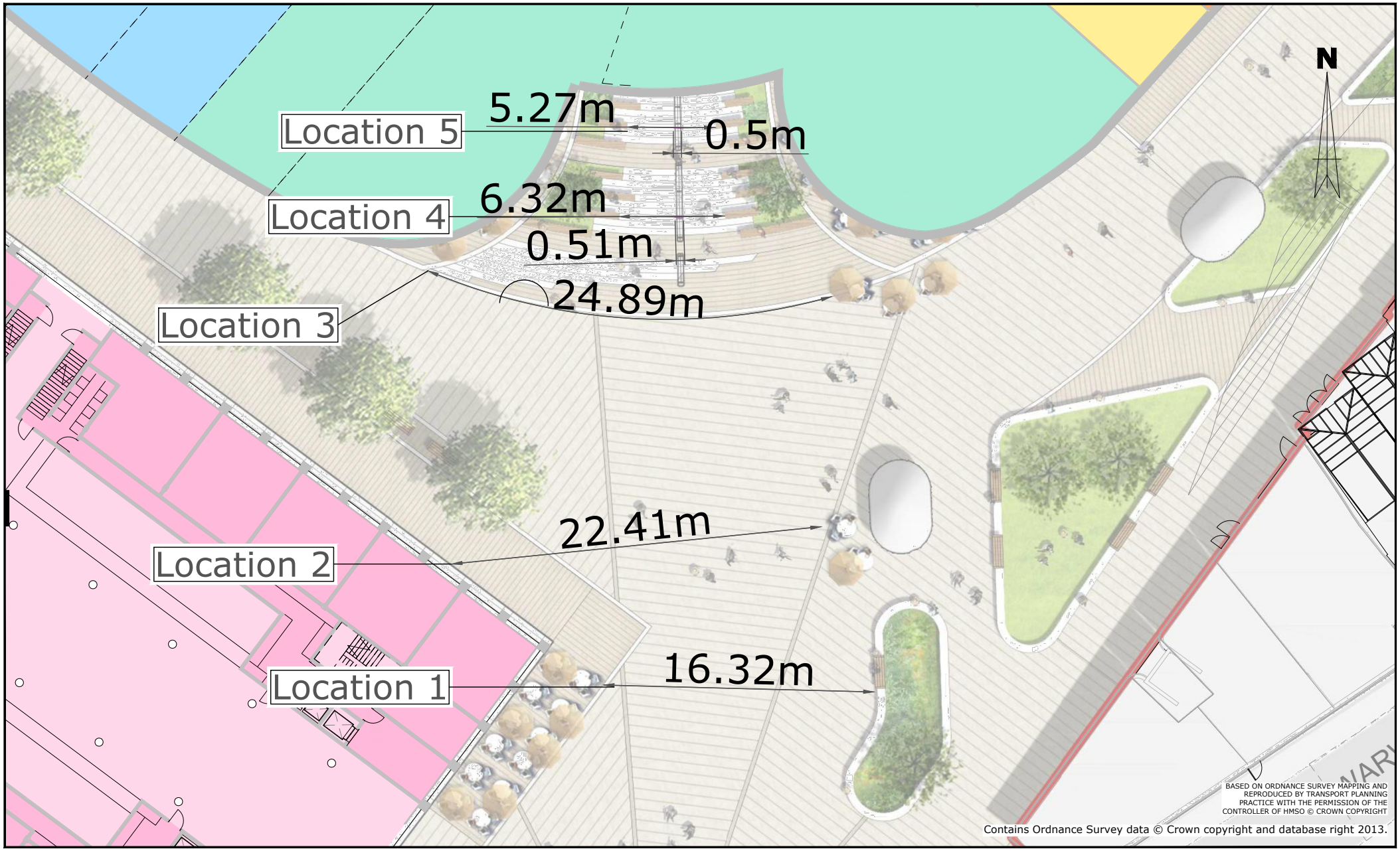


T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 4 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 15

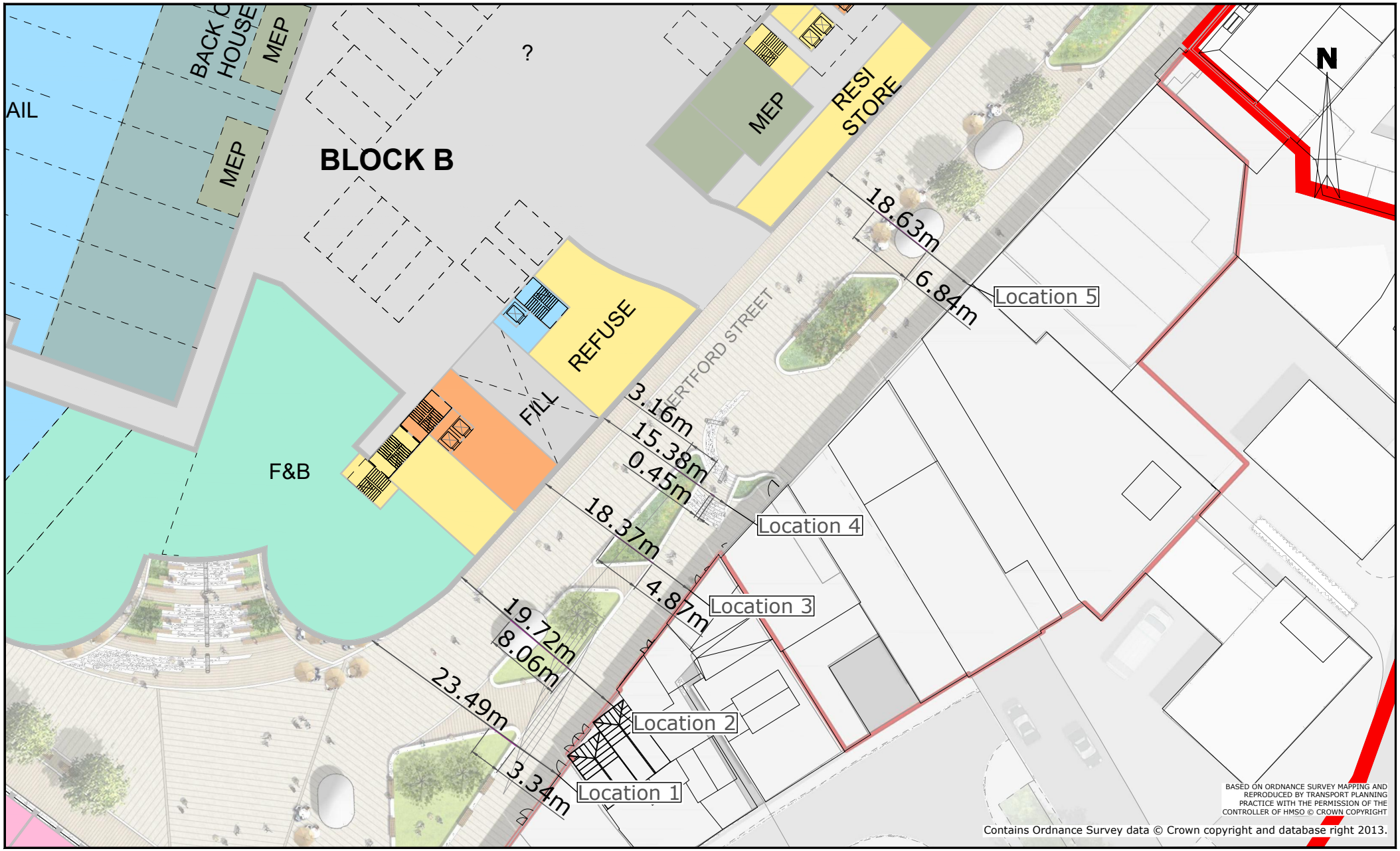


T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 5 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 16



T:\30000_Projects\31176 Coventry City Centre South\ACAD\049_A.dwg

Proposed PED 6 footway measurements

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 17

Technical Appendix E

TPP report D019a – Initial findings of the taxi surveys

TPP
transport planning practice

Shearer Property Regen Limited

City Centre South
Assessment of Taxi Rank usage

October 2020

transport planning practice

TPP
transport planning practice

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) has been commissioned by Shearer Property Regen Limited to provide transport planning advice with regard to the development of Coventry City Centre South (CCS). This Assessment of Taxi Rank usage has been prepared for the benefit of Coventry City Council (CCC) in order to set out and explain the results of the taxi rank surveys.

1.1.2 Surveys of the taxi ranks near the development site were undertaken on Thursday 21st and Saturday 23rd November 2019. The surveys recorded the number of taxis waiting and passenger pick-ups including occupancy per 15 minute period between 07:00 - 19:00. The taxi rank locations are summarised below:

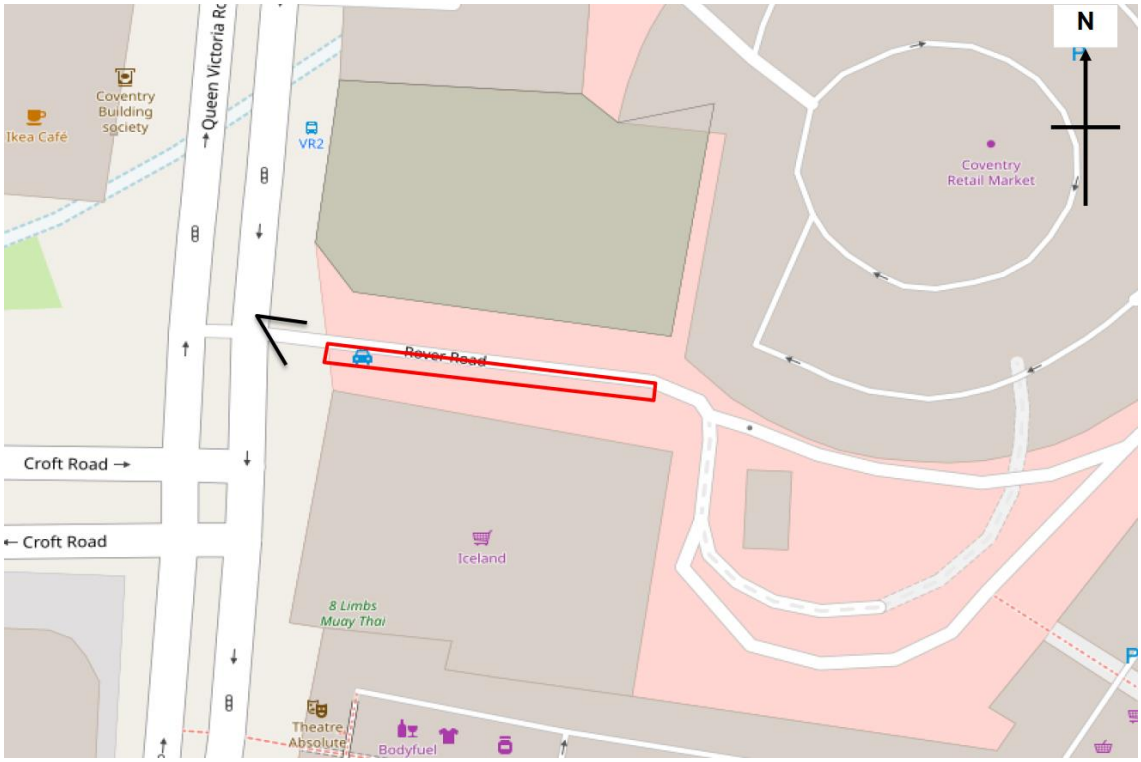
- Rover Road
- Greyfriars Lane
- Queen Victoria Road
- Fleet Street*
- Spon Street*
- Warwick Road*
- Lower Holyhead Road*

1.1.3 The taxi ranks with an asterix were requested by CCC Highways to be surveyed although they did advise the ranks may no longer be in operation. The survey company undertook an investigation of the taxi ranks and found them to be non-operational by the time of the surveys.

2 ROVER ROAD TAXI RANK

2.1.1 The Rover Road taxi rank provides a taxi stand for three Hackney Carriages. Image 2.1 below shows the location of the rank.

Image 2.1: Rover Road taxi rank location



2.1.2 The surveys recorded the arrival, departure and accumulation of taxis on Rover Road in five minute intervals. Table 2.1 summarises the survey data on an hourly interval for a weekday.

Table 2.1: Summary of Rover Road taxi arrivals and departures - Weekday

Time	Arrival	Departure	Accumulations
07:00	6	5	1
08:00	12	11	2
09:00	12	8	6
10:00	18	17	7
11:00	22	23	6
12:00	21	20	7
13:00	34	33	8
14:00	24	26	6
15:00	19	19	6
16:00	19	18	7
17:00	18	19	6
18:00	16	15	0
Total	**221**	**214**	

2.1.3 Table 2.1 shows that the hour with the highest combined number of arrivals and departures was 13:00 – 14:00 with a total of 67 taxi movements. This resulted in an accumulation of 8 taxis waiting on Rover Road.

2.1.4 CCC Highways requested during a meeting on 18th September 2020 that the taxi arrivals and departures are reviewed in smaller time increments to ensure the accumulation is accurately calculated. The full results are contained within Appendix A. The results show a maximum accumulation of 8 taxis.

2.1.5 The survey also recorded the number of passengers alighting and boarding. Table 2.2 shows the weekday results.

Table 2.2: Summary of Rover Road boarders and alighters - Weekday

Time	Alighting	Boarding
07:00	0	1
08:00	0	2
09:00	0	1
10:00	0	6
11:00	0	14
12:00	0	34
13:00	1	42
14:00	0	27
15:00	0	28
16:00	0	22
17:00	0	27
18:00	0	15
Total	**1**	**219**

2.1.6 As can be seen from Table 2.2, only one person alighted at the Rover Road taxi rank whereas 219 boarded. This is typical of a taxi rank for which its main purpose is to pick up passengers.

2.1.7 Table 2.3 summarises the survey data on an hourly interval for a Saturday.

Table 2.3: Summary of Rover Road taxi arrivals and departures – Saturday

Time	Arrival	Departure	Accumulations
07:00	3	0	3
08:00	5	7	1
09:00	15	10	6
10:00	20	19	7
11:00	21	22	6
12:00	19	18	7
13:00	26	26	7
14:00	23	24	6
15:00	25	25	6
16:00	28	26	8
17:00	25	25	8
18:00	12	15	5
Total	**222**	**217**	

2.1.8 Table 2.3 shows that the hour with the highest combined number of arrivals and departures was 16:00 – 17:00 with a total of 54 taxis. This resulted in an accumulation of 8 taxis waiting on Rover Road.

2.1.9 A review of the taxi arrivals and departures in smaller time increments has been undertaken to ensure the accumulation is accurately calculated. The full results are contained within Appendix B. The results show a maximum accumulation of 8 taxis.

2.1.10 The survey also recorded the number of passengers alighting and boarding. Table 2.4 shows the Saturday results.

Table 2.4: Summary of Rover Road boarders and alighters - Saturday

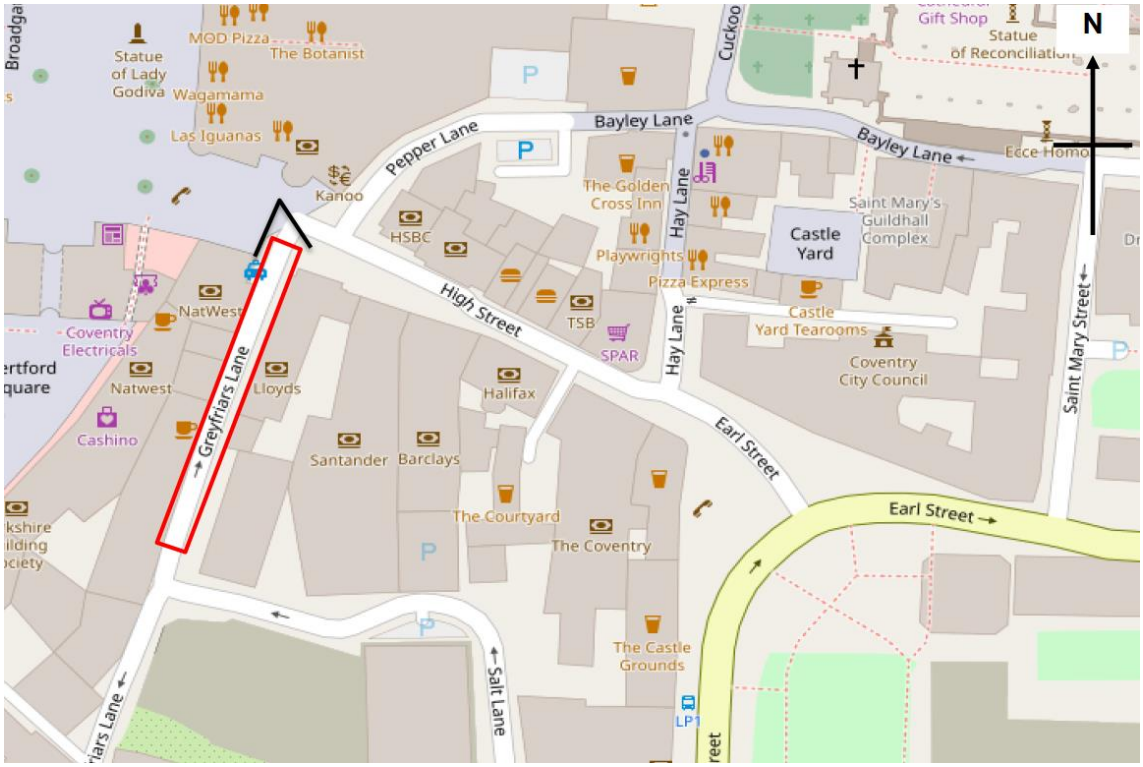
Time	Alighting	Boarding
07:00	0	4
08:00	0	11
09:00	0	26
10:00	1	20
11:00	0	34
12:00	0	42
13:00	0	34
14:00	0	45
15:00	0	45
16:00	0	42
17:00	0	23
18:00	0	4
Total	**1**	**326**

2.1.11 As can be seen from Table 2.4, only one person alighted at the Rover Road taxi rank whereas 326 boarded. This is typical of a taxi rank for which its main purpose is to pick up passengers.

3 GREYFRIARS LANE TAXI RANK

3.1.1 The Greyafriars Lane taxi rank provides a taxi stand for circa six taxis. Image 3.1 below shows the location of the rank.

Image 3.1 : Greyfriars Lane taxi rank location



3.1.2 The surveys recorded the arrival, departure and accumulation of taxis on Greyfriars Lane in five minute intervals. Table 3.1 summarises the survey data on an hourly interval for a weekday.

Table 3.1: Summary of Greyfriars Lane taxi arrivals and departures - Weekday

Time	Arrival	Departure	Accumulations
07:00	1	1	0
08:00	2	1	1
09:00	12	8	5
10:00	20	20	5
11:00	22	21	6
12:00	24	23	7
13:00	17	21	3
14:00	25	22	6
15:00	29	29	6
16:00	19	20	5
17:00	26	25	6
18:00	18	19	5
Total	**215**	**210**	

3.1.3 Table 3.1 shows that the hour with the highest combined number of arrivals and departures was 15:00 – 16:00 with a total of 64 taxi movements. This resulted in an accumulation of 6 taxis waiting on Greyfriars Lane. However the hour of 12:00 - 13:00 resulted in a higher accumulation with 7 taxis, indicating longer dwell times during this hour.

3.1.4 A review of the taxi arrivals and departures in smaller time increments has been undertaken to ensure the accumulation is accurately calculated. The full results are contained within Appendix A. The results show a maximum accumulation of 8 taxis.

3.1.5 The survey also recorded the number of passengers alighting and boarding. Table 3.2 shows the weekday results.

Table 3.2: Summary of Greyfriars Lane boarders and alighters - Weekday

Time	Alighting	Boarding
07:00	0	0
08:00	1	0
09:00	1	3
10:00	0	9
11:00	0	2
12:00	0	14
13:00	0	16
14:00	0	3
15:00	0	11
16:00	0	6
17:00	0	8
18:00	1	6
Total	**3**	**78**

3.1.6 As can be seen from Table 3.2, only three people alighted at the Greyfriars Lane taxi rank whereas 78 boarded.

3.1.7 Table 3.3 summarises the survey data on an hourly interval for a Saturday.

Table 3.3: Summary of Greyfriars Lane taxi arrivals and departures – Saturday

Time	Arrival	Departure	Accumulations
07:00	1	1	0
08:00	4	1	3
09:00	9	6	6
10:00	15	11	10
11:00	17	17	10
12:00	19	20	9
13:00	19	17	11
14:00	18	23	6
15:00	26	21	11
16:00	26	29	8
17:00	23	28	3
18:00	28	25	6
Total	**205**	**199**	

3.1.8 Table 3.3 shows that the hour with the highest combined number of arrivals and departures was 16:00 – 17:00 with a total of 55 taxi movements. This resulted in an accumulation of 8 taxis waiting on Greyfriars Lane. However the hours of 13:00 – 14:00 and 15:00 - 16:00 resulted in a higher accumulation with 11 taxis, indicating longer dwell times during these hours.

3.1.9 A review of the taxi arrivals and departures in smaller time increments has been undertaken to ensure the accumulation is accurately calculated. The full results are contained within Appendix B. The results show a maximum accumulation of 11 taxis.

3.1.10 The survey also recorded the number of passengers alighting and boarding. Table 3.4 shows the Saturday results.

Table 3.4: Summary of Greyfriars Lane boarders and alighters - Saturday

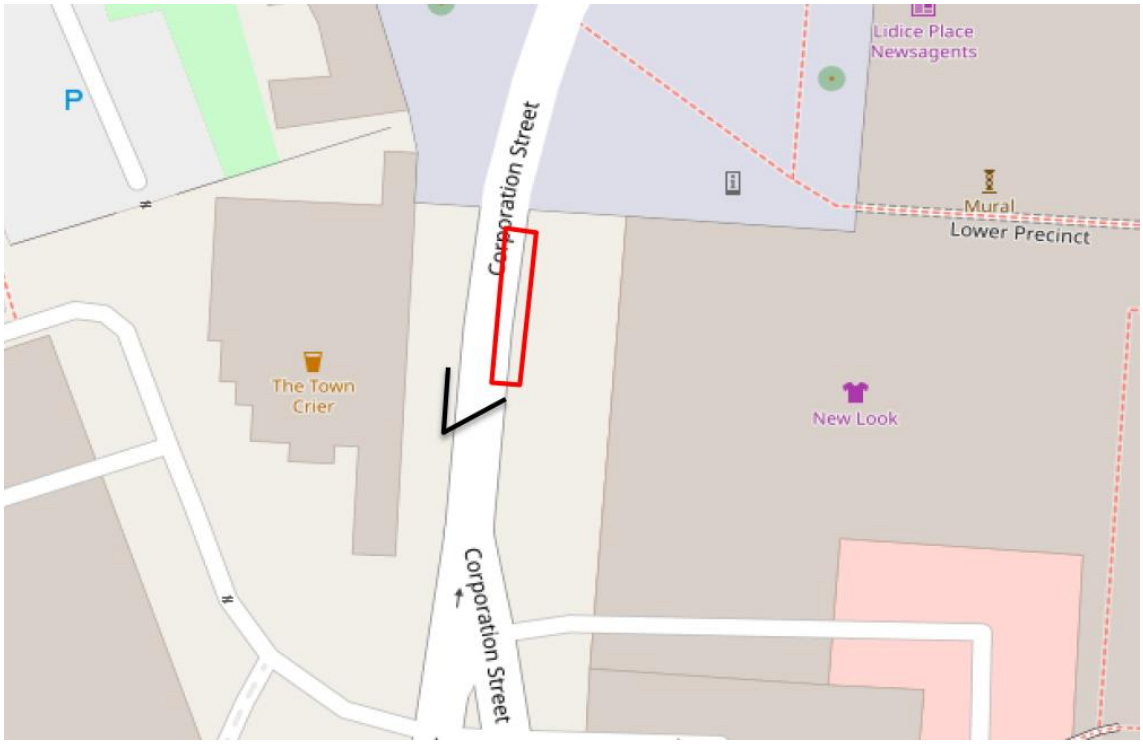
Time	Alighting	Boarding
07:00	0	1
08:00	0	0
09:00	0	9
10:00	0	11
11:00	0	18
12:00	0	21
13:00	0	17
14:00	1	25
15:00	0	29
16:00	0	34
17:00	0	25
18:00	1	23
Total	**2**	**213**

3.1.11 As can be seen from Table 3.4, only two people alighted at the Greyfriars Lane taxi rank whereas 213 boarded.

4 QUEEN VICTORIA ROAD TAXI RANK

4.1.1 The Queen Victoria Road taxi rank provides a taxi stand for circa three taxis. Image 4.1 below shows the location of the rank.

Image 4.1 : Queen Victoria Road taxi rank location



4.1.2 The surveys recorded the arrival, departure and accumulation of taxis on Queen Victoria Road in five minute intervals. Table 4.1 summarises the survey data on an hourly interval for a weekday.

Table 4.1: Summary of Queen Victoria Rd taxi arrivals and departures - Weekday

Time	Arrival	Departure	Accumulations
07:00	3	3	0
08:00	6	6	0
09:00	8	6	2
10:00	7	6	3
11:00	9	9	3
12:00	11	10	4
13:00	11	12	3
14:00	12	12	3
15:00	21	21	3
16:00	19	19	3
17:00	9	9	3
18:00	8	9	2
Total	**124**	**122**	

4.1.3 Table 4.1 shows that the hour with the highest combined number of arrivals and departures was 15:00 – 16:00 with a total of 42 taxi movements. This resulted in an accumulation of 3 taxis waiting on Queen Victoria Road. However the hour of 12:00 - 13:00 resulted in a higher accumulation with 4 taxis, indicating longer dwell times during this hour.

4.1.4 A review of the taxi arrivals and departures in smaller time increments has been undertaken to ensure the accumulation is accurately calculated. The full results are contained within Appendix A. The results show a maximum accumulation of 4 taxis.

4.1.5 The survey also recorded the number of passengers alighting and boarding. Table 4.2 shows the weekday results.

Table 4.2: Summary of Queen Victoria Road boarders and alighters - Weekday

Time	Alighting	Boarding
07:00	0	0
08:00	2	0
09:00	0	6
10:00	0	3
11:00	1	6
12:00	1	11
13:00	0	14
14:00	0	14
15:00	5	31
16:00	3	22
17:00	0	9
18:00	0	9
Total	**12**	**125**

4.1.6 As can be seen from Table 4.2, only 12 people alighted at the Queen Victoria Road taxi rank whereas 125 boarded.

4.1.7 Table 4.3 summarises the survey data on an hourly interval for a Saturday.

Table 4.3: Summary of Queen Victoria Rd taxi arrivals and departures – Saturday

Time	Arrival	Departure	Accumulations
07:00	2	2	0
08:00	2	2	0
09:00	9	7	2
10:00	7	6	3
11:00	7	7	3
12:00	8	8	3
13:00	14	14	3
14:00	21	21	3
15:00	22	22	3
16:00	16	16	3
17:00	12	12	3
18:00	7	6	4
Total	**127**	**123**	

4.1.8 Table 4.3 shows that the hour with the highest combined number of arrivals and departures was 15:00 – 16:00 with a total of 44 taxi movements. This resulted in an accumulation of 3 taxis waiting on Queen Victoria Road. However the hour of 18:00 - 19:00 resulted in a higher accumulation with 4 taxis, indicating longer dwell times during this hour.

4.1.9 A review of the taxi arrivals and departures in smaller time increments has been undertaken to ensure the accumulation is accurately calculated. The full results are contained within Appendix B. The results show a maximum accumulation of 4 taxis.

4.1.10 The survey also recorded the number of passengers alighting and boarding. Table 4.4shows the Saturday results.

Table 4.4: Summary of Queen Victoria Rd boarders and alighters - Saturday

Time	Alighting	Boarding
07:00	0	0
08:00	1	0
09:00	4	4
10:00	0	7
11:00	0	8
12:00	0	12
13:00	0	16
14:00	0	29
15:00	0	37
16:00	0	28
17:00	0	19
18:00	0	8
Total	**5**	**168**

4.1.11 As can be seen from Table 4.4, only five people alighted at the Queen Victoria Road taxi rank whereas 168 boarded.

5 SUMMARY

5.1.1 The results of the taxi surveys indicate that the taxi ranks are utilised more by boarders on a Saturday than on a weekday. The busiest taxi rank surveyed is Rover Road in terms of boarders and the number of taxis arriving at the rank. Therefore the CCS development proposals include the provision of a taxi rank on Warwick Road to replace the one that will be removed on Rover Road as a result of pedestrianising this area of the development site.

Appendix A

Accumulation in 5 minute intervals

TPP
transport planning practice

Rover Road - Weekday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	1	1	0
07:05:00	0	0	0
07:10:00	1	0	1
07:15:00	0	0	1
07:20:00	1	0	2
07:25:00	0	0	2
07:30:00	1	1	2
07:35:00	1	1	2
07:40:00	0	0	2
07:45:00	0	0	2
07:50:00	1	2	1
07:55:00	0	0	1
08:00:00	0	0	1
08:05:00	3	1	3
08:10:00	1	3	1
08:15:00	1	0	2
08:20:00	2	2	2
08:25:00	1	1	2
08:30:00	0	1	1
08:35:00	0	1	0
08:40:00	1	0	1
08:45:00	1	0	2
08:50:00	0	1	1
08:55:00	2	1	2
09:00:00	0	0	2
09:05:00	4	0	6
09:10:00	1	1	6
09:15:00	2	2	6
09:20:00	1	0	7
09:25:00	1	0	8
09:30:00	0	0	8
09:35:00	2	3	7
09:40:00	1	1	7
09:45:00	0	1	6
09:50:00	0	0	6
09:55:00	0	0	6
10:00:00	0	0	6
10:05:00	3	4	5
10:10:00	3	0	8
10:15:00	0	1	7
10:20:00	2	2	7
10:25:00	1	0	8
10:30:00	0	0	8
10:35:00	1	3	6
10:40:00	4	2	8
10:45:00	1	1	8
10:50:00	0	3	5
10:55:00	3	1	7
11:00:00	1	3	5
11:05:00	3	1	7
11:10:00	0	3	4
11:15:00	4	0	8
11:20:00	1	2	7
11:25:00	1	2	6
11:30:00	2	3	5
11:35:00	2	1	6
11:40:00	3	4	5
11:45:00	2	1	6
11:50:00	2	1	7
11:55:00	1	2	6
12:00:00	2	1	7
12:05:00	4	3	8
12:10:00	0	3	5
12:15:00	4	1	8
12:20:00	3	5	6
12:25:00	2	1	7
12:30:00	1	1	7
12:35:00	1	1	7
12:40:00	1	0	8
12:45:00	0	0	8
12:50:00	0	1	7
12:55:00	3	3	7
13:00:00	1	4	4
13:05:00	4	6	2
13:10:00	1	0	3
13:15:00	7	4	6
13:20:00	2	2	6
13:25:00	4	3	7
13:30:00	0	2	5
13:35:00	4	5	4
13:40:00	5	2	7
13:45:00	0	4	3
13:50:00	5	0	8
13:55:00	1	1	8
14:00:00	0	0	8
14:05:00	2	3	7
14:10:00	0	2	5
14:15:00	5	3	7
14:20:00	4	4	7
14:25:00	2	2	7
14:30:00	1	0	8
14:35:00	3	3	8
14:40:00	1	3	6
14:45:00	1	2	5
14:50:00	3	2	6
14:55:00	2	2	6
15:00:00	2	3	5
15:05:00	1	2	4
15:10:00	1	3	2
15:15:00	1	1	2
15:20:00	2	2	2
15:25:00	3	0	5
15:30:00	3	1	7
15:35:00	1	1	7
15:40:00	1	1	7
15:45:00	2	4	5
15:50:00	1	1	5
15:55:00	1	0	6
16:00:00	2	5	3
16:05:00	2	0	5
16:10:00	2	0	7
16:15:00	2	3	6
16:20:00	2	2	6
16:25:00	2	1	7
16:30:00	2	1	8
16:35:00	3	3	8
16:40:00	0	1	7
16:45:00	1	1	7
16:50:00	1	1	7
16:55:00	0	0	7
17:00:00	1	1	7
17:05:00	0	0	7
17:10:00	3	5	5
17:15:00	2	0	7
17:20:00	0	0	7
17:25:00	0	2	5
17:30:00	1	2	4
17:35:00	1	3	2
17:40:00	3	2	3
17:45:00	1	2	2
17:50:00	4	0	6
17:55:00	2	2	6
18:00:00	1	3	4
18:05:00	2	0	6
18:10:00	1	0	7
18:15:00	0	1	6
18:20:00	2	0	8
18:25:00	1	3	6
18:30:00	0	4	2
18:35:00	3	0	5
18:40:00	2	1	6
18:45:00	0	2	4
18:50:00	1	0	5
18:55:00	3	1	7
19:00:00	0		
Total	221	214	

Greyfriars Lane - Weekday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	0	0	0
07:05:00	0	0	0
07:10:00	0	0	0
07:15:00	0	0	0
07:20:00	1	1	0
07:25:00	0	0	0
07:30:00	0	0	0
07:35:00	0	0	0
07:40:00	0	0	0
07:45:00	0	0	0
07:50:00	0	0	0
07:55:00	0	0	0
08:00:00	0	0	0
08:05:00	0	0	0
08:10:00	0	0	0
08:15:00	0	0	0
08:20:00	0	0	0
08:25:00	0	0	0
08:30:00	0	0	0
08:35:00	0	0	0
08:40:00	0	0	0
08:45:00	0	0	0
08:50:00	0	0	0
08:55:00	2	1	1
09:00:00	1	1	1
09:05:00	0	1	0
09:10:00	0	0	0
09:15:00	2	1	1
09:20:00	2	1	2
09:25:00	2	0	4
09:30:00	0	0	4
09:35:00	2	0	6
09:40:00	0	0	6
09:45:00	2	2	6
09:50:00	1	0	7
09:55:00	0	2	5
10:00:00	2	2	5
10:05:00	4	2	7
10:10:00	0	3	4
10:15:00	2	2	4
10:20:00	2	0	6
10:25:00	2	3	5
10:30:00	1	0	6
10:35:00	2	2	6
10:40:00	1	2	5
10:45:00	3	1	7
10:50:00	0	1	6
10:55:00	1	2	5
11:00:00	3	1	7
11:05:00	1	2	6
11:10:00	0	2	4
11:15:00	4	2	6
11:20:00	1	0	7
11:25:00	1	2	6
11:30:00	1	2	5
11:35:00	2	1	6
11:40:00	2	2	6
11:45:00	3	1	8
11:50:00	1	5	4
11:55:00	3	1	6
12:00:00	0	0	6
12:05:00	3	3	6
12:10:00	4	5	5
12:15:00	2	1	6
12:20:00	2	1	7
12:25:00	2	4	5
12:30:00	4	3	6
12:35:00	1	1	6
12:40:00	1	2	5
12:45:00	1	0	6
12:50:00	0	2	4
12:55:00	4	1	7
13:00:00	0	0	7
13:05:00	2	2	7
13:10:00	0	1	6
13:15:00	4	3	7
13:20:00	0	1	6
13:25:00	1	0	7
13:30:00	0	1	6
13:35:00	4	4	6
13:40:00	1	4	3
13:45:00	1	0	4
13:50:00	4	2	6
13:55:00	0	3	3
14:00:00	0	2	1
14:05:00	1	2	0
14:10:00	3	0	3
14:15:00	5	0	8
14:20:00	0	2	6
14:25:00	2	3	5
14:30:00	0	4	1
14:35:00	6	2	5
14:40:00	1	1	5
14:45:00	3	1	7
14:50:00	1	2	6
14:55:00	3	3	6
15:00:00	1	4	3
15:05:00	0	3	0
15:10:00	3	2	1
15:15:00	4	0	5
15:20:00	3	5	3
15:25:00	3	2	4
15:30:00	5	1	8
15:35:00	0	3	5
15:40:00	3	5	3
15:45:00	2	0	5
15:50:00	1	2	4
15:55:00	4	2	6
16:00:00	3	3	6
16:05:00	2	1	7
16:10:00	0	1	6
16:15:00	1	1	6
16:20:00	1	2	5
16:25:00	3	2	6
16:30:00	1	2	5
16:35:00	3	4	4
16:40:00	2	0	6
16:45:00	1	0	7
16:50:00	0	2	5
16:55:00	2	2	5
17:00:00	2	2	5
17:05:00	3	4	4
17:10:00	1	2	3
17:15:00	1	4	0
17:20:00	5	2	3
17:25:00	5	1	7
17:30:00	1	2	6
17:35:00	2	3	5
17:40:00	1	0	6
17:45:00	3	3	6
17:50:00	1	0	7
17:55:00	1	2	6
18:00:00	2	1	7
18:05:00	1	1	7
18:10:00	2	3	6
18:15:00	2	3	5
18:20:00	2	1	6
18:25:00	3	3	6
18:30:00	2	0	8
18:35:00	0	2	6
18:40:00	1	0	7
18:45:00	2	3	6
18:50:00	0	0	6
18:55:00	1	2	5
19:00:00			
Total	215	210	

Queen Victoria Road - Weekday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	1	0	1
07:05:00	0	1	0
07:10:00	1	0	1
07:15:00	0	0	1
07:20:00	0	0	1
07:25:00	0	0	1
07:30:00	0	0	1
07:35:00	0	0	1
07:40:00	1	2	0
07:45:00	0	0	0
07:50:00	0	0	0
07:55:00	0	0	0
08:00:00	1	1	0
08:05:00	0	0	0
08:10:00	0	0	0
08:15:00	1	1	0
08:20:00	1	0	1
08:25:00	0	1	0
08:30:00	0	0	0
08:35:00	1	1	0
08:40:00	2	2	0
08:45:00	0	0	0
08:50:00	0	0	0
08:55:00	0	0	0
09:00:00	2	0	2
09:05:00	0	0	2
09:10:00	1	0	3
09:15:00	0	1	2
09:20:00	1	0	3
09:25:00	1	1	3
09:30:00	0	0	3
09:35:00	0	0	3
09:40:00	1	2	2
09:45:00	0	1	1
09:50:00	0	1	0
09:55:00	2	0	2
10:00:00	1	0	3
10:05:00	0	1	2
10:10:00	1	0	3
10:15:00	0	0	3
10:20:00	0	0	3
10:25:00	0	1	2
10:30:00	0	0	2
10:35:00	2	1	3
10:40:00	1	1	3
10:45:00	0	1	2
10:50:00	1	1	2
10:55:00	1	0	3
11:00:00	0	0	3
11:05:00	0	0	3
11:10:00	1	1	3
11:15:00	0	0	3
11:20:00	0	0	3
11:25:00	1	1	3
11:30:00	3	3	3
11:35:00	0	0	3
11:40:00	1	1	3
11:45:00	0	1	2
11:50:00	2	2	2
11:55:00	1	0	3
12:00:00	0	0	3
12:05:00	1	1	3
12:10:00	0	0	3
12:15:00	0	1	2
12:20:00	1	1	2
12:25:00	1	1	2
12:30:00	2	2	2
12:35:00	1	0	3
12:40:00	0	0	3
12:45:00	2	3	2
12:50:00	1	1	2
12:55:00	2	0	4
13:00:00	0	1	3
13:05:00	0	0	3
13:10:00	3	3	3
13:15:00	0	0	3
13:20:00	2	2	3
13:25:00	0	0	3
13:30:00	0	0	3
13:35:00	0	0	3
13:40:00	1	0	4
13:45:00	2	3	3
13:50:00	1	2	2
13:55:00	2	1	3
14:00:00	0	0	3
14:05:00	0	0	3
14:10:00	1	1	3
14:15:00	1	1	3
14:20:00	1	2	2
14:25:00	3	2	3
14:30:00	1	2	2
14:35:00	3	2	3
14:40:00	1	1	3
14:45:00	0	0	3
14:50:00	0	0	3
14:55:00	1	1	3
15:00:00	2	2	3
15:05:00	1	4	0
15:10:00	1	1	0
15:15:00	4	3	1
15:20:00	1	2	0
15:25:00	4	2	2
15:30:00	1	0	3
15:35:00	0	0	3
15:40:00	2	2	3
15:45:00	1	1	3
15:50:00	1	2	2
15:55:00	3	2	3
16:00:00	2	2	3
16:05:00	0	0	3
16:10:00	1	1	3
16:15:00	1	1	3
16:20:00	0	0	3
16:25:00	3	4	2
16:30:00	2	1	3
16:35:00	0	1	2
16:40:00	3	2	3
16:45:00	2	3	2
16:50:00	4	3	3
16:55:00	1	1	3
17:00:00	0	0	3
17:05:00	2	2	3
17:10:00	0	0	3
17:15:00	0	0	3
17:20:00	1	1	3
17:25:00	1	1	3
17:30:00	1	1	3
17:35:00	1	1	3
17:40:00	2	2	3
17:45:00	0	1	2
17:50:00	0	0	2
17:55:00	1	0	3
18:00:00	0	0	3
18:05:00	2	2	3
18:10:00	0	0	3
18:15:00	0	0	3
18:20:00	1	2	2
18:25:00	1	2	1
18:30:00	1	0	2
18:35:00	0	1	1
18:40:00	3	1	3
18:45:00	0	0	3
18:50:00	0	1	2
18:55:00	0	0	2
19:00:00			
Total	124	122	

Rover Road - Saturday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	0	0	0
07:05:00	0	0	0
07:10:00	0	0	0
07:15:00	0	0	0
07:20:00	0	0	0
07:25:00	0	0	0
07:30:00	0	0	0
07:35:00	1	0	1
07:40:00	1	0	2
07:45:00	0	0	2
07:50:00	0	0	2
07:55:00	1	0	3
08:00:00	0	0	3
08:05:00	1	1	3
08:10:00	0	0	3
08:15:00	0	1	2
08:20:00	0	0	2
08:25:00	0	1	1
08:30:00	1	0	2
08:35:00	0	0	2
08:40:00	0	0	2
08:45:00	1	1	2
08:50:00	1	3	0
08:55:00	1	0	1
09:00:00	3	1	3
09:05:00	3	0	6
09:10:00	0	2	4
09:15:00	0	1	3
09:20:00	1	0	4
09:25:00	1	1	4
09:30:00	2	1	5
09:35:00	0	0	5
09:40:00	2	2	5
09:45:00	1	1	5
09:50:00	1	0	6
09:55:00	1	1	6
10:00:00	0	2	4
10:05:00	3	1	6
10:10:00	2	3	5
10:15:00	2	2	5
10:20:00	3	1	7
10:25:00	2	3	6
10:30:00	0	2	4
10:35:00	2	0	6
10:40:00	1	1	6
10:45:00	1	1	6
10:50:00	2	2	6
10:55:00	2	1	7
11:00:00	0	0	7
11:05:00	1	1	7
11:10:00	1	3	5
11:15:00	3	1	7
11:20:00	1	4	4
11:25:00	5	2	7
11:30:00	4	3	8
11:35:00	0	1	7
11:40:00	5	4	8
11:45:00	0	0	8
11:50:00	0	0	8
11:55:00	1	3	6
12:00:00	4	2	8
12:05:00	2	3	7
12:10:00	2	3	6
12:15:00	2	0	8
12:20:00	0	2	6
12:25:00	2	0	8
12:30:00	0	0	8
12:35:00	1	1	8
12:40:00	3	3	8
12:45:00	0	2	6
12:50:00	3	1	8
12:55:00	0	1	7
13:00:00	2	3	6
13:05:00	4	6	4
13:10:00	3	2	5
13:15:00	4	2	7
13:20:00	2	2	7
13:25:00	0	2	5
13:30:00	4	1	8
13:35:00	0	3	5
13:40:00	3	1	7
13:45:00	0	2	5
13:50:00	2	2	5
13:55:00	2	0	7
14:00:00	6	6	7
14:05:00	0	0	7
14:10:00	2	1	8
14:15:00	1	1	8
14:20:00	3	3	8
14:25:00	0	1	7
14:30:00	1	1	7
14:35:00	1	1	7
14:40:00	2	2	7
14:45:00	3	3	7
14:50:00	1	2	6
14:55:00	3	3	6
15:00:00	3	1	8
15:05:00	0	1	7
15:10:00	2	5	4
15:15:00	6	4	6
15:20:00	4	3	7
15:25:00	1	2	6
15:30:00	5	3	8
15:35:00	1	1	8
15:40:00	0	1	7
15:45:00	1	2	6
15:50:00	1	1	6
15:55:00	1	1	6
16:00:00	1	0	7
16:05:00	3	3	7
16:10:00	2	5	4
16:15:00	5	2	7
16:20:00	3	2	8
16:25:00	0	2	6
16:30:00	3	2	7
16:35:00	0	3	4
16:40:00	5	1	8
16:45:00	0	3	5
16:50:00	3	2	6
16:55:00	3	1	8
17:00:00	3	8	3
17:05:00	3	1	5
17:10:00	4	2	7
17:15:00	2	2	7
17:20:00	4	5	6
17:25:00	2	0	8
17:30:00	0	1	7
17:35:00	1	2	6
17:40:00	2	1	7
17:45:00	1	1	7
17:50:00	2	2	7
17:55:00	1	0	8
18:00:00	0	0	8
18:05:00	2	3	7
18:10:00	0	0	7
18:15:00	0	1	6
18:20:00	1	1	6
18:25:00	2	4	4
18:30:00	0	1	3
18:35:00	2	0	5
18:40:00	2	1	6
18:45:00	0	0	6
18:50:00	1	4	3
18:55:00	2	0	5
19:00:00			
	222	217	

Greyfriars Lane - Saturday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	0	0	0
07:05:00	0	0	0
07:10:00	0	0	0
07:15:00	0	0	0
07:20:00	0	0	0
07:25:00	0	0	0
07:30:00	0	0	0
07:35:00	0	0	0
07:40:00	1	0	1
07:45:00	0	0	1
07:50:00	0	1	0
07:55:00	0	0	0
08:00:00	1	1	0
08:05:00	0	0	0
08:10:00	1	0	1
08:15:00	0	0	1
08:20:00	0	0	1
08:25:00	0	0	1
08:30:00	0	0	1
08:35:00	0	0	1
08:40:00	0	0	1
08:45:00	1	0	2
08:50:00	1	0	3
08:55:00	0	0	3
09:00:00	1	0	4
09:05:00	0	1	3
09:10:00	0	2	1
09:15:00	1	0	2
09:20:00	2	0	4
09:25:00	1	0	5
09:30:00	0	0	5
09:35:00	1	0	6
09:40:00	0	1	5
09:45:00	1	1	5
09:50:00	1	1	5
09:55:00	1	0	6
10:00:00	0	1	5
10:05:00	1	1	5
10:10:00	3	1	7
10:15:00	2	0	9
10:20:00	1	0	10
10:25:00	1	2	9
10:30:00	2	1	10
10:35:00	1	0	11
10:40:00	0	1	10
10:45:00	2	1	11
10:50:00	1	3	9
10:55:00	1	0	10
11:00:00	1	4	7
11:05:00	0	0	7
11:10:00	2	3	6
11:15:00	1	0	7
11:20:00	1	2	6
11:25:00	4	3	7
11:30:00	2	0	9
11:35:00	2	0	11
11:40:00	0	0	11
11:45:00	0	1	10
11:50:00	1	2	9
11:55:00	3	2	10
12:00:00	0	2	8
12:05:00	1	0	9
12:10:00	1	2	8
12:15:00	0	1	7
12:20:00	3	3	7
12:25:00	1	0	8
12:30:00	2	3	7
12:35:00	3	2	8
12:40:00	2	2	8
12:45:00	2	2	8
12:50:00	1	2	7
12:55:00	3	1	9
13:00:00	1	1	9
13:05:00	2	4	7
13:10:00	4	3	8
13:15:00	2	0	10
13:20:00	1	1	10
13:25:00	0	0	10
13:30:00	1	2	9
13:35:00	2	2	9
13:40:00	0	0	9
13:45:00	2	3	8
13:50:00	3	0	11
13:55:00	1	1	11
14:00:00	0	1	10
14:05:00	1	2	9
14:10:00	3	2	10
14:15:00	1	2	9
14:20:00	0	0	9
14:25:00	2	1	10
14:30:00	2	2	10
14:35:00	2	2	10
14:40:00	4	4	10
14:45:00	1	2	9
14:50:00	2	1	10
14:55:00	0	4	6
15:00:00	3	2	7
15:05:00	1	1	7
15:10:00	1	2	6
15:15:00	4	1	9
15:20:00	3	2	10
15:25:00	3	3	10
15:30:00	0	2	8
15:35:00	4	2	10
15:40:00	1	1	10
15:45:00	2	2	10
15:50:00	2	3	9
15:55:00	2	0	11
16:00:00	2	2	11
16:05:00	0	1	10
16:10:00	1	4	7
16:15:00	5	2	10
16:20:00	1	3	8
16:25:00	4	1	11
16:30:00	2	4	9
16:35:00	1	4	6
16:40:00	4	2	8
16:45:00	1	2	7
16:50:00	4	2	9
16:55:00	1	2	8
17:00:00	3	2	9
17:05:00	1	2	8
17:10:00	2	4	6
17:15:00	1	0	7
17:20:00	2	1	8
17:25:00	3	5	6
17:30:00	1	1	6
17:35:00	0	2	4
17:40:00	5	2	7
17:45:00	2	2	7
17:50:00	2	3	6
17:55:00	1	4	3
18:00:00	0	1	2
18:05:00	1	4	0
18:10:00	3	1	1
18:15:00	2	4	0
18:20:00	3	1	1
18:25:00	4	2	3
18:30:00	3	2	4
18:35:00	2	4	2
18:40:00	2	3	1
18:45:00	1	2	0
18:50:00	5	1	4
18:55:00	2	0	6
19:00:00			
Total	205	199	

Queen Victoria Road - Saturday

5 minute intervals

Time	Arrivals	Departures	Accumu-lations
07:00:00	0	0	0
07:05:00	0	0	0
07:10:00	0	0	0
07:15:00	0	0	0
07:20:00	0	0	0
07:25:00	1	1	0
07:30:00	0	0	0
07:35:00	0	0	0
07:40:00	0	0	0
07:45:00	1	0	1
07:50:00	0	0	1
07:55:00	0	1	0
08:00:00	0	0	0
08:05:00	0	0	0
08:10:00	2	1	1
08:15:00	0	0	1
08:20:00	0	0	1
08:25:00	0	0	1
08:30:00	0	0	1
08:35:00	0	0	1
08:40:00	0	1	0
08:45:00	0	0	0
08:50:00	0	0	0
08:55:00	0	0	0
09:00:00	1	0	1
09:05:00	1	0	2
09:10:00	1	1	2
09:15:00	2	3	1
09:20:00	1	1	1
09:25:00	0	0	1
09:30:00	0	0	1
09:35:00	0	1	0
09:40:00	1	0	1
09:45:00	0	0	1
09:50:00	1	1	1
09:55:00	1	0	2
10:00:00	0	2	0
10:05:00	1	0	1
10:10:00	1	2	0
10:15:00	3	0	3
10:20:00	0	1	2
10:25:00	1	0	3
10:30:00	0	0	3
10:35:00	0	0	3
10:40:00	0	0	3
10:45:00	0	0	3
10:50:00	0	0	3
10:55:00	1	1	3
11:00:00	0	1	2
11:05:00	1	1	2
11:10:00	0	1	1
11:15:00	2	1	2
11:20:00	1	0	3
11:25:00	0	0	3
11:30:00	0	0	3
11:35:00	0	0	3
11:40:00	1	1	3
11:45:00	0	1	2
11:50:00	1	0	3
11:55:00	1	1	3
12:00:00	0	0	3
12:05:00	1	1	3
12:10:00	0	0	3
12:15:00	0	0	3
12:20:00	3	3	3
12:25:00	1	1	3
12:30:00	0	0	3
12:35:00	0	0	3
12:40:00	1	1	3
12:45:00	0	0	3
12:50:00	2	2	3
12:55:00	0	0	3
13:00:00	2	2	3
13:05:00	0	0	3
13:10:00	0	0	3
13:15:00	1	1	3
13:20:00	2	2	3
13:25:00	3	3	3
13:30:00	1	1	3
13:35:00	1	1	3
13:40:00	1	1	3
13:45:00	0	0	3
13:50:00	2	2	3
13:55:00	1	1	3
14:00:00	2	2	3
14:05:00	1	1	3
14:10:00	1	1	3
14:15:00	1	1	3
14:20:00	2	3	2
14:25:00	3	2	3
14:30:00	1	2	2
14:35:00	2	1	3
14:40:00	1	1	3
14:45:00	3	4	2
14:50:00	3	3	2
14:55:00	1	0	3
15:00:00	1	2	2
15:05:00	3	3	2
15:10:00	2	1	3
15:15:00	2	2	3
15:20:00	1	1	3
15:25:00	1	2	2
15:30:00	2	1	3
15:35:00	2	4	1
15:40:00	2	1	2
15:45:00	1	0	3
15:50:00	1	3	1
15:55:00	4	2	3
16:00:00	2	2	3
16:05:00	0	0	3
16:10:00	0	0	3
16:15:00	3	4	2
16:20:00	1	0	3
16:25:00	1	1	3
16:30:00	1	1	3
16:35:00	0	1	2
16:40:00	1	1	2
16:45:00	4	3	3
16:50:00	1	1	3
16:55:00	2	2	3
17:00:00	1	1	3
17:05:00	1	1	3
17:10:00	0	0	3
17:15:00	1	1	3
17:20:00	0	0	3
17:25:00	0	0	3
17:30:00	4	5	2
17:35:00	2	2	2
17:40:00	1	0	3
17:45:00	0	0	3
17:50:00	1	1	3
17:55:00	1	1	3
18:00:00	1	1	3
18:05:00	1	1	3
18:10:00	0	0	3
18:15:00	0	1	2
18:20:00	0	2	0
18:25:00	3	1	2
18:30:00	1	0	3
18:35:00	0	0	3
18:40:00	0	0	3
18:45:00	0	0	3
18:50:00	0	0	3
18:55:00	1	0	4
19:00:00			
Total	127	123	

Technical Appendix F

Illustrative Masterplan: Proposed ground and first floor plans

TPP
transport planning practice

Coventry City Centre South

Ground Floor

PROJECT REFERENCE: 764-COS
DRAWING No.: 4001

ISSUE DATE: 04/08/20

N

Scale 1 : 1000 @A3

10 50 100M

DRAFT

KEY:

- RETAIL
- F&B
- LEISURE
- PAVILION
- INDY (Independent) RETAIL
- HOTEL / CONF
- RESIDENTIAL
- OFFICE / CO-WORK
- MEP/PLANT

CHAPMAN TAYLOR
GLOBAL ARCHITECTS & MASTERPLANNERS

LONDON STUDIO
10 Eastbourne Terrace
London W2 6LG
United Kingdom
T +44 (0)20 7371 3000
E london@chapmantaylor.com
www.chapmantaylor.com

06/08/2020 14:14:29

Coventry City Centre South

First Floor Plan

PROJECT REFERENCE: 764-COS
DRAWING No.: 4002

ISSUE DATE: 04/08/20

N

Scale 1 : 1000 @A3

10 50 100M

DRAFT

KEY:

- RETAIL
- F&B
- LEISURE
- PAVILION
- INDY (Independent) RETAIL
- HOTEL / CONF
- RESIDENTIAL
- OFFICE / CO-WORK
- MEP/PLANT

CHAPMAN TAYLOR
GLOBAL ARCHITECTS & MASTERPLANNERS

LONDON STUDIO
10 Eastbourne Terrace
London W2 6LG
United Kingdom

T +44 (0)20 7371 3000
E london@chapmantaylor.com

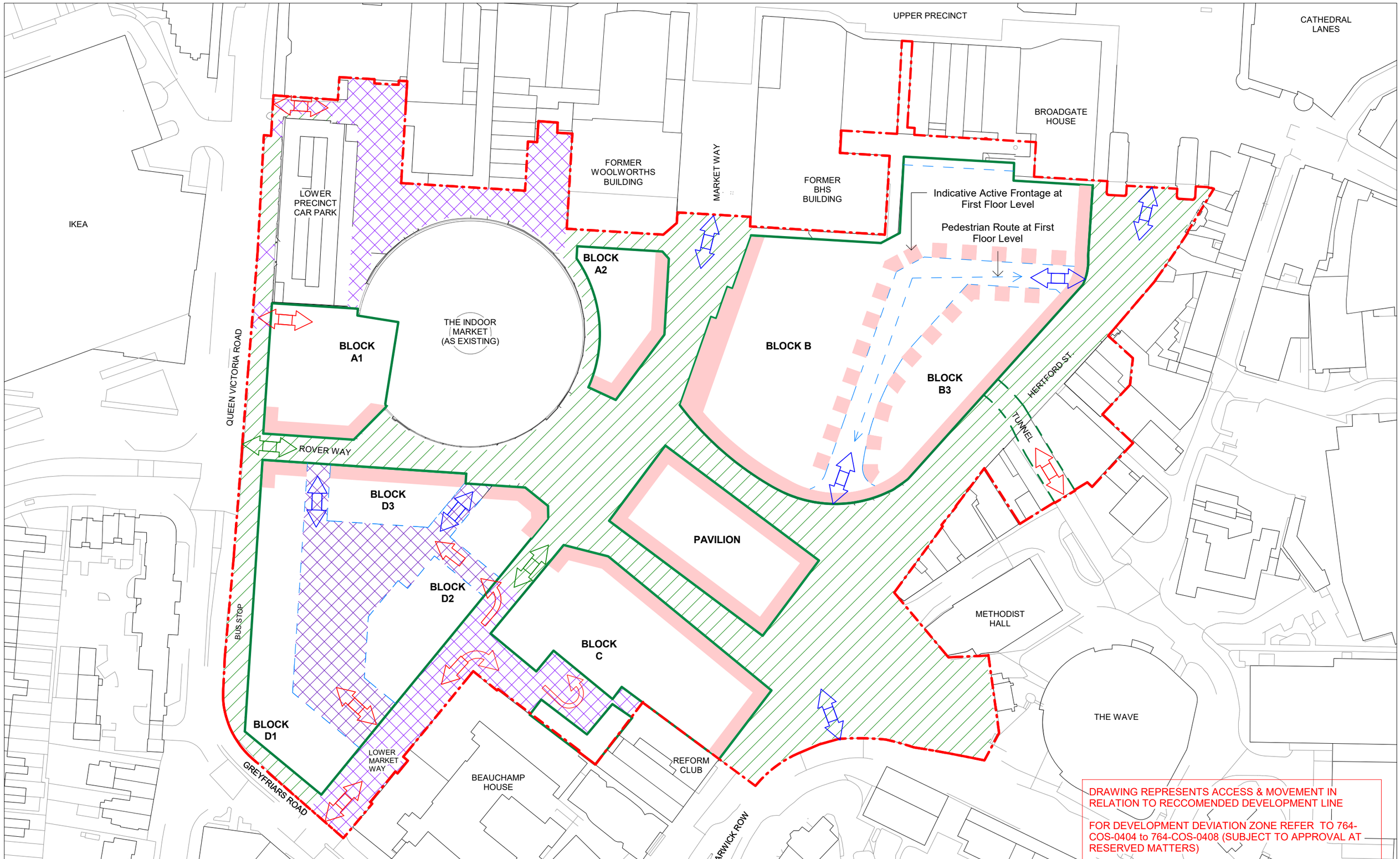
www.chapmantaylor.com

06/08/2020 14:14:43

Technical Appendix G

Pedestrian access and routes through the development

TPP
transport planning practice



Coventry City Centre South

PARAMETER PLANS - ACCESS AND MOVEMENT

PROJECT REFERENCE: 764-COS
DRAWING No.: 0411

ISSUE DATE: 05/08/20 REVISION:02

N

Scale 1 : 1250 @A3

10 50 100 125M

DRAFT

KEY:

- Application Boundary
- Development Plots
- Active Frontages
- Service / Vehicle Priority Area
- Pedestrian priority area (with limited access for emergency and service vehicles.)
- Permanent Vehiclular Access
- Pedestrian access with occasional service vehicle access – including emergency vehicle access
- Pedestrian access and potential emergency vehicle access

CHAPMAN TAYLOR
GLOBAL ARCHITECTS & MASTERPLANNERS

LONDON STUDIO
10 Eastbourne Terrace
London W2 6LG
United Kingdom
T +44 (0)20 7371 3000
E london@chapmantaylor.com
www.chapmantaylor.com

21/08/2020 16:03:48

Technical Appendix H

Indicative visitor cycle parking locations

TPP
transport planning practice

X.X Cycling

Cycling and walking are ideal modes of travel to access and move around the city centre, offering an environmentally sustainable, healthy and cost effective way to get around.

The provision of safe cycling routes and improved wayfinding has the ability to cater for a large proportion of short journeys into the city centre. The compact nature of Coventry city centre combined with recent improvements to enhance navigation across the ring road, particularly from Friargate to the south increases the attraction for cycling as an alternative mode of transport.

Existing Cycle Coventry Routes into the city centre are identified in Figure X.X.

These routes are within easy access of the development site via Corporation Street to the west, Greyfriars Road to the south and Broadgate to the north.

The provision of high quality on-street publically available cycle parking will form an integral part of the development proposals;

- Short stay cycle parking will generally be provided at gateway points into the development to encourage cyclists to dismount before entering the pedestrianised areas of the development.
- Cycle parking will be located where it is accessible to nearby cycle routes, is well lit and has the benefit of passive surveillance to reduce potential crime.
- Primary cycle parking nodes will be provided near to destinations such as the cinema and hotel where a higher quantum of users may be travelling. This strategy will also help reduce clutter within the public realm by concentrating cycle parking provision in key areas and gateway points.
- Secondary cycle parking nodes are located around the Pavilion Building, Covered Market and Market Way to enable access to nearby retail units for convenience of 'grab and go' purchases.
- Covered cycle parking will be provided to offer alternative parking arrangements and weather protection.

Figure X.X - Cycle Parking Strategy

Key

- Primary Cycle Parking
- Secondary Cycle Parking
- Covered Cycle Parking
- Link to Cycle Coventry Route
- Pedestrian Area

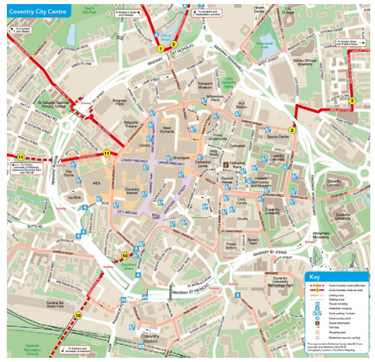
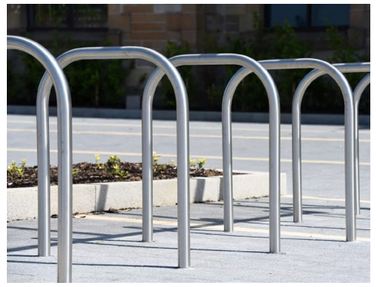


Figure X.X - Cycle Coventry Map (City Centre)



Technical Appendix I

TPP report D018 –
Trip Generation Note -
Servicing Vehicles

TPP
transport planning practice

Shearer Property Regen Limited

City Centre South
Trip Generation Note
Servicing Vehicles
September 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

Appendices

A	Weekday Servicing TRICS Output - Residential
B	Weekday calculated trip rates- Retail
C	Saturday calculated trip rates- Retail
D	Weekday Servicing TRICS Output – F&B
E	Weekday Servicing TRICS Output - Office
F	Saturday Servicing TRICS Output - Office
G	Weekday Servicing TRICS Output - Hotel
H	Weekday Servicing TRICS Output – Leisure
I	Saturday Servicing TRICS Output – Leisure
J	Weekday Servicing TRICS Output – Community

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) has been commissioned by Shearer Property Regen Limited to provide transport planning advice with regard to the development of Coventry City Centre South (CCS).

1.1.2 This Trip Generation Note has been prepared for the benefit of Coventry City Council in order to set out and explain the servicing trip generation methodology. The results of which have been used to ensure the servicing yards and loading bays for each development Block will be appropriately sized to accommodate the number and type of servicing vehicles expected.

2 SERVICING VEHICLE TRIP GENERATION METHODOLOGY

2.1.1 This chapter sets out how the servicing trip generation has been calculated for each land use of the proposed development. It also sets out the data sources, trip generation methodology and the assumptions made.

2.1.2 The servicing trip generation has been split into Light Goods Vehicles (LGVs) and Heavy Goods Vehicles (HGVs).

2.2 Residential

Weekday

2.2.1 The TRICS comparator sites used for the weekday person trip generation did not contain any LGV or HGV trip rates. Therefore the TRICS database has been interrogated further to obtain suitable comparator sites. The comparator sites selected have been based on privately owned flats, weekday surveys and a town centre location. As this did not return suitable sites, Greater London was included in the location. The resultant trip rates are included within Appendix A.

Saturday

2.2.2 As with the weekday, the TRICS comparator sites used for the Saturday person trip generation did not contain any LGV or HGV trip rates. Further interrogation of the TRICS database did not return any suitable comparator sites. Therefore the weekday servicing trip rates have been used.

2.3 Retail

Weekday

2.3.1 As part of the transport assessment, servicing surveys have been undertaken of the City Arcade, Market (north and south) and the Barracks (northern and southern sections) servicing yards. As the City Arcade and southern section of the Barracks service yards specifically serve parts of the CCS development, servicing vehicle trip rates have been derived from the servicing vehicle trips and the existing retail floor area. These trip rates are considered robust as they include trips for all land uses within the areas serviced but the retail floor area only has been used to derive the trip rates. The calculated trip rates are contained within Appendix B.

Saturday

2.3.2 The same methodology to derive servicing trip rates for retail on a Saturday has been used as the weekday but using survey data obtained for the Saturday. The calculated trip rates are contained within Appendix C.

2.4 F&B

Weekday

2.4.1 The TRICS comparator sites used for the weekday person trip generation only contained LGV trip rates. Therefore the TRICS database has been interrogated further to obtain suitable comparator sites. The comparator sites selected have been based on weekday surveys, a town centre and location sub-category of Built-Up Zone and High Street. As this did not return suitable sites, Greater London was included in the locations. The resultant trip rates are included within Appendix D.

Saturday

2.4.2 As with the weekday, the TRICS comparator sites used for the Saturday person trip generation did not contain any LGV or HGV trip rates. Further interrogation of the TRICS database did not return any suitable comparator sites. Therefore the weekday servicing trip rates have been used.

2.5 Office

Weekday

2.5.1 The TRICS comparator sites used for the weekday person trip generation only contained OGV trip rates, i.e. HGVs. Therefore the TRICS database has been interrogated further to obtain suitable comparator sites. The comparator sites selected have been based on a town centre location (not within Greater London or Ireland), B1 use class and weekday surveys. The resultant trip rates are included within Appendix E.

Saturday

2.5.2 The only TRICS comparator site available for a Saturday has been used for the person trip generation. This site has LGV trip rates. Therefore these rates have been used for the servicing trip generation. It is considered that there would be

minimal servicing for office uses on a Saturday and it is likely that these would be by LGVs. The resultant trip rates are included within Appendix F.

2.6 Hotel

Weekday

2.6.1 The TRICS comparator sites used for the weekday person trip generation did not contain any LGV or HGV trip rates. Therefore the TRICS database has been interrogated further to obtain suitable comparator sites. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and C1 land use class. The resultant trip rates are included within Appendix G.

Saturday

2.6.2 There were no suitable comparator sites for the person trip generation for a Saturday. Therefore the weekday trip rates were used. Similarly, this was the case for the Saturday with regard to LGV and HGV trip rates. Therefore the weekday servicing trip rates have been used.

2.7 Leisure

Weekday

2.7.1 The comparator sites used for the person trip generation contained LGV and HGV trip rates. Therefore these sites have been used for the servicing trip generation calculations. These trip rates are included within Appendix H.

Saturday

2.7.2 The comparator sites used for the person trip generation contained LGV and Servicing trip rates. Therefore these sites have been used for the servicing trip generation calculations, with the servicing rate used to derive the HGV trips. This is considered robust as this rate is likely to be related to the LGV trip rates i.e. a double count. These trip rates are included within Appendix I.

2.8 Community

Weekday

2.8.1 The comparator sites used for the person trip generation contained LGV trip rates. It has been considered that the vast majority of servicing trips for the medical centre will be undertaking by LGVs. These trip rates are included within Appendix J.

Saturday

2.8.2 As with the person trip generation, there are no comparator sites in TRICS for a Saturday. It is considered that the community use would have a similar trip generation and profile to that for a weekday if it was open on a Saturday. Therefore the weekday servicing trip rates have been used for the Saturday servicing trip generation calculations.

3 PROPOSED CCS DEVELOPMENT SERVICING TRIP GENERATION

3.1.1 This chapter sets out the total proposed servicing trip generation per development block for all uses. The servicing trip generation has been split into LGVs and HGVs.

3.2 Block A1

3.2.1 Table 3.1 and Table 3.2 show the proposed servicing trip generation for Block A1 on a weekday and Saturday respectively.

Table 3.1: Proposed servicing trip generation Block A1 - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	1	0	0	0	1	0	1
09:00-10:00	1	0	1	0	2	0	2
10:00-11:00	2	0	1	0	3	0	3
11:00-12:00	1	0	2	0	3	0	3
12:00-13:00	2	0	2	0	4	0	4
13:00-14:00	2	0	2	0	4	0	4
14:00-15:00	0	0	1	0	1	0	1
15:00-16:00	2	0	2	0	4	0	4
16:00-17:00	1	0	1	0	2	0	2
17:00-18:00	0	0	0	0	0	0	0
18:00-19:00	0	0	0	0	0	0	0
Total	**12**	**0**	**12**	**0**	**24**	**0**	**24**

Table 3.2: Proposed servicing trip generation Block A1 - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	1	0	0	0	1	0	1
09:00-10:00	1	0	1	0	2	0	2
10:00-11:00	1	0	0	0	1	0	1
11:00-12:00	0	0	1	0	1	0	1
12:00-13:00	2	0	1	0	3	0	3
13:00-14:00	1	0	1	0	2	0	2
14:00-15:00	0	0	1	0	1	0	1
15:00-16:00	1	0	1	0	2	0	2
16:00-17:00	1	0	1	0	2	0	2
17:00-18:00	1	0	0	0	1	0	1
18:00-19:00	0	0	1	0	1	0	1
Total	**9**	**0**	**8**	**0**	**17**	**0**	**17**

3.2.2 As can be seen from Table 3.1 and Table 3.2, it is predicted:

- That there will be a total of two LGVs arriving in any one hour.
- Whilst no HGV trips have been predicted, it is reasonable to assume there could be one HGV trip per day such as refuse collection.
- Therefore Block A1's loading area will be sufficiently sized to accommodate at least one HGV which can also accommodate two LGVs.

3.3 Block A2

3.3.1 Table 3.3 and Table 3.4 show the proposed servicing trip generation for Block A2 on a weekday and Saturday respectively.

Table 3.3: Proposed servicing trip generation Block A2 - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	1	0	0	0	1	0	1
09:00-10:00	1	0	1	0	2	0	2
10:00-11:00	2	0	1	0	3	0	3
11:00-12:00	2	1	2	1	4	2	6
12:00-13:00	2	0	2	0	4	0	4
13:00-14:00	2	1	1	1	3	2	5
14:00-15:00	0	0	1	0	1	0	1
15:00-16:00	1	0	1	0	2	0	2
16:00-17:00	1	0	1	0	2	0	2
17:00-18:00	1	0	1	0	2	0	2
18:00-19:00	0	0	0	0	0	0	0
Total	**13**	**2**	**11**	**2**	**24**	**4**	**28**

Table 3.4: Proposed servicing trip generation Block A2 - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	1	0	0	0	1	0	1
09:00-10:00	1	0	1	0	2	0	2
10:00-11:00	2	0	1	0	3	0	3
11:00-12:00	1	1	2	1	3	2	5
12:00-13:00	2	0	2	0	4	0	4
13:00-14:00	2	1	1	1	3	2	5
14:00-15:00	0	0	1	0	1	0	1
15:00-16:00	1	0	1	0	2	0	2
16:00-17:00	1	0	1	0	2	0	2
17:00-18:00	1	0	1	0	2	0	2
18:00-19:00	0	0	0	0	0	0	0
Total	**12**	**2**	**11**	**2**	**23**	**4**	**27**

3.3.2 As can be seen from Table 3.3 and Table 3.4, it is predicted:

- That there will be a total of two LGVs and one HGV arriving in any one hour.
- Therefore Block A1's loading area will be sufficiently sized to accommodate at least one HGV which can also accommodate two LGVs.

3.4 Block B

3.4.1 Table 3.5 and Table 3.6 show the proposed servicing trip generation for Block B on a weekday and Saturday respectively.

Table 3.5: Proposed servicing trip generation Block B - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	5	3	5	3	10	6	16
08:00-09:00	12	5	11	4	23	9	32
09:00-10:00	7	5	6	4	13	9	22
10:00-11:00	16	2	13	3	29	5	34
11:00-12:00	21	9	17	8	38	17	55
12:00-13:00	15	3	20	5	35	8	43
13:00-14:00	15	4	11	4	26	8	34
14:00-15:00	5	2	12	1	17	3	20
15:00-16:00	13	1	10	1	23	2	25
16:00-17:00	12	0	11	1	23	1	24
17:00-18:00	9	1	11	1	20	2	22
18:00-19:00	4	0	6	0	10	0	10
Total	**134**	**35**	**133**	**35**	**267**	**70**	**337**

Table 3.6: Proposed servicing trip generation Block B - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	2	1	4	1	6	2	8
08:00-09:00	4	3	2	3	6	6	12
09:00-10:00	7	2	8	2	15	4	19
10:00-11:00	9	1	7	0	16	1	17
11:00-12:00	10	7	10	7	20	14	34
12:00-13:00	11	1	13	1	24	2	26
13:00-14:00	12	4	7	4	19	8	27
14:00-15:00	3	1	12	0	15	1	16
15:00-16:00	6	0	5	1	11	1	12
16:00-17:00	5	0	5	0	10	0	10
17:00-18:00	9	1	5	1	14	2	16
18:00-19:00	2	1	6	1	8	2	10
Total	**80**	**22**	**84**	**21**	**164**	**43**	**207**

3.4.2 The proposed Block B service yard will also continue to serve the retained retail units located outside of the CCS development area at the northern end of the Barracks service yard. Therefore the existing service vehicle trip generation

obtained from surveys for these retail units has been added to the overall proposed Block B service yard.

3.4.3 Table 3.7 and Table 3.8 show the combined proposed servicing trip generation for the Block B service yard, including retained retail units to the north of the CCS development, on a weekday and Saturday respectively.

Table 3.7: Proposed combined servicing trip generation Block B - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	7	3	7	3	14	6	20
08:00-09:00	14	7	11	6	25	13	38
09:00-10:00	8	7	8	5	16	12	28
10:00-11:00	22	6	16	7	38	13	51
11:00-12:00	25	10	23	9	48	19	67
12:00-13:00	18	5	22	7	40	12	52
13:00-14:00	22	5	15	6	37	11	48
14:00-15:00	7	4	17	3	24	7	31
15:00-16:00	15	2	14	1	29	3	32
16:00-17:00	13	0	14	1	27	1	28
17:00-18:00	9	1	11	1	20	2	22
18:00-19:00	4	0	6	0	10	0	10
Total	**164**	**50**	**164**	**49**	**328**	**99**	**427**

Table 3.8: Proposed combined servicing trip generation Block B - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	2	1	4	1	6	2	8
08:00-09:00	6	3	3	3	9	6	15
09:00-10:00	7	2	9	2	16	4	20
10:00-11:00	12	2	10	0	22	2	24
11:00-12:00	10	7	10	8	20	15	35
12:00-13:00	14	2	15	2	29	4	33
13:00-14:00	13	4	9	4	22	8	30
14:00-15:00	7	1	16	0	23	1	24
15:00-16:00	7	0	6	1	13	1	14
16:00-17:00	7	0	6	0	13	0	13
17:00-18:00	10	1	6	1	16	2	18
18:00-19:00	2	1	7	1	9	2	11
Total	**97**	**24**	**101**	**23**	**198**	**47**	**245**

3.4.4 Based on Table 3.7:

- The highest expected number of service vehicles will be between 11.00 and 12:00 with 26 LGVs and 11 HGVs on a weekday.
- Assuming a 20 minute delivery time for the LGVs and 30 minutes for the HGVs this would require 9 LGV bays and 5 HGV bays.
- This level of provision does not include any management of the service yard. Therefore the loading space provision could be optimised.

3.5 Block C

3.5.1 Table 3.9 and Table 3.10 show the proposed servicing trip generation for Block C on a weekday and Saturday respectively.

Table 3.9: Proposed servicing trip generation Block C - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	1	1	2	1	3	2	5
08:00-09:00	3	2	3	1	6	3	9
09:00-10:00	5	3	4	2	9	5	14
10:00-11:00	3	0	2	1	5	1	6
11:00-12:00	2	1	2	1	4	2	6
12:00-13:00	3	0	3	1	6	1	7
13:00-14:00	2	1	2	1	4	2	6
14:00-15:00	1	0	2	0	3	0	3
15:00-16:00	4	0	2	0	6	0	6
16:00-17:00	2	0	3	0	5	0	5
17:00-18:00	1	0	1	0	2	0	2
18:00-19:00	1	0	1	0	2	0	2
Total	**28**	**8**	**27**	**8**	**55**	**16**	**71**

Table 3.10: Proposed servicing trip generation Block C - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	1	1	2	1	3	2	5
08:00-09:00	2	1	2	1	4	2	6
09:00-10:00	5	2	5	2	10	4	14
10:00-11:00	2	0	1	0	3	0	3
11:00-12:00	0	0	1	0	1	0	1
12:00-13:00	3	0	2	0	5	0	5
13:00-14:00	2	1	2	1	4	2	6
14:00-15:00	0	0	2	0	2	0	2
15:00-16:00	3	0	1	0	4	0	4
16:00-17:00	1	0	3	0	4	0	4
17:00-18:00	2	0	0	0	2	0	2
18:00-19:00	1	0	1	0	2	0	2
Total	**22**	**5**	**22**	**5**	**44**	**10**	**54**

3.5.2 Based on Table 3.9:

- The highest expected number of service vehicles will be between 09.00 and 10:00 with 5 LGVs and 3 HGVs on a weekday.
- Assuming a 20 minute delivery time for the LGVs and 30 minutes for the HGVs this would require two LGV bays and two HGV bays. However, on the basis that there is only one occasion when there would be more than two HGVs, one HGV bay would remain predominantly empty. Therefore it is considered adequate to provide one HGV bay which if required can be managed.

3.6 Block D

3.6.1 Table 3.11 and Table 3.12 show the proposed servicing trip generation for Block D on a weekday and Saturday respectively.

Table 3.11: Proposed servicing trip generation Block D - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	3	1	3	1	6	2	8
08:00-09:00	4	2	3	1	7	3	10
09:00-10:00	6	3	7	3	13	6	19
10:00-11:00	6	0	2	0	8	0	8
11:00-12:00	2	2	7	1	9	3	12
12:00-13:00	5	0	5	1	10	1	11
13:00-14:00	6	0	6	0	12	0	12
14:00-15:00	3	1	6	0	9	1	10
15:00-16:00	8	0	7	1	15	1	16
16:00-17:00	7	0	7	0	14	0	14
17:00-18:00	1	1	2	1	3	2	5
18:00-19:00	1	0	2	0	3	0	3
Total	**52**	**10**	**57**	**9**	**109**	**19**	**128**

Table 3.12: Proposed servicing trip generation Block D - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	3	1	3	1	6	2	8
08:00-09:00	4	1	3	1	7	2	9
09:00-10:00	6	3	7	3	13	6	19
10:00-11:00	5	0	1	0	6	0	6
11:00-12:00	1	1	6	1	7	2	9
12:00-13:00	5	0	4	0	9	0	9
13:00-14:00	6	0	5	0	11	0	11
14:00-15:00	3	1	6	0	9	1	10
15:00-16:00	7	0	6	1	13	1	14
16:00-17:00	6	0	7	0	13	0	13
17:00-18:00	2	1	1	1	3	2	5
18:00-19:00	1	0	2	0	3	0	3
Total	**49**	**8**	**51**	**8**	**100**	**16**	**116**

3.6.2 Based on Table 3.11:

- The highest expected number of service vehicles will be between 09.00 and 10:00 with 6 LGVs and 3 HGVs on a weekday.
- Assuming a 20 minute delivery time for the LGVs and 30 minutes for the HGVs this would require two LGV bays and two HGV bays. However, on the basis that there is only one occasion when there

would be more than two HGVs, one HGV bay would remain predominantly empty. Therefore it is considered adequate to provide one HGV bay which if required can be managed.

3.7 Pavilion

3.7.1 Vehicular access to the pedestrianised area will be restricted throughout the day and evening. Therefore it is proposed to restrict servicing vehicle access to the morning. The predicted servicing vehicle trip generation for a 12 hour period has been re-distributed pro-rata to the three-hour morning period with departures adjusted manually to ensure all vehicles leave the pedestrianised area before 10:00.

3.7.2 Table 3.13 and Table 3.14 show the proposed servicing trip generation for the Pavilion building on a weekday and Saturday respectively.

Table 3.13: Proposed Pavilion building servicing trip generation - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	9	2	9	4	18	6	23
09:00-10:00	9	2	9	0	18	2	19
Total	**17**	**3**	**18**	**4**	**35**	**7**	**42**

Table 3.14: Proposed Pavilion building servicing trip generation - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	4	0	4	0	4
08:00-09:00	0	1	0	0	0	1	1
09:00-10:00	6	0	6	1	12	1	13
Total	**6**	**1**	**10**	**1**	**16**	**2**	**18**

3.7.3 The Pavilion building will not have a dedicated servicing area but instead vehicles will stop near the units they are servicing. However, based on Table 3.13:

- The highest expected number of service vehicles will be between 08.00 and 10:00 with 9 LGVs and 2 HGVs each hour on a weekday.
- Assuming a 20 minute delivery time for the LGVs and 30 minutes for the HGVs this would require space for three LGVs and one HGV. There is sufficient space around the Pavilion building to accommodate

this level of servicing which if required, could be optimised through management.

3.8 Total servicing trip generation for the proposed development

3.8.1 Table 3.15 and Table 3.16 show the proposed CCS development total servicing trip generation for a weekday and Saturday respectively.

Table 3.15: Proposed servicing trip generation for the total development - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	9	5	10	5	19	10	29
08:00-09:00	30	11	26	10	56	21	76
09:00-10:00	29	13	28	9	57	22	78
10:00-11:00	29	2	19	4	48	6	54
11:00-12:00	28	13	30	11	58	24	82
12:00-13:00	27	3	32	7	59	10	69
13:00-14:00	27	6	22	6	49	12	61
14:00-15:00	9	3	22	1	31	4	35
15:00-16:00	28	1	22	2	50	3	53
16:00-17:00	23	0	23	1	46	1	47
17:00-18:00	12	2	15	2	27	4	31
18:00-19:00	6	0	9	0	15	0	15
Total	**256**	**58**	**258**	**58**	**514**	**116**	**630**

Table 3.16: Proposed servicing trip generation for the total development - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	6	3	13	3	19	6	25
08:00-09:00	12	6	7	5	19	11	30
09:00-10:00	26	7	28	8	54	15	69
10:00-11:00	19	1	10	0	29	1	30
11:00-12:00	12	9	20	9	32	18	50
12:00-13:00	23	1	22	1	45	2	47
13:00-14:00	23	6	16	6	39	12	51
14:00-15:00	6	2	22	0	28	2	30
15:00-16:00	18	0	14	2	32	2	34
16:00-17:00	14	0	17	0	31	0	31
17:00-18:00	15	2	7	2	22	4	26
18:00-19:00	4	1	10	1	14	2	16
Total	**178**	**38**	**186**	**37**	**364**	**75**	**439**

3.8.2 As can be seen from Table 3.15, the proposed CCS development will result in a total of 78 service vehicles in the weekday highway AM peak hour of 09:00 – 10:00 and a total of 31 in the PM peak hour of 17:00 – 18:00.

3.8.3 Table 3.16 indicates that during the Saturday highway peak hour of 14:00 – 15:00, there would be a total of 30 service vehicles.

3.8.4 It should be noted the total servicing generation does not include the combined servicing for Block B set out in Table 3.7 and Table 3.8 as these trips are already on the highway network.

4 EXISTING CCS SERVICING TRIPS

4.1.1 The existing CCS development site already generates servicing trips. The site's four service yards were surveyed on a weekday and Saturday. Two of the service yards serve other parts of Coventry city centre as well as the CCS development site.

4.1.2 However, the City Arcade service yard and the southern section of the Barracks service yard only serve the CCS development site. Therefore servicing trip rates have been derived from the surveys of these yards using the calculated retail floor area they serve. These trip rates have been used to calculate the retail servicing trips for the proposed CCS development.

4.1.3 The existing City Arcade servicing yard trips are shown in Table 4.1 and Table 4.2 for the weekday and Saturday respectively.

Table 4.1: Existing servicing trip generation for City Arcade service yard - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	1	0	1	0	2	0	2
08:00-09:00	1	2	2	0	3	2	5
09:00-10:00	2	0	1	1	3	1	4
10:00-11:00	3	0	6	1	9	1	10
11:00-12:00	6	1	5	0	11	1	12
12:00-13:00	7	1	2	1	9	2	11
13:00-14:00	4	0	4	1	8	1	9
14:00-15:00	3	0	4	0	7	0	7
15:00-16:00	1	1	2	0	3	1	4
16:00-17:00	3	0	1	0	4	0	4
17:00-18:00	4	0	3	1	7	1	8
18:00-19:00	2	0	4	0	6	0	6
Total	**37**	**5**	**35**	**5**	**72**	**10**	**82**

Table 4.2: Existing servicing trip generation for City Arcade service yard - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	3	0	3	0	6	0	6
08:00-09:00	0	2	0	0	0	2	2
09:00-10:00	0	0	2	2	2	2	4
10:00-11:00	3	0	1	0	4	0	4
11:00-12:00	2	1	1	0	3	1	4
12:00-13:00	0	0	2	1	2	1	3
13:00-14:00	6	0	3	0	9	0	9
14:00-15:00	4	0	7	0	11	0	11
15:00-16:00	1	0	1	0	2	0	2
16:00-17:00	1	0	0	0	1	0	1
17:00-18:00	1	0	0	0	1	0	1
18:00-19:00	6	0	6	0	12	0	12
Total	**27**	**3**	**26**	**3**	**53**	**6**	**59**

4.1.4 As can be seen from Table 4.1, the existing City Arcade service yard generates a total of 4 service vehicles in the weekday highway AM peak hour of 09:00 – 10:00 and a total of 8 in the PM peak hour of 17:00 – 18:00. During the Saturday highway peak hour of 14:00 – 15:00, Table 4.2 indicates a total of 11 service vehicles are currently generated by the existing retail uses.

4.1.5 The existing Barracks service yard trips are shown in Table 4.3 and Table 4.4 for the weekday and Saturday respectively.

Table 4.3: Existing servicing trip generation for Barracks (south) service yard - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	2	2	2	2	4	4	8
09:00-10:00	1	3	0	2	1	5	6
10:00-11:00	3	4	2	1	5	5	10
11:00-12:00	6	2	5	4	11	6	17
12:00-13:00	3	4	6	3	9	7	16
13:00-14:00	6	1	5	4	11	5	16
14:00-15:00	3	0	3	0	6	0	6
15:00-16:00	5	1	5	1	10	2	12
16:00-17:00	1	0	1	0	2	0	2
17:00-18:00	1	0	2	0	3	0	3
18:00-19:00	1	0	1	0	2	0	2
Total	**32**	**17**	**32**	**17**	**64**	**34**	**98**

Table 4.4: Existing servicing trip generation for Barracks (south) service yard - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	0	0	0	0	0	0	0
08:00-09:00	1	0	0	0	1	0	1
09:00-10:00	1	0	2	0	3	0	3
10:00-11:00	1	0	1	0	2	0	2
11:00-12:00	1	1	1	0	2	1	3
12:00-13:00	0	1	0	2	0	3	3
13:00-14:00	1	1	1	1	2	2	4
14:00-15:00	1	0	1	0	2	0	2
15:00-16:00	0	0	0	0	0	0	0
16:00-17:00	0	0	0	0	0	0	0
17:00-18:00	0	0	0	0	0	0	0
18:00-19:00	0	0	0	0	0	0	0
Total	**6**	**3**	**6**	**3**	**12**	**6**	**18**

4.1.6 As can be seen from Table 4.3, the existing southern section of the Barracks service yard generates a total of 6 service vehicles in the weekday highway AM peak hour of 09:00 – 10:00 and a total of 3 in the PM peak hour of 17:00 – 18:00. During the Saturday highway peak hour of 14:00 – 15:00, Table 4.4 indicates a total of 2 service vehicles are currently generated by the existing retail uses.

5 NET CCS SERVICING TRIPS

5.1.1 The net impact of the servicing trips associated with the CCS development have been calculated by deducting the existing servicing trips from the predicted trips.

5.1.2 The City Arcade servicing yard trips contained within Table 4.1 and Table 4.2 have been deducted from the proposed servicing trips for Block D which are contained within Table 3.11 and Table 3.12. This is due to Block D servicing area being located in the approximate location of the City Arcade service yard.

5.1.3 The southern section of the Barracks service yard trips contained within Table 4.3 and Table 4.4 have been deducted from the proposed servicing trips for Block B which are contained within Table 3.5 and Table 3.6. This is due to Block B being located in the approximate location of the Barracks service yard.

5.1.4 The resultant net CCS development servicing trips for a weekday and Saturday are set out in Table 5.1 and Table 5.2.

Table 5.1: Net servicing trip generation - Weekday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	8	5	9	5	17	10	27
08:00-09:00	27	7	22	8	49	15	63
09:00-10:00	26	10	27	6	53	16	68
10:00-11:00	23	-2	11	2	34	0	34
11:00-12:00	16	10	20	7	36	17	53
12:00-13:00	17	-2	24	3	41	1	42
13:00-14:00	17	5	13	1	30	6	36
14:00-15:00	3	3	15	1	18	4	22
15:00-16:00	22	-1	15	1	37	0	37
16:00-17:00	19	0	21	1	40	1	41
17:00-18:00	7	2	10	1	17	3	20
18:00-19:00	3	0	4	0	7	0	7
Total	**187**	**36**	**191**	**36**	**378**	**72**	**450**

Table 5.2: Net servicing trip generation - Saturday

Time	Arrivals		Departures		Total		Total
	LGVs	HGVs	LGVs	HGVs	LGVs	HGVs	
07:00-08:00	3	3	10	3	13	6	19
08:00-09:00	11	4	7	5	18	9	27
09:00-10:00	25	7	24	6	49	13	62
10:00-11:00	15	1	8	0	23	1	24
11:00-12:00	9	7	18	9	27	16	43
12:00-13:00	23	0	20	-2	43	-2	41
13:00-14:00	16	5	12	5	28	10	38
14:00-15:00	1	2	14	0	15	2	17
15:00-16:00	17	0	13	2	30	2	32
16:00-17:00	13	0	17	0	30	0	30
17:00-18:00	14	2	7	2	21	4	25
18:00-19:00	-2	1	4	1	2	2	4
Total	**145**	**32**	**154**	**31**	**299**	**63**	**362**

5.1.5 As can be seen from Table 5.1, the net servicing trip generation results in a total of an additional 68 service vehicles in the weekday highway AM peak hour of 09:00 – 10:00 and a total of 20 in the PM peak hour of 17:00 – 18:00 will be on the local road network. During the Saturday highway peak hour of 14:00 – 15:00, Table 5.2 indicates a total of an additional 17 service vehicles will be on the local road network.

Appendices

TPP
transport planning practice

Appendix A

Weekday Servicing
TRICS Output
Residential

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200228-0230

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
VEHICLES

Selected regions and areas:

01	GREATER LONDON		
	BM	BROMLEY	1 days
	HM	HAMMERSMITH AND FULHAM	1 days
	HO	HOUNSLOW	1 days

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

Secondary 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: Number of dwellings
Actual Range: 86 to 194 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 21/06/19

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:

Monday	1 days
Tuesday	1 days
Wednesday	1 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	3

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:

Built-Up Zone	3

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:

C3	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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

25,001 to 50,000	2 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:

500,001 or More	3 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	1 days
0.6 to 1.0	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:

Yes	2 days
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:

3 Moderate	1 days
6a Excellent	1 days
6b (High) Excellent	1 days

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

LIST OF SITES relevant to selection parameters

1 BM-03-C-01 BLOCKS OF FLATS BROMLEY
RINGER'S ROAD
BROMLEY

Town Centre
Built-Up Zone
Total Number of dwellings: 160
Survey date: MONDAY *12/11/18* *Survey Type: MANUAL*

2 HM-03-C-02 BLOCKS OF FLATS HAMMERSMITH AND FULHAM
GLENTHORNE ROAD
HAMMERSMITH

Town Centre
Built-Up Zone
Total Number of dwellings: 194
Survey date: TUESDAY *30/04/19* *Survey Type: MANUAL*

3 HO-03-C-02 BLOCK OF FLATS HOUNSLOW
HIGH STREET
BRENTFORD

Town Centre
Built-Up Zone
Total Number of dwellings: 86
Survey date: WEDNESDAY *03/09/14* *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
CB-03-C-01	No OGVs and LGVs
GM-03-C-02	No OGVs and LGVs
GM-03-C-03	No OGVs and LGVs
HM-03-C-01	No OGVs and LGVs

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
OGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	3	147	0.002	3	147	0.002	3	147	0.004
08:00 - 09:00	3	147	0.002	3	147	0.002	3	147	0.004
09:00 - 10:00	3	147	0.005	3	147	0.005	3	147	0.010
10:00 - 11:00	3	147	0.000	3	147	0.000	3	147	0.000
11:00 - 12:00	3	147	0.002	3	147	0.002	3	147	0.004
12:00 - 13:00	3	147	0.000	3	147	0.000	3	147	0.000
13:00 - 14:00	3	147	0.000	3	147	0.000	3	147	0.000
14:00 - 15:00	3	147	0.002	3	147	0.000	3	147	0.002
15:00 - 16:00	3	147	0.000	3	147	0.002	3	147	0.002
16:00 - 17:00	3	147	0.000	3	147	0.000	3	147	0.000
17:00 - 18:00	3	147	0.002	3	147	0.002	3	147	0.004
18:00 - 19:00	3	147	0.000	3	147	0.000	3	147	0.000
19:00 - 20:00	2	177	0.000	2	177	0.000	2	177	0.000
20:00 - 21:00	2	177	0.000	2	177	0.000	2	177	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.015			0.015			0.030

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.*

TRIP RATE for Land Use 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
LGVS
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	3	147	0.005	3	147	0.005	3	147	0.010
08:00 - 09:00	3	147	0.007	3	147	0.005	3	147	0.012
09:00 - 10:00	3	147	0.009	3	147	0.011	3	147	0.020
10:00 - 11:00	3	147	0.007	3	147	0.002	3	147	0.009
11:00 - 12:00	3	147	0.002	3	147	0.009	3	147	0.011
12:00 - 13:00	3	147	0.007	3	147	0.007	3	147	0.014
13:00 - 14:00	3	147	0.009	3	147	0.009	3	147	0.018
14:00 - 15:00	3	147	0.002	3	147	0.005	3	147	0.007
15:00 - 16:00	3	147	0.011	3	147	0.009	3	147	0.020
16:00 - 17:00	3	147	0.009	3	147	0.011	3	147	0.020
17:00 - 18:00	3	147	0.002	3	147	0.002	3	147	0.004
18:00 - 19:00	3	147	0.002	3	147	0.002	3	147	0.004
19:00 - 20:00	2	177	0.006	2	177	0.006	2	177	0.012
20:00 - 21:00	2	177	0.000	2	177	0.000	2	177	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.078			0.083			0.161

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.*

Appendix B

Weekday calculated
Servicing trip rates
Retail

TPP
transport planning practice

Exisitng SQM 14,673

Total	Arrivals	Departure	Total
07:00	4	3	7
08:00	9	7	16
09:00	8	3	11
10:00	11	12	23
11:00	18	14	32
12:00	9	13	22
13:00	9	9	18
14:00	5	8	13
15:00	9	7	16
16:00	5	3	8
17:00	3	5	8
18:00	2	8	10
Total	92	92	184

Calculated Trip Rates

Total Servi	Arrivals	Departure	Total
07:00	0.027	0.02	0.047
08:00	0.061	0.048	0.109
09:00	0.055	0.02	0.075
10:00	0.075	0.082	0.157
11:00	0.123	0.095	0.218
12:00	0.061	0.089	0.15
13:00	0.061	0.061	0.122
14:00	0.034	0.055	0.089
15:00	0.061	0.048	0.109
16:00	0.034	0.02	0.054
17:00	0.02	0.034	0.054
18:00	0.014	0.055	0.069
Total	0.626	0.627	1.253

Calculated Manually

LGVs	Arrivals	Departure	Total
06:00	1	0	1
07:00	1	1	2
08:00	4	4	8
09:00	4	1	5
10:00	9	8	17
11:00	13	10	23
12:00	7	8	15
13:00	9	9	18
14:00	4	7	11
15:00	8	7	15
16:00	5	2	7
17:00	3	5	8
18:00	2	5	7
19:00	0	3	3
Total	70	70	140

Calculated Manually

LGVs	Arrivals	Departure	Total
06:00			0
07:00	0.007	0.007	0.014
08:00	0.027	0.027	0.054
09:00	0.027	0.007	0.034
10:00	0.061	0.055	0.116
11:00	0.089	0.068	0.157
12:00	0.048	0.055	0.103
13:00	0.061	0.061	0.122
14:00	0.027	0.048	0.075
15:00	0.055	0.048	0.103
16:00	0.034	0.014	0.048
17:00	0.02	0.034	0.054
18:00	0.014	0.034	0.048
19:00			0
Total	0.47	0.458	0.928

Calculated Manually

HGVs	Arrivals	Departure	Total
06:00	0	0	0
07:00	2	2	4
08:00	5	3	8
09:00	4	2	6
10:00	2	4	6
11:00	5	4	9
12:00	2	5	7
13:00	0	0	0
14:00	1	1	2
15:00	1	0	1
16:00	0	1	1
17:00	0	0	0
18:00	0	0	0
19:00	0	0	0
Total	22	22	44

Calculated Manually

HGVs	Arrivals	Departure	Total
06:00			0
07:00	0.014	0.014	0.028
08:00	0.034	0.02	0.054
09:00	0.027	0.014	0.041
10:00	0.014	0.027	0.041
11:00	0.034	0.027	0.061
12:00	0.014	0.034	0.048
13:00	0	0	0
14:00	0.007	0.007	0.014
15:00	0.007	0	0.007
16:00	0	0.007	0.007
17:00	0	0	0
18:00	0	0	0
19:00			0
Total	0.151	0.15	0.301

Appendix C

Saturday calculated
Servicing trip rates
Retail

TPP
transport planning practice

Exisitng SQM 14,673

Total	Arrivals	Departure	Total
07:00	3	3	6
08:00	3	2	5
09:00	4	4	8
10:00	4	2	6
11:00	3	5	8
12:00	7	3	10
13:00	5	4	9
14:00	2	8	10
15:00	1	1	2
16:00	1	0	1
17:00	6	0	6
18:00	0	7	7
Total	39	39	78

Calculated Trip Rates

Total Servi	Arrivals	Departure	Total
07:00	0.02	0.02	0.04
08:00	0.02	0.014	0.034
09:00	0.027	0.027	0.054
10:00	0.027	0.014	0.041
11:00	0.02	0.034	0.054
12:00	0.048	0.02	0.068
13:00	0.034	0.027	0.061
14:00	0.014	0.055	0.069
15:00	0.007	0.007	0.014
16:00	0.007	0	0.007
17:00	0.041	0	0.041
18:00	0	0.048	0.048
Total	0.265	0.266	0.531

Calculated Manually

LGVs	Arrivals	Departure	Total
06:00	3	0	3
07:00	0	3	3
08:00	1	0	1
09:00	4	4	8
10:00	3	2	5
11:00	1	2	3
12:00	6	2	8
13:00	5	4	9
14:00	2	8	10
15:00	1	1	2
16:00	1	0	1
17:00	6	0	6
18:00	0	6	6
19:00	0	1	1
Total	33	33	66

Calculated Manually

LGVs	Arrivals	Departure	Total
06:00			0
07:00	0	0.02	0.02
08:00	0.007	0	0.007
09:00	0.027	0.027	0.054
10:00	0.02	0.014	0.034
11:00	0.007	0.014	0.021
12:00	0.041	0.014	0.055
13:00	0.034	0.027	0.061
14:00	0.014	0.055	0.069
15:00	0.007	0.007	0.014
16:00	0.007	0	0.007
17:00	0.041	0	0.041
18:00	0	0.041	0.041
19:00			0
Total	0.205	0.219	0.424

Calculated Manually

HGVs	Arrivals	Departure	Total
06:00	0	0	0
07:00	0	0	0
08:00	2	2	4
09:00	0	0	0
10:00	1	0	1
11:00	2	3	5
12:00	1	1	2
13:00	0	0	0
14:00	0	0	0
15:00	0	0	0
16:00	0	0	0
17:00	0	0	0
18:00	0	0	0
19:00	0	0	0
Total	6	6	12

Calculated Manually

HGVs	Arrivals	Departure	Total
06:00			0
07:00	0	0	0
08:00	0.014	0.014	0.028
09:00	0	0	0
10:00	0.007	0	0.007
11:00	0.014	0.02	0.034
12:00	0.007	0.007	0.014
13:00	0	0	0
14:00	0	0	0
15:00	0	0	0
16:00	0	0	0
17:00	0	0	0
18:00	0	0	0
19:00			0
Total	0.042	0.041	0.083

Appendix D

Weekday Servicing
TRICS Output
F&B

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200302-0340

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

01	GREATER LONDON		
	LB	LAMBETH	1 days
	WH	WANDSWORTH	1 days

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

Secondary 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: 220 to 400 (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: 01/01/11 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

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

Selected survey types:

Manual count	2 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

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:

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:

AA	2 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

50,001 to 100,000	2 days

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

Population within 5 miles:

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	1 days
0.6 to 1.0	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	2 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:

6a Excellent	2 days

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

LIST OF SITES relevant to selection parameters

1 LB-06-C-01 PUB/RESTAURANT LAMBETH
CORNWALL ROAD
WATERLOO

Town Centre
Built-Up Zone
Total Gross floor area: 220 sqm
Survey date: WEDNESDAY *22/06/16* *Survey Type: MANUAL*

2 WH-06-C-01 PUB/RESTAURANT WANDSWORTH
WANDSWORTH HIGH ST
WANDSWORTH

Town Centre
High Street
Total Gross floor area: 400 sqm
Survey date: TUESDAY *26/11/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AG-06-C-01	No OGVs and LGVs
BR-06-C-01	Not appropriate
CI-06-C-01	No OGVs and LGVs
HG-06-C-01	No OGVs and LGVs
LC-06-C-04	No OGVs and LGVs
SW-06-C-01	No OGVs and LGVs
WK-06-C-01	No OGVs and LGVs
WO-06-C-03	Not appropriate

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	2	310	0.000	2	310	0.000	2	310	0.000
11:00 - 12:00	2	310	0.161	2	310	0.161	2	310	0.322
12:00 - 13:00	2	310	0.000	2	310	0.000	2	310	0.000
13:00 - 14:00	2	310	0.161	2	310	0.161	2	310	0.322
14:00 - 15:00	2	310	0.000	2	310	0.000	2	310	0.000
15:00 - 16:00	2	310	0.000	2	310	0.000	2	310	0.000
16:00 - 17:00	2	310	0.000	2	310	0.000	2	310	0.000
17:00 - 18:00	2	310	0.000	2	310	0.000	2	310	0.000
18:00 - 19:00	2	310	0.000	2	310	0.000	2	310	0.000
19:00 - 20:00	2	310	0.000	2	310	0.000	2	310	0.000
20:00 - 21:00	2	310	0.161	2	310	0.161	2	310	0.322
21:00 - 22:00	2	310	0.000	2	310	0.000	2	310	0.000
22:00 - 23:00	2	310	0.000	2	310	0.000	2	310	0.000
23:00 - 24:00	2	310	0.000	2	310	0.000	2	310	0.000
Total Rates:			0.483			0.483			0.966

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.*

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/C - PUB/RESTAURANT
LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	2	310	0.161	2	310	0.161	2	310	0.322
11:00 - 12:00	2	310	0.323	2	310	0.161	2	310	0.484
12:00 - 13:00	2	310	0.161	2	310	0.323	2	310	0.484
13:00 - 14:00	2	310	0.161	2	310	0.000	2	310	0.161
14:00 - 15:00	2	310	0.000	2	310	0.161	2	310	0.161
15:00 - 16:00	2	310	0.000	2	310	0.000	2	310	0.000
16:00 - 17:00	2	310	0.000	2	310	0.000	2	310	0.000
17:00 - 18:00	2	310	0.161	2	310	0.161	2	310	0.322
18:00 - 19:00	2	310	0.000	2	310	0.000	2	310	0.000
19:00 - 20:00	2	310	0.000	2	310	0.000	2	310	0.000
20:00 - 21:00	2	310	0.000	2	310	0.000	2	310	0.000
21:00 - 22:00	2	310	0.484	2	310	0.484	2	310	0.968
22:00 - 23:00	2	310	0.000	2	310	0.000	2	310	0.000
23:00 - 24:00	2	310	0.000	2	310	0.000	2	310	0.000
Total Rates:			1.451			1.451			2.902

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.*

Appendix E

Weekday Servicing
TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200227-0259

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	SO	SLOUGH	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	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

Secondary 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: 960 to 3950 (units: sqm)
Range Selected by User: 178 to 175000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 14/03/19

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	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	3

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:

Commercial 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:

B1	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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
15,001 to 20,000	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	2 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:

Yes	2 days
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	3 days

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

LIST OF SITES relevant to selection parameters

1 SO-02-A-01 COUNCIL OFFICES SLOUGH
HIGH STREET
SLOUGH

Town Centre
High Street
Total Gross floor area: 1800 sqm
Survey date: THURSDAY 27/02/14 Survey Type: MANUAL

2 TV-02-A-04 COUNCIL OFFICES TEES VALLEY
CORPORATION ROAD
MIDDLESBROUGH

Town Centre
Commercial Zone
Total Gross floor area: 3950 sqm
Survey date: TUESDAY 08/10/13 Survey Type: MANUAL

3 WK-02-A-01 OFFICES WARWICKSHIRE
WARWICK ROAD
COVENTRY

Town Centre
Built-Up Zone
Total Gross floor area: 960 sqm
Survey date: THURSDAY 17/10/13 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BR-02-A-02	No OGVs and LGVs
CA-02-A-05	No OGVs and LGVs
EB-02-A-06	No OGVs and LGVs
EX-02-A-03	No OGVs and LGVs
GM-02-A-07	No OGVs and LGVs
GM-02-A-08	No OGVs and LGVs
TW-02-A-07	No OGVs and LGVs
WO-02-A-01	No OGVs and LGVs
WY-02-A-04	No OGVs and LGVs

Parameter summary

Trip rate parameter range selected:	960 - 3950 (units: sqm)
Survey date date range:	01/01/11 - 14/03/19
Number of weekdays (Monday-Friday):	3
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	9

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.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
OGVS
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
07:30 - 08:00	3	2237	0.015	3	2237	0.000	3	2237	0.015
08:00 - 08:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
08:30 - 09:00	3	2237	0.015	3	2237	0.030	3	2237	0.045
09:00 - 09:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
09:30 - 10:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
10:00 - 10:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
10:30 - 11:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
11:00 - 11:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
11:30 - 12:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
12:00 - 12:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
12:30 - 13:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
13:00 - 13:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
13:30 - 14:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
14:00 - 14:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
14:30 - 15:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
15:00 - 15:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
15:30 - 16:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
16:00 - 16:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
16:30 - 17:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
17:00 - 17:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
17:30 - 18:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
18:00 - 18:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
18:30 - 19:00	3	2237	0.000	3	2237	0.000	3	2237	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.045			0.045			0.090

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.*

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
LGVS
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	3	2237	0.000	3	2237	0.015	3	2237	0.015
07:30 - 08:00	3	2237	0.075	3	2237	0.060	3	2237	0.135
08:00 - 08:30	3	2237	0.089	3	2237	0.075	3	2237	0.164
08:30 - 09:00	3	2237	0.119	3	2237	0.134	3	2237	0.253
09:00 - 09:30	3	2237	0.015	3	2237	0.000	3	2237	0.015
09:30 - 10:00	3	2237	0.000	3	2237	0.015	3	2237	0.015
10:00 - 10:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
10:30 - 11:00	3	2237	0.045	3	2237	0.045	3	2237	0.090
11:00 - 11:30	3	2237	0.015	3	2237	0.030	3	2237	0.045
11:30 - 12:00	3	2237	0.045	3	2237	0.030	3	2237	0.075
12:00 - 12:30	3	2237	0.015	3	2237	0.030	3	2237	0.045
12:30 - 13:00	3	2237	0.045	3	2237	0.045	3	2237	0.090
13:00 - 13:30	3	2237	0.000	3	2237	0.000	3	2237	0.000
13:30 - 14:00	3	2237	0.015	3	2237	0.000	3	2237	0.015
14:00 - 14:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
14:30 - 15:00	3	2237	0.015	3	2237	0.015	3	2237	0.030
15:00 - 15:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
15:30 - 16:00	3	2237	0.045	3	2237	0.030	3	2237	0.075
16:00 - 16:30	3	2237	0.075	3	2237	0.089	3	2237	0.164
16:30 - 17:00	3	2237	0.060	3	2237	0.060	3	2237	0.120
17:00 - 17:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
17:30 - 18:00	3	2237	0.075	3	2237	0.075	3	2237	0.150
18:00 - 18:30	3	2237	0.015	3	2237	0.015	3	2237	0.030
18:30 - 19:00	3	2237	0.030	3	2237	0.030	3	2237	0.060
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.853			0.853			1.706

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.*

Appendix F

Saturday Servicing
TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0107

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
BT BRENT 1 days

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

Secondary 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: 10625 to 10625 (units: sqm)
Range Selected by User: 178 to 120000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 17/06/19

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 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:
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:
Development 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:
B1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

Yes	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:

5 Very Good	1 days

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

LIST OF SITES relevant to selection parameters

1 BT-02-A-04 OFFICES BRENT
EMPIRE WAY
WEMBLEY

Suburban Area (PPS6 Out of Centre)
Development Zone
Total Gross floor area: 10625 sqm
Survey date: SATURDAY *16/05/15* *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.

Parameter summary

Trip rate parameter range selected:	10625 - 10625 (units: sqm)
Survey date date range:	01/01/11 - 17/06/19
Number of weekdays (Monday-Friday):	0
Number of Saturdays:	1
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.

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL LGVS
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
07:30 - 08:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
08:00 - 08:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
08:30 - 09:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
09:00 - 09:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
09:30 - 10:00	1	10625	0.009	1	10625	0.000	1	10625	0.009
10:00 - 10:30	1	10625	0.000	1	10625	0.009	1	10625	0.009
10:30 - 11:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
11:00 - 11:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
11:30 - 12:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
12:00 - 12:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
12:30 - 13:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
13:00 - 13:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
13:30 - 14:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
14:00 - 14:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
14:30 - 15:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
15:00 - 15:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
15:30 - 16:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
16:00 - 16:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
16:30 - 17:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
17:00 - 17:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
17:30 - 18:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
18:00 - 18:30	1	10625	0.000	1	10625	0.000	1	10625	0.000
18:30 - 19:00	1	10625	0.000	1	10625	0.000	1	10625	0.000
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			0.009			0.009			0.018

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.*

Appendix G

Weekday Servicing
TRICS Output
Hotel

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200228-0240

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	NY	NORTH YORKSHIRE	1 days
09	NORTH		
	CB	CUMBRIA	1 days
	TW	TYNE & WEAR	1 days

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

Secondary 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: 1450 to 9677 (units: sqm)
Range Selected by User: 720 to 17624 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 16/10/19

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:

Monday	1 days
Tuesday	1 days
Wednesday	2 days

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

Selected survey types:

Manual count	4 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

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:

Built-Up Zone	3
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:

C1	4 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	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:

25,001 to 50,000	1 days
75,001 to 100,000	1 days
100,001 to 125,000	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	3 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	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1 CB-06-A-01 HOTEL CUMBRIA
ENGLISH STREET
CARLISLE

Town Centre
High Street
Total Gross floor area: 2450 sqm
Survey date: MONDAY *20/06/16* *Survey Type: MANUAL*

2 NY-06-A-02 BESPOKE HOTEL NORTH YORKSHIRE
CROWN PLACE
HARROGATE

Town Centre
Built-Up Zone
Total Gross floor area: 9677 sqm
Survey date: WEDNESDAY *13/03/19* *Survey Type: MANUAL*

3 TW-06-A-03 HOTEL TYNE & WEAR
SANDHILL
NEWCASTLE UPON TYNE
QUAYSIDE
Town Centre
Built-Up Zone
Total Gross floor area: 1450 sqm
Survey date: TUESDAY *14/06/16* *Survey Type: MANUAL*

4 WL-06-A-02 HOLIDAY INN EXPRESS WILTSHIRE
BRIDGE STREET
SWINDON

Town Centre
Built-Up Zone
Total Gross floor area: 2227 sqm
Survey date: WEDNESDAY *27/11/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CF-06-A-04	No OGVs and LGVs
DS-06-A-02	No OGVs and LGVs
EX-06-A-01	Not appropriate type of hotel
GM-06-A-08	No OGVs and LGVs
HI-06-A-04	No OGVs and LGVs
NF-06-A-03	Not appropriate type of hotel
TV-06-A-04	Not appropriate type of hotel

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	4	3951	0.013	4	3951	0.013	4	3951	0.026
08:00 - 09:00	4	3951	0.013	4	3951	0.013	4	3951	0.026
09:00 - 10:00	4	3951	0.019	4	3951	0.019	4	3951	0.038
10:00 - 11:00	4	3951	0.006	4	3951	0.006	4	3951	0.012
11:00 - 12:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
12:00 - 13:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
13:00 - 14:00	4	3951	0.013	4	3951	0.013	4	3951	0.026
14:00 - 15:00	4	3951	0.006	4	3951	0.006	4	3951	0.012
15:00 - 16:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
16:00 - 17:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
17:00 - 18:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
18:00 - 19:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
19:00 - 20:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
20:00 - 21:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
21:00 - 22:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.070			0.070			0.140

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.*

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	4	3951	0.000	4	3951	0.013	4	3951	0.013
08:00 - 09:00	4	3951	0.019	4	3951	0.013	4	3951	0.032
09:00 - 10:00	4	3951	0.051	4	3951	0.038	4	3951	0.089
10:00 - 11:00	4	3951	0.013	4	3951	0.019	4	3951	0.032
11:00 - 12:00	4	3951	0.006	4	3951	0.006	4	3951	0.012
12:00 - 13:00	4	3951	0.019	4	3951	0.013	4	3951	0.032
13:00 - 14:00	4	3951	0.000	4	3951	0.006	4	3951	0.006
14:00 - 15:00	4	3951	0.006	4	3951	0.000	4	3951	0.006
15:00 - 16:00	4	3951	0.013	4	3951	0.006	4	3951	0.019
16:00 - 17:00	4	3951	0.000	4	3951	0.019	4	3951	0.019
17:00 - 18:00	4	3951	0.025	4	3951	0.000	4	3951	0.025
18:00 - 19:00	4	3951	0.019	4	3951	0.000	4	3951	0.019
19:00 - 20:00	4	3951	0.000	4	3951	0.000	4	3951	0.000
20:00 - 21:00	4	3951	0.013	4	3951	0.000	4	3951	0.013
21:00 - 22:00	4	3951	0.019	4	3951	0.019	4	3951	0.038
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.203			0.152			0.355

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.*

Appendix H

Weekday Servicing
TRICS Output
Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0108

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
06 WEST MIDLANDS
WO WORCESTERSHIRE 1 days

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

Secondary 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: 2200 to 2200 (units: sqm)
Range Selected by User: 464 to 5500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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:
Town 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:
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:
D2 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 1 mile:
25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000	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

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 WO-07-A-01 ODEON WORCESTERSHIRE
FOREGATE STREET
WORCESTER

Town Centre
High Street
Total Gross floor area: 2200 sqm
Survey date: FRIDAY *18/11/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
11:00 - 12:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
12:00 - 13:00	1	2200	0.045	1	2200	0.045	1	2200	0.090
13:00 - 14:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
14:00 - 15:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
15:00 - 16:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
16:00 - 17:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
17:00 - 18:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
18:00 - 19:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
19:00 - 20:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
20:00 - 21:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
21:00 - 22:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
22:00 - 23:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
23:00 - 24:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
Total Rates:			0.045			0.045			0.090

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.*

TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
11:00 - 12:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
12:00 - 13:00	1	2200	0.045	1	2200	0.045	1	2200	0.090
13:00 - 14:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
14:00 - 15:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
15:00 - 16:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
16:00 - 17:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
17:00 - 18:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
18:00 - 19:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
19:00 - 20:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
20:00 - 21:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
21:00 - 22:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
22:00 - 23:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
23:00 - 24:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
Total Rates:			0.045			0.045			0.090

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.*

Appendix I

Saturday Servicing
TRICS Output
Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0109

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
03 SOUTH WEST
DC DORSET 1 days

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

Secondary 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: 1550 to 1550 (units: sqm)
Range Selected by User: 464 to 4500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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 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 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:
Development 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:
D2 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 1 mile:
15,001 to 20,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:
25,001 to 50,000 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 DC-07-A-01 ODEON DORSET
DRAYHORSE YARD
DORCHESTER

Edge of Town Centre
Development Zone
Total Gross floor area: 1550 sqm
Survey date: SATURDAY *17/09/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL LGVS
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	1	1550	0.000	1	1550	0.000	1	1550	0.000
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	1	1550	0.000	1	1550	0.000	1	1550	0.000
10:00 - 11:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
11:00 - 12:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
12:00 - 13:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
13:00 - 14:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
14:00 - 15:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
15:00 - 16:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
16:00 - 17:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
17:00 - 18:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
18:00 - 19:00	1	1550	0.065	1	1550	0.065	1	1550	0.130
19:00 - 20:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
20:00 - 21:00	1	1550	0.065	1	1550	0.000	1	1550	0.065
21:00 - 22:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
22:00 - 23:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
23:00 - 24:00	1	1550	0.000	1	1550	0.065	1	1550	0.065
Total Rates:			0.130			0.130			0.260

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.*

TRIP RATE for Land Use 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL Servicing 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	1	1550	0.000	1	1550	0.000	1	1550	0.000
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	1	1550	0.000	1	1550	0.000	1	1550	0.000
10:00 - 11:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
11:00 - 12:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
12:00 - 13:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
13:00 - 14:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
14:00 - 15:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
15:00 - 16:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
16:00 - 17:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
17:00 - 18:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
18:00 - 19:00	1	1550	0.065	1	1550	0.065	1	1550	0.130
19:00 - 20:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
20:00 - 21:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
21:00 - 22:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
22:00 - 23:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
23:00 - 24:00	1	1550	0.000	1	1550	0.000	1	1550	0.000
Total Rates:			0.065			0.065			0.130

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.*

Appendix J

Weekday Servicing
TRICS Output
Community

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0122

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
Category : G - GP SURGERIES
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
WH WANDSWORTH 1 days

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

Secondary 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: 2709 to 2709 (units: sqm)
Range Selected by User: 200 to 2709 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 26/06/19

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

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:
Town 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:
Retail 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:
D1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

4 Good	1 days

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

LIST OF SITES relevant to selection parameters

1 WH-05-G-01 MEDICAL CENTRE WANDSWORTH
GARRATT LANE
WANDSWORTH

Town Centre
Retail Zone
Total Gross floor area: 2709 sqm
Survey date: TUESDAY *12/11/13* *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 05 - HEALTH/G - GP SURGERIES
MULTI-MODAL LGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	2709	0.000	1	2709	0.000	1	2709	0.000
08:00 - 09:00	1	2709	0.000	1	2709	0.000	1	2709	0.000
09:00 - 10:00	1	2709	0.037	1	2709	0.037	1	2709	0.074
10:00 - 11:00	1	2709	0.037	1	2709	0.000	1	2709	0.037
11:00 - 12:00	1	2709	0.000	1	2709	0.037	1	2709	0.037
12:00 - 13:00	1	2709	0.000	1	2709	0.000	1	2709	0.000
13:00 - 14:00	1	2709	0.000	1	2709	0.000	1	2709	0.000
14:00 - 15:00	1	2709	0.074	1	2709	0.074	1	2709	0.148
15:00 - 16:00	1	2709	0.037	1	2709	0.037	1	2709	0.074
16:00 - 17:00	1	2709	0.037	1	2709	0.037	1	2709	0.074
17:00 - 18:00	1	2709	0.000	1	2709	0.000	1	2709	0.000
18:00 - 19:00	1	2709	0.000	1	2709	0.000	1	2709	0.000
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.222			0.222			0.444

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.*

Transport Planning Practice
70 Cowcross Street
London EC1M 6EL
020 7608 0008
email@tppweb.co.uk

www.tppweb.co.uk

Technical Appendix J

Proposed access strategy

TPP
transport planning practice

X.X Accesss Strategy

Access within the public realm will generally be limited to emergency vehicles and delivery access which will take place outside core shopping hours.

Access will be controlled through the provision of automated barriers at key locations to service the public realm.

The main entry for delivery and emergency vehicles serving the public realm will be via Lower Market Way from Greyfriars Road with egress for delivery vehicles via the new access road , Rover Way (south of Covenry Market) onto Queen Victoria Road.

Emergency access will be faciliated to Market Way in order to service the existing public realm and also via Hertford Street to allow access within Block B with egress via High Street and Broadgate to the north.

Coventry Market

Service and delivery access will be maintained to Coventry Market within the existing service yard to the north and supplemented with a new access to the existing basement from Queen Victoria Road Access to market stalls located on the eastern and southern perimeter extents of Coventry Market may be serviced from the public realm during prescribed hours.

Servicing Strategy

The configuration of control, operation and servicing hours for delivery access within the public realm will need to be determined in discussion with city centre management team and other relevant stakeholders.

Figure X.X - Access Strategy

Key

- Fixed barrier
- Access control point
- Car access
- Service access
- Delivery / service access (restricted hours)
- Emergency access
- Basement service yard via Barracks Way

Technical Appendix K

TPP report D013 –
Trip Generation Note -
Vehicular Modes

TPP
transport planning practice

Shearer Property Regen Limited

City Centre South
Trip Generation Note
Vehicular Modes

September 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

Appendices

A	Weekday TRICS Output - Residential
B	Saturday TRICS Output - Residential
C	Saturday TRICS Output - Retail
D	Richard Parker paper 1985
E	Weekday TRICS Output – F&B
F	Saturday TRICS Output - F&B
G	Weekday TRICS Output – Office
H	Saturday TRICS Output - Office
I	Weekday TRICS Output – Hotel
J	Weekday TRICS Output – Leisure
K	Saturday TRICS Output - Leisure
L	Weekday TRICS Output – Community

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) has been commissioned by Shearer Property Regen Limited to provide transport planning advice with regard to the development of Coventry City Centre South (CCS).

1.1.2 This Trip Generation Note has been prepared for the benefit of Coventry City Council in order to set out and explain the vehicular trip generation and mode share impact assessment methodology and results.

2 PERSON TRIP GENERATION GENERAL ASSUMPTIONS

2.1.1 The vehicular trip generation has been calculated from person trip rates obtained from the TRICS database. It should be noted that the vehicle trips form part of the overall person trips and are not additional to them. The vehicular mode share has then been calculated based on 2011 Census data.

2.1.2 TPP report *D17 Trip Generation Note – Sustainable Modes* sets out the trip generation results for sustainable modes of transport such as walking, cycling, bus and train.

2.2 General assumptions

2.2.1 General assumptions for the person trip generation and mode share calculations were discussed and agreed with CCC highways at meetings on the 6th and 20th February. These include:

- The use of the TRICs database to derive trip rates.
- The use of the 2011 Census data Method of travel to work (2001 specification) – super output area – lower layer E01009642: Coventry 031C to determine modal split for the Residential and Hotel uses.
- The use of the 2011 Census data Method of travel to work (Workday population) – super output area – middle layer E02001988: Coventry 031 to determine the modal split for the Retail, F&B, Office, Leisure and Community uses
- The weekday highway AM peak was calculated to be 09:00 – 10:00 and the PM calculated as 17:00 - 18:00 based on the Automatic Traffic Count (ATC) survey data and then corroborated with vehicular turning count survey data.
- The Saturday highway peak has been calculated to be 14:00 – 15:00 based on the ATC survey data and then corroborated with vehicular turning count survey data.
- A daily period of 07:00 – 19:00.

3 RESIDENTIAL USE

3.1 Residential uses – Weekday

3.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed residential development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and privately owned flats. The resultant TRICS output is contained within Appendix A. The weekday person trip rates per unit for residential development are shown in Table 3.1.

Table 3.1: Residential trip rates per unit - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0.051	0.266	0.317
17:00-18:00	0.607	0.229	0.836
Daily	**2.527**	**2.514**	**5.041**

3.1.2 As there are no existing residential uses within the proposed development site, all residential trips have been assumed to be new to the site. Based on a maximum of 1,300 residential units, Table 3.2 shows the resultant net total person trips for the residential uses of the proposed development during a weekday.

Table 3.2: Residential net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	66	345	411
17:00-18:00	787	297	1,084
Daily	**3,279**	**3,261**	**6,540**

3.1.3 As can be seen from Table 3.2, there would be 3,279 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,261 new departures resulting in a total of 6,540 new person trips on a weekday.

Residential travel mode share - Weekday

3.1.4 The travel mode share for the proposed residential development has been based on 2011 Census data *Method of Travel to Work (2001 specification)*. Table 3.3 shows the resultant mode share.

Table 3.3: Peak hour Net travel mode share – Residential - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	25.5%	17	88	105	201	76	277
Car or van pass	5.4%	4	19	23	42	16	58
Taxi	0.0%	0	0	0	0	0	0
Motorcycle	1.3%	1	4	5	10	4	14
Total	**32.20%**	**22**	**111**	**133**	**253**	**96**	**349**

3.1.5 As can be seen from Table 3.3, there would be a total of 133 new person trips travelling by vehicle on the highway network in the AM peak hour of which 105 would be car or van trips. In the PM peak hour there would be a total of 349 new person trips travelling by vehicle on the highway network of which 277 would be car or van trips.

3.1.6 In addition, it should be noted that Census data only considers journeys to work and therefore excludes journeys such as those to local schools which are often to destinations that are nearby and more likely to involve walking and bus trips. Therefore the car mode share for the residential development could be significantly less than that contained within Table 3.3. This is likely to provide a robust assessment of journeys by motorised transport.

3.2 Residential uses - Saturday

3.2.1 The TRICS database has been interrogated to obtain suitable comparator sites. There was a single site within TRICS which provided residential person trip rates for a Saturday. This site is located at the edge of Derby's town centre and the survey is based on privately owned flats. It is therefore considered a reasonable comparator site for providing Saturday trip rates for the residential uses, particularly as Saturday trips by residential uses are less likely to impact on the local transport network.

3.2.2 The resultant TRICS output is contained within Appendix B. The Saturday person trip rates per unit for residential development are shown in Table 3.4.

Table 3.4: Residential trip rates per unit - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	0.036	0.107	0.143
Daily	**1.535**	**1.178**	**2.713**

3.2.3 As there are no existing residential uses within the proposed development site, all residential trips have been assumed to be new to the site. Based on a

maximum 1,300 residential units, Table 3.5 shows the resultant net total person trips for the residential uses of the proposed development during a Saturday.

Table 3.5: Residential net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	46	139	185
Daily	**1,989**	**1,530**	**3,519**

3.2.4 As can be seen from Table 3.5 shows there would be 1,989 new person arrivals across a 12 hour day between 07:00 – 19:00 and 1,530 new departures resulting in a total of 3,519 new person trips on a Saturday.

Residential travel mode share - Saturday

3.2.5 The travel mode share for the proposed residential development has been based on 2011 Census data *Method of Travel to Work (2001 specification)*. It is expected that residents would continue to use the same mode of transport on a Saturday as a weekday although there are likely to be fewer longer distance trips and therefore walking and cycling could represent a higher mode share on a Saturday. Therefore, by using *Method of Travel to Work* data, the Saturday mode share is likely to provide a robust assessment of journeys by motorised transport. Table 3.6 shows the resultant mode share.

Table 3.6: Net travel mode share – Residential - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	25.5%	12	35	47
Car or van pass	5.4%	2	8	10
Taxi	0.0%	0	0	0
Motorcycle	1.3%	1	2	3
Total	**32.20%**	**15**	**45**	**60**

3.2.6 As can be seen from Table 3.6, there would be a total of 60 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 47 would be car or van trips.

4 RETAIL USES

4.1 Retail uses - Weekday

4.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed retail development. The main land use of *Retail* and sub-land use of *Mixed Shopping Malls* has been selected in TRICS. There is no land use category within TRICS for high street retail.

4.1.2 Based on a selection criteria of a town centre location (not within Greater London or Ireland), there was one site within the TRICS database which had comparable characteristics to the CCS development proposals. The TRICS output is contained within Appendix C.

4.1.3 The TRICS survey had been undertaken on a Saturday and there were no suitable comparator sites available for a Weekday. Therefore the Richard Parker paper 1985 *Traffic Characteristics of Major Retail Developments* has been consulted. This report looks at the transport characteristics of a number shopping centres and retail developments on weekdays and Saturdays. Figure 5 of the report shows that on average, there were approximately 20% fewer trips on a weekday than on a Saturday. A copy of the Parker Report is contained within Appendix D.

4.1.4 Therefore the Saturday trip rates have been reduced by 20% based on Figure 5 of the Parker Report to provide Weekday trip rates. The weekday person trip rates per 100m^2 for retail development are shown in Table 4.1.

Table 4.1: Retail trip rates per 100m^2 - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	5.258	3.929	9.187
17:00-18:00	1.152	2.974	4.126
Daily	**39.582**	**39.149**	**78.731**

4.1.5 The trip rates in Table 4.1 have been used to calculate the existing and proposed retail trips. The existing retail uses of the site amount to circa 25,000m^2 with the proposals amounting to circa 20,000m^2. Therefore, a simple trip generation net calculation would show the retail uses to have a decrease in person trips.

4.1.6 It is worth noting that most of the person trips associated with the existing site are linked or pass-by from other elements of the city centre. Therefore it has

been considered reasonable and robust that trips specifically associated with the existing site represent 25% of its total trip generation. The resultant existing retail trips calculated from the trip rates in Table 4.1 have been multiplied by 25% to derive the trips specifically generated by the existing retail uses.

4.1.7 Whilst it is also considered that retail trips specifically associated with the new retail proposals would represent 25% of the overall trip generation, the proposals are to revitalise the area and provide a better retail offer over the existing situation which should result in an increase in dedicated trips.

4.1.8 In order to allow for the enhanced retail offer and provide a robust assessment of the proposals, the retail trips specifically associated with the new retail proposals have been uplifted to represent 40% of the overall trip generation.

4.1.9 Therefore, the trip rates in Table 4.1 have been multiplied by 40%. Table 4.2 shows the resultant net total person trips for the retail uses of the proposed development during a weekday.

Table 4.2: Retail net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	89	67	156
17:00-18:00	20	50	70
Daily	**680**	**660**	**1,340**

4.1.10 As can be seen from Table 4.2, there would be 680 new person arrivals across a 12 hour day between 07:00 – 19:00 and 660 new departures resulting in a total of 1,340 new person trips on a weekday.

Retail travel mode share - Weekday

4.1.11 The travel mode share for the proposed retail development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. Table 4.3 shows the resultant mode share. It is considered reasonable that those travelling into the city centre for shopping do so by the same modes as those travelling in for work.

Table 4.3: Net travel mode share – Retail - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	53.9%	48	36	84	11	27	38
Car or van pass	6.7%	6	4	10	1	3	4
Taxi	0.3%	0	0	0	0	0	0
Motorcycle	0.5%	0	0	0	0	0	0
Total	**61.40%**	**54**	**40**	**94**	**12**	**30**	**42**

4.1.12 As can be seen from Table 4.3, there would be a total of 94 new person trips travelling by vehicle on the highway network in the AM peak hour of which 84 would be car or van trips. In the PM peak hour there would be a total of 42 new person trips travelling by vehicle on the highway network of which 38 would be car or van trips.

4.2 Retail uses - Saturday

4.2.1 The retail trip rates used for a Saturday are the same as those used for a weekday. However the Saturday trip rates have not been factored down in-line with the findings of the Parker Report as the TRICS survey was undertaken on a Saturday. The Saturday person trip rates per 100m^2 for retail development are shown in Table 4.4.

Table 4.4: Retail trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	5.883	6.129	12.012
Daily	**49.476**	**48.936**	**98.412**

4.2.2 The person trip generation has been based on the same assumptions set out within paragraphs 4.1.5 to 4.1.7. Table 4.5 shows the resultant net total person trips for the retail uses of the proposed retail element of the development during a Saturday.

Table 4.5: Retail net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	101	104	205
Daily	**845**	**828**	**1,673**

4.2.3 As can be seen from Table 4.5, there would be 845 new person arrivals across a 12 hour day between 07:00 – 19:00 and 828 new departures resulting in a total of 1,673 new person trips on a Saturday.

Retail travel mode share - Saturday

4.2.4 The travel mode share for the proposed retail development has been based on 2011 Census data *Method of Travel to Work (Workday population)*. It is expected that shoppers and visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 4.6 shows the resultant mode share.

Table 4.6: Travel mode share – Retail - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	53.9%	54	56	110
Car or van pass	6.7%	7	7	14
Taxi	0.3%	0	0	0
Motorcycle	0.5%	1	1	2
Daily	**61.40%**	**62**	**64**	**126**

4.2.5 As can be seen from Table 4.6, there would be a total of 126 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 110 would be car or van trips.

5 FOOD & BEVERAGE USES

5.1 Food & Beverage uses - Weekday

5.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed Food & Beverage (F&B) development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and a sub-category of Built-Up Zone and High Street. The resultant TRICS output is contained within Appendix E. The weekday person trip rates per 100m^2 for F&B development are shown in Table 5.1.

Table 5.1: F&B trip rates per 100m^2 - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0	0	0
17:00-18:00	1.786	2.5	4.286
Daily	**26.025**	**24.954**	**50.979**

5.1.2 The proposed F&B will consist of circa 3,250m^2 of development. The trip rates in Table 5.1 have been used to calculate the existing and proposed F&B trips. The majority of F&B use person trips are made by people already within the locality of a particular establishment i.e. pass-by or linked trips. Therefore, few trips are specifically associated with a particular F&B unit. Given the large quantum of combined trips between retail and F&B, it is considered reasonable that trips specifically associated with the existing F&B uses represent 5% of its overall total trip generation. The resultant existing F&B trips calculated from the trip rates in Table 5.1 have been multiplied by 5% to derive the trips specifically generated by the existing F&B uses.

5.1.3 It is also considered reasonable and robust that F&B trips specifically associated with the proposals would represent 5% of the overall trip generation as they will still be made by people already within the locality of a particular establishment. Table 5.2 shows the resultant net total person net trips for the F&B uses of the proposed development during a weekday.

Table 5.2: F&B net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0	0	0
17:00-18:00	-1	-2	-3
Daily	**-10**	**-14**	**-24**

5.1.4 As can be seen from Table 5.2, there would be seven fewer person arrivals and departures person trips across a 12 hour day between 07:00 – 19:00 resulting in a total reduction of 24 person trips.

F&B travel mode share - Weekday

5.1.5 The travel mode share for the proposed F&B development has been based on the same mode share used for retail uses. Table 5.3 shows the resultant mode share.

Table 5.3: Net travel mode share – F&B - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	53.9%	0	0	0	-1	-1	-2
Car or van pass	6.7%	0	0	0	0	0	0
Taxi	0.3%	0	0	0	0	0	0
Motorcycle	0.5%	0	0	0	0	0	0
Total	**61.40%**	**0**	**0**	**0**	**-1**	**-1**	**-2**

5.1.6 As can be seen from Table 5.3, the overall reduction in person trips would result in zero trips being spread across all vehicular modes during the AM peak hour and a reduction in trips in the PM peak hour.

5.2 F&B uses - Saturday

5.2.1 The TRICS database did not contain any town centre comparator sites for F&B uses on a Saturday. There was one site available for which the survey was undertaken on a Sunday. It is considered that for an assessment period between 07:00 -19:00, the trip generation and its profile would be broadly similar to that for a Saturday.

5.2.2 The resultant TRICS output is contained within Appendix F. The Saturday person trip rates for F&B uses are shown in Table 5.4.

Table 5.4: F&B net trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	2.398	1.199	3.597
Daily	**23.5**	**15.348**	**38.848**

5.2.3 The person trip generation has been based on the same assumptions set out within paragraphs 5.1.2 and 5.1.3. Table 5.5 shows the resultant net total person trips for the retail uses of the proposed development during a Saturday, based on only 5% of trips being specifically for the F&B.

Table 5.5: F&B net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	-2	0	-2
Daily	**-9**	**-6**	**-15**

5.2.4 As can be seen from Table 5.5, there would be 9 fewer person arrivals across a 12 hour day between 07:00 – 19:00 and 6 fewer departures resulting in a total reduction of 15 person trips on a Saturday.

F&B travel mode share - Saturday

5.2.5 The travel mode share for the proposed F&B uses on a Saturday is based on that used for a weekday. It is expected that visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 5.6 shows the resultant mode share.

Table 5.6: Travel mode share – F&B - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	53.9%	-1	0	-1
Car or van pass	6.7%	0	0	0
Taxi	0.3%	0	0	0
Motorcycle	0.5%	0	0	0
Total	**61.40%**	**-1**	**0**	**-1**

5.2.6 As can be seen from Table 5.6, there would be a reduction in one car or van trip associated with the F&B uses during the Saturday peak hour.

6 OFFICE USE

6.1 Office use - Weekday

6.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed office development. The selection criteria included a town centre location (not within Greater London or Ireland), B1 use class and weekday surveys.

6.1.2 TRICS output is contained within Appendix G. The weekday person trip rates per 100m^2 for office development are shown in Table 6.1.

Table 6.1: Office trip rates per 100m^2 - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	1.326	0.256	1.582
17:00-18:00	0.088	1.972	2.06
Daily	**8.51**	**8.313**	**16.823**

6.1.3 The trip rates in Table 6.1 have been used to calculate the existing and proposed office trips. The existing office uses of the site amount to circa 5,900m^2 with the proposals amounting to circa 2,700m^2. Table 6.2 shows the resultant net total person net trips for the office uses of the proposed development during a weekday.

Table 6.2: Office net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	-42	-8	-50
17:00-18:00	-3	-63	-66
Daily	**-271**	**-268**	**-539**

6.1.4 As can be seen from Table 6.2, there would be a reduction of 271 person arrivals across a 12 hour day between 07:00 – 19:00 and a reduction of 268 departures resulting in a total reduction of 539 person trips on a weekday.

Office travel mode share - Weekday

6.1.5 The travel mode share for the proposed office development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. Table 6.3 shows the resultant mode share.

Table 6.3: Net travel mode share – Office - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	53.9%	-23	-4	-27	-2	-34	-36
Car or van pass	6.7%	-3	-1	-4	0	-4	-4
Taxi	0.3%	0	0	0	0	0	0
Motorcycle	0.5%	0	0	0	0	0	0
Daily	**61.40%**	**-26**	**-5**	**-31**	**-2**	**-38**	**-40**

6.1.6 As can be seen from Table 6.3, there would be a total reduction of 31 person trips travelling by vehicle on the highway network in the AM peak hour of which 27 would be vehicle trips. In the PM peak hour there would be a total reduction of 40 person trips travelling by vehicle on the highway network of which 36 would be vehicle trips.

6.2 Office use - Saturday

6.2.1 The TRICS database did not contain any town centre comparator sites for office uses on a Saturday for a town centre. The scope of the search was opened up to include sites in Greater London. This returned one site which has been used for the calculation. Office uses are not considered to be a significant trip generator on a weekend.

6.2.2 TRICS output is contained within Appendix H. The Saturday person trip rates per 100m^2 for office development are shown in Table 4.4.

Table 6.4: Office net trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	0.16	0.198	0.358
Daily	**2.059**	**1.928**	**3.987**

6.2.3 Table 6.5 shows the resultant net total person trips for the office uses of the proposed development during a Saturday.

Table 6.5: Office net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	-5	-7	-12
Daily	**-64**	**-62**	**-126**

6.2.4 As can be seen from Table 6.5, there would be a reduction of 64 person arrivals across a 12 hour day between 07:00 – 19:00 and a reduction of 62 person departures, resulting in a total reduction of 126 person trips.

Office travel mode share - Saturday

6.2.5 The travel mode share for the proposed office development has been based on 2011 Census data *Method of Travel to Work (Workday population)*. It is expected that office staff would continue to use the same mode of transport on a Saturday as a weekday. Table 6.6 shows the resultant mode share.

Table 6.6: Travel mode share – Office - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	53.9%	-3	-4	-7
Car or van pass	6.7%	0	0	0
Taxi	0.3%	0	0	0
Motorcycle	0.5%	0	0	0
Total	**61.40%**	**-3**	**-4**	**-7**

6.2.6 As can be seen from Table 6.6, there would be a total reduction of 7 person trips travelling by vehicle on the highway network during the Saturday peak hour of which 7 would be vehicle trips.

7 HOTEL USE

7.1 Hotel use - Weekday

7.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed hotel development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and C1 land use class. The resultant TRICS output is contained within Appendix I. The weekday person trip rates per 100m^2 for hotel development are shown in Table 7.1.

Table 7.1: Hotel trip rates per unit - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0.679	1.388	2.067
17:00-18:00	1.326	0.658	1.984
Daily	**10.014**	**10.32**	**20.334**

7.1.2 As there are no existing hotel uses within the proposed development site, all hotel trips have been assumed to be new to the site. Based on a proposed hotel area of circa 6,000m^2, Table 7.2 shows the resultant net total person trips for the hotel uses of the proposed development during a weekday.

Table 7.2: Hotel net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	41	83	124
17:00-18:00	79	39	118
Daily	**600**	**617**	**1,217**

7.1.3 As can be seen from Table 7.2, there would be 600 new person arrivals across a 12 hour period between 07:00 – 19:00 and 617 new departures resulting in a total of 1,217 new person trips on a weekday.

Hotel travel mode share - Weekday

7.1.4 The travel mode share for the proposed hotel development has been based on the same mode share as the residential uses. It is likely that those persons arriving and departing the hotel in the peak hours will take a similar choice in travel mode as residents living within the development. Table 7.3 shows the resultant mode share.

Table 7.3: Net travel mode share – Hotel - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	25.5%	10	21	31	20	10	30
Car or van pass	5.4%	2	4	6	4	2	6
Taxi	0.0%	0	0	0	0	0	0
Motorcycle	1.3%	1	1	2	1	1	2
Total	**32.20%**	**13**	**26**	**39**	**25**	**13**	**38**

7.1.5 As can be seen from Table 7.3, there would be a total of 39 new person trips travelling by vehicle on the highway network in the AM peak hour of which 31 would be car or van trips. In the PM peak hour there would be a total of 38 new person trips travelling by vehicle on the highway network of which 30 would be car or van trips.

7.2 Hotel uses - Saturday

7.2.1 The TRICS database has been interrogated to obtain suitable comparator sites. The only site available within the database which had Saturday survey data was located on the edge of town centre. The site was reviewed and considered too remote from the town centre with access only really possible by car, and therefore not suitable as a comparator site.

7.2.2 A review of survey data obtained for a number of hotels indicated that on average, visitor numbers on a Saturday increased by approximately 20% when compared to a weekday.

7.2.3 Therefore the weekday trip rates contained within Table 7.1 have been factored up by approximately 20%.The Saturday person trip rates per 100m^2 for hotel development are shown in Table 7.4.

Table 7.4: Hotel trip rates per unit - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	0.918	1.003	1.921
Daily	**11.918**	**12.282**	**24.2**

7.2.4 As there are no existing hotel uses within the proposed development site, all hotel trips have been assumed to be new to the site. Based on a proposed hotel area of circa 6,000m^2, Table 7.5 shows the resultant total person trips for the hotel uses of the proposed development on a Saturday.

Table 7.5: Hotel net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	55	60	115
Daily	**714**	**738**	**1,452**

7.2.5 As can be seen from Table 7.5, there would be 714 person arrivals across a 12 hour day between 07:00 – 19:00 and 738 departures resulting in a total of 1,452 person trips on a Saturday.

Hotel travel mode share - Saturday

7.2.6 The travel mode share for the proposed hotel development has been based on the residential development for a Saturday. It is likely that those persons arriving and departing the hotel on a Saturday will take a similar choice in travel mode as residents living within the city centre. Table 7.6 shows the resultant mode share.

Table 7.6: Net travel mode share – Hotel - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	25.5%	14	15	29
Car or van pass	5.4%	3	3	6
Taxi	0.0%	0	0	0
Motorcycle	1.3%	1	1	2
Total	**32.20%**	**18**	**19**	**37**

7.2.7 As can be seen from Table 7.6, there would be a total of 37 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 29 would be car or van trips.

8 LEISURE USE

8.1 Leisure use - Weekday

8.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed leisure (cinema) use of the development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland), a sub-category of High Street and a D2 use class. The resultant TRICS output is contained within Appendix J. The weekday person trip rates per 100m^2 for the leisure development use are shown in Table 8.1.

Table 8.1: Leisure trip rates per 100m^2 - – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0	0	0
17:00-18:00	4	1.227	5.227
Daily	**16.5**	**8.636**	**25.136**

8.1.2 As there are no existing leisure (cinema) uses within the proposed development site, all leisure trips have been assumed to be new to the site. However, it is considered that a proportion of trips to leisure uses in the city centre will be undertaken by people already in the locality such as shoppers and retail workers etc. Therefore it has been considered reasonable that new trips specifically associated with the leisure uses represent 80% of its overall total trip generation. Based on a proposed leisure use area of circa 2,150m^2, Table 8.2 shows the resultant net total person trips for the leisure uses of the proposed development during a weekday.

Table 8.2: Leisure net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	0	0	0
17:00-18:00	69	21	90
Daily	**285**	**150**	**435**

8.1.3 As can be seen from Table 8.2, there would be 285 person arrivals across a 12 hour period between 07:00 – 19:00 and 150 departures resulting in a total of 435 person trips on a weekday.

Leisure travel mode share - Weekday

8.1.4 The travel mode share for the proposed leisure uses have been based on the same mode share used for retail and F&B uses. Table 8.3 shows the resultant mode share.

Table 8.3: Net travel mode share – Leisure - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	53.9%	0	0	0	37	11	48
Car or van pass	6.7%	0	0	0	5	1	6
Taxi	0.3%	0	0	0	0	0	0
Motorcycle	0.5%	0	0	0	0	0	0
Total	**61.40%**	**0**	**0**	**0**	**42**	**12**	**54**

8.1.5 As can be seen from Table 8.3, there would be no new person trips travelling by vehicle on the highway network in the AM peak hour. In the PM peak hour there would be a total of 54 new person trips travelling by vehicle on the highway network of which 48 would be car or van trips.

8.2 Leisure use - Saturday

8.2.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed leisure (cinema) use of the development. One site was available for a Saturday. The comparator site selected is based on an edge of town centre location (not within Greater London or Ireland) and a D2 use class. The resultant TRICS output is contained within Appendix K. The Saturday person trip rates for leisure use are shown in Table 8.4.

Table 8.4: Leisure net trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	4.000	2.516	6.516
Daily	**39.934**	**26.645**	**66.579**

8.2.2 As there are no existing leisure (cinema) uses within the proposed development site, all leisure trips have been assumed to be new to the site. However, it is considered that a proportion of trips to leisure uses in the city centre will be undertaken by people already in the locality such as shoppers and retail workers etc. Therefore it has been considered reasonable and robust that trips specifically associated with the leisure uses represent 80% of its overall total trip generation. Based on a proposed leisure use area of circa 2,150m^2, Table 8.5

shows the resultant net total person trips for the leisure uses of the proposed development during a weekday.

Table 8.5: Leisure net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	69	43	112
Daily	**690**	**460**	**1,150**

8.2.3 As can be seen from Table 8.5, there would be 690 new person arrivals across a 12 hour day between 07:00 – 19:00 and 460 new departures resulting in a total of 1,150 new person trips on a Saturday.

Leisure travel mode share - Saturday

8.2.4 The travel mode share for the proposed Leisure uses on a Saturday is based on that used for a weekday. It is expected that visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 8.6 shows the resultant mode share.

Table 8.6: Travel mode share – Leisure - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	53.9%	30	18	48
Car or van pass	6.7%	4	2	6
Taxi	0.3%	0	0	0
Motorcycle	0.5%	0	0	0
Total	**61.40%**	**34**	**20**	**54**

8.2.5 As can be seen from Table 8.6, there would be a total of 54 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 48 would be car or van trips.

9 COMMUNITY USE

9.1 Community use - Weekday

9.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed community use development (medical centre). The selection criteria included a town centre location, with sub category of retail zone, D1 use class and weekday surveys. Greater London needed to be included in the selection process as there were no sites available based on the location criteria.

9.1.2 TRICS output is contained within Appendix L. The weekday person trip rates per 100m^2 for community use (medical centre) are shown in Table 9.1.

Table 9.1: Community use trip rates per 100m^2 - Weekday

Time	Arrivals	Departures	Total
09:00-10:00	1.366	0.923	2.289
17:00-18:00	0.701	1.366	2.067
Daily	**12.551**	**11.848**	**24.399**

9.1.3 As there are no existing community uses within the proposed development site, all community trips have been assumed to be new to the site. Based on a proposed community use area of circa 2,400m^2, Table 9.2 shows the resultant net total person trips for the community uses of the proposed development during a weekday.

Table 9.2: Community use net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	33	22	55
17:00-18:00	17	33	50
Daily	**301**	**283**	**584**

9.1.4 As can be seen from Table 9.2, there would be 301 new person arrivals across a 12 hour period between 07:00 – 19:00 and 283 new departures resulting in a total of 584 new person trips on a weekday.

Community use travel mode share - Weekday

9.1.5 The travel mode share for the proposed community use development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. It is considered that people will travel into the city for the community use by the same modes they also use to travel to work and to shop. This is considered

robust as most people will live within close proximity to the community use and are therefore more likely to travel by sustainable modes such as walking. Table 9.3 shows the resultant mode share.

Table 9.3: Net travel mode share – Community use - Weekday

Mode	%	AM peak hour			PM peak hour		
		Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	53.9%	18	12	30	9	18	27
Car or van pass	6.7%	2	1	3	1	2	3
Taxi	0.3%	0	0	0	0	0	0
Motorcycle	0.5%	0	0	0	0	0	0
Total	**61.40%**	**20**	**13**	**33**	**10**	**20**	**30**

9.1.6 As can be seen from Table 9.3, there would be a total of 33 new person trips travelling by vehicle on the highway network in the AM peak hour of which 30 would be car or van trips. In the PM peak hour there would be a total of 30 new person trips travelling by vehicle on the highway network of which 27 would be car or van trips.

9.2 Community use - Saturday

9.2.1 The TRICS database did not contain any comparator sites for community use on a Saturday. It is considered that the community use would have a similar trip generation and profile to that for a weekday if it was open on a Saturday. Therefore the same trip rates for a weekday have been used for a Saturday. The Saturday person trip rates per 100m^2 for community use (medical centre) are shown in Table 9.4.

Table 9.4: Community use trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
14:00-15:00	1.144	1.181	2.325
Daily	**12.551**	**11.848**	**24.399**

9.2.2 Based on a proposed community use area of circa 2,400m^2, Table 9.5 shows the resultant net total person trips for the community uses of the proposed development during a Saturday.

Table 9.5: Community use net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	27	28	55
Daily	**301**	**283**	**584**

9.2.3 As can be seen from Table 9.5, there would be 301 new person arrivals across a 12 hour period between 07:00 – 19:00 and 283 new departures resulting in a total of 584 new person trips if the Community use was open on a Saturday.

Community use travel mode share - Saturday

9.2.4 It is expected that as with the trip generation for the community use, the travel mode share for a Saturday will be the same as that for a weekday. Table 9.6 shows the resultant mode share.

Table 9.6: Travel mode share – Community - Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Car or van	53.9%	15	15	30
Car or van pass	6.7%	2	2	4
Taxi	0.3%	0	0	0
Motorcycle	0.5%	0	0	0
Total	**61.40%**	**17**	**17**	**34**

9.2.5 As can be seen from Table 9.6, there would be a total of 34 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 30 would be car or van trips.

10 ALL USES

10.1 All uses - Weekday

10.1.1 The total net trip generation for the development proposals on a weekday is shown in Table 10.1.

Table 10.1: All uses net total person trips across development – Weekday

Time	Arrivals	Departures	Total
09:00-10:00	187	509	696
17:00-18:00	968	375	1,343
Daily	**4,864**	**4,689**	**9,553**

10.1.2 As can be seen from Table 10.1, there would be 4,864 new person arrivals across a 12 hour period between 07:00 – 19:00 and 4,689 new departures resulting in a total of 9,553 new person trips on a weekday.

All uses travel mode share - Weekday

10.1.3 The travel mode share for all uses of the proposed development during the AM and PM peak hours is shown in Table 10.2

Table 10.2: Net travel mode share – All uses - Weekday

Mode	AM peak hour			PM peak hour		
	Arr.	Dep.	Total	Arr.	Dep.	Total
Car or van	70	153	223	275	107	382
Car or van pass	11	27	38	53	20	73
Taxi	0	0	0	0	0	0
Motorcycle	2	5	7	11	5	16
Total	**83**	**185**	**268**	**339**	**132**	**471**

10.1.4 As can be seen from Table 10.2, there would be a total of 268 new person trips travelling by vehicle on the highway network in the AM peak hour of which 223 would be car or van trips. In the PM peak hour there would be a total of 471 new person trips travelling by vehicle on the highway network of which 382 would be car or van trips.

10.2 All uses - Saturday

10.2.1 The total net trip generation for the development proposals on a Saturday is shown in Table 10.3.

Table 10.3: All uses net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	291	367	658
Daily	**4,466**	**3,771**	**8,237**

10.2.2 As can be seen from Table 10.3, there would be 4,466 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,771 new departures resulting in a total of 8,237 new person trips on a Saturday.

All uses travel mode share - Saturday

10.2.3 The travel mode share for all uses of the proposed development during the Saturday peak hour is shown in Table 10.4

Table 10.4: Net travel mode share – All uses - Saturday

Mode	Saturday peak hour		
	Arr.	Dep.	Total
Car or van	128	140	268
Car or van pass	19	23	42
Taxi	0	0	0
Motorcycle	3	4	7
Total	**150**	**167**	**317**

10.2.4 As can be seen from Table 10.4, there would be a total of 317 new person trips travelling by vehicle on the highway network during the Saturday peak hour, of which 268 would be car or van trips.

Appendices

TPP
transport planning practice

Appendix A

Weekday TRICS Output
Residential

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0154

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days
09	NORTH		
	CB	CUMBRIA	1 days

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

Secondary 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: Number of dwellings
Actual Range: 20 to 154 (units:)
Range Selected by User: 6 to 184 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 13/11/18

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:

Thursday	2 days
Friday	1 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	3

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:

Built-Up Zone	3

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:

C3	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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

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:

75,001 to 100,000	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:

0.6 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	CB-03-C-01 KING STREET CARLISLE	BLOCK OF FLATS		CUMBRIA
	Town Centre Built-Up Zone Total Number of dwellings:		40	
	Survey date: THURSDAY		*12/06/14*	*Survey Type: MANUAL*
2	GM-03-C-02 WHITWORTH STREET W. MANCHESTER	BLOCK OF FLATS		GREATER MANCHESTER
	Town Centre Built-Up Zone Total Number of dwellings:		154	
	Survey date: THURSDAY		*13/10/11*	*Survey Type: MANUAL*
3	GM-03-C-03 FAIRFIELD STREET MANCHESTER	BLOCK OF FLATS		GREATER MANCHESTER
	Town Centre Built-Up Zone Total Number of dwellings:		20	
	Survey date: FRIDAY		*14/10/11*	*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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	3	71	0.014	3	71	0.117	3	71	0.131
08:00 - 09:00	3	71	0.056	3	71	0.449	3	71	0.505
09:00 - 10:00	3	71	0.051	3	71	0.266	3	71	0.317
10:00 - 11:00	3	71	0.098	3	71	0.131	3	71	0.229
11:00 - 12:00	3	71	0.145	3	71	0.187	3	71	0.332
12:00 - 13:00	3	71	0.187	3	71	0.252	3	71	0.439
13:00 - 14:00	3	71	0.224	3	71	0.196	3	71	0.420
14:00 - 15:00	3	71	0.215	3	71	0.126	3	71	0.341
15:00 - 16:00	3	71	0.234	3	71	0.187	3	71	0.421
16:00 - 17:00	3	71	0.411	3	71	0.332	3	71	0.743
17:00 - 18:00	3	71	0.607	3	71	0.229	3	71	0.836
18:00 - 19:00	3	71	0.285	3	71	0.042	3	71	0.327
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.527			2.514			5.041

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.*

Appendix B

Saturday TRICS Output
Residential

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0110

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:
05 EAST MIDLANDS
DS DERBYSHIRE 1 days

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

Secondary 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: Number of dwellings
Actual Range: 28 to 28 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 21/06/19

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 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:
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

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:
C3 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:
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:
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:
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 DS-03-C-02 FLATS DERBYSHIRE
BURTON ROAD
DERBY
NEW NORMANTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 28
Survey date: SATURDAY *09/07/11* *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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	28	0.036	1	28	0.000	1	28	0.036
08:00 - 09:00	1	28	0.000	1	28	0.000	1	28	0.000
09:00 - 10:00	1	28	0.036	1	28	0.036	1	28	0.072
10:00 - 11:00	1	28	0.107	1	28	0.107	1	28	0.214
11:00 - 12:00	1	28	0.107	1	28	0.107	1	28	0.214
12:00 - 13:00	1	28	0.107	1	28	0.071	1	28	0.178
13:00 - 14:00	1	28	0.286	1	28	0.393	1	28	0.679
14:00 - 15:00	1	28	0.036	1	28	0.107	1	28	0.143
15:00 - 16:00	1	28	0.321	1	28	0.071	1	28	0.392
16:00 - 17:00	1	28	0.214	1	28	0.107	1	28	0.321
17:00 - 18:00	1	28	0.071	1	28	0.000	1	28	0.071
18:00 - 19:00	1	28	0.214	1	28	0.179	1	28	0.393
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.535			1.178			2.713

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.*

Appendix C

Saturday TRICS Output
Retail

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0128

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : M - MIXED SHOPPING MALLS
MULTI-MODAL VEHICLES

Selected regions and areas:
02 SOUTH EAST
KC KENT 1 days

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

Secondary 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: 8125 to 8125 (units: sqm)
Range Selected by User: 8125 to 14693 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/02 to 24/11/12

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 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:
Town 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:
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:

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 1 mile:
25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000	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.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	1 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

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 KC-01-M-01 SHOPPING MALL KENT
HIGH STREET
MAIDSTONE

Town Centre
High Street
Total Gross floor area: 8125 sqm
Survey date: SATURDAY *24/11/12* *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 01 - RETAIL/M - MIXED SHOPPING MALLS

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	8125	3.926	1	8125	0.148	1	8125	4.074
09:00 - 10:00	1	8125	6.572	1	8125	4.911	1	8125	11.483
10:00 - 11:00	1	8125	6.806	1	8125	5.169	1	8125	11.975
11:00 - 12:00	1	8125	5.342	1	8125	5.526	1	8125	10.868
12:00 - 13:00	1	8125	6.498	1	8125	5.588	1	8125	12.086
13:00 - 14:00	1	8125	5.452	1	8125	6.462	1	8125	11.914
14:00 - 15:00	1	8125	5.883	1	8125	6.129	1	8125	12.012
15:00 - 16:00	1	8125	3.852	1	8125	5.415	1	8125	9.267
16:00 - 17:00	1	8125	3.705	1	8125	5.600	1	8125	9.305
17:00 - 18:00	1	8125	1.440	1	8125	3.717	1	8125	5.157
18:00 - 19:00	1	8125	0.000	1	8125	0.271	1	8125	0.271
19:00 - 20:00	1	8125	0.000	1	8125	0.000	1	8125	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			49.476			48.936			98.412

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.*

Appendix D

Richard Parker paper
1985

TPP
transport planning practice

TRAFFIC CHARACTERISTICS OF MAJOR RETAIL DEVELOPMENTS

Richard Parker
Independent Consultant

INTRODUCTION

In the planning and design of major free-standing regional centres a great many transport aspects have to be investigated and quantified and the implications understood. A significant aspect of this is to ensure that agreement is reached between the developer and his advisers on the one hand and the Planning and Highway Authorities on the other hand.

In the UK we now have many examples of superstores and hypermarkets and considerable research has been carried out into the effects these developments have on the locality. Unfortunately little comparative data from UK sources is available to indicate how a free standing regional shopping centre would perform in a situation where there is no restraint on movement or parking. As more planning applications go to appeal (and anyway most major retail development of this order are likely to be 'called in') it is important to have an agreed base from which the traffic impact can be assessed. Such factors as traffic generation, modal split, time of arrival/departure and parking requirements are all matters that need to be determined before any assessment can be made of the impact of the proposed development on the surrounding area.

In this paper I have reviewed the suitability of current published information, extrapolated relevant criteria observed at hypermarkets and also introduce some recent survey information from a regional centre.

BACKGROUND

Since the opening in 1968 of the two Woolco shopping centres at Oadby and Bournemouth there has been a rapid increase in the number of superstores and hypermarkets in the UK. At the present time there are in excess of 250 stores each with more than 2,500m^2 of retail area. Because of the general acceptance of this style of shopping convenience by the public (and obviously the recognition of this by the retailer) this number is likely to continue to increase. Furthermore the traditional style of shopping in the local High Street has been broken by a combination of increased mobility (due to increasing car-ownership), demand for better standard and layout of stores, the restriction of developing town centre properties and various other social aspects such as working housewives, once-a-week shopping etc etc. The acceptance therefore of travelling some distance to a shopping centre for the repetitive convenience goods (food) has occured and now the indications are that the next step towards a number of regional shopping centres is likely to occur. There have been numerous studies to assess the economic, environmental, traffic, pollution, retailing and sociological impacts that the smaller developments of superstores and hypermarkets have on the surrounding areas. In fact it is fair to say that the impact

any proposed development will have can be reasonably accurately determined from a combination of known characteristics for a particular size, type and style of centre allied with the local conditions. However that is not the case with the proposed regional shopping centres as so few precedents exist within the UK no clear pattern has yet been established on what the characteristics are.

To avoid confusion I have used the following convention to define the term superstore, hypermarket, and regional centre:

Name	Gross Leasable Area	Characteristics
Superstore	2500-5000m^2	single store
Hypermarket	5000-15000m^2	one major occupier (convenience food) and a number of small service shops
Regional Shopping Centre	25000+m^2	department store(s), variety shops, small shops and boutiques

PHYSICAL CHARACTERISTICS

A regional shopping centre is different from hypermarkets and superstores not just by the fact that it is many times larger but also by the nature of the type of tenant and the type of customer. Hypermarkets and superstores have one major occupier selling principally convenience goods and the development may or may not contain a number of small peripheral 'service' outlets (newsagents, chemist, launderette, petrol station etc). Shoppers by and large are attracted to the one large convenience outlet and use the subsidiary outlets as a secondary function. A regional shopping centre however, usually contains two department stores, a number of other large variety stores and multiplicity of small 'boutique' style shops. Shoppers, therefore, are visiting the centre for the more durable commodities and their shopping is undertaken on the basis of 'comparison' between the various competing stores within the overall development. This essential difference in style gives rise to a markedly different characteristic of visitors to the centre. The attraction of shoppers is less per unit floor area, their stay is longer and they are drawn from a wider area. This therefore gives rise to problems of trying to predict behavioural or quantitative effects of the large regional shopping centres based on known characteristics of the smaller centres.

At the outset it is worthwhile setting out the current status of the various regional shopping centes in the UK and their essential features.

Brent Cross, opened in mid 1970's, two department stores, four large variety stores and over 70 small units, 73,000m^2 of gross leasable area, 5200 parking spaces. Located in North London adjacent to the North Circular Road and the southern end of the M1. Public transport access is good.

Milton Keynes, not a free-standing development but the wholly new centre for this modern city. First stage opened in 1979. One major department store, seven variety stores, two food supermarkets. High proportion of service facilities (i.e. banks, building societies, post office) and adjoining civic centre. Over 6000 parking spaces.

Metro Centre (Gateshead), under construction. First phase completion mid 1986 - Over 100,000m^2 retail space, 5500 parking spaces with plans for expansion to 8000 spaces. Located in an Enterprise Zone.

Centre 21, delayed. Inquiry early 1982. Minister rejected recommendation for Approval. Proposal based on 91,000m^2 leasable area, 6000 parking spaces. Located immediately adjacent to M1/M69 junction on the south side of Leicester urban area.

Others. The imminent completion of the M25 has resulted in planning applications being submitted for further regional centres near the M25. Applications have been submitted for two schemes on adjoining sites at Thurrock (of 100,000 and 125,000m^2 gross floor area each) and at least one development of a similar size on the M25 to the west of London.

In France, USA and Canada there are a number of established free-standing regional shopping centres but the different social backgrounds and shopping patterns in these countries make comparisons difficult.

TRIP RATES

The first problem associated with trip generation is the definition of floor area. The following are in use:

gross floor area (GFA) - the total floor area contained within a development. It includes productive and non productive space and is usually measured to the external walls of building.

- omitting the common areas of malls, accesses, landscaping, toilets etc gives

gross leasable area (GLA) - the total floor area rented by a tenant and encompasses both retail sales area and also storage, staff facilities and service areas.

- omitting the storage, staff facilities and service area gives

retail floor space (RFA) - i.e. the 'productive' floor area.

The relationship between these three varies according to the type of layout and development but are generally in the range for regional centres (1)-(4);

Gross Floor Area (GFA)	Gross Leasable Area (GLA)	Retail Floor Area (RFA)
1.0	0.75-0.85	0.40-0.60
	1.0	0.55-0.75

To the traffic engineer the first parameter (gross floor area) is meaningless as its relationship to the 'productive' floor area depends on various non-traffic parameters in the conceptual layout of the malls, landscape and amenity areas etc. The other two parameters, gross leasable area and retail floor area are both commonly used and care is needed to ensure that they are not confused.

Whilst a developer or letting agent will want to know the total number of adult visitors per week the traffic engineer will have the more specific requirement of needing to satisfy the Highway Authority that the traffic for the existing commuter peak hour or the peak shopping traffic flows will not cause insuperable problems. To this end numerous studies have been carried out to determine the trip generation of hypermarkets and superstores (5-7). The term 'visitation rate' is frequently used and is similar to the trip generation rate used in transport planning. However it must be appreciated that this relates only to the one way (inbound) journey and obviously from a traffic engineering viewpoint the outbound trip will have to be catered for as well. Research has indicated that the total attraction by all modes of transport to one of these convenience goods orientated store is in the range 100-130 trips/100m^2 RFA on a Friday and 100-140 trips/100m^2 RFA for a Saturday. (These trips relate to 'shopper groups' which is the basic behavioural unit of travel to retail developments. The size of these shopper groups (7) varies according to the type of retail centre, mode and time of week changing from 1.6 (Friday) to 2.2 (Saturday)).

However account has to be taken of modal split and this varies enormously according to the location of the store, accessibility etc. Published research (7,8) shows that the proportion of all trips being made by car varies from below 50% in the urban, lower car ownership areas to over 90% in high car ownership, rural areas. However a modal split of 75%-85% by car is more normal. Hence to the traffic engineer the crucial generation of private vehicle trips to a superstore/hypermarket is of the order of 70-100 trips/100m^2 RFA for a Friday or a Saturday. These figures have to be treated with a certain amount of caution as petrol-only sales have been shown to constitute as much as 10-15% of this figures.(12,13).

By contrast the generation rates for regional shopping centres are much lower. The French experience (9) is that the generation is of the order of 27-36 RFA private vehicle trips/100m^2 RFA (Friday) and 30-40 trips per 100m^2 per Saturday. Early indications (10) from

Brent Cross showed that the Friday generation was of the order of 30 car trips/ 100m^2 RFA on a Friday rising to 35 on a Saturday in 1977. Furthermore these car trips represented about 70% of the total number of shoppers in the centre. Recent (1985) surveys at the centre (11) show that these figures are still valid although there are signs of restraint occuring with shoppers rearranging their trips to avoid the peak hours when the car parks are full and there is congestion on the approach roads.

Comparable figures for Milton Keynes are difficult to obtain because both non-retail and the high-generation convenience outlets are present in the Central development but the car generation rate would appear to be broadly similar.

Figure 1 presents a generalised relationship between the unit generation rate and the overall size of store. Because of all the variables associated with any store it is not possible to be precise, but there is a general downward relationship between the unit generation rate and overall size of the development, which is a similar trend to that promulgated in early American research relating trip rates with the logarithm of gross leasable area.

DAILY AND HOURLY VARIATION

There is a clear trend at most developments towards increasing patronage towards the end of the week. The reasons for this are not difficult to understand with the social and economic constraints of pay-day, weekend leisure etc but it gives rise to Thursday evening, Friday evening and Saturday being the most traffic significant times of the week. Figure 2 shows the daily variation of a typical hypermarket and that of different regional shopping centres. It is interesting to note that generally the larger the development the less significant the peak is at the end of the week. The daily variation for Brent Cross in both 1978 and 1985 is shown and the comparison is interesting. Although the same general trend is still there the previously busy days are getting (proportionately) less busy and the previously quiet days are getting busier. A case of restraint and shoppers expressing their preference?

To the traffic engineer a major area of concern associated with the daily and hourly variation in traffic is the size and occurence of the peak periods. The combination of the evening peak flow to the shopping centres with the normal evening commuting peak has to be accommodated by the road system. Figure 3 shows the hourly variation of arriving and departing traffic at Brent Cross for all Fridays between February and April 1985. The pm peak is not as prominent as that for a superstore or hypermarket. Interestingly there is little difference between the hourly variations on a Friday and that for Monday-Thursday. Both the peak entry and exit are of the order of 13%, but the maximum usage occurs between 1400-1500 (20%).

Figure 4 shows the similar variation for a Saturday. The earlier opening hours are reflected in the much quicker build-up of traffic and the peak flows (in volumetric terms) occur for departing traffic between 1600-1800. This traffic although larger in absolute terms does not cause so much impact on the adjoining road system although it may be critical in terms of limiting capacity.

HOURLY VARIATION IN PRIVATE CARS

Time of Day	Regional Shopping Centre Friday Arr %	Friday Dep %	Saturday Arr %	Saturday Dep %	Superstore/Hypermarket Friday Arr	Friday Dep	Saturday Arr	Saturday Dep
before 9	1.4	0.8	6.4	1.0	1.4	-	6.4	0.1
9 - 10	6.2	0.9	10.9	2.0	7.8	2.3	11.1	2.8
10 - 11	12.1	3.2	12.6	6.1	8.5	6.4	9.6	7.4
11 - 12	10.5	7.7	12.3	9.6	7.3	8.0	9.9	9.7
12 - 13	9.7	9.2	11.4	11.5	6.7	7.9	8.7	10.6
13 - 14	9.7	10.1	11.7	11.5	5.8	6.1	10.0	10.9
14 - 15	9.4	10.9	12.3	11.4	7.6	6.4	10.6	10.2
15 - 16	8.5	11.1	11.2	12.1	6.4	7.3	9.5	10.8
16 - 17	8.8	9.8	7.0	13.9	8.5	7.4	7.7	11.8
17 - 18	9.7	8.8	3.0	14.8	12.6	9.1	7.9	10.0
18 - 19	9.6	9.9	1.0	5.5	16.0	11.9	5.5	6.8
19 - 20	3.7	11.0	-	0.6	10.2	12.8	2.3	6.6
after 20	0.6	6.4	-	-	1.2	14.3	0.6	2.3

PARKING DURATION AND TURNOVER

From the arrival/departure flows it is relatively simple to produce an indication of the parking accumulation (see Figure 5). This indicates that the peak parking demands occurs on a Saturday afternoon although the 'flatness' of the curve suggests that the development is probably suffering from a certain amount of restraint with insufficient parking spaces for the demand. The Saturday parking accumulation shows that for a 4 hour spell the car-parks are consistently 90% utilised and as the approach roads are saturated, this represents the maximum possible usage of parking spaces. This confirms that the 10% 'margin' usually adopted by traffic engineers in the sizing of car parks is reasonable. It is interesting to note that the total vehicle throughput on an average Friday is only 20% lower than an average Saturday, yet the car park operates at a comfortable utilisation throughout the day. The existing development has 5200 spaces (which represents 7.3 spaces/100m^3 GLA) and the developer has plans to increase this provision. This compares with a planned provision of 6.6 spaces/ 100m^2 GLA at Centre 21 and around 6 spaces/100m^2 GLA at Metro Centre. The Multiple Shops Federation recommended in their "Car Parking for Shoppers" guide (1973) that 6.5 spaces/100m^2 GLA should be provided.

Because of the fundamentally different nature of the regional shopping centre from a hypermarket it is not surprising that the parking turnover is different. Research (2,5) has indicated that visitors to superstores and hypermarkets have an average stay of 25-30 minutes for the smaller stores and 40-45 minutes for the larger stores. Indications are that the equivalent stay at a regional centre is of the order of 1¼ hours (although the duration at Brent Cross in 1978 was 95 minutes). Figures 3 and 4 tend to confirm this figure for Fridays but suggests that the average duration on a Saturday might be longer at 1¾-2 hours.

CATCHMENT AREA

The extent of the catchment area for regional shopping centres is difficult to define but there are indications that Brent Cross and Milton Keynes both consider that their average trip duration is in excess of 30 minutes. As both of these will involves some travel in urban areas this trip length represents about 12-15 miles. For such developments as Centre 21 and the various M25 proposals with their proximity to the national motorway network a 30 minutes driving time represent a considerably greater distance.

SERVICING ARRANGEMENTS

Although commercial vehicles represent a small proportion of the total traffic flow at a centre it is essential to provide adequate facilities for delivery vehicles to ensure separation of private/goods vehicles and to avoid pedestrian/vehicular conflict. Furthermore the smooth and uninterrupted passage of goods vehicles into the centre is necessary to avoid any queueing or delay to the private motorist. Over the years there have been changes in the style of delivery trips due to increases in gross vehicle weight and centralisation of distribution facilities. Current indications at Brent Cross are that goods vehicles represent about 1-1½% of the total daily traffic flow into the centre and this includes the effect of one department store operating a delivery service.

Every retail centre will provide a considerable source of local employment. Because of the extended opening hours of these centres and the employment characteristics of workers in the retail industry shift work and part-time work is prevalent. Earlier research (7) had suggested that the number of employees at superstores/hypermarkets is of the order of 1 per 25m^2 GLA. However it is interesting to note that at Brent Cross the current figure is 1 per 16m^2 GLA (i.e. 4500 employees). Each of these employees will have to travel into and out of the centre and many use private transport and require parking space. This alone provides a considerable proportion of the total traffic. Because of the problems of separating staff from shoppers the generation/visitation rates quoted earlier encompass both staff and shoppers.

THE FUTURE

As already discussed one of the major problems with planning these major centres is the lack of comparitive data based on UK experience. Obviously some of the proposed UK developments will provide that further information when they are completed. Furthermore it is possible that some of these developments may 'soften' their impact by incorporating social and leisure facilities within their schemes. Already there are indications of this sort of move in North America, almost to the extent where the retail activities are an adjunct to the recreational facilities.

Furthermore the number of suitable sites in the UK is so limited it is possible that the only realistic approach for future schemes is to produce a close collaboration between developer and local authority to provide both retail and amenity facilities. Examples of this collaboration have ocurred within town centre redevelopments to the benefit of everyone.

SUMMARY

In this paper I have attempted to pull together what is known about these major retail centres and suggest the relevance of known information on hypermarkets. In many cases I have not attempted to define precisely a particular parameter because traffic engineering does not lend itself to that approach. Instead I have suggested a range of criteria that relate to the normal shopping period and can be applied to the planning of these centres to give an indication of the size and occurence of the traffic flows and the likely parking demand. Bearing in mind that the prime purpose of these free-standing developments is to cater for the car-borne shopper it is essential to provide the motorist with adequate facilities from the earliest planning stages to ensure his patronage.

REFERENCES

1) Dunn and Hamilton ' Transportation Engineering Design for Shopping Centres' Traffic Engineering and Control, November 1971.

2) Parker 'Traffic Characteristics of Woolco, Bournemonth' Portsmouth Polytechnic Thesis, April 1969.

3) Brent Cross Publicity Information

4) Shopping Guide to Central Milton Keynes, Milton Keynes Development Corporation, 1980.

5) Leake & Turner 'Shopper and Vehicle Characteristics at Large Retail Shopping Centres', Traffic Engineering and Control, January 1982.

6) Harris & Andrew 'The Traffic Implications of Hypermarket Development' Traffic Engineering and Control, January 1979.

7) Baker 'Trip Generation, Parking and Transport Characteristics of Shoppers at Superstores and Hypermarkets' GLC Background paper 69, March 1980.

8) Maltby & Johnson 'Traffic Implications of Hypermarket Development' Correspondence to Traffic Engineering and Control, May 1979.

9) Barrett 'Trip Generation and Modal Split of Shopping Trips', Traffic Engineering and Control, February 1975

10) Lee and Kent 'Brent Cross', Donaldson's Research Report No 4, 1977

11) Traffic Surveys at Brent Cross, Scott Wilson Kirkpatrick & Partners, Report 84068, May 1985.

12) The Eastleigh Carrefour, Dept of the Environment Research Report No 16 1976.

13) Kelly 'Parking at a Hypermarket - six years on' Traffic Engineering and Control, May 1974.

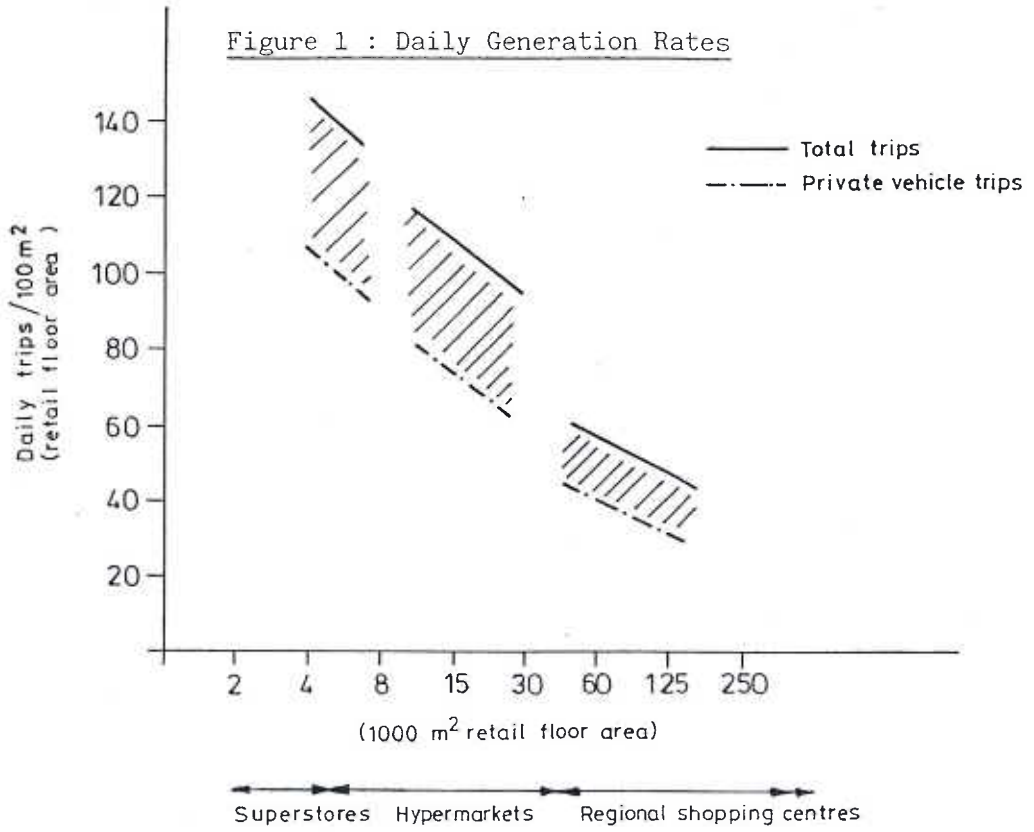


Figure 1 : Daily Generation Rates
Total trips
Private vehicle trips
Daily trips /100 m2 (retail floor area)
140
120
100
80
60
40
20
2
4
8
15
30
60
125
250
(1000 m2 retail floor area)
Superstores
Hypermarkets
Regional shopping centres

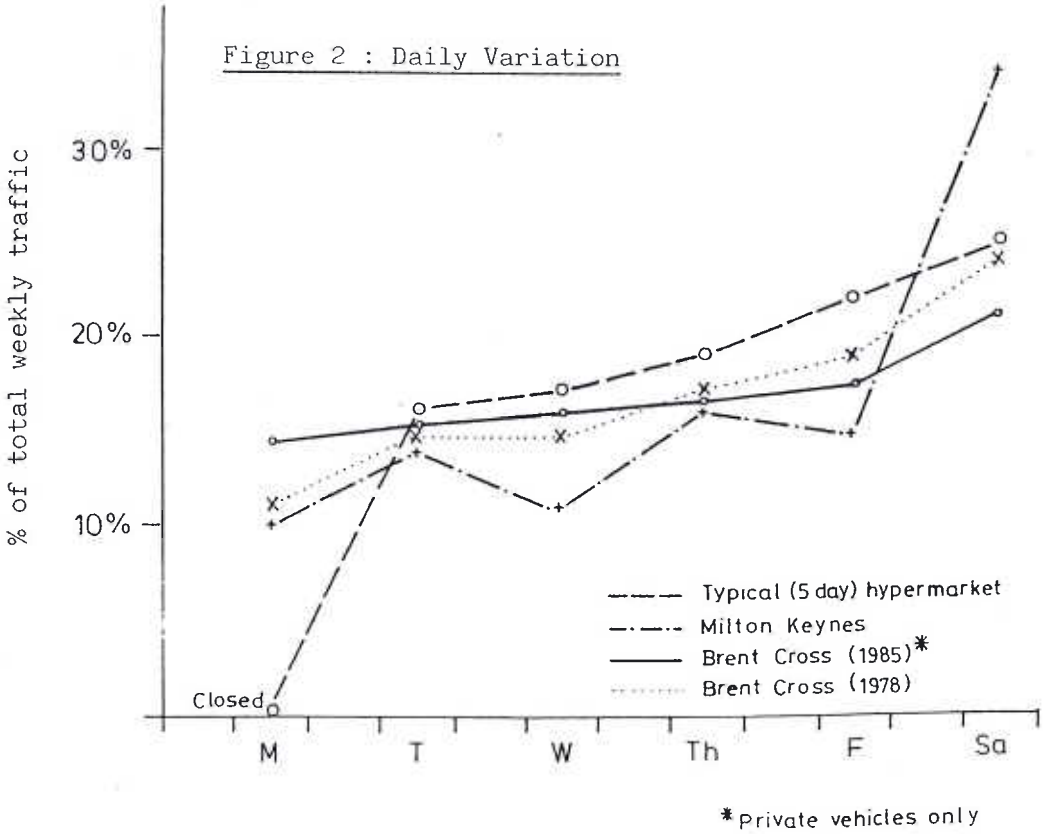


Figure 2 : Daily Variation
% of total weekly traffic
30%
20%
10%
Closed
M
T
W
Th
F
Sa
Typical (5 day) hypermarket
Milton Keynes
Brent Cross (1985)*
Brent Cross (1978)
*Private vehicles only

Figure 3 : Hourly Variation in Flows
Brent Cross (Fridays 2/85-4/85)

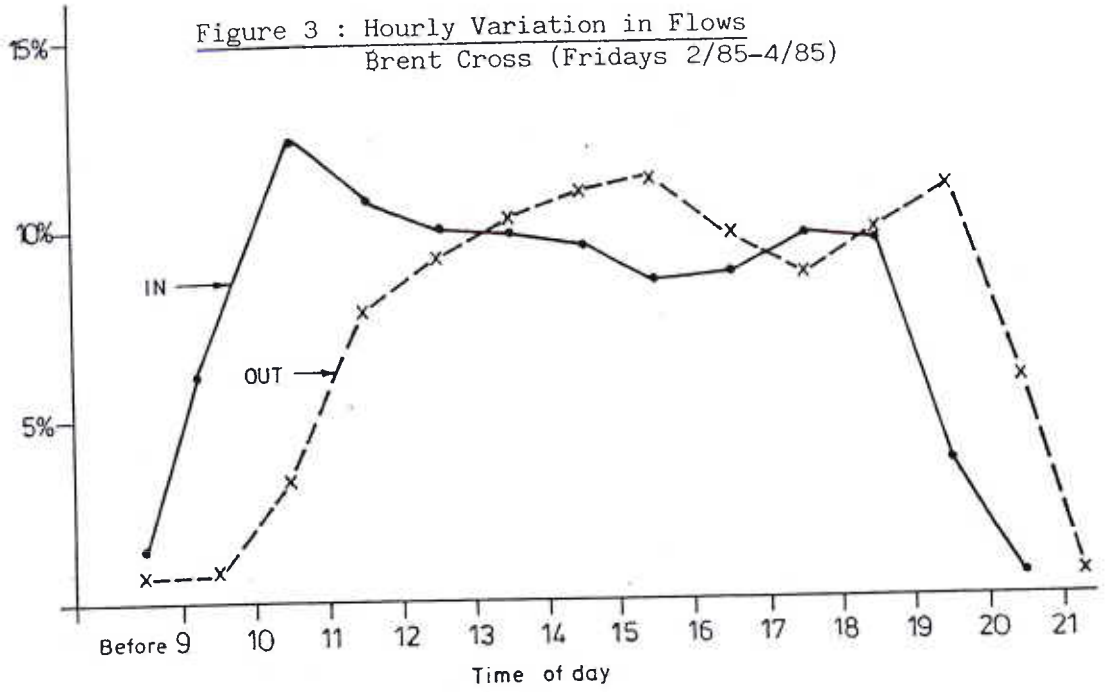


Figure 4 : Hourly Variation in Flows
Brent Cross (Saturdays 2/85-4/85)

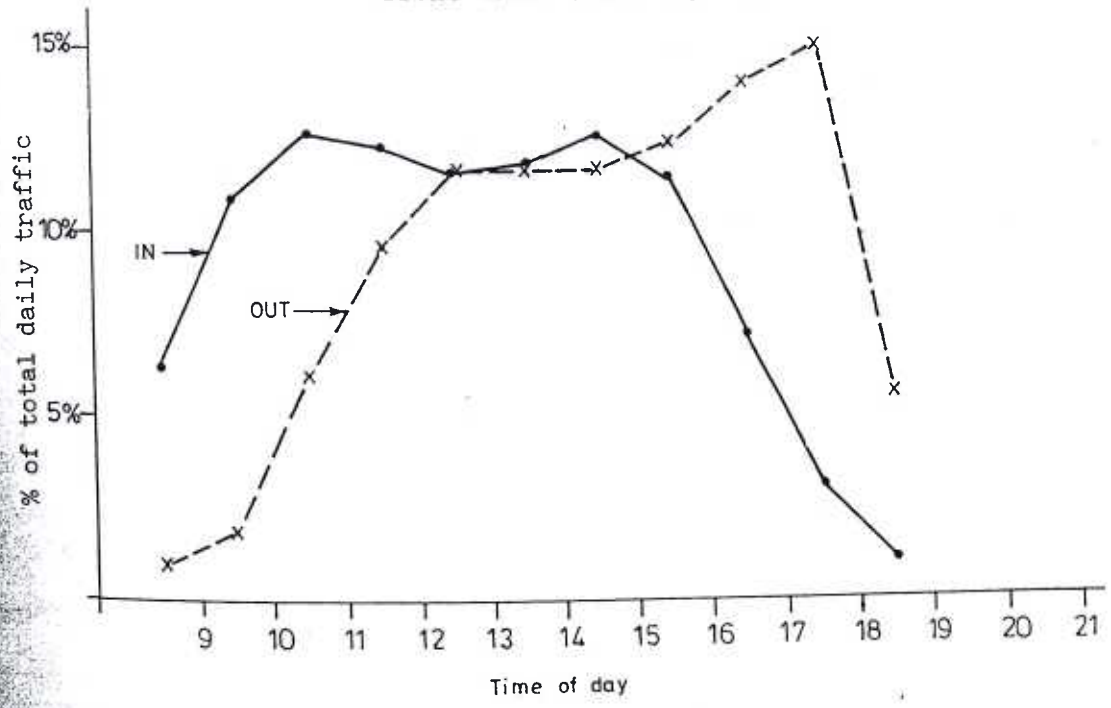
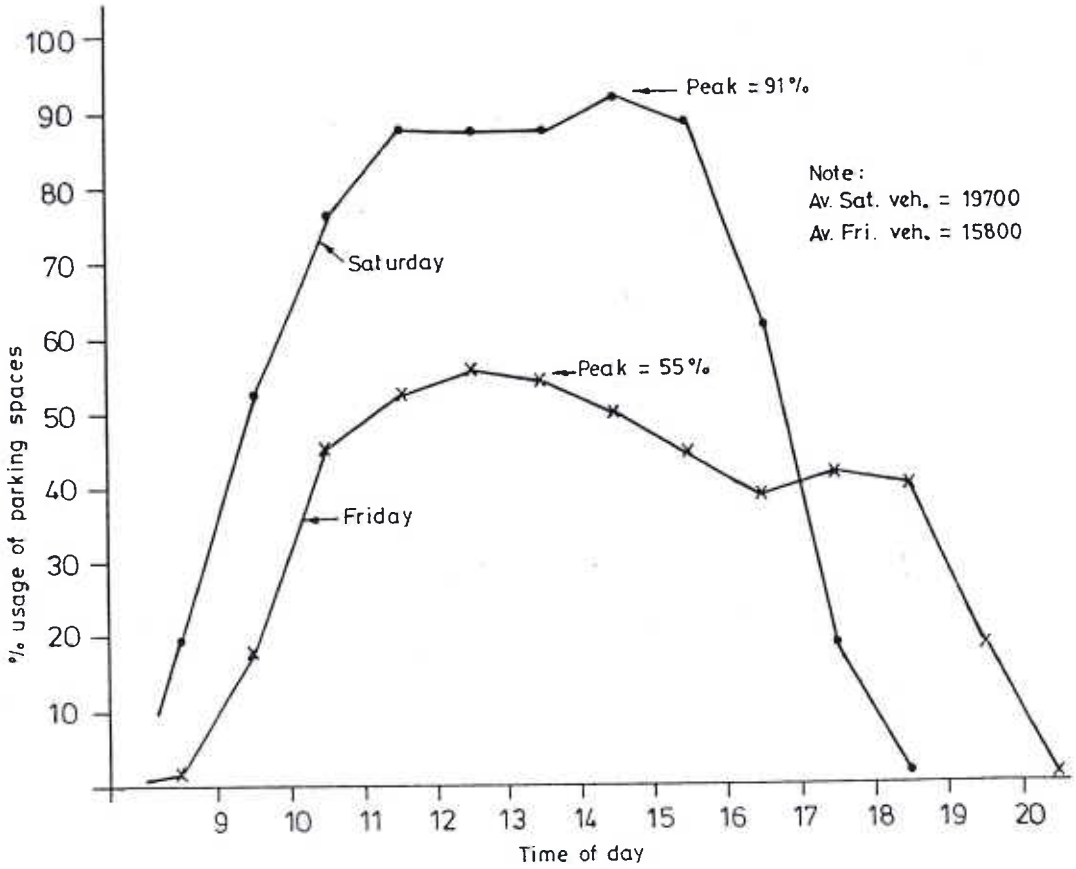


Figure 5 : Utilisation of Parking Spaces
Brent Cross (2/85-4/85)



Appendix E

Weekday TRICS Output
F&B

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200228-0210

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

08	NORTH WEST		
	LC	LANCASHIRE	1 days
10	WALES		
	SW	SWANSEA	1 days

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

Secondary 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:	600 to 800 (units: sqm)
Range Selected by User:	175 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 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
Thursday	1 days

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

Selected survey types:

Manual count	2 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

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:

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:

AA	2 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

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:

125,001 to 250,000	2 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	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	2 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	2 days

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

LIST OF SITES relevant to selection parameters

1 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*

2 SW-06-C-01 PITCHER & PIANO SWANSEA
WIND STREET
SWANSEA

Town Centre
High Street
Total Gross floor area: 800 sqm
Survey date: TUESDAY *22/10/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AG-06-C-01	Not appropriate
BR-06-C-01	Not appropriate
WO-06-C-03	Not appropriate

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

MULTI-MODAL TOTAL PEOPLE

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	1	600	0.167	1	600	0.167	1	600	0.334
11:00 - 12:00	1	600	0.500	1	600	0.000	1	600	0.500
12:00 - 13:00	2	700	4.071	2	700	1.071	2	700	5.142
13:00 - 14:00	2	700	2.143	2	700	2.429	2	700	4.572
14:00 - 15:00	2	700	4.357	2	700	2.286	2	700	6.643
15:00 - 16:00	2	700	8.429	2	700	8.429	2	700	16.858
16:00 - 17:00	2	700	3.286	2	700	6.429	2	700	9.715
17:00 - 18:00	2	700	1.786	2	700	2.500	2	700	4.286
18:00 - 19:00	2	700	1.286	2	700	1.643	2	700	2.929
19:00 - 20:00	2	700	6.143	2	700	4.714	2	700	10.857
20:00 - 21:00	2	700	4.286	2	700	2.857	2	700	7.143
21:00 - 22:00	2	700	4.357	2	700	4.357	2	700	8.714
22:00 - 23:00	2	700	1.143	2	700	2.286	2	700	3.429
23:00 - 24:00	1	600	0.333	1	600	3.500	1	600	3.833
Total Rates:			42.287			42.668			84.955

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.*

Appendix F

Saturday TRICS Output
F&B

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200218-0238

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

06	WEST MIDLANDS		
	WO	WORCESTERSHIRE	1 days

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

Secondary 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:	417 to 417 (units: sqm)
Range Selected by User:	175 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 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:

Sunday	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:

Town 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:

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:

AA	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 1 mile:

25,001 to 50,000	1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:
100,001 to 125,000 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	WO-06-C-02 THE CROSS WORCESTER	SLUG & LETTUCE	WORCESTERSHIRE

Town Centre
High Street
Total Gross floor area: 417 sqm
Survey date: SUNDAY *25/05/14* *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

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	1	417	0.000	1	417	0.000	1	417	0.000
11:00 - 12:00	1	417	0.719	1	417	0.000	1	417	0.719
12:00 - 13:00	1	417	3.357	1	417	1.199	1	417	4.556
13:00 - 14:00	1	417	2.158	1	417	2.878	1	417	5.036
14:00 - 15:00	1	417	2.398	1	417	1.199	1	417	3.597
15:00 - 16:00	1	417	4.556	1	417	2.398	1	417	6.954
16:00 - 17:00	1	417	1.439	1	417	1.439	1	417	2.878
17:00 - 18:00	1	417	3.597	1	417	2.158	1	417	5.755
18:00 - 19:00	1	417	5.276	1	417	4.077	1	417	9.353
19:00 - 20:00	1	417	0.959	1	417	0.959	1	417	1.918
20:00 - 21:00	1	417	1.679	1	417	3.357	1	417	5.036
21:00 - 22:00	1	417	1.439	1	417	5.995	1	417	7.434
22:00 - 23:00	1	417	0.000	1	417	2.638	1	417	2.638
23:00 - 24:00	1	417	0.000	1	417	0.000	1	417	0.000
Total Rates:			27.577			28.297			55.874

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.*

Appendix G

Weekday TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0125

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days

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

Secondary 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:	960 to 5736 (units: sqm)
Range Selected by User:	178 to 70291 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 14/03/19

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:

Monday	1 days
Wednesday	1 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	4 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

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:

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:

B1	4 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
15,001 to 20,000	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:

250,001 to 500,000	2 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:

0.6 to 1.0	4 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:

Yes	1 days
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	4 days

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

LIST OF SITES relevant to selection parameters

1 BR-02-A-02 PLANNING & ENGINEERING BRISTOL CITY
ST THOMAS STREET
BRISTOL

Town Centre
Built-Up Zone
Total Gross floor area: 5736 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

2 GM-02-A-07 LAW OFFICES GREATER MANCHESTER
MOSELEY STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 4200 sqm
Survey date: WEDNESDAY *19/10/11* *Survey Type: MANUAL*

3 GM-02-A-08 REGUS GREATER MANCHESTER
FOUNTAIN STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3960 sqm
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

4 WK-02-A-01 OFFICES WARWICKSHIRE
WARWICK ROAD
COVENTRY

Town Centre
Built-Up Zone
Total Gross floor area: 960 sqm
Survey date: THURSDAY *17/10/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-02-A-05	Too far from centre
EX-02-A-03	Too residential
SO-02-A-01	Not approriate
TV-02-A-04	Not approriate
TW-02-A-07	Too far from centre

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	3714	0.128	4	3714	0.007	4	3714	0.135
07:30 - 08:00	4	3714	0.337	4	3714	0.027	4	3714	0.364
08:00 - 08:30	4	3714	0.714	4	3714	0.034	4	3714	0.748
08:30 - 09:00	4	3714	1.144	4	3714	0.067	4	3714	1.211
09:00 - 09:30	4	3714	1.010	4	3714	0.155	4	3714	1.165
09:30 - 10:00	4	3714	0.316	4	3714	0.101	4	3714	0.417
10:00 - 10:30	4	3714	0.404	4	3714	0.283	4	3714	0.687
10:30 - 11:00	4	3714	0.343	4	3714	0.289	4	3714	0.632
11:00 - 11:30	4	3714	0.249	4	3714	0.350	4	3714	0.599
11:30 - 12:00	4	3714	0.182	4	3714	0.222	4	3714	0.404
12:00 - 12:30	4	3714	0.438	4	3714	0.646	4	3714	1.084
12:30 - 13:00	4	3714	0.431	4	3714	0.814	4	3714	1.245
13:00 - 13:30	4	3714	0.720	4	3714	0.552	4	3714	1.272
13:30 - 14:00	4	3714	0.895	4	3714	0.256	4	3714	1.151
14:00 - 14:30	4	3714	0.357	4	3714	0.236	4	3714	0.593
14:30 - 15:00	4	3714	0.162	4	3714	0.222	4	3714	0.384
15:00 - 15:30	4	3714	0.182	4	3714	0.229	4	3714	0.411
15:30 - 16:00	4	3714	0.209	4	3714	0.175	4	3714	0.384
16:00 - 16:30	4	3714	0.121	4	3714	0.370	4	3714	0.491
16:30 - 17:00	4	3714	0.067	4	3714	0.525	4	3714	0.592
17:00 - 17:30	4	3714	0.061	4	3714	1.104	4	3714	1.165
17:30 - 18:00	4	3714	0.027	4	3714	0.868	4	3714	0.895
18:00 - 18:30	4	3714	0.000	4	3714	0.633	4	3714	0.633
18:30 - 19:00	4	3714	0.013	4	3714	0.148	4	3714	0.161
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			8.510			8.313			16.823

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.*

Appendix H

Saturday TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0107

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
BT BRENT 1 days

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

Secondary 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: 10625 to 10625 (units: sqm)
Range Selected by User: 178 to 120000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 17/06/19

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 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:
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:
Development 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:
B1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

Yes	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:

5 Very Good	1 days

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

LIST OF SITES relevant to selection parameters

1 BT-02-A-04 OFFICES BRENT
EMPIRE WAY
WEMBLEY

Suburban Area (PPS6 Out of Centre)
Development Zone
Total Gross floor area: 10625 sqm
Survey date: SATURDAY *16/05/15* *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 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	1	10625	0.009	1	10625	0.019	1	10625	0.028
07:30 - 08:00	1	10625	0.160	1	10625	0.019	1	10625	0.179
08:00 - 08:30	1	10625	0.104	1	10625	0.038	1	10625	0.142
08:30 - 09:00	1	10625	0.160	1	10625	0.028	1	10625	0.188
09:00 - 09:30	1	10625	0.245	1	10625	0.009	1	10625	0.254
09:30 - 10:00	1	10625	0.367	1	10625	0.132	1	10625	0.499
10:00 - 10:30	1	10625	0.141	1	10625	0.028	1	10625	0.169
10:30 - 11:00	1	10625	0.028	1	10625	0.028	1	10625	0.056
11:00 - 11:30	1	10625	0.038	1	10625	0.028	1	10625	0.066
11:30 - 12:00	1	10625	0.047	1	10625	0.075	1	10625	0.122
12:00 - 12:30	1	10625	0.028	1	10625	0.169	1	10625	0.197
12:30 - 13:00	1	10625	0.141	1	10625	0.094	1	10625	0.235
13:00 - 13:30	1	10625	0.066	1	10625	0.216	1	10625	0.282
13:30 - 14:00	1	10625	0.179	1	10625	0.151	1	10625	0.330
14:00 - 14:30	1	10625	0.075	1	10625	0.104	1	10625	0.179
14:30 - 15:00	1	10625	0.085	1	10625	0.094	1	10625	0.179
15:00 - 15:30	1	10625	0.028	1	10625	0.122	1	10625	0.150
15:30 - 16:00	1	10625	0.028	1	10625	0.132	1	10625	0.160
16:00 - 16:30	1	10625	0.009	1	10625	0.047	1	10625	0.056
16:30 - 17:00	1	10625	0.009	1	10625	0.000	1	10625	0.009
17:00 - 17:30	1	10625	0.019	1	10625	0.047	1	10625	0.066
17:30 - 18:00	1	10625	0.009	1	10625	0.113	1	10625	0.122
18:00 - 18:30	1	10625	0.028	1	10625	0.094	1	10625	0.122
18:30 - 19:00	1	10625	0.056	1	10625	0.141	1	10625	0.197
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			2.059			1.928			3.987

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.*

Appendix I

Weekday TRICS Output
Hotel

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0132

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	CB	CUMBRIA	1 days
	TW	TYNE & WEAR	1 days

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

Secondary 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: 1450 to 3600 (units: sqm)
Range Selected by User: 1080 to 17624 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 16/10/19

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:

Monday	2 days
Tuesday	1 days
Wednesday	1 days

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

Selected survey types:

Manual count	4 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

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:

Built-Up Zone	3
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:

C1	4 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	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:

25,001 to 50,000	1 days
75,001 to 100,000	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:

0.6 to 1.0	3 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	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1 CB-06-A-01 HOTEL CUMBRIA
ENGLISH STREET
CARLISLE

Town Centre
High Street
Total Gross floor area: 2450 sqm
Survey date: MONDAY 20/06/16 Survey Type: MANUAL

2 GM-06-A-08 IBIS GREATER MANCHESTER
PORTLAND STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY 26/09/16 Survey Type: MANUAL

3 TW-06-A-03 HOTEL TYNE & WEAR
SANDHILL
NEWCASTLE UPON TYNE
QUAYSIDE
Town Centre
Built-Up Zone
Total Gross floor area: 1450 sqm
Survey date: TUESDAY 14/06/16 Survey Type: MANUAL

4 WL-06-A-02 HOLIDAY INN EXPRESS WILTSHIRE
BRIDGE STREET
SWINDON

Town Centre
Built-Up Zone
Total Gross floor area: 2227 sqm
Survey date: WEDNESDAY 27/11/13 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DS-06-A-02	Not central
TV-06-A-04	Not central

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	4	2432	0.380	4	2432	0.555	4	2432	0.935
08:00 - 09:00	4	2432	0.843	4	2432	1.357	4	2432	2.200
09:00 - 10:00	4	2432	0.679	4	2432	1.388	4	2432	2.067
10:00 - 11:00	4	2432	0.617	4	2432	1.038	4	2432	1.655
11:00 - 12:00	4	2432	0.833	4	2432	0.936	4	2432	1.769
12:00 - 13:00	4	2432	0.792	4	2432	0.709	4	2432	1.501
13:00 - 14:00	4	2432	1.038	4	2432	0.822	4	2432	1.860
14:00 - 15:00	4	2432	0.771	4	2432	0.843	4	2432	1.614
15:00 - 16:00	4	2432	0.545	4	2432	0.380	4	2432	0.925
16:00 - 17:00	4	2432	1.008	4	2432	0.740	4	2432	1.748
17:00 - 18:00	4	2432	1.326	4	2432	0.658	4	2432	1.984
18:00 - 19:00	4	2432	1.182	4	2432	0.894	4	2432	2.076
19:00 - 20:00	4	2432	0.750	4	2432	0.792	4	2432	1.542
20:00 - 21:00	4	2432	0.884	4	2432	0.607	4	2432	1.491
21:00 - 22:00	4	2432	0.689	4	2432	0.411	4	2432	1.100
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			12.337			12.130			24.467

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.*

Appendix J

Weekday TRICS Output Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0108

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
06 WEST MIDLANDS
WO WORCESTERSHIRE 1 days

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

Secondary 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: 2200 to 2200 (units: sqm)
Range Selected by User: 464 to 5500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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:
Town 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:
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:
D2 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 1 mile:
25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000	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

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 WO-07-A-01 ODEON WORCESTERSHIRE
FOREGATE STREET
WORCESTER

Town Centre
High Street
Total Gross floor area: 2200 sqm
Survey date: FRIDAY *18/11/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE
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									
10:00 - 11:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
11:00 - 12:00	1	2200	0.045	1	2200	0.045	1	2200	0.090
12:00 - 13:00	1	2200	1.682	1	2200	1.091	1	2200	2.773
13:00 - 14:00	1	2200	0.727	1	2200	0.409	1	2200	1.136
14:00 - 15:00	1	2200	1.318	1	2200	1.364	1	2200	2.682
15:00 - 16:00	1	2200	1.955	1	2200	0.182	1	2200	2.137
16:00 - 17:00	1	2200	1.591	1	2200	1.500	1	2200	3.091
17:00 - 18:00	1	2200	4.000	1	2200	1.227	1	2200	5.227
18:00 - 19:00	1	2200	5.182	1	2200	2.818	1	2200	8.000
19:00 - 20:00	1	2200	3.364	1	2200	1.636	1	2200	5.000
20:00 - 21:00	1	2200	5.227	1	2200	3.409	1	2200	8.636
21:00 - 22:00	1	2200	1.455	1	2200	5.136	1	2200	6.591
22:00 - 23:00	1	2200	0.364	1	2200	2.955	1	2200	3.319
23:00 - 24:00	1	2200	0.500	1	2200	4.727	1	2200	5.227
Total Rates:			27.410			26.499			53.909

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.*

Appendix K

Saturday TRICS Output
Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0109

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
03 SOUTH WEST
DC DORSET 1 days

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

Secondary 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: 1550 to 1550 (units: sqm)
Range Selected by User: 464 to 4500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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 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 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:
Development 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:
D2 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 1 mile:
15,001 to 20,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:
25,001 to 50,000 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 DC-07-A-01 ODEON DORSET
DRAYHORSE YARD
DORCHESTER

Edge of Town Centre
Development Zone
Total Gross floor area: 1550 sqm
Survey date: SATURDAY *17/09/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS

MULTI-MODAL TOTAL PEOPLE

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	1	1550	0.000	1	1550	0.323	1	1550	0.323
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	1	1550	4.774	1	1550	0.194	1	1550	4.968
10:00 - 11:00	1	1550	1.419	1	1550	0.323	1	1550	1.742
11:00 - 12:00	1	1550	2.129	1	1550	5.032	1	1550	7.161
12:00 - 13:00	1	1550	5.032	1	1550	2.645	1	1550	7.677
13:00 - 14:00	1	1550	2.645	1	1550	1.290	1	1550	3.935
14:00 - 15:00	1	1550	4.000	1	1550	2.516	1	1550	6.516
15:00 - 16:00	1	1550	3.935	1	1550	5.613	1	1550	9.548
16:00 - 17:00	1	1550	1.161	1	1550	1.032	1	1550	2.193
17:00 - 18:00	1	1550	5.742	1	1550	4.516	1	1550	10.258
18:00 - 19:00	1	1550	9.097	1	1550	3.484	1	1550	12.581
19:00 - 20:00	1	1550	2.645	1	1550	1.677	1	1550	4.322
20:00 - 21:00	1	1550	11.355	1	1550	5.935	1	1550	17.290
21:00 - 22:00	1	1550	2.839	1	1550	7.871	1	1550	10.710
22:00 - 23:00	1	1550	0.000	1	1550	12.000	1	1550	12.000
23:00 - 24:00	1	1550	0.000	1	1550	2.323	1	1550	2.323
Total Rates:			56.773			56.774			113.547

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.*

Appendix L

Weekday TRICS Output Community

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0122

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
Category : G - GP SURGERIES
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
WH WANDSWORTH 1 days

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

Secondary 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: 2709 to 2709 (units: sqm)
Range Selected by User: 200 to 2709 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 26/06/19

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

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:
Town 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:
Retail 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:
D1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

4 Good	1 days

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

LIST OF SITES relevant to selection parameters

1 WH-05-G-01 MEDICAL CENTRE WANDSWORTH
GARRATT LANE
WANDSWORTH

Town Centre
Retail Zone
Total Gross floor area: 2709 sqm
Survey date: TUESDAY *12/11/13* *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 05 - HEALTH/G - GP SURGERIES
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	2709	0.406	1	2709	0.111	1	2709	0.517
08:00 - 09:00	1	2709	1.218	1	2709	0.295	1	2709	1.513
09:00 - 10:00	1	2709	1.366	1	2709	0.923	1	2709	2.289
10:00 - 11:00	1	2709	1.366	1	2709	0.701	1	2709	2.067
11:00 - 12:00	1	2709	0.923	1	2709	1.181	1	2709	2.104
12:00 - 13:00	1	2709	1.071	1	2709	1.255	1	2709	2.326
13:00 - 14:00	1	2709	1.440	1	2709	1.181	1	2709	2.621
14:00 - 15:00	1	2709	1.144	1	2709	1.181	1	2709	2.325
15:00 - 16:00	1	2709	0.960	1	2709	1.144	1	2709	2.104
16:00 - 17:00	1	2709	1.550	1	2709	2.067	1	2709	3.617
17:00 - 18:00	1	2709	0.701	1	2709	1.366	1	2709	2.067
18:00 - 19:00	1	2709	0.406	1	2709	0.443	1	2709	0.849
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			12.551			11.848			24.399

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.*

Transport Planning Practice
70 Cowcross Street
London EC1M 6EL
020 7608 0008
email@tppweb.co.uk

www.tppweb.co.uk

Technical Appendix L

TPP report D017 –
Trip Generation Note –
Sustainable Modes

TPP
transport planning practice

Shearer Property Regen Limited

Coventry City Centre South
Trip Generation Note
Sustainable Modes

September 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

Appendices

A	Weekday TRICS Output - Residential
B	Saturday TRICS Output - Residential
C	Saturday TRICS Output - Retail
D	Richard Parker paper 1985
E	Weekday TRICS Output – F&B
F	Saturday TRICS Output - F&B
G	Weekday TRICS Output – Office
H	Saturday TRICS Output - Office
I	Weekday TRICS Output – Hotel
J	Weekday TRICS Output – Leisure
K	Saturday TRICS Output - Leisure
L	Weekday TRICS Output – Community

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) has been commissioned by Shearer Property Regen Limited to provide transport planning advice with regard to the development of Coventry City Centre South (CCS).

1.1.2 This Trip Generation Note has been prepared for the benefit of Coventry City Council in order to set out and explain the sustainable travel modes trip generation and mode share impact assessment methodology and results.

2 PERSON TRIP GENERATION GENERAL ASSUMPTIONS

2.1.1 The person trip generation has been calculated from person trip rates obtained from the TRICS database. The mode share has then been calculated based on 2011 Census data.

2.1.2 TPP report *D13 Trip Generation Note – Vehicular Modes* sets out the trip generation results for vehicular modes of transport such as car or van, car or van passenger, taxi and motorcycle.

2.2 General assumptions

2.2.1 General assumptions for the person trip generation and mode share calculations were discussed and agreed with CCC highways at meetings on the 6th and 20th February. These include:

- The use of the TRICs database to derive trip rates.
- The use of the 2011 Census data Method of travel to work (2001 specification) – super output area – lower layer E01009642: Coventry 031C to determine modal split for the Residential and Hotel uses.
- The use of the 2011 Census data Method of travel to work (Workday population) – super output area – middle layer E02001988: Coventry 031 to determine the modal split for the Retail, F&B, Office, Leisure and Community uses
- The weekday highway AM peak was calculated to be 09:00 – 10:00 and the PM calculated as 17:00 - 18:00 based on the Automatic Traffic Count (ATC) survey data and then corroborated with vehicular turning count survey data.
- The Saturday highway peak has been calculated to be 14:00 – 15:00 based on the ATC survey data and then corroborated with vehicular turning count survey data.
- A daily period of 07:00 – 19:00.

2.2.2 As stated above, the highway peaks were calculated from survey data to be 09:00 – 10:00 and 17:00 - 18:00 on a weekday and 14:00 – 15:00 on a Saturday. However, the peak hours for the person trip generation impact

assessment have been calculated from the TRICS data. The peak hours that have therefore been assessed are:

- 17:00 - 18:00 on a weekday.
- 13:00 – 14:00 on a Saturday.

3 RESIDENTIAL USE

3.1 Residential uses – Weekday

3.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed residential development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and privately owned flats. The resultant TRICS output is contained within Appendix A. The weekday person trip rates per unit for residential development are shown in Table 3.1.

Table 3.1: Residential trip rates per unit – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	0.607	0.229	0.836
Daily	**2.527**	**2.514**	**5.041**

3.1.2 As there are no existing residential uses within the proposed development site, all residential trips have been assumed to be new to the site. Based on a maximum of 1,300 residential units, Table 3.2 shows the resultant net total person trips for the residential uses of the proposed development during a weekday.

Table 3.2: Residential net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	787	297	1,084
Daily	**3,279**	**3,261**	**6,540**

3.1.3 As can be seen from Table 3.2, there would be 3,279 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,261 new departures resulting in a total of 6,540 new person trips on a weekday.

Residential sustainable travel mode share - Weekday

3.1.4 The sustainable travel mode share for the proposed residential development has been based on 2011 Census data *Method of Travel to Work (2001 specification)*. Table 3.3 shows the resultant mode share.

Table 3.3: Peak hour Net travel mode share – Residential Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	35.4%	279	105	384
Cycle	2.4%	19	7	26
Bus	22.8%	179	68	247
Train	7.2%	57	21	78
Total	**67.8%**	**534**	**201**	**735**

3.1.5 As can be seen from Table 3.3, in the PM peak hour there would be a total of 735 new trips by sustainable modes of travel.

3.2 Residential uses - Saturday

3.2.1 The TRICS database has been interrogated to obtain suitable comparator sites. There was a single site within TRICS which provided residential person trip rates for a Saturday. This site is located at the edge of Derby's town centre and the survey is based on privately owned flats. It is therefore considered a reasonable comparator site for providing Saturday trip rates for the residential uses, particularly as Saturday trips by residential uses are less likely to impact on the local transport network.

3.2.2 The resultant TRICS output is contained within Appendix B. The Saturday person trip rates per unit for residential development are shown in Table 3.4.

Table 3.4: Residential trip rates per unit – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	0.286	0.393	0.679
Daily	**1.535**	**1.178**	**2.713**

3.2.3 As there are no existing residential uses within the proposed development site, all residential trips have been assumed to be new to the site. Based on a maximum 1,300 residential units, Table 3.5 shows the resultant net total person trips for the residential uses of the proposed development during a Saturday.

Table 3.5: Residential net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	371	510	881
Daily	**1,989**	**1,530**	**3,519**

3.2.4 As can be seen from Table 3.5 shows there would be 1,989 new person arrivals across a 12 hour day between 07:00 – 19:00 and 1,530 new departures resulting in a total of 3,519 new person trips on a Saturday.

Residential sustainable travel mode share - Saturday

3.2.5 The travel mode share for the proposed residential development has been based on 2011 Census data *Method of Travel to Work (2001 specification)*. It is expected that residents would continue to use the same mode of transport on a Saturday as a weekday although there are likely to be fewer longer distance trips and therefore walking and cycling could represent a higher mode share on a Saturday. Table 3.6 shows the resultant mode share.

Table 3.6: Net travel mode share – Residential – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	35.4%	131	181	312
Cycle	2.4%	9	12	21
Bus	22.8%	85	116	201
Train	7.2%	27	37	64
Total	**67.8%**	**252**	**346**	**598**

3.2.6 As can be seen from Table 3.6, there would be a total of 598 new sustainable travel mode trips during the Saturday peak hour.

4 RETAIL USES

4.1 Retail uses - Weekday

4.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed retail development. The main land use of *Retail* and sub-land use of *Mixed Shopping Malls* has been selected in TRICS. There is no land use category within TRICS for high street retail.

4.1.2 Based on a selection criteria of a town centre location (not within Greater London or Ireland), there was one site within the TRICS database which had comparable characteristics to the CCS development proposals. The TRICS output is contained within Appendix C.

4.1.3 The TRICS survey had been undertaken on a Saturday and there were no suitable comparator sites available for a Weekday. Therefore the Richard Parker paper 1985 *Traffic Characteristics of Major Retail Developments* has been consulted. This report looks at the transport characteristics of a number shopping centres and retail developments on weekdays and Saturdays. Figure 5 of the report shows that on average, there were approximately 20% fewer trips on a weekday than on a Saturday. A copy of the Parker Report is contained within Appendix D.

4.1.4 Therefore the Saturday trip rates have been reduced by 20% based on Figure 5 of the Parker Report to provide Weekday trip rates. The weekday person trip rates per 100m^2 for retail development are shown in Table 4.1.

Table 4.1: Retail trip rates per 100m^2 – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	1.152	2.974	4.126
Daily	**39.582**	**39.149**	**78.731**

4.1.5 The trip rates in Table 4.1 have been used to calculate the existing and proposed retail trips. The existing retail uses of the site amount to circa 25,000m^2 with the proposals amounting to circa 20,000m^2. Therefore, a simple trip generation net calculation would show the retail uses to have a decrease in person trips.

4.1.6 It is worth noting that most of the person trips associated with the existing site are linked or pass-by from other elements of the city centre. Therefore it has been considered reasonable and robust that trips specifically associated with the

existing site represent 25% of its total trip generation. The resultant existing retail trips calculated from the trip rates in Table 4.1 have been multiplied by 25% to derive the trips specifically generated by the existing retail uses.

4.1.7 Whilst it is also considered that retail trips specifically associated with the new retail proposals would represent 25% of the overall trip generation, the proposals are to revitalise the area and provide a better retail offer over the existing situation which should result in an increase in dedicated trips.

4.1.8 In order to allow for the enhanced retail offer and provide a robust assessment of the proposals, the retail trips specifically associated with the new retail proposals have been uplifted to represent 40% of the overall trip generation.

4.1.9 Therefore, the trip rates in Table 4.1 have been multiplied by 40%. Table 4.2 shows the resultant net total person trips for the retail uses of the proposed development during a weekday.

Table 4.2: Retail net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	20	50	70
Daily	**680**	**660**	**1,340**

4.1.10 As can be seen from Table 4.2, there would be 680 new person arrivals across a 12 hour day between 07:00 – 19:00 and 660 new departures resulting in a total of 1,340 new person trips on a weekday.

Retail sustainable travel mode share - Weekday

4.1.11 The travel mode share for the proposed retail development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. Table 4.3 shows the resultant mode share. It is considered reasonable that those travelling into the city centre for shopping do so by the same modes as those travelling in for work.

Table 4.3: Net travel mode share – Retail – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	12.9%	3	6	9
Cycle	2.3%	0	1	1
Bus	18.2%	4	9	13
Train	5.2%	1	3	4
Total	**38.6%**	**8**	**19**	**27**

4.1.12 As can be seen from Table 4.3, there would be a total of 27 new sustainable travel mode trips in the PM peak hour.

4.2 Retail uses - Saturday

4.2.1 The retail trip rates used for a Saturday are the same as those used for a weekday. However the Saturday trip rates have not been factored down in-line with the findings of the Parker Report as the TRICS survey was undertaken on a Saturday. The Saturday person trip rates per 100m^2 for retail development are shown in Table 4.4.

Table 4.4: Retail trip rates per 100m^2 – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	5.452	6.462	11.914
Daily	**49.476**	**48.936**	**98.412**

4.2.2 The person trip generation has been based on the same assumptions set out within paragraphs 4.1.5 to 4.1.7. Table 4.5 shows the resultant net total person trips for the retail uses of the proposed retail element of the development during a Saturday.

Table 4.5: Retail net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	94	109	203
Daily	**845**	**828**	**1,673**

4.2.3 As can be seen from Table 4.5, there would be 845 new person arrivals across a 12 hour day between 07:00 – 19:00 and 828 new departures resulting in a total of 1,673 new person trips on a Saturday.

Retail sustainable travel mode share - Saturday

4.2.4 The travel mode share for the proposed retail development has been based on 2011 Census data *Method of Travel to Work (Workday population)*. It is expected that shoppers and visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 4.6 shows the resultant mode share.

Table 4.6: Travel mode share – Retail – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	12.9%	12	14	26
Cycle	2.3%	2	3	5
Bus	18.2%	17	20	37
Train	5.2%	5	6	11
Total	**38.6%**	**36**	**43**	**79**

4.2.5 As can be seen from Table 4.6, there would be a total of 79 new sustainable travel mode person trips during the Saturday peak hour.

5 FOOD & BEVERAGE USES

5.1 Food & Beverage uses - Weekday

5.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed Food & Beverage (F&B) development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and a sub-category of Built-Up Zone and High Street. The resultant TRICS output is contained within Appendix E. The weekday person trip rates per 100m^2 for F&B development are shown in Table 5.1.

Table 5.1: F&B trip rates per 100m^2 – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	1.786	2.5	4.286
Daily	**26.025**	**24.954**	**50.979**

5.1.2 The proposed F&B will consist of circa 3,250m^2 of development. The trip rates in Table 5.1 have been used to calculate the existing and proposed F&B trips. The majority of F&B use person trips are made by people already within the locality of a particular establishment i.e. pass-by or linked trips. Therefore, few trips are specifically associated with a particular F&B unit. Given the large quantum of combined trips between retail and F&B, it is considered reasonable that trips specifically associated with the existing F&B uses represent 5% of its overall total trip generation. The resultant existing F&B trips calculated from the trip rates in Table 5.1 have been multiplied by 5% to derive the trips specifically generated by the existing F&B uses.

5.1.3 It is also considered reasonable and robust that F&B trips specifically associated with the proposals would represent 5% of the overall trip generation as they will still be made by people already within the locality of a particular establishment. Table 5.2 shows the resultant net total person net trips for the F&B uses of the proposed development during a weekday.

Table 5.2: F&B net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	-1	-2	-3
Daily	**-10**	**-14**	**-24**

5.1.4 As can be seen from Table 5.2, there would be seven fewer person arrivals and departures across a 12 hour day between 07:00 – 19:00 resulting in a total reduction of 14 person trips on a weekday.

F&B sustainable travel mode share - Weekday

5.1.5 The travel mode share for the proposed F&B development has been based on the same mode share used for retail uses. Table 5.3 shows the resultant mode share.

Table 5.3: Net travel mode share – F&B – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	12.9%	0	0	0
Cycle	2.3%	0	0	0
Bus	18.2%	0	0	0
Train	5.2%	0	0	0
Total	**38.6%**	**0**	**0**	**0**

5.1.6 As can be seen from Table 5.3, the overall reduction in person trips would result in zero trips being spread across all modes during the peak hours.

5.2 F&B uses - Saturday

5.2.1 The TRICS database did not contain any town centre comparator sites for F&B uses on a Saturday. There was one site available for which the survey was undertaken on a Sunday. It is considered that for an assessment period between 07:00 -19:00, the trip generation and its profile would be broadly similar to that for a Saturday.

5.2.2 The resultant TRICS output is contained within Appendix F. The Saturday person trip rates for F&B uses are shown in Table 5.4.

Table 5.4: F&B net trip rates per 100m^2 – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	2.158	2.878	5.036
Daily	**23.5**	**15.348**	**38.848**

5.2.3 The person trip generation has been based on the same assumptions set out within paragraphs 5.1.2 and 5.1.3. Table 5.5 shows the resultant net total person trips for the retail uses of the proposed development during a Saturday, based on only 5% of trips being specifically for the F&B.

Table 5.5: F&B net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	0	-3	-3
Daily	**-9**	**-6**	**-15**

5.2.4 As can be seen from Table 5.5, there would be 9 fewer person arrivals across a 12 hour day between 07:00 – 19:00 and 6 fewer departures resulting in a total reduction of 15 person trips on a Saturday.

F&B sustainable travel mode share - Saturday

5.2.5 The travel mode share for the proposed F&B uses on a Saturday is based on that used for a weekday. It is expected that visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 5.6 shows the resultant mode share.

Table 5.6: Travel mode share – F&B – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	12.9%	0	0	0
Cycle	2.3%	0	0	0
Bus	18.2%	0	-1	-1
Train	5.2%	0	0	0
Total	**38.6%**	**0**	**-1**	**-1**

5.2.6 As can be seen from Table 5.6, there would be no additional sustainable travel mode trips associated with the F&B uses during the Saturday peak hour. Due to the small percentage mode shares and the small negative trip numbers, whole numbers are not shown within the majority of this table.

6 OFFICE USE

6.1 Office use - Weekday

6.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed office development. The selection criteria included a town centre location (not within Greater London or Ireland), B1 use class and weekday surveys.

6.1.2 TRICS output is contained within Appendix G. The weekday person trip rates per 100m^2 for office development are shown in Table 6.1.

Table 6.1: Office trip rates per 100m^2 – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	0.088	1.972	2.06
Daily	**8.51**	**8.313**	**16.823**

6.1.3 The trip rates in Table 6.1 have been used to calculate the existing and proposed office trips. The existing office uses of the site amount to circa 5,900m^2 with the proposals amounting to circa 2,700m^2. Table 6.2 shows the resultant net total person net trips for the office uses of the proposed development during a weekday.

Table 6.2: Office net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	-3	-63	-66
Daily	**-271**	**-268**	**-539**

6.1.4 As can be seen from Table 6.2, there would be a reduction of 271 person arrivals across a 12 hour day between 07:00 – 19:00 and a reduction of 268 departures resulting in a total reduction of 539 person trips on a weekday.

Office sustainable travel mode share - Weekday

6.1.5 The travel mode share for the proposed office development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. Table 6.3 shows the resultant mode share.

Table 6.3: Net travel mode share – Office – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	12.9%	0	-8	-8
Cycle	2.3%	0	-1	-1
Bus	18.2%	-1	-11	-12
Train	5.2%	0	-3	-3
Total	**38.6%**	**-1**	**-23**	**-24**

6.1.6 As can be seen from Table 6.3, there would be a total reduction of 24 person trips in the PM peak hour.

6.2 Office use - Saturday

6.2.1 The TRICS database did not contain any town centre comparator sites for office uses on a Saturday for a town centre. The scope of the search was opened up to include sites in Greater London. This returned one site which has been used for the calculation. Office uses are not considered to be a significant trip generator on a weekend.

6.2.2 TRICS output is contained within Appendix H. The Saturday person trip rates per 100m^2 for office development are shown in Table 4.4.

Table 6.4: Office net trip rates per 100m^2 – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	0.245	0.367	0.612
Daily	**2.059**	**1.928**	**3.987**

6.2.3 Table 6.5 shows the resultant net total person trips for the office uses of the proposed development during a Saturday.

Table 6.5: Office net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	-7	-12	-19
Daily	**-64**	**-62**	**-126**

6.2.4 As can be seen from Table 6.5, there would be a reduction of 64 person arrivals across a 12 hour day between 07:00 – 19:00 and a reduction of 62 person departures, resulting in a total reduction of 126 person trips.

Office sustainable travel mode share - Saturday

6.2.5 The travel mode share for the proposed office development has been based on 2011 Census data *Method of Travel to Work (Workday population)*. It is expected

that office staff would continue to use the same mode of transport on a Saturday as a weekday. Table 6.6 shows the resultant mode share.

Table 6.6: Travel mode share – Office – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	12.9%	-1	-2	-3
Cycle	2.3%	0	0	0
Bus	18.2%	-1	-2	-3
Train	5.2%	0	-1	-1
Total	**38.6%**	**-2**	**-5**	**-7**

6.2.6 As can be seen from Table 6.6, there would be a total reduction of seven person trips during the Saturday peak hour.

7 HOTEL USE

7.1 Hotel use - Weekday

7.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed hotel development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland) and C1 land use class. The resultant TRICS output is contained within Appendix I. The weekday person trip rates per 100m^2 for hotel development are shown in Table 7.1.

Table 7.1: Hotel trip rates per unit – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	1.326	0.658	1.984
Daily	**10.014**	**10.32**	**20.334**

7.1.2 As there are no existing hotel uses within the proposed development site, all hotel trips have been assumed to be new to the site. Based on a proposed hotel area of circa 6,000m^2, Table 7.2 shows the resultant net total person trips for the hotel uses of the proposed development during a weekday.

Table 7.2: Hotel net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	79	39	118
Daily	**600**	**617**	**1,217**

7.1.3 As can be seen from Table 7.2, there would be 600 new person arrivals across a 12 hour period between 07:00 – 19:00 and 617 new departures resulting in a total of 1,217 new person trips on a weekday.

Hotel travel sustainable travel mode share - Weekday

7.1.4 The travel mode share for the proposed hotel development has been based on the same mode share as the residential uses. It is likely that those persons arriving and departing the hotel in the peak hours will take a similar choice in travel mode as residents living within the development. Table 7.3 shows the resultant mode share.

Table 7.3: Net travel mode share – Hotel – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	35.4%	28	14	42
Cycle	2.4%	2	1	3
Bus	22.8%	18	9	27
Train	7.2%	6	3	9
Total	**67.8%**	**54**	**27**	**81**

7.1.5 As can be seen from Table 7.3, there would be a total of 81 new person trips in the PM peak hour. Sustainable transport modes represent 67.8% of the travel mode share.

7.2 Hotel uses - Saturday

7.2.1 The TRICS database has been interrogated to obtain suitable comparator sites. The only site available within the database which had Saturday survey data was located on the edge of town centre. The site was reviewed and considered too remote from the town centre with access only really possible by car, and therefore not suitable as a comparator site.

7.2.2 A review of survey data obtained for a number of hotels indicated that on average, visitor numbers on a Saturday increased by approximately 20% when compared to a weekday.

7.2.3 Therefore the weekday trip rates contained within Table 7.1 have been factored up by approximately 20%.The Saturday person trip rates per 100m^2 for hotel development are shown in Table 7.4.

Table 7.4: Hotel trip rates per unit – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	1.235	0.978	2.213
Daily	**11.918**	**12.282**	**24.2**

7.2.4 As there are no existing hotel uses within the proposed development site, all hotel trips have been assumed to be new to the site. Based on a proposed hotel area of circa 5,100m^2, Table 7.5 shows the resultant total person trips for the hotel uses of the proposed development on a Saturday.

Table 7.5: Hotel net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	74	59	133
Daily	**714**	**738**	**1,452**

7.2.5 As can be seen from Table 7.5, there would be 714 person arrivals across a 12 hour day between 07:00 – 19:00 and 738 departures resulting in a total of 1,452 person trips on a Saturday.

Hotel sustainable travel mode share - Saturday

7.2.6 The travel mode share for the proposed hotel development has been based on the residential development for a Saturday. It is likely that those persons arriving and departing the hotel on a Saturday will take a similar choice in travel mode as residents living within the city centre. Table 7.6 shows the resultant mode share.

Table 7.6: Net travel mode share – Residential – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	35.4%	26	21	47
Cycle	2.4%	2	1	3
Bus	22.8%	17	13	30
Train	7.2%	5	4	9
Daily	**100.0%**	**50**	**39**	**89**

7.2.7 As can be seen from Table 7.6, there would be a total of 89 new sustainable travel mode person trips during the Saturday peak hour.

8 LEISURE USE

8.1 Leisure use - Weekday

8.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed leisure (cinema) use of the development. The comparator sites selected have been based on weekday surveys, a town centre location (not within Greater London or Ireland), a sub-category of High Street and a D2 use class. The resultant TRICS output is contained within Appendix J. The weekday person trip rates per 100m^2 for the leisure development use are shown in Table 8.1.

Table 8.1: Leisure trip rates per 100m^2 – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	4	1.227	5.227
Daily	**16.5**	**8.636**	**25.136**

8.1.2 As there are no existing leisure (cinema) uses within the proposed development site, all leisure trips have been assumed to be new to the site. However, it is considered that a proportion of trips to leisure uses in the city centre will be undertaken by people already in the locality such as shoppers and retail workers etc. Therefore it has been considered reasonable that new trips specifically associated with the leisure uses represent 80% of its overall total trip generation. Based on a proposed leisure use area of circa 2,150m^2, Table 8.2 shows the resultant net total person trips for the leisure uses of the proposed development during a weekday.

Table 8.2: Leisure net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	69	21	90
Daily	**285**	**150**	**435**

8.1.3 As can be seen from Table 8.2, there would be 285 person arrivals across a 12 hour period between 07:00 – 19:00 and 150 departures resulting in a total of 435 person trips on a weekday.

Leisure sustainable travel mode share - Weekday

8.1.4 The travel mode share for the proposed leisure uses have been based on the same mode share used for retail and F&B uses. Table 8.3 shows the resultant mode share.

Table 8.3: Net travel mode share – Leisure – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	12.9%	9	3	12
Cycle	2.3%	2	0	2
Bus	18.2%	13	4	17
Train	5.2%	4	1	5
Total	**38.6%**	**28**	**8**	**36**

8.1.5 As can be seen from Table 8.3, there would be a total of 36 new sustainable travel mode trips during the PM peak.

8.2 Leisure use - Saturday

8.2.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed leisure (cinema) use of the development. One site was available for a Saturday. The comparator site selected is based on an edge of town centre location (not within Greater London or Ireland) and a D2 use class. The resultant TRICS output is contained within Appendix K. The Saturday person trip rates for leisure use are shown in Table 8.4.

Table 8.4: Leisure net trip rates per 100m^2 – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	2.645	1.29	3.935
Daily	**39.934**	**26.645**	**66.579**

8.2.2 As there are no existing leisure (cinema) uses within the proposed development site, all leisure trips have been assumed to be new to the site. However, it is considered that a proportion of trips to leisure uses in the city centre will be undertaken by people already in the locality such as shoppers and retail workers etc. Therefore it has been considered reasonable and robust that trips specifically associated with the leisure uses represent 80% of its overall total trip generation. Based on a proposed leisure use area of circa 2,150m^2, Table 8.5 shows the resultant net total person trips for the leisure uses of the proposed development during a weekday.

Table 8.5: Leisure net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	46	22	68
Daily	**690**	**460**	**1,150**

8.2.3 As can be seen from Table 8.5, there would be 690 new person arrivals across a 12 hour day between 07:00 – 19:00 and 460 new departures resulting in a total of 1,150 new person trips on a Saturday.

Leisure sustainable travel mode share - Saturday

8.2.4 The travel mode share for the proposed Leisure uses on a Saturday is based on that used for a weekday. It is expected that visitors would continue to use the same mode of transport on a Saturday as a weekday. Table 8.6 shows the resultant mode share.

Table 8.6: Travel mode share – Leisure – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	12.9%	6	3	9
Cycle	2.3%	1	1	2
Bus	18.2%	8	4	12
Train	5.2%	2	1	3
Total	**38.6%**	**19**	**8**	**27**

8.2.5 As can be seen from Table 8.6, there would be a total of 27 new sustainable travel mode trips during the Saturday peak hour.

9 COMMUNITY USE

9.1 Community use - Weekday

9.1.1 The TRICS database has been interrogated to obtain suitable comparator sites for use in predicting the person trip generation of the proposed community use development (medical centre). The selection criteria included a town centre location, with sub category of retail zone, D1 use class and weekday surveys. Greater London needed to be included in the selection process as there were no sites available based on the location criteria.

9.1.2 TRICS output is contained within Appendix L. The weekday person trip rates per 100m^2 for community use (medical centre) are shown in Table 9.1.

Table 9.1: Community use trip rates per 100m^2 – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	0.701	1.366	2.067
Daily	**12.551**	**11.848**	**24.399**

9.1.3 As there are no existing community uses within the proposed development site, all community trips have been assumed to be new to the site. Based on a proposed community use area of circa 2,400m^2, Table 9.2 shows the resultant net total person trips for the community uses of the proposed development during a weekday.

Table 9.2: Community use net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	17	33	50
Daily	**301**	**283**	**584**

9.1.4 As can be seen from Table 9.2, there would be 301 new person arrivals across a 12 hour period between 07:00 – 19:00 and 283 new departures resulting in a total of 584 new person trips on a weekday.

Community use sustainable travel mode share - Weekday

9.1.5 The travel mode share for the proposed community use development has been based on 2011 Census data *Method of Travel to Work (Workday Population)*. It is considered that people will travel into the city for the community use by the same modes they also use to travel to work and to shop. This is considered robust as most people will live within close proximity to the community use and

are therefore more likely to travel by sustainable modes such as walking. Table 9.3 shows the resultant mode share.

Table 9.3: Net travel mode share – Community use – Weekday

Mode	%	PM peak hour		
		Arr.	Dep.	Total
Walking	12.9%	2	4	6
Cycle	2.3%	0	1	1
Bus	18.2%	3	6	9
Train	5.2%	1	2	3
Total	**38.6%**	**6**	**13**	**19**

9.1.6 As can be seen from Table 9.3, there would be a total of 19 new sustainable travel mode trips in the PM peak hour.

9.2 Community use - Saturday

9.2.1 The TRICS database did not contain any comparator sites for community use on a Saturday. It is considered that the community use would have a similar trip generation and profile to that for a weekday if it was open on a Saturday. Therefore the same trip rates for a weekday have been used for a Saturday. The Saturday person trip rates per 100m^2 for community use (medical centre) are shown in Table 9.4.

Table 9.4: Community use trip rates per 100m^2 - Saturday

Time	Arrivals	Departures	Total
13:00-14:00	1.44	1.181	2.621
Daily	**12.551**	**11.848**	**24.399**

9.2.2 Based on a proposed community use area of circa 2,400m^2, Table 9.5 shows the resultant net total person trips for the community uses of the proposed development during a Saturday.

Table 9.5: Community use net total person trips across development – Saturday

Time	Arrivals	Departures	Total
14:00-15:00	34	28	62
Daily	**301**	**283**	**584**

9.2.3 As can be seen from Table 9.5, there would be 301 new person arrivals across a 12 hour period between 07:00 – 19:00 and 283 new departures resulting in a total of 584 new person trips if the Community use was open on a Saturday.

9.2.4

Community use sustainable travel mode share - Saturday

9.2.5 It is expected that as with the trip generation for the community use, the travel mode share for a Saturday will be the same as that for a weekday. Table 9.6 shows the resultant mode share.

Table 9.6: Travel mode share – Community – Saturday

Mode	%	Saturday peak hour		
		Arr.	Dep.	Total
Walking	12.9%	4	4	8
Cycle	2.3%	1	1	2
Bus	18.2%	6	5	11
Train	5.2%	2	1	3
Total	**38.6%**	**13**	**11**	**24**

9.2.6 As can be seen from Table 9.6, there would be a total of 24 new sustainable travel mode trips during the Saturday peak hour.

10 ALL USES

10.1 All uses - Weekday

10.1.1 The total net trip generation for the development proposals on a weekday is shown in Table 10.1.

Table 10.1: All uses net total person trips across development – Weekday

Time	Arrivals	Departures	Total
17:00-18:00	968	375	1,343
Daily	**4,864**	**4,689**	**9,553**

10.1.2 As can be seen from Table 10.1, there would be 4,864 new person arrivals across a 12 hour period between 07:00 – 19:00 and 4,689 new departures resulting in a total of 9,553 new person trips on a weekday.

All uses sustainable travel mode share - Weekday

10.1.3 The travel mode share for all uses of the proposed development during the AM and PM peak hours is shown in Table 10.2

Table 10.2: Net travel mode share – All uses – Weekday

Mode	PM peak hour		
	Arr.	Dep.	Total
Walking	321	124	445
Cycle	23	9	32
Bus	216	85	301
Train	69	27	96
Total	**629**	**245**	**874**

10.1.4 As can be seen from Table 10.2, there would be a total of 874 new sustainable travel mode trips in the PM peak hour.

10.2 All uses - Saturday

10.2.1 The total net trip generation for the development proposals on a Saturday is shown in Table 10.3.

Table 10.3: All uses net total person trips across development – Saturday

Time	Arrivals	Departures	Total
13:00-14:00	612	713	1,325
Daily	**4,466**	**3,771**	**8,237**

10.2.2 As can be seen from Table 10.3, there would be 4,466 new person arrivals across a 12 hour period between 07:00 – 19:00 and 3,771 new departures resulting in a total of 8,237 new person trips on a Saturday.

All uses sustainable travel mode share - Saturday

10.2.3 The travel mode share for all uses of the proposed development during the Saturday peak hour is shown in Table 10.4

Table 10.4: Net travel mode share – All uses – Saturday

Mode	Saturday peak hour		
	Arr.	**Dep.**	**Total**
Walking	178	221	399
Cycle	15	18	33
Bus	132	155	287
Train	41	48	89
Total	**366**	**442**	**808**

10.2.4 As can be seen from Table 10.4, there would be a total of 808 new sustainable travel mode trips during the Saturday peak hour.

Appendices

TPP
transport planning practice

Appendix A

Weekday TRICS Output
Residential

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0154

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:

08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days
09	NORTH		
	CB	CUMBRIA	1 days

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

Secondary 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: Number of dwellings
Actual Range: 20 to 154 (units:)
Range Selected by User: 6 to 184 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 13/11/18

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:

Thursday	2 days
Friday	1 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	3

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:

Built-Up Zone	3

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:

C3	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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

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:

75,001 to 100,000	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:

0.6 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	CB-03-C-01 KING STREET CARLISLE	BLOCK OF FLATS		CUMBRIA
	Town Centre Built-Up Zone Total Number of dwellings:		40	
	Survey date: THURSDAY		*12/06/14*	*Survey Type: MANUAL*
2	GM-03-C-02 WHITWORTH STREET W. MANCHESTER	BLOCK OF FLATS		GREATER MANCHESTER
	Town Centre Built-Up Zone Total Number of dwellings:		154	
	Survey date: THURSDAY		*13/10/11*	*Survey Type: MANUAL*
3	GM-03-C-03 FAIRFIELD STREET MANCHESTER	BLOCK OF FLATS		GREATER MANCHESTER
	Town Centre Built-Up Zone Total Number of dwellings:		20	
	Survey date: FRIDAY		*14/10/11*	*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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	3	71	0.014	3	71	0.117	3	71	0.131
08:00 - 09:00	3	71	0.056	3	71	0.449	3	71	0.505
09:00 - 10:00	3	71	0.051	3	71	0.266	3	71	0.317
10:00 - 11:00	3	71	0.098	3	71	0.131	3	71	0.229
11:00 - 12:00	3	71	0.145	3	71	0.187	3	71	0.332
12:00 - 13:00	3	71	0.187	3	71	0.252	3	71	0.439
13:00 - 14:00	3	71	0.224	3	71	0.196	3	71	0.420
14:00 - 15:00	3	71	0.215	3	71	0.126	3	71	0.341
15:00 - 16:00	3	71	0.234	3	71	0.187	3	71	0.421
16:00 - 17:00	3	71	0.411	3	71	0.332	3	71	0.743
17:00 - 18:00	3	71	0.607	3	71	0.229	3	71	0.836
18:00 - 19:00	3	71	0.285	3	71	0.042	3	71	0.327
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.527			2.514			5.041

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.*

Appendix B

Saturday TRICS Output
Residential

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0110

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
Category : C - FLATS PRIVATELY OWNED
MULTI-MODAL VEHICLES

Selected regions and areas:
05 EAST MIDLANDS
DS DERBYSHIRE 1 days

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

Secondary 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: Number of dwellings
Actual Range: 28 to 28 (units:)
Range Selected by User: 6 to 493 (units:)

Parking Spaces Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 21/06/19

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 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:
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

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:
C3 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:
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:
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:
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 DS-03-C-02 FLATS DERBYSHIRE
BURTON ROAD
DERBY
NEW NORMANTON
Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Number of dwellings: 28
Survey date: SATURDAY *09/07/11* *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 03 - RESIDENTIAL/C - FLATS PRIVATELY OWNED
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 1 DWELLS
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	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	28	0.036	1	28	0.000	1	28	0.036
08:00 - 09:00	1	28	0.000	1	28	0.000	1	28	0.000
09:00 - 10:00	1	28	0.036	1	28	0.036	1	28	0.072
10:00 - 11:00	1	28	0.107	1	28	0.107	1	28	0.214
11:00 - 12:00	1	28	0.107	1	28	0.107	1	28	0.214
12:00 - 13:00	1	28	0.107	1	28	0.071	1	28	0.178
13:00 - 14:00	1	28	0.286	1	28	0.393	1	28	0.679
14:00 - 15:00	1	28	0.036	1	28	0.107	1	28	0.143
15:00 - 16:00	1	28	0.321	1	28	0.071	1	28	0.392
16:00 - 17:00	1	28	0.214	1	28	0.107	1	28	0.321
17:00 - 18:00	1	28	0.071	1	28	0.000	1	28	0.071
18:00 - 19:00	1	28	0.214	1	28	0.179	1	28	0.393
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.535			1.178			2.713

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.*

Appendix C

Saturday TRICS Output
Retail

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0128

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 01 - RETAIL
Category : M - MIXED SHOPPING MALLS
MULTI-MODAL VEHICLES

Selected regions and areas:
02 SOUTH EAST
KC KENT 1 days

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

Secondary 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: 8125 to 8125 (units: sqm)
Range Selected by User: 8125 to 14693 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/02 to 24/11/12

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 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:
Town 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:
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:

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 1 mile:
25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000	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.

Petrol filling station:

Included in the survey count	0 days
Excluded from count or no filling station	1 days

This data displays the number of surveys within the selected set that include petrol filling station activity, and the number of surveys that do not.

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 KC-01-M-01 SHOPPING MALL KENT
HIGH STREET
MAIDSTONE

Town Centre
High Street
Total Gross floor area: 8125 sqm
Survey date: SATURDAY *24/11/12* *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 01 - RETAIL/M - MIXED SHOPPING MALLS

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	8125	3.926	1	8125	0.148	1	8125	4.074
09:00 - 10:00	1	8125	6.572	1	8125	4.911	1	8125	11.483
10:00 - 11:00	1	8125	6.806	1	8125	5.169	1	8125	11.975
11:00 - 12:00	1	8125	5.342	1	8125	5.526	1	8125	10.868
12:00 - 13:00	1	8125	6.498	1	8125	5.588	1	8125	12.086
13:00 - 14:00	1	8125	5.452	1	8125	6.462	1	8125	11.914
14:00 - 15:00	1	8125	5.883	1	8125	6.129	1	8125	12.012
15:00 - 16:00	1	8125	3.852	1	8125	5.415	1	8125	9.267
16:00 - 17:00	1	8125	3.705	1	8125	5.600	1	8125	9.305
17:00 - 18:00	1	8125	1.440	1	8125	3.717	1	8125	5.157
18:00 - 19:00	1	8125	0.000	1	8125	0.271	1	8125	0.271
19:00 - 20:00	1	8125	0.000	1	8125	0.000	1	8125	0.000
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			49.476			48.936			98.412

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.*

Appendix D

Richard Parker paper
1985

TPP
transport planning practice

TRAFFIC CHARACTERISTICS OF MAJOR RETAIL DEVELOPMENTS

Richard Parker
Independent Consultant

INTRODUCTION

In the planning and design of major free-standing regional centres a great many transport aspects have to be investigated and quantified and the implications understood. A significant aspect of this is to ensure that agreement is reached between the developer and his advisers on the one hand and the Planning and Highway Authorities on the other hand.

In the UK we now have many examples of superstores and hypermarkets and considerable research has been carried out into the effects these developments have on the locality. Unfortunately little comparative data from UK sources is available to indicate how a free standing regional shopping centre would perform in a situation where there is no restraint on movement or parking. As more planning applications go to appeal (and anyway most major retail development of this order are likely to be 'called in') it is important to have an agreed base from which the traffic impact can be assessed. Such factors as traffic generation, modal split, time of arrival/departure and parking requirements are all matters that need to be determined before any assessment can be made of the impact of the proposed development on the surrounding area.

In this paper I have reviewed the suitability of current published information, extrapolated relevant criteria observed at hypermarkets and also introduce some recent survey information from a regional centre.

BACKGROUND

Since the opening in 1968 of the two Woolco shopping centres at Oadby and Bournemouth there has been a rapid increase in the number of superstores and hypermarkets in the UK. At the present time there are in excess of 250 stores each with more than 2,500m^2 of retail area. Because of the general acceptance of this style of shopping convenience by the public (and obviously the recognition of this by the retailer) this number is likely to continue to increase. Furthermore the traditional style of shopping in the local High Street has been broken by a combination of increased mobility (due to increasing car-ownership), demand for better standard and layout of stores, the restriction of developing town centre properties and various other social aspects such as working housewives, once-a-week shopping etc etc. The acceptance therefore of travelling some distance to a shopping centre for the repetitive convenience goods (food) has occured and now the indications are that the next step towards a number of regional shopping centres is likely to occur. There have been numerous studies to assess the economic, environmental, traffic, pollution, retailing and sociological impacts that the smaller developments of superstores and hypermarkets have on the surrounding areas. In fact it is fair to say that the impact

any proposed development will have can be reasonably accurately determined from a combination of known characteristics for a particular size, type and style of centre allied with the local conditions. However that is not the case with the proposed regional shopping centres as so few precedents exist within the UK no clear pattern has yet been established on what the characteristics are.

To avoid confusion I have used the following convention to define the term superstore, hypermarket, and regional centre:

Name	Gross Leasable Area	Characteristics
Superstore	2500-5000m^2	single store
Hypermarket	5000-15000m^2	one major occupier (convenience food) and a number of small service shops
Regional Shopping Centre	25000+m^2	department store(s), variety shops, small shops and boutiques

PHYSICAL CHARACTERISTICS

A regional shopping centre is different from hypermarkets and superstores not just by the fact that it is many times larger but also by the nature of the type of tenant and the type of customer. Hypermarkets and superstores have one major occupier selling principally convenience goods and the development may or may not contain a number of small peripheral 'service' outlets (newsagents, chemist, launderette, petrol station etc). Shoppers by and large are attracted to the one large convenience outlet and use the subsidiary outlets as a secondary function. A regional shopping centre however, usually contains two department stores, a number of other large variety stores and multiplicity of small 'boutique' style shops. Shoppers, therefore, are visiting the centre for the more durable commodities and their shopping is undertaken on the basis of 'comparison' between the various competing stores within the overall development. This essential difference in style gives rise to a markedly different characteristic of visitors to the centre. The attraction of shoppers is less per unit floor area, their stay is longer and they are drawn from a wider area. This therefore gives rise to problems of trying to predict behavioural or quantitative effects of the large regional shopping centres based on known characteristics of the smaller centres.

At the outset it is worthwhile setting out the current status of the various regional shopping centes in the UK and their essential features.

Brent Cross, opened in mid 1970's, two department stores, four large variety stores and over 70 small units, 73,000m^2 of gross leasable area, 5200 parking spaces. Located in North London adjacent to the North Circular Road and the southern end of the M1. Public transport access is good.

Milton Keynes, not a free-standing development but the wholly new centre for this modern city. First stage opened in 1979. One major department store, seven variety stores, two food supermarkets. High proportion of service facilities (i.e. banks, building societies, post office) and adjoining civic centre. Over 6000 parking spaces.

Metro Centre (Gateshead), under construction. First phase completion mid 1986 - Over 100,000m^2 retail space, 5500 parking spaces with plans for expansion to 8000 spaces. Located in an Enterprise Zone.

Centre 21, delayed. Inquiry early 1982. Minister rejected recommendation for Approval. Proposal based on 91,000m^2 leasable area, 6000 parking spaces. Located immediately adjacent to M1/M69 junction on the south side of Leicester urban area.

Others. The imminent completion of the M25 has resulted in planning applications being submitted for further regional centres near the M25. Applications have been submitted for two schemes on adjoining sites at Thurrock (of 100,000 and 125,000m^2 gross floor area each) and at least one development of a similar size on the M25 to the west of London.

In France, USA and Canada there are a number of established free-standing regional shopping centres but the different social backgrounds and shopping patterns in these countries make comparisons difficult.

TRIP RATES

The first problem associated with trip generation is the definition of floor area. The following are in use:

gross floor area (GFA) - the total floor area contained within a development. It includes productive and non productive space and is usually measured to the external walls of building.

- omitting the common areas of malls, accesses, landscaping, toilets etc gives

gross leasable area (GLA) - the total floor area rented by a tenant and encompasses both retail sales area and also storage, staff facilities and service areas.

- omitting the storage, staff facilities and service area gives

retail floor space (RFA) - i.e. the 'productive' floor area.

The relationship between these three varies according to the type of layout and development but are generally in the range for regional centres (1)-(4);

Gross Floor Area (GFA)	Gross Leasable Area (GLA)	Retail Floor Area (RFA)
1.0	0.75-0.85	0.40-0.60
	1.0	0.55-0.75

To the traffic engineer the first parameter (gross floor area) is meaningless as its relationship to the 'productive' floor area depends on various non-traffic parameters in the conceptual layout of the malls, landscape and amenity areas etc. The other two parameters, gross leasable area and retail floor area are both commonly used and care is needed to ensure that they are not confused.

Whilst a developer or letting agent will want to know the total number of adult visitors per week the traffic engineer will have the more specific requirement of needing to satisfy the Highway Authority that the traffic for the existing commuter peak hour or the peak shopping traffic flows will not cause insuperable problems. To this end numerous studies have been carried out to determine the trip generation of hypermarkets and superstores (5-7). The term 'visitation rate' is frequently used and is similar to the trip generation rate used in transport planning. However it must be appreciated that this relates only to the one way (inbound) journey and obviously from a traffic engineering viewpoint the outbound trip will have to be catered for as well. Research has indicated that the total attraction by all modes of transport to one of these convenience goods orientated store is in the range 100-130 trips/100m^2 RFA on a Friday and 100-140 trips/100m^2 RFA for a Saturday. (These trips relate to 'shopper groups' which is the basic behavioural unit of travel to retail developments. The size of these shopper groups (7) varies according to the type of retail centre, mode and time of week changing from 1.6 (Friday) to 2.2 (Saturday)).

However account has to be taken of modal split and this varies enormously according to the location of the store, accessibility etc. Published research (7,8) shows that the proportion of all trips being made by car varies from below 50% in the urban, lower car ownership areas to over 90% in high car ownership, rural areas. However a modal split of 75%-85% by car is more normal. Hence to the traffic engineer the crucial generation of private vehicle trips to a superstore/hypermarket is of the order of 70-100 trips/100m^2 RFA for a Friday or a Saturday. These figures have to be treated with a certain amount of caution as petrol-only sales have been shown to constitute as much as 10-15% of this figures.(12,13).

By contrast the generation rates for regional shopping centres are much lower. The French experience (9) is that the generation is of the order of 27-36 RFA private vehicle trips/100m^2 RFA (Friday) and 30-40 trips per 100m^2 per Saturday. Early indications (10) from

Brent Cross showed that the Friday generation was of the order of 30 car trips/ 100m^2 RFA on a Friday rising to 35 on a Saturday in 1977. Furthermore these car trips represented about 70% of the total number of shoppers in the centre. Recent (1985) surveys at the centre (11) show that these figures are still valid although there are signs of restraint occuring with shoppers rearranging their trips to avoid the peak hours when the car parks are full and there is congestion on the approach roads.

Comparable figures for Milton Keynes are difficult to obtain because both non-retail and the high-generation convenience outlets are present in the Central development but the car generation rate would appear to be broadly similar.

Figure 1 presents a generalised relationship between the unit generation rate and the overall size of store. Because of all the variables associated with any store it is not possible to be precise, but there is a general downward relationship between the unit generation rate and overall size of the development, which is a similar trend to that promulgated in early American research relating trip rates with the logarithm of gross leasable area.

DAILY AND HOURLY VARIATION

There is a clear trend at most developments towards increasing patronage towards the end of the week. The reasons for this are not difficult to understand with the social and economic constraints of pay-day, weekend leisure etc but it gives rise to Thursday evening, Friday evening and Saturday being the most traffic significant times of the week. Figure 2 shows the daily variation of a typical hypermarket and that of different regional shopping centres. It is interesting to note that generally the larger the development the less significant the peak is at the end of the week. The daily variation for Brent Cross in both 1978 and 1985 is shown and the comparison is interesting. Although the same general trend is still there the previously busy days are getting (proportionately) less busy and the previously quiet days are getting busier. A case of restraint and shoppers expressing their preference?

To the traffic engineer a major area of concern associated with the daily and hourly variation in traffic is the size and occurence of the peak periods. The combination of the evening peak flow to the shopping centres with the normal evening commuting peak has to be accommodated by the road system. Figure 3 shows the hourly variation of arriving and departing traffic at Brent Cross for all Fridays between February and April 1985. The pm peak is not as prominent as that for a superstore or hypermarket. Interestingly there is little difference between the hourly variations on a Friday and that for Monday-Thursday. Both the peak entry and exit are of the order of 13%, but the maximum usage occurs between 1400-1500 (20%).

Figure 4 shows the similar variation for a Saturday. The earlier opening hours are reflected in the much quicker build-up of traffic and the peak flows (in volumetric terms) occur for departing traffic between 1600-1800. This traffic although larger in absolute terms does not cause so much impact on the adjoining road system although it may be critical in terms of limiting capacity.

HOURLY VARIATION IN PRIVATE CARS

Time of Day	Regional Shopping Centre Friday Arr %	Friday Dep %	Saturday Arr %	Saturday Dep %	Superstore/Hypermarket Friday Arr	Friday Dep	Saturday Arr	Saturday Dep
before 9	1.4	0.8	6.4	1.0	1.4	-	6.4	0.1
9 - 10	6.2	0.9	10.9	2.0	7.8	2.3	11.1	2.8
10 - 11	12.1	3.2	12.6	6.1	8.5	6.4	9.6	7.4
11 - 12	10.5	7.7	12.3	9.6	7.3	8.0	9.9	9.7
12 - 13	9.7	9.2	11.4	11.5	6.7	7.9	8.7	10.6
13 - 14	9.7	10.1	11.7	11.5	5.8	6.1	10.0	10.9
14 - 15	9.4	10.9	12.3	11.4	7.6	6.4	10.6	10.2
15 - 16	8.5	11.1	11.2	12.1	6.4	7.3	9.5	10.8
16 - 17	8.8	9.8	7.0	13.9	8.5	7.4	7.7	11.8
17 - 18	9.7	8.8	3.0	14.8	12.6	9.1	7.9	10.0
18 - 19	9.6	9.9	1.0	5.5	16.0	11.9	5.5	6.8
19 - 20	3.7	11.0	-	0.6	10.2	12.8	2.3	6.6
after 20	0.6	6.4	-	-	1.2	14.3	0.6	2.3

PARKING DURATION AND TURNOVER

From the arrival/departure flows it is relatively simple to produce an indication of the parking accumulation (see Figure 5). This indicates that the peak parking demands occurs on a Saturday afternoon although the 'flatness' of the curve suggests that the development is probably suffering from a certain amount of restraint with insufficient parking spaces for the demand. The Saturday parking accumulation shows that for a 4 hour spell the car-parks are consistently 90% utilised and as the approach roads are saturated, this represents the maximum possible usage of parking spaces. This confirms that the 10% 'margin' usually adopted by traffic engineers in the sizing of car parks is reasonable. It is interesting to note that the total vehicle throughput on an average Friday is only 20% lower than an average Saturday, yet the car park operates at a comfortable utilisation throughout the day. The existing development has 5200 spaces (which represents 7.3 spaces/100m^3 GLA) and the developer has plans to increase this provision. This compares with a planned provision of 6.6 spaces/ 100m^2 GLA at Centre 21 and around 6 spaces/100m^2 GLA at Metro Centre. The Multiple Shops Federation recommended in their "Car Parking for Shoppers" guide (1973) that 6.5 spaces/100m^2 GLA should be provided.

Because of the fundamentally different nature of the regional shopping centre from a hypermarket it is not surprising that the parking turnover is different. Research (2,5) has indicated that visitors to superstores and hypermarkets have an average stay of 25-30 minutes for the smaller stores and 40-45 minutes for the larger stores. Indications are that the equivalent stay at a regional centre is of the order of 1¼ hours (although the duration at Brent Cross in 1978 was 95 minutes). Figures 3 and 4 tend to confirm this figure for Fridays but suggests that the average duration on a Saturday might be longer at 1¾-2 hours.

CATCHMENT AREA

The extent of the catchment area for regional shopping centres is difficult to define but there are indications that Brent Cross and Milton Keynes both consider that their average trip duration is in excess of 30 minutes. As both of these will involves some travel in urban areas this trip length represents about 12-15 miles. For such developments as Centre 21 and the various M25 proposals with their proximity to the national motorway network a 30 minutes driving time represent a considerably greater distance.

SERVICING ARRANGEMENTS

Although commercial vehicles represent a small proportion of the total traffic flow at a centre it is essential to provide adequate facilities for delivery vehicles to ensure separation of private/goods vehicles and to avoid pedestrian/vehicular conflict. Furthermore the smooth and uninterrupted passage of goods vehicles into the centre is necessary to avoid any queueing or delay to the private motorist. Over the years there have been changes in the style of delivery trips due to increases in gross vehicle weight and centralisation of distribution facilities. Current indications at Brent Cross are that goods vehicles represent about 1-1½% of the total daily traffic flow into the centre and this includes the effect of one department store operating a delivery service.

Every retail centre will provide a considerable source of local employment. Because of the extended opening hours of these centres and the employment characteristics of workers in the retail industry shift work and part-time work is prevalent. Earlier research (7) had suggested that the number of employees at superstores/hypermarkets is of the order of 1 per 25m^2 GLA. However it is interesting to note that at Brent Cross the current figure is 1 per 16m^2 GLA (i.e. 4500 employees). Each of these employees will have to travel into and out of the centre and many use private transport and require parking space. This alone provides a considerable proportion of the total traffic. Because of the problems of separating staff from shoppers the generation/visitation rates quoted earlier encompass both staff and shoppers.

THE FUTURE

As already discussed one of the major problems with planning these major centres is the lack of comparitive data based on UK experience. Obviously some of the proposed UK developments will provide that further information when they are completed. Furthermore it is possible that some of these developments may 'soften' their impact by incorporating social and leisure facilities within their schemes. Already there are indications of this sort of move in North America, almost to the extent where the retail activities are an adjunct to the recreational facilities.

Furthermore the number of suitable sites in the UK is so limited it is possible that the only realistic approach for future schemes is to produce a close collaboration between developer and local authority to provide both retail and amenity facilities. Examples of this collaboration have ocurred within town centre redevelopments to the benefit of everyone.

SUMMARY

In this paper I have attempted to pull together what is known about these major retail centres and suggest the relevance of known information on hypermarkets. In many cases I have not attempted to define precisely a particular parameter because traffic engineering does not lend itself to that approach. Instead I have suggested a range of criteria that relate to the normal shopping period and can be applied to the planning of these centres to give an indication of the size and occurence of the traffic flows and the likely parking demand. Bearing in mind that the prime purpose of these free-standing developments is to cater for the car-borne shopper it is essential to provide the motorist with adequate facilities from the earliest planning stages to ensure his patronage.

REFERENCES

1) Dunn and Hamilton ' Transportation Engineering Design for Shopping Centres' Traffic Engineering and Control, November 1971.

2) Parker 'Traffic Characteristics of Woolco, Bournemonth' Portsmouth Polytechnic Thesis, April 1969.

3) Brent Cross Publicity Information

4) Shopping Guide to Central Milton Keynes, Milton Keynes Development Corporation, 1980.

5) Leake & Turner 'Shopper and Vehicle Characteristics at Large Retail Shopping Centres', Traffic Engineering and Control, January 1982.

6) Harris & Andrew 'The Traffic Implications of Hypermarket Development' Traffic Engineering and Control, January 1979.

7) Baker 'Trip Generation, Parking and Transport Characteristics of Shoppers at Superstores and Hypermarkets' GLC Background paper 69, March 1980.

8) Maltby & Johnson 'Traffic Implications of Hypermarket Development' Correspondence to Traffic Engineering and Control, May 1979.

9) Barrett 'Trip Generation and Modal Split of Shopping Trips', Traffic Engineering and Control, February 1975

10) Lee and Kent 'Brent Cross', Donaldson's Research Report No 4, 1977

11) Traffic Surveys at Brent Cross, Scott Wilson Kirkpatrick & Partners, Report 84068, May 1985.

12) The Eastleigh Carrefour, Dept of the Environment Research Report No 16 1976.

13) Kelly 'Parking at a Hypermarket - six years on' Traffic Engineering and Control, May 1974.

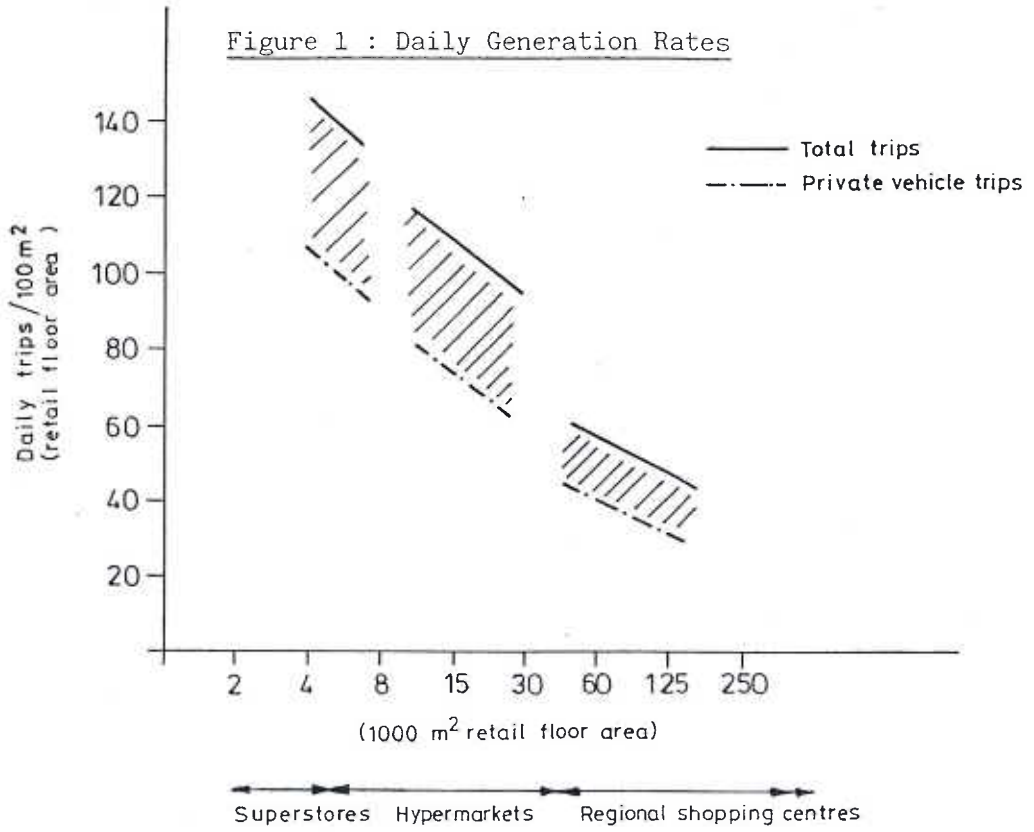


Figure 1 : Daily Generation Rates
Total trips
Private vehicle trips
Daily trips /100 m2 (retail floor area)
140
120
100
80
60
40
20
2
4
8
15
30
60
125
250
(1000 m2 retail floor area)
Superstores
Hypermarkets
Regional shopping centres

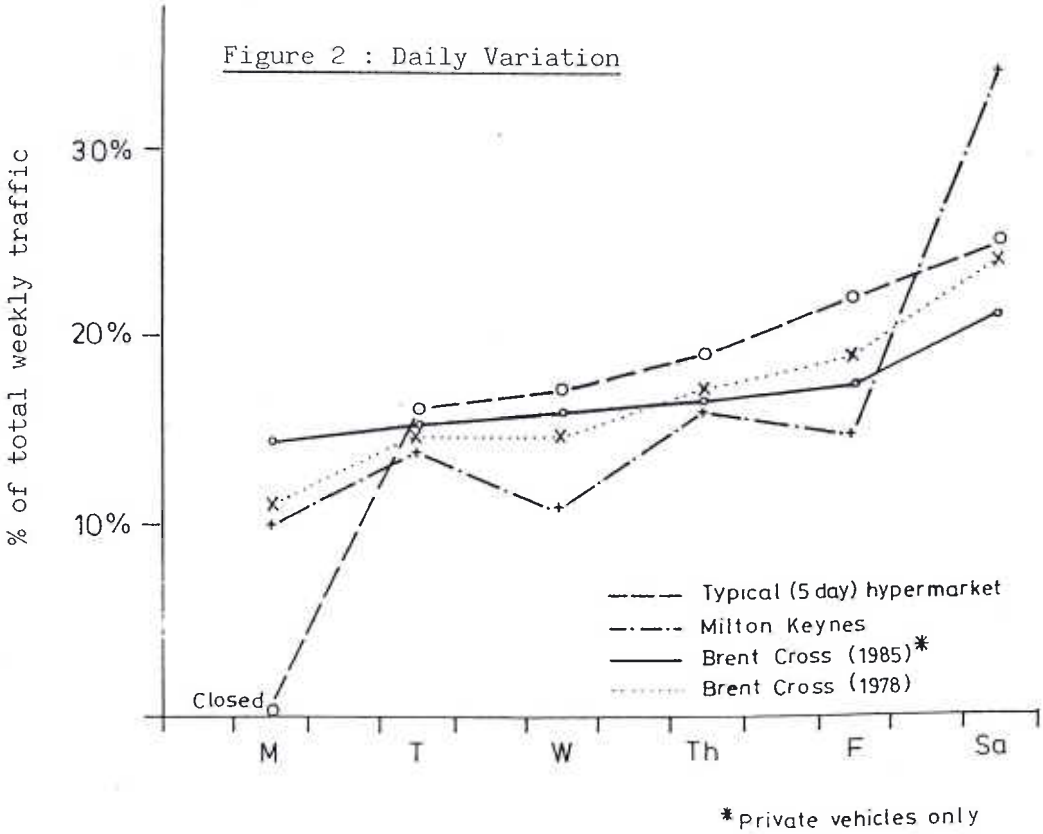


Figure 2 : Daily Variation
% of total weekly traffic
30%
20%
10%
Closed
M
T
W
Th
F
Sa
Typical (5 day) hypermarket
Milton Keynes
Brent Cross (1985)*
Brent Cross (1978)
*Private vehicles only

Figure 3 : Hourly Variation in Flows
Brent Cross (Fridays 2/85-4/85)

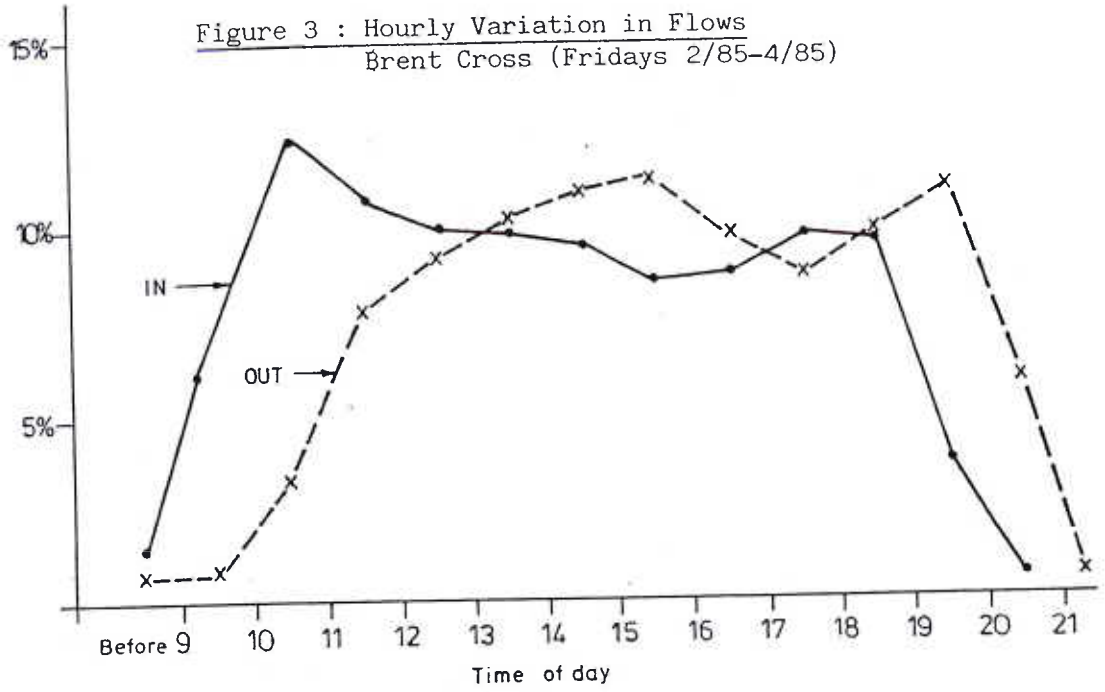


Figure 4 : Hourly Variation in Flows
Brent Cross (Saturdays 2/85-4/85)

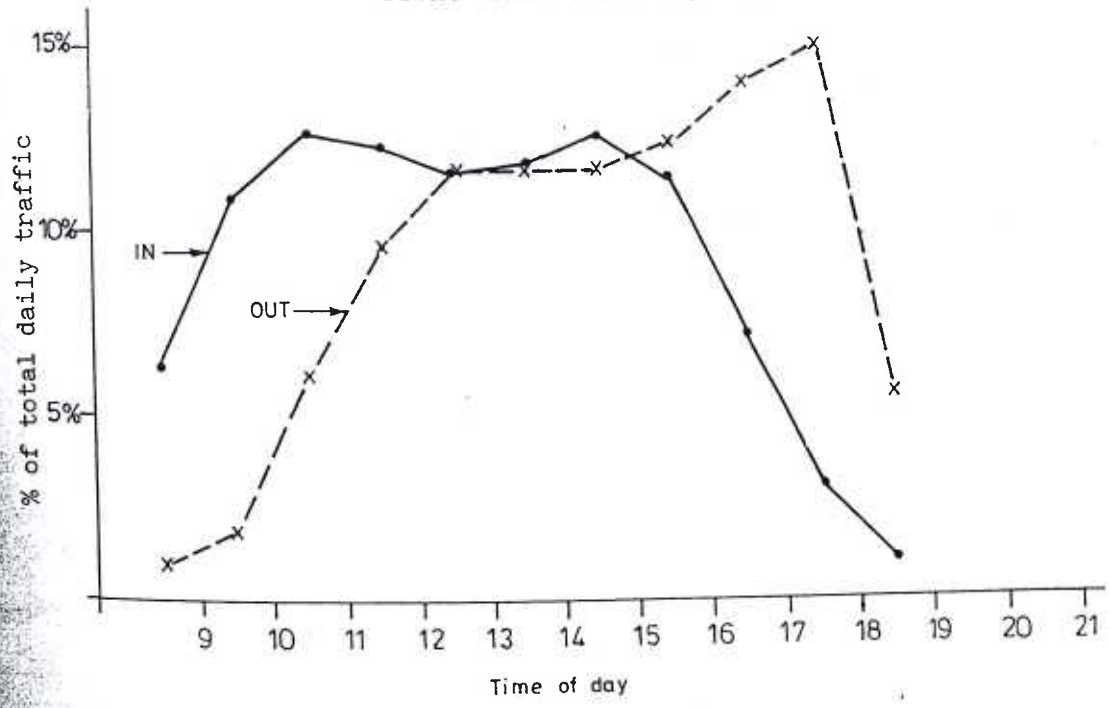
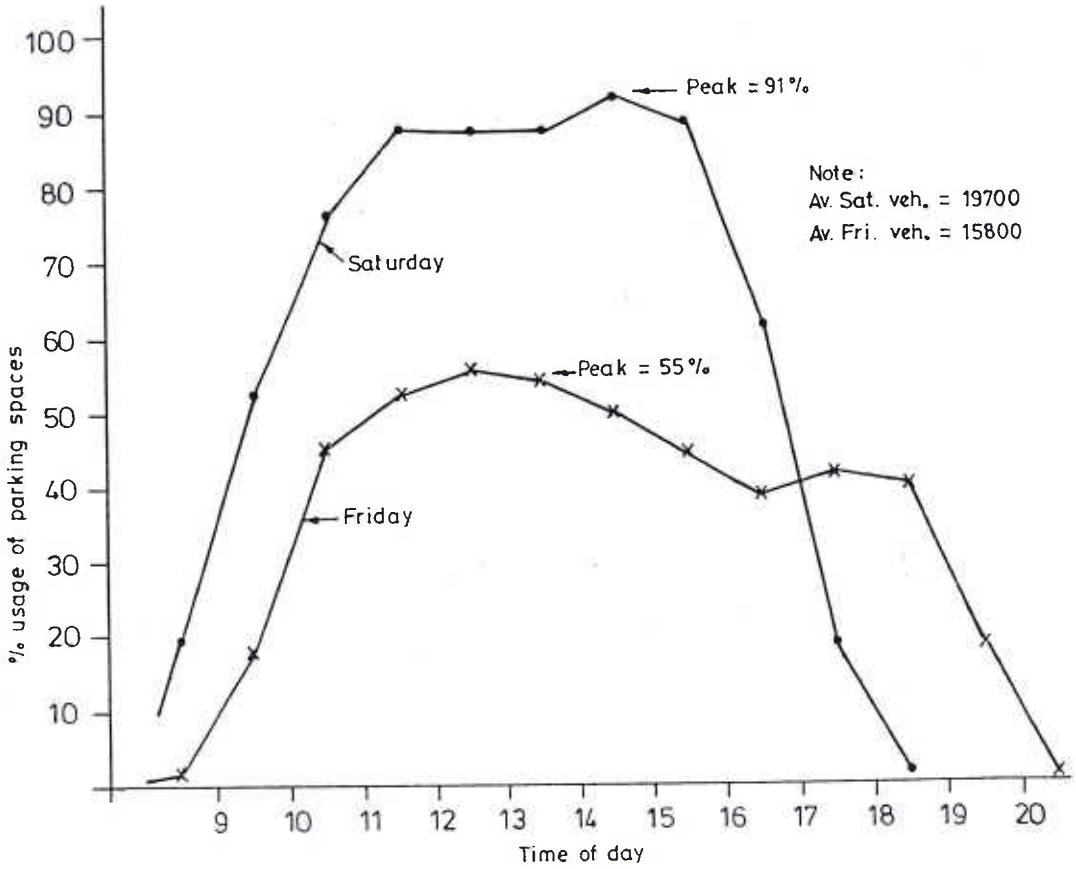


Figure 5 : Utilisation of Parking Spaces
Brent Cross (2/85-4/85)



Appendix E

Weekday TRICS Output
F&B

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200228-0210

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

08	NORTH WEST		
	LC	LANCASHIRE	1 days
10	WALES		
	SW	SWANSEA	1 days

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

Secondary 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:	600 to 800 (units: sqm)
Range Selected by User:	175 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 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
Thursday	1 days

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

Selected survey types:

Manual count	2 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

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:

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:

AA	2 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

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:

125,001 to 250,000	2 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	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	2 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	2 days

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

LIST OF SITES relevant to selection parameters

1 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*

2 SW-06-C-01 PITCHER & PIANO SWANSEA
WIND STREET
SWANSEA

Town Centre
High Street
Total Gross floor area: 800 sqm
Survey date: TUESDAY *22/10/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AG-06-C-01	Not appropriate
BR-06-C-01	Not appropriate
WO-06-C-03	Not appropriate

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

MULTI-MODAL TOTAL PEOPLE

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	1	600	0.167	1	600	0.167	1	600	0.334
11:00 - 12:00	1	600	0.500	1	600	0.000	1	600	0.500
12:00 - 13:00	2	700	4.071	2	700	1.071	2	700	5.142
13:00 - 14:00	2	700	2.143	2	700	2.429	2	700	4.572
14:00 - 15:00	2	700	4.357	2	700	2.286	2	700	6.643
15:00 - 16:00	2	700	8.429	2	700	8.429	2	700	16.858
16:00 - 17:00	2	700	3.286	2	700	6.429	2	700	9.715
17:00 - 18:00	2	700	1.786	2	700	2.500	2	700	4.286
18:00 - 19:00	2	700	1.286	2	700	1.643	2	700	2.929
19:00 - 20:00	2	700	6.143	2	700	4.714	2	700	10.857
20:00 - 21:00	2	700	4.286	2	700	2.857	2	700	7.143
21:00 - 22:00	2	700	4.357	2	700	4.357	2	700	8.714
22:00 - 23:00	2	700	1.143	2	700	2.286	2	700	3.429
23:00 - 24:00	1	600	0.333	1	600	3.500	1	600	3.833
Total Rates:			42.287			42.668			84.955

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.*

Appendix F

Saturday TRICS Output
F&B

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200218-0238

TRIP RATE CALCULATION SELECTION PARAMETERS:

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

Selected regions and areas:

06	WEST MIDLANDS		
	WO	WORCESTERSHIRE	1 days

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

Secondary 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:	417 to 417 (units: sqm)
Range Selected by User:	175 to 2384 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 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:

Sunday	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:

Town 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:

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:

AA	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 1 mile:

25,001 to 50,000	1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:
100,001 to 125,000 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	WO-06-C-02 THE CROSS WORCESTER	SLUG & LETTUCE	WORCESTERSHIRE

Town Centre
High Street
Total Gross floor area: 417 sqm
Survey date: SUNDAY *25/05/14* *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

MULTI-MODAL TOTAL PEOPLE

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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									
10:00 - 11:00	1	417	0.000	1	417	0.000	1	417	0.000
11:00 - 12:00	1	417	0.719	1	417	0.000	1	417	0.719
12:00 - 13:00	1	417	3.357	1	417	1.199	1	417	4.556
13:00 - 14:00	1	417	2.158	1	417	2.878	1	417	5.036
14:00 - 15:00	1	417	2.398	1	417	1.199	1	417	3.597
15:00 - 16:00	1	417	4.556	1	417	2.398	1	417	6.954
16:00 - 17:00	1	417	1.439	1	417	1.439	1	417	2.878
17:00 - 18:00	1	417	3.597	1	417	2.158	1	417	5.755
18:00 - 19:00	1	417	5.276	1	417	4.077	1	417	9.353
19:00 - 20:00	1	417	0.959	1	417	0.959	1	417	1.918
20:00 - 21:00	1	417	1.679	1	417	3.357	1	417	5.036
21:00 - 22:00	1	417	1.439	1	417	5.995	1	417	7.434
22:00 - 23:00	1	417	0.000	1	417	2.638	1	417	2.638
23:00 - 24:00	1	417	0.000	1	417	0.000	1	417	0.000
Total Rates:			27.577			28.297			55.874

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.*

Appendix G

Weekday TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0125

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	BR	BRISTOL CITY	1 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	2 days

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

Secondary 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:	960 to 5736 (units: sqm)
Range Selected by User:	178 to 70291 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 14/03/19

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:

Monday	1 days
Wednesday	1 days
Thursday	1 days
Friday	1 days

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

Selected survey types:

Manual count	4 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

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:

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:

B1	4 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
15,001 to 20,000	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:

250,001 to 500,000	2 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:

0.6 to 1.0	4 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:

Yes	1 days
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	4 days

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

LIST OF SITES relevant to selection parameters

1 BR-02-A-02 PLANNING & ENGINEERING BRISTOL CITY
ST THOMAS STREET
BRISTOL

Town Centre
Built-Up Zone
Total Gross floor area: 5736 sqm
Survey date: FRIDAY *29/11/13* *Survey Type: MANUAL*

2 GM-02-A-07 LAW OFFICES GREATER MANCHESTER
MOSELEY STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 4200 sqm
Survey date: WEDNESDAY *19/10/11* *Survey Type: MANUAL*

3 GM-02-A-08 REGUS GREATER MANCHESTER
FOUNTAIN STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3960 sqm
Survey date: MONDAY *26/09/16* *Survey Type: MANUAL*

4 WK-02-A-01 OFFICES WARWICKSHIRE
WARWICK ROAD
COVENTRY

Town Centre
Built-Up Zone
Total Gross floor area: 960 sqm
Survey date: THURSDAY *17/10/13* *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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CA-02-A-05	Too far from centre
EX-02-A-03	Too residential
SO-02-A-01	Not approriate
TV-02-A-04	Not approriate
TW-02-A-07	Too far from centre

TRIP RATE for Land Use 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	4	3714	0.128	4	3714	0.007	4	3714	0.135
07:30 - 08:00	4	3714	0.337	4	3714	0.027	4	3714	0.364
08:00 - 08:30	4	3714	0.714	4	3714	0.034	4	3714	0.748
08:30 - 09:00	4	3714	1.144	4	3714	0.067	4	3714	1.211
09:00 - 09:30	4	3714	1.010	4	3714	0.155	4	3714	1.165
09:30 - 10:00	4	3714	0.316	4	3714	0.101	4	3714	0.417
10:00 - 10:30	4	3714	0.404	4	3714	0.283	4	3714	0.687
10:30 - 11:00	4	3714	0.343	4	3714	0.289	4	3714	0.632
11:00 - 11:30	4	3714	0.249	4	3714	0.350	4	3714	0.599
11:30 - 12:00	4	3714	0.182	4	3714	0.222	4	3714	0.404
12:00 - 12:30	4	3714	0.438	4	3714	0.646	4	3714	1.084
12:30 - 13:00	4	3714	0.431	4	3714	0.814	4	3714	1.245
13:00 - 13:30	4	3714	0.720	4	3714	0.552	4	3714	1.272
13:30 - 14:00	4	3714	0.895	4	3714	0.256	4	3714	1.151
14:00 - 14:30	4	3714	0.357	4	3714	0.236	4	3714	0.593
14:30 - 15:00	4	3714	0.162	4	3714	0.222	4	3714	0.384
15:00 - 15:30	4	3714	0.182	4	3714	0.229	4	3714	0.411
15:30 - 16:00	4	3714	0.209	4	3714	0.175	4	3714	0.384
16:00 - 16:30	4	3714	0.121	4	3714	0.370	4	3714	0.491
16:30 - 17:00	4	3714	0.067	4	3714	0.525	4	3714	0.592
17:00 - 17:30	4	3714	0.061	4	3714	1.104	4	3714	1.165
17:30 - 18:00	4	3714	0.027	4	3714	0.868	4	3714	0.895
18:00 - 18:30	4	3714	0.000	4	3714	0.633	4	3714	0.633
18:30 - 19:00	4	3714	0.013	4	3714	0.148	4	3714	0.161
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			8.510			8.313			16.823

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.*

Appendix H

Saturday TRICS Output
Office

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0107

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : A - OFFICE
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
BT BRENT 1 days

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

Secondary 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: 10625 to 10625 (units: sqm)
Range Selected by User: 178 to 120000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 17/06/19

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 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:
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:
Development 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:
B1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

Yes	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:

5 Very Good	1 days

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

LIST OF SITES relevant to selection parameters

1 BT-02-A-04 OFFICES BRENT
EMPIRE WAY
WEMBLEY

Suburban Area (PPS6 Out of Centre)
Development Zone
Total Gross floor area: 10625 sqm
Survey date: SATURDAY *16/05/15* *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 02 - EMPLOYMENT/A - OFFICE
MULTI-MODAL TOTAL PEOPLE
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 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	1	10625	0.009	1	10625	0.019	1	10625	0.028
07:30 - 08:00	1	10625	0.160	1	10625	0.019	1	10625	0.179
08:00 - 08:30	1	10625	0.104	1	10625	0.038	1	10625	0.142
08:30 - 09:00	1	10625	0.160	1	10625	0.028	1	10625	0.188
09:00 - 09:30	1	10625	0.245	1	10625	0.009	1	10625	0.254
09:30 - 10:00	1	10625	0.367	1	10625	0.132	1	10625	0.499
10:00 - 10:30	1	10625	0.141	1	10625	0.028	1	10625	0.169
10:30 - 11:00	1	10625	0.028	1	10625	0.028	1	10625	0.056
11:00 - 11:30	1	10625	0.038	1	10625	0.028	1	10625	0.066
11:30 - 12:00	1	10625	0.047	1	10625	0.075	1	10625	0.122
12:00 - 12:30	1	10625	0.028	1	10625	0.169	1	10625	0.197
12:30 - 13:00	1	10625	0.141	1	10625	0.094	1	10625	0.235
13:00 - 13:30	1	10625	0.066	1	10625	0.216	1	10625	0.282
13:30 - 14:00	1	10625	0.179	1	10625	0.151	1	10625	0.330
14:00 - 14:30	1	10625	0.075	1	10625	0.104	1	10625	0.179
14:30 - 15:00	1	10625	0.085	1	10625	0.094	1	10625	0.179
15:00 - 15:30	1	10625	0.028	1	10625	0.122	1	10625	0.150
15:30 - 16:00	1	10625	0.028	1	10625	0.132	1	10625	0.160
16:00 - 16:30	1	10625	0.009	1	10625	0.047	1	10625	0.056
16:30 - 17:00	1	10625	0.009	1	10625	0.000	1	10625	0.009
17:00 - 17:30	1	10625	0.019	1	10625	0.047	1	10625	0.066
17:30 - 18:00	1	10625	0.009	1	10625	0.113	1	10625	0.122
18:00 - 18:30	1	10625	0.028	1	10625	0.094	1	10625	0.122
18:30 - 19:00	1	10625	0.056	1	10625	0.141	1	10625	0.197
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			2.059			1.928			3.987

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.*

Appendix I

Weekday TRICS Output
Hotel

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0132

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 06 - HOTEL, FOOD & DRINK
Category : A - HOTELS
MULTI-MODAL VEHICLES

Selected regions and areas:

03	SOUTH WEST		
	WL	WILTSHIRE	1 days
08	NORTH WEST		
	GM	GREATER MANCHESTER	1 days
09	NORTH		
	CB	CUMBRIA	1 days
	TW	TYNE & WEAR	1 days

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

Secondary 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: 1450 to 3600 (units: sqm)
Range Selected by User: 1080 to 17624 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 16/10/19

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:

Monday	2 days
Tuesday	1 days
Wednesday	1 days

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

Selected survey types:

Manual count	4 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

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:

Built-Up Zone	3
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:

C1	4 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®.

Secondary Filtering selection (Cont.):

Population within 1 mile:

5,001 to 10,000	1 days
20,001 to 25,000	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:

25,001 to 50,000	1 days
75,001 to 100,000	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:

0.6 to 1.0	3 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	4 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	4 days

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

LIST OF SITES relevant to selection parameters

1 CB-06-A-01 HOTEL CUMBRIA
ENGLISH STREET
CARLISLE

Town Centre
High Street
Total Gross floor area: 2450 sqm
Survey date: MONDAY 20/06/16 Survey Type: MANUAL

2 GM-06-A-08 IBIS GREATER MANCHESTER
PORTLAND STREET
MANCHESTER

Town Centre
Built-Up Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY 26/09/16 Survey Type: MANUAL

3 TW-06-A-03 HOTEL TYNE & WEAR
SANDHILL
NEWCASTLE UPON TYNE
QUAYSIDE
Town Centre
Built-Up Zone
Total Gross floor area: 1450 sqm
Survey date: TUESDAY 14/06/16 Survey Type: MANUAL

4 WL-06-A-02 HOLIDAY INN EXPRESS WILTSHIRE
BRIDGE STREET
SWINDON

Town Centre
Built-Up Zone
Total Gross floor area: 2227 sqm
Survey date: WEDNESDAY 27/11/13 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.

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
DS-06-A-02	Not central
TV-06-A-04	Not central

TRIP RATE for Land Use 06 - HOTEL, FOOD & DRINK/A - HOTELS
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	4	2432	0.380	4	2432	0.555	4	2432	0.935
08:00 - 09:00	4	2432	0.843	4	2432	1.357	4	2432	2.200
09:00 - 10:00	4	2432	0.679	4	2432	1.388	4	2432	2.067
10:00 - 11:00	4	2432	0.617	4	2432	1.038	4	2432	1.655
11:00 - 12:00	4	2432	0.833	4	2432	0.936	4	2432	1.769
12:00 - 13:00	4	2432	0.792	4	2432	0.709	4	2432	1.501
13:00 - 14:00	4	2432	1.038	4	2432	0.822	4	2432	1.860
14:00 - 15:00	4	2432	0.771	4	2432	0.843	4	2432	1.614
15:00 - 16:00	4	2432	0.545	4	2432	0.380	4	2432	0.925
16:00 - 17:00	4	2432	1.008	4	2432	0.740	4	2432	1.748
17:00 - 18:00	4	2432	1.326	4	2432	0.658	4	2432	1.984
18:00 - 19:00	4	2432	1.182	4	2432	0.894	4	2432	2.076
19:00 - 20:00	4	2432	0.750	4	2432	0.792	4	2432	1.542
20:00 - 21:00	4	2432	0.884	4	2432	0.607	4	2432	1.491
21:00 - 22:00	4	2432	0.689	4	2432	0.411	4	2432	1.100
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			12.337			12.130			24.467

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.*

Appendix J

Weekday TRICS Output Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0108

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
06 WEST MIDLANDS
WO WORCESTERSHIRE 1 days

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

Secondary 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: 2200 to 2200 (units: sqm)
Range Selected by User: 464 to 5500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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:
Town 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:
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:
D2 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 1 mile:
25,001 to 50,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

125,001 to 250,000	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

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 WO-07-A-01 ODEON WORCESTERSHIRE
FOREGATE STREET
WORCESTER

Town Centre
High Street
Total Gross floor area: 2200 sqm
Survey date: FRIDAY *18/11/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS
MULTI-MODAL TOTAL PEOPLE
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									
10:00 - 11:00	1	2200	0.000	1	2200	0.000	1	2200	0.000
11:00 - 12:00	1	2200	0.045	1	2200	0.045	1	2200	0.090
12:00 - 13:00	1	2200	1.682	1	2200	1.091	1	2200	2.773
13:00 - 14:00	1	2200	0.727	1	2200	0.409	1	2200	1.136
14:00 - 15:00	1	2200	1.318	1	2200	1.364	1	2200	2.682
15:00 - 16:00	1	2200	1.955	1	2200	0.182	1	2200	2.137
16:00 - 17:00	1	2200	1.591	1	2200	1.500	1	2200	3.091
17:00 - 18:00	1	2200	4.000	1	2200	1.227	1	2200	5.227
18:00 - 19:00	1	2200	5.182	1	2200	2.818	1	2200	8.000
19:00 - 20:00	1	2200	3.364	1	2200	1.636	1	2200	5.000
20:00 - 21:00	1	2200	5.227	1	2200	3.409	1	2200	8.636
21:00 - 22:00	1	2200	1.455	1	2200	5.136	1	2200	6.591
22:00 - 23:00	1	2200	0.364	1	2200	2.955	1	2200	3.319
23:00 - 24:00	1	2200	0.500	1	2200	4.727	1	2200	5.227
Total Rates:			27.410			26.499			53.909

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.*

Appendix K

Saturday TRICS Output
Leisure

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0109

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 07 - LEISURE
Category : A - MULTIPLEX CINEMAS
MULTI-MODAL VEHICLES

Selected regions and areas:
03 SOUTH WEST
DC DORSET 1 days

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

Secondary 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: 1550 to 1550 (units: sqm)
Range Selected by User: 464 to 4500 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 18/11/16

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 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 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:
Development 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:
D2 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 1 mile:
15,001 to 20,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:
25,001 to 50,000 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 DC-07-A-01 ODEON DORSET
DRAYHORSE YARD
DORCHESTER

Edge of Town Centre
Development Zone
Total Gross floor area: 1550 sqm
Survey date: SATURDAY *17/09/16* *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 07 - LEISURE/A - MULTIPLEX CINEMAS

MULTI-MODAL TOTAL PEOPLE

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	1	1550	0.000	1	1550	0.323	1	1550	0.323
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	1	1550	4.774	1	1550	0.194	1	1550	4.968
10:00 - 11:00	1	1550	1.419	1	1550	0.323	1	1550	1.742
11:00 - 12:00	1	1550	2.129	1	1550	5.032	1	1550	7.161
12:00 - 13:00	1	1550	5.032	1	1550	2.645	1	1550	7.677
13:00 - 14:00	1	1550	2.645	1	1550	1.290	1	1550	3.935
14:00 - 15:00	1	1550	4.000	1	1550	2.516	1	1550	6.516
15:00 - 16:00	1	1550	3.935	1	1550	5.613	1	1550	9.548
16:00 - 17:00	1	1550	1.161	1	1550	1.032	1	1550	2.193
17:00 - 18:00	1	1550	5.742	1	1550	4.516	1	1550	10.258
18:00 - 19:00	1	1550	9.097	1	1550	3.484	1	1550	12.581
19:00 - 20:00	1	1550	2.645	1	1550	1.677	1	1550	4.322
20:00 - 21:00	1	1550	11.355	1	1550	5.935	1	1550	17.290
21:00 - 22:00	1	1550	2.839	1	1550	7.871	1	1550	10.710
22:00 - 23:00	1	1550	0.000	1	1550	12.000	1	1550	12.000
23:00 - 24:00	1	1550	0.000	1	1550	2.323	1	1550	2.323
Total Rates:			56.773			56.774			113.547

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.*

Appendix L

Weekday TRICS Output Community

TPP
transport planning practice

Calculation Reference: AUDIT-237601-200130-0122

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 05 - HEALTH
Category : G - GP SURGERIES
MULTI-MODAL VEHICLES

Selected regions and areas:
01 GREATER LONDON
WH WANDSWORTH 1 days

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

Secondary 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: 2709 to 2709 (units: sqm)
Range Selected by User: 200 to 2709 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/11 to 26/06/19

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

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:
Town 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:
Retail 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:
D1 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 1 mile:
50,001 to 100,000 1 days

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

Secondary Filtering selection (Cont.):

Population within 5 miles:

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	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:

4 Good	1 days

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

LIST OF SITES relevant to selection parameters

1 WH-05-G-01 MEDICAL CENTRE WANDSWORTH
GARRATT LANE
WANDSWORTH

Town Centre
Retail Zone
Total Gross floor area: 2709 sqm
Survey date: TUESDAY *12/11/13* *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 05 - HEALTH/G - GP SURGERIES
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	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	2709	0.406	1	2709	0.111	1	2709	0.517
08:00 - 09:00	1	2709	1.218	1	2709	0.295	1	2709	1.513
09:00 - 10:00	1	2709	1.366	1	2709	0.923	1	2709	2.289
10:00 - 11:00	1	2709	1.366	1	2709	0.701	1	2709	2.067
11:00 - 12:00	1	2709	0.923	1	2709	1.181	1	2709	2.104
12:00 - 13:00	1	2709	1.071	1	2709	1.255	1	2709	2.326
13:00 - 14:00	1	2709	1.440	1	2709	1.181	1	2709	2.621
14:00 - 15:00	1	2709	1.144	1	2709	1.181	1	2709	2.325
15:00 - 16:00	1	2709	0.960	1	2709	1.144	1	2709	2.104
16:00 - 17:00	1	2709	1.550	1	2709	2.067	1	2709	3.617
17:00 - 18:00	1	2709	0.701	1	2709	1.366	1	2709	2.067
18:00 - 19:00	1	2709	0.406	1	2709	0.443	1	2709	0.849
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			12.551			11.848			24.399

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.*

Transport Planning Practice
70 Cowcross Street
London EC1M 6EL
020 7608 0008
email@tppweb.co.uk

www.tppweb.co.uk

Technical Appendix M

Car park capacity impact assessment calculations

TPP
transport planning practice

Weekday

Time	Calculated car park accumulation					New Union St. & Cheylesmore	Total	Existing Capacity Utilisation	Proposed Capacity Utilisation
	City Arcade	Barracks	Market	Lower Precinct	Salt Lane				
07:00:00	6	3	0	3	13	27	52	2.5%	3.6%
07:05:00	5	6	0	5	14	28	58	2.8%	4.0%
07:10:00	5	8	0	5	14	32	64	3.0%	4.4%
07:15:00	5	10	0	5	15	36	71	3.4%	4.9%
07:20:00	6	12	0	7	16	41	82	3.9%	5.6%
07:25:00	7	13	0	7	16	49	92	4.4%	6.3%
07:30:00	7	13	0	7	16	51	94	4.5%	6.5%
07:35:00	7	14	0	8	17	55	101	4.8%	7.0%
07:40:00	7	19	0	10	17	58	111	5.3%	7.6%
07:45:00	8	20	0	12	18	65	123	5.9%	8.5%
07:50:00	10	26	0	14	18	70	138	6.6%	9.5%
07:55:00	10	29	0	14	19	79	151	7.2%	10.4%
08:00:00	13	35	0	16	22	92	178	8.5%	12.3%
08:05:00	17	41	0	17	23	98	196	9.3%	13.5%
08:10:00	16	47	2	17	26	104	212	10.1%	14.6%
08:15:00	19	55	3	17	25	120	239	11.4%	16.4%
08:20:00	19	61	4	19	26	138	267	12.7%	18.4%
08:25:00	21	68	4	19	30	147	289	13.7%	19.9%
08:30:00	23	79	4	21	33	156	316	15.0%	21.7%
08:35:00	24	88	5	23	36	164	340	16.2%	23.4%
08:40:00	24	94	6	26	37	170	357	17.0%	24.6%
08:45:00	26	104	8	30	40	184	392	18.6%	27.0%
08:50:00	29	115	11	32	45	195	427	20.3%	29.4%
08:55:00	29	123	14	38	50	208	462	22.0%	31.8%
09:00:00	32	137	17	47	55	212	500	23.8%	34.4%
09:05:00	32	151	25	61	61	217	547	26.0%	37.6%
09:10:00	36	167	32	65	67	227	594	28.3%	40.9%
09:15:00	36	176	38	75	74	233	632	30.1%	43.5%
09:20:00	37	184	43	90	79	245	678	32.3%	46.7%
09:25:00	37	194	47	101	82	250	711	33.8%	48.9%
09:30:00	38	206	51	117	84	256	752	35.8%	51.8%
09:35:00	39	216	57	122	88	263	785	37.3%	54.0%
09:40:00	39	232	63	123	94	266	817	38.9%	56.2%
09:45:00	41	244	68	132	96	271	852	40.5%	58.6%
09:50:00	41	248	73	135	101	272	870	41.4%	59.9%
09:55:00	41	260	73	143	102	275	894	42.5%	61.5%
10:00:00	41	268	85	149	102	275	920	43.8%	63.3%
10:05:00	41	278	86	158	104	277	944	44.9%	65.0%
10:10:00	44	279	95	163	107	278	966	46.0%	66.5%
10:15:00	47	286	100	165	106	278	982	46.7%	67.6%
10:20:00	46	291	108	167	108	280	1000	47.6%	68.8%
10:25:00	49	297	113	172	109	280	1020	48.5%	70.2%
10:30:00	48	305	120	174	108	280	1035	49.2%	71.2%
10:35:00	48	314	124	178	109	279	1052	50.0%	72.4%
10:40:00	47	320	133	182	112	280	1074	51.1%	73.9%
10:45:00	49	327	133	186	116	279	1090	51.9%	75.0%
10:50:00	49	336	135	191	115	281	1107	52.7%	76.2%
10:55:00	50	340	143	188	116	279	1116	53.1%	76.8%
11:00:00	51	345	141	195	116	279	1127	53.6%	77.6%
11:05:00	50	355	146	196	114	280	1141	54.3%	78.5%
11:10:00	53	359	151	204	115	279	1161	55.2%	79.9%
11:15:00	51	355	150	206	117	279	1158	55.1%	79.7%
11:20:00	50	354	154	205	113	279	1155	54.9%	79.5%
11:25:00	51	360	148	204	110	278	1151	54.8%	79.2%
11:30:00	51	360	142	208	109	279	1149	54.7%	79.1%
11:35:00	51	365	144	203	110	278	1151	54.8%	79.2%
11:40:00	51	364	143	207	106	281	1152	54.8%	79.3%
11:45:00	50	370	137	215	106	280	1158	55.1%	79.7%
11:50:00	51	375	139	200	108	281	1154	54.9%	79.4%
11:55:00	51	381	137	196	111	281	1157	55.0%	79.6%
12:00:00	54	386	145	192	114	281	1172	55.8%	80.7%
12:05:00	55	387	143	194	113	281	1173	55.8%	80.7%
12:10:00	57	392	133	196	115	280	1173	55.8%	80.7%
12:15:00	57	392	139	196	115	279	1178	56.0%	81.1%
12:20:00	58	398	138	202	115	278	1189	56.6%	81.8%
12:25:00	58	401	144	197	114	279	1193	56.8%	82.1%
12:30:00	58	401	140	196	113	277	1185	56.4%	81.6%
12:35:00	58	399	137	187	115	276	1172	55.8%	80.7%
12:40:00	57	390	135	197	114	275	1168	55.6%	80.4%
12:45:00	56	398	131	197	118	276	1176	55.9%	80.9%
12:50:00	57	399	128	190	122	280	1176	55.9%	80.9%
12:55:00	59	402	122	195	121	280	1179	56.1%	81.1%
13:00:00	58	405	120	200	120	281	1184	56.3%	81.5%
13:05:00	55	410	124	201	118	283	1191	56.7%	82.0%
13:10:00	54	413	121	203	120	283	1194	56.8%	82.2%
13:15:00	51	412	118	195	122	283	1181	56.2%	81.3%
13:20:00	52	415	118	189	124	281	1179	56.1%	81.1%
13:25:00	52	413	112	188	126	282	1173	55.8%	80.7%
13:30:00	50	417	114	183	124	284	1172	55.8%	80.7%
13:35:00	50	418	114	187	123	283	1175	55.9%	80.9%
13:40:00	51	413	112	187	123	276	1162	55.3%	80.0%
13:45:00	49	411	109	182	123	274	1148	54.6%	79.0%
13:50:00	48	413	107	185	126	276	1155	54.9%	79.5%
13:55:00	48	410	101	177	126	276	1138	54.1%	78.3%
14:00:00	46	417	99	174	120	275	1131	53.8%	77.8%
14:05:00	45	410	102	172	117	274	1120	53.3%	77.1%
14:10:00	42	406	101	165	117	276	1107	52.7%	76.2%
14:15:00	45	409	87	158	120	271	1090	51.9%	75.0%
14:20:00	47	405	91	152	121	271	1087	51.7%	74.8%
14:25:00	45	396	91	153	120	268	1073	51.0%	73.8%
14:30:00	46	383	78	155	123	268	1053	50.1%	72.5%
14:35:00	44	374	76	151	123	269	1037	49.3%	71.4%
14:40:00	42	364	68	145	120	261	1000	47.6%	68.8%
14:45:00	41	358	62	141	122	259	983	46.8%	67.7%
14:50:00	40	353	61	138	119	257	968	46.1%	66.6%
14:55:00	41	353	59	140	118	255	966	46.0%	66.5%
15:00:00	40	356	53	140	111	249	949	45.1%	65.3%
15:05:00	38	345	48	137	107	248	923	43.9%	63.5%
15:10:00	38	335	47	133	106	244	903	43.0%	62.1%
15:15:00	37	331	44	128	105	238	883	42.0%	60.8%
15:20:00	35	330	44	129	102	233	873	41.5%	60.1%
15:25:00	34	315	41	121	99	229	839	39.9%	57.7%
15:30:00	33	301	45	118	97	227	821	39.1%	56.5%
15:35:00	32	289	47	127	97	224	816	38.8%	56.2%
15:40:00	30	284	49	131	92	216	802	38.2%	55.2%
15:45:00	25	281	49	135	89	208	787	37.4%	54.2%
15:50:00	25	272	50	129	88	204	768	36.5%	52.9%
15:55:00	23	266	51	126	90	200	756	36.0%	52.0%
16:00:00	24	261	48	122	86	193	734	34.9%	50.5%
16:05:00	23	256	45	113	86	186	709	33.7%	48.8%
16:10:00	22	246	43	108	84	180	683	32.5%	47.0%
16:15:00	26	246	39	102	83	177	673	32.0%	46.3%
16:20:00	25	249	39	98	80	175	666	31.7%	45.8%
16:25:00	23	243	36	98	78	170	648	30.8%	44.6%
16:30:00	23	241	39	96	77	161	637	30.3%	43.8%
16:35:00	22	237	42	96	77	156	630	30.0%	43.4%
16:40:00	23	235	36	97	73	145	609	29.0%	41.9%
16:45:00	24	231	34	91	71	134	585	27.8%	40.3%
16:50:00	22	226	35	89	73	126	571	27.2%	39.3%
16:55:00	22	221	32	83	74	117	549	26.1%	37.8%
17:00:00	19	221	33	82	73	113	541	25.7%	37.2%
17:05:00	17	208	30	83	65	106	509	24.2%	35.0%
17:10:00	17	200	31	75	58	97	478	22.7%	32.9%
17:15:00	17	197	27	72	56	90	459	21.8%	31.6%
17:20:00	15	195	29	63	55	84	441	21.0%	30.4%
17:25:00	16	188	27	60	55	82	428	20.4%	29.5%
17:30:00	13	184	24	60	56	79	416	19.8%	28.6%
17:35:00	13	177	21	56	53	67	387	18.4%	26.6%
17:40:00	12	172	19	52	53	59	367	17.5%	25.3%
17:45:00	12	166	18	50	53	53	352	16.7%	24.2%
17:50:00	11	162	14	43	55	48	333	15.8%	22.9%
17:55:00	10	163	13	34	53	46	319	15.2%	22.0%
18:00:00	10	158	10	33	52	44	307	14.6%	21.1%
18:05:00	7	151	9	30	50	41	288	13.7%	19.8%
18:10:00	5	147	7	28	50	37	274	13.0%	18.9%
18:15:00	5	148	3	27	50	34	267	12.7%	18.4%
18:20:00	3	145	2	24	49	28	251	11.9%	17.3%
18:25:00	3	144	1	22	52	23	245	11.7%	16.9%
18:30:00	3	139	1	21	56	22	242	11.5%	16.7%
18:35:00	3	136	1	20	57	21	238	11.3%	16.4%
18:40:00	4	135	0	18	58	18	233	11.1%	16.0%
18:45:00	3	135	0	15	60	17	230	10.9%	15.8%
18:50:00	3	137	0	15	60	17	232	11.0%	16.0%
18:55:00	3	138	0	14	60	18	233	11.1%	16.0%
Total	**4681**	**36348**	**9091**	**16299**	**11984**	**27846**			

Weekday

Existing nearby car park capacity	
City Arcade	170
Barracks	479
Market	244
Lower Precinct	340
Salt Lane Capacity	569
New Union St. & Cheylesmore	300
Total	**2102**

Proposed nearby car park capacity	
City Arcade	0
Barracks	0
Market	244
Lower Precinct	340
Salt Lane Capacity	569
New Union St. & Cheylesmore	300
Total	**1453**

Proposed CCS car parking demand

Time	Arrivals	Departures	Accumulation
07:00:00	4	9	-6
08:00:00	26	24	-4
09:00:00	54	65	-16
10:00:00	64	51	-2
11:00:00	58	59	-3
12:00:00	73	52	18
13:00:00	55	64	9
14:00:00	73	76	6
15:00:00	59	52	13
16:00:00	72	75	9
17:00:00	75	31	53
18:00:00	71	35	89
Total	**684**	**594**	

Proposed CCS parking demand impact on proposed nearby car park capacity

Time	Max. Existing Accumulation	CCS Accumulation	Proposed Demand	Prop. Cap. Utili.
07:00:00	151	-6	145	10.0%
08:00:00	462	-4	458	31.5%
09:00:00	894	-16	878	60.5%
10:00:00	1116	-2	1114	76.6%
11:00:00	1161	-3	1158	79.7%
12:00:00	1193	18	1211	83.4%
13:00:00	1194	9	1203	82.8%
14:00:00	1131	6	1137	78.2%
15:00:00	949	13	962	66.2%
16:00:00	734	9	743	51.1%
17:00:00	541	53	594	40.9%
18:00:00	307	89	396	27.3%

Sensitivity Test - Worst Case, half the CCS Development arrivals

Time	Max. Existing Accumulation	CCS Accumulation	Proposed Demand	Prop. Cap. Utili.
07:00:00	151	2	153	10.5%
08:00:00	462	13	475	32.7%
09:00:00	894	27	921	63.4%
10:00:00	1116	32	1148	79.0%
11:00:00	1161	29	1190	81.9%
12:00:00	1193	37	1230	84.6%
13:00:00	1194	27	1221	84.1%
14:00:00	1131	37	1168	80.4%
15:00:00	949	30	979	67.3%
16:00:00	734	36	770	53.0%
17:00:00	541	38	579	39.8%
18:00:00	307	35	342	23.6%

Saturday

Time	Calculated car park accumulation					New Union St. & Cheylesmore	Total	Existing Capacity Utilisation	Proposed Capacity Utilisation
	City Arcade	Barracks	Market	Lower Precinct	Salt Lane				
07:00:00	0	3	0	4	0	16	23	1.1%	1.6%
07:05:00	0	4	0	4	0	16	24	1.1%	1.7%
07:10:00	0	4	0	5	0	17	26	1.2%	1.8%
07:15:00	0	4	0	5	0	17	26	1.2%	1.8%
07:20:00	0	5	1	6	0	18	30	1.4%	2.1%
07:25:00	0	5	1	6	0	18	30	1.4%	2.1%
07:30:00	0	5	1	8	0	18	32	1.5%	2.2%
07:35:00	0	7	1	9	0	19	36	1.7%	2.5%
07:40:00	0	9	1	11	0	19	40	1.9%	2.8%
07:45:00	1	14	1	14	0	19	49	2.3%	3.4%
07:50:00	1	14	1	14	0	19	49	2.3%	3.4%
07:55:00	1	16	2	15	0	19	53	2.5%	3.6%
08:00:00	1	18	4	16	0	19	58	2.8%	4.0%
08:05:00	1	20	5	17	1	19	63	3.0%	4.3%
08:10:00	1	22	6	17	2	19	67	3.2%	4.6%
08:15:00	1	25	7	20	2	19	74	3.5%	5.1%
08:20:00	1	27	8	23	3	19	81	3.9%	5.6%
08:25:00	1	33	10	25	5	19	93	4.4%	6.4%
08:30:00	1	40	10	27	5	19	102	4.9%	7.0%
08:35:00	2	45	12	30	5	22	116	5.5%	8.0%
08:40:00	3	51	16	36	5	22	133	6.3%	9.2%
08:45:00	4	63	26	42	6	22	163	7.8%	11.2%
08:50:00	6	73	34	45	8	22	188	8.9%	12.9%
08:55:00	5	86	43	55	13	22	224	10.7%	15.4%
09:00:00	7	99	52	65	17	21	261	12.4%	18.0%
09:05:00	8	112	59	80	23	21	303	14.4%	20.9%
09:10:00	11	120	74	81	31	21	338	16.1%	23.3%
09:15:00	11	136	91	89	33	23	383	18.2%	26.4%
09:20:00	10	149	98	101	38	26	422	20.1%	29.0%
09:25:00	10	164	105	114	43	28	464	22.1%	31.9%
09:30:00	13	175	110	128	47	28	501	23.8%	34.5%
09:35:00	15	189	119	138	48	29	538	25.6%	37.0%
09:40:00	15	203	119	146	49	32	564	26.8%	38.8%
09:45:00	16	215	129	151	48	33	592	28.2%	40.7%
09:50:00	14	227	136	161	49	36	623	29.6%	42.9%
09:55:00	15	230	144	157	49	37	632	30.1%	43.5%
10:00:00	14	239	150	166	49	37	655	31.2%	45.1%
10:05:00	16	248	159	167	51	36	677	32.2%	46.6%
10:10:00	13	262	160	174	54	36	699	33.3%	48.1%
10:15:00	13	275	168	192	55	37	740	35.2%	50.9%
10:20:00	14	283	181	204	56	37	775	36.9%	53.3%
10:25:00	16	295	187	213	61	37	809	38.5%	55.7%
10:30:00	13	296	180	220	61	37	807	38.4%	55.5%
10:35:00	15	313	182	220	61	38	829	39.4%	57.1%
10:40:00	19	314	179	237	60	38	847	40.3%	58.3%
10:45:00	22	320	181	248	59	37	867	41.2%	59.7%
10:50:00	27	329	184	256	58	36	890	42.3%	61.3%
10:55:00	29	328	187	277	59	36	916	43.6%	63.0%
11:00:00	34	338	190	283	60	36	941	44.8%	64.8%
11:05:00	38	348	185	284	62	36	953	45.3%	65.6%
11:10:00	37	352	186	294	62	37	968	46.1%	66.6%
11:15:00	38	349	181	297	64	37	966	46.0%	66.5%
11:20:00	39	356	185	294	64	38	976	46.4%	67.2%
11:25:00	48	367	193	300	63	38	1009	48.0%	69.4%
11:30:00	49	377	189	318	67	37	1037	49.3%	71.4%
11:35:00	49	386	182	313	66	36	1032	49.1%	71.0%
11:40:00	48	397	181	313	65	39	1043	49.6%	71.8%
11:45:00	47	398	184	315	67	40	1051	50.0%	72.3%
11:50:00	49	408	186	308	69	40	1060	50.4%	73.0%
11:55:00	53	428	192	304	75	43	1095	52.1%	75.4%
12:00:00	52	430	191	313	77	45	1108	52.7%	76.3%
12:05:00	50	434	198	323	84	47	1136	54.0%	78.2%
12:10:00	47	442	194	341	87	51	1162	55.3%	80.0%
12:15:00	46	437	197	331	89	51	1151	54.8%	79.2%
12:20:00	46	447	189	315	95	51	1143	54.4%	78.7%
12:25:00	49	439	185	301	88	49	1111	52.9%	76.5%
12:30:00	50	448	177	299	86	49	1109	52.8%	76.3%
12:35:00	52	448	175	286	88	50	1099	52.3%	75.6%
12:40:00	56	445	171	305	85	51	1113	52.9%	76.6%
12:45:00	50	446	179	312	87	50	1124	53.5%	77.4%
12:50:00	52	447	176	305	87	49	1116	53.1%	76.8%
12:55:00	52	451	181	299	87	50	1120	53.3%	77.1%
13:00:00	52	461	181	291	88	51	1124	53.5%	77.4%
13:05:00	49	467	183	309	91	51	1150	54.7%	79.1%
13:10:00	46	466	192	308	89	52	1153	54.9%	79.4%
13:15:00	44	466	185	312	88	52	1147	54.6%	78.9%
13:20:00	44	471	187	313	88	50	1153	54.9%	79.4%
13:25:00	46	464	191	313	89	52	1155	54.9%	79.5%
13:30:00	42	451	188	331	90	52	1154	54.9%	79.4%
13:35:00	42	451	194	331	94	51	1163	55.3%	80.0%
13:40:00	40	449	186	343	91	54	1163	55.3%	80.0%
13:45:00	44	442	189	311	91	52	1129	53.7%	77.7%
13:50:00	48	432	183	296	91	54	1104	52.5%	76.0%
13:55:00	49	439	179	287	93	55	1102	52.4%	75.8%
14:00:00	55	444	178	279	93	57	1106	52.6%	76.1%
14:05:00	56	445	179	281	95	59	1115	53.0%	76.7%
14:10:00	60	450	180	286	93	61	1130	53.8%	77.8%
14:15:00	58	448	183	276	95	61	1121	53.3%	77.2%
14:20:00	60	454	173	286	97	62	1132	53.9%	77.9%
14:25:00	61	457	183	281	93	62	1137	54.1%	78.3%
14:30:00	56	454	195	295	96	61	1157	55.0%	79.6%
14:35:00	51	451	191	301	89	60	1143	54.4%	78.7%
14:40:00	52	444	193	306	90	58	1143	54.4%	78.7%
14:45:00	49	447	197	313	98	55	1159	55.1%	79.8%
14:50:00	49	447	199	327	97	53	1172	55.8%	80.7%
14:55:00	49	436	193	337	96	50	1161	55.2%	79.9%
15:00:00	48	436	192	333	102	50	1161	55.2%	79.9%
15:05:00	45	424	186	336	101	50	1142	54.3%	78.6%
15:10:00	43	408	193	314	102	44	1104	52.5%	76.0%
15:15:00	42	407	193	323	103	43	1111	52.9%	76.5%
15:20:00	42	405	187	314	107	42	1097	52.2%	75.5%
15:25:00	43	405	179	300	104	40	1071	51.0%	73.7%
15:30:00	44	389	168	287	101	38	1027	48.9%	70.7%
15:35:00	42	386	159	272	99	39	997	47.4%	68.6%
15:40:00	43	372	149	258	98	40	960	45.7%	66.1%
15:45:00	45	360	131	257	99	39	931	44.3%	64.1%
15:50:00	42	352	137	249	99	39	918	43.7%	63.2%
15:55:00	36	347	136	231	97	39	886	42.2%	61.0%
16:00:00	37	342	133	213	95	39	859	40.9%	59.1%
16:05:00	33	346	129	215	91	39	853	40.6%	58.7%
16:10:00	28	339	118	216	90	37	828	39.4%	57.0%
16:15:00	26	325	113	208	89	35	796	37.9%	54.8%
16:20:00	22	312	110	202	86	35	767	36.5%	52.8%
16:25:00	19	299	101	194	85	33	731	34.8%	50.3%
16:30:00	19	297	98	185	82	33	714	34.0%	49.1%
16:35:00	18	284	90	178	81	32	683	32.5%	47.0%
16:40:00	16	273	87	164	81	30	651	31.0%	44.8%
16:45:00	17	258	81	151	79	29	615	29.3%	42.3%
16:50:00	16	250	75	143	79	28	591	28.1%	40.7%
16:55:00	12	236	72	131	76	28	555	26.4%	38.2%
17:00:00	10	224	64	126	75	28	527	25.1%	36.3%
17:05:00	7	215	59	119	70	26	496	23.6%	34.1%
17:10:00	7	208	54	109	70	25	473	22.5%	32.6%
17:15:00	6	201	49	100	71	24	451	21.5%	31.0%
17:20:00	7	190	42	90	68	23	420	20.0%	28.9%
17:25:00	6	186	38	86	67	23	406	19.3%	27.9%
17:30:00	6	182	34	81	66	22	391	18.6%	26.9%
17:35:00	6	176	28	69	61	21	361	17.2%	24.8%
17:40:00	6	177	22	59	59	20	343	16.3%	23.6%
17:45:00	6	176	19	51	59	20	331	15.7%	22.8%
17:50:00	2	175	10	53	55	20	315	15.0%	21.7%
17:55:00	1	169	7	49	50	19	295	14.0%	20.3%
18:00:00	1	159	7	39	49	19	274	13.0%	18.9%
18:05:00	0	155	5	35	44	19	258	12.3%	17.8%
18:10:00	0	151	5	26	40	18	240	11.4%	16.5%
18:15:00	0	145	4	22	36	18	225	10.7%	15.5%
18:20:00	0	140	4	17	34	18	213	10.1%	14.7%
18:25:00	0	136	2	15	31	18	202	9.6%	13.9%
18:30:00	0	133	1	13	28	17	192	9.1%	13.2%
18:35:00	0	126	1	11	27	17	182	8.7%	12.5%
18:40:00	0	125	1	8	26	15	175	8.3%	12.0%
18:45:00	0	125	1	8	26	15	175	8.3%	12.0%
18:50:00	0	127	0	6	25	15	173	8.2%	11.9%
18:55:00	0	126	0	3	26	14	169	8.0%	11.6%
Total	**3568**	**38947**	**16127**	**25974**	**8642**	**4985**			

Saturday

Existing nearby car park capacity	
City Arcade	170
Barracks	479
Market	244
Lower Precinct	340
Salt Lane Capacity	569
New Union St. & Cheylesmore	300
Total	**2102**

Proposed nearby car park capacity	
City Arcade	0
Barracks	0
Market	244
Lower Precinct	340
Salt Lane Capacity	569
New Union St. & Cheylesmore	300
Total	**1453**

Proposed CCS car parking demand

Time	Arrivals	Departures	Accumulation
07:00:00	10	11	-2
08:00:00	62	28	33
09:00:00	124	81	76
10:00:00	103	78	101
11:00:00	93	129	66
12:00:00	131	100	97
13:00:00	109	93	113
14:00:00	116	106	123
15:00:00	94	117	100
16:00:00	82	100	82
17:00:00	99	103	78
18:00:00	109	52	134
Total	**1132**	**998**	

Proposed CCS parking demand impact on proposed nearby car park capacity

Time	Max. Existing Accumulation	CCS Accumulation	Proposed Demand	Prop. Cap. Utili.
07:00:00	53	-2	51	3.5%
08:00:00	224	33	257	17.7%
09:00:00	632	76	708	48.7%
10:00:00	916	101	1017	70.0%
11:00:00	1095	66	1161	79.9%
12:00:00	1162	97	1259	86.6%
13:00:00	1163	113	1276	87.8%
14:00:00	1172	123	1295	89.1%
15:00:00	1161	100	1261	86.8%
16:00:00	859	82	941	64.8%
17:00:00	527	78	605	41.6%
18:00:00	274	134	408	28.1%

Sensitivity Test - Worst Case, half the CCS Development arrivals

Time	Max. Existing Accumulation	CCS Accumulation	Proposed Demand	Prop. Cap. Utili.
07:00:00	53	5	58	4.0%
08:00:00	224	31	255	17.6%
09:00:00	632	62	694	47.8%
10:00:00	916	52	968	66.6%
11:00:00	1095	47	1142	78.6%
12:00:00	1162	65	1227	84.5%
13:00:00	1163	54	1217	83.8%
14:00:00	1172	58	1230	84.7%
15:00:00	1161	47	1208	83.1%
16:00:00	859	41	900	61.9%
17:00:00	527	49	576	39.7%
18:00:00	274	54	328	22.6%

Technical Appendix N

Bus utilisation assessment calculations

TPP
transport planning practice

Passengers Inbound 2019

	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 - Foleshill Road	888	165	627	1189	1986	1294	826	12050
202 Stoney Stanton Road	440	115	240	644	942	621	401	5731
203 Harnell Lane East	440	53	189	485	711	469	303	4327
204 Walsgrave Road	886	200	705	1262	2113	1393	899	12856
205 Binley Road	178	44	310	293	659	434	280	4009
206 - Charterhouse Road	295	65	175	414	631	319	231	3703
207 - London Road	51	29	109	79	202	133	86	1231
208 - Mile Lane	360	85	333	511	890	587	379	5417
209 - Quinton Road	152	63	156	236	416	275	177	2534
210 - Warwick Road	239	127	418	379	933	615	397	5679
211 - Butts Radial Road	764	194	554	1084	1757	1271	804	10861
212 - Holyhead Road	352	67	295	501	829	546	353	5042
213 - Coundon Road	239	67	136	355	530	350	226	3227
214 - Radford Road	787	110	488	993	1581	1042	673	9618
217 - Stoney Road	121	57	107	187	324	214	138	1971
2019 Total	**6192**	**1443**	**4843**	**8612**	**14504**	**9564**	**6171**	**88255**
2017 Total	6595	1686	5544	9364	16018	9955	6555	96603
% Difference	-6.5%	-16.9%	-14.5%	-8.7%	-10.4%	-4.1%	-6.2%	-9.5%

Buses Inbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	42	9	45	59	118	97	38	723
202 Stoney Stanton Road	14	4	12	21	36	32	14	228
203 Harnell Lane East	12	2	10	14	26	23	10	165
204 Walsgrave Road	30	9	34	47	89	78	33	557
205 Binley Road	10	2	18	16	39	34	15	244
206 - Charterhouse Road	9	3	9	15	27	24	11	170
207 - London Road	3	3	6	5	15	13	6	93
208 - Mile Lane	14	5	19	22	45	39	17	278
209 - Quinton Road	12	3	11	18	32	28	12	198
210 - Warwick Road	30	12	34	46	88	77	33	552
211 - Butts Radial Road	31	9	30	46	83	78	36	527
212 - Holyhead Road	17	4	19	24	46	40	17	288
213 - Coundon Road	11	2	8	16	25	22	10	159
214 - Radford Road	23	4	25	30	61	53	23	379
217 - Stoney Road	8	2	9	12	23	20	9	143
2019 Total	**266**	**73**	**291**	**390**	**753**	**659**	**282**	**4704**
2017 Total	279	79	298	408	773	674	304	4843
% Difference	-4.8%	100.0%	-2.5%	-4.5%	-2.7%	-2.2%	-8.1%	-2.9%

Occupancies Inbound 2019 (passengers/buses)

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	21.1	17.6	13.9	20.1	16.9	13.3	21.7	16.7
202 Stoney Stanton Road	30.8	27.2	19.6	30.2	25.8	19.4	29.3	25.1
203 Harnell Lane East	35.9	31.1	18.1	35.8	26.9	20.2	30.6	26.2
204 Walsgrave Road	29.6	21.7	20.8	26.9	23.7	17.9	27.0	23.1
205 Binley Road	17.8	24.1	17.3	18.8	16.9	12.7	19.2	16.4
206 - Charterhouse Road	32.7	23.1	19.0	27.6	23.4	13.3	21.0	21.8
207 - London Road	17.0	11.0	17.0	15.1	13.6	10.3	15.5	13.3
208 - Mile Lane	25.5	16.1	17.2	23.1	20.0	15.1	22.7	19.5
209 - Quinton Road	12.7	19.9	13.6	12.9	13.1	9.9	14.9	12.8
210 - Warwick Road	8.0	10.9	12.2	8.3	10.6	8.0	12.0	10.3
211 - Butts Radial Road	24.8	21.6	18.7	23.6	21.3	16.3	22.3	20.6
212 - Holyhead Road	21.3	17.4	15.1	21.0	18.0	13.6	20.5	17.5
213 - Coundon Road	22.3	34.7	17.5	22.4	20.8	15.7	23.7	20.3
214 - Radford Road	33.7	28.5	19.3	33.4	26.0	19.6	29.6	25.3
217 - Stoney Road	15.2	26.8	12.5	15.3	14.2	10.7	16.1	13.8
2019 Total	**23.3**	**19.8**	**16.6**	**22.1**	**19.3**	**14.5**	**21.9**	**18.8**
2017 Total	23.7	21.5	18.6	23.0	20.7	14.8	21.5	19.9
% Difference	-1.7%	-8.2%	-11.6%	-4.0%	-7.6%	-1.9%	1.7%	-6.3%

Patronage Levels Inbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	51.51%	42.76%	33.87%	48.97%	41.07%	32.59%	52.88%	40.55%
202 Stoney Stanton Road	39.84%	38.29%	25.84%	40.90%	33.92%	24.65%	38.46%	32.85%
203 Harnell Lane East	48.18%	40.84%	23.86%	48.04%	35.39%	25.72%	40.12%	34.27%
204 Walsgrave Road	43.94%	31.42%	31.78%	39.94%	35.64%	25.90%	40.41%	34.52%
205 Binley Road	27.44%	42.08%	27.16%	29.29%	26.33%	19.13%	29.85%	25.50%
206 - Charterhouse Road	44.53%	31.40%	25.91%	37.52%	31.76%	18.22%	27.27%	29.56%
207 - London Road	22.14%	37.94%	22.02%	25.85%	21.80%	15.84%	24.71%	21.11%
208 - Mile Lane	32.87%	23.48%	22.39%	30.32%	26.25%	19.08%	29.76%	25.42%
209 - Quinton Road	33.86%	53.88%	37.54%	34.52%	35.57%	25.85%	40.33%	34.45%
210 - Warwick Road	12.75%	16.12%	20.37%	13.24%	17.07%	12.41%	19.36%	16.54%
211 - Butts Radial Road	36.85%	32.79%	28.52%	34.91%	31.83%	23.21%	36.17%	30.76%
212 - Holyhead Road	30.27%	21.46%	22.59%	29.04%	25.77%	18.73%	29.22%	24.96%
213 - Coundon Road	35.77%	74.61%	33.93%	37.78%	36.74%	26.70%	41.65%	35.58%
214 - Radford Road	45.31%	34.71%	26.11%	44.03%	34.89%	25.35%	39.55%	33.79%
217 - Stoney Road	19.55%	34.95%	16.77%	19.78%	18.61%	13.53%	21.10%	18.03%
2019 Total	**36.5%**	**31.5%**	**26.6%**	**34.7%**	**30.6%**	**22.2%**	**34.7%**	**29.6%**
2017 Total	38.8%	35.0%	30.5%	37.7%	33.9%	24.1%	37.2%	32.8%
% Difference	-6.5%	-11.3%	-14.7%	-8.4%	-11.0%	-8.7%	-7.2%	-10.6%

Total Capacity Inbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	1724	387	1850	2427	4836	3971	1562	29714
202 Stoney Stanton Road	1105	301	927	1575	2777	2519	1042	17445
203 Harnell Lane East	914	129	794	1009	2010	1823	754	12626
204 Walsgrave Road	2016	637	2219	3160	5927	5378	2224	37240
205 Binley Road	647	106	1142	1002	2503	2271	939	15723
206 - Charterhouse Road	662	206	676	1103	1986	1751	847	12526
207 - London Road	232	77	496	307	928	842	348	5831
208 - Mile Lane	1096	363	1488	1687	3392	3077	1273	21309
209 - Quinton Road	448	117	415	684	1171	1062	439	7354
210 - Warwick Road	1877	791	2054	2865	5466	4959	2051	34341
211 - Butts Radial Road	2074	593	1943	3105	5521	5477	2223	35306
212 - Holyhead Road	1163	312	1304	1725	3215	2917	1206	20198
213 - Coundon Road	668	90	402	940	1444	1310	542	9070
214 - Radford Road	1736	316	1868	2254	4531	4111	1700	28467
217 - Stoney Road	619	163	641	946	1740	1579	653	10932
2019 Total	**16981**	**4587**	**18220**	**24788**	**47446**	**43048**	**17805**	**298082**
2017 Total	16981	4815	18179	24868	47218	41230	17637	294959
% Difference	0.0%	-5.0%	0.2%	-0.3%	0.5%	4.2%	0.9%	1.0%

Seating Capacity Inbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	774	809	879	722
202 Stoney Stanton Road	603	525	505	458
203 Harnell Lane East	258	336	365	332
204 Walsgrave Road	1274	1053	1078	978
205 Binley Road	211	334	455	413
206 - Charterhouse Road	413	368	361	318
207 - London Road	154	102	169	153
208 - Mile Lane	725	562	617	560
209 - Quinton Road	235	228	213	193
210 - Warwick Road	1581	955	994	902
211 - Butts Radial Road	1186	1035	1004	996
212 - Holyhead Road	624	575	585	530
213 - Coundon Road	179	313	262	238
214 - Radford Road	632	751	824	747
217 - Stoney Road	326	315	316	287
Total Seats	**9175**	**8263**	**8627**	**7827**

Passenger Loads Inbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	331	396	361	235
202 Stoney Stanton Road	231	215	171	113
203 Harnell Lane East	106	162	129	85
204 Walsgrave Road	400	421	384	253
205 Binley Road	89	98	120	79
206 - Charterhouse Road	130	138	115	58
207 - London Road	58	26	37	24
208 - Mile Lane	170	170	162	107
209 - Quinton Road	126	79	76	50
210 - Warwick Road	255	126	170	112
211 - Butts Radial Road	389	361	319	231
212 - Holyhead Road	134	167	151	99
213 - Coundon Road	134	118	96	64
214 - Radford Road	219	331	287	190
217 - Stoney Road	114	62	59	39
Total Passengers	**2886**	**2871**	**2637**	**1739**

Passengers loads pro-rata	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	11%	14%	14%	14%
202 Stoney Stanton Road	8%	7%	6%	6%
203 Harnell Lane East	4%	6%	5%	5%
204 Walsgrave Road	14%	15%	15%	15%
205 Binley Road	3%	3%	5%	5%
206 - Charterhouse Road	4%	5%	4%	3%
207 - London Road	2%	1%	1%	1%
208 - Mile Lane	6%	6%	6%	6%
209 - Quinton Road	4%	3%	3%	3%
210 - Warwick Road	9%	4%	6%	6%
211 - Butts Radial Road	13%	13%	12%	13%
212 - Holyhead Road	5%	6%	6%	6%
213 - Coundon Road	5%	4%	4%	4%
214 - Radford Road	8%	12%	11%	11%
217 - Stoney Road	4%	2%	2%	2%
Total	**100%**	**100%**	**100%**	**100%**

PM peak hour development increase in bus passenger arrivals	*216*
Saturday peak hour development increase in bus passenger arrivals	*132*

Development Passenger Loads Inbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	25	30	30	18
202 Stoney Stanton Road	17	16	14	9
203 Harnell Lane East	8	12	11	6
204 Walsgrave Road	30	32	31	19
205 Binley Road	7	7	10	6
206 - Charterhouse Road	10	10	9	4
207 - London Road	4	2	3	2
208 - Mile Lane	13	13	13	8
209 - Quinton Road	9	6	6	4
210 - Warwick Road	19	10	14	8
211 - Butts Radial Road	29	27	26	18
212 - Holyhead Road	10	13	12	8
213 - Coundon Road	10	9	8	5
214 - Radford Road	16	25	24	14
217 - Stoney Road	9	5	5	3
Total Passengers	**216**	**216**	**216**	**132**

Existing + Development Passenger Loads Inbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	356	426	391	253
202 Stoney Stanton Road	248	231	185	121
203 Harnell Lane East	113	174	140	92
204 Walsgrave Road	430	452	416	273
205 Binley Road	96	105	130	85
206 - Charterhouse Road	139	148	124	62
207 - London Road	63	28	40	26
208 - Mile Lane	183	183	175	115
209 - Quinton Road	136	85	82	54
210 - Warwick Road	274	136	184	120
211 - Butts Radial Road	418	389	346	249
212 - Holyhead Road	144	180	163	107
213 - Coundon Road	144	127	104	68
214 - Radford Road	236	356	311	204
217 - Stoney Road	122	67	64	42
Total Passengers	**3102**	**3087**	**2853**	**1871**

Total Passenger capacity utilisation Inbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	46.0%	52.7%	44.4%	35.1%
202 Stoney Stanton Road	41.2%	44.0%	36.7%	26.5%
203 Harnell Lane East	43.9%	51.7%	38.3%	27.7%
204 Walsgrave Road	33.8%	42.9%	38.6%	27.9%
205 Binley Road	45.2%	31.5%	28.5%	20.6%
206 - Charterhouse Road	33.7%	40.3%	34.4%	19.6%
207 - London Road	40.8%	27.8%	23.6%	17.0%
208 - Mile Lane	25.2%	32.6%	28.4%	20.5%
209 - Quinton Road	57.9%	37.1%	38.5%	27.8%
210 - Warwick Road	17.3%	14.2%	18.5%	13.3%
211 - Butts Radial Road	35.2%	37.5%	34.4%	25.0%
212 - Holyhead Road	23.1%	31.2%	27.9%	20.2%
213 - Coundon Road	80.2%	40.6%	39.7%	28.7%
214 - Radford Road	37.3%	47.3%	37.7%	27.3%
217 - Stoney Road	37.6%	21.3%	20.1%	14.6%
Average	**39.9%**	**36.9%**	**32.6%**	**23.4%**

% uplift in total patronage Development	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	7.5%	7.5%	8.2%	7.6%
202 Stoney Stanton Road	7.5%	7.5%	8.2%	7.6%
203 Harnell Lane East	7.5%	7.5%	8.2%	7.6%
204 Walsgrave Road	7.5%	7.5%	8.2%	7.6%
205 Binley Road	7.5%	7.5%	8.2%	7.6%
206 - Charterhouse Road	7.5%	7.5%	8.2%	7.6%
207 - London Road	7.5%	7.5%	8.2%	7.6%
208 - Mile Lane	7.5%	7.5%	8.2%	7.6%
209 - Quinton Road	7.5%	7.5%	8.2%	7.6%
210 - Warwick Road	7.5%	7.5%	8.2%	7.6%
211 - Butts Radial Road	7.5%	7.5%	8.2%	7.6%
212 - Holyhead Road	7.5%	7.5%	8.2%	7.6%
213 - Coundon Road	7.5%	7.5%	8.2%	7.6%
214 - Radford Road	7.5%	7.5%	8.2%	7.6%
217 - Stoney Road	7.5%	7.5%	8.2%	7.6%
Average	**7.5%**	**7.5%**	**8.2%**	**7.6%**

PM peak hour CUMULATIVE development increase in bus passenger arrivals *118*
Saturday peak hour CUMULATIVE development increase in bus passenger arrivals *48*

Cumulative Development Passenger Loads Inbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	14	16	16	6
202 Stoney Stanton Road	9	9	8	3
203 Harnell Lane East	4	7	6	2
204 Walsgrave Road	16	17	17	7
205 Binley Road	4	4	5	2
206 - Charterhouse Road	5	6	5	2
207 - London Road	2	1	2	1
208 - Mile Lane	7	7	7	3
209 - Quinton Road	5	3	3	1
210 - Warwick Road	10	5	8	3
211 - Butts Radial Road	16	15	14	6
212 - Holyhead Road	5	7	7	3
213 - Coundon Road	5	5	4	2
214 - Radford Road	9	14	13	5
217 - Stoney Road	5	3	3	1
Total Passengers	**118**	**118**	**118**	**48**

Exist. + Cumulative + Dev. Passenger Loads Inbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	369	442	407	260
202 Stoney Stanton Road	258	240	193	125
203 Harnell Lane East	118	180	146	94
204 Walsgrave Road	447	470	433	280
205 Binley Road	99	109	135	87
206 - Charterhouse Road	145	154	129	64
207 - London Road	65	29	41	27
208 - Mile Lane	190	190	182	118
209 - Quinton Road	141	88	85	55
210 - Warwick Road	284	141	191	123
211 - Butts Radial Road	434	403	360	255
212 - Holyhead Road	149	186	170	110
213 - Coundon Road	149	132	109	70
214 - Radford Road	245	369	324	209
217 - Stoney Road	127	70	66	43
Total Passengers	**3220**	**3205**	**2971**	**1919**

Total Passenger capacity utilisation Inbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	47.7%	54.7%	46.3%	36.0%
202 Stoney Stanton Road	42.7%	45.7%	38.2%	27.2%
203 Harnell Lane East	45.6%	53.6%	39.9%	28.4%
204 Walsgrave Road	35.1%	44.6%	40.2%	28.6%
205 Binley Road	47.0%	32.7%	29.7%	21.1%
206 - Charterhouse Road	35.0%	41.9%	35.8%	20.1%
207 - London Road	42.3%	28.9%	24.6%	17.5%
208 - Mile Lane	26.2%	33.8%	29.6%	21.1%
209 - Quinton Road	60.1%	38.5%	40.1%	28.5%
210 - Warwick Road	18.0%	14.8%	19.2%	13.7%
211 - Butts Radial Road	36.6%	39.0%	35.9%	25.6%
212 - Holyhead Road	23.9%	32.4%	29.0%	20.7%
213 - Coundon Road	83.2%	42.2%	41.4%	29.5%
214 - Radford Road	38.7%	49.2%	39.3%	28.0%
217 - Stoney Road	39.0%	22.1%	21.0%	14.9%
Average	**41.4%**	**38.3%**	**34.0%**	**24.0%**

% uplift in total patronage Development+ Cumulative	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	12%	12%	13%	10%
202 Stoney Stanton Road	12%	12%	13%	10%
203 Harnell Lane East	12%	12%	13%	10%
204 Walsgrave Road	12%	12%	13%	10%
205 Binley Road	12%	12%	13%	10%
206 - Charterhouse Road	12%	12%	13%	10%
207 - London Road	12%	12%	13%	10%
208 - Mile Lane	12%	12%	13%	10%
209 - Quinton Road	12%	12%	13%	10%
210 - Warwick Road	12%	12%	13%	10%
211 - Butts Radial Road	12%	12%	13%	10%
212 - Holyhead Road	12%	12%	13%	10%
213 - Coundon Road	12%	12%	13%	10%
214 - Radford Road	12%	12%	13%	10%
217 - Stoney Road	12%	12%	13%	10%
Average	**12%**	**12%**	**13%**	**10%**

Passengers Outbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	352	91	508	509	1152	832	677	7269
202 Stoney Stanton Road	281	46	182	387	632	367	287	3816
203 Harnell Lane East	281	21	144	291	478	277	217	2881
204 Walsgrave Road	564	80	534	758	1419	823	643	8560
205 Binley Road	113	18	235	176	442	257	201	2669
206 - Charterhouse Road	293	11	116	315	471	188	160	2703
207 - London Road	33	12	83	48	136	79	62	820
208 - Mile Lane	230	34	252	307	598	347	271	3607
209 - Quinton Road	97	25	118	142	280	162	127	1687
210 - Warwick Road	153	51	317	228	627	363	284	3781
211 - Butts Radial Road	597	73	365	789	1274	683	495	7548
212 - Holyhead Road	224	27	223	301	556	323	252	3357
213 - Coundon Road	152	27	103	213	356	206	161	2149
214 - Radford Road	501	44	370	596	1062	615	481	6404
217 - Stoney Road	77	23	81	112	217	126	99	1312
2019 Total	**3947**	**581**	**3632**	**5173**	**9700**	**5647**	**4417**	**58563**
2017 Total	3840	652	3641	5145	9853	5226	5923	60416
% Difference	2.7%	-12.2%	-0.2%	0.5%	-1.6%	7.5%	-34.1%	-3.2%

Buses Outbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	43	11	45	64	120	96	37	733
202 Stoney Stanton Road	14	4	13	21	37	32	13	230
203 Harnell Lane East	12	2	11	14	27	24	10	167
204 Walsgrave Road	30	9	36	47	90	79	33	561
205 Binley Road	10	2	19	16	39	35	14	246
206 - Charterhouse Road	10	2	11	14	27	23	11	169
207 - London Road	3	2	7	5	15	13	5	94
208 - Mile Lane	14	5	20	22	45	40	16	281
209 - Quinton Road	12	3	12	18	32	28	12	200
210 - Warwick Road	30	11	36	46	89	79	33	557
211 - Butts Radial Road	31	8	32	45	84	83	36	539
212 - Holyhead Road	17	4	20	24	46	41	17	290
213 - Coundon Road	11	2	8	16	26	23	9	160
214 - Radford Road	24	4	27	30	61	54	22	383
217 - Stoney Road	8	2	9	12	23	20	8	144
2019 Total	**270**	**69**	**305**	**396**	**761**	**669**	**278**	**4753**
2017 Total	278	86	291	412	779	667	291	4852
% Difference	-2.7%	-24.2%	4.6%	-4.1%	-2.3%	0.3%	-4.5%	-2.1%

Occupancies Outbound 2019 (passengers/buses)

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	8.2	8.3	11.3	8.0	9.6	8.7	18.3	9.9
202 Stoney Stanton Road	19.4	11.6	14.2	18.0	17.2	11.3	21.3	16.6
203 Harnell Lane East	22.6	13.3	13.1	21.3	17.9	11.8	22.1	17.3
204 Walsgrave Road	18.6	9.3	15.0	16.1	15.8	10.4	19.5	15.2
205 Binley Road	11.2	10.3	12.5	11.2	11.2	7.4	13.9	10.9
206 - Charterhouse Road	29.3	5.5	10.5	22.5	17.4	8.2	14.5	16.0
207 - London Road	10.7	4.7	12.3	9.0	9.1	6.0	11.2	8.8
208 - Mile Lane	16.0	6.9	12.5	13.8	13.3	8.8	16.5	12.9
209 - Quinton Road	8.0	8.5	9.9	7.7	8.7	5.7	10.8	8.4
210 - Warwick Road	5.0	4.7	8.8	4.9	7.0	4.6	8.7	6.8
211 - Butts Radial Road	19.3	9.1	11.4	17.5	15.2	8.2	13.7	14.0
212 - Holyhead Road	13.4	7.4	10.9	12.5	12.0	7.9	14.8	11.6
213 - Coundon Road	14.0	14.8	12.7	13.3	13.9	9.1	17.2	13.4
214 - Radford Road	21.2	12.2	13.9	19.9	17.3	11.4	21.4	16.7
217 - Stoney Road	9.6	11.5	9.1	9.1	9.4	6.2	11.7	9.1
2019 Total	**14.6**	**8.4**	**11.9**	**13.1**	**12.7**	**8.4**	**15.9**	**12.3**
2017 Total	13.8	7.6	12.5	12.5	12.7	7.8	20.4	12.5
% Difference	5.2%	9.7%	-5.1%	4.5%	0.7%	7.1%	-28.4%	-1.1%

Patronage Levels Outbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	19.97%	20.18%	27.44%	19.35%	23.35%	21.10%	44.63%	24.13%
202 Stoney Stanton Road	24.84%	17.74%	18.49%	24.92%	22.85%	14.47%	27.80%	21.92%
203 Harnell Lane East	30.04%	18.93%	17.07%	29.27%	23.84%	15.10%	29.00%	22.87%
204 Walsgrave Road	27.40%	14.56%	22.73%	24.33%	24.01%	15.21%	29.21%	23.04%
205 Binley Road	17.11%	19.50%	19.43%	17.84%	17.73%	11.23%	21.58%	17.01%
206 - Charterhouse Road	40.03%	7.64%	14.36%	30.88%	23.81%	11.18%	18.89%	21.77%
207 - London Road	13.80%	17.58%	15.75%	15.75%	14.68%	9.30%	17.86%	14.09%
208 - Mile Lane	20.49%	10.88%	16.02%	18.47%	17.68%	11.20%	21.51%	16.97%
209 - Quinton Road	21.11%	24.97%	26.86%	21.03%	23.96%	15.18%	29.16%	22.99%
210 - Warwick Road	7.95%	7.47%	14.57%	8.06%	11.50%	7.28%	13.99%	11.03%
211 - Butts Radial Road	28.43%	13.59%	16.75%	25.82%	22.48%	12.11%	22.27%	20.86%
212 - Holyhead Road	18.87%	9.94%	16.16%	17.69%	17.36%	11.00%	21.12%	16.66%
213 - Coundon Road	22.31%	34.57%	24.28%	23.02%	24.75%	15.67%	30.11%	23.74%
214 - Radford Road	28.25%	16.09%	18.68%	26.83%	23.50%	14.88%	28.59%	22.55%
217 - Stoney Road	12.19%	16.20%	11.99%	12.05%	12.54%	7.94%	15.26%	12.03%
2019 Total	**22.7%**	**14.3%**	**18.7%**	**21.0%**	**20.4%**	**13.0%**	**25.1%**	**19.6%**
2017 Total	23.0%	12.0%	20.4%	20.6%	20.7%	13.1%	34.3%	20.5%
% Difference	-1.6%	16.0%	-9.0%	1.9%	-1.7%	-0.1%	-37.0%	-4.6%

Total Capacity Outbound 2019

Site No.	Average Weekday					Saturday	Sunday	Total Weekly (5 avg weekdays plus Sat & Sun)
	0730-0930	0930-1000	1000-1200	0700-1000	0700-1230	0700-1230	1000-1530	0700-1230
201 Foleshill Road	1763	451	1851	2631	4933	3944	1517	30126
202 Stoney Stanton Road	1129	259	982	1553	2768	2534	1032	17406
203 Harnell Lane East	934	111	841	995	2003	1834	747	12598
204 Walsgrave Road	2060	548	2351	3116	5909	5409	2202	37157
205 Binley Road	661	91	1209	988	2495	2284	930	15688
206 - Charterhouse Road	732	144	808	1020	1978	1682	847	12419
207 - London Road	238	66	526	302	925	847	345	5818
208 - Mile Lane	1120	312	1576	1663	3381	3095	1260	21262
209 - Quinton Road	458	101	440	675	1167	1068	435	7338
210 - Warwick Road	1918	680	2176	2825	5449	4988	2031	34265
211 - Butts Radial Road	2100	537	2179	3056	5666	5638	2222	36190
212 - Holyhead Road	1189	268	1382	1701	3205	2934	1195	20154
213 - Coundon Road	682	77	426	927	1439	1317	536	9050
214 - Radford Road	1774	272	1979	2223	4517	4135	1684	28404
217 - Stoney Road	633	140	679	933	1735	1588	646	10907
2019 Total	**17392**	**4058**	**19405**	**24606**	**47571**	**43298**	**17628**	**298783**
2017 Total	16662	5420	17847	24958	47501	40018	17252	294777
% Difference	4.2%	-33.6%	8.0%	-1.4%	0.1%	7.6%	2.1%	1.3%

Seating Capacity Outbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	902	877	897	717
202 Stoney Stanton Road	519	518	503	461
203 Harnell Lane East	222	332	364	333
204 Walsgrave Road	1096	1039	1074	984
205 Binley Road	182	329	454	415
206 - Charterhouse Road	288	340	360	306
207 - London Road	132	101	168	154
208 - Mile Lane	624	554	615	563
209 - Quinton Road	202	225	212	194
210 - Warwick Road	1360	942	991	907
211 - Butts Radial Road	1074	1019	1030	1025
212 - Holyhead Road	537	567	583	533
213 - Coundon Road	154	309	262	240
214 - Radford Road	544	741	821	752
217 - Stoney Road	280	311	315	289
Total Seats	**8116**	**8202**	**8649**	**7872**

Passenger Loads Outbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	182	170	209	151
202 Stoney Stanton Road	92	129	115	67
203 Harnell Lane East	42	97	87	50
204 Walsgrave Road	160	253	258	150
205 Binley Road	35	59	80	47
206 - Charterhouse Road	22	105	86	34
207 - London Road	23	16	25	14
208 - Mile Lane	68	102	109	63
209 - Quinton Road	50	47	51	29
210 - Warwick Road	102	76	114	66
211 - Butts Radial Road	146	263	232	124
212 - Holyhead Road	53	100	101	59
213 - Coundon Road	53	71	65	38
214 - Radford Road	87	199	193	112
217 - Stoney Road	45	37	40	23
Total Passengers	**1162**	**1724**	**1764**	**1027**

Passengers loads pro-rata	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	16%	10%	12%	15%
202 Stoney Stanton Road	8%	7%	7%	6%
203 Harnell Lane East	4%	6%	5%	5%
204 Walsgrave Road	14%	15%	15%	15%
205 Binley Road	3%	3%	5%	5%
206 - Charterhouse Road	2%	6%	5%	3%
207 - London Road	2%	1%	1%	1%
208 - Mile Lane	6%	6%	6%	6%
209 - Quinton Road	4%	3%	3%	3%
210 - Warwick Road	9%	4%	6%	6%
211 - Butts Radial Road	13%	15%	13%	12%
212 - Holyhead Road	5%	6%	6%	6%
213 - Coundon Road	5%	4%	4%	4%
214 - Radford Road	8%	12%	11%	11%
217 - Stoney Road	4%	2%	2%	2%
Total	**100%**	**100%**	**100%**	**100%**

PM peak hour development increase in bus passenger arrivals *85*
Saturday peak hour development increase in bus passenger arrivals *155*

Development Passenger Loads Outbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	13	8	10	23
202 Stoney Stanton Road	7	6	6	10
203 Harnell Lane East	3	5	4	8
204 Walsgrave Road	12	12	12	23
205 Binley Road	3	3	4	7
206 - Charterhouse Road	2	5	4	5
207 - London Road	2	1	1	2
208 - Mile Lane	5	5	5	10
209 - Quinton Road	4	2	2	4
210 - Warwick Road	7	4	5	10
211 - Butts Radial Road	11	13	11	19
212 - Holyhead Road	4	5	5	9
213 - Coundon Road	4	4	3	6
214 - Radford Road	6	10	9	17
217 - Stoney Road	3	2	2	3
Total Passengers	**85**	**85**	**85**	**155**

Existing + Development Passenger Loads Outbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	195	178	220	174
202 Stoney Stanton Road	99	135	121	77
203 Harnell Lane East	45	102	91	58
204 Walsgrave Road	171	265	270	172
205 Binley Road	38	62	84	54
206 - Charterhouse Road	24	110	90	39
207 - London Road	25	17	26	16
208 - Mile Lane	73	107	114	73
209 - Quinton Road	54	50	53	34
210 - Warwick Road	109	80	119	76
211 - Butts Radial Road	157	276	243	143
212 - Holyhead Road	57	105	106	68
213 - Coundon Road	57	75	68	43
214 - Radford Road	94	209	202	129
217 - Stoney Road	49	39	41	26
Total Passengers	**1247**	**1809**	**1849**	**1182**

Total Passenger capacity utilisation Outbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	21.7%	20.3%	24.5%	24.3%
202 Stoney Stanton Road	19.0%	26.1%	23.9%	16.7%
203 Harnell Lane East	20.3%	30.7%	25.0%	17.4%
204 Walsgrave Road	15.6%	25.5%	25.2%	17.5%
205 Binley Road	20.9%	18.7%	18.6%	12.9%
206 - Charterhouse Road	8.2%	32.4%	25.0%	12.9%
207 - London Road	18.9%	16.5%	15.4%	10.7%
208 - Mile Lane	11.7%	19.4%	18.5%	12.9%
209 - Quinton Road	26.8%	22.1%	25.1%	17.5%
210 - Warwick Road	8.0%	8.5%	12.1%	8.4%
211 - Butts Radial Road	14.6%	27.1%	23.6%	13.9%
212 - Holyhead Road	10.7%	18.6%	18.2%	12.7%
213 - Coundon Road	37.1%	24.2%	25.9%	18.0%
214 - Radford Road	17.3%	28.1%	24.6%	17.1%
217 - Stoney Road	17.4%	12.6%	13.1%	9.1%
Average	**17.9%**	**22.1%**	**21.2%**	**14.8%**

% uplift in total patronage Development	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	7.3%	4.9%	4.8%	15.1%
202 Stoney Stanton Road	7.3%	4.9%	4.8%	15.1%
203 Harnell Lane East	7.3%	4.9%	4.8%	15.1%
204 Walsgrave Road	7.3%	4.9%	4.8%	15.1%
205 Binley Road	7.3%	4.9%	4.8%	15.1%
206 - Charterhouse Road	7.3%	4.9%	4.8%	15.1%
207 - London Road	7.3%	4.9%	4.8%	15.1%
208 - Mile Lane	7.3%	4.9%	4.8%	15.1%
209 - Quinton Road	7.3%	4.9%	4.8%	15.1%
210 - Warwick Road	7.3%	4.9%	4.8%	15.1%
211 - Butts Radial Road	7.3%	4.9%	4.8%	15.1%
212 - Holyhead Road	7.3%	4.9%	4.8%	15.1%
213 - Coundon Road	7.3%	4.9%	4.8%	15.1%
214 - Radford Road	7.3%	4.9%	4.8%	15.1%
217 - Stoney Road	7.3%	4.9%	4.8%	15.1%
Average	**7.3%**	**4.9%**	**4.8%**	**15.1%**

PM peak hour CUMULATIVE development increase in bus passenger departures *287*
Saturday peak hour CUMULATIVE development increase in bus passenger departures *104*

Cumulative Development Passenger Loads Outbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	45	28	34	15
202 Stoney Stanton Road	23	21	19	7
203 Harnell Lane East	10	16	14	5
204 Walsgrave Road	39	42	42	15
205 Binley Road	9	10	13	5
206 - Charterhouse Road	5	17	14	3
207 - London Road	6	3	4	1
208 - Mile Lane	17	17	18	6
209 - Quinton Road	12	8	8	3
210 - Warwick Road	25	13	19	7
211 - Butts Radial Road	36	44	38	13
212 - Holyhead Road	13	17	16	6
213 - Coundon Road	13	12	11	4
214 - Radford Road	22	33	31	11
217 - Stoney Road	11	6	6	2
Total Passengers	**287**	**287**	**287**	**104**

Exist. + Cumulative + Dev. Passenger Loads Outbound	**Weekday**			**Saturday**
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	240	206	254	189
202 Stoney Stanton Road	121	157	139	83
203 Harnell Lane East	56	118	105	63
204 Walsgrave Road	211	307	312	187
205 Binley Road	47	71	97	58
206 - Charterhouse Road	29	128	104	43
207 - London Road	31	19	30	18
208 - Mile Lane	90	125	132	79
209 - Quinton Road	67	57	62	37
210 - Warwick Road	134	92	138	83
211 - Butts Radial Road	193	320	280	156
212 - Holyhead Road	70	122	123	73
213 - Coundon Road	70	86	78	47
214 - Radford Road	115	242	234	140
217 - Stoney Road	60	46	48	29
Total Passengers	**1534**	**2096**	**2136**	**1286**

Total Passenger capacity utilisationOutbound	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	26.6%	23.5%	28.3%	26.4%
202 Stoney Stanton Road	23.4%	30.3%	27.7%	18.1%
203 Harnell Lane East	25.0%	35.6%	28.9%	18.9%
204 Walsgrave Road	19.2%	29.6%	29.1%	19.0%
205 Binley Road	25.7%	21.7%	21.5%	14.1%
206 - Charterhouse Road	10.1%	37.5%	28.8%	14.0%
207 - London Road	23.2%	19.1%	17.8%	11.6%
208 - Mile Lane	14.4%	22.5%	21.4%	14.0%
209 - Quinton Road	33.0%	25.6%	29.0%	19.0%
210 - Warwick Road	9.9%	9.8%	13.9%	9.1%
211 - Butts Radial Road	17.9%	31.4%	27.2%	15.2%
212 - Holyhead Road	13.1%	21.5%	21.0%	13.8%
213 - Coundon Road	45.6%	28.0%	30.0%	19.6%
214 - Radford Road	21.2%	32.6%	28.5%	18.6%
217 - Stoney Road	21.4%	14.7%	15.2%	9.9%
Average	**22.0%**	**25.6%**	**24.5%**	**16.1%**

% uplift in total patronage Development+ Cumulative	Weekday			Saturday
Site No.	**0900-1000**	**0800-0900**	**Average Hour**	**Average Hour**
201 Foleshill Road	32.0%	21.6%	21.1%	25.2%
202 Stoney Stanton Road	32.0%	21.6%	21.1%	25.2%
203 Harnell Lane East	32.0%	21.6%	21.1%	25.2%
204 Walsgrave Road	32.0%	21.6%	21.1%	25.2%
205 Binley Road	32.0%	21.6%	21.1%	25.2%
206 - Charterhouse Road	32.0%	21.6%	21.1%	25.2%
207 - London Road	32.0%	21.6%	21.1%	25.2%
208 - Mile Lane	32.0%	21.6%	21.1%	25.2%
209 - Quinton Road	32.0%	21.6%	21.1%	25.2%
210 - Warwick Road	32.0%	21.6%	21.1%	25.2%
211 - Butts Radial Road	32.0%	21.6%	21.1%	25.2%
212 - Holyhead Road	32.0%	21.6%	21.1%	25.2%
213 - Coundon Road	32.0%	21.6%	21.1%	25.2%
214 - Radford Road	32.0%	21.6%	21.1%	25.2%
217 - Stoney Road	32.0%	21.6%	21.1%	25.2%
Average	**32.0%**	**21.6%**	**21.1%**	**25.2%**

Technical Appendix O

TPP report D022 –
Accident data review

TPP
transport planning practice

Shearer Property Group

City Centre South
Accident data analysis

November 2020

transport planning practice

TPP
transport planning practice

Contents

Tables

Figures

1 INTRODUCTION

1.1.1 Transport Planning Practice (TPP) have been commissioned by Shearer Property Regen Limited to provide transport planning advice with regards to the proposal to redevelop Coventry City Centre South (CCS).

1.1.2 Personal Injury Accident data has been obtained from Transport for West Midlands (TfWM) for a study area agreed with Coventry City Council (CCC) which encompasses the city centre and the A4053 Ringway which surrounds it. The accident data obtained is for a five year period between 01/03/2015 to 29/02/2020. The output report is circa 450 pages and therefore has not been appended to this report. However the data can be provided upon request.

1.1.3 This document has been prepared to summarise the findings of analysis undertaken of road traffic accidents recorded on the local highway network within the vicinity of the proposed development site. This document is comprised of three parts:

- Part 1 provides a review of accident clusters at key locations and junctions which are likely to be affected by the development proposals;
- Part 2 provides a review of the accidents along key walking routes to local destinations and amenities; and
- Part 3 provides a review of the accidents along key cycling routes to local destinations and amenities.

1.1.4 The study area, accident clusters and walking and cycling routes were agreed with CCC Highways prior to undertaking a review.

1.1.5 Within the accident reports, those accidents involving cyclists could have the contributory factors listed as 'pedestrian' when in fact they are associated with the cyclist. This is understood to be an anomaly of the report data gathering. Therefore where a contributory factor has pedestrian in brackets, this is in fact related to the cyclist.

2 CLUSTER ANALYSIS

2.1.1 The accident clusters selected are based on their location in relation to the proposed development and on road links or junctions that are likely to be affected by the proposals. The accident clusters assessed are shown on Figure 1.

2.2 Analysis of accidents

2.2.1 The results of the analysis for all 16 clusters are summarised in Table 2.1 below.

Table 2.1 - Summary of accident severity by cluster

Accident cluster	Accident severity		Total
	Slight	Serious	
1	9	1	**10**
2	1	0	**1**
3	3	0	**3**
4	4	1	**5**
5	3	1	**4**
6	2	0	**2**
7	1	0	**1**
8	1	0	**1**
9	6	0	**6**
10	2	1	**3**
11	3	0	**3**
12	8	1	**9**
13	11	3	**14**
14	9	1	**10**
15	4	2	**6**
16	4	1	**5**
Total	**71**	**12**	**83**

2.2.2 As it can be seen from Table 2.1, there were a total of 83 accidents in the 16 clusters analysed, of which the majority were classed as slight accidents. There were 12 serious accidents in the clusters analysed with no fatal accidents recorded in the study area.

2.2.3 Below is a summary of the accidents in each cluster with a more detailed description of those recorded as serious.

Cluster 1 - Queen Victoria Road / Rover Road / Croft Road

2.2.4 Ten accidents were recorded of which one was classified as serious. The remaining accidents were classified as slight.

2.2.5 The serious accident ref. M13948716 occurred at the Corporation Street / Croft Road junction and involved a driver colliding with a pedestrian. It is stated that

the driver was using a mobile phone and was distracted as a result and another contributory factor is stated as "failed to look properly (pedestrian)".

2.2.6 In respect of the accidents with slight severity, the majority appear to be due to human error with contributory factors recorded as failure to look properly and/or being careless or in a hurry (6 cases) or driver passing close to a cyclist and failing to judge the other persons path or speed (1 case). One accident occurred due to defective brakes and the driver exceeding speed limit, with another accident due to a vehicle travelling along the pavement and hitting a pedestrian.

Cluster 2 - Greyfriars Road / City Arcade access

2.2.7 One slight accident was recorded at this location on Greyfriars road. The accident involved two cars and the contributory factors are recorded as "failed to look properly" and "careless or reckless or in a hurry".

Cluster 3 - Greyfriars Road / Warwick Row

2.2.8 There were three accidents recorded at this location. There is no data provided in respect of contributory factors for one of the accidents that occurred between a car and a cyclist (ref. M81155718). Another accident at this location occurred between a cyclist and a goods vehicle due to a "cyclist entering road from a pavement", "failed to look properly" and it has been stated that he was impaired by alcohol. The contributory factor for the remaining accident is stated as the driver "disobeying pedestrian crossing facility", "careless or reckless or in a hurry" and "failure to look properly (pedestrian)".

Cluster 4 – New Union Street / Greyfriars Lane

2.2.9 Five accidents were recorded at this location of which one was classified as a serious accident with the remaining four being classified as slight accidents.

2.2.10 The serious accident ref. M12153716 occurred to the west of New Union Street's and Greyfriars Lane junction and it occurred on a double decker bus. The contributory factor for the accident is recorded as "sudden braking" and it appears that an elderly passenger (80 years old) was injured as a result. The vehicle was in a bus lane.

2.2.11 In respect of the remaining four accidents, no contributory factors are recorded for two of these accidents; in both cases they involved two vehicles. For the

remaining two accidents, one occurred due to both the pedestrian and driver failing to look properly and it appears that this may have been caused by a stationary or parked vehicle, blocking their view. The contributory factor for the other accident that occurred between two vehicles is listed as ”careless or Reckless or in a hurry” and “Following too close”.

Cluster 5 – New Union Street / B4544 Little Park Street

2.2.12 There were four accidents recorded at this location of which three were classified as slight accidents and there was one serious accident recorded.

2.2.13 The accident ref. M15255217 involved a car and a motorcyclist with the rider of the motorcyclist being seriously injured as a result of the collision. The contributory factors are listed as “failed to look properly (pedestrian)” and “failed to judge other persons path or speed”. Based on the description of the accident, it appears that the motorcyclist collided with the offside of the car as the car was moving.

2.2.14 Thee slight accidents were recorded at this location. In one of the accidents which occurred between a car and a pedestrian, the contributory factor is listed as “other” and no additional information is available. The other accidents were between car drivers and cyclists and caused by human error. In one instance, the contributory factors are listed as car driver being “impaired by drugs (illicit or medicinal) as well as “impaired by alcohol” and “failed to look properly (pedestrian)” which has been assumed is referring to the cyclist rather than a pedestrian. The contributory factor for the other slight accident is listed as “failed to look properly (pedestrian) and “failed to judge other persons path or speed”.

Cluster 6 – B4544 Little Park Street / St John Street

2.2.15 Two slight accidents were recorded at this location. One of the accidents involved a taxi and the casualty was recorded as the passenger. There was no contributory factors provided. The other accident involved two cars and the contributory factors were listed as: “failed to judge other persons path or speed”, “slippery road (due to weather)” and one of the drivers was “impaired by alcohol”.

Cluster 7 – Barracks Way

2.2.16 One slight accident was recorded on Barracks Way. It involved an incident between a car driver and a pedestrian. The accident appears to have occurred due to human error with the contributory factor is listed as "failed to judge other persons path or speed".

Cluster 8 – Greyfriars Lane / Warwick Lane / Barracks Way

2.2.17 One slight accident was recorded on Greyfriars Lane at its junction with Warwick Lane and Barracks Way. It involved an accident between a van driver and a mobility scooter. The accident appears to have been caused due to human error and contributory factors were listed as "Failed to look properly (pedestrian)", "passing too close" and "failed to judge other persons path or speed".

Cluster 9 – Corporation Street / Hill Street

2.2.18 There were a total of six slight accidents recorded and they appear to have been caused by human error. The list of contributory factors in this location is quite varied and therefore, a more detailed description is provided below.

2.2.19 One of the accidents occurred in a taxi at 12:30 in the morning where the causality is listed as a passenger and contributory factors are listed as "impaired by alcohol" and "Nervous or Uncertain or Panic".

2.2.20 Two of the accidents occurred between car drivers and cyclist. In one the cases the contributory factors are listed as: "passing too close to cyclist", "dazzling sun" and "cyclist was overtaking static vehicle offside". The other accident occurred due to "failure to look properly (pedestrian)". It is assumed that the pedestrian was a cyclist.

2.2.21 An accident was recorded between a cyclist and a pedestrian with "failed to signal or Misleading signal", "failed to judge other persons path or speed" and "vehicle blind spot" listed as contributory factors.

2.2.22 There was an accident recorded between two cars for which no information is provided under contributory factors and appears that the vehicles collided with each other as one car was moving off and other was going ahead along the carriageway.

2.2.23 The remaining accident occurred as a car driver "disobeyed pedestrian crossing facility" and collided with a pedestrian.

Cluster 10 – Spon street / Lower Holyhead Road

2.2.24 There were one serious and two slight accidents recorded in this area. The serious accident ref. M32403118, involved a car which was travelling in excess of the speed limit, colliding with a pedestrian. This accident occurred on Holyhead Road, more than 20m away from its junction with Spon Street. No additional information is provided in respect of contributory factors. It occurred at 10:34PM but the road was lit by street lamps.

2.2.25 The other two accidents occurred due to human error with one accident occurring due to the goods vehicle driver "following too close" and "failing to look properly" and hit a car from behind with other contributory factor listed as "careless or reckless or in a hurry". The other accident involved a cyclist colliding with a stationary or parked vehicle and contributory factor is listed as "failed to look properly".

Cluster 11 – Spon street / Lower Holyhead Road

2.2.26 Three slight accidents were recorded at this location. One of the accidents involved a car driver who was impaired by alcohol, hitting a parked taxi and other contributory factor is listed as "slippery road (due to weather)". The other two accidents also occurred due to human error with contributory factors listed as "following too close", "failed to look properly" and "poor turn or manoeuvre".

Cluster 12 – Ringway Hill Cross / Holyhead Road

2.2.27 There were a total of nine accidents recorded at this location with one being serious and the remaining classed as slight.

2.2.28 There are no contributory factors listed for the serious accident referenced. M33292818. The accident was between a car and a motorcycle with the motorcyclist being seriously injured. It occurred on/near the A4053 slip road. Based on the information available, it appears that the car driver was changing lane to the right (may have been merging with the Ringway) and the motorcyclist was going ahead along the carriageway. There is no record of impact between the car and motorcyclist but it has been recorded that the bike

"skidded and overturned". It could be assumed that the accident occurred as the motorcyclist was trying to avoid the car and had the accident as a result.

2.2.29 There is a range of contributory factors provided for the remaining nine slight accidents. In three cases, "slippery road (due to weather)" is listed as contributory factor as well as other factors such as "sudden breaking", "careless or reckless or in a hurry" and "junction overshoot" which may indicate poor driving ability or poor lane markings and direction signs.

2.2.30 There is one case where the driver was impaired by alcohol and "careless or reckless or in a hurry" is listed as the contributory factor and there is one case where no information is provided on the contributory factors.

2.2.31 The contributory factors for the remaining three cases are listed as: "Aggressive driving", "Failed to judge other persons path or speed", "Exceeding speed limit", "Nervous or Uncertain or Panic" and "careless or reckless or in a hurry" which indicates human error and poor driving ability.

Cluster 13 – Butts Road / Ringway Queens / Croft Road

2.2.32 There were a total of 14 accidents recorded in this location which is the highest out of all 16 clusters analysed. There were three serious and 11 slight accidents recorded. The three serious accidents are listed below:

- Ref. M0077115: The accidents occurred on Butts Road, not at junction or within 20 metres of its junction with the Ringway. It involved a taxi and a pedestrian and the contributory factors is listed as the driver being "careless or reckless or in a hurry". It occurred at 00:55.

- Ref. M12775316: The contributory factor for this accident is listed as "loss of control" and it appears that the rider lost control of the motorcycle. There are no other contributory factors listed.

- Ref. M3761414: The accident occurred at the junction of Butts Road with the Ringway and the contributory factor is listed as "Junction overshoot" with no additional information provided. Only 1 vehicle is included in the report and the causality is recorded as the driver.

2.2.33 In respect of the remaining 11 slight accidents, no contributory factors are provided for three of these accidents. In the remaining cases, seven appears to have been caused due to human error with various factors listed, such as: "exceeding speed limit", "aggressive driving", "junction overshoot", "aggressive driving" and "travelling too fast for conditions" as well as "Failed to look properly (pedestrian)".

2.2.34 For the remaining accident, the contributory factors are listed as "temporary road layout", "Defective lights or indicators" and "inexperience of learner driver" which could only be partly attributed to human error although the road layout was temporary.

Cluster 14 – Ringway Queens / A429 Warwick Road

2.2.35 Ten accidents were recorded of which one was classified as a serious accident with the remaining being classified as slight accidents.

2.2.36 The serious accidents ref. M82357719 occurred on Eaton Road, near its junction with the A429 Warwick Road. It involved a bus and a cyclist. As part of the contributory factors, it is stated that "Failed to look properly (pedestrian)".

2.2.37 In respect of the accident with slight severity, the majority appears to be due to human error with contributory factors recorded as "failure to look properly", "Junction overshoot", "poor turn or manoeuvre" and "dangerous action in carriageway (e.g. playing)". There is however one accident that occurred due to "Inadequate or Masked signs or road markings" and "Rain, sleet, snow, or fog" is listed as the other contributory factor. No information on contributory factors is available for one of the slight accidents recorded (ref. M88557019).

Cluster 15 – Ringway St Patricks

2.2.38 Six accidents were recorded in this area of which two were classed as serious and the remaining four as slight.

2.2.39 The two serious accidents are listed below:

- Ref. M35076418: The accidents occurred on Ringway St. Patricks. It involved a motorcyclist but there are no contributory factors provided for the accident.

- Ref. M91698519: The accident occurred between a car and a car. It appears to have been caused by human error as the contributory factors are listed as: "careless or reckless or in a hurry" and "inexperienced or learner driver or rider".

2.2.40 In respect of the four slight accidents, no contributory factors are provided for one of these accidents (ref. M93375420). This accident involved a car that is recorded to have hit a bollard or refuge.

2.2.41 The remaining three appears to have been caused by human error with the following listed as contributory factors for these accidents: "failed to look properly (pedestrian)", "failed to judge other persons path or speed", "careless or reckless or in a hurry", "nervous or uncertain or panic".

Cluster 16 – Ringway St Patricks / Mile Lane / Quinton Road / New Union Street

2.2.42 There were five accidents recorded in this cluster of which one was classed as a serious accident and the remaining four as slight.

2.2.43 The serious accidents ref. M19188017, involved a car and a cyclist. The contributory factors are due to human error and are listed as "Disobeyed Give Way or Stop sign or markings", "Junction overshoot" and "Failed to look properly (pedestrian)". Based on the description of the accident, it appears that the cyclist may have collided with the offside of the car.

2.2.44 In respect of the four slight accidents, they all appear to have occurred due to human error. Contributory factors for three of these accidents are listed as "failed to look properly (pedestrian)", "failed to judge other persons path or speed" and "passing too close to cyclist, horse rider or pedestrian". The other accident appears to have occurred due to the driver "exceeding the speed limit" and "aggressive driving".

2.3 Summary

2.3.1 The review indicates most accidents are a result of human error. A number of accidents occurred where drivers disobeyed the rules of the road and this in some instances involved pedestrians or cyclists i.e. cars mounting the footway, speeding, overshooting junctions or failing to stop at pedestrian crossings and alcohol.

2.3.2 Some accidents had contributing factors of slippery road surfaces due to the weather. As part of any adjustments to the local highway network brought forward by the development, there will be Road Safety Audits. As part of these audits, the skid resistance of the road surface where the adjustments are being made would be assessed and if required would be improved. Whilst one accident had contributing factors of inadequate/masked roads signs, it is anticipated this is due to the other contributing factor of sleet and snow obscuring the signs.

2.3.3 Overall, the accidents analysed do not indicate any inherent issues with the local highway design and layout. In addition, the level of trip generation predicted for the development is not expected to lead to increases in accidents. As part of the proposals, the Barracks car park will be demolished. The area left by the car park will be for an undercroft service area only accessible by service vehicles. This will reduce vehicle conflict with the general public in this location. In addition, Rover Road will be closed to traffic, relocated slightly further south and will be pedestrianised with only controlled access for service vehicles at certain times of the day. As a result, this will reduce vehicle conflict with the general public at this location.

3 ACCIDENT ANALYSIS ALONG KEY ROUTES

3.1.1 CCC Highways asked TPP to undertake a review of accidents that have occurred on key walking routes to local destinations and amenities. Figure 2 shows the walking routes where the accidents have been reviewed. These routes were agreed with CCC Highways prior to undertaking the review. The routes are characterised as:

- Radial Walking Routes: those linking the city centre to local destinations and amenities outside of the central area/inner ring road; and
- Walking Routes: those within the city centre linking to destinations and amenities within the centre or providing links to the Radial Walking Routes.

3.1.2 Five Radial Walking Routes have been identified and are shown as dashed red lines on Figure 2. There have been 25 Walking Routes identified which have been shown as solid red lines on Figure 2. Below is a summary of each walking route and the accidents which have occurred along them.

3.2 Radial Walking Routes

Radial Walking Route 1

3.2.1 Radial Walking Route 1 runs from Greyfriars Road to the south towards Coventry Station through Greyfriars Green, and predominantly follows a traffic free route. It is the main pedestrian link between the city centre and Coventry Station. Three accidents were recorded along this route.

3.2.2 None of these accidents involved pedestrians; however two accidents did occur between cars and cyclists by the Zebra crossing over Greyfriars Road by Warwick Row.

Radial Walking Route 2

3.2.3 Radial Walking Route 2 runs from Corporation Street to the west towards Upper Spon Street and Spon Gate Primary School. It crosses the A4053 Ringway via an underpass. Two accidents were recorded along this route.

3.2.4 None of these accidents involved pedestrians; however one accident did occur between car and cyclist, with the accident partially being caused the cyclist not looking properly.

Radial Walking Route 3

3.2.5 Radial Walking Route 3 runs from Corporation Street to the north west towards Coundon Road and Bablake School.. It crosses the A4053 Ringway via footbridge. Four accidents were recorded along this route.

3.2.6 Of the four accidents, two involved pedestrians and included collisions with cars. Both accidents occurred on the Upper Hill Street/Barras Lane/Abbotts Lane/Coundon Road junction. One accident involved a vehicle that was going ahead on the right hand bend with the contributory factor being 'impaired by alcohol (pedestrian) and failing to look properly'. The other accident also involved a vehicle that was going ahead on the right hand bend with the contributory factor being 'failing to look properly (pedestrian) and road layout'. Both accidents were classified as slight.

Radial Walking Route 4

3.2.7 Radial Walking Route 4 runs from Corporation Street north to Radford Road and Barr's Hill and Community College. An underpass and a signalised at grade pedestrian crossing are provided across the A4053 Ringway. Eight accidents were recorded along this route.

3.2.8 None of these accidents involved pedestrians, with all the accidents involving cars and bicycles. However, a contributory of two of the accidents was 'failing to look properly (pedestrian)'. Pedestrian is considered in this case to be the cyclist.

Radial Walking Route 5

3.2.9 Radial walking Route 5 runs from Fairfax Street/Hales Street north east to Primrose Hill Street and Sidney Stringer Academy. Five accidents were recorded along this route.

3.2.10 Of these five accidents, one accident involved a pedestrian. This occurred on Hales Street near Swanswell Gate. The accident involved a pedestrian and a car, although no details on the accident are provided. The accident was considered a slight.

3.3 Walking routes

Walking Route 1: Upper Precinct/Lower Precinct shopping centre

3.3.1 Walking route 1 runs from east to west between Queen Victoria Road and Broadgate within the Upper Precinct and Lower Precinct shopping centre just to the north of the site. It should be noted this route is completely pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking Route 2: Broadgate

3.3.2 Walking route 2 includes the pedestrian routes named Broadgate surrounding the Lady Godiva monument to the north east of the site. It should be noted this route is completely pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking Route 3: Smithford Way

3.3.3 Walking route 3 runs north to south from Market Way to Corporation Street. It should be noted this route is completely pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking route 4: The Burges/Cross Cheaping

3.3.4 Walking route 4 is located on The Burges and Cross Cheaping. It runs between The Burges/Hales Street/Bishop Street/Corporation Street junction to Broadgate. Three accidents were recorded along this route.

3.3.5 All three accidents involved pedestrians. Two accidents occurred on Cross Cheaping to the south of Palmer Lane and involved a car and pedestrian, with the contributory for one accident being 'failing to judge other persons speed or path' with the contributory factor of the other accident being 'crossed road masked by stationary or parked vehicles and failed to look properly (pedestrian and driver)'.

3.3.6 The third accident occurred on The Burges to the north on Palmer Lane and involved a car and pedestrian, with the contributory being 'crossed road masked by stationary or parked vehicles, failing to look properly (driver) and careless or reckless or in a hurry'. All three accidents were classified as slight accidents.

Walking Route 5: Ironmonger Row/Trinity Street

3.3.7 Walking route 5 is located on Ironmonger Row and Trinity Street and runs between the Trinity Street/Hales Street junction to Broadgate. Four accidents were recorded along this route.

3.3.8 All four accidents involved pedestrians. Two accidents occurred on Ironmonger Row, with both involving a car and a pedestrian. One accident was classified as serious with the contributory factors being 'failing to look properly (pedestrian), failing to judge other persons speed and path and careless or reckless or in a hurry'. The other accident on Ironmonger Row was classified as slight and had the same contributory factors.

3.3.9 Two accidents occurred on Trinity Street north of New Buildings (street name). One accident involved a collision between a pedestrian and bus or coach with the contributory factors 'disability or illness, mental or physical and impaired by drugs (pedestrian)' and was classified as a serious accident. The other accident involved a car and pedestrian, with the contributory factor being 'failing to judge other persons speed or path' and was classified as slight.

Walking Route 6: Corporation Street

3.3.10 Walking route 6 covers the footway along Corporation Street. Nine accidents were recorded along this route.

3.3.11 Of these nine accidents, seven involved pedestrians and car/taxis. However, all seven accidents where classified as slight. Four of the accidents where located by the pedestrian cut through from West Orchard Way to Corporation Street. The contributory factors of the four accidents included 'failed to look properly (pedestrians and drivers) and failed to judge vehicles path or speed' with two accidents not providing any detail on the cause.

3.3.12 One accident occurred at the frontage of Fortress House, however no detail on the cause was provided. The other two accidents on Corporation Street occurred between Hill Street and Upper Well Street at a Zebra crossing, with the contributory factors being 'disobeying pedestrian crossing facilities and impaired by alcohol/nervous'. Other accidents that did not involve pedestrians listed 'did not look properly (pedestrian)/ as a contributory factors.

Walking Route 7: Queen Victoria Road

3.3.13 Walking route 7 covers the footway along Queen Victoria Road. Nine accidents were recorded along this route.

3.3.14 Of these nine accidents, three involved pedestrians. One accident occurred by the Town Crier public house and was caused by a cyclist colliding with a pedestrian when cycling on the footway. Another accident occurred by the pedestrian crossing adjacent to Rover Road, and involved a car and two elderly pedestrians, with the contributory factors being 'failed to look properly (pedestrian) and failed to judge vehicles path or speed'. Both of these accidents were considered slight.

3.3.15 The other accident occurred by the pedestrian crossing at the Queen Victoria Road/Croft Road junction and involved a car and a pedestrian, with the contributory factors being 'driver using mobile phone, distraction in vehicles and failing to look properly (pedestrians)'. This was classified as a serious accident. Other accidents that did not involve pedestrians listed 'did not look properly (pedestrian)' as a contributory factors.

Walking Route 8: Greyfriaris Road

3.3.16 Walking route 8 covers the footways along Greyfriaris Road to Warwick Row. Three accidents were recorded along this route. However none of these accidents involved pedestrians in the last 5 years.

Walking Route 9: Warwick Row

3.3.17 Walking route 9 covers the footpath on Warwick Row north of the Zebra crossing on Greyfriars Road. It should be noted this route is traffic free. No accidents were recorded along this route in the last 5 years.

Walking Route 10: Croft Road

3.3.18 Walking route 10 covers the footway on the northern side of Croft Road, from Queen Victoria Road to Coventry Skydome. No accidents were recorded along this route in the last 5 years.

Walking Route 11: Croft Road to Spon Street

3.3.19 Walking route 11 covers Croft Road which provides a route between Coventry Skydome and Spon Street. One accident was recorded along this route. However this accident did not involve pedestrians.

Walking Route 12: Hertford Street

3.3.20 Walking route 12 covers the pedestrian route on Hertford Street which is pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking Route 13: High Street

3.3.21 Walking route 13 covers the footways along High Street and connects Broadgate with Earl Street. Four accidents were recorded along this route.

3.3.22 Of these accidents, two involved pedestrians. One accident occurred to the east of Pepper Lane and involved a car and pedestrian, with the contributory factor being 'passing too close to a pedestrian'. However this was classified as a slight accident. The other accident on High Street involved a pedestrian and cyclist. This was classified as a serious accident, however no contributory factor was provided.

Walking Route 14: Pepper Lane/Bayley Lane

3.3.23 Walking route 14 covers the footways on Pepper Lane and Bayley Lane from High Street until Priory Street. One accident has been recorded along this route. This accident occurred on Pepper Lane and involved a pedestrian and car, with the contributory factor being 'careless or reckless or in a hurry'. This accident was classified as slight.

Walking Route 15: Priory Street

3.3.24 Walking route 15 covers the footways on Priory Street through University Square. This route is a pedestrianised zone, with only buses and delivery & servicing vehicles allowed access. No accidents were recorded along this route in the last 5 years.

Walking Route 16: St Michael's Avenue and University Campus

3.3.25 Walking route 16 covers the pedestrian route on St Michael's Avenue which runs from Broadgate to Cox Street via University Square. It should be noted that this route is pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking Route 17: New Buildings to Fairfax Street

3.3.26 Walking route 17 covers a pedestrian route from New Buildings to Fairfax Street. It should be noted that this route is pedestrianised. No accidents were recorded along this route in the last 5 years.

Walking Route 18: Hales Street/Fairfax Street

3.3.27 Walking route 18 covers the footways along Hales Street and Fairfax Street. Three accidents were recorded along this route.

3.3.28 Of these accidents, two involved pedestrians. One accident occurred on Fairfax Street, next to where Walking Route 17 meets Fairfax Street, and involved a car and four pedestrians, with a contributory factor being 'defective brakes'. The other accident which occurred on Fairfax Street and involved a pedestrian and a car, with a contributory factor being 'poor turn or manoeuvre'. Both accidents were classified as slight.

Walking Route 19: Earl Street

3.3.29 Walking route 19 covers the footway along Earl Street which is situated between New Union Street and Jordan Well. One accident was recorded along this route at a Zebra crossing. This accident involved a car and a pedestrian, with a contributory factor being 'disobeyed pedestrian crossing facilities' and was classified as a slight accident.

Walking Route 20: Jordan Well

3.3.30 Walking Route 20 covers the footways along Jordan Well which is situated between Earl Street and the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction. Eight accidents were recorded along this route with a cluster of five accidents occurring at the Zebra crossing situated outside of the Coventry University Students Union.

3.3.31 Six of the recorded accidents involved pedestrians. One accident to the east of the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction involved a taxi/private hire vehicle and a pedestrian by a pedestrian crossing, with the contributory factors being 'failing to look properly and careless, reckless or in a hurry (pedestrian)'. This accident was classified as serious.

3.3.32 Four accidents involving pedestrians occurred at the Zebra crossing situated outside of the Coventry University Students Union. All four accidents were collisions between pedestrians and cars and were classified as slight. The first accident had contributory factors of 'failing to look properly and carless or reckless or in a hurry (pedestrian). The second accident had contributory factors of 'failed to look properly and wrong use of pedestrian crossing'. The third accident had contributory factors of 'failed to look properly (driver and pedestrian) and failed to judge vehicles path or speed'. No details were provided for the fourth accident.

3.3.33 The last accident involving a pedestrian on Jordan Well occurred just to the east of Much Park Street and involved a collision between a car and pedestrian. The contributory factors listed were 'slippery road due to weather and failing to look properly (driver)'.

Walking Route 21: Whitefriars Street

3.3.34 Walking route 21 covers the footway on Whitefriars Street which runs south from the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction. No accidents where recorded along this route in the last 5 years.

Walking Route 22: Gosford Street

3.3.35 Walking route 22 covers the footway on Gosford Street going east from the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction. No accidents where recorded along this route in the last 5 years.

Walking Route 23: Cox Street

3.3.36 Walking route 23 covers the footway on Cox Street running north from the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction. Four accidents were recorded along this route.

3.3.37 Of these four accidents, three involved pedestrians. All three accidents occurred to the north of the Jordan Well/Whitefriars Street/Gosford Street/Cox Street junction at an informal pedestrian crossing. Two of the accidents were classified as slight and involved collisions between a vehicle and pedestrian, with one accidents having contributory factors of 'failing to look properly, junction overshoot, dangerous action in carriageway (e.g playing), while no data was provided for the other accident.

3.3.38 Another accident was classified as serious and involved a collision between a bus or coach and a pedestrian where the vehicle was turning left. The contributory factors include 'failed to look properly, failed to judge vehicles path or speed and inexperienced or learner driver'.

Walking Route 24: Bishop Street

3.3.39 Walking Route 24 covers footways on Bishop Street heading north from the Bishop Street/Hales Street/The Burges/Corporation Street junction. Six accidents were recorded along this route.

3.3.40 Of these six accidents, four accidents involved pedestrians. Three accidents occurred on Bishops Street to the north of the Bishop Street/Hales Street/The Burges/Corporation Street junction at an informal pedestrian. One accident involved a collision between a pedestrian and motorcycle and had the contributory factors of 'failing to look properly, failing to judge vehicles path or speed, careless or reckless or in a hurry' and was classified as a slight accident. The other two accidents involved a collision between a pedestrian and car; however contributory factors were not recorded, with one accident was classified as slight and the other as serious.

3.3.41 Another accident occurred on Bishop Street to the south of the Bishop Street/Tower Street/Lamb Street junction. This involved a taxi/private hire vehicle and pedestrian with a contributory factor being 'crossing road masked by stationary or parked vehicle' during the evening. This was classified as a slight accident.

Walking route 25: Bird Street

3.3.42 Walking Route 25 covers footways on Bird Street, which is connected to Radial Walking Route 5. One accident was recorded along this route. This accident did not involve a pedestrian.

3.4 Summary

3.4.1 The majority of the accidents reviewed on the walking routes involving pedestrians occurred due to human error. However, three areas indicated patterns that could be attributed to the highway layout. These occurred at:

- The walking routes on or near the Bishop Street/ Hales Street/The Burges/Corporation junction.
- The walking routes on or near the Cox Street/Gosford Street/Whitefriars Street/Jordan Well junction.
- A area on Walking Route 6 where the pedestrian cut through from West Orchard Way joins Corporation Street.

3.4.2 The accidents that occurred at or near the junctions indicted there may be some confusion between drivers and pedestrians as to who has right of way at the uncontrolled pedestrian crossings on each arm. These crossings are indicated by tactile paving and a slightly contrasting surface to the rest of the carriageway. However, the locations of the crossings to drivers are not obvious and there is a lack of clarity on who has right of way. Therefore, one improvement may be that the crossings are made more visible with the use of contrasting surface treatments.

3.4.3 The accidents at the pedestrian cut through from West Orchard Way on Corporation Street are anticipated to be a result of a lack of a crossing on the desire line across Corporation Street. It is not expected that this route will carry significant CCS pedestrian traffic but it is likely that students associated with Coventry University will benefit more from upgrades in pedestrian amenity in this area.

4 CYCLE ROUTES

4.1.1 In addition to reviewing walking routes to local destinations and amenities, CCC Highways asked TPP to undertake a review of accidents that have occurred on key cycling routes. Figure 3 shows the cycling routes where the accidents have been reviewed. These routes were agreed with CCC Highways prior to undertaking the review. The routes are characterised as:

- Cycle Routes: those linking the city centre to local destinations and amenities outside of the central area/inner ring road; and
- Cycle Linking Routes: those utilising the 'inner ring road' linking the city centre with the radial cycle routes.

4.1.2 Five Cycle Routes have been identified as part of the existing city centre cycle infrastructure. These are shown as blue line on Figure 3. There have been 16 'inner ring road' Cycle Linking Routes identified. These are shown are yellow lines on Figure 3.

Cycle Route 1

4.1.3 Cycle Route 1 runs from Greyfriars Road to the south via Warwick Row and Grosvenor Road. An underpass is provided to cross the A4053 Ringway. Three accidents were recorded along this route.

4.1.4 All the accidents involved cyclists. Two accidents were located at the Zebra crossing over Greyfriars Road to Warwick Row and involved a car and cyclist. The contributory factors were 'entering the road direct from pavement and impaired by alcohol' for one accident and 'disobeying pedestrian crossing facilities and careless or reckless driving or in a hurry' for the other.

4.1.5 The third accident was located on the junction between Grosvenor Road and Westminster Road, involving a car and bicycle and had a contributory factor of 'failing to look properly (pedestrian) and failing to judge other persons path or speed'. All three accidents were considered slight accidents.

Cycle Route 2

4.1.6 Cycle Route 2 runs from Corporation Street to the west via Spon Street and Upper Spon Street. An underpass is provided to cross the A4053 Ringway. Two accidents were recorded along this route.

4.1.7 One accident involved a cyclist. The accident was located on Spon Street, and involved a car and cyclist with the contributory factor being 'failing to look properly (pedestrian) and a stationary/parked car'. This accident was classified as slight.

Cycle Route 3

4.1.8 Cycle Route 3 runs from Corporation Street to the north west via Hill Street, Upper Hill Street and Coundon Road An underpass is provided to cross the A4053 Ringway. Four accidents were recorded along this route.

4.1.9 Of these four accidents, one involved a cyclist and a car. This accident occurred on Hill Street by St John the Baptist Church, with the contributory factor being 'passing too close to cyclist and dazzling sun'. This accident was classified as slight. The other accidents were all slight accidents involving cars and pedestrians on Upper Hill Street.

Cycle Route 4

4.1.10 Cycle Route 4 runs from Leicester Row to the north and splits, heading up both St Nicholas Street and Leicester Row/Lincoln Street. Cycle Route 4 also connects to Cycle Link 11 on Bishops Street which provides access over A4053 Ringway via a bridge that has ramps for cyclists.

4.1.11 No accidents have been recorded along Cycle Route 4 in the last 5 years.

Cycle Route 5

4.1.12 Cycle Route 5 runs from Fairfax Street/Cox Street to the north east via Lower Ford Street and Canterbury Street. The route passes under the A4053 Ringway. Seven accidents were recorded along this route.

4.1.13 Two accidents were on the Fairfax Street/Cox Street junction and both involved cyclists. One accident was caused a right turning vehicle, with the contributory

factor being 'failing to judge other persons path or speed'. The other accident was also caused by a right turning vehicle, with the contributory factor being 'not displaying lights at night or poor visibility'. Both accidents were classified as slight.

4.1.14 Five accidents were clustered on the Cox Street/Lower Ford Street junction. Of these accidents, two involved cyclists. One accident had a contributing factor of 'failed to look properly (pedestrian) and failed to judge other persons speed/path' which caused a slight accident. The other accident was caused by a right turning vehicle, with the main contributing factor being 'failed to look properly (pedestrian) and road signs/street furniture', which caused a serious accident.

4.2 Cycling linking routes

Cycle Link 1: High Street

4.2.1 Cycle Link 1 is located on High Street. Four accidents were recorded along this route.

4.2.2 Of these four accidents, one involved a cyclist. This was classified as a serious accident that seems to have been caused by a cyclists colliding with a pedestrian. No contributory factor was provided.

Cycle Link 2: Little Park Street

4.2.3 Cycle Link 2 is located on Little Park Street. Two accidents were recorded along this route. Of these two accidents, none involved cyclists.

Cycle Link 3: New Union Street

4.2.4 Cycle Link 3 is located on New Union Street. Eight accidents were recorded along this route.

4.2.5 Of these eight accidents, two involved cyclists. One accident occurred on the roundabout between Little Park Street and New Union Street and has a contributing factor of 'failed to look properly (pedestrian) and failed to judge each other's path or speed. The other accident occurred on New Union Street on the approach to the Little Park Street/New Union Street roundabout. The

contributing factor was 'impaired by drug and alcohol'. Both accidents were classified as slight.

Cycle Link 4: Warwick Road

4.2.6 Cycle Link 4 is located on Warwick Road. No accidents have been recorded along Cycle Link 4.

Cycle Link 5: Greyfriars Road

4.2.7 Cycle Link 5 is located on Greyfriars Road. Four accidents were recorded along this route.

4.2.8 Of these four accidents, three involved cyclists. Two accidents were covered in Cycle Route 1 which was located at the Zebra crossing over Greyfriars Road to Warwick Row and both were classified as slight. The other accident was on Greyfriars Road near the roundabout with Warwick Road. Few details were recorded on the accident; however it was considered as slight accident.

Cycle Link 6: Queen Victoria Road

4.2.9 Cycle Link 6 is located on Queen Victoria Road. Nine accidents were recorded along this route.

4.2.10 Of these nine accidents, three involved cyclists. One accident occurred by the pedestrian crossing next to City Arcade and involved a car and bicycle, with the main contributing factor being 'passing to close to cyclist and failing to judge other persons speed or path'. One accident occurred at the Croft Road/Queen Victoria Road junction, and involved a car and bicycle, with the main contributing factor being 'failed to look properly (pedestrian)' which caused the rear of the bike to be hit. The third accident occurred by the Town Crier and was caused by a cyclist colliding with a pedestrian when cycling on the footway. It is assumed the cyclist used the footway as a cut through to Fleet Street. All three accidents were classified as slight.

Cycle Link 7: Corporation Street

4.2.11 Cycle Link 7 is located on Corporation Street. Nine accidents were recorded along this route.

4.2.12 Of these nine accidents, two involved cyclists. One accident occurred by the junction between Corporation Street and Fleet Street and involved a car and bicycle, with the contributing factor 'failing to look properly (pedestrians). The other accident occurred at the junction between Corporation Street and West Orchard Way and involved a car and bicycle. The main contributory was 'careless or reckless or in a hurry and poor turn or manoeuvre' which indicates this accident was down to human error. Both accidents were classified as slight.

Cycle Link 8: The Burgres/Cross Cheaping

4.2.13 Cycle Link 8 is located on The Burges/Cross Cheaping. Three accidents were recorded along this route. However no accidents along Cycle Link 8 involved cyclists in the last 5 years.

Cycle Link 9: Trinity Street/Ironmonger Row

4.2.14 Cycle Link 9 is located on Trinity Street/Ironmonger Row. Four accidents were recorded along this route. However no accidents along this route involved cyclists in the last 5 years.

Cycle Link 10: Hales Street

4.2.15 Cycle Link 10 is located on Hales Street between the Hales Street/The Burges/Corporation Street /Bishop Street junction and Fairfax Street. Three accidents were recorded along this route. It should be noted, one of the accidents on Hales Street was a fatal accident.

4.2.16 Of these three accidents, one accident involved a cyclist. The accident occurred outside the Coventry Transport Museum and involved a bicycle and car and the main contributory was 'poor turn or manoeuvre and failed to look properly (pedestrian)'. The accident happened on the footway pavement. This accident was classified as slight.

Cycle Link 11: Bishop Street

4.2.17 Cycle Link 11 is located on Bishop Street. Six accidents were recorded along this route. However no accidents along this route involved cyclist in the last 5 years.

Cycle Link 12: Fairfax Street

4.2.18 Cycle Link 12 is located on Fairfax Street. Five accidents were recorded along this route. However no accidents along this route involved cyclists in the last 5 years.

Cycle Link 13: Cox Street

4.2.19 Cycle Link 13 is located on Cox Street. Eight accidents were recorded along this route.

4.2.20 Of these eight accidents, two involved cyclists. These have been covered in Cycle Route 5 which were located on the junction between Fairfax Street and Cox Street and were both slight accidents.

Cycle Link 14: Gosford Street

4.2.21 Cycle Link 14 is located on Gosford Street. One accident was recorded along this route, which took place near the Coventry University staff car park access. This accident involved a bicycle and a bus or coach. The contributory was 'failed to look properly and failed to judge other persons speed or path'. This accident was classified as slight.

Cycle Link 15: Jordan Well

4.2.22 Cycle Link 15 is located on Jordan Well. Eight accidents were recorded along this route.

4.2.23 Of these eight accidents, two accidents involved cyclists. One accident occurred on Jordan Well by the Jordan Well/Cox Street/Gosford Street/Whitefriars Street junction and involved a car and a bicycle. The contributory was 'failing to look properly, not displaying lights at night or in poor visibility and cyclist wearing dark clothing at night'. The other accident took place on Jordan Well at the Zebra crossing and involved a bicycle and car. No data was collected on the cause of the accident. Both accidents on Jordan Well were classified as slight accidents.

Cycle Link 16: Earl Street

4.2.24 Cycle Link 16 is located on Earl Street. One accident was recorded along this route. However no accidents along this route involved cyclists in the last 5 years.

4.3 Summary

4.3.1 The majority of the accidents reviewed on the cycle routes involving cyclists occurred due to human error. There were no clear patterns indicating where intervention in cycle infrastructure or highway design is required.

5 SUMMARY AND CONCLUSION

5.1.1 The accident cluster review indicates most accidents are a result of human error. A number of accidents occurred where drivers disobeyed the rules of the road or the surfaces were slippery due to the weather. Any adjustments to the local highway network brought forward by the development will require Road Safety Audits. Overall, the clusters accidents analysed do not indicate any inherent issues with the local highway design and layout.

5.1.2 The majority of the accidents reviewed on the walking routes involving pedestrians occurred due to human error. However, three areas indicated patterns that could be attributed to the highway layout. These occurred at:

- The walking routes on or near the Bishop Street/ Hales Street/The Burges/Corporation junction.
- The walking routes on or near the Cox Street/Gosford Street/Whitefriars Street/Jordan Well junction.
- A area on Walking Route 6 where the pedestrian cut through from West Orchard Way joins Corporation Street.

5.1.3 The accidents that occurred at or near the junctions indicted there may be some confusion between drivers and pedestrians as to who has right of way at the uncontrolled pedestrian crossings on each arm. These crossings are indicated by tactile paving and a slightly contrasting surface to the rest of the carriageway. However, the locations of the crossings to drivers are not obvious and there is a lack of clarity on who has right of way. Therefore, it is recommended that the crossings are made more visible with the use of contrasting surface treatments.

5.1.4 The accidents at the pedestrian cut through from West Orchard Way on Corporation Street are anticipated to be a result of a lack of a crossing on the desire line across Corporation Street. It is not expected that this route will carry significant CCS pedestrian traffic, and the students associated with Coventry University will benefit more from upgrades in pedestrian amenity in this area.

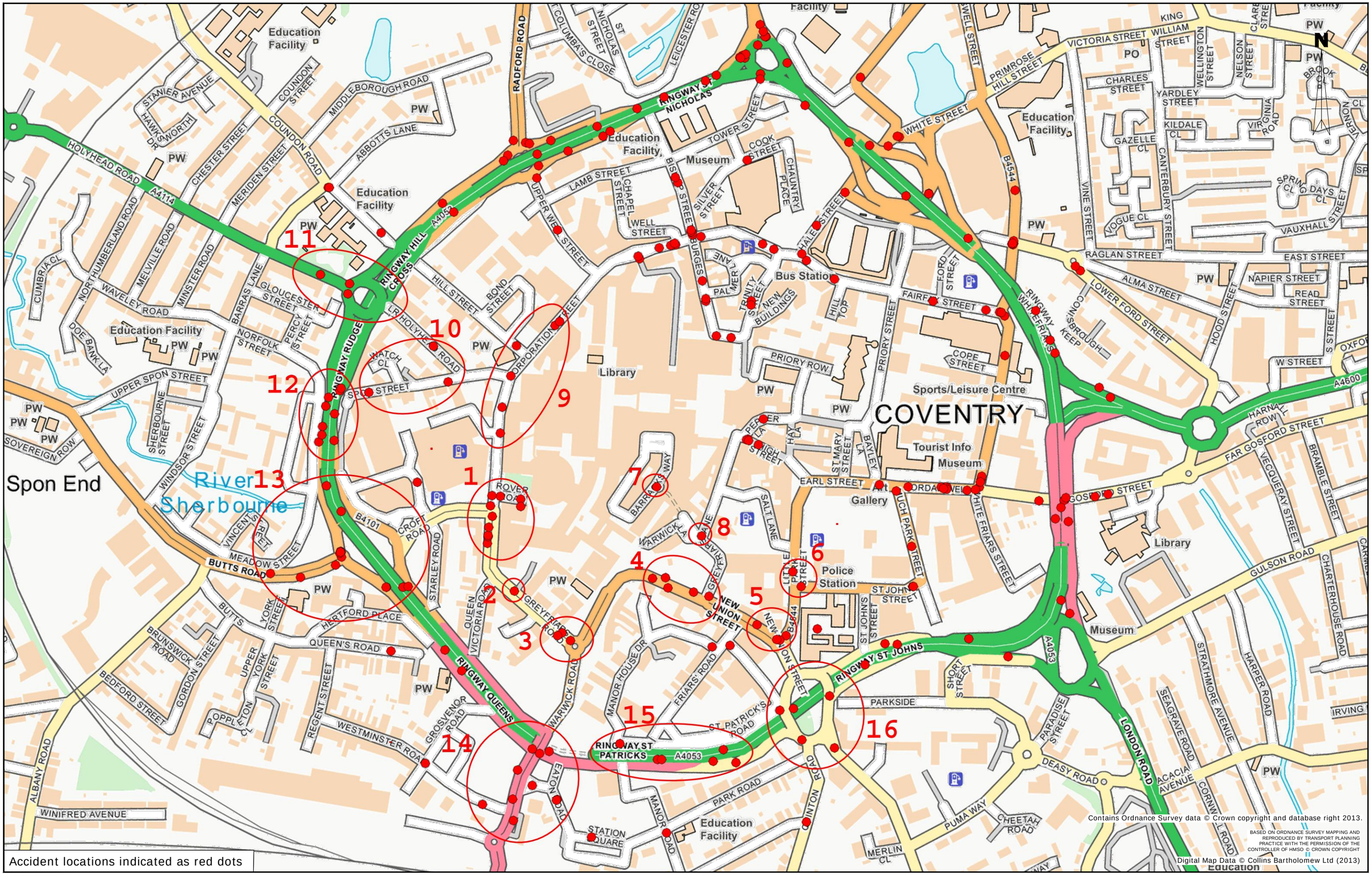
5.1.5 The majority of the accidents reviewed on the cycle routes involving cyclists occurred due to human error. There were no clear patterns indicating where intervention in cycle infrastructure or highway design is required.

5.1.6 Overall, the accidents analysed do not indicate any inherent issues with the local highway design and layout. In addition, the level of trip generation predicted for the development is not expected to lead to increases in accidents. As part of the proposals, the Barracks car park will be demolished. The area left by the car park will be for an undercroft service area only accessible by service vehicles. This will reduce vehicle conflict with the general public in this location. In addition, Rover Road will be closed to traffic, relocated slightly further south and will be pedestrianised with only controlled access for service vehicles at certain times of the day. As a result, this will reduce vehicle conflict with the general public at this location.

5.1.7 Any adjustments to the highway as part of the CCS proposals will be assessed as part of the Road Safety Audit Process.

Figures

TPP
transport planning practice

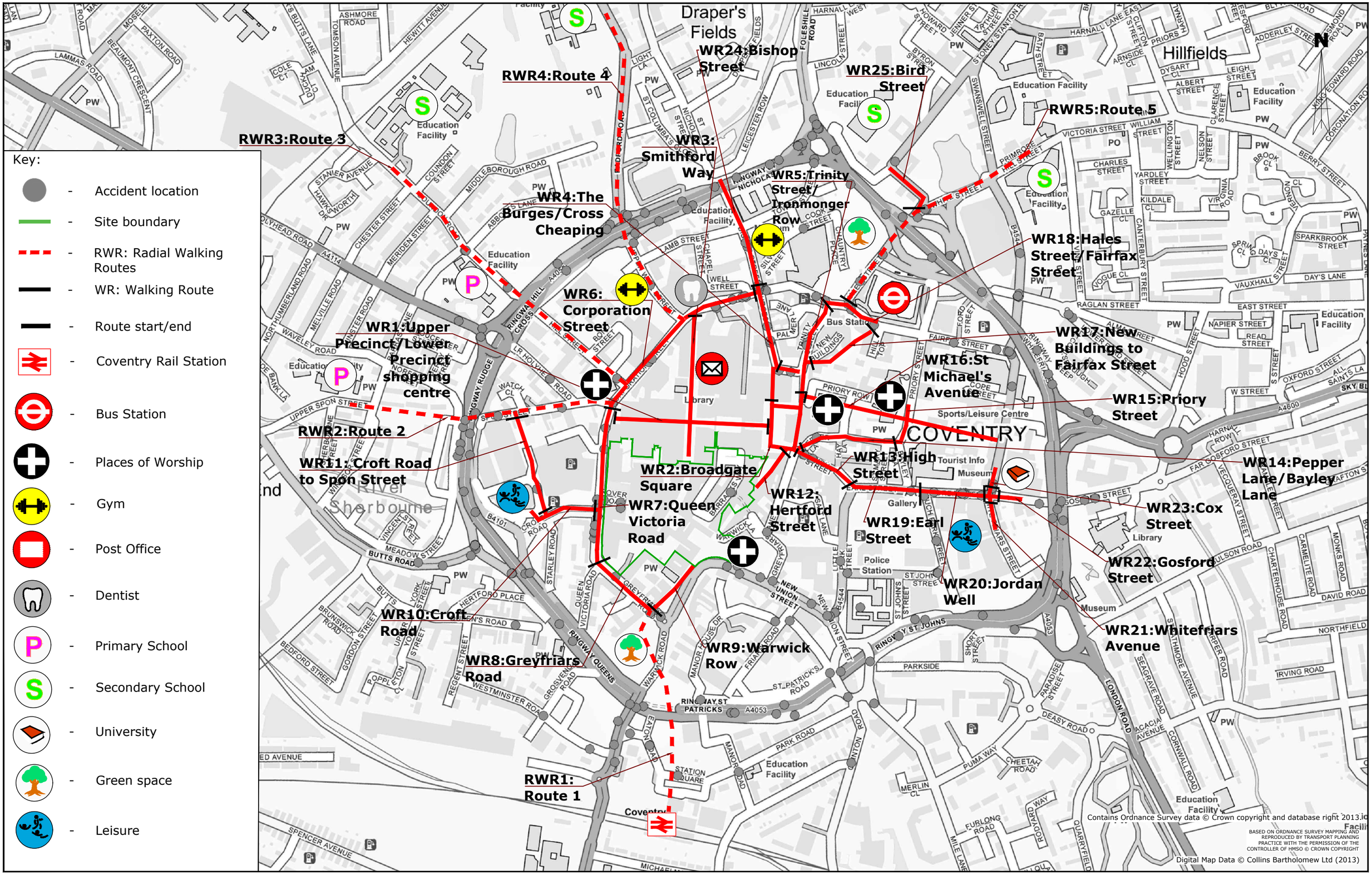


T:\30000_Projects\31176 Coventry City Centre South\ACAD\061 Accident clusters.dwg

Accident clusters assessed as part of the accident data review

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 1

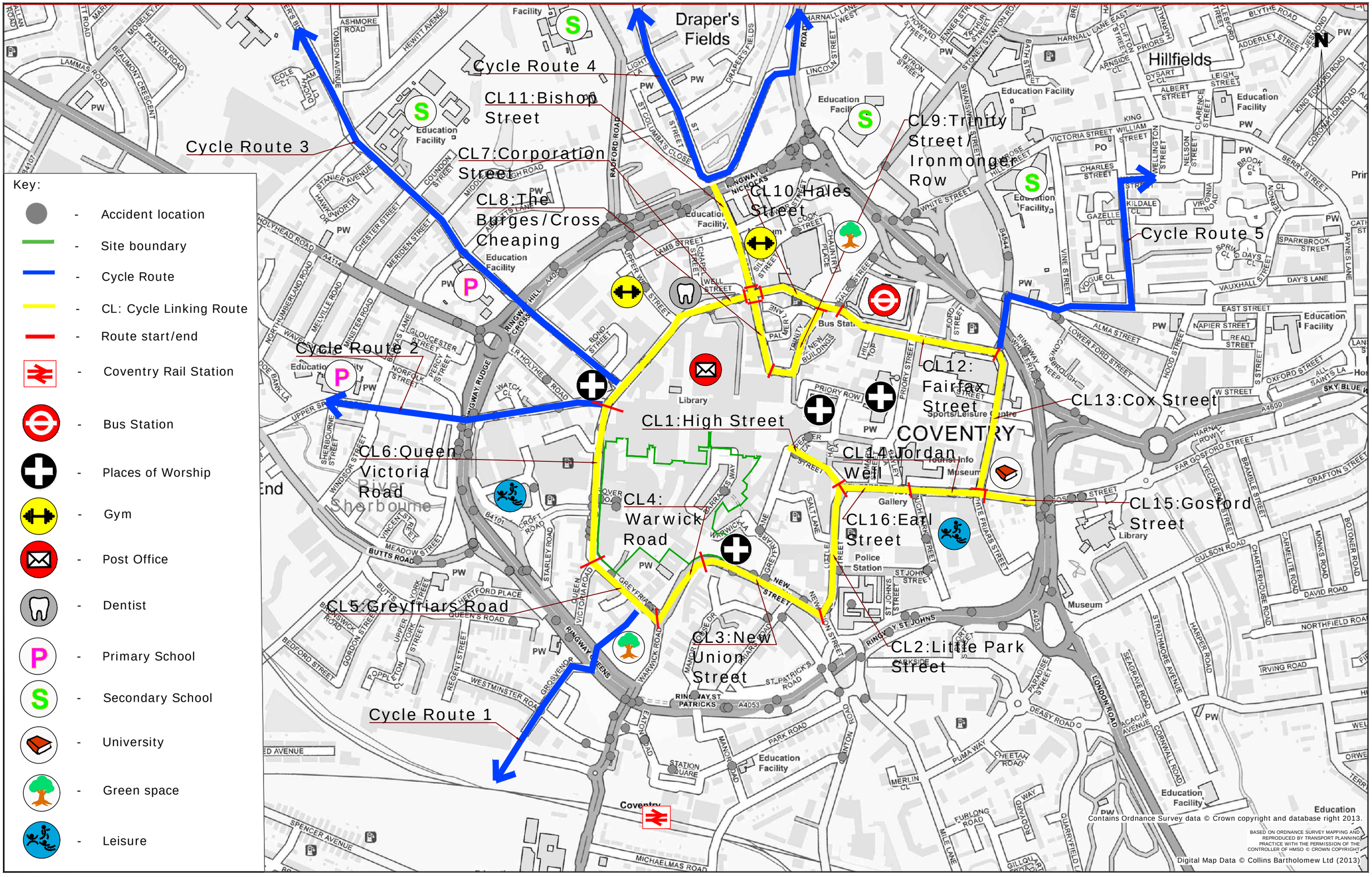


T:\30000_Projects\31176 Coventry City Centre South\ACAD\060 Walking routes and accident clusters.dwg

Walking routes assessed as part of accident data review

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 2



Cycle routes assessed as part of accident data review

TPP transport planning practice
70 Cowcross Street
London, EC1M 6EL
t: 020 7608 0008
w: www.tppweb.co.uk

Figure 3

Transport Planning Practice
70 Cowcross Street
London EC1M 6EL
020 7608 0008
email@tppweb.co.uk

www.tppweb.co.uk