The Highland Council

ACADEMY STREET - REGENERATION PROJECT

Traffic Impact Assessment Report

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EXECUTIVE SUMMARY

Like many city centres across the UK, Inverness's Academy Street has been impacted by the shifts in consumer habits and changing economic climate in recent years, leading to a near doubling in vacancy rates from 8.3% in 2018 to 16.0% in 2022, diminishing the appeal of the city centre street. Academy Street currently hosts high volumes of vehicular traffic in excess of 7,000 vehicles per day, which could be considered to detract from the visual appeal and sense of place. In response, The Highland Council (THC), are taking forward an ambitious regeneration scheme to revitalise the physical environment and characteristics on Academy Street. WSP UK Ltd. was commissioned to undertake technical assessments, including a Traffic Impact Assessment, to provide detail on the schemes impact on traffic operations in Inverness.

Preparatory Overview

The Traffic Impact Assessment had a series of key aims building upon initial analysis undertaken by THC. The rationale for WSP's commissioning was to provide an independent assessment. THC had reached the conclusion that because of the Academy Street Scheme, road users would choose alternative travel routes, or indeed alternative travel modes. Analysis undertaken by THC had examined the route options available to road users.

WSPs commission following initial analysis by THC, focused on first checking, and establishing the accuracy of THC's analysis before any further assessment took place. This included a root and branch review of the survey data collected, including liaison with the survey contractor to confirm the methodology, results and calculative steps taken. WSP then engaged with THC Officers to examine the analysis that had been undertaken of the survey data, road user routes and any assumptions that had been made. In seeking to utilise the data to underpin WSPs own calculations, the raw survey data, which consisted of results from an automatic number plate recognition (ANPR) survey within central Inverness was reprocessed and analysed. A presentation of the findings was provided to THC and Sustrans, as the scheme funder. The results confirmed that THCs own analysis was sound and offered the opportunity to discuss the interpretation of results with Sustrans as a means of gauging the schemes' ability to deliver a high level of service for cycling.

WSPs Approach to the Traffic Impact Assessment

The approach taken to the assessment was one which considered proportionality and value for money, and therefore opted to apply a traditional process resting around travel demand, trip distribution and traffic assignment. This then was followed by the measurement of impact specific and relevant to the Inverness road network to benchmark its operation. Breaking this down, the ANPR survey data was used to define the volume and type of traffic using Academy Street to determine what proportion of traffic does not stop on Academy Street (i.e. that which simply uses Academy Street as a through route). The origin and destination of these through traffic movements was then calculated using a gravity model approach aligned with Scottish Census zones. This process established the traffic demand, or indeed the traffic that would be required to find an alternative route following implementation of the scheme. This traffic was manually re-assigned on the road network based on the available routes, as well as the permitted routes within close vicinity to the scheme and the redistribution of trips to Morrisons and Eastgate shopping centre by vehicles currently using Academy Street. A series of link and junction assessments were undertaken to quantify the impact of change.

What does the Traffic Impact Assessment Tell Us?

The assessment has determined that the scale of impact on the operation of the road network in Inverness, post scheme implementation is not forecast to be significant. The assessment concludes that the overall impact on the performance of junctions is limited, with areas seeing benefit and areas seeing detriment to performance. This underpinning method is one which assumes that all traffic currently travelling through Academy Street would travel via alternative routes. The results of the assessment highlight that where a junction's operation is currently seeing operational strain, this continues to be the case post scheme implementation. In both peak periods, most of the network is forecast to continue to operate within capacity, on both links and junctions post scheme implementation. The scheme is forecast to result in notable benefits in terms of junction capacity and delay for junctions and links within the city centre, potentially resulting in less delay for vehicles seeking to access local retail and amenities. The assessment does though signpost to known areas on the road network which may see increased levels of congestion, including:

- Harbour Road Link;
- Longman Road / Harbour Road Junction; and
- Millburn Road / Harbour Road Junction.

The assessment has also captured the changes in and around Academy Street based on the permitted movements post scheme implementation, ensuring that the impact is fully measured.

In addition, and despite a collective package of softer measures associated with the behaviour change plan for the scheme, the Traffic Assessment has assumed no modal shift (shifting from car to sustainable modes such as public transport or active travel) in seeking to present a worst-case scenario. No reductions of assumptions have been made for which would likely occur due to the increase in journey times for some road users.

What are the limitations of the Assessment?

The assessment does not represent a forensic examination of individual driver behaviour, however, fundamentally seeks to determine the traffic impact of the scheme. The traffic impact has been benchmarked against industry standard measures of capacity to achieve consistency in measuring the impact thus removing the subjectivity of individual perception of what is deemed severe.

There are areas of Inverness which will see changes in traffic volumes, certainly in the short term, such as the Crown area. Whilst the assessment has determined that the total volume of traffic to this zone does not represent an increase susceptible to capacity constraint, there may indeed be a perception that any change or indeed increase in traffic volume could introduce concerns.

WSPs Recommendations

Whilst the assessment has forecast and measured the traffic impact of the scheme on the local road network, during the undertaking of the assessment engagement with stakeholders has highlighted specific concerns which go beyond the core scope of the assessment.

Nevertheless, following the initial findings of this study, THC has commissioned WSP to conduct a detailed analysis of traffic movements within Crown, particularly focusing on areas likely to experience increases in displaced traffic. This study should aim to identify potential hotspots, especially near sensitive receptors like Crown Primary School and major routes like Southside Road. Such analysis should enable targeted interventions to manage traffic effectively.

In respect of those key junctions which are forecast to see further pressure as a result of the scheme, it is WSPs recommendation that a decide and provide approach may be merited. This is because post scheme implementation, travel habits will likely change and therefore monitoring following implementation may serve as a more appropriate means to address rather than simply increasing road capacity.

1 INTRODUCTION

1.1 BACKGROUND

1.1.1. WSP UK Ltd has been commissioned by The Highland Council (THC) to prepare a Traffic Impact Assessment responding to the proposed Academy Street – Regeneration Scheme, herein referred to as 'the scheme'.

1.1.2. This Traffic Impact Assessment has the following aims:

- To quantify the change in traffic volume and routing within the immediate identified area of scheme influence;
- Analyse the existing and post-scheme link and junction performance, such that measurable capacity can be determined; and
- Identify what, if any complementary measures are required to support the scheme focused on the safe operation of the local road network.

1.1.3. This report presents the Traffic Impact Assessment and should be read in conjunction with the Academy Street – Regeneration Scheme Economic Impact Assessment.

1.1.4. WSP is independent from the scheme designer and this report represents analysis undertaken by appropriately skilled and experienced staff.

1.2 STRUCTURE OF THIS REPORT

1.2.1. This report is structured to provide:

- Chapter 2 – provides a description of the existing situation and an overview of the proposed scheme;
- Chapter 3 – provides a description of the method employed;
- Chapter 4 – provides details of the traffic baseline and existing operational conditions;
- Chapter 5 – discusses the trip distribution;
- Chapter 6 – presents the trip assignment;
- Chapter 7 – provides the results of a threshold assessment;
- Chapter 8 – provides the results of junction assessments;
- Chapter 9 – provides the results of a link capacity assessment; and
- Chapter 10 – presents the conclusions to the study and documents recommendations.

2 EXISTING SITUATION AND PROPOSED SCHEME

2.1 EXISTING SITUATION

2.1.1. Academy Street currently operates as an arterial street of Inverness City Centre, known for its retail, employment and cultural attractions. Its central location makes it a key hub for both residents and visitors, contributing to the vibrancy of Inverness as a commercial and social centre for the Highlands.

2.1.2. The location of Academy Street and its position within the city centre is shown in Figure 2-1.

Figure 2-1 - Academy Street Area

2.1.3. Academy Street currently operates as a two-way arterial route through the city centre, connecting with Chapel Street and the Shore Street roundabout to the northwest, and with Millburn Road to the southeast.

2.1.4. Academy Street provides access to both rail and bus interchange, with Inverness Bus Station and Inverness Rail Station both accessed via Academy Street. Whilst loading bays are present, on-street parking is not currently provided on Academy Street. However, parking is available at the nearby Rose Street multi-storey car park, Inverness Rail Station and within the Eastgate Shopping Centre and Falcon Gallery Car Parks. Limited on-street parking in addition to loading and disabled bays is also available on adjacent streets including Church Street and Falcon Square.

2.1.5. Academy Street is well-served with retail, hospitality and wider services. In addition to high-street chains, Academy Street is also a key area for local independent businesses. As documented within the Inverness Town Centre Health Check (2022)[1], the majority of retail businesses on or near Academy Street are independent local retailers, with national retailers making up a much smaller proportion of units.

2.1.6. Academy Street was observed to have a notable night-time economy, with bars and restaurants located along the street and on adjacent side streets.

2.2 STRATEGIC DRIVERS FOR CHANGE

2.2.1. The need for change on Academy Street according to THC is driven by several factors, including but not limited to:

- Declining town centre and occupancy;
- Poor active travel provision and connectivity; and
- Car dominance.

2.2.2. Like many city centres across the UK, Inverness's Academy Street has been impacted by the shifts in consumer habits and changing economic climate in recent years, leading to a near doubling in vacancy rates from 8.3% in 2018 to 16.0% in 2022, diminishing the appeal of the city centre street. The area also suffers from limited dedicated active travel infrastructure, with no cycle provision on Academy Street. Daily traffic volumes exceed 7,000 vehicles, and according to Friends of the Earth Scotland (FOTES), Academy Street is one of the two worst streets in Inverness for nitrogen dioxide pollution.

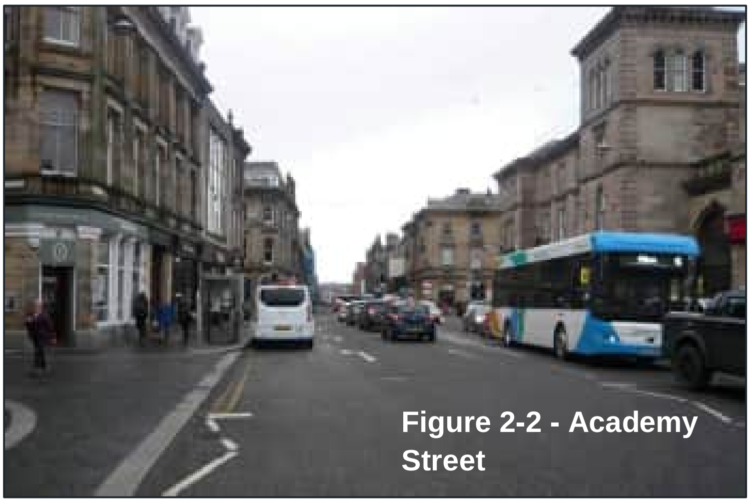


Figure 2-2 - Academy Street

[1] Inverness City Centre's Historical Old Town Sector (arcgis.com)

2.3 ACADEMY STREET REGENERATION PROJECT

2.3.1. THC aspires to make Academy Street a safer, more accessible and more attractive place to spend time in; where businesses and retail thrive, whilst being respectful of the local history and identify of Academy Street within Inverness City. THC has a series of aims for the Academy Street Project including:

- To ensure people are able to travel safely and sustainably via active travel;
- To advance opportunities for walking, wheeling and cycling;
- To help tackle climate change;
- To have cleaner air; and
- To boost physical and mental health.

2.3.2. THC have secured funding through ‘Places for Everyone’ for the design of Academy Street. Places for Everyone is a scheme funded by the Scottish Government through Transport Scotland and is administered by Sustrans.

2.3.3. THC has stated that the proposed design for Academy Street is part of the overall vision for the city centre, which is to create an attractive, greener, high-footfall place that people can comfortably live, work and visit for a wide range of services and facilities and to spend their leisure time.

2.3.4. The Academy Street proposals include:

- Widening of pavements to make it more attractive for pedestrians as well as hospitality businesses who will be supported to explore options for pavement seating for customers;
- Introduction of a bus lane which will also be used by taxis, emergency services and cyclists;
- A reduction in private vehicles to less than 2,000 a day achieved by changing how private vehicles enter and exit Academy Street;
- No change to the quantity of parking, disabled parking, loading bays and taxi ranks; and
- Introduction of trees and planting.

2.3.5. Scheme designs are enclosed within Appendix A.

3 METHOD OF APPROACH

3.1 METHOD STATEMENT

3.1.1. The methodology adopted is anchored around a series of stages presented within Figure 3-1. Set out within this chapter, is an overview of the approach taken for each of these stages, which when taken collectively provide a cohesive and robust first principles approach to assessing traffic impacts associated with the scheme.

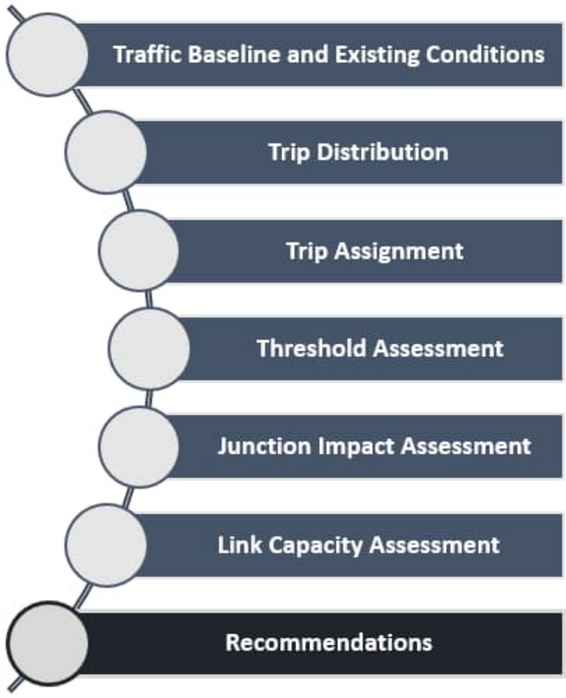


Figure 3-1 - Methodology Stages

TRAFFIC BASELINE AND EXISTING CONDITONS

3.1.2. The traffic baseline and existing conditions stage has seen an on-site review of network performance, and general driver/vehicle behaviour. In addition, collation, review, and analysis of baseline traffic data was undertaken, including fully classified junction turning counts, link counts, automatic number plate recognition (ANPR) data alongside real-time Viva-City data.

3.1.3. The traffic baseline and existing conditions stage seeks to develop the baseline on which to compare and contrast in a post scheme situation. All traffic data has been provided by THC, and no new data collection has been undertaken beyond the ongoing receipt of real-time Viva-City data. WSP has undertaken a review of the validity of all data available prior to its use as part of this study. The data has been deemed suitable to underpin this study. There are some limitations that must be noted, in respect of the ANPR data in that the catchment, whilst effective, does not fully encompass 100% of the routes available for traffic. This means that the origin and destinations of every vehicle within the local vicinity of Academy Street is not recorded.

TRIP DISTRIBUTION

3.1.4. The scheme introduces a significant change by restricting through traffic on Academy Street. It prohibits vehicles from passing completely through from southeast to northwest and vice versa. However, access is still permitted for several essential purposes: vehicles can enter Academy Street to use local car parks; pick up and drop off; and for service vehicles to meet the operational requirements of businesses along the street.

3.1.5. This adjustment ensures that vehicle access to the city centre remains possible. Nevertheless, private vehicles that previously used Academy Street as a through route will now have to find alternative paths or users may choose to adopt a more convenient mode of transport. This change in traffic patterns requires a detailed assessment of the scheme's impact on the broader road network in Inverness. To understand this impact, the distribution of trips was analysed as outlined in the following sections.

- Through traffic movements quantified utilising the ANPR data was captured;
- Scottish Census data has been interrogated at an intermediate zone level to establish zone origins and destinations. These were then put into a matrix to establish realistic zone to zone movements that are likely to travel via Academy Street;
- Residential population data was used to develop a gravity model which used the population density of each zone and their distance to Academy Street to establish the likely origins of the through traffic trips derived from the ANPR survey.
- Census Journey to Work data was interrogated to understand the economic activity of each zone, which informed the likely destinations of through trips using Academy Street.
- The above method informed origin and destination movements in the AM peak hour. The results were then reversed to determine through traffic movements in the PM peak hour.

3.1.6. This process establishes the origin and destination of Academy Street through traffic movements as well as confirming what the total through movements are for Academy Street on a typical day.

TRIP ASSIGNMENT

3.1.7. With the inability for general traffic to pass through Academy Street following scheme implementation, alternative routes have been established to accommodate through traffic movements. This has been derived utilising peak time journey planning online software (Google Maps), to identify the routing options and journey times from each origin and destination, in each direction. Noting that route options alter by direction and time period in some instances.

3.1.8. A manual assignment exercise has then been undertaken respecting the available routes, and the likely proportion of trips anticipated to take such routes. This exercise has required an element of subjective discretion from our practitioners to capture the reality of trip behaviour. For instance, if there are two available routes, each having a different journey time, a higher percentage of trips have been assigned via the quickest route.

THRESHOLD ASSESSMENT

3.1.9. A threshold assessment has been undertaken to establish the network pressure points post scheme implementation. This considers traffic on each approach to junctions in the city, and where traffic on any single approach breaches a 5% or more increase in the forecast 2025 traffic baseline, triggers a detailed assessment of that junction. Whilst impact is relative to the totality of traffic at that point on the network, a 5% threshold in a city environment has been considered reasonable offering a metric which could be considered to represent a point at which a perceivable change is apparent.

JUNCTION IMPACT ASSESSMENT

3.1.10. Detailed junction assessments have been undertaken for those junctions impacted. In order to retain a robust assessment, a fixed catchment has been adopted in scenario testing whereby all traffic has been accounted for and assigned (i.e. no account has been taken of behaviour change elements – therefore results represent a worst case). Junction assessments have been supported by an on-site operational review, collation of current operating technology (i.e. if signalised), and the development of local junction models, utilising industry standard and accepted software Transyt 16 and Junctions 10. The outputs from the exercise express the impact of the scheme in terms of the degree of saturation change, vehicle queue and forecast delay.

LINK CAPACITY ASSESSMENT

3.1.11. The methodology for the link capacity assessment follows the guidance provided within the Design Manual for Roads and Bridges (DMRB) and TA 79/99, which set out the standards for assessing road capacity in the UK. The assessment involved a systematic evaluation of road link characteristics to determine their capacity. These calculations provide the theoretical maximum number of vehicles that can be accommodated on a road link under ideal conditions. A series of assessment criteria has been adopted to evaluation road link performance and is discussed in later chapters of this report.

4 TRAFFIC BASELINE AND EXISTING CONDITIONS

4.1 DATA AVAILABILITY

4.1.1. Traffic data to underpin this study was made available by THC. This data as noted earlier in this report, extended to, but was not limited to:

- Junction turning counts;
- Automatic Number Plate Recognition Data; and
- VivaCity Real-Time traffic data.

4.1.2. This data formed the core datasets for this study and further detail on the data utilised, its characteristics and WSPs subsequent review is provided within this chapter.

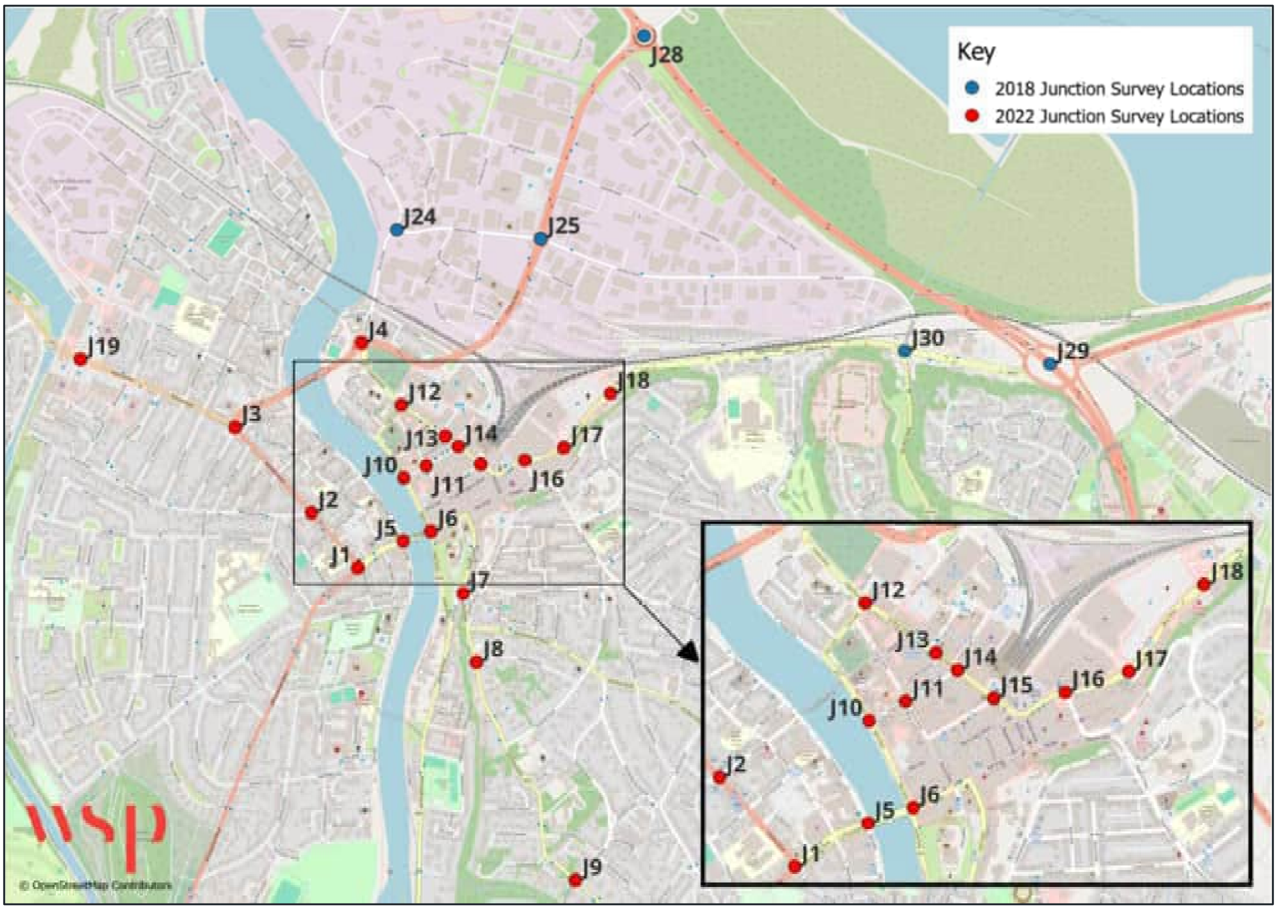
JUNCTION TURNING COUNTS

4.1.3. Classified junction turning count data was made available by THC. This data was collected on the following dates:

- Thursday 18th August 2022; and
- Thursday 15th February 2018.

4.1.4. Surveys covered a 12-hour period between 07:00 and 19:00. The survey locations are illustrated within Figure 4-1.

Figure 4-1 - Junction Survey Locations



AUTOMATIC NUMBER PLATE RECOGNITION SURVEYS

4.1.5. ANPR survey data was made available by THC. The data was collected on the following dates:

- Tuesday 21st September 2021; and
- Wednesday 22nd September 2021.

4.1.6. Surveys covered a 12-hour period between 07:00 and 19:00. The survey locations are illustrated within Figure 4-2.

Figure 4-2 - ANPR Survey Plan

4.2 DATA INTERROGATION AND VALIDATION

4.2.1. WSP has interrogated the data provided by THC to ascertain its suitability for the purposes of this study. An audit was conducted of the ANPR data and Junction Turning Count (JTC) data to ensure their respective validity.

4.2.2. Findings from the data audit included and were limited to:

- The northern section of Academy Street, specifically at the junction of Friar's Lane (B862) / Academy Street (B865) /Chapel Street (B865), the ANPR survey captured only the traffic travelling straight between Academy Street and Chapel Street. Consequently, trips originating from Friar's Lane were not disaggregated between through traffic and non-through traffic. While this presents a potential gap in the data, it has been assessed as manageable for the study's purposes. Given that trips from either Chapel Street or Friar's Lane have an equal likelihood of being through traffic, an estimated percentage from the available data was considered to provide a suitably reasonable basis for analysis.

- The JTC data provided by THC for the junctions depicted in Figure 4-1 was predominantly from surveys conducted on 18 August 2022, supplemented by data from 2018. Concerns regarding discrepancies due to the age of the 2018 data were addressed by reviewing historical trunk road traffic counters. This review indicated no significant changes in traffic volumes between 2018 and 2022 for the junctions in question, particularly those in the east of Inverness, such as Longman Roundabout and Raigmore Interchange. Therefore, the data was deemed reasonable for use in this study.
- The absence of queue data for network interrogation and model validation was acknowledged as a limitation and triggered the need for on-site review by WSP's model practitioners.
- Weekend survey data was not available; however, it was considered that the wider network peaks during the weekday morning and evening peaks represented a more critical and consequentially robust basis to consider the wider impact of the scheme.

4.3 EXISTING ACADEMY STREET TRAFFIC

4.3.1. According to 2022 survey data, between the hours of 07:00 to 19:00, the two-way traffic along Academy Street at the Queensgate / Margaret Lane junction exceeds 6,000 vehicles over 90% of which are cars and LGVs.

4.3.2. The daily profile shows a general increase in traffic flows throughout the day to then peak between the hours of 17:00 and 18:00. Throughout the day, cars make up the majority of vehicles at 82.1% heading eastbound and 82.7% in heading westbound. Two-way HGV volumes are less than 2% of the overall traffic going through Academy Street for the 12 hours. Daily profile and volumes for east- and westbound traffic can be seen in Figure 4-3 and Figure 4-4.

Figure 4-3 - Academy Street Eastbound Traffic Profile

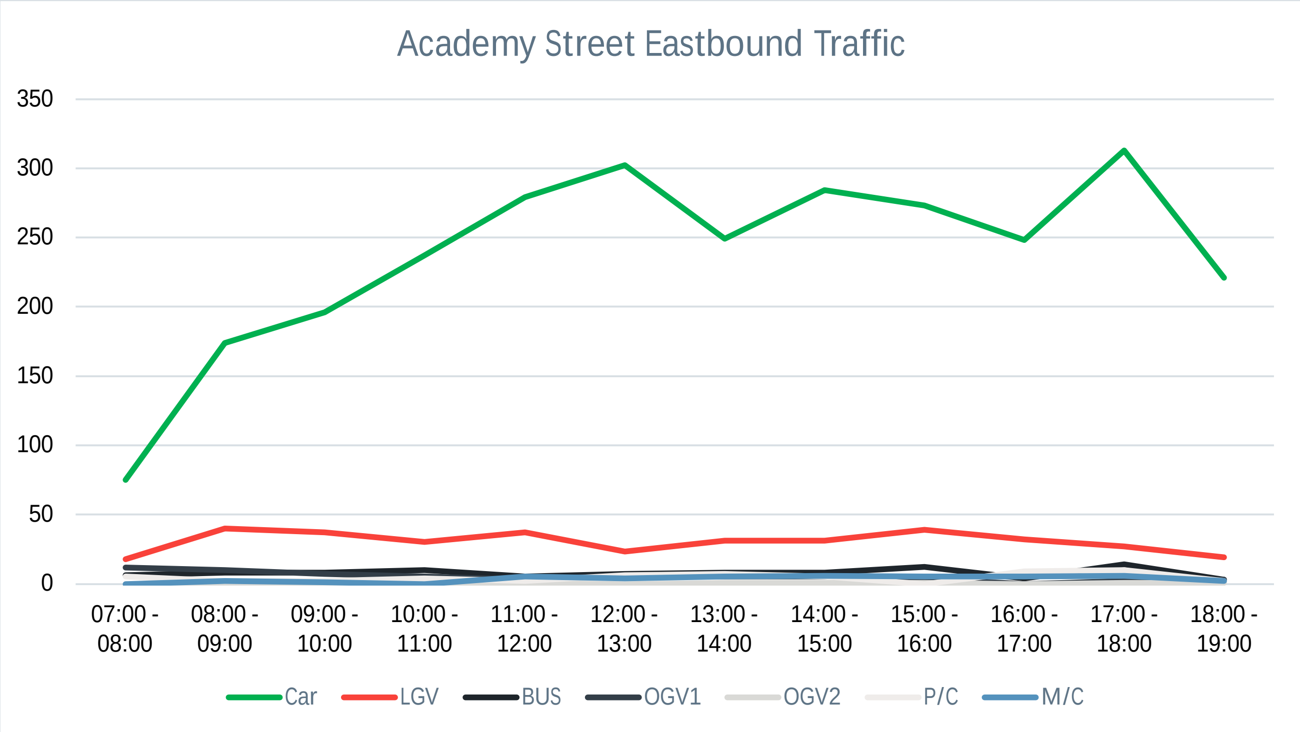
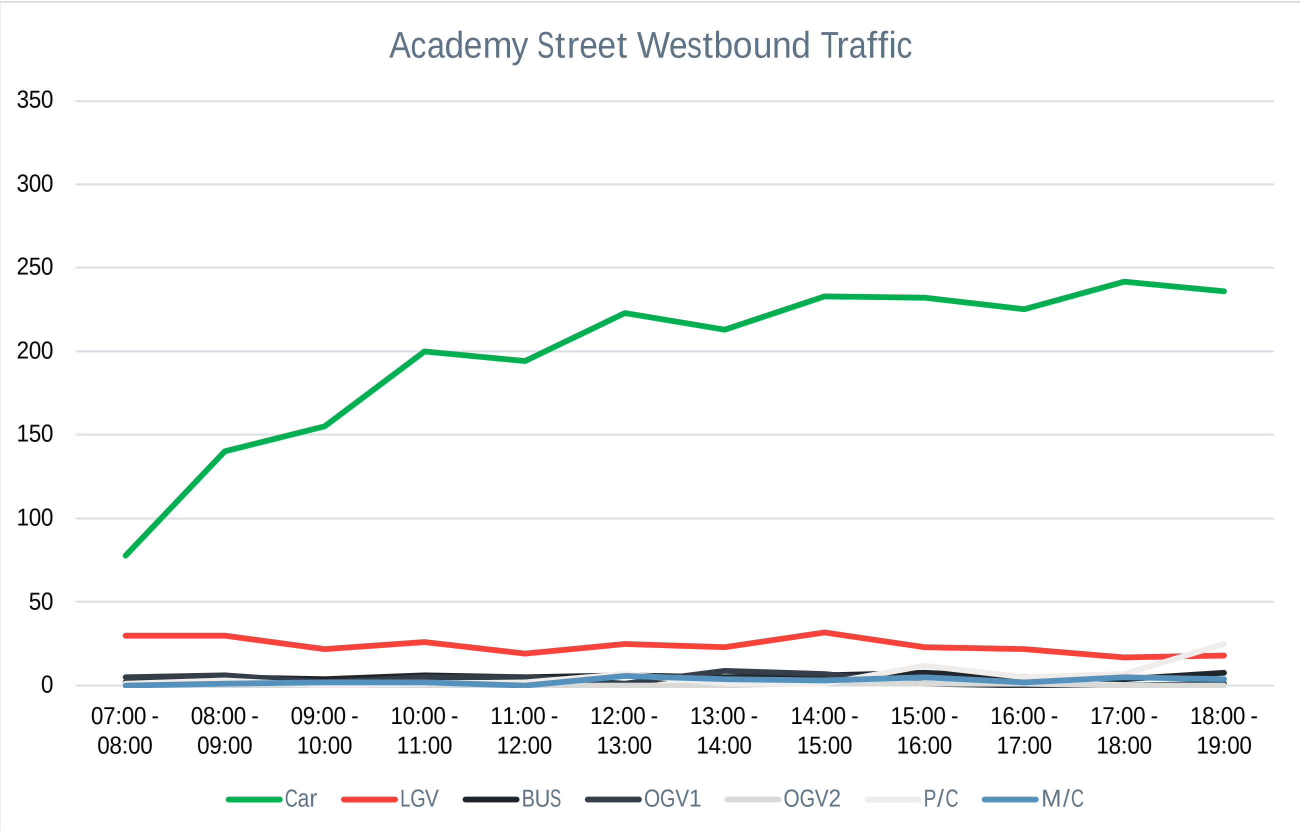


Figure 4-4 - Academy Street Westbound Traffic Profile



4.4 LOCAL ROAD NETWORK

4.4.1. Academy Street is strategically served by three main routes, each with distinct characteristics and serving different areas of the city:

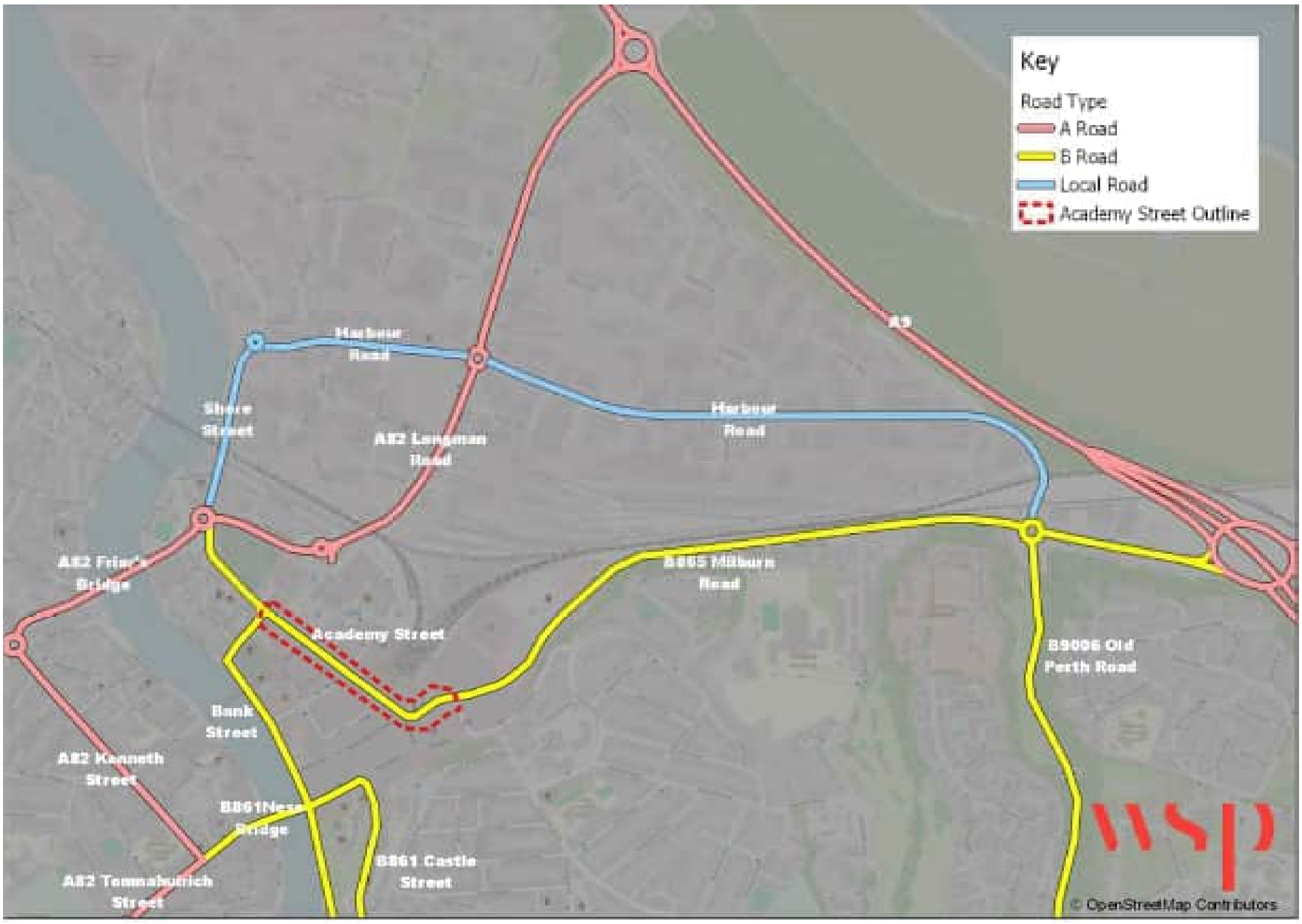
- The A82 Longman Road is a dual carriageway road with a central reserve and is subject to a 30mph speed limit. This route provides a link between the city centre and the A9, facilitating movements to the east and connecting to the predominantly industrial areas of Longman and West Seafield.
- To the west of the River Ness, the A82 extends over Friar's Bridge and forms a vital link to the communities of Merkinch, Scorguie, and Dalneigh. This connection underscores the importance of Academy Street in distributing traffic from the west side of the city.
- Millburn Road, running to the east of Academy Street, is a dual carriageway road subject to a 30mph speed limit. It serves as a key connector for the residential areas of Crown, Raigmore, and Drakies, providing access between the city centre and the A9 for residents.
- From the southwest of Inverness, access to Academy Street is facilitated via the A82 Tomnahurich Street, Ness Bridge, and Bank Street. This single carriageway road, also subject to a 30mph speed limit, provides a route to Ballifeary and further afield towards Loch Ness.

4.4.2. In addition to this, Harbour Road and Shore Street are located to the northeast of Academy Street and provide connections to the predominately commercial area of Longman. Harbour Road is a single carriageway road, subject to a 30mph speed limit. A level crossing, owned and operated by Network Rail, is located immediately north of the Millburn Road / Harbour Road junction. This can lead to short periods of queuing and delay whilst the crossing is down, with traffic returning to normal soon thereafter. It should be noted that this assessment cannot account for periods when the level crossing is down, however, the trip assignment exercise undertaken uses average travel times during the AM and PM peak and so does account slightly for delays at the crossing.

4.4.3. Shore Street is a single carriageway road, subject to a 30mph speed limit. Shore Street provides a connection between the commercial areas of Longman, west of the A82, and the northwest end of Academy Street, via Chapel Street.

4.4.4. The locations of the road network described is presented within Figure 4-5.

Figure 4-5 - Local Road Network



4.4.5. The existing traffic on these routes can anecdotally be characterised by a mix of commuter, commercial, and leisure traffic, reflecting the diverse functions of the areas they serve. The A82 Longman Road, being a dual carriageway, typically experiences higher traffic volumes, including a high proportion of heavy goods vehicles accessing the industrial estates.

4.4.6. Similarly, Millburn Road functions as a dual carriageway and plays a significant role in accommodating east-west traffic movements, experiencing considerable commuter traffic during peak periods.

4.4.7. The A82 Tomnahurich Street, despite being a single carriageway, acts as a corridor for traffic entering and exiting the city from the southwest of Academy Street. Its capacity is affected by its single carriageway configuration and the interactions with adjacent land uses and junctions.

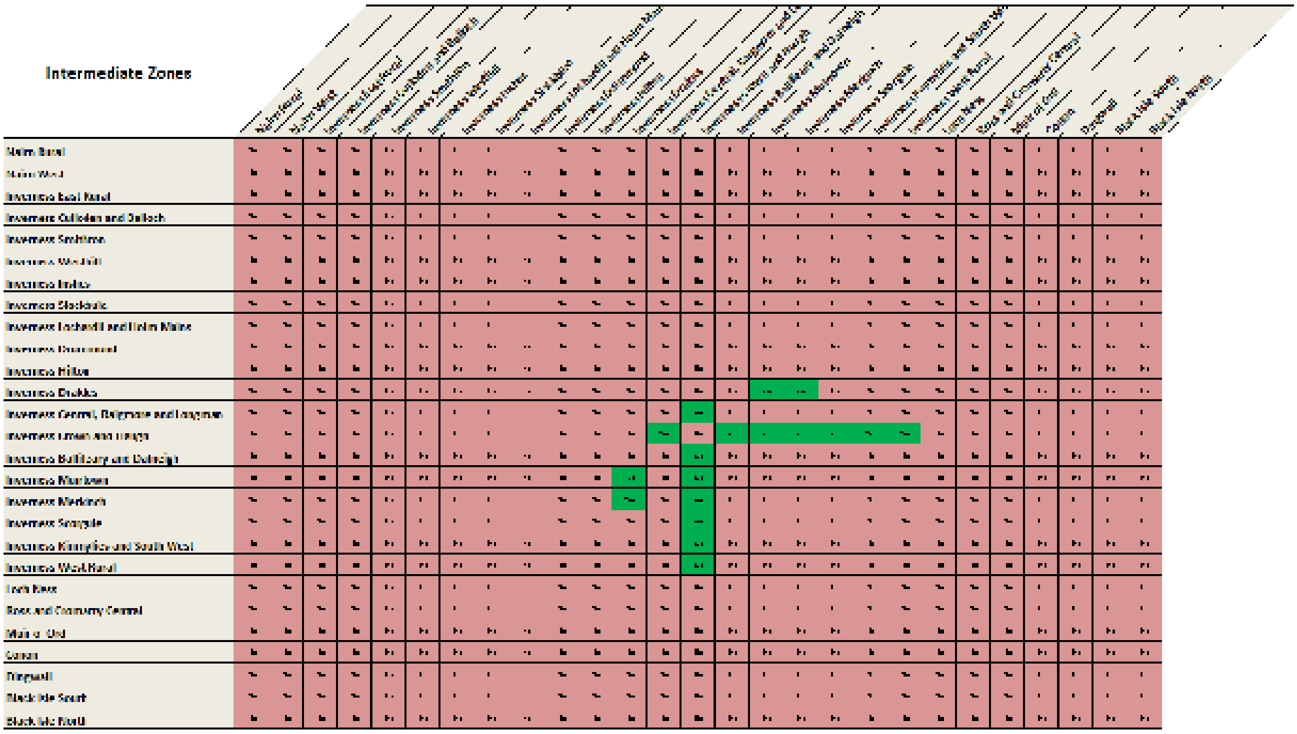
5 TRIP DISTRIBUTION

5.1 TRIP ORIGINS AND DESTINATIONS

5.1.1. To ascertain the origins and destinations of the through traffic on Academy Street, as noted within the methodology chapter of this report, Geographic Information System (GIS) software was employed alongside the most recent household survey data and journey to work data. This approach enabled the mapping of the working population in relation to their distance from Academy Street, providing a spatial distribution of those passing through Academy Street by vehicle.

5.1.2. Building on this analysis, Scottish Census Data and Journey to Work data was used to segment Inverness into several Intermediate Zones, each defined to reflect coherent demographic and travel behaviour characteristics, such as which zones were predominately residential and which were employment based. By utilising this detailed zonal approach, we developed a comprehensive origin-destination matrix to establish realistic zone-to-zone movements that may use Academy Street as a though road. This matrix was critical in identifying the traffic patterns along Academy Street, particularly in accurately projecting the volumes and types of traffic entering and exiting at the northwest and southeast ends of Academy Street. The results of the analysis are shown in Figure 5-1.

Figure 5-1 - Inverness O-D Matrix (Routing through Academy Street)



5.1.3. Figure 5-1 shows that the following zones could realistically utilise Academy Street as a direct route between them:

- Drakies;
- Crown and Haugh (though it is acknowledged that very little, if any, trips would originate from Haugh);
- Central, Raigmore and Longman;

- Ballifeary and Dalneigh;
- Muirtown;
- Merkinch;
- Scorguie;
- Kinmylies and South West; and
- West Rural.

TRIP ORIGINS

5.1.4. To further refine our understanding of where the through traffic entering Academy Street originated from, a gravity model was employed, focusing on the origin zones noted above. This model helped determine the proportion of journeys to Academy Street from each zone, calculated based on the number of residents of working age living there and their distance to Academy Street, known as attractivity. The model provides a reliable estimate of where most trips begin during the morning peak hours, when most people are commuting to work. The findings are detailed in Table 5-1.

Table 5-1 – Origin of through-trips entering Academy Street

Intermediate Zone	Attractivity (excluding Destination Zone)
Westbound	
Inverness Drakies	18.2%
Inverness Crown and Haugh	81.8%
Total Westbound	**100%**
Eastbound	
Inverness Central, Raigmore and Longman	14.9%
Inverness Ballifeary and Dalneigh	18.7%
Inverness Muirtown	31.8%
Inverness Merkinch	16.4%
Inverness Scorguie	8.5%
Inverness Kinmylies and South West	9.1%
Inverness West Rural	0.6%
Total Eastbound	**100%**

5.1.5. As indicated in Table 5-1, a significant number of westbound trips entering Academy Street from the east originate from the primarily residential area of Crown. The rest of the trips mainly come from the Drakies area.

5.1.6. Through trips heading eastbound onto Academy Street from the northwest likely originate from a wider range of zones. The majority come from Muirtown, with significant numbers also starting from areas close to Academy Street, including Longman, Merkinch, Ballifeary, and Dalneigh.

TRIP DESTINATIONS

5.1.7. Having identified where the traffic entering Academy Street during the AM peak comes from, the next step was to determine where these trips are going. This helps to create a complete picture of trip distribution and provides insights into potential congestion on alternative routes.

5.1.8. Journey to work data was extracted from the most recent Scottish Census to identify the working population of the previously mentioned intermediate zones. These areas typically include employment centres, retail areas, and other key destinations that generate notable employment within Inverness. Similar to the trip origin analysis, a gravity model was employed to analyse the working population of each zone and its respective distance to Academy Street.

5.2 AM PEAK TRAFFIC DISTRIBUTION

5.2.1. The results of this origin-destination analysis are presented in Tables 5-2 and 5-3. The model assumes that the amount of traffic between areas is directly linked to the number of people and inversely related to the distance they need to travel. In simple terms, the closer people live or work to Academy Street, the more likely they are to travel through it, and a larger local population means more traffic from that area.

Table 5-2 – Academy Street Through Traffic Distribution (Westbound) (AM Peak)

Zone From	Zone To	Academy St Distribution
Westbound		
Inverness Drakies	Inverness Muirtown	14.8%
Inverness Drakies	Inverness Merkinch	3.5%
Total from Inverness Drakies		**18.2%**
Inverness Crown and Haugh	Inverness Central, Raigmore and Longman	63.7%
Inverness Crown and Haugh	Inverness Ballifeary and Dalneigh	3.2%
Inverness Crown and Haugh	Inverness Muirtown	7.5%
Inverness Crown and Haugh	Inverness Merkinch	2.0%
Inverness Crown and Haugh	Inverness Scorguie	0.8%
Inverness Crown and Haugh	Inverness Kinmylies and South West	4.0%
Inverness Crown and Haugh	Inverness West Rural	0.6%
Total from Inverness Crown and Haugh		**81.8%**

Table 5-3 - Academy Street Through Traffic Distribution (Eastbound) (AM Peak)

Zone From	Zone To	Academy St Distribution
Eastbound		
Inverness Central, Raigmore and Longman	Inverness Crown and Haugh	14.9%
Inverness Ballifeary and Dalneigh	Inverness Crown and Haugh	18.7%
Inverness Muirtown	Inverness Drakies	1.7%
Inverness Muirtown	Inverness Crown and Haugh	30.1%
Total from Inverness Muirtown		**31.8%**
Inverness Merkinch	Inverness Drakies	0.8%
Inverness Merkinch	Inverness Crown and Haugh	15.6%
Total from Inverness Merkinch		**16.4%**
Inverness Scorguie	Inverness Crown and Haugh	8.5%
Inverness Kinmylies and South West	Inverness Crown and Haugh	9.1%
Inverness West Rural	Inverness Crown and Haugh	0.6%
Total to Inverness Crown and Haugh		**18.2%**

5.2.2. The largest proportion of westbound through traffic is attributed to vehicles travelling from the residential area of Crown to employment areas within central Inverness including Longman.

5.2.3. The largest eastbound traffic attraction is the Muirtown area, west of the River Ness, to Crown. In addition, there is forecast to be a high proportion of eastbound through traffic on Academy Street travelling from Ballifeary and Dalneigh as well as Merkinch to Crown.

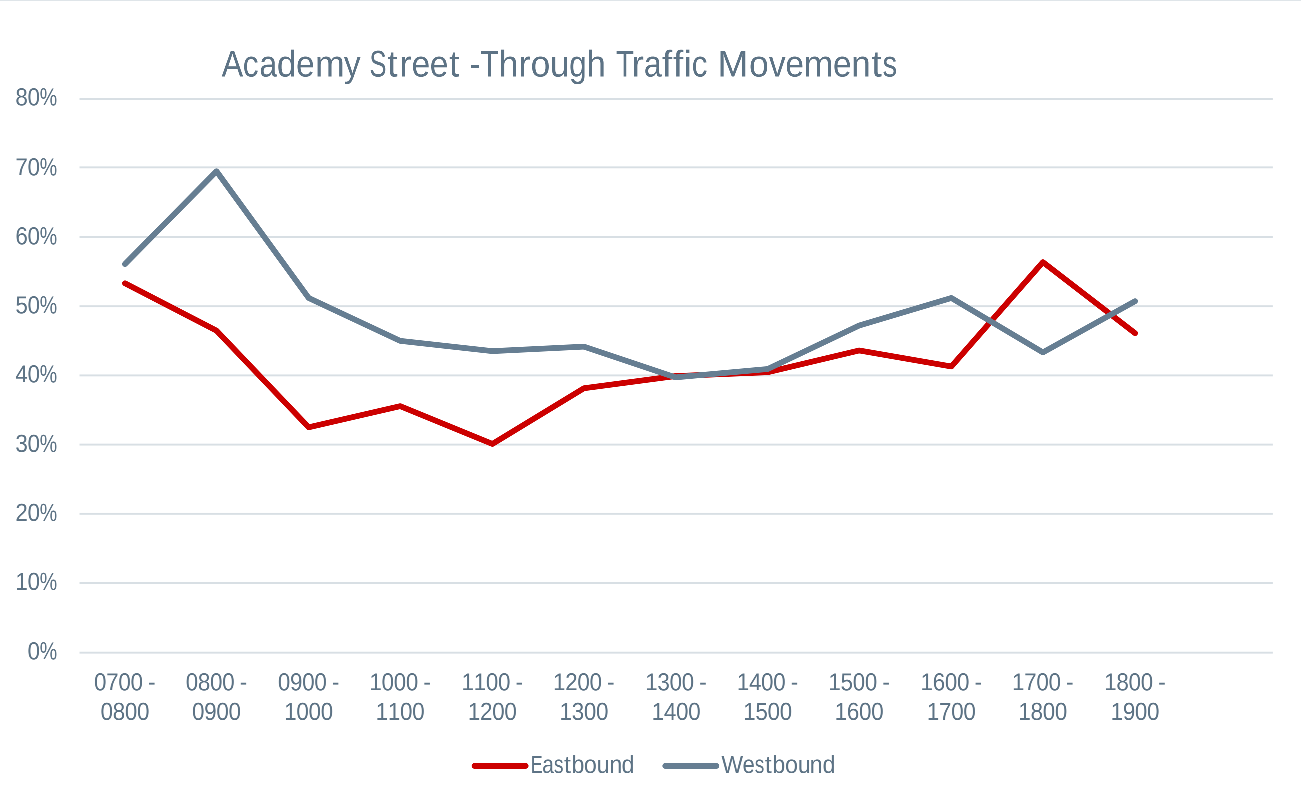
5.3 PM PEAK TRAFFIC DISTRIBUTION

5.3.1. In assessing the PM peak distribution of through trips on Academy Street, the analysis assumes a reversal of the travel patterns observed during the AM peak, as depicted in Tables 5-2 and 5-3. This reversal is predicated on the assumption that individuals return to their homes at the end of the working day. Therefore, the origin zones from the morning analysis become the destination zones in the evening, and vice versa. This assumption is based on standard commuting behaviour and allows for a simplified yet effective approach to modelling the PM peak traffic flows.

5.4 DERIVING THROUGH TRAFFIC

5.4.1. The ANPR data was interrogated to determine the volume of through traffic for each hour over a typical 12-hour weekday – aligned to the extent and duration of observed survey data. This analysis filtered the dataset to exclude vehicles that were parked or stopped within the area and focused solely on vehicles that utilised Academy Street as a through route both westbound and eastbound. The profile of through traffic movements expressed as a percentage of total traffic on Academy Street is illustrated within Figure 5-2.

Figure 5-2 - Through Traffic Movements (% of total)



5.4.2. The data, along with WSP's audit and analysis, have been discussed with both THC and the scheme's funder, Sustrans.

5.4.3. The percentage of through traffic captured from the ANPR surveys has been applied to the AM and PM peak volumes of traffic approaching the scheme. The levels of total through traffic are presented within Table 5-4.

Table 5-4 – Through Traffic Volumes (Passenger Car Units (PCUs))

	AM Peak Hour (08:15 – 09:15)		PM Peak Hour (16:30 -17:30)	
	Eastbound	**Westbound**	**Eastbound**	**Westbound**
Total traffic approaching Bus Gate (excluding bus)	245	233	310	315
Percentage through traffic from ANPR survey	46%	70%	41%	51%
Total through traffic to be displaced	114	162	128	161

5.4.4. The percentages gained from the ANPR analysis have been applied to the total eastbound and westbound through traffic totals shown in Tables 5-2 and 5-3. The resulting breakdown of trips is shown in Tables 5-5 and 5-6.

Table 5-5 – Academy Street Through Traffic Distribution (AM Peak)

Zone From	Zone To	Through traffic displaced
Westbound		
Drakies	Muirtown	**24**
Drakies	Merkinch	**6**
Crown and Haugh	Central, Raigmore and Longman	**103**
Crown and Haugh	Ballifeary and Dalneigh	**5**
Crown and Haugh	Muirtown	**12**
Crown and Haugh	Merkinch	**3**
Crown and Haugh	Scorguie	**1**
Crown and Haugh	Kinmylies and South West	**6**
Crown and Haugh	West Rural	**1**
Total Westbound AM		**162**
Eastbound		
Central, Raigmore and Longman	Crown and Haugh	**17**
Ballifeary and Dalneigh	Crown and Haugh	**21**
Muirtown	Drakies	**2**
Muirtown	Crown and Haugh	**34**
Merkinch	Drakies	**1**
Merkinch	Crown and Haugh	**18**
Scorguie	Crown and Haugh	**10**
Kinmylies and South West	Crown and Haugh	**10**
West Rural	Crown and Haugh	**1**
Total Eastbound AM		**114**

Table 5-6 - Academy Street Through Traffic Distribution (PM Peak)

Zone From	Zone To	Through traffic displaced
Westbound		
Muirtown	Drakies	**19**
Merkinch	Drakies	**4**
Central, Raigmore and Longman	Crown and Haugh	**82**
Ballifeary and Dalneigh	Crown and Haugh	**4**
Muirtown	Crown and Haugh	**10**
Merkinch	Crown and Haugh	**3**
Scorguie	Crown and Haugh	**1**
Kinmylies and South West	Crown and Haugh	**5**
West Rural	Crown and Haugh	**1**
Total Westbound PM		**128**
Eastbound		
Crown and Haugh	Central, Raigmore and Longman	**24**
Crown and Haugh	Ballifeary and Dalneigh	**30**
Drakies	Muirtown	**3**
Crown and Haugh	Muirtown	**48**
Drakies	Merkinch	**1**
Crown and Haugh	Merkinch	**25**
Crown and Haugh	Scorguie	**14**
Crown and Haugh	Kinmylies and South West	**15**
Crown and Haugh	West Rural	**1**
Total Eastbound PM		**161**

6 TRIP ASSIGNMENT

6.1 INTRODUCTION

6.1.1. Following the through traffic distribution exercise undertaken in Chapter 5, this section aims to understand how trips travelling between each origin-destination pair, which comprise the Academy Street through trips, will re-route once they cannot drive through Academy Street. This chapter discusses the findings from the origin-destination (O-D) analysis conducted to analyse the potential redistribution of traffic following the implementation of the scheme.

6.2 ROUTE CHOICE AND TRAFFIC ASSIGNMENT

6.2.1. To establish the impact following implementation of the scheme, online route mapping software (Google Maps) was employed to identify available route options, and their respective journey time during peak conditions.

6.2.2. Despite the assumption of reversed traffic flows in the PM peak, routing alternatives for both AM and PM peak hours were considered separately. This distinction is crucial as traffic behaviours and delays can vary significantly between these time periods. Factors such as differing congestion levels, variable traffic signal timings, and changes in road user composition (e.g. school drop-off and pick-up times) can all influence the optimal rerouting strategy.

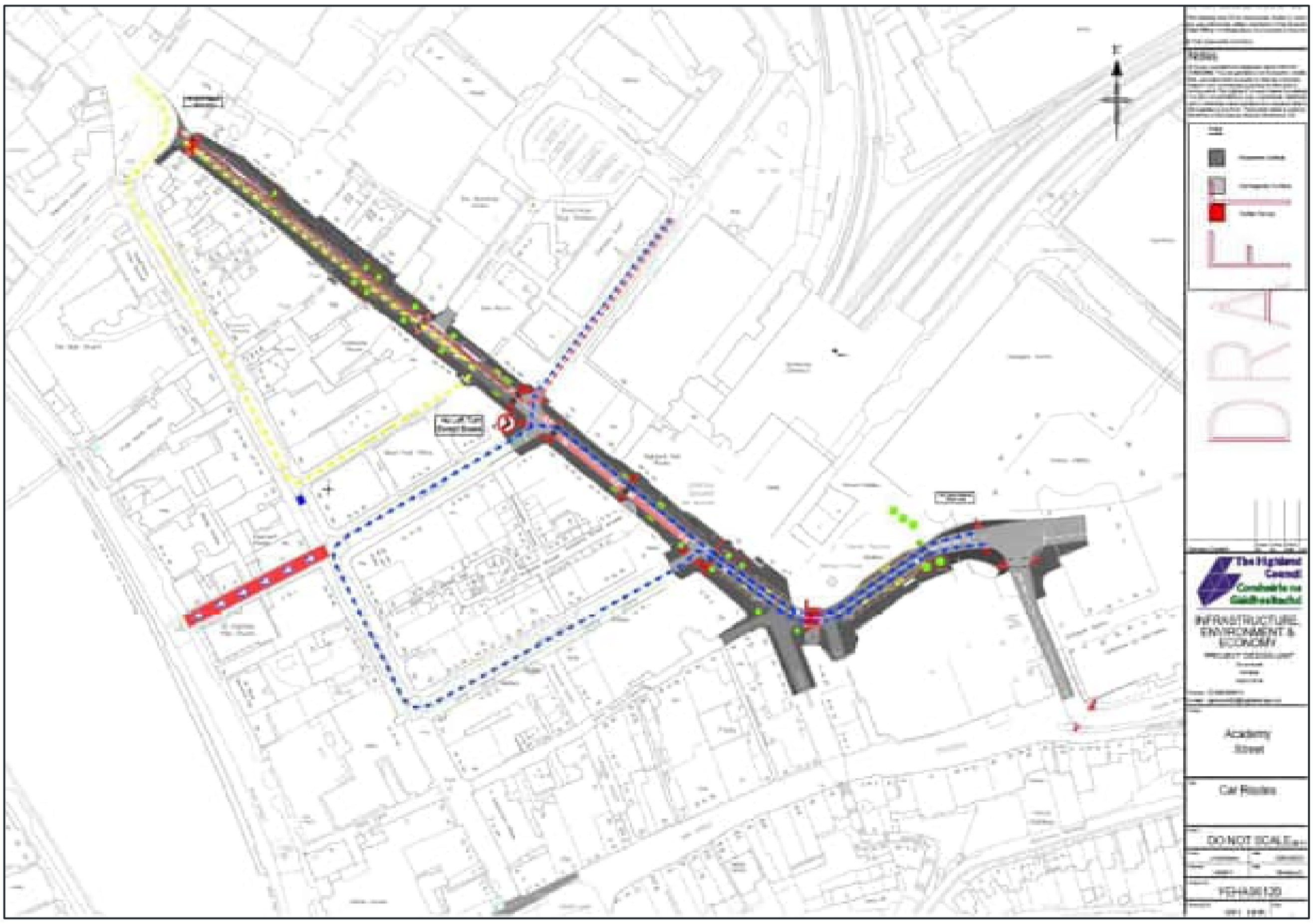
6.2.3. The resultant redistribution of movements is shown in Appendix B for each OD pairing in both the AM and PM Peak hours.

6.3 NON-THROUGH TRAFFIC REDISTRIBUTION

6.3.1. WSP understands that the proposed changes to traffic movements on Academy Street are a key component of the wider strategy to enhance the urban environment of Inverness City Centre. By rerouting non-through traffic and providing clear, well-signposted alternative routes, the plan aims to reduce congestion on Academy Street, improve air quality, and create a more pleasant and safe environment for pedestrians and cyclists.

6.3.2. Whilst the scheme focuses predominately on streetscape enhancements, complemented through the reduction in general traffic, there is also an effect on non through traffic (i.e. traffic which will still route into Academy Street). A review of the re-assignment of vehicle trips where Academy Street will remain their destination has been undertaken. The permitted movement plan for the scheme is presented within Figure 6-1. The movement plan forms a core part of the design strategy developed by THC.

Figure 6-1 - Scheme Traffic Movement Plan



EASTBOUND TRAFFIC REASSIGNMENT

6.3.3. As shown in Figure 6-1, eastbound traffic intending to visit Academy Street will be able to proceed as far as the junction with Strothers Lane. At this point, vehicles will be required to turn left, where they can return to the A82 or access the Rose Street multi-storey car park, the Inverness Rail Station car park and Inverness Bus Station. Whilst it is acknowledged that the majority of drivers to these areas will most likely be directly from the A82, it is nonetheless also available via Academy Street and Strothers Lane. This rerouting ensures that key parking facilities remain accessible while reducing through traffic on Academy Street itself.

CHANGES TO CHURCH STREET EASTBOUND TRAFFIC

6.3.4. The current flow of eastbound traffic on Church Street sees vehicles turning left onto Queensgate at its northwestern end. Under the new proposals, this movement will be restricted, and traffic will instead be directed onto Post Office Avenue. It is important to note that larger delivery vehicles will retain access to Queensgate, facilitated by retractable bollards that can be controlled to manage access as required.

WESTBOUND TRAFFIC FROM MILLBURN ROAD / CROWN ROAD

6.3.5. Traffic emerging westbound from Millburn Road and Crown Road in the vicinity of Eastgate Shopping Centre will experience a change in their available routes. Vehicles will be required to turn left at Union Street, adhering to the one-way system leading to Queensgate. From here, drivers will have the option to continue towards Strothers Lane or to loop back towards Millburn Road via the southern end of Academy Street. This adjustment in the traffic flow pattern is designed to maintain connectivity while preventing through traffic from impacting the core people focused areas.

EASTGATE SHOPPING CENTRE AND MORRISONS TRIPS

6.3.6. An assessment was required to examine the proportion of internal trips previously attributed to cars travelling to Eastgate Shopping Centre and Morrison's car park from the west, which will now require an alternative route due to the proposed restrictions on Academy Street. It is identified that trips originating from the west or north of Academy Street will need to utilise alternative routes such as Harbour Road and Millburn Road, or cross the Ness Bridge and pass through the Crown area to access these destinations.

6.3.7. As these trips were previously captured within the Automatic Number Plate Recognition (ANPR) cordon, they were classified as non-through trips. However, in the current context, they effectively constitute through trips on Academy Street. Existing traffic survey data was employed to determine the number of trips travelling to and from each of these car parks from the west. It is acknowledged that while a portion of the vehicle traffic arriving at the car parks from the west might originate from the Crown area, a robust assessment assumption is made: 90% of these trips have historically utilised Academy Street and will therefore require rerouting, while 10% are from the Crown area and might not be significantly impacted by the changes.

6.3.8. Furthermore, it is recognised that some drivers, especially those previously approaching Eastgate via Friars Bridge and Waterloo Bridge, might opt to park in Rose Street car park instead of taking a longer reroute. Anecdotal evidence from THC suggests that this could result in a 10-20% increase in patronage at Rose Street car park. Consequently, it has been assumed that 15% of the trips that currently approach the Eastgate via Friars Bridge and Waterloo Bridge will reroute to Rose Street car park rather than navigating through Harbour Road.

6.3.9. When determining the proportion of trips that will reroute from the west of the River Ness via Harbour Road or through the Crown area, the existing proportion of trips making turns onto or from Academy Street at the Chapel Street/Friars Lane/Academy Street junction has been critical. This analysis ensures that the impact of rerouting is assessed as accurately as possible, reflecting current travel patterns and anticipating changes in driver behaviour due to the new traffic scheme.

6.3.10. As previously noted, ANPR data was utilised to understand the split of traffic travelling on Academy Street. Consequently, Tables 6-1 and 6-2 provide a detailed breakdown of the total AM and PM non-through traffic moving eastbound and westbound. These figures establish a baseline for understanding the volume of traffic that will be impacted by the scheme. In addition, Table 6-3 shows the split of non-through traffic, attributed to city centre traffic (i.e. those who will still access Academy Street) and Eastgate / Morrisons traffic who will need to be redistributed following the change, which still includes the traffic originated from Crown who will be largely unaffected by the scheme in terms of route choice and those who may divert to the Rose Street car park.

Table 6-1 – Percentage of Non-Through Traffic Trips based on ANPR Survey (including Eastgate and Morrisons traffic)

	Day 1		**Day 2**		**Average**	
	Eastbound	Westbound	Eastbound	Westbound	Eastbound	Westbound
0700 - 0800	45%	47%	48%	41%	47%	44%
0800 - 0900	50%	28%	57%	33%	54%	30%
0900 - 1000	69%	48%	65%	50%	67%	49%
1000 - 1100	61%	53%	67%	57%	64%	55%
1100 - 1200	67%	57%	72%	56%	70%	57%
1200 - 1300	63%	52%	61%	60%	62%	56%
1300 - 1400	62%	60%	58%	61%	60%	60%
1400 - 1500	56%	60%	63%	58%	60%	59%
1500 - 1600	58%	52%	54%	53%	56%	53%
1600 - 1700	63%	44%	55%	54%	59%	49%
1700 - 1800	47%	60%	40%	54%	44%	57%
1800 - 1900	54%	54%	54%	45%	54%	49%
Average	59%	52%	59%	52%	59%	52%

Table 6-2 – Volume of Non-Through Traffic Trips at Peak Hours (including Eastgate and Morrisons traffic)

Peak Hour	**Average % Non-Through trips**		**Volume Non-Through Trips (PCUs)**	
	Eastbound	Westbound	Eastbound	Westbound
AM Peak (08:15 – 09:15)	54%	30%	131	71
PM Peak (16:30-17:30)	59%	49%	182	154

Table 6-3 – Volume of Trips Visting City Centre and Visiting Eastgate Shopping Centre / Morrisons Car Parks

Peak Hour	**City Centre Trips to be Redistributed (PCUs)**		**Eastgate / Morrisons Trips to be Redistributed (PCUs)**	
	Eastbound	Westbound	Eastbound	Westbound
AM Peak (08:15 – 09:15)	45	35	86	36
PM Peak (16:30-17:30)	81	43	101	110

7 THRESHOLD ASSESSMENT

7.1 IMPACT CRITERIA

7.1.1. The threshold assessment was conducted by analysing traffic flow data at junctions within the anticipated area of influence of the scheme. This was performed utilising forecast traffic volumes reflecting post scheme implementation, which are then compared to a without scheme situation.

7.1.2. A threshold impact of 5% has been adopted as a measure to determine the likelihood of a material or indeed perceivable impact on the local network. Where an increase of 5% or more was established on any approach to a junction, that location was then subject to a detailed assessment.

7.2 AREA OF INFLUENCE

7.2.1. The area of influence in a threshold assessment refers to the geographical extent within the transport network that is likely to be affected by the proposed changes. It encompasses all the routes and junctions where traffic conditions may change as a result of the proposed changes at Academy Street.

7.2.2. The threshold assessment plays a pivotal role in defining the area of influence for a study network. By identifying junctions where traffic flows exceed the threshold for significant change, typically set at a 5% increase in traffic movements, the assessment delineates the boundaries within which detailed traffic modelling and analysis are required. The criteria for determining the area of influence are based on several factors, including the scale of the proposed change, the existing traffic patterns, and the capacity of the surrounding road network. The threshold assessment helps to ensure that all potentially impacted junctions are included within the study network, thus providing a comprehensive understanding of the implications of the proposals at Academy Street.

7.3 THRESHOLD IMPACT RESULTS

7.3.1. The threshold impact results for the AM and PM network peak hours are presented within Table 7-1 and Table 7-2.

Table 7-1 – AM Peak Threshold Assessment Results

Junction	Approach	2025 Base (PCUs)	2025 Base +Redistribution (PCUs)	Percentage Increase (%)
J1	A – Kenneth Street	494	531	8%
J1	B – Young Street	315	344]	9%
J2	C – A82 Kenneth Street (S)	387	412	6%
J5	B – Ness Bridge	538	566	5%
J5	D – Young Street	436	479	10%
J6	B – Bridge Street	457	498	9%
J6	D – Ness Bridge	419	461	10%
J7	A – B861 Castle Street	488	532	9%
J7	C – B861	406	516	27%

Junction	Approach	2025 Base (PCUs)	2025 Base +Redistribution (PCUs)	Percentage Increase (%)
J8	A – Culduthel Road (N)	160	229	43%
J8	B – Mayfield Road	244	288	18%
J13	D – Post Office Avenue	11	42	287%
J24	B – Harbour Road (W)	234	343	47%
J25	A – Harbour Road (W)	251	275	10%
J25	C – Harbour Road	539	677	26%
J30	B – B9006	432	495	15%
J30	D – Harbour Road (N)	400	488	2%

Table 7-2 – PM Peak Threshold Assessment Results

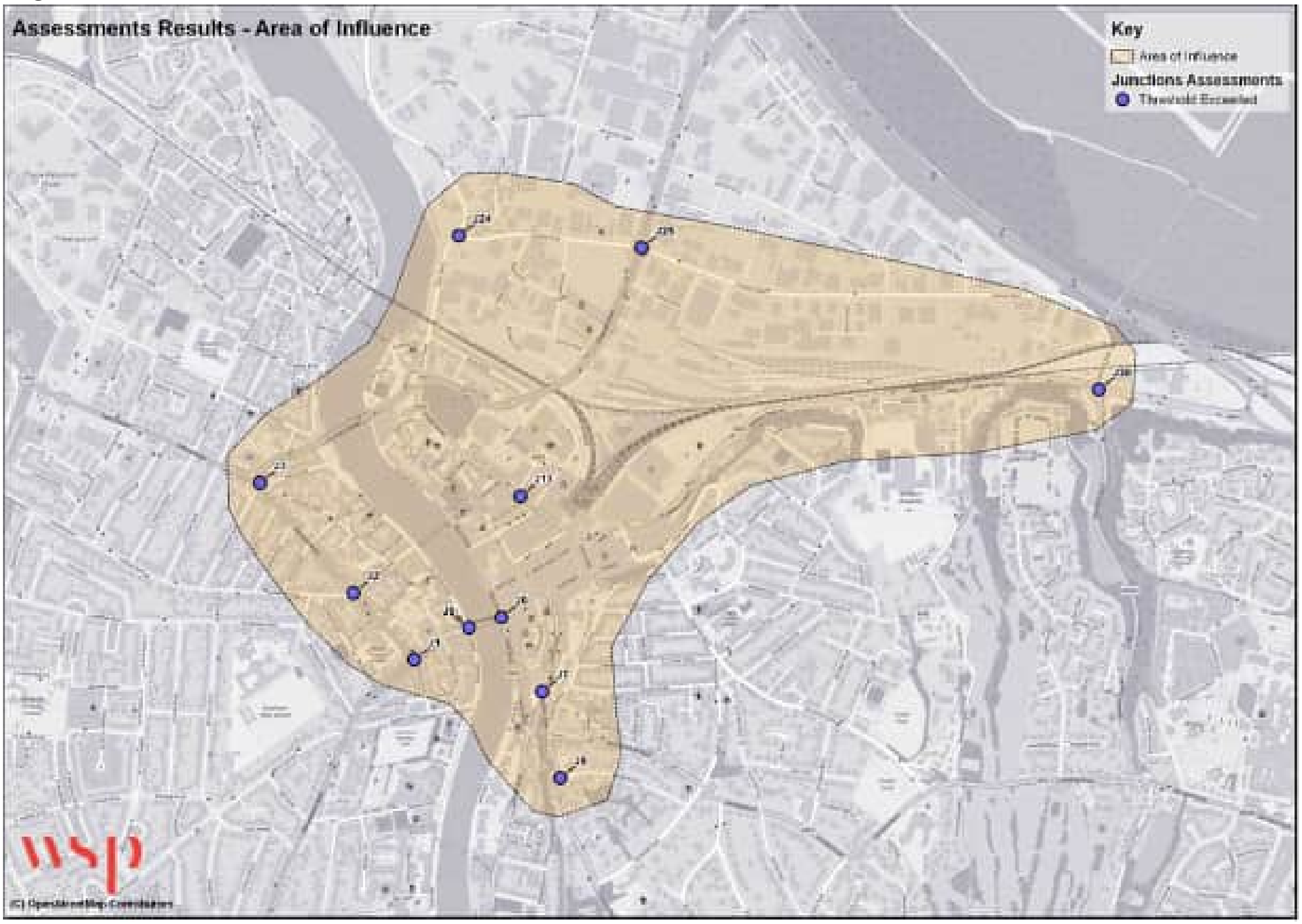
Junction	Approach	2025 Base (PCUs)	2025 Base +Redistribution (PCUs)	Percentage Increase (%)
J1	B – Young Street	405	501	24%
J2	C – Kenneth Street	464	526	13%
J3	D – A82 Kenneth Street	532	591	11%
J5	B – Ness Bridge	603	700	16%
J6	B – Bridge Street	465	622	34%
J7	A - B861 Castle Street	541	709	31%
J7	C – B861	478	536	12%
J8	A – Culduthel Road (N)	218	270	24%
J8	B – Mayfield Road	303	471	56%
J13	D – Post Office Avenue	23	107	368%
J24	B – Harbour Road (W)	315	350	11%
J25	A – Harbour Road (W)	338	437	29%
J25	C – Harbour Road	767	858	12%
J30	D – Harbour Road	664	827	25%

7.3.2. The assessment has highlighted that the following junctions would see the 5% threshold impact breached post scheme implementation:

- Junction 1 - Tomnahurich Street / Kenneth Street
- Junction 2 - Fairfield Road / Greig Street
- Junction 3 - Telford Street / Harrowden Road / Friar's Bridge
- Junction 5 - Young Street / Huntly Street
- Junction 6 - Castle Road / Bank Street / Ness Bridge
- Junction 7 - Castle Street / View Place
- Junction 8 - Castle Street / Mayfield Road
- Junction 13 – Academy Street / Post Office Avenue / Margaret Lane
- Junction 24 - Cromwell Road / Harbour Road
- Junction 25 - Longman Road / Harbour Road
- Junction 30 - Milburn Road / Harbour Road

7.3.3. These locations define the area of influence of the scheme as shown in Figure 7-1.

Figure 7-1 - Area of Influence



8 JUNCTION IMPACT ASSESSMENT

8.1 TRAFFIC GROWTH

8.1.1. National Road Traffic Forecast (NRTF) low growth has been utilised to factor the observed traffic survey data to the anticipated 2025 scheme opening year. A blend of 2018 and 2022 survey data has been used. Therefore, the following growth factors have been applied:

- 2018-2025 – 1.046; and
- 2022-2025 – 1.016.

8.1.2. The 2025 Base AM and PM peak hour network flows diagrams are contained within Appendix B.

8.2 ASSESSMENT PERIODS

8.2.1. The network peaks have been identified as:

- AM Peak: 08:15 – 09:15 hrs; and
- PM Peak: 16:30 – 17:30 hrs.

8.2.2. It should be noted that all values have been converted to Passenger Car Units (PCUs) for the purpose of this assessment.

8.3 SCENARIO FORECASTS

8.3.1. The following AM and PM scenarios have been tested as part of this assessment:

- Scenario 1 - 2025 Opening Year (No Scheme)
- Scenario 2 - 2025 Opening Year + Scheme

8.4 DETAILED ASSESSMENT LOCATIONS

8.4.1. The results of the threshold assessment have identified those junctions which require detailed analysis and assessment. The junctions are as follows:

- Junction 1 - Tomnahurich Street / Kenneth Street
- Junction 2 - Fairfield Road / Greig Street
- Junction 3 - Telford Street / Harrowden Road / Friar's Bridge
- Junction 5 - Young Street / Huntly Street
- Junction 6 - Castle Road / Bank Street / Ness Bridge
- Junction 7 - Castle Street / View Place
- Junction 8 - Castle Street / Mayfield Road
- Junction 13 – Academy Street / Post Office Avenue / Margaret Lane
- Junction 24 - Cromwell Road / Harbour Road
- Junction 25 - Longman Road / Harbour Road
- Junction 30 - Milburn Road / Harbour Road

8.4.2. These junctions are predicted to experience a net increase in total traffic following the proposed changes to Academy Street. The redistributed traffic has resulted in a notable increase in traffic on one or more approaches of the above junctions between scenario 1 and 2 and, as a result, local junction modelling has been used to understand the effects in terms of capacity and delay.

8.4.3. In addition to the junctions previously mentioned, the following junctions that are affected by the re-routing as part of the scheme within the city centre have also been assessed. These include:

- Junction 10 - Bank Street / Fraser Street
- Junction 11 – Fraser Street / Church Street
- Junction 12 – Academy Street / Friar's Lane / Chapel Street
- Junction 14 – Academy Street / Queens Gate / Strother's Lane

8.4.4. The purpose of these additional assessments is to give THC confidence that the proposals will not have a determinantal impact on key routes for public transport vehicles following the redistribution of the city centre trips shown in Table 6-3.

8.5 ASSESSMENT SOFTWARE

8.5.1. Priority junctions and roundabouts have been assessed using the industry standard Junctions 10™ program. Junctions 10™ provides an indication of the performance of a junction in terms of the Ratio of Flow to Capacity (RFC) and queue length on the approaches to the junction. An RFC value of 0.85 (85%) or lower is considered to indicate a junction which is operating within capacity. RFC values between 0.85 and 1.0 indicate variable operating conditions, with the potential for queues to build-up during the modelling period. RFC values in excess of 1.0 indicate that the junction is operating over-capacity. The other measures of junction performance are mean maximum queue (PCU) and mean delay per vehicle (s) which should be considered to determine the operation of the junction.

8.5.2. In order to assess the signalised junctions identified within the study network, the TRL TRANSYT16 software package has been used. TRANSYT16 is an industry standard software tool which allows traffic engineers to model signalised junctions and their effect on capacities and queuing. TRANSYT also allows for the optimisation of traffic signals to increase capacity and reduce delays at junctions.

8.5.3. The TRANSYT16 model presents results as percentage degrees of saturation (DoS) and corresponding likely traffic queues for each modelled link of the junction. It is generally accepted that DoS values of 90% or less on individual links represent satisfactory signal operation but should be viewed with cycle times and queue lengths. DoS values between 90% and 100% indicate variable operating conditions, with the potential for queues to build-up during the modelling period. DoS values in excess of 100% indicate that the junction is operating over-capacity.

8.5.4. Signal specification forms for the existing signalised junctions within the study network have been provided by THC and have been utilised to aid in model calibration. Out with the scheme, the general configuration, phasing and staging of each junction included within the study networks have been assumed to remain largely unchanged. Therefore, WSP has adopted existing signal specification data and have utilised, where applicable, existing phasing, staging and intergreen data to inform the traffic models. Models were further validated through on-site observations undertaken during a site visit.

8.6 ASSESSMENT RESULTS

JUNCTIONS 1, 5 AND 6 – B861 CORRIDOR

8.6.1. The following junctions have been modelled together within TRANSYT16.

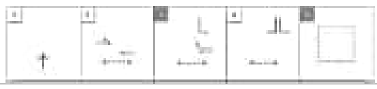
- Junction 1 – Kenneth Street / Tomnahurich Street;
- Junction 5 – B861 Young Street / Huntly Street / Ness Walk; and
- Junction 6 – B861 Bridge Street / B862 Bank Street / Castle Road.

8.6.2. The Cell Transmission Modelling (CTM) feature within TRANSYT allows the modelling software to effectively show blocking back to previous links. This can be used to evidence what may happen if part of the modelled network exceeds capacity.

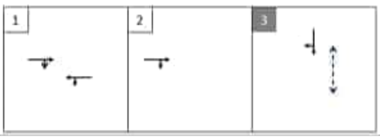
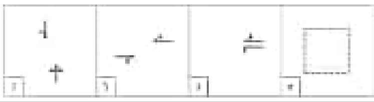
8.6.3. The existing signalised junctions currently operate with SCOOT[2], resulting in constantly changing cycle times and green times based on the varying traffic conditions. However, due to limitations with TRANSYT, the junction has been modelled with a fixed cycle time, with rigid green times for each phase. This means that in reality, the operational performance could be better than that reported by this assessment process.

8.6.4. Whilst traffic signal specification data has been provided, in order to better understand the cycle times, staging and general operation of the junctions on this corridor, WSP undertook a site visit on the 7th February 2024 to observe the junction operation. These observations are noted in Table 8-1.

Table 8-1 – Site Visit Observations

Junction	Picture	Observation
Junction 1 - A82 Kenneth Street/B861 Tomnahurich Street/Little Kenneth Street/A82 Tomnahurich Street	 	• Signals recently updated. • On-crossing detection installed for pedestrians. • Strange signal head configuration on the A82 Kenneth Street (nearside primary) (full green aspect but looks like a left-turn filter) (pictured) • Stages 3 and 5 demand dependant. • Pedestrian crossing over Little Kenneth Street (south) can operate "walk with traffic" outwith stage 5.

[2] SCOOT, which stands for Split Cycle Offset Optimisation Technique, is an adaptive traffic control system that adjusts signal timings to optimize traffic flow at junctions based on real-time traffic conditions. Developed in the UK, SCOOT aims to reduce delays and congestion by continuously measuring traffic via detectors embedded in the road and using this data to predict traffic conditions. The system dynamically changes the green light duration at intersections to synchronise traffic movement efficiently across multiple junctions, thereby enhancing the overall efficiency of the road network..

Junction	Picture	Observation
Junction 5 – B861 Young Street / Huntly Street / Ness Walk	  	• Variable cycle time • No controlled crossings over three arms, only north-south over the B861 Ness Bridge (pictured) • No right-turn indicative arrow for the B861 Young Street Arm (2) • Stage 3 called on demand (Inductive loops in the lane)
Junction 6 – B861 Bridge Street / B862 Bank Street / Castle Road.	 	• Variable cycle time (between 72 and 135 seconds) • Advance stop line and early-start for cycles from the B861 Ness Bridge • Crossing north-south over B861 Bridge Street happens in one movement (pictured). Remainder of old staggered crossing now 'cycle parking'.

8.6.5. It has been noted during the site visit that junctions operate with a variable cycle time between 72 and 135 seconds depending on the on-demand stages that are called. For the purposes of this assessment, a common cycle time of 120 seconds has been modelled with all stages called every cycle, to provide a robust assessment of the performance of the junctions.

JUNCTION 1 – ASSESSMENT RESULTS

8.6.6. The operation of the existing Kenneth Street / Tomnahurich Street signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-2 and 8-3.

Table 8-2 – Junction 1 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Tomnahurich Street Right	1/1	28.0	2.1	8	28.86
Tomnahurich Street Ahead	1/2	38.0	3.1	35	
Kenneth Street Ahead / Left	2/1	11.0	0.8	47	
Kenneth Street Right	2/2	25.0	1.8	49	
Tomnahurich Street Left	3/1	27.0	4.5	16	
Tomnahurich Street Ahead	3/2	59.0	6.2	48	
Kenneth Street Left	4/1	25.0	3.9	21	
Kenneth Street Right	4/2	64.0	9.7	47	
Cycle Time	120s	Junction PRC		40.6%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Tomnahurich Street Right	1/1	38.0	2.7	8	35.06
Tomnahurich Street Ahead	1/2	44.0	3.6	37	
Kenneth Street Ahead / Left	2/1	31.0	2.4	50	
Kenneth Street Right	2/2	35.0	2.6	51	
Tomnahurich Street Left	3/1	19.0	3.1	16	
Tomnahurich Street Ahead	3/2	55.0	6.1	46	
Kenneth Street Left	4/1	32.0	5.0	22	
Kenneth Street Right	4/2	63.0	9.4	46	
Cycle Time	120s	Junction PRC		42.9%	

Table 8-3 – Junction 1 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Tomnahurich Street Right	1/1	28.0	2.4	9	32.55
Tomnahurich Street Ahead	1/2	46.0	3.8	37	
Kenneth Street Ahead / Left	2/1	11.0	0.8	47	
Kenneth Street Right	2/2	25.0	1.8	49	
Tomnahurich Street Left	3/1	27.0	4.5	16	
Tomnahurich Street Ahead	3/2	59.0	6.2	48	
Kenneth Street Left	4/1	31.0	4.9	22	
Kenneth Street Right	4/2	63.0	9.5	46	
Cycle Time	120s	Junction PRC		42.9%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Tomnahurich Street Right	1/1	42.0	2.6	8	39.60
Tomnahurich Street Ahead	1/2	65.0	5.3	41	
Kenneth Street Ahead / Left	2/1	31.0	2.4	50	
Kenneth Street Right	2/2	35.0	2.6	51	
Tomnahurich Street Left	3/1	19.0	3.1	16	
Tomnahurich Street Ahead	3/2	55.0	6.1	46	
Kenneth Street Left	4/1	34.0	5.5	23	
Kenneth Street Right	4/2	63.0	9.4	46	
Cycle Time	120s	Junction PRC		38.5%	

JUNCTION 5 ASSESSMENT RESULTS

8.6.7. The operation of the existing B861 Young Street / Huntly Street / Ness Walk signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-4 and 8-5.

Table 8-4 – Junction 5 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Ahead	5/1	21.0	1.5	4	29.86
Young Street Right	5/2	21.0	1.5	4	
Huntly Street Ahead / Right	6/1	16.0	0.9	22	
Ness Bridge Ahead / Left	7/1	27.0	4.4	2	
Ness Bridge Ahead	7/2	12.0	1.5	2	
Cycle Time	120s	Junction PRC		233.3%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Ahead	5/1	22.0	1.5	4	35.06
Young Street Right	5/2	23.0	1.6	4	
Huntly Street Ahead / Right	6/1	24.0	1.3	23	
Ness Bridge Ahead / Left	7/1	28.0	5.9	3	
Ness Bridge Ahead	7/2	15.0	1.5	2	
Cycle Time	120s	Junction PRC		221.4%	

Table 8-5 – Junction 5 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Ahead	5/1	23.0	1.5	4	32.55
Young Street Right	5/2	23.0	1.5	4	
Huntly Street Ahead / Right	6/1	16.0	0.9	22	
Ness Bridge Ahead / Left	7/1	28.0	4.6	3	
Ness Bridge Ahead	7/2	13.0	1.6	2	
Cycle Time	90s	Junction PRC		221.4%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Ahead	5/1	23.0	1.5	4	39.6
Young Street Right	5/2	23.0	1.6	4	
Huntly Street Ahead / Right	6/1	24.0	1.3	23	
Ness Bridge Ahead / Left	7/1	31.0	4.6	4	
Ness Bridge Ahead	7/2	18.0	3.0	3	
Cycle Time	90s	Junction PRC		190.3%	

JUNCTION 6 ASSESSMENT RESULTS

8.6.8. The operation of the existing B861 Young Street / Huntly Street / Ness Walk signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-6 and 8-7.

Table 8-6 – Junction 6 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Left	8/1	27.0	1.9	24	29.86
Young Street Ahead	8/2	62.0	5.9	30	
Bank Street Ahead / Left	9/1	51.0	5.9	46	
Bank Street Right	9/2	36.0	4.1	42	
Bridge Street Ahead / Left	10/1	38.0	4.5	23	
Bridge Street Right	10/2	56.0	4.4	59	
Castle Road Left	11/1	39.0	2.6	54	
Castle Road Ahead / Right	11/2	70.0	6.4	66	
Cycle Time	120s	Junction PRC		28.6%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Left	8/1	36.0	3.1	29	35.06
Young Street Ahead	8/2	60.0	6.4	33	
Bank Street Ahead / Left	9/1	86.0	12.8	70	
Bank Street Right	9/2	44.0	5.2	44	
Bridge Street Ahead / Left	10/1	44.0	4.5	24	
Bridge Street Right	10/2	42.0	3.1	54	
Castle Road Left	11/1	42.0	2.8	55	
Castle Road Ahead / Right	11/2	55.0	4.7	58	
Cycle Time	120s	Junction PRC		4.7%	

Table 8-7 – Junction 6 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Left	8/1	16.0	1.5	22	32.55
Young Street Ahead	8/2	80.0	8.8	38	
Bank Street Ahead / Left	9/1	56.0	6.7	48	
Bank Street Right	9/2	33.0	3.8	42	
Bridge Street Ahead / Left	10/1	43.0	4.5	24	
Bridge Street Right	10/2	56.0	4.4	59	
Castle Road Left	11/1	39.0	2.6	54	
Castle Road Ahead / Right	11/2	71.0	6.6	67	
Cycle Time	90s	Junction PRC		12.5%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Young Street Left	8/1	28.0	2.3	27	39.6
Young Street Ahead	8/2	70.0	7.9	37	
Bank Street Ahead / Left	9/1	89.0	13.9	77	
Bank Street Right	9/2	36.0	4.2	42	
Bridge Street Ahead / Left	10/1	58.0	4.8	28	
Bridge Street Right	10/2	55.0	4.4	59	
Castle Road Left	11/1	42.0	2.8	55	
Castle Road Ahead / Right	11/2	60.0	5.2	60	
Cycle Time	90s	Junction PRC		1.1%	

JUNCTION 2 ASSESSMENT RESULTS

8.6.9. The operation of the existing A92 (Kenneth Street) / Fairfield Road / Greig Street priority junction has been assessed using JUNCTIONS 10™ (PICADY) and the results of the assessment are shown in Table 8-8 and Table 8-9.

Table 8-8 – Junction 2 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A – A82 (N)	0.07	4.49	0.10	0.07	4.61	0.10
B – Greig Street	0.12	12.42	0.10	0.08	12.06	0.10
C - A82 (S)	0.01	4.60	0.00	0.03	4.43	0.00
D – Fairfield Road	0.09	11.30	0.10	0.11	12.09	0.10

Table 8-9 – Junction 2 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A – A82 (N)	0.05	4.40	0.10	0.05	4.57	0.10
B – Greig Street	0.13	12.80	0.10	0.08	12.55	0.10
C - A82 (S)	0.01	4.55	0.00	0.03	4.28	0.00
D – Fairfield Road	0.12	11.94	0.10	0.13	12.81	0.10

JUNCTION 3 ASSESSMENT RESULTS

8.6.10. The operation of the existing Telford Street / Harrowden Road / A82 (Friar's Bridge) / A82 (Kenneth Street) / Wells Street roundabout has been assessed using JUNCTIONS 10™ (ARCADY) and the results of the assessment are shown in Table 8-10 and Table 8-11.

Table 8-10 – Junction 3 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A - A82 Friar's Bridge	0.41	2.45	0.7	0.48	2.82	0.9
B - Wells Street	0.02	7.11	0	0.05	8.7	0.1
C - A82 Kenneth Street	0.58	9.39	1.4	0.71	14.89	2.3
D - Harrowden Road	0.23	6.02	0.3	0.36	8.34	0.5
E - Telford Street	0.62	6.99	1.6	0.64	7.8	1.7

Table 8-11 – Junction 3 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A - A82 Friar's Bridge	0.4	2.45	0.7	0.45	2.66	0.8
B - Wells Street	0.02	7.15	0	0.04	8.02	0
C - A82 Kenneth Street	0.58	9.43	1.4	0.74	15.81	2.7
D - Harrowden Road	0.23	5.98	0.3	0.36	8.38	0.5
E - Telford Street	0.62	6.92	1.6	0.63	7.76	1.7

JUNCTION 24 ASSESSMENT RESULTS

8.6.11. The operation of the existing Shore Street / Cromwell Road / Harbour Road mini roundabout has been assessed using JUNCTIONS 10™ (ARCADY) and the results of the assessment are shown in Table 8-12 and Table 8-13.

Table 8-12 – Junction 24 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Cromwell Road	0.43	6.48	0.7	0.58	8.63	1.4
2 - Harbour Road	0.34	7.19	0.5	0.55	12.57	1.2
3 - Shore Street	1.01	98.41	22.3	0.92	45.04	8.7

Table 8-13 – Junction 24 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Cromwell Road	0.43	6.51	0.7	0.58	8.63	1.4
2 - Harbour Road	0.49	9.07	0.9	0.55	11.34	1.2
3 - Shore Street	0.96	67.7	12.4	0.9	40.14	7.4

JUNCTION 25 ASSESSMENT RESULTS

8.6.12. The operation of the existing Longman Road / Harbour Road roundabout has been assessed using JUNCTIONS 10™ (ARCADY) and the results of the assessment are shown in Table 8-14 and Table 8-15.

Table 8-14 – Junction 25 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Harbour Road (E)	0.33	6.44	0.5	0.49	9.26	0.9
2 - Longman Road (S)	0.83	10.18	4.9	0.61	3.97	1.5
3 - Harbour Road (W)	0.79	21.78	3.4	0.89	31.02	6.8
4 - Longman Road (N)	0.49	3.08	1	0.51	3.31	1

Table 8-15 – Junction 25 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Harbour Road (E)	0.37	7.01	0.6	0.66	14.33	1.9
2 - Longman Road (S)	0.86	12.2	5.8	0.64	4.54	1.7
3 - Harbour Road (W)	0.97	71.25	14.3	0.97	62.92	15.9
4 - Longman Road (N)	0.52	3.46	1.1	0.53	3.57	1.1

JUNCTION 30 ASSESSMENT RESULTS

8.6.13. The operation of the existing Millburn Road / Harbour Road roundabout has been assessed using JUNCTIONS 10™ (ARCADY) and the results of the assessment are shown in Table 8-16 and Table 8-17.

Table 8-16 – Junction 30 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Harbour Road (N)	0.41	5.77	0.7	0.8	18.86	3.7
2 - Millburn Road (B865) (E)	0.91	21.73	8.8	0.74	8.24	2.7
3 - Old Perth Road (B9006) (S)	0.43	5.71	0.7	0.45	5.49	0.8
4 - Millburn Road (B865) (W)	0.43	4.65	0.8	0.52	5.07	1.1

Table 8-17 – Junction 30 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
1 - Harbour Road (N)	0.49	6.54	1	0.93	44.08	10.4
2 - Millburn Road (B865) (E)	0.92	24.73	9.9	0.77	9.64	3.2
3 - Old Perth Road (B9006) (S)	0.52	7.06	1.1	0.44	5.97	0.8
4 - Millburn Road (B865) (W)	0.45	5.06	0.8	0.51	4.98	1

JUNCTION 7 ASSESSMENT RESULTS

8.6.14. The operation of the existing Castle Street / View Place signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-18 and 8-19.

Table 8-18 – Junction 7 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead	1/1	31.0	4.2	9	4.63
Castle Street Right	1/2	30.0	1.4	43	
Castle Street Right G/W	7/1	33.0	0.1	8	
Culduthel Road	2/1	55.0	8.9	19	
View Place	5/1	19.0	0.9	40	
Cycle Time	90s	Junction PRC		63.6%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead	1/1	36.0	5.2	10	5.63
Castle Street Right	1/2	33.0	1.4	44	
Castle Street Right G/W	7/1	36.0	0.2	9	
Culduthel Road	2/1	60.0	10.2	20	
View Place	5/1	26.0	1.2	42	
Cycle Time	90s	Junction PRC		50.0%	

Table 8-19 – Junction 7 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead	1/1	40.0	6.1	10	5.44
Castle Street Right	1/2	30.0	1.4	43	
Castle Street Right G/W	7/1	33.0	0.1	8	
Culduthel Road	2/1	59.0	10.0	20	
View Place	5/1	19.0	0.9	40	
Cycle Time	90s	Junction PRC		52.5%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead	1/1	41.0	6.2	10	8.17
Castle Street Right	1/2	33.0	1.4	44	
Castle Street Right G/W	7/1	36.0	0.2	9	
Culduthel Road	2/1	79.0	16.2	27	
View Place	5/1	28.0	1.3	42	
Cycle Time	90s	Junction PRC		13.9%	

JUNCTION 8 ASSESSMENT RESULTS

8.6.15. The operation of the existing Castle Street / View Place signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-20 and 8-21.

Table 8-20 – Junction 8 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead / Left	1/1	16.0	2.1	13	3.42
Mayfield Road Left / Right	2/1	44.0	5.1	28	
Castle Street Ahead	3/1	27.0	3.7	14	
Cycle Time	90s	Junction PRC		104.5%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead / Left	1/1	25.0	3.5	17	3.91
Mayfield Road Left / Right	2/1	44.0	5.9	24	
Castle Street Ahead	3/1	23.0	3.1	17	
Cycle Time	90s	Junction PRC		104.5%	

Table 8-21 – Junction 8 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead / Left	1/1	24.0	3.4	14	4.16
Mayfield Road Left / Right	2/1	48.0	6.0	27	
Castle Street Ahead	3/1	28.0	3.9	15	
Cycle Time	90s	Junction PRC		87.5%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Castle Street Ahead / Left	1/1	42.0	5.4	26	5.69
Mayfield Road Left / Right	2/1	53.0	8.4	19	
Castle Street Ahead	3/1	31.0	3.7	24	
Cycle Time	90s	Junction PRC		69.8%	

8.7 ASSESSMENT RESULTS – ADDITIONAL ACADEMY STREET JUNCTIONS

8.7.1. In addition to those junctions highlighted through the threshold assessment. WSP has also assessed junctions along Academy Street and along key bus routes within the city centre to give THC confidence that these junctions should continue to operate within capacity and limited levels of delay following the scheme. Unlike the junctions previously assessed, these junctions are predicted to experience a net reduction in total traffic following the scheme implementation.

8.7.2. As previously mentioned, these are:

- Junction 10 - Bank Street / Fraser Street
- Junction 11 – Fraser Street / Church Street
- Junction 12 – Friar's Lane / Academy Street / Chapel Street signalised junction;
- Junction 13 - Academy Street / Post Office Avenue / Margaret Lane signalised junction; and
- Junction 14 - Queensgate / Academy Street / Strothers Lane signalised junction.

8.7.3. Whilst junction 13 showed an increase in traffic on Post Office Avenue post scheme that would warrant assessment in Section 8.6, this has been modelled as part of the modelling for Junctions 13 and 14 which has been undertaken in TRANSYT to demonstrate how the junctions not only work in insolation, but also as a short corridor.

JUNCTION 10 ASSESSMENT RESULTS

8.7.4. The operation of the existing Bank Street / Fraser Street priority junction has been assessed using JUNCTIONS 10™ (PICADY) and the results of the assessment are shown in Table 8-22 and Table 8-23.

Table 8-22 – Junction 10 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A - Bank Street (N)	-	-	-	-	-	-
B - Fraser Street to Bank Street (N) & Bank Street (S)	0	0	0	0	0	0
C - Bank Street (S) to Bank Street (N)	0.08	6.6	0.1	0.05	7.07	0.1

Table 8-23 – Junction 10 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A - Bank Street (N)	-	-	-	-	-	-
B - Fraser Street to Bank Street (N) & Bank Street (S)	0	0	0	0	0	0
C - Bank Street (S) to Bank Street (N)	0.08	6.61	0.1	0.05	6.93	0.1

JUNCTION 11 ASSESSMENT RESULTS

8.7.5. The operation of the existing Fraser Street / Church Street priority junction has been assessed using JUNCTIONS 10™ (PICADY) and the results of the assessment are shown in Table 8-24 and 8-25.

Table 8-24 – Junction 11 – Scenario 1 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A – Fraser Street	0	0	0	0	0	0
B – Church Street (N)	0.1	5.9	0.1	0.2	6.5	0.2
C - Queensgate	0	0	0	0	0	0
D - Church Street (S)	0.2	10.9	0.3	0.3	11.6	0.4

Table 8-25 – Junction 11 – Scenario 2 Assessment Results

Arm	AM Peak			PM Peak		
	RFC	Delay (s)	Queue (PCU)	RFC	Delay (s)	Queue (PCU)
A – Fraser Street	0	0	0	0	0	0
B – Church Street (N)	0	0	0	0	0	0
C - Queensgate	0	0	0	0	0	0
D - Church Street (S)	0.3	11.6	0.4	0.6	18.2	1.2

JUNCTION 12 ASSESSMENT RESULTS

8.7.6. The operation of the existing Friar's Lane / Academy Street / Chapel Street signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-26 and 8-27.

Table 8-26 – Junction 12 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Friar's Lane Left	1/1	36.0	4.8	19	7.56
Friar's Lane Right	1/2	40.0	1.8	46	
Academy Street Ahead / Left	2/1	62.0	7.0	35	
Chapel Street Ahead	5/1	14.0	1.6	6	
Chapel Street Right	5/2	46.0	5.4	28	
Cycle Time	90s	Junction PRC		45.2%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Friar's Lane Left	1/1	26.0	3.3	18	11.64
Friar's Lane Right	1/2	57.0	2.8	52	
Academy Street Ahead / Left	2/1	78.0	10.3	43	
Chapel Street Ahead	5/1	18.0	2.2	6	
Chapel Street Right	5/2	74.0	9.9	38	
Cycle Time	90s	Junction PRC		15.4%	

Table 8-27 – Junction 12 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Friar’s Lane Left	1/1	26.0	3.4	10	3.49
Friar’s Lane Right	1/2	15.0	0.6	40	
Academy Street Ahead / Left	2/1	49.0	2.3	48	
Chapel Street Ahead	5/1	2.0	0.2	5	
Chapel Street Right	5/2	32.0	4.4	16	
Cycle Time	90s	Junction PRC		83.7%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Friar’s Lane Left	1/1	24.0	3.2	11	5.91
Friar’s Lane Right	1/2	40.0	1.8	46	
Academy Street Ahead / Left	2/1	57.0	3.7	45	
Chapel Street Ahead	5/1	2.0	0.2	5	
Chapel Street Right	5/2	51.0	7.6	22	
Cycle Time	90s	Junction PRC		57.9%	

JUNCTION 13 ASSESSMENT RESULTS

8.7.7. The operation of the existing Academy Street / Post Office Avenue / Margaret Lane signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-28 and 8-29.

8.7.8. Signal specification forms for the above signalised junctions have been provided by THC and have been input into the modelling to reflect the existing scenario. The general configuration, phasing and staging of the signalised junctions has been assumed to remain largely unchanged following the Academy Street proposals. Therefore, we have used any existing signal specification data and have utilised, where applicable, existing phasing, staging and intergreen data to inform our modelling.

Table 8-28 – Junction 13 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Margaret Lane	8/1	23.0	1.6	33	5.57
Academy Street Ahead	9/1	32.0	2.2	10	
Academy Street Ahead	10/1	30.0	3.6	12	
Post Office Avenue	13/1	3.0	0.0	9	
Cycle Time	90s	Junction PRC		181.3%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Margaret Lane	8/1	22.0	1.5	33	7.85
Academy Street Ahead	9/1	42.0	3.1	11	
Academy Street Ahead	10/1	43.0	5.3	13	
Post Office Avenue	13/1	7.0	1.5	14	
Cycle Time	90s	Junction PRC		109.3%	

Table 8-29 – Junction 13 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Margaret Lane	8/1	20.0	1.6	30	2.41
Academy Street Ahead	9/1	7.0	0.5	9	
Academy Street Ahead	10/1	6.0	0.4	8	
Post Office Avenue	13/1	9.0	0.1	8	
Cycle Time	90s	Junction PRC		350.0%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Margaret Lane	8/1	22.0	1.5	33	3.38
Academy Street Ahead	9/1	12.0	1.5	8	
Academy Street Ahead	10/1	13.0	1.5	8	
Post Office Avenue	13/1	19.0	0.2	8	
Cycle Time	90s	Junction PRC		309.1%	

JUNCTION 14 ASSESSMENT RESULTS

8.7.9. The operation of the existing Queensgate / Academy Street / Strothers Lane signalised junction has been assessed using TRANSYT and the results of the assessment are shown in Table 8-30 and 8-31.

8.7.10. Signal specification forms for the above signalised junctions have been provided by THC and have been input into the modelling to reflect the existing scenario. The general configuration, phasing and staging of the signalised junctions has been assumed to remain largely unchanged following the Academy Street proposals. Therefore, we have used any existing signal specification data and have utilised, where applicable, existing phasing, staging and intergreen data to inform our modelling.

Table 8-30 – Junction 14 – Scenario 1 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Academy Street Ahead / Right	1/1	26.0	3.5	13	5.57
Academy Street Ahead / Left	2/1	30.0	1.5	6	
Queensgate Ahead / Left	5/1	29.0	2.2	34	
Queensgate Ahead	5/2	21.0	1.6	33	
Cycle Time	90s	Junction PRC		200.0%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Academy Street Ahead / Right	1/1	34.0	4.8	14	7.85
Academy Street Ahead / Left	2/1	38.0	1.6	5	
Queensgate Ahead / Left	5/1	39.0	3.1	36	
Queensgate Ahead	5/2	31.0	2.4	35	
Cycle Time	90s	Junction PRC		130.8%	

Table 8-31 – Junction 14 – Scenario 2 Assessment Results

AM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Academy Street Ahead / Right	1/1	4.0	0.4	18	2.41
Academy Street Ahead / Left	2/1	15.0	1.5	17	
Queensgate Ahead / Left	5/1	9.0	1.5	22	
Queensgate Ahead	5/2	12.0	1.5	22	
Cycle Time	90s	Junction PRC		500.0%	
PM Peak					
Arm Name	Traffic Stream	Degree of saturation (%)	Mean max queue (PCU)	Mean Delay per Veh (s)	Total network delay (PCU-hr/hr)
Academy Street Ahead / Right	1/1	2.0	0.3	11	3.38
Academy Street Ahead / Left	2/1	15.0	1.5	10	
Queensgate Ahead / Left	5/1	20.0	1.5	33	
Queensgate Ahead	5/2	27.0	2.1	34	
Cycle Time	90s	Junction PRC		233.3%	

8.8 TRAFFIC IMPACT ASSESSMENT – SUMMARY OF RESULTS

8.8.1. The results of the junction assessment exercise are summarised within Table 8-32.

Table 8-32 – Junction Assessment Results Summary

Junction Reference	Junction Name	Assessment Results Summary
Junction 1	Tomnahurich Street / Kenneth Street	The traffic modelling has demonstrated that the junction will see a marginal reduction in practical reserve capacity, post scheme implementation during the AM Peak, with an increase in practical reserve capacity during the PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 42.9%, 38.5% • DoS: 63.0%, 65.0% • Queue: 9.5, 9.4 • Delay: 49s, 51s The operational impact on this junction is not considered to be perceivable and the junction remains within operating capacity.
Junction 2	Fairfield Road / Greig Street	The traffic modelling has demonstrated that the junction will see a marginal decrease in capacity, post scheme implementation during the AM Peak and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.13, 0.13 • Queue: 0.1, 0.1 • Delay: 12.80s, 12.81s The operational impact on this junction is not considered to be perceivable and the junction remains within operating capacity.
Junction 3	Telford Street / Harrowden Road / Friar's Bridge	The traffic modelling has demonstrated that the junction will see a marginal decrease in capacity, post scheme implementation during the AM Peak and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.62, 0.74 • Queue: 1.6, 2.7 • Delay: 9.43s, 15.81s The operational impact on this junction is not considered to be perceivable and the junction remains within operating capacity.

Junction Reference	Junction Name	Assessment Results Summary
Junction 5	Young Street / Huntly Street	The traffic modelling has demonstrated that the junction will see a marginal increase in practical reserve capacity, post scheme implementation during the AM Peak, with a decrease in practical reserve capacity during the PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 221.4%, 190.3% • DoS: 28.0%, 31.0% • Queue: 4.6, 4.6 • Delay: 32.55, 39.6 The operational impact on this junction is not considered to be perceivable and the junction remains within operating capacity.
Junction 6	Castle Road / Bank Street / Ness Bridge	The traffic modelling has demonstrated that the junction will see a marginal decrease in practical reserve capacity, post scheme implementation during the AM and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 12.5%,1.1% • DoS: 80.0%, 89.0% • Queue: 8.8, 13.9 • Delay: 32.55, 39.6 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.
Junction 7	Castle Street / View Place	The traffic modelling has demonstrated that the junction will see a marginal decrease in practical reserve capacity, post scheme implementation during the AM and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 52.5%, 13.9% • DoS: 59.0%, 79.0% • Queue: 10.0, 16.2 • Delay: 5.44, 8.17 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.

Junction Reference	Junction Name	Assessment Results Summary
Junction 8	Castle Street / Mayfield Road	The traffic modelling has demonstrated that the junction will see a marginal decrease in practical reserve capacity, post scheme implementation during the AM and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 87.5%, 69.8% • DoS: 48.0%, 53.0% • Queue: 6.0, 8.4 • Delay: 4.16, 5.69 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.
Junction 10	Bank Street / Fraser Street	The traffic modelling has demonstrated that the junction will see a marginal decrease in flow capacity, post scheme implementation during the AM Peak and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.08, 0.05 • Queue: 0.1, 0.1 • Delay: 6.61, 6.93 The operational impact on this junction is not considered to be perceivable and the junction remains within operating capacity.
Junction 11	Fraser Street / Church Street	The traffic modelling has demonstrated that the junction will see an increase in flow capacity, post scheme implementation during the AM Peak and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.30, 0.60 • Queue: 0.4, 1.2 • Delay: 11.6, 18.20 The operational impact on this junction is forecast to be low and the junction remains within operating capacity.

Junction Reference	Junction Name	Assessment Results Summary
Junction 12	Academy Street / Friar's Lane / Chapel Street	The traffic modelling has demonstrated that the junction will see a marginal increase in practical reserve capacity, post scheme implementation during the AM and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 83.7%, 57.9% • DoS: 49.0%, 57.0% • Queue: 4.4, 7.6 • Delay: 3.49, 5.91 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.
Junction 13	Academy Street / Post Office Avenue / Margaret Lane	The traffic modelling has demonstrated that the junction will see a marginal increase in practical reserve capacity, post scheme implementation during the AM Peak and PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 350.0%, 309.1% • DoS: 20.0%, 22.0% • Queue: 1.6, 1.5 • Delay: 2.41, 3.38 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.
Junction 14	Academy Street / Queens Gate / Strother's Lane	The traffic modelling has demonstrated that the junction will see a marginal increase in practical reserve capacity, post scheme implementation during the AM Peak and a decrease in the PM Peak. Post scheme implementation, the results suggest the following (AM, PM): • PRC: 500.0%, 233.3% • DoS: 15.0%, 27.0% • Queue: 1.5, 2.1 • Delay: 2.41, 3.38 The operational impact on this junction is not considered to be significant and the junction remains within operating capacity.

Junction Reference	Junction Name	Assessment Results Summary
Junction 24	Cromwell Road / Harbour Road	The traffic modelling has demonstrated that the junction will see an increase in ratio to flow capacity, post scheme implementation during the AM Peak and PM Peak. As shown in Table 8-16, the junction currently operates over capacity on the Shore Street approach with a RFC of 1.01 and 0.92 in the AM and PM peaks, respectively. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.96, 0.90 • Queue: 12.4, 7.4 • Delay: 67.7, 40.14 The operational impact on this junction is considered to be low, with decreased queuing and delay expected on the Shore Street approach however, the junction is predicted to continue operating over capacity on this approach.
Junction 25	Longman Road / Harbour Road	The traffic modelling has demonstrated that the junction will see a decrease in flow capacity, post scheme implementation during the AM Peak and PM Peak. As shown in Table 8-18, the junction currently operates over capacity on the Harbour Road (W) approach with a RFC of 0.89 in the PM peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.97, 0.97 • Queue: 14.3, 15.9 • Delay: 71.25s, 62.92s The operational impact on this junction is forecast to be high and increased queuing and delay is expected, the junction is predicted to operate over capacity in both peak periods post scheme.
Junction 30	Milburn Road / Harbour Road	The traffic modelling has demonstrated that the junction will see a decrease in flow capacity, post scheme implementation during the AM and PM Peak. As shown in Table 8-20, the junction currently operates over capacity on the Millburn Road and Harbour Road(N) approaches with a RFC of 0.91 in the AM peak. Post scheme implementation, the results suggest the following (AM, PM): • RFC: 0.92, 0.93 • Queue: 9.9, 10.4 • Delay: 24.73s, 44.08s The operational impact on this junction is forecast to be high and increased queuing and delay is expected, the junction is predicted to continue to operate over capacity in both peak periods post scheme.

9 LINK CAPACITY ASSESSMENT

9.1 ASSESSMENT CRITERIA

9.1.1. The methodology for the link capacity assessment follows the guidance provided within the Design Manual for Roads and Bridges (DMRB) and TA 79/99, which set out the standards for assessing road capacity in the UK. Link capacities have been derived by applying the DMRB and TA 79/99 methodologies, which include calculations based on the road type, speed limit, and section widths. These calculations provide the theoretical maximum number of vehicles that can be accommodated on a road link under ideal conditions.

9.1.2. The assessment used the following criteria to evaluate road link performance:

- 0-50%: Road link significantly under capacity, indicating a free flow of traffic with minimal vehicle interaction.
- 50-90%: Road link operating within capacity, but with increasing levels of interaction between vehicles, occasionally leading to short-lived periods of queuing.
- >90%: Road link approaching the theoretical maximum capacity of the road, leading to regular queuing during peak periods.

9.2 SUMMARY OF FINDINGS

9.2.1. The assessment is summarised in Tables 9-1 to 9-5, which provides an overarching view of the operational status of each road link within the area of influence.

Table 9-1 – Academy Street Link Capacity Assessment Results

Link Description	**Academy Street - Crown Road to Union Street**			**Academy Street - Union Street to Queensgate**			**Academy Street - Queensgate to Post Office Avenue**			**Academy Street - Post Office Avenue to Friars Lane**		
UAP Road Type	UAP4			UAP4			UAP4			UAP4		
Posted Speed Limit	30mph			30mph			30mph			30mph		
Indicative Section Road Width	10.0m			6.75m			6.75m			6.75m		
Max Directional Capacity	1410			900			900			900		
Max Two-Way Capacity	2350			1500			1500			1500		
Comments												
	Westbound	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**
2025 Scenario 1 AM Peak	293	275	568	251	325	576	239	285	524	268	248	516
2025 Scenario 1 PM Peak	404	381	785	333	427	760	336	365	701	376	321	697
2025 Scenario 2 AM Peak	83	117	200	-1	83	82	0	195	195	49	133	182
2025 Scenario 2 PM Peak	235	91	326	3	93	96	6	239	245	130	190	320
2025 Scenario 1 AM Peak - Absolute % V/C	21.8%	20.6%	25.4%	28.8%	38.1%	40.1%	27.7%	32.4%	36.1%	32.8%	28.0%	36.5%
2025 Scenario 1 PM Peak - Absolute % V/C	29.7%	28.2%	34.7%	37.4%	48.9%	51.8%	37.9%	40.9%	47.3%	43.0%	36.0%	47.4%
2025 Scenario 2 AM Peak Absolute % V/C	7.7%	6.8%	8.7%	2.9%	11.7%	8.8%	2.6%	11.8%	8.7%	9.8%	5.8%	9.4%
2025 Scenario 2 PM Peak Absolute % V/C	10.4%	8.0%	11.1%	2.5%	13.1%	9.3%	2.4%	16.3%	11.2%	16.2%	10.5%	16.0%

Table 9-2 – A82 Corridor Link Capacity Assessment Results

Link Description	A82 Kenneth Street -Tomnahurich Street to Friars Bridge			A82 Friars Bridge - Kenneth Street to Chapel Street			A82 Longman Road - Chapel Street to Harbour Road			A82 Longman Road - Harbour Road to A9		
UAP Road Type	UAP3			UAP2			UAP2			UAP2		
Posted Speed Limit	30mph			30mph			30mph			30mph		
Indicative Section Road Width	7.3m			D- 7.3m			D- 7.3m			D- 7.3m		
Max Directional Capacity	1300			3200			3200			3200		
Max Two-Way Capacity	2166			5333			5333			5333		
Comments												
	Westbound	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**
2025 Scenario 1 AM Peak	453	469	923	856	1012	1868	1047	964	2012	1578	976	2554
2025 Scenario 1 PM Peak	497	532	1029	1054	1050	2103	1142	983	2125	1233	1725	2958
2025 Scenario 2 AM Peak	466	507	972	826	971	1797	1075	985	2060	1590	976	2566
2025 Scenario 2 PM Peak	549	553	1102	954	1026	1980	1145	991	2136	1235	1723	2958
2025 Scenario 1 AM Peak - Absolute % V/C	36.7%	39.1%	45.5%	28.9%	33.2%	37.2%	34.3%	31.6%	39.5%	50.1%	32.9%	49.8%
2025 Scenario 1 PM Peak - Absolute % V/C	40.5%	39.0%	47.7%	33.4%	33.7%	40.3%	36.3%	31.8%	40.9%	39.6%	55.1%	56.8%
2025 Scenario 2 AM Peak Absolute % V/C	37.5%	40.9%	47.0%	28.0%	31.9%	35.9%	34.6%	32.4%	40.2%	50.5%	32.8%	50.0%
2025 Scenario 2 PM Peak Absolute % V/C	44.3%	39.7%	50.4%	30.9%	33.0%	38.3%	36.6%	32.6%	41.5%	39.6%	55.4%	57.0%

Table 9-3 – Harbour Road Corridor Link Capacity Assessment Results

Link Description	Harbour Road - B9006			Harbour Road - Milburn Road to Longman Road			Harbour Road - Longman Road to Cromwell Road			Shore Street - A82 to Cromwell Road		
UAP Road Type	UAP3			UAP3			UAP3			UAP3		
Posted Speed Limit	30mph			30mph			30mph			30mph		
Indicative Section Road Width	6.75m			6.75m			6.75m			7.3m		
Max Directional Capacity	1110			1110			1110			1300		
Max Two-Way Capacity	1850			1850			1850			2167		
Comments												
	Westbound	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**
2025 Scenario 1 AM Peak	418	552	971	529	391	920	220	238	458	701	271	972
2025 Scenario 1 PM Peak	474	444	917	757	662	1419	303	329	633	651	562	1212
2025 Scenario 2 AM Peak	486	506	992	656	422	1078	331	256	587	589	341	930
2025 Scenario 2 PM Peak	419	375	794	784	760	1544	329	415	744	625	554	1179
2025 Scenario 1 AM Peak - Absolute % V/C	38.9%	51.2%	54.1%	72.7%	60.3%	79.8%	27.6%	25.0%	31.5%	57.0%	29.8%	52.1%
2025 Scenario 1 PM Peak - Absolute % V/C	44.0%	41.2%	51.1%	48.7%	36.7%	51.2%	25.2%	19.6%	26.9%	52.2%	49.9%	61.3%
2025 Scenario 2 AM Peak Absolute % V/C	44.6%	47.7%	55.4%	85.6%	68.2%	92.3%	37.5%	27.2%	38.8%	48.6%	27.9%	45.9%
2025 Scenario 2 PM Peak Absolute % V/C	39.3%	35.7%	45.0%	56.8%	51.4%	65.0%	28.3%	28.6%	34.1%	49.6%	42.3%	55.1%

Table 9-4 – B861 Corridor (Including Ness Bridge) Link Capacity Assessment Results

Link Description	B861 - Mayfield Road to View Place				B861 - View Place to Bank Street				B861 - Bank Street to Huntly Street (Ness Bridge)				B861 - Huntly Street to Kenneth Street		
UAP Road Type	UAP3				UAP3				UAP3				UAP3		
Posted Speed Limit	30mph				30mph				30mph				30mph		
Indicative Section Road Width	7.3m				7.3m				D- 6.75m				D- 6.75m		
Max Directional Capacity	1300				1300				2600				2600		
Max Two-Way Capacity	2166				2166				4333				4333		
Comments															
	Westbound	**Eastbound**	**Two-Way**		**Westbound**	**Eastbound**	**Two-Way**		**Westbound**	**Eastbound**	**Two-Way**		**Westbound**	**Eastbound**	**Two-Way**
2025 Scenario 1 AM Peak	499	163	661		462	403	866		524	427	951		302	431	733
2025 Scenario 1 PM Peak	551	233	783		497	483	979		623	437	1060		421	452	873
2025 Scenario 2 AM Peak	534	451	985		538	483	1021		548	470	1018		328	550	878
2025 Scenario 2 PM Peak	642	469	1111		635	495	1130		706	457	1163		507	569	1076
2025 Scenario 1 AM Peak - Absolute % V/C	37.5%	28.7%	39.7%		35.2%	32.5%	40.6%		20.8%	16.1%	22.1%		15.5%	19.6%	21.1%
2025 Scenario 1 PM Peak - Absolute % V/C	41.6%	34.2%	45.5%		35.8%	35.9%	43.0%		23.3%	17.0%	24.2%		19.9%	21.7%	24.9%
2025 Scenario 2 AM Peak Absolute % V/C	40.9%	37.1%	46.8%		38.3%	40.9%	47.5%		21.9%	17.7%	23.8%		16.6%	21.3%	22.7%
2025 Scenario 2 PM Peak Absolute % V/C	54.6%	38.7%	56.0%		47.9%	40.3%	52.9%		27.0%	17.7%	26.8%		23.5%	22.4%	27.6%

Table 9-5 – Millburn Road Corridor Link Capacity Assessment Results

Link Description	Millburn Road - Crown Road to Eastgate Shopping Centre			Millburn Road - Eastgate Shopping Centre to Morrisons			Millburn Road - Morrisons to Harbour Road			Millburn Road - Harbour Road to A9		
UAP Road Type	UAP2			UAP2			UAP2			UAP1		
Posted Speed Limit	30mph			30mph			30mph			30mph		
Indicative Section Road Width	D- 7.3m			D- 7.3m			D- 7.3m			D- 7.3m		
Max Directional Capacity	3200			3200			3200			3600		
Max Two-Way Capacity	5333			5333			5333			6000		
Comments												
	Westbound	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**	**Westbound**	**Eastbound**	**Two-Way**
2025 Scenario 1 AM Peak	260	256	516	332	237	569	412	491	903	1360	601	1961
2025 Scenario 1 PM Peak	387	308	695	370	392	762	396	676	1072	1072	1083	2155
2025 Scenario 2 AM Peak	153	127	280	225	117	342	307	424	731	1360	590	1950
2025 Scenario 2 PM Peak	272	125	397	267	220	487	293	539	832	1080	1027	2107
2025 Scenario 1 AM Peak - Absolute % V/C	8.4%	8.3%	10.0%	10.7%	7.6%	10.9%	13.0%	16.8%	17.9%	38.8%	18.0%	34.1%
2025 Scenario 1 PM Peak - Absolute % V/C	11.9%	10.1%	13.2%	11.7%	12.5%	14.5%	12.5%	22.1%	20.8%	30.8%	30.6%	36.8%
2025 Scenario 2 AM Peak Absolute % V/C	4.4%	4.4%	5.3%	7.4%	4.5%	7.2%	11.9%	16.7%	17.1%	38.8%	18.3%	34.3%
2025 Scenario 2 PM Peak Absolute % V/C	6.0%	4.4%	6.2%	7.3%	8.2%	9.3%	11.6%	21.5%	19.8%	31.0%	30.1%	36.7%

9.3 LINK CAPACITY ASSESSMENT – SUMMARY OF RESULTS

9.3.1. The link capacity assessment has been conducted on major roads within the study network, drawing insights from the threshold assessment and the area of influence established in Chapter 7. The aim is to provide a targeted analysis of network segments most likely to be influenced by proposed changes.

9.3.2. The results of the link capacity assessment exercise are summarised within Table 9-6.

Table 9-6 - Link Capacity Results Summary

Link Name	Assessment Results Summary
Academy Street – Crown Road to Union Street	The analysis reveals that this link operates significantly below capacity, a trend that is expected to improve further with the implementation of the scheme. The scheme is anticipated to displace existing through traffic from this area, thereby alleviating congestion and enhancing traffic flow.
Academy Street - Union Street to Queensgate	The analysis reveals that this link operates within capacity. This is expected to improve with the implementation of the scheme. The scheme is anticipated to displace existing through traffic from this area, thereby alleviating congestion and enhancing traffic flow.
Academy Street - Queensgate to Post Office Avenue	The analysis reveals that this link operates significantly below capacity, a trend that is expected to improve further with the implementation of the scheme. The scheme is anticipated to displace existing through traffic from this area, thereby alleviating congestion and enhancing traffic flow.
Academy Street - Post Office Avenue to Friars Lane	The analysis reveals that this link operates significantly below capacity, a trend that is expected to improve further with the implementation of the scheme. The scheme is anticipated to displace existing through traffic from this area, thereby alleviating congestion and enhancing traffic flow.
Academy Street Corridor Summary	The analysis reveals that Academy Street operates significantly below capacity across all sections, a trend that is expected to improve further with the implementation of the scheme.
A82 Kenneth Street - Tomnahurich Street to Friars Bridge	For this link, the analysis indicates predominantly underutilised capacity. While the scheme is predicted to have a minor impact on the link capacity of the A82 corridor, it is expected that PM peak will experience a slight decrease in two-way capacity.
A82 Friars Bridge - Kenneth Street to Chapel Street	For this link, the analysis indicates predominantly underutilised capacity. While the scheme is predicted to have a minor impact on the link capacity of the A82 corridor, it is expected to bring about slight improvements.
A82 Longman Road - Chapel Street to Harbour Road	For this link, the analysis indicates the link would operate below over its theoretical capacity. The scheme is predicted to have a slight impact on the link capacity on the A82 corridor.

Link Name	Assessment Results Summary
A82 Longman Road - Harbour Road to A9	For this link, the analysis indicates the link would operate within its theoretical capacity. The capacity on the A82 diminishes towards the east due to heightened movements to and from the A9, resulting in increased vehicle interactions and occasional queuing between Harbour Road and the A9 interchange.
A82 Corridor Summary	For the A82 corridor, the capacity analysis indicates predominantly underutilised capacity to the West on Kenneth Street and Friars Bridge. However, capacity diminishes towards the east due to heightened movements to and from the A9, resulting in increased vehicle interactions and occasional queuing between Chapel Street and Harbour Road.
Harbour Road - B9006	The analysis reveals that this link operates within capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Harbour Road - Milburn Road to Longman Road	This link currently operates within capacity, but the introduction of the scheme is projected to affect link capacity between Milburn Road and Longman Road during peak periods. Despite this, the corridor is expected to operate closer to capacity, albeit with increased vehicle interactions and sporadic queuing.
Harbour Road - Longman Road to Cromwell Road	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Shore Street - A82 to Cromwell Road	The analysis reveals that this link operates within capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Harbour Road Corridor Summary	Harbour Road currently operates within capacity in all sections, and the introduction of the scheme is projected to moderately affect link capacity between Milburn Road and Longman Road.
B861 - Mayfield Road to View Place	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain relatively unchanged however with a link capacity closer to capacity with the implementation of the scheme.
B861 - View Place to Bank Street	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain relatively unchanged however with a link capacity closer to capacity with the implementation of the scheme.
B861 - Bank Street to Huntly Street (Ness Bridge)	The analysis reveals that this link operates significantly below capacity however, the implementation of the scheme is forecasted to impact link capacity during PM peak.
B861 - Huntly Street to Kenneth Street	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
B861 Corridor Summary	The B861 corridor operates significantly below capacity in all sections, with the scheme forecasted to moderately impact link capacity between View Place and Bank Street during peak hours.

Link Name	Assessment Results Summary
Millburn Road - Crown Road to Eastgate Shopping Centre	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Millburn Road - Eastgate Shopping Centre to Morrisons	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Millburn Road - Morrisons to Harbour Road	The analysis reveals that this link operates below capacity however, capacity is expected to increase as well as increasing levels of interactions between vehicles and sporadic queuing.
Millburn Road - Harbour Road to A9	The analysis reveals that this link operates significantly below capacity, a trend that is expected to remain unchanged with the implementation of the scheme.
Millburn Road Corridor Summary	Millburn Road predominantly operates below capacity in both peak hours, yet experiences reduced capacity between the Morrisons access and Harbour Road in scenario 1, though still within operational limits.

9.3.3. Overall, the scheme and the associated displacement of through traffic are anticipated to have a minor impact on the surrounding road network in terms of link capacity.

10 FINDINGS AND RECOMMENDATIONS

10.1 FINDINGS

10.1.1. WSP UK Ltd has been commissioned by The Highland Council (THC) to prepare a Traffic Impact Assessment (TIA) for the proposed Academy Street – Regeneration Scheme, hereafter referred to as 'the scheme'.

10.1.2. This Traffic Impact Assessment has the following aims:

- To quantify the change in traffic volume and routing within the immediate identified area of scheme influence;
- Analyse the existing and post-scheme link and junction performance, such that measurable capacity can be determined; and
- Identify what, if any complementary measures are required to support the scheme focused on the safe operation of the local road network.

10.1.3. The study has drawn the following findings and conclusions:

<u>AM Peak Hour</u>

- The majority of network will continue to operate within capacity, on both links and junctions post scheme.
- The scheme is expected to result in notable benefits in terms of junction capacity and delay for junctions and links within the city centre, resulting in easier access to local businesses and amenities for the majority of shoppers and commuters.
- Post scheme, Harbour Road is expected to approach the theoretical maximum capacity of the road, which may lead to higher vehicle interaction and regular queuing during peak periods.
- The following junctions are forecast to operate over capacity post scheme implementation:
  - J24 – Cromwell Road / Harbour Road
  - J25 – Longman Road / Harbour Road
  - J30 – Millburn Road / Harbour Road
- It is important to note that J30 – Millburn Road / Harbour Road already operates over capacity in the AM peak hour, with a maximum RFC of 0.91 and queue of 8.8PCUs. The scheme is predicted to increase this to 0.92 in the AM peak hour with an increase in queuing to 9.9PCUs, demonstrating the impact of the scheme to the junction to be minor in the AM peak hour.
- In addition, J24 – Cromwell Road / Harbour Road also currently operates over capacity in Scenario 1 (Base). Whilst the scheme is expected to result in a decrease of traffic flows on the critical arm (Shore Street) the junction is predicted to continue to operate over capacity on this approach, albeit slightly better.

<u>PM Peak Hour</u>

- The majority of network will continue to operate within capacity, on both links and junctions post scheme.
- The scheme is expected to result in notable benefits in terms of junction capacity and delay for junctions and links within the city centre, resulting in easier access to local businesses and amenities for the majority of shoppers and commuters.

- Post scheme, the A82 Kenneth Street and B861 Castle St / Culduthel Road is expected to see an increase in traffic. However, they are expected to continue operating within capacity but with increasing levels of interaction between vehicles occasionally leading to short lived period of queuing.
- The A82 Longman Road between Harbour Road and Longman Roundabout is expected to remain busy, but with increasing levels of interaction between vehicles occasionally leading to short lived period of queuing. This is also the case for Shore Street and Harbour Road in the PM peak hour.
- The following junctions are forecast to operate over capacity post scheme implementation:
  - J24 – Cromwell Road / Harbour Road
  - J25 – Longman Road / Harbour Road
  - J30 – Millburn Road / Harbour Road
- It is important to note that J250 – Millburn Road / Harbour Road already operates over capacity in the PM peak hour, with a maximum RFC of 0.89 and queue of 6.8PCUs. The scheme is predicted to increase this to 0.97 in the PM peak hour with an increase in queuing to 15.9PCUs, demonstrating an intensification of strain on the already over capacity junction.
- As with the AM peak hour, J24 – Cromwell Road / Harbour Road also currently operates over capacity in Scenario 1 (Base). Whilst the scheme is expected to result in a decrease of traffic flows on the critical arm (Shore Street) the junction is predicted to continue to operate over capacity on this approach, albeit slightly better.

10.1.4. A visual summary of the junction and link assessment results can be seen in Figure 10-1 to 10-4.

Figure 10-1 - AM Peak Assessment Results Scenario 1

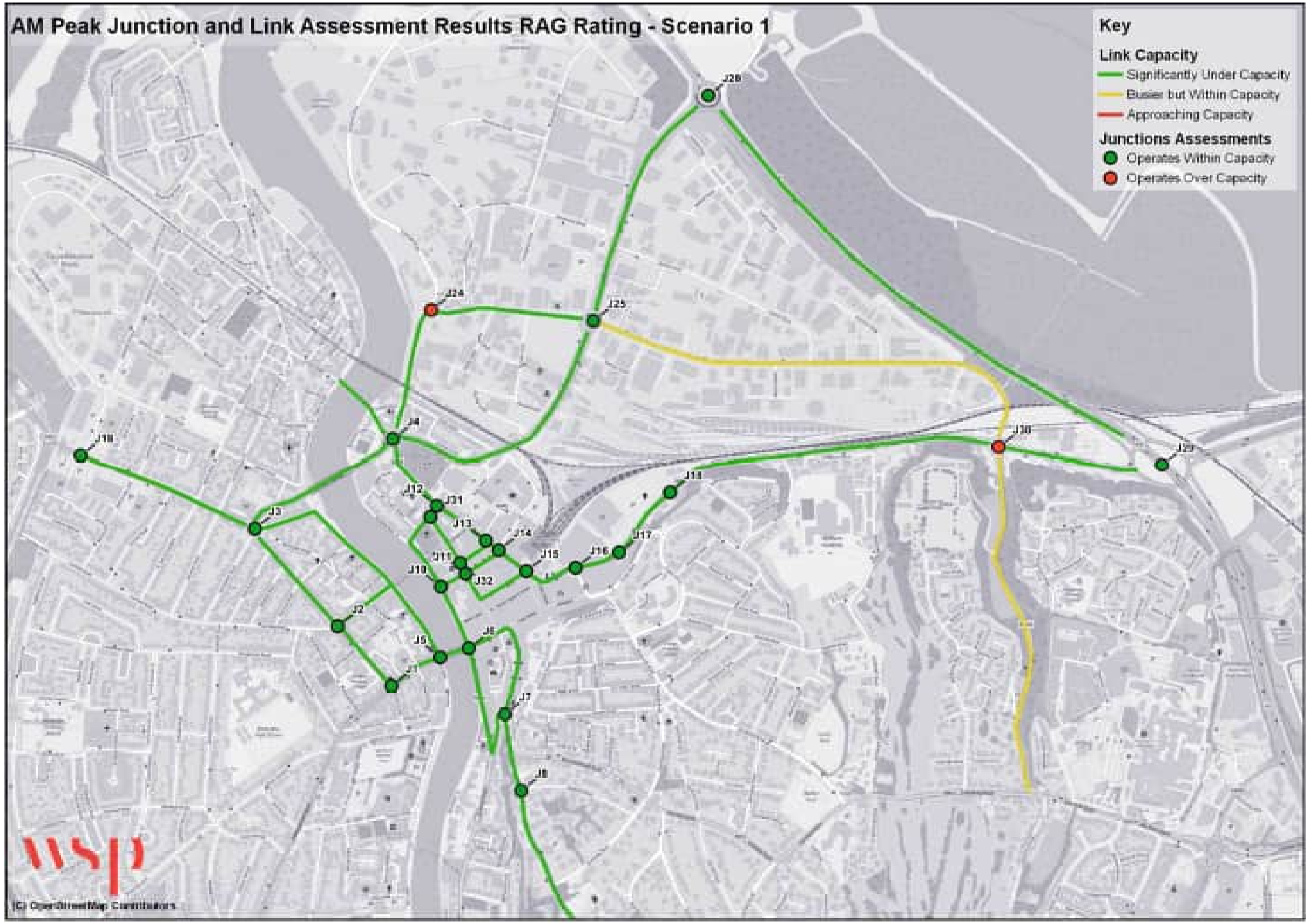


Figure 10-2 - PM Peak Assessment Results Scenario 1

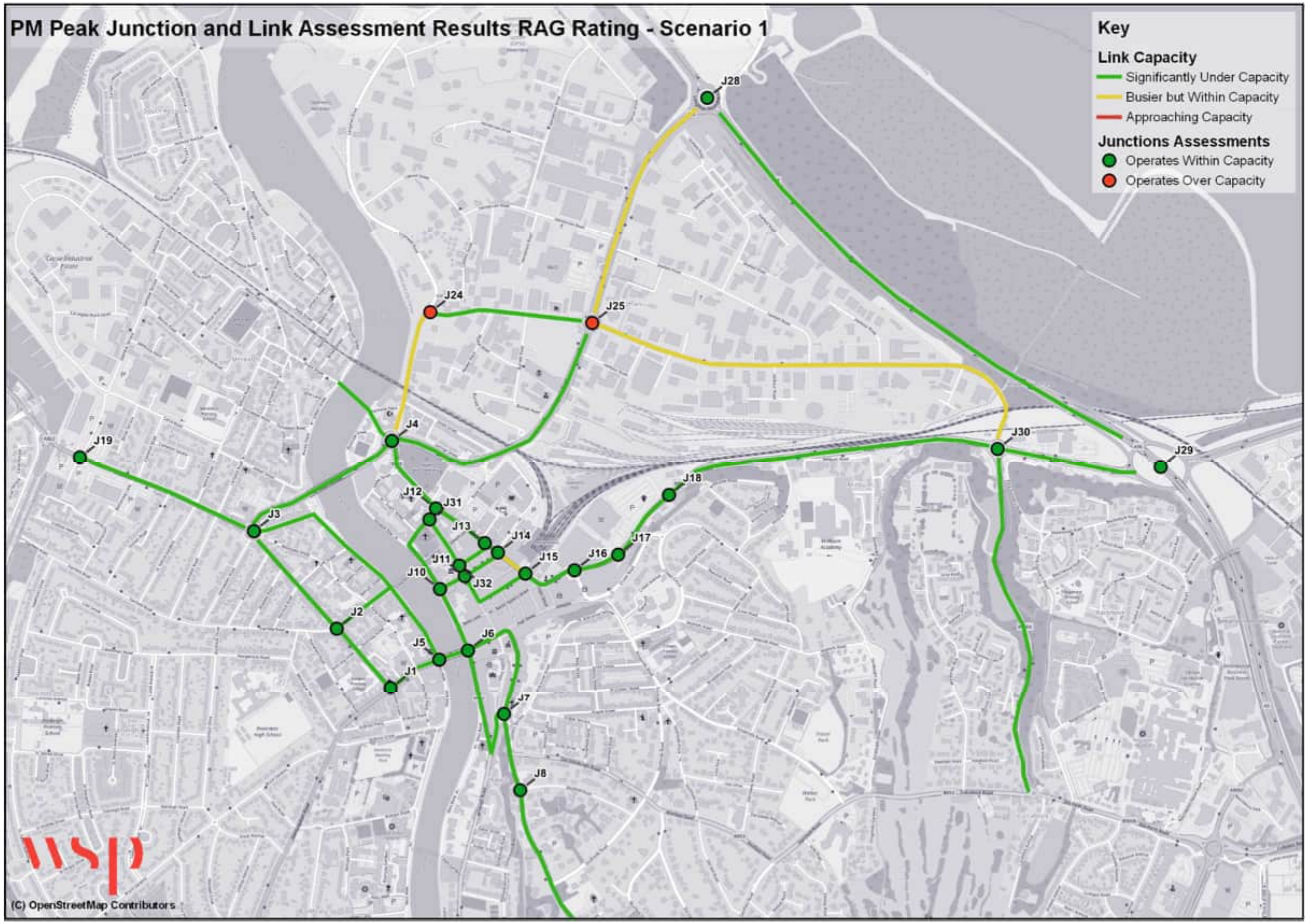


Figure 10-3 - AM Peak Assessment Results Scenario 2

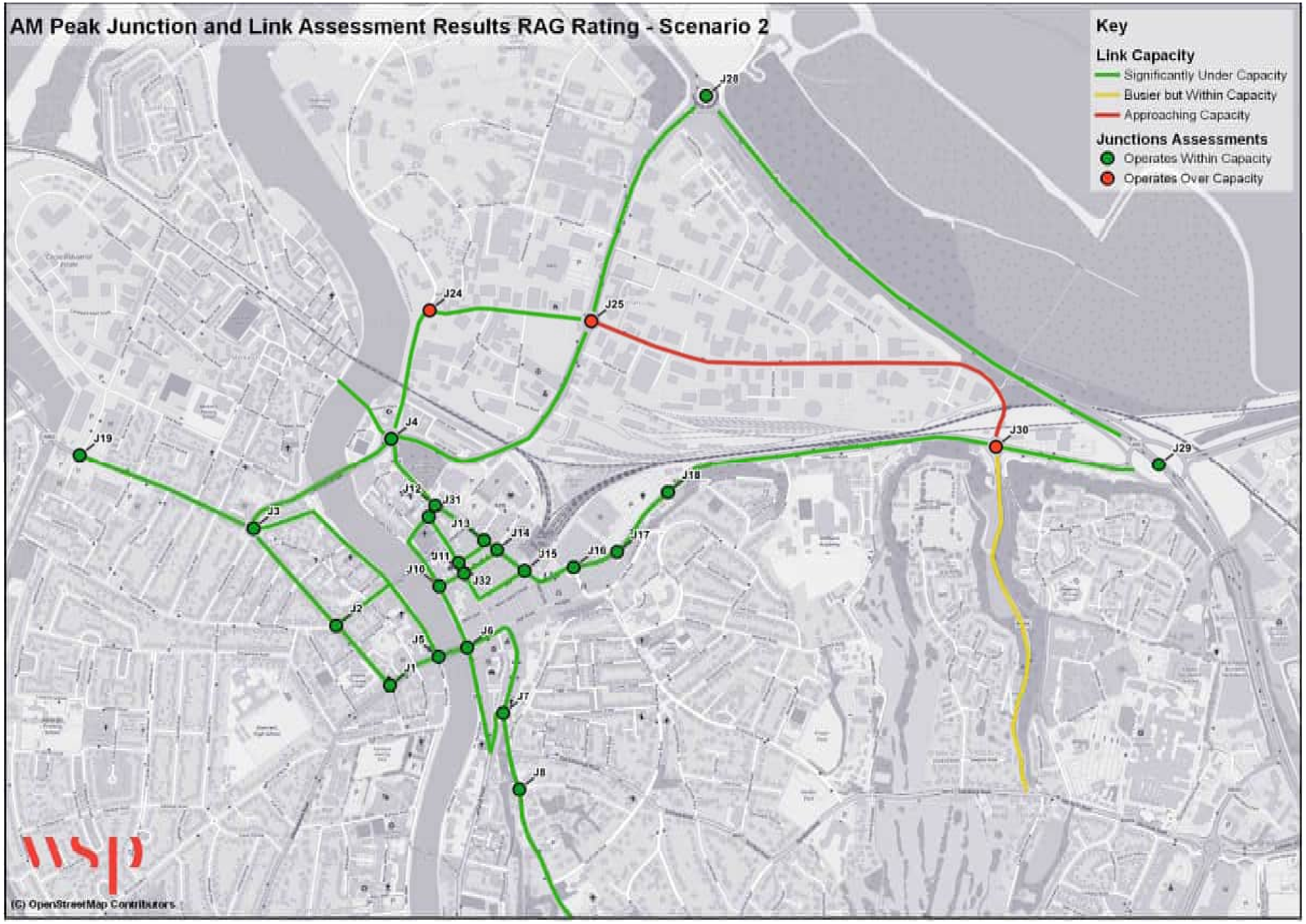
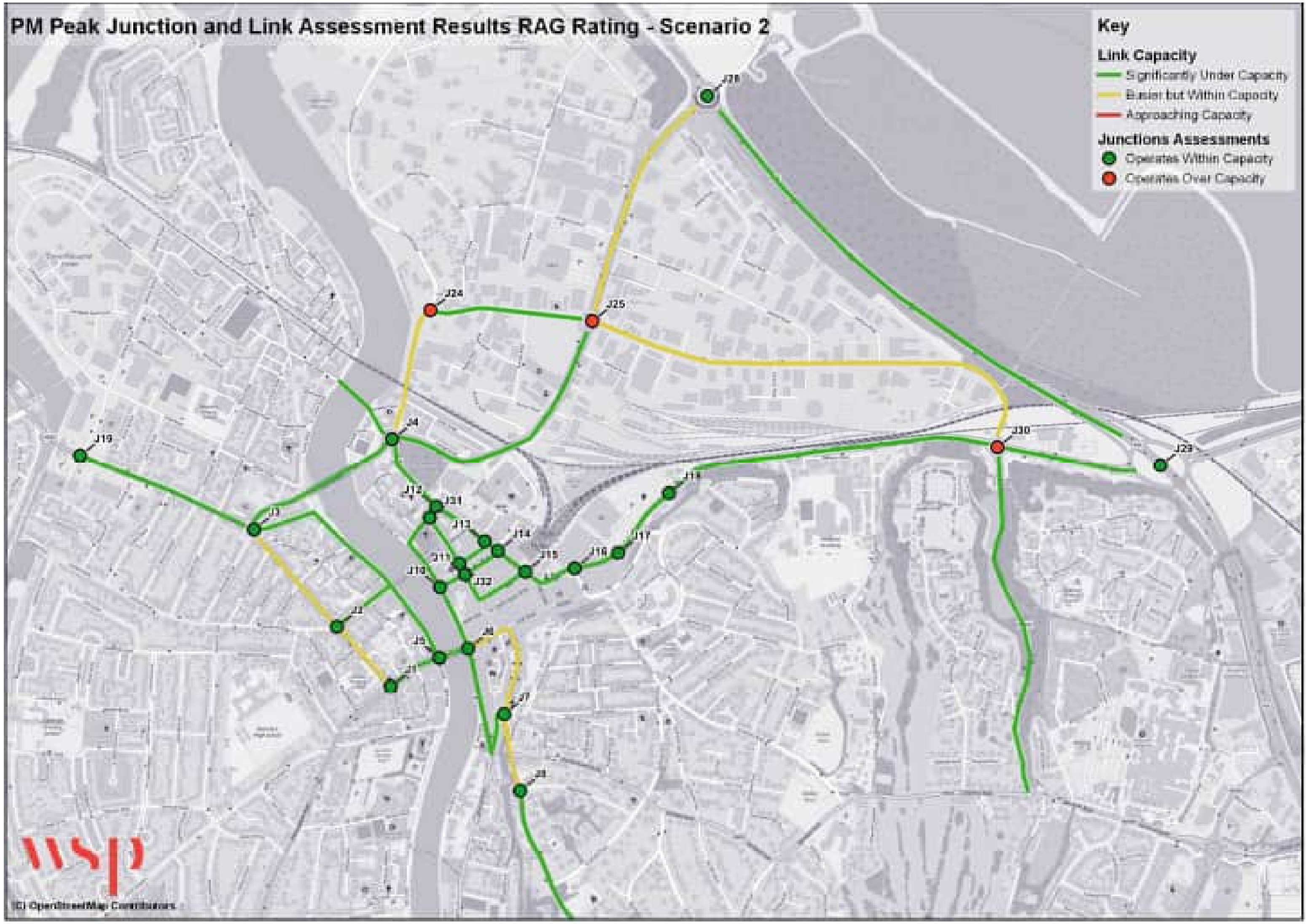


Figure 10-4 - PM Peak Assessment Results Scenario 2



10.2 RECOMMENDATIONS AND NEXT STEPS

10.2.1. Reflecting on the results of the impact assessment, the following represents WSPs recommendations:

- **Junction Mitigation Measures:** For the J25 – Longman Road / Harbour Road junction, which is projected to be over-capacity, consideration could be given to mitigation measures. While specific strategies are beyond the scope of this TIA, potential measures might include the signalisation of the junction to improve traffic flow and safety. However, we would recommend that monitoring of the junction is undertaken following the scheme before any mitigation is put in place. This will allow THC to determine the best scheme which meets the future needs of all users.
- **Analysis of Displaced Traffic in Crown:** Following the initial findings of this study, THC has commissioned WSP to conduct a detailed analysis of traffic movements within Crown, particularly focusing on areas likely to experience increases in displaced traffic. This study should aim to identify potential hotspots, especially near sensitive receptors like Crown Primary School and major routes like Southside Road. Such analysis should enable targeted interventions to manage traffic effectively.
- **Assessment of J30 – Millburn Road / Harbour Road:** Further analysis is recommended to evaluate the impact on J30 – Millburn Road / Harbour Road, particularly during periods when the nearby level crossing is closed. Although this scenario falls outside the current study's scope, the anticipated increase in traffic along Harbour Road during such times warrants exploration. Potential mitigation strategies could include implementing signage on B9006 south of the junction and Millburn Road west of the junction, advising drivers to use the A9 when the level crossing is closed. However, as noted previously, we would recommend that monitoring of the junction is undertaken following the scheme before any mitigation is put in place. This will allow THC to determine the best scheme which meets the future needs of all users.
- **Signage Strategy:** Implementing a comprehensive signage strategy at key points within the network is crucial. This strategy should inform drivers of the changes to Academy Street well in advance, enabling them to make informed route choices and mitigate the impact of the scheme. This could be supplemented through the promotion of alternative routes and available modes to maximise the potential for longer term behaviour change.

Appendix A

ACADEMY STREET DESIGN

Notes

Key

- Footway Surface - Caithness Flagstone
- Carriageway Surface - Silver Grey Granite setts
- Carriageway Surface at crossings - Dark Grey Granite setts
- Carriageway - Bituminous Surfacing at Bus turning areas
- Carriageway - Granite sets Shaded with pink and blue tones to delineate taxi rank/loading bays
- Tactile Paving at Controlled Crossings
- Existing Outside Dining Area
- Potential Outside Dining Area
- Proposed Trees
- Proposed Planters

Revision Details	Drawn By	Check By	Check Date	Sufx

The Highland Council
Comhairle na Gàidhealtachd

INFRASTRUCTURE, ENVIRONMENT & ECONOMY
PROJECT DESIGN UNIT
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Golspie
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Phone : 01408 635313
E-mail : garry.smith@highland.gov.uk

Project: Academy Street

Title: General Layout Sheet 1 of 4

Scale: 1:200 (@ A1)

Drawn: AK Date: 1/12/22

Checked: AS Date: 09/08/23

Project No.: YEHAS6120

Drawing No.: PD_01 Rev.: -

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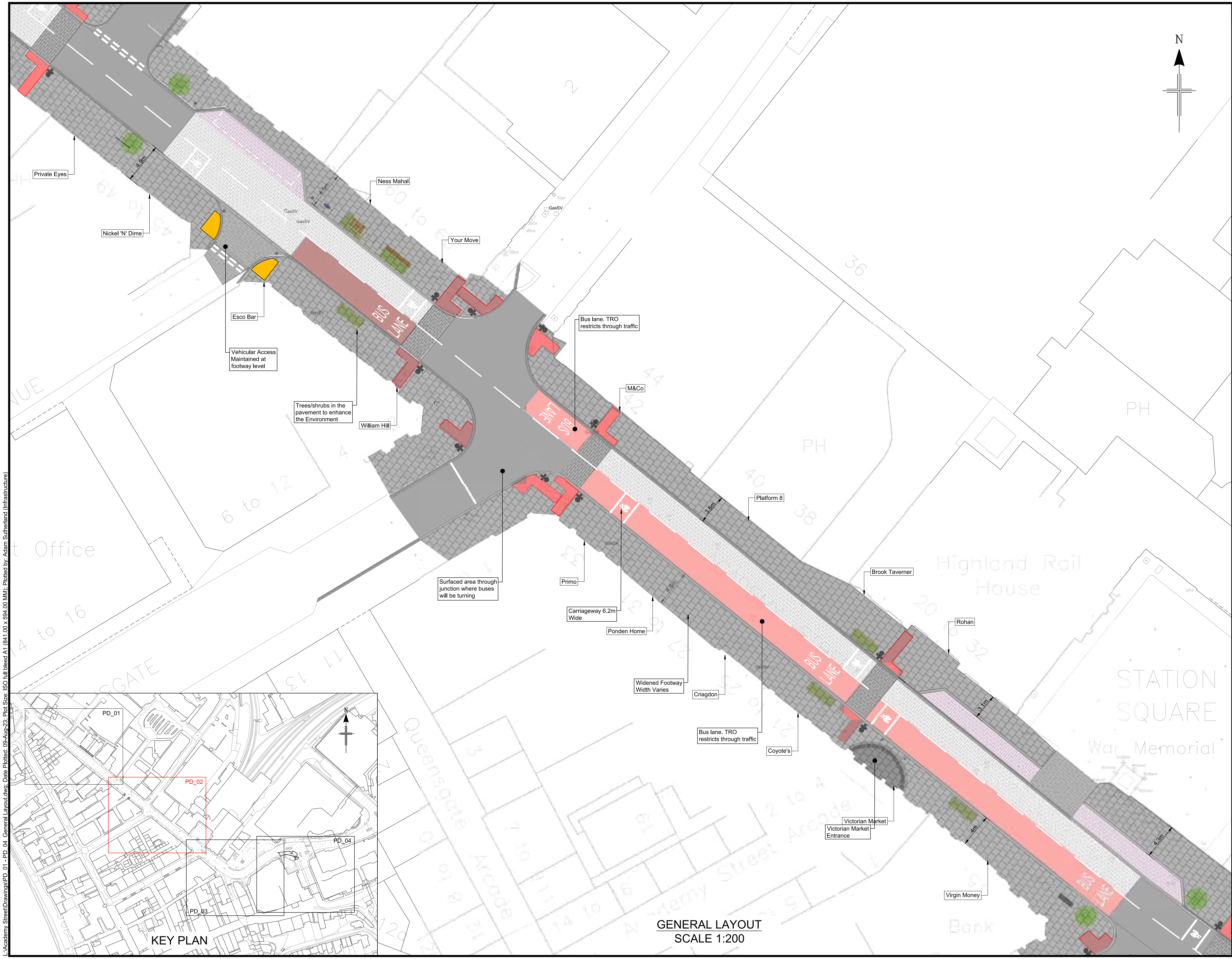

GENERAL LAYOUT
SCALE 1:200

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Revision Details	Drawn By	Check By	Check Date	Sufx

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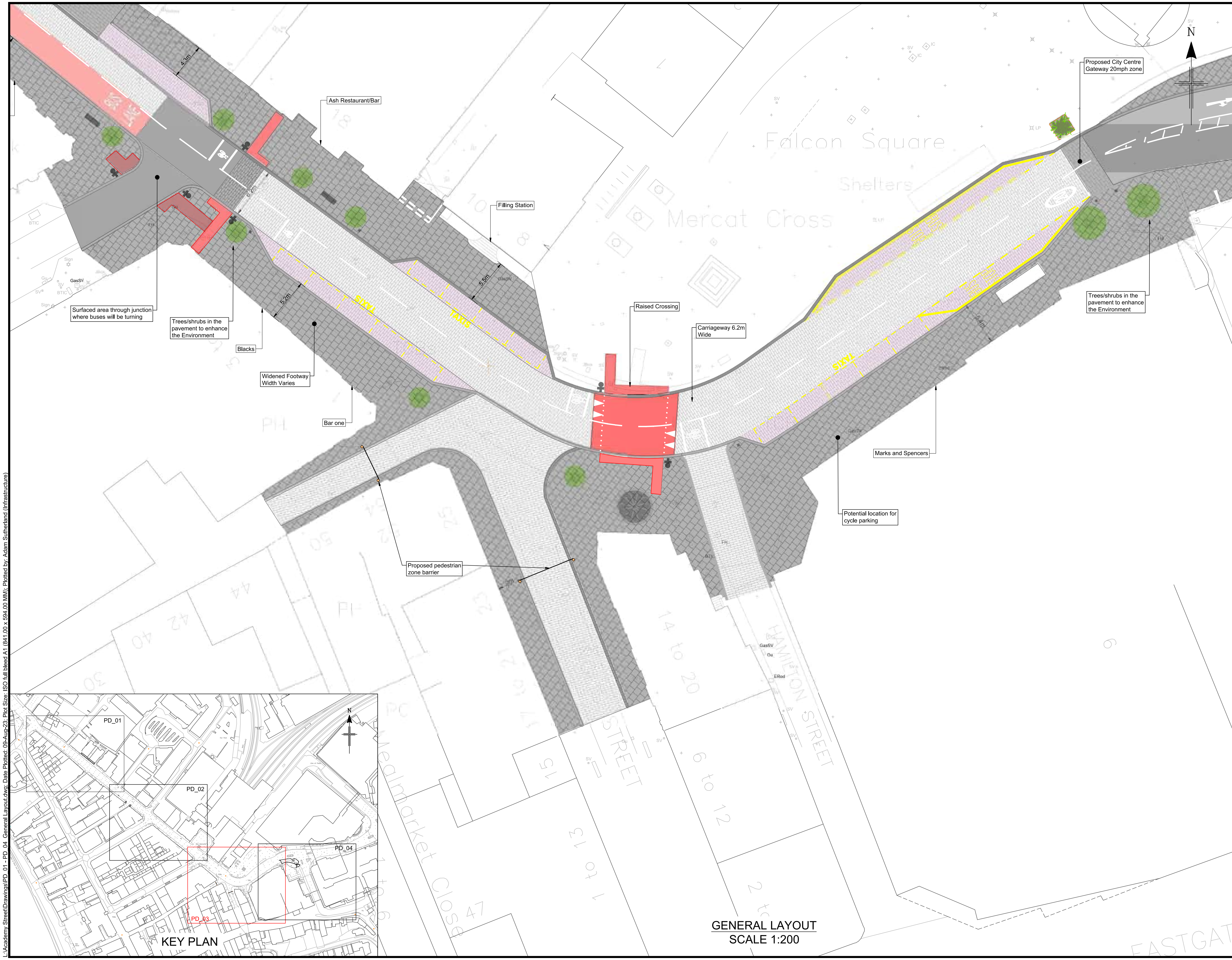
Project	Academy Street
Title	General Layout Sheet 2 of 4
Scale	1:200 (@ A1)
Drawn	AK
Date	1/12/22
Checked	AS
Date	9-Aug-23
Project No.	YEHAS6120
Drawing No.	PD_02
Rev.	-



GENERAL LAYOUT
SCALE 1:200

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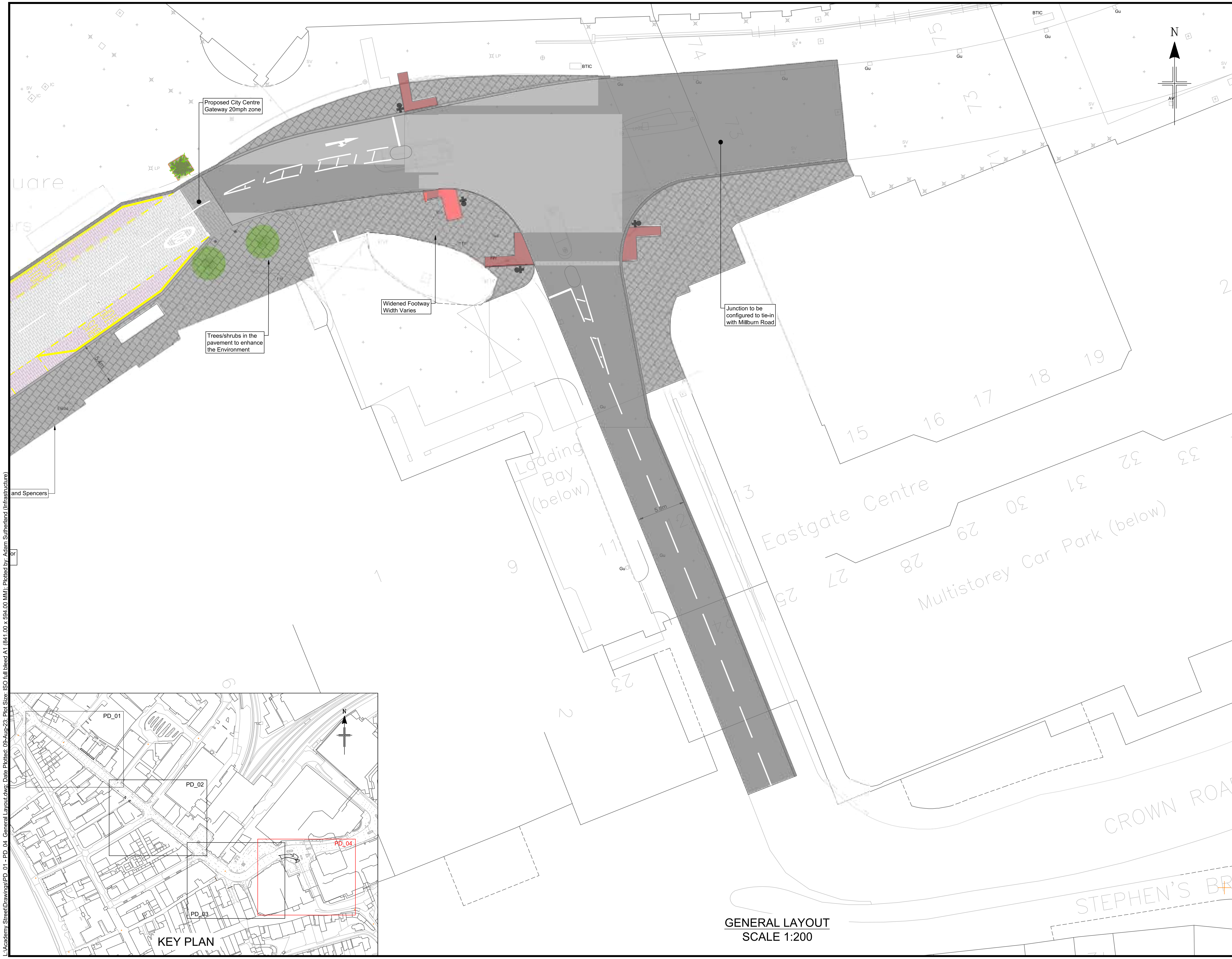
Project
Academy Street

Title
General Layout
Sheet 3 of 4

Scale	1:200 (@ A1)
Drawn	AK
Date	1/12/22
Checked	AS
Date	9-Aug-23
Project No.	YEHAS6120
Drawing No.	PD_03
Rev.	-



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Revision Details	Drawn By	Check By	Check Date	Sufx

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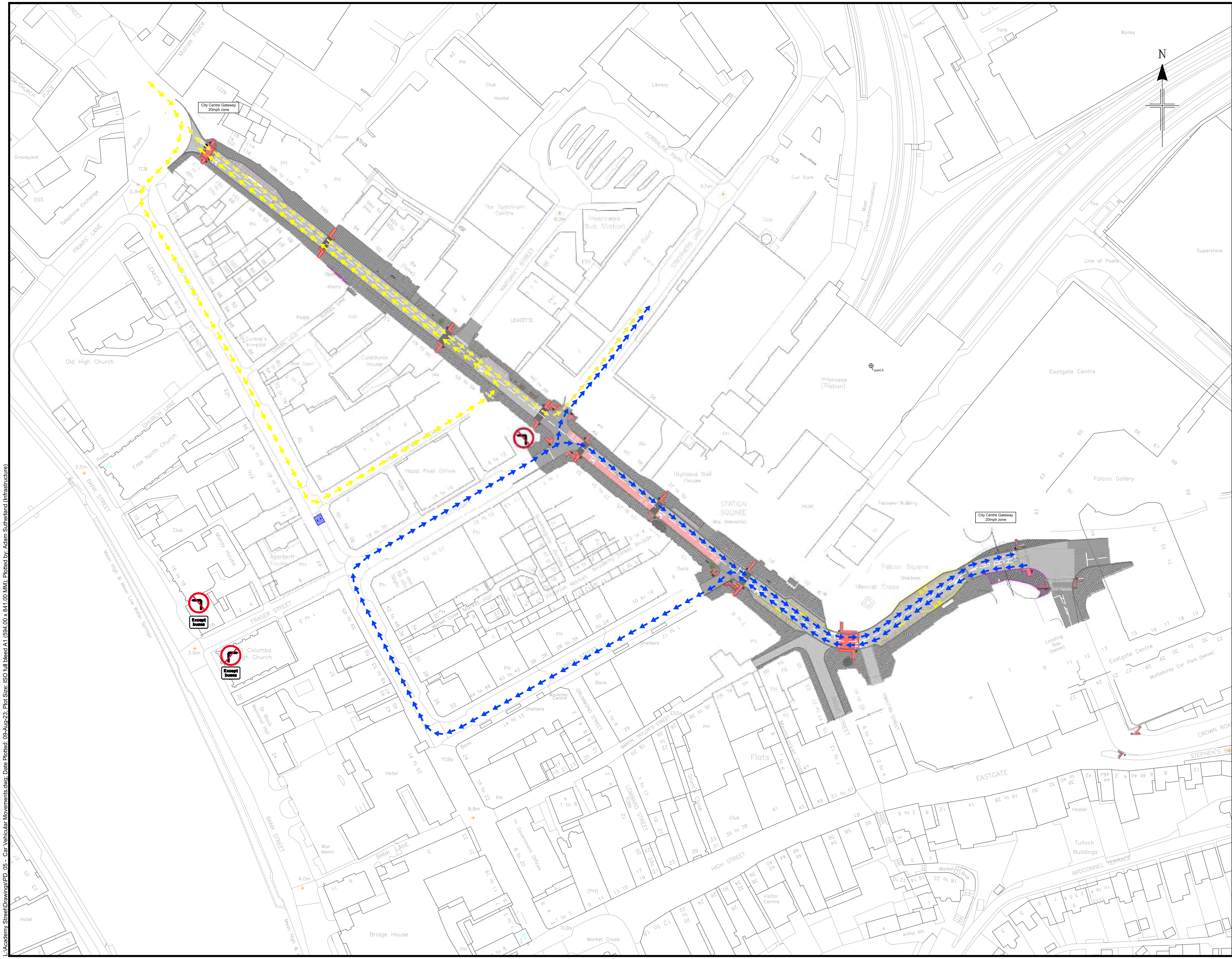
Project
Academy Street

Title
General Layout
Sheet 4 of 4

Scale	1:200 (@ A1)
Drawn AK	Date 1/12/22
Checked AS	Date 9-Aug-23
Project No.	YEHAS6120
Drawing No. PD_04	Rev. -



Notes

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Revision Details	Drawn By	Check By	Check Date	Sufx

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Project
Academy Street

Title
Car Routes

Scale	Not to Scale (@ A1)
Drawn: J.Chambers	Date: 28/02/2023
Checked: AS	Date: 9-Aug-23
Project No.	YEHAS6120
Drawing No.: PD_05	Rev.: -

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Notes

Key

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The placement of potential outside dining areas has been based on suitable widths across the footway. Width that can accommodate a 3m wide footway and minimum 1.8m dining area (1.2m dining + 0.6m buffer to carriageway) has been shown as a potential outside dining area.

Revision Details	Drawn By	Check By	Check Date	Sufx

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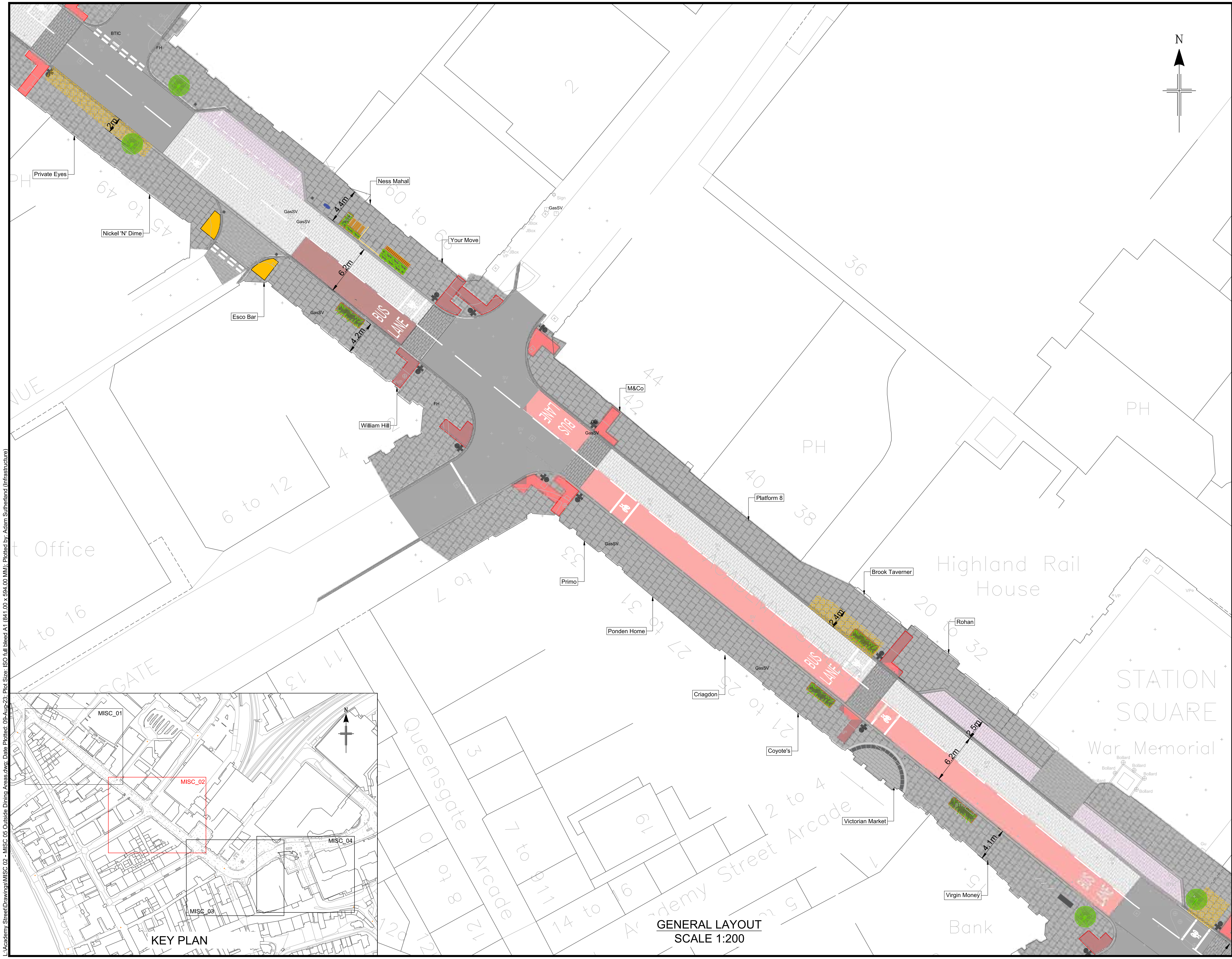
Project	Academy Street
Title	Outside Dining Areas
Scale	1:200 (@ A1)
Drawn	AK
Date	05/07/23
Checked	AS
Date	09/08/23
Project No.	YEHAS6120
Drawing No.	MISC_02
Rev.	-



GENERAL LAYOUT
SCALE 1:200

Notes

Key

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Revision Details	Drawn By	Check By	Check Date	Sufx

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Project	Academy Street
Title	Outside Dining Areas
Scale	1:200 (@ A1)
Drawn	AK
Date	05/07/23
Checked	AS
Date	09/08/23
Project No.	YEHAS6120
Drawing No.	MISC_03
Rev.	-

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GENERAL LAYOUT
SCALE 1:200

Notes

Key

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Revision Details	Drawn By	Check By	Check Date	Sufx

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Project
Academy Street

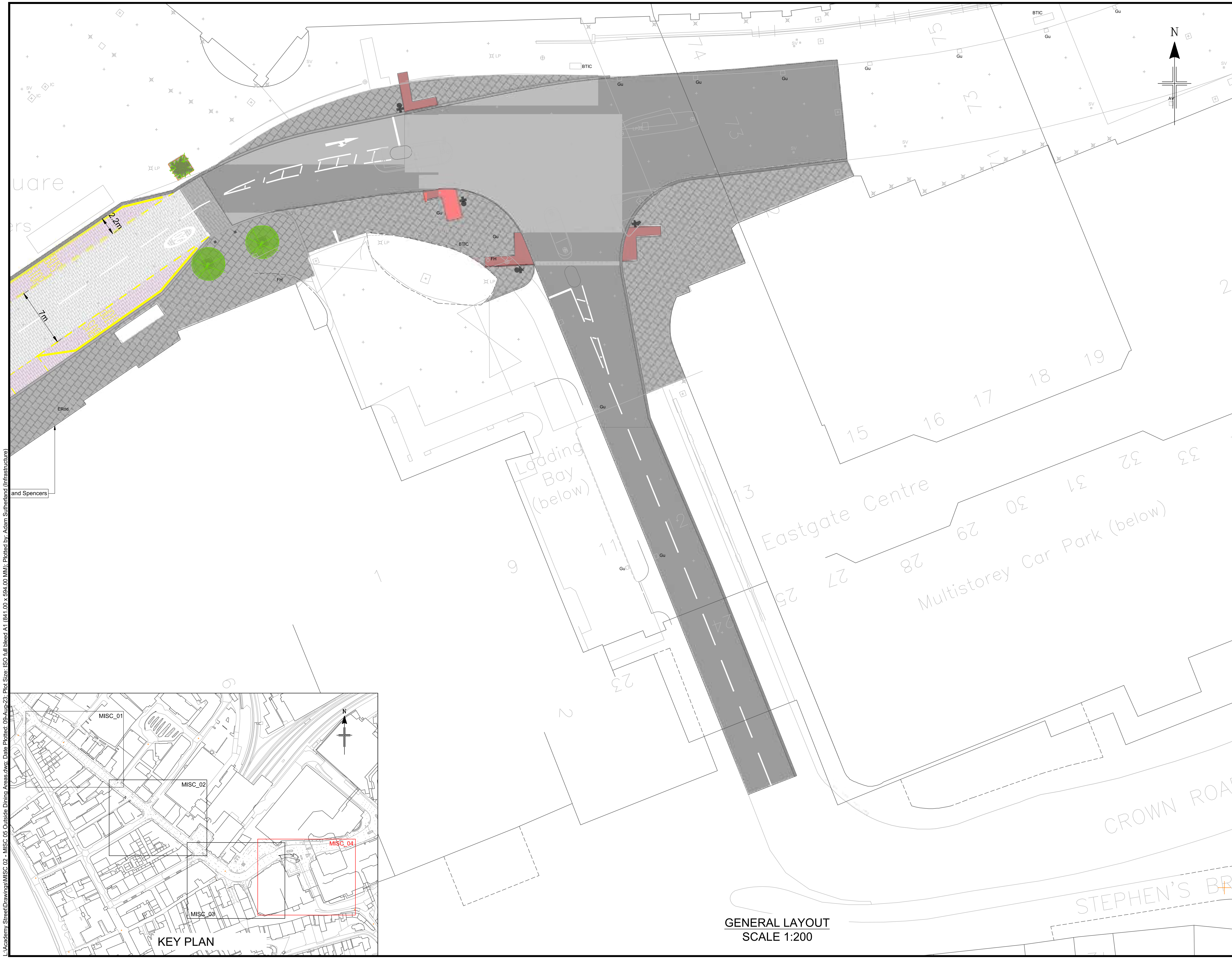
Title
Outside Dining Areas

Scale
1:200 (@ A1)

Drawn	AK	Date	05/07/23
Checked	AS	Date	09/08/23

Project No.
YEHAS6120

Drawing No. MISC_04 Rev. -



KEY PLAN

GENERAL LAYOUT
SCALE 1:200

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Revision Details	Drawn By	Check By	Check Date	Sufx

The Highland Council
Comhairle na Gàidhealtachd
INFRASTRUCTURE, ENVIRONMENT & ECONOMY
PROJECT DESIGN UNIT
Drummuie
Golspie
KW10 6TA
Phone : 01408 635313
E-mail : garry.smith@highland.gov.uk

Project: Academy Street

Title: Outside Dining Areas

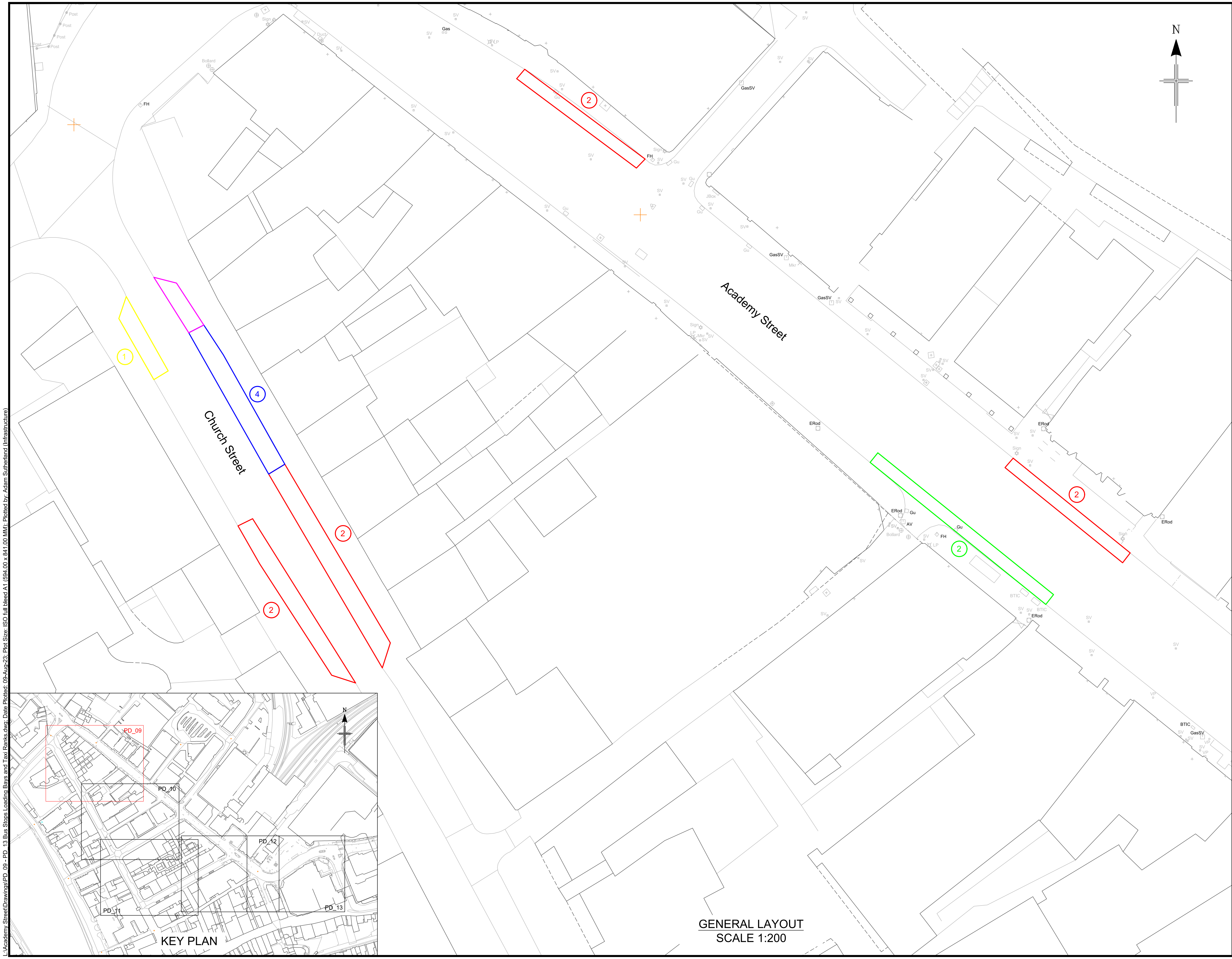
Scale: 1:200 (@ A1)

Drawn: AK Date: 05/07/23

Checked: AS Date: 9-Aug-23

Project No.: YEHAS6120

Drawing No.: MISC_05 Rev.: -



GENERAL LAYOUT
SCALE 1:200

Notes

Key:

Existing Parking Allocation

- Loading Bays
- Bus Stops
- Taxi Ranks
- Disabled Parking
- Motorbike Bay
- Car Club Bay

Revision Details	Drawn By	Check By	Check Date	Sufx

The Highland Council
Comhairle na Gàidhealtachd

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Project
Academy Street

Title
Bus Stops
Loading Bays
Taxi Ranks

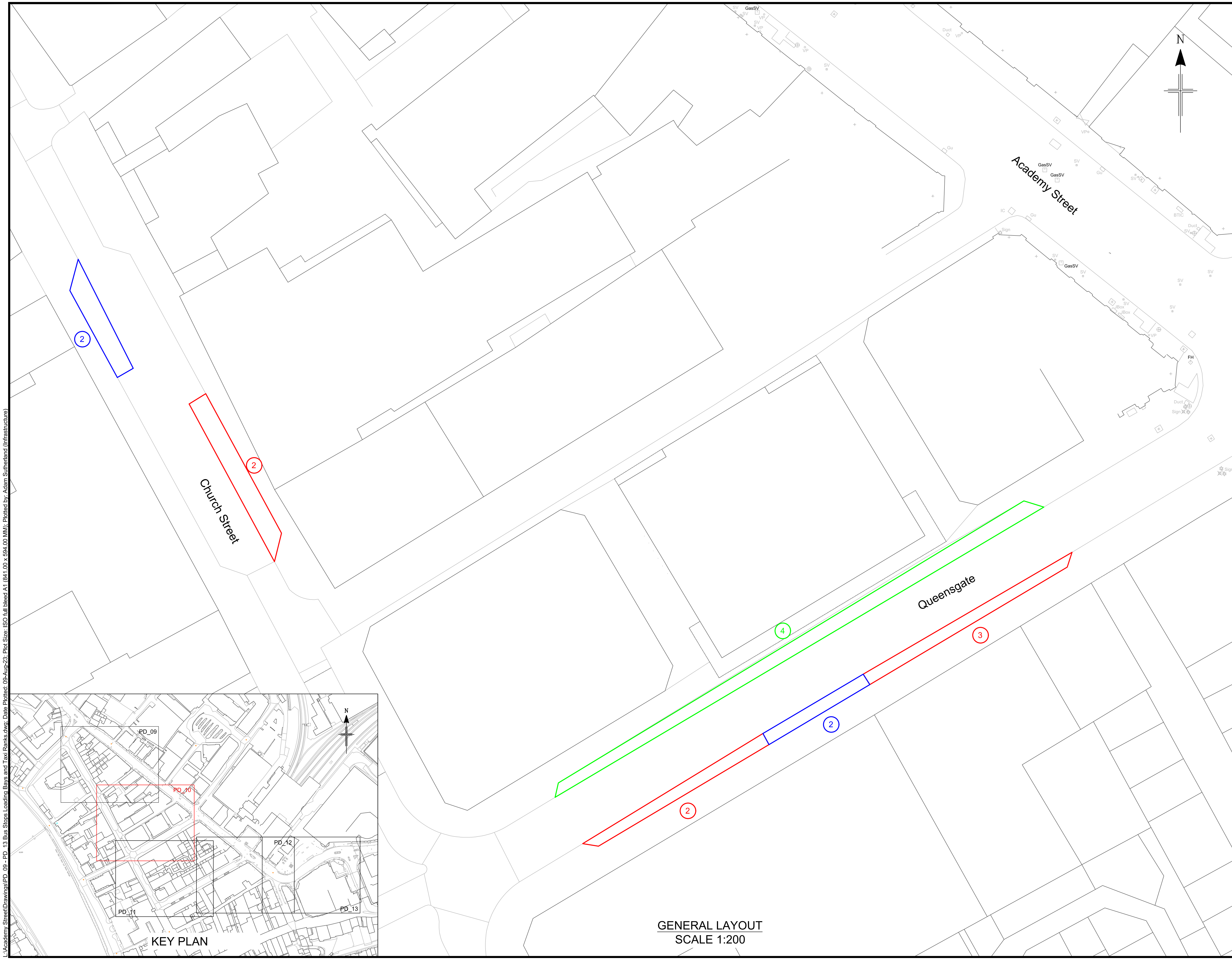
Scale
1:200 (@ A1)

Drawn	AK	Date	29/06/23
Checked	AS	Date	09/08/23

Project No.
YEHAS6120

Drawing No.
PD_09

Rev.
-



GENERAL LAYOUT
SCALE 1:200

Notes

Key:
Existing Parking Allocation

- Loading Bays
- Bus Stops
- Taxi Ranks
- Disabled Parking
- Motorbike Bay
- Car Club Bay

Revision Details	Drawn By	Check By	Check Date	Sufx

The Highland Council
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INFRASTRUCTURE, ENVIRONMENT & ECONOMY
PROJECT DESIGN UNIT
Drummuie
Golspie
KW10 6TA

Phone : 01408 635313
E-mail : garry.smith@highland.gov.uk

Project: Academy Street

Title: Bus Stops Loading Bays Taxi Ranks

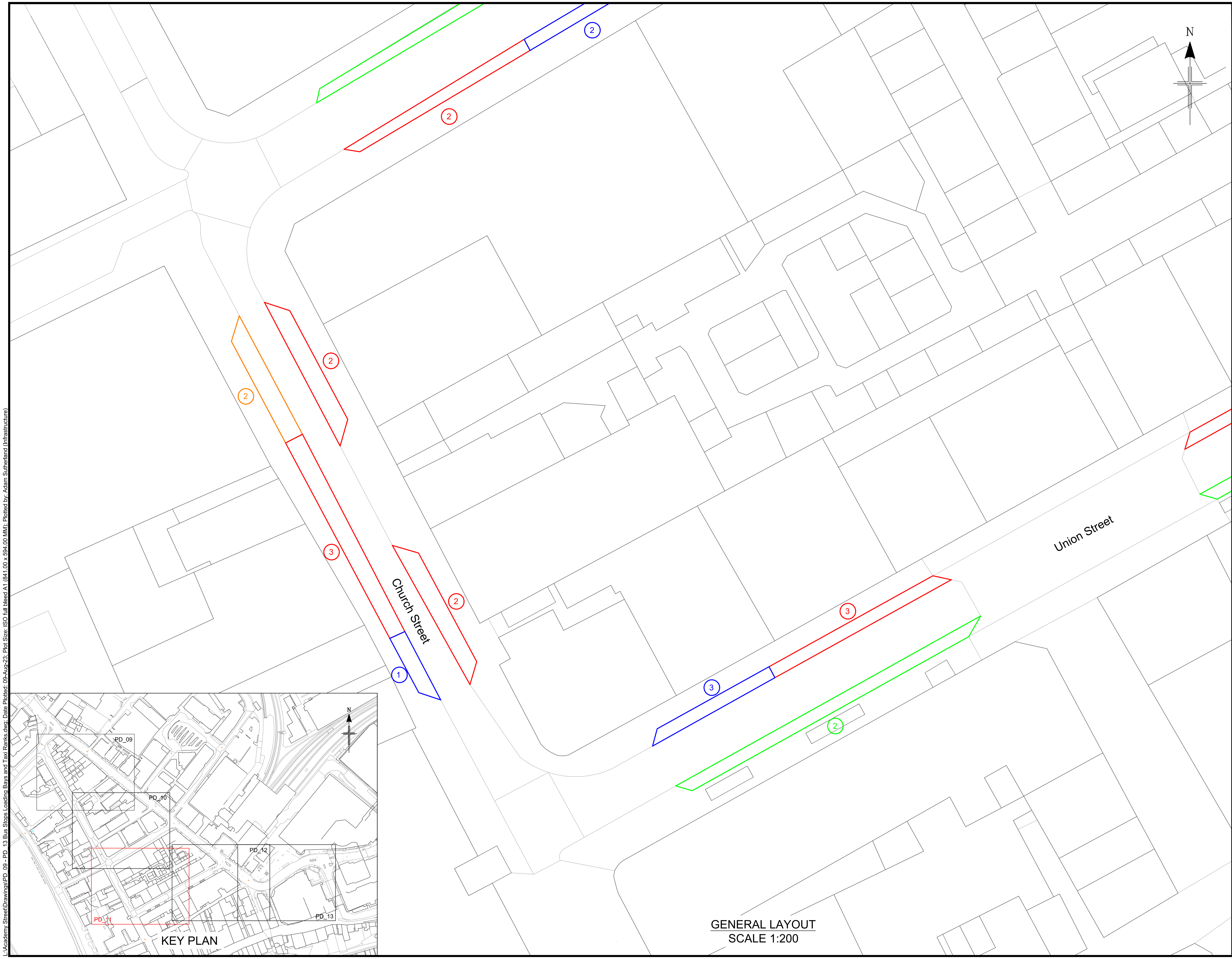
Scale: 1:200 (@ A1)

Drawn	AK	Date	29/06/23
Checked	AS	Date	9-Aug-23

Project No. YEHAS6120

Drawing No. PD_10 Rev. -

L:\Academy Street\Drawings\PD_09 - PD_13 Bus Stops Loading Bays and Taxi Ranks.dwg; Date Plotted: 09-Aug-23; Plot Size: ISO full bleed A1 (841.00 x 594.00 MM); Plotted by: Adam Sutherland (Infrastructure)



GENERAL LAYOUT
SCALE 1:200

Notes

Key:

Existing Parking Allocation

- Loading Bays
- Bus Stops
- Taxi Ranks
- Disabled Parking
- Motorbike Bay
- Car Club Bay

Revision Details | Drawn By | Check By | Check Date | Sufx

The Highland Council
Comhairle na Gàidhealtachd

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Scale: 1:200 (@ A1)

Drawn: AK | Date: 29/06/23

Checked: AS | Date: 9-Aug-23

Project No.: YEHAS6120

Drawing No.: PD_11 | Rev.: -

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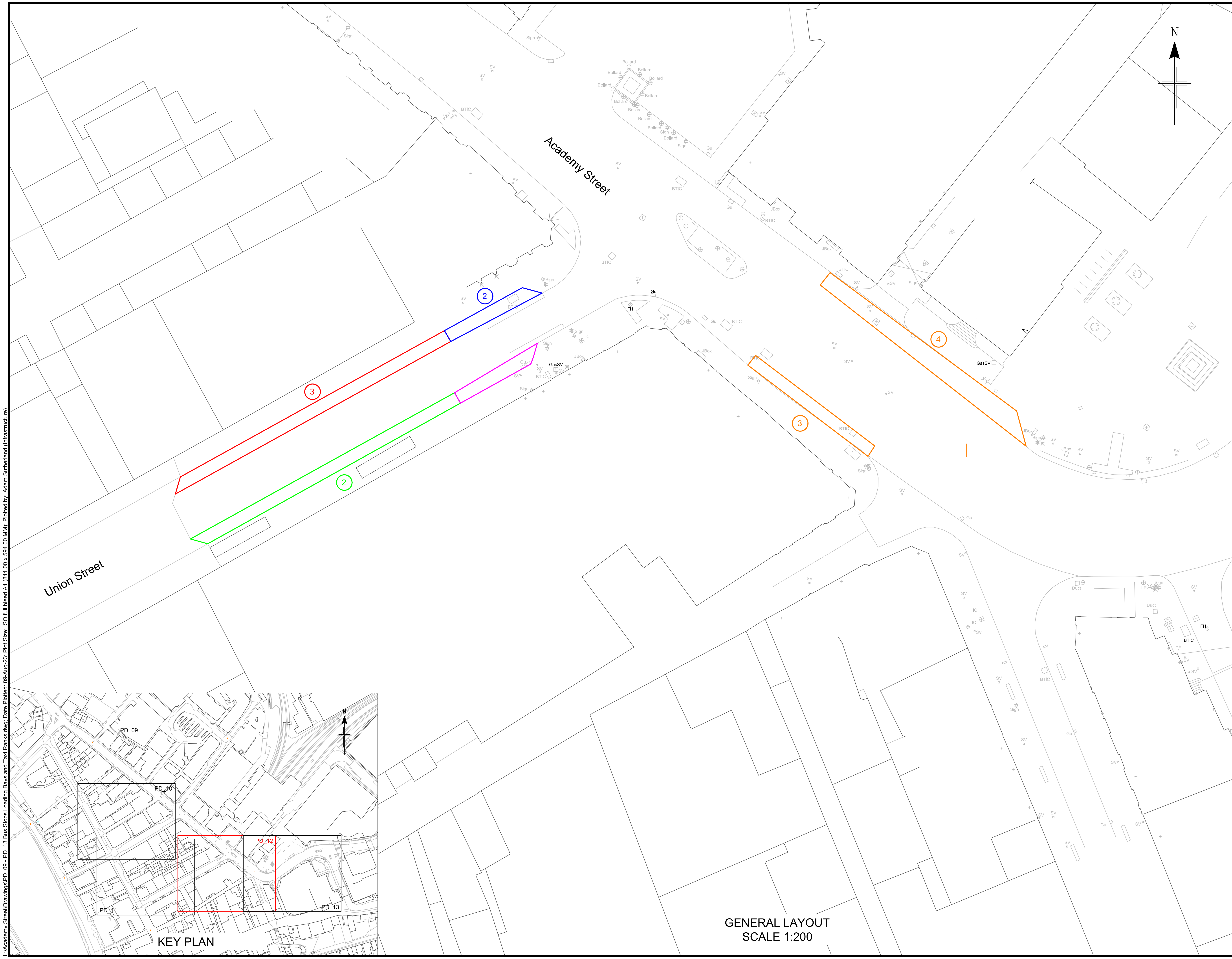

GENERAL LAYOUT
SCALE 1:200

Notes

Revision Details | Drawn By | Check By | Check Date | Sufx

The Highland Council
Comhairle na Gàidhealtachd

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Project: Academy Street

Title: Bus Stops Loading Bays Taxi Ranks

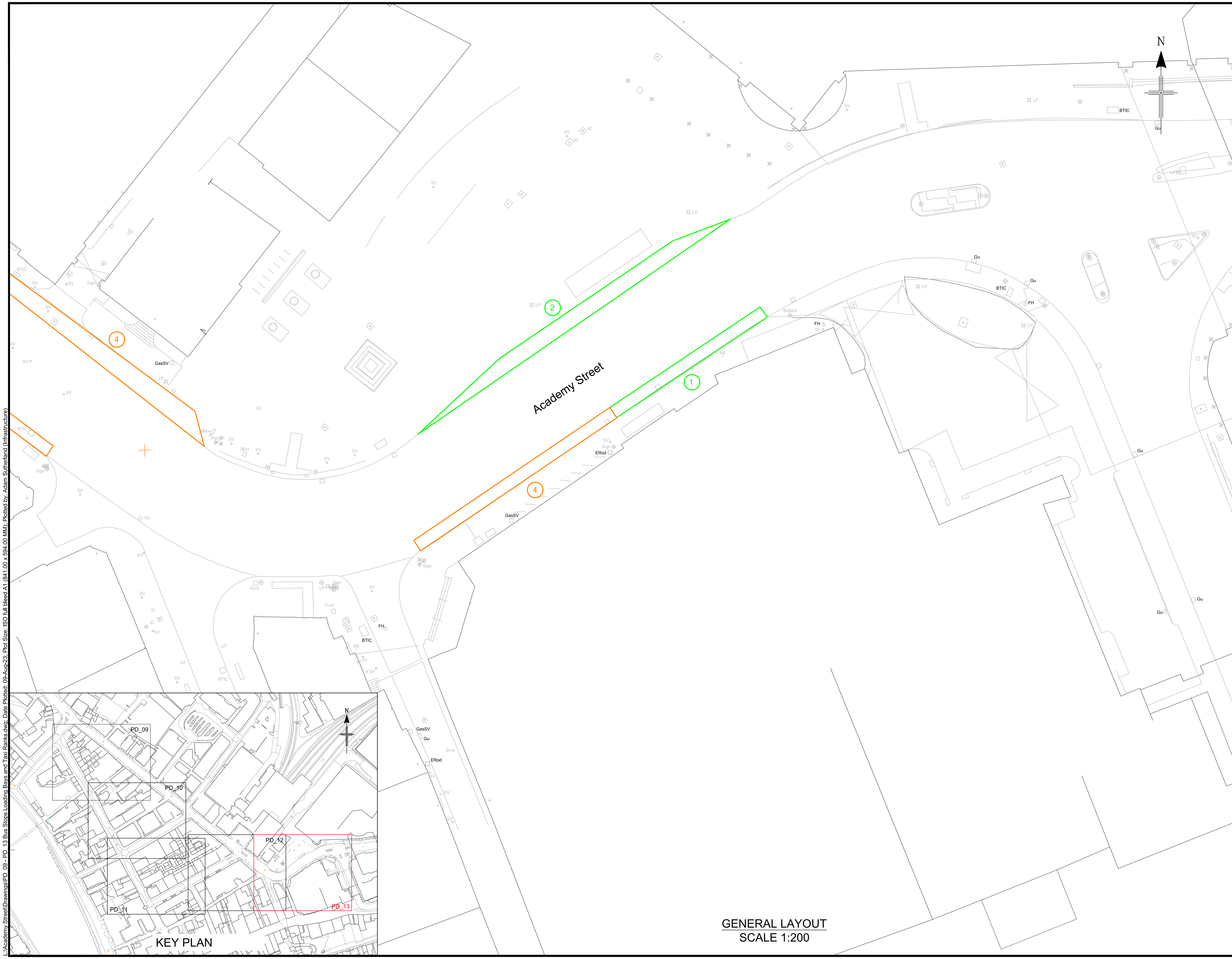
Scale: 1:200 (@ A1)

Drawn: AK | Date: 29/06/23

Checked: AS | Date: 9-Aug-23

Project No.: YEHAS6120

Drawing No.: PD_12 | Rev.: -



GENERAL LAYOUT
SCALE 1:200

Notes

Key:
Existing Parking Allocation

- Loading Bays
- Bus Stops
- Taxi Ranks
- Disabled Parking
- Motorbike Bay
- Car Club Bay

Revision Details	Drawn By	Check By	Check Date	Sufx

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Comhairle na Gàidhealtachd

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Project	Academy Street
Title	Bus Stops Loading Bays Taxi Ranks
Scale	1:200 (@ A1)
Drawn	AK
Date	29/06/23
Checked	AS
Date	9-Aug-23
Project No.	YEHAS6120
Drawing No.	PD_13
Rev.	-

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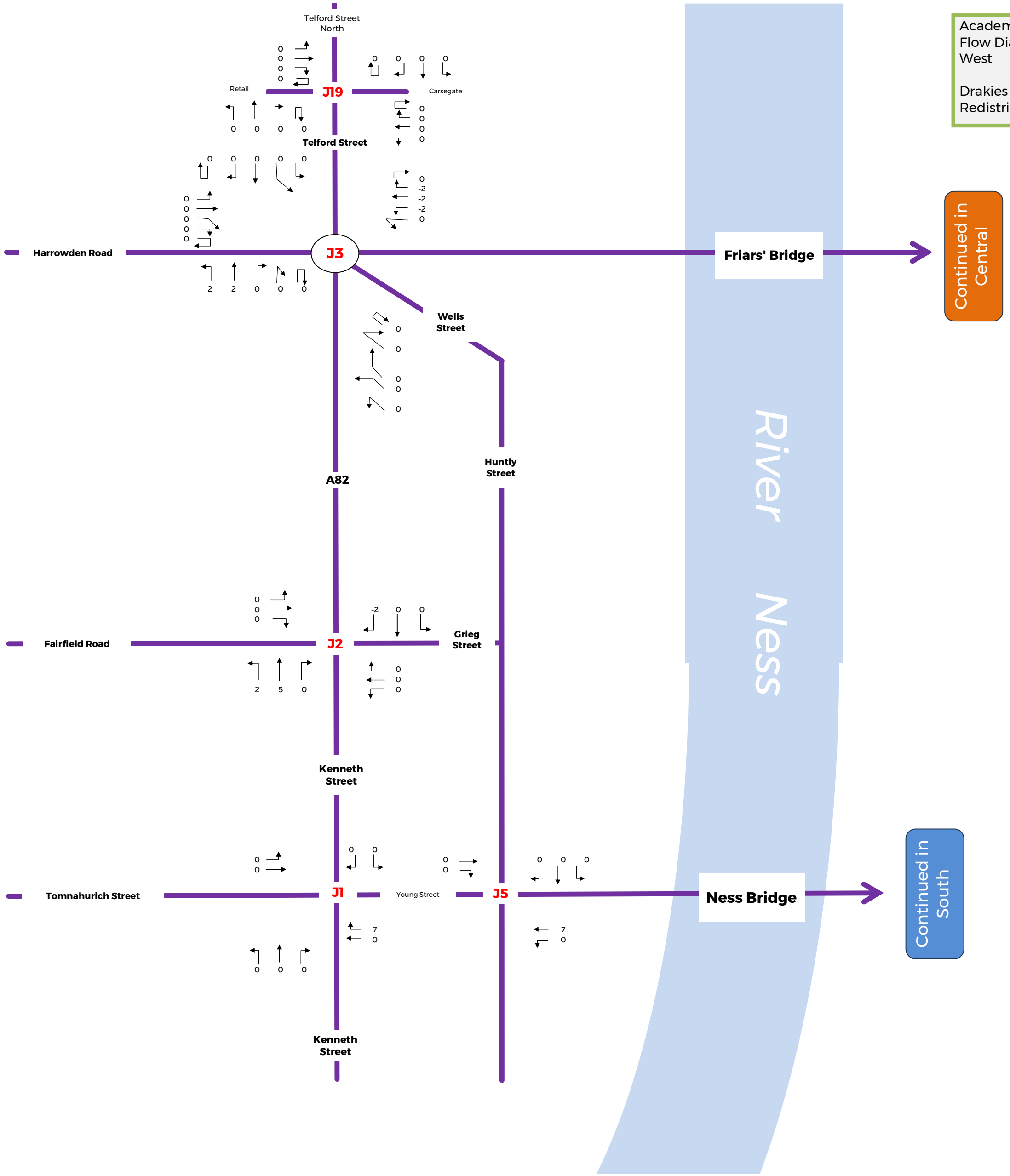
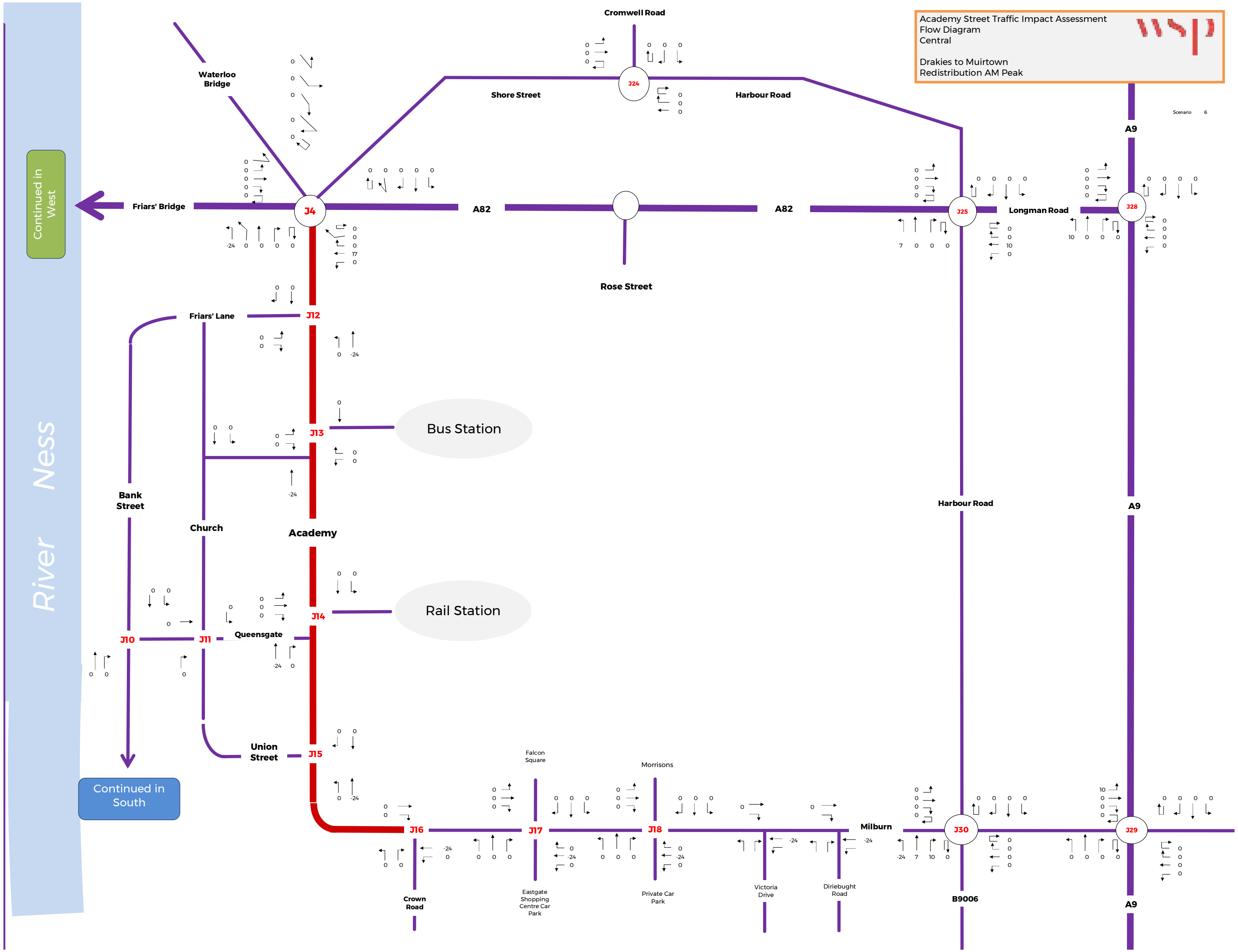
Appendix B

NETWORK DIAGRAMS

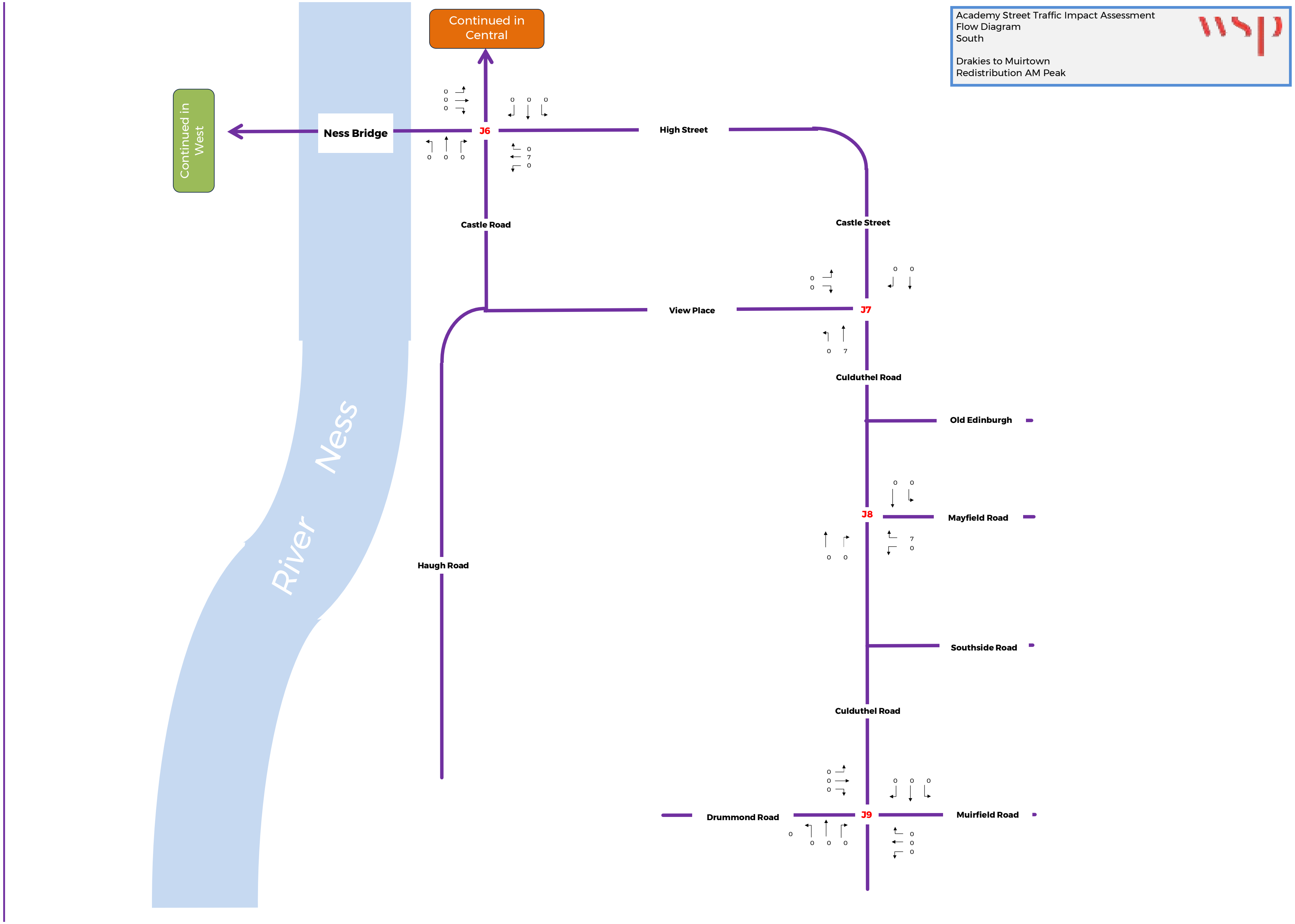
Academy Street Traffic Impact Assessment
Flow Diagram
West

Drakies to Muirtown
Redistribution AM Peak



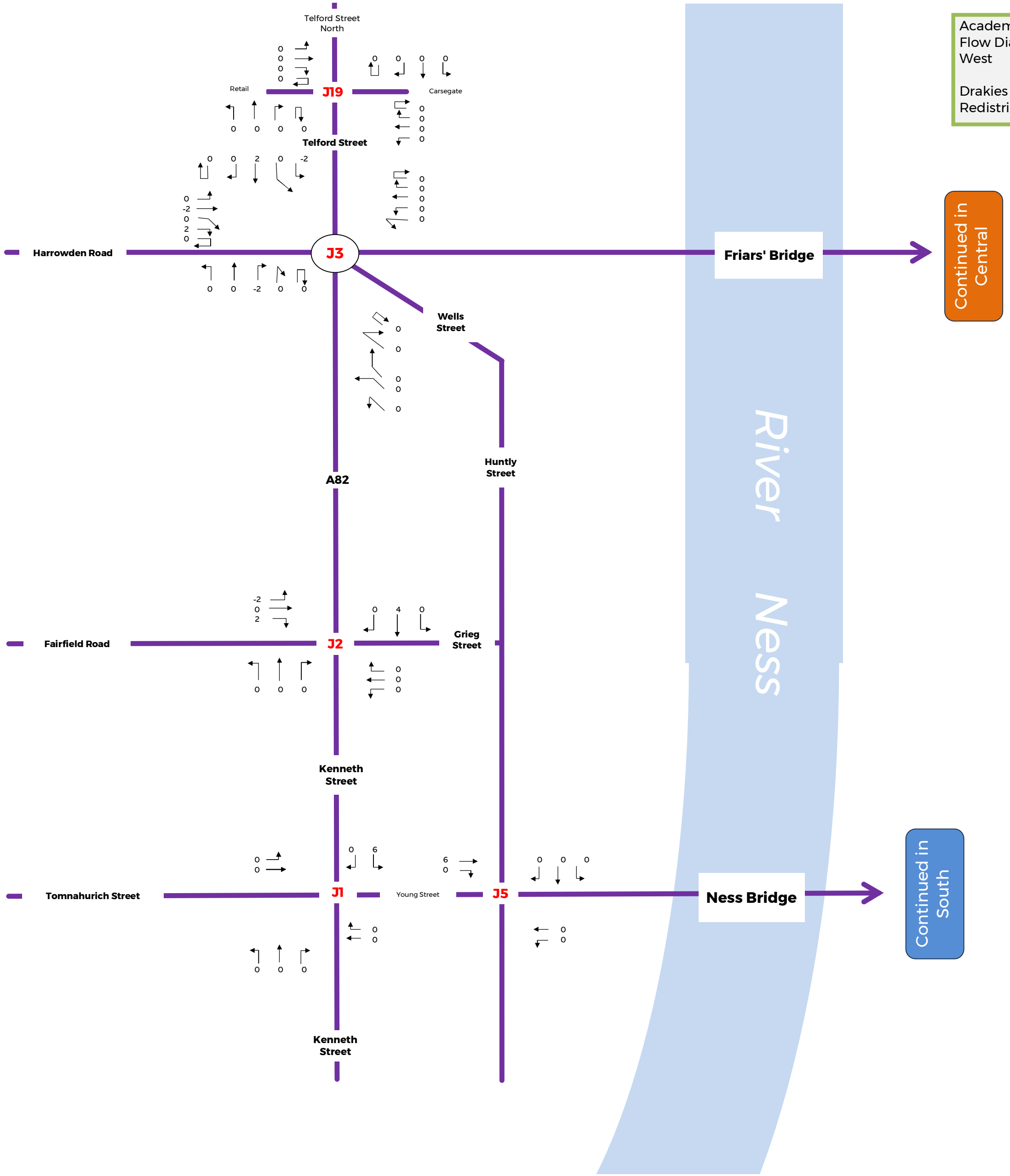


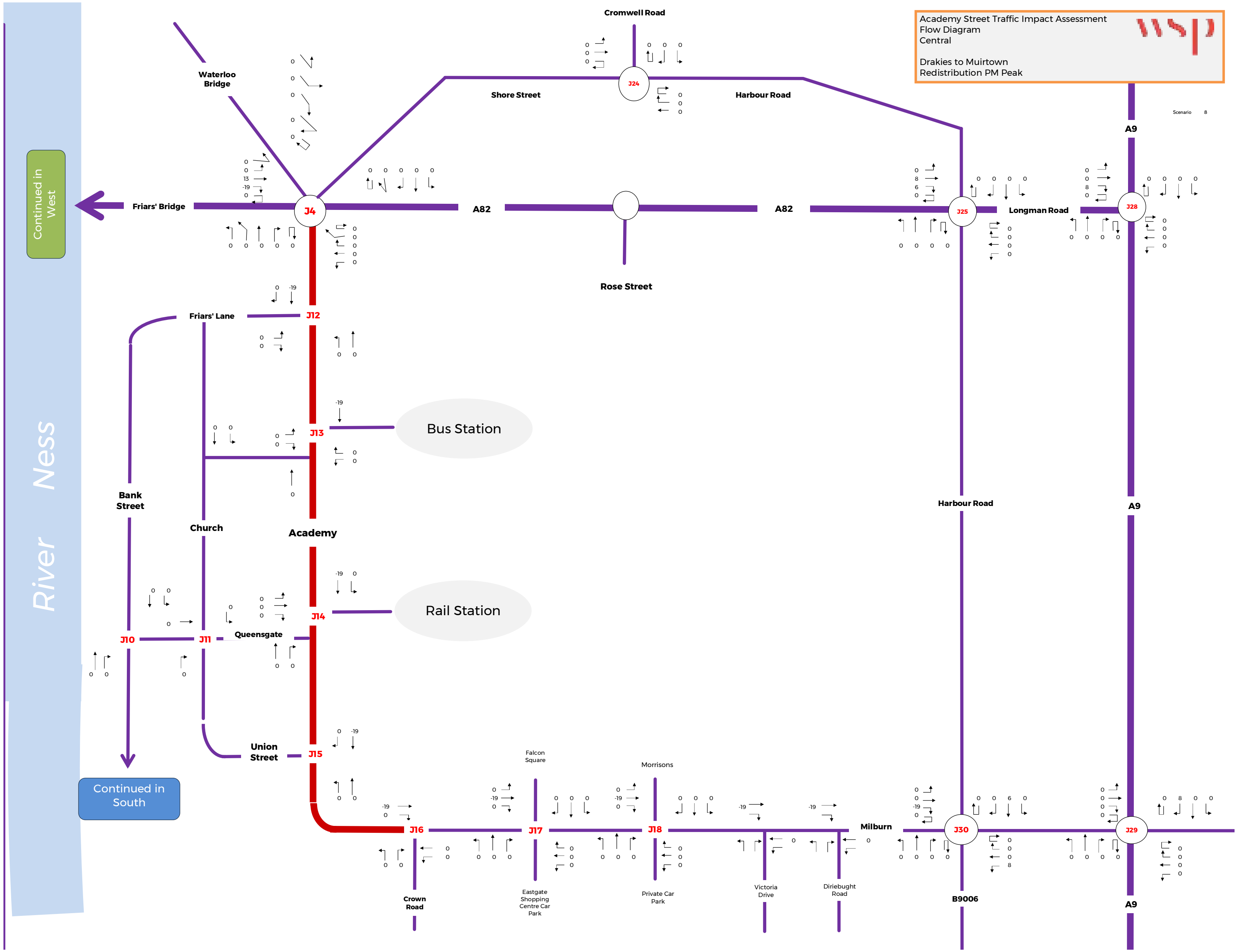
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Drakies to Muirtown
Redistribution AM Peak
Scenario 6
Continued in West
Continued in South
River Ness
Waterloo Bridge
Cromwell Road
Shore Street
Harbour Road
Friars' Bridge
A82
Rose Street
Longman Road
A9
Friars' Lane
Bus Station
Bank Street
Church
Academy
Harbour Road
Rail Station
Queensgate
Union Street
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30


Academy Street Traffic Impact Assessment
Flow Diagram
South
Drakies to Muirtown
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
River Ness
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

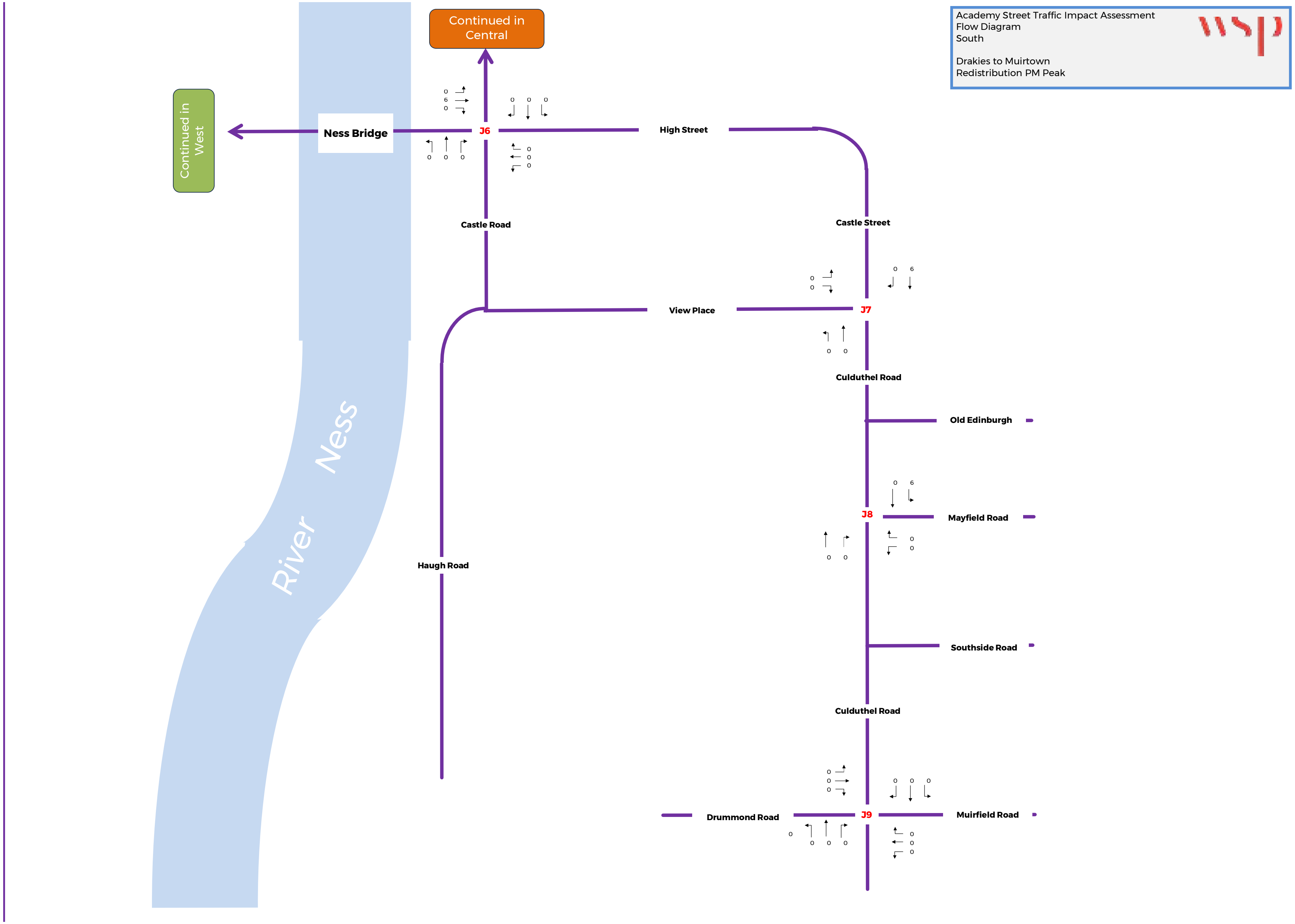
Academy Street Traffic Impact Assessment
Flow Diagram
West

Drakies to Muirtown
Redistribution PM Peak

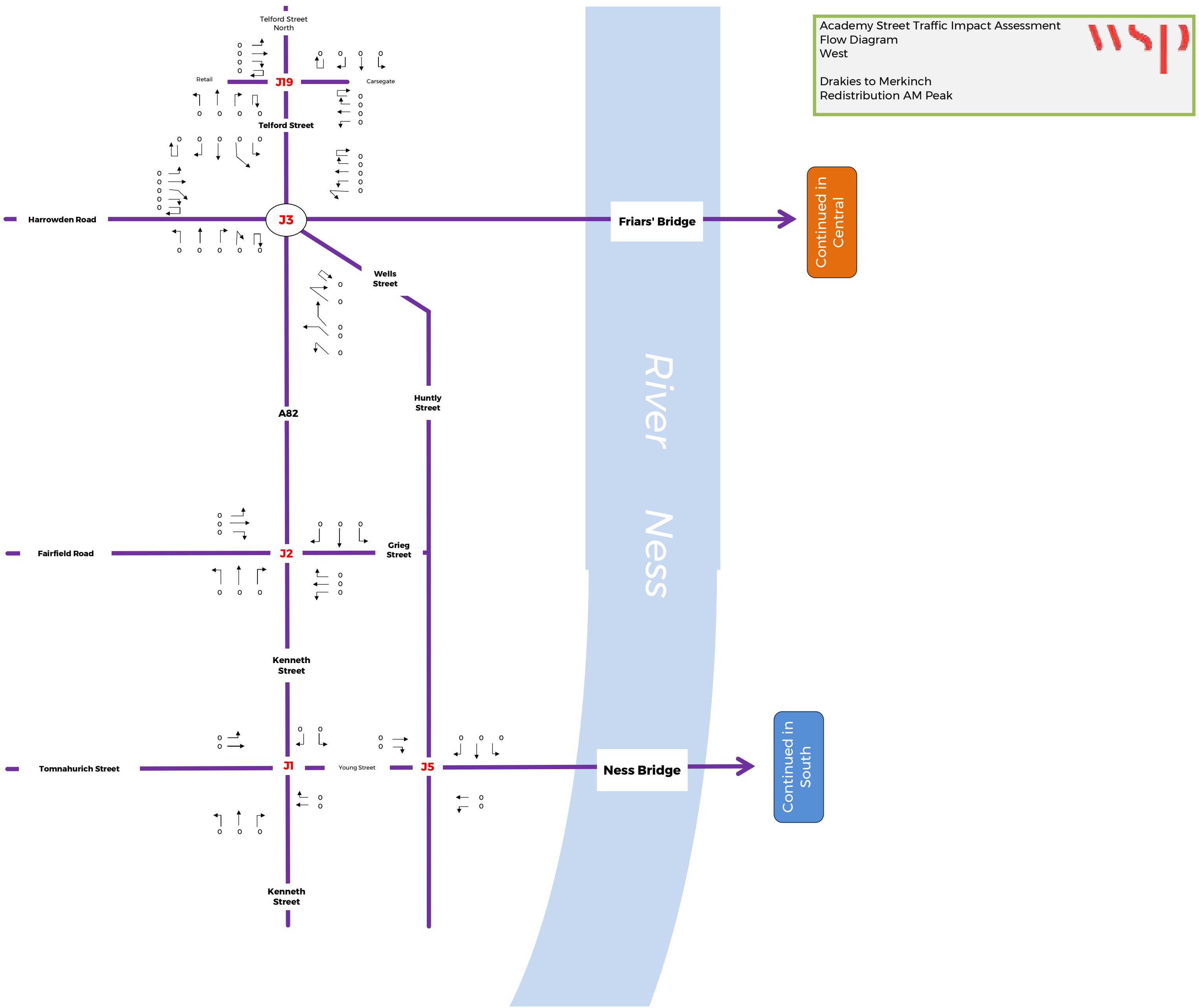




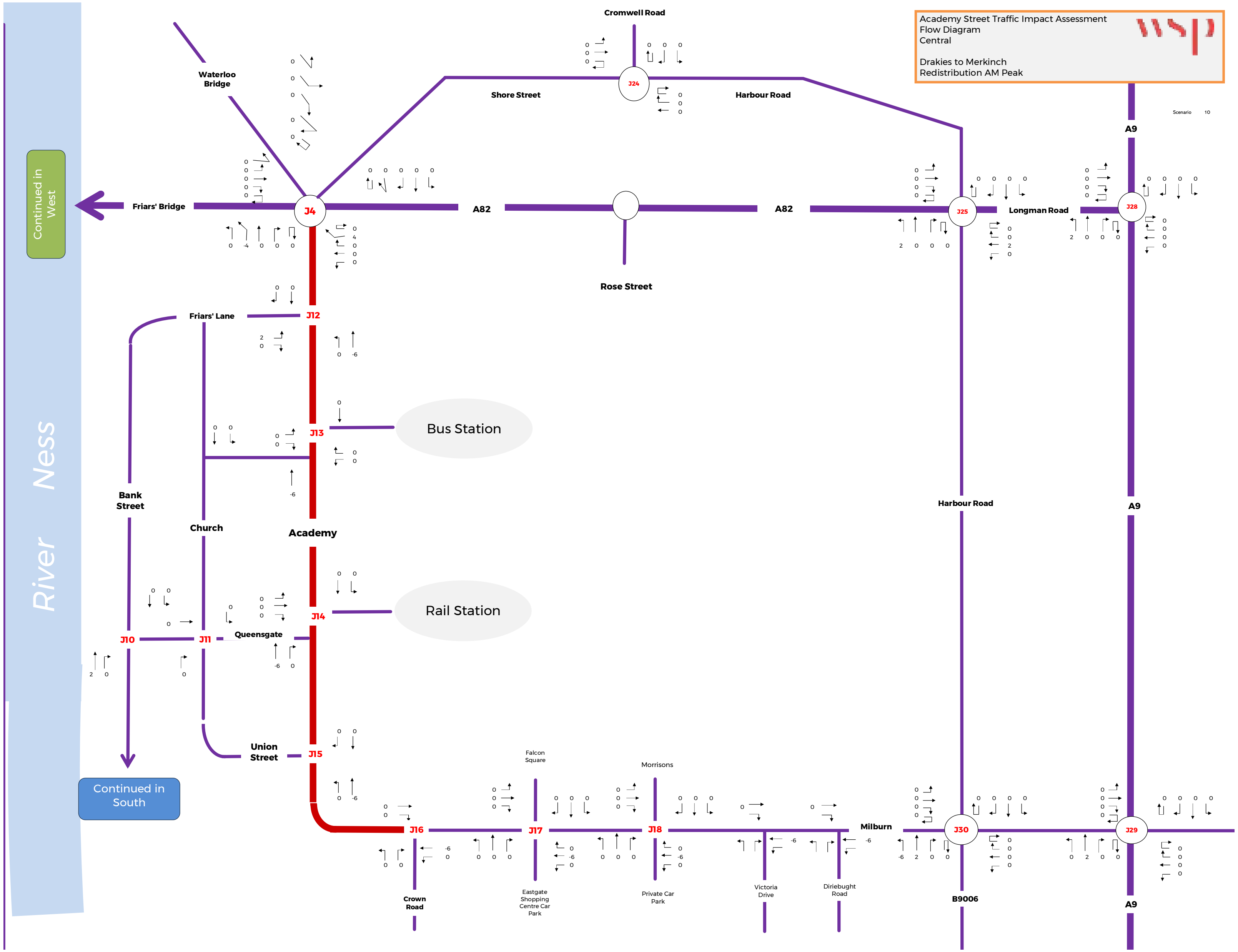
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Drakies to Muirtown
Redistribution PM Peak
Scenario 8
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

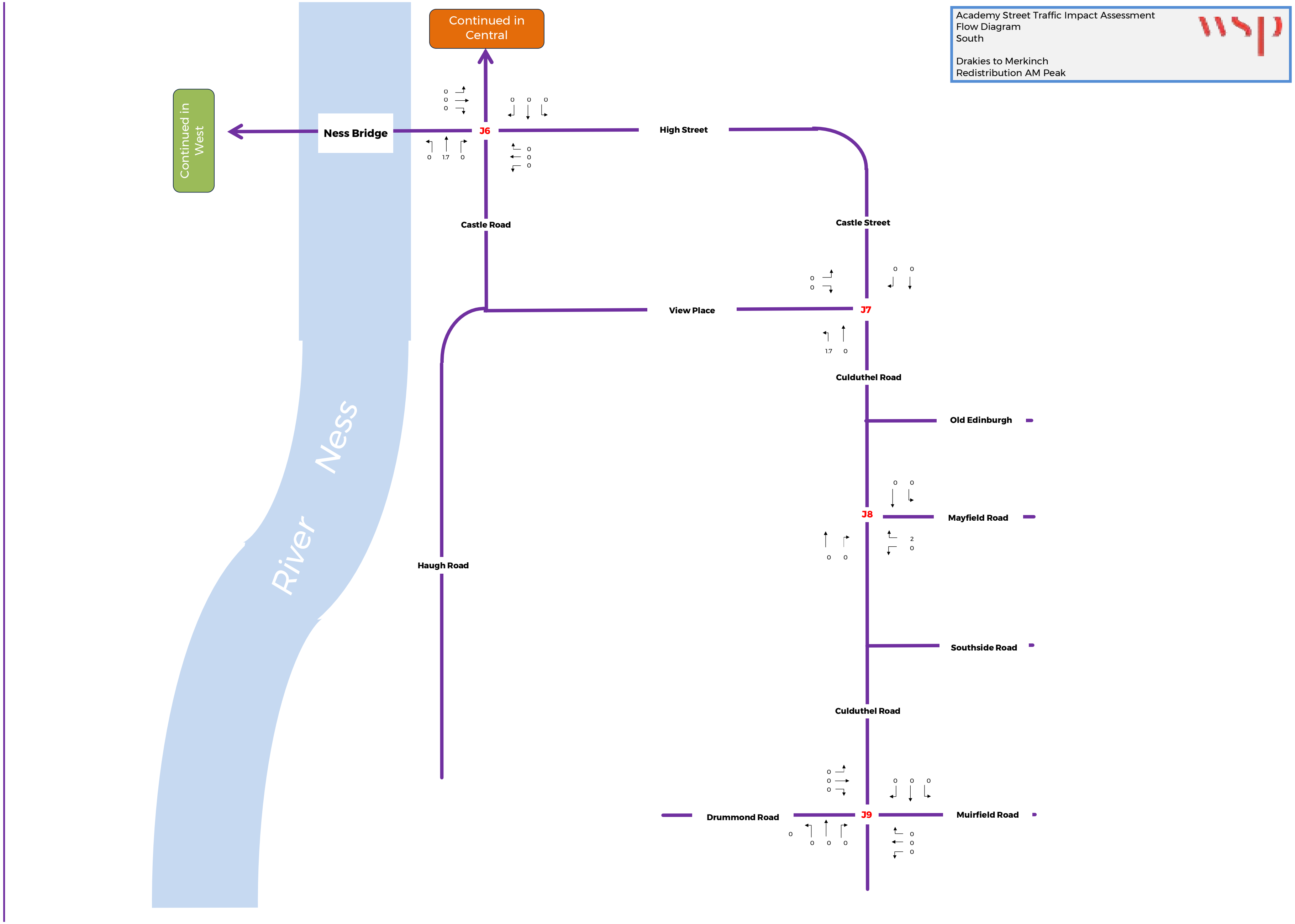


Academy Street Traffic Impact Assessment
Flow Diagram
South
Drakies to Muirtown
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
River Ness
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road



Academy Street Traffic Impact Assessment
Flow Diagram
West
Drakies to Merkinch
Redistribution AM Peak
Telford Street North
Retail
J19
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street

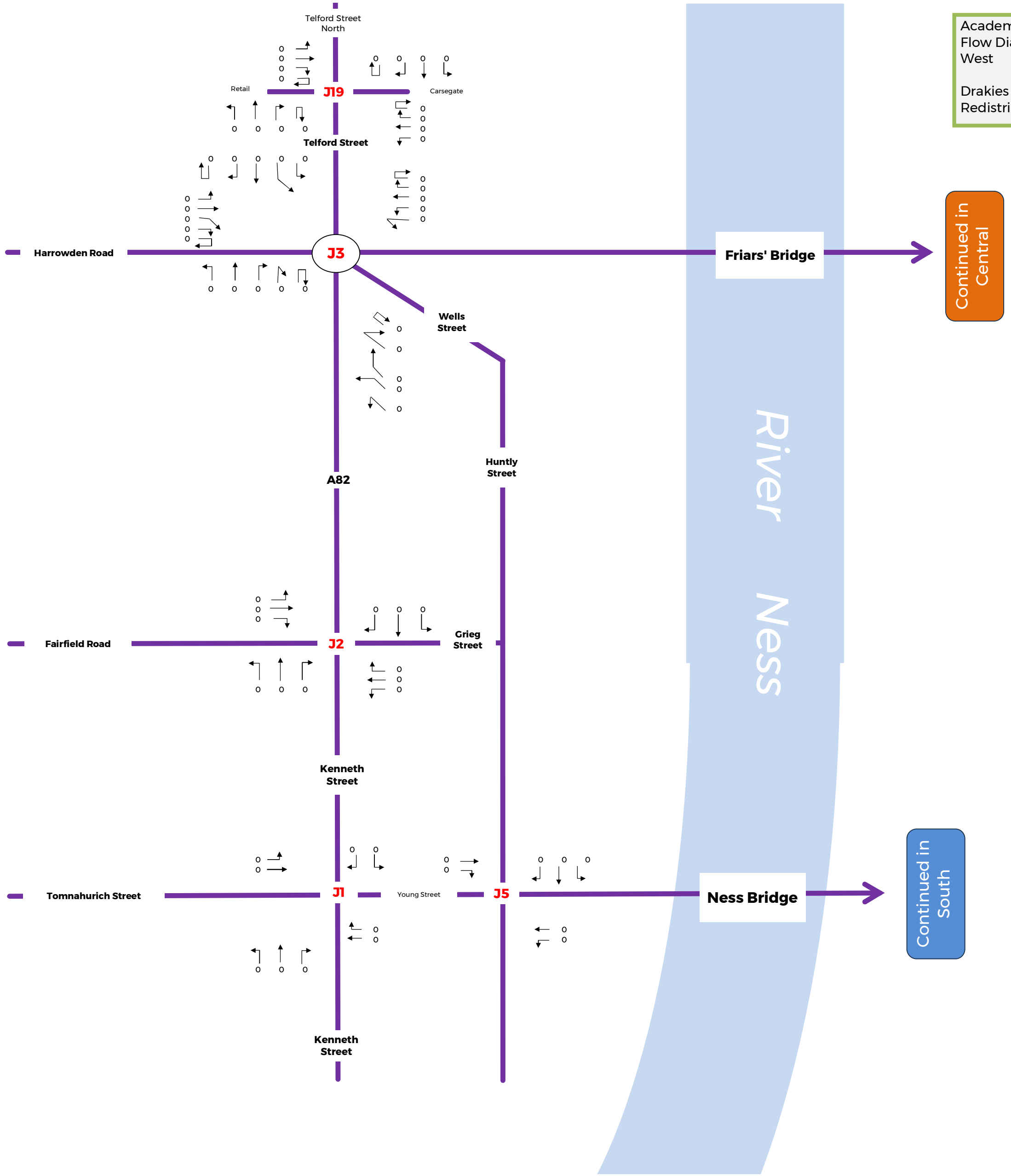

Academy Street Traffic Impact Assessment
Flow Diagram
Central
Drakies to Merkinch
Redistribution AM Peak
Scenario 10
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
Queensgate
J10
J11
Union Street
J15
Continued in South
Falcon Square
Morrisons
Milburn
J16
J17
J18
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9



Academy Street Traffic Impact Assessment
Flow Diagram
South
Drakies to Merkinch
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
River Ness
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

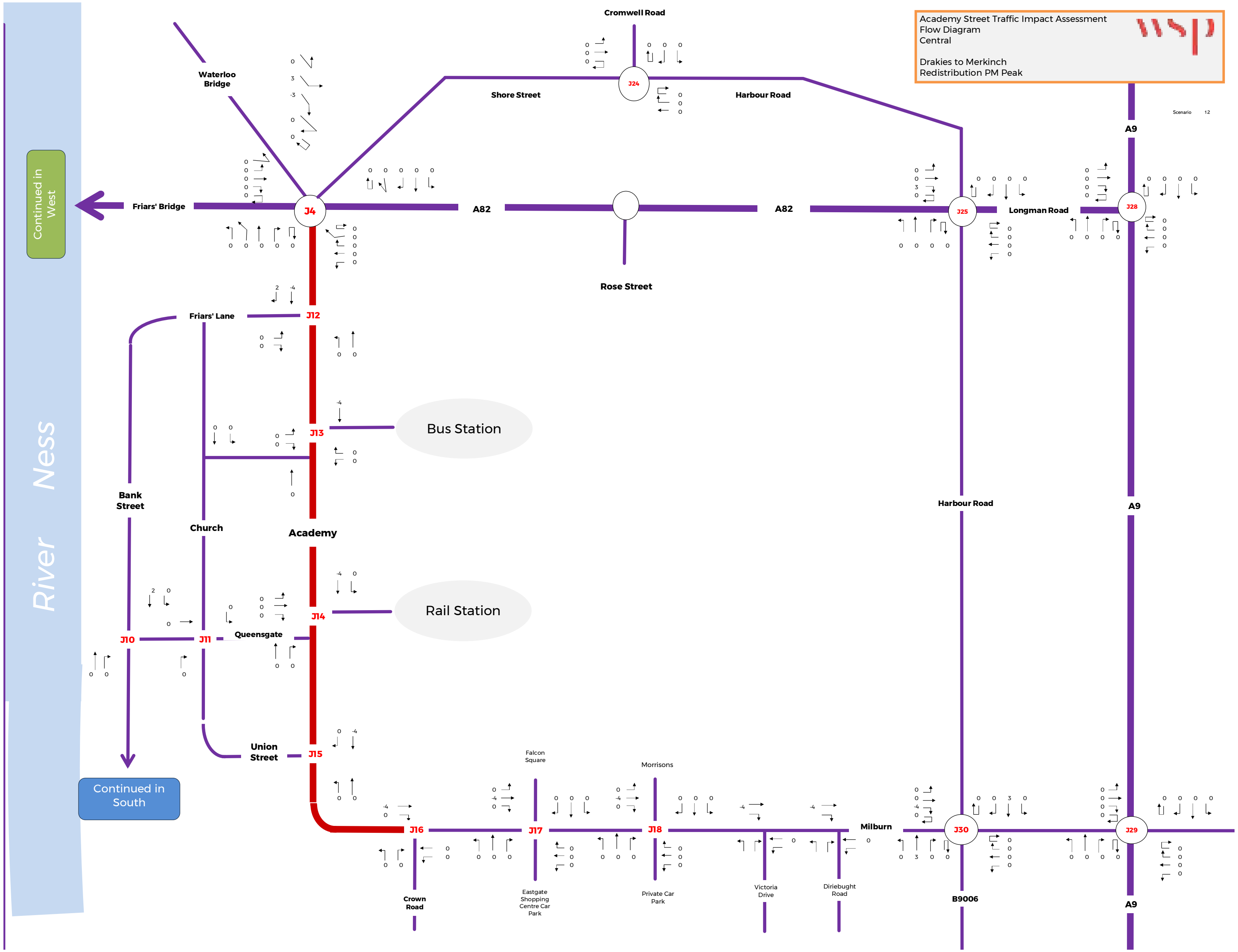
Drakies to Merkinch
Redistribution PM Peak

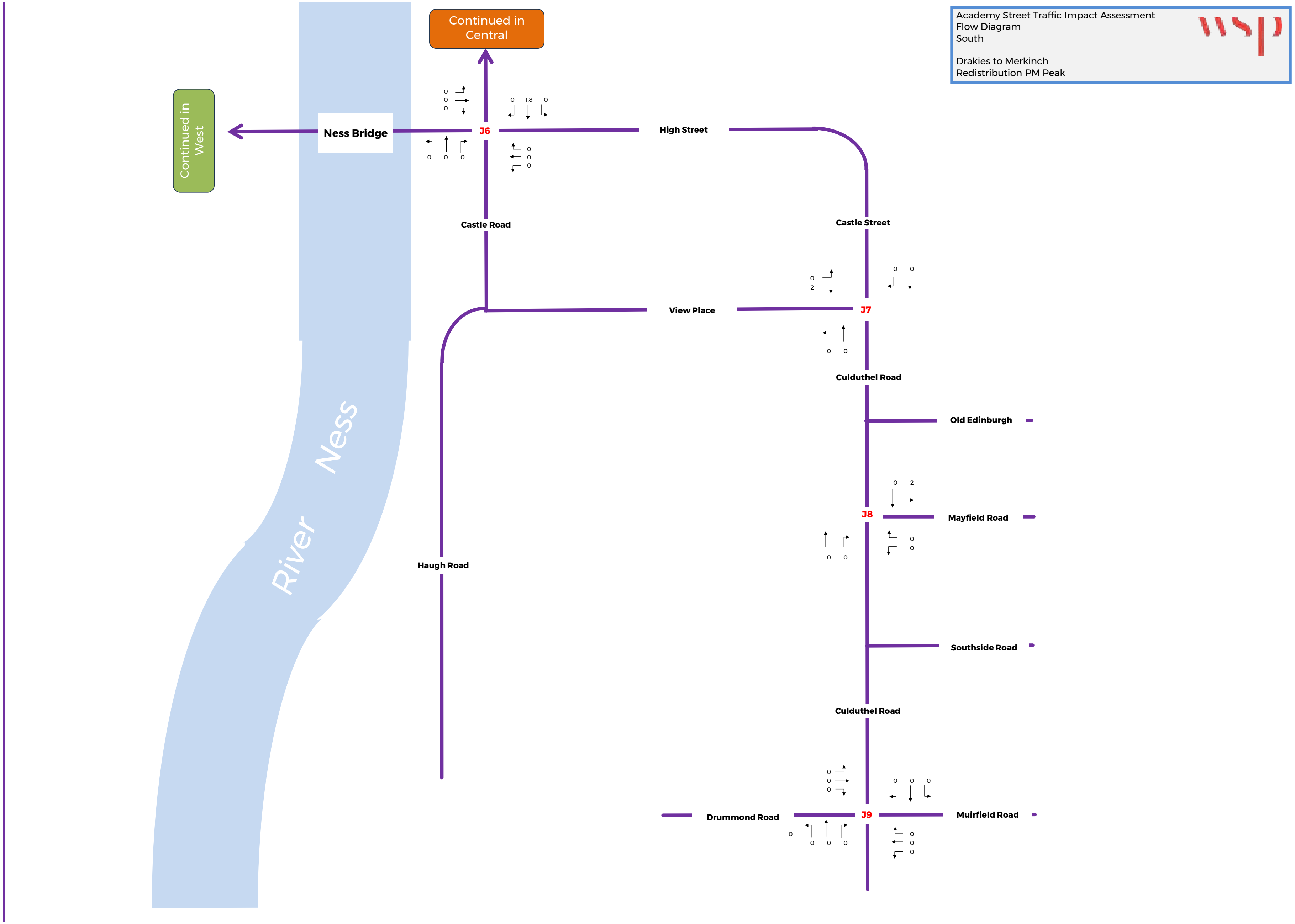


Academy Street Traffic Impact Assessment
Flow Diagram
Central

Drakies to Merkinch
Redistribution PM Peak

Scenario 12

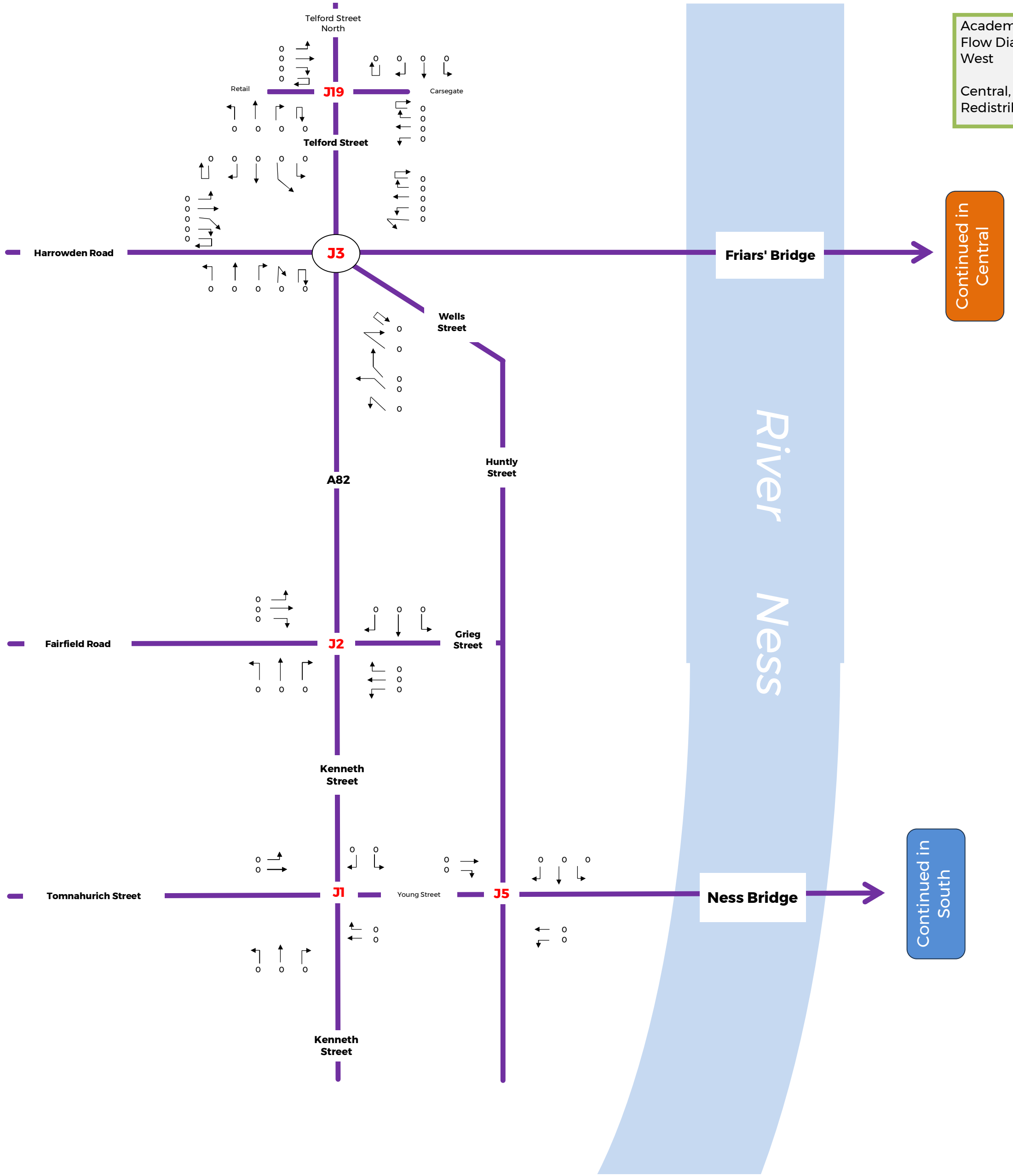




Academy Street Traffic Impact Assessment
Flow Diagram
South
Drakies to Merkinch
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
River Ness
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

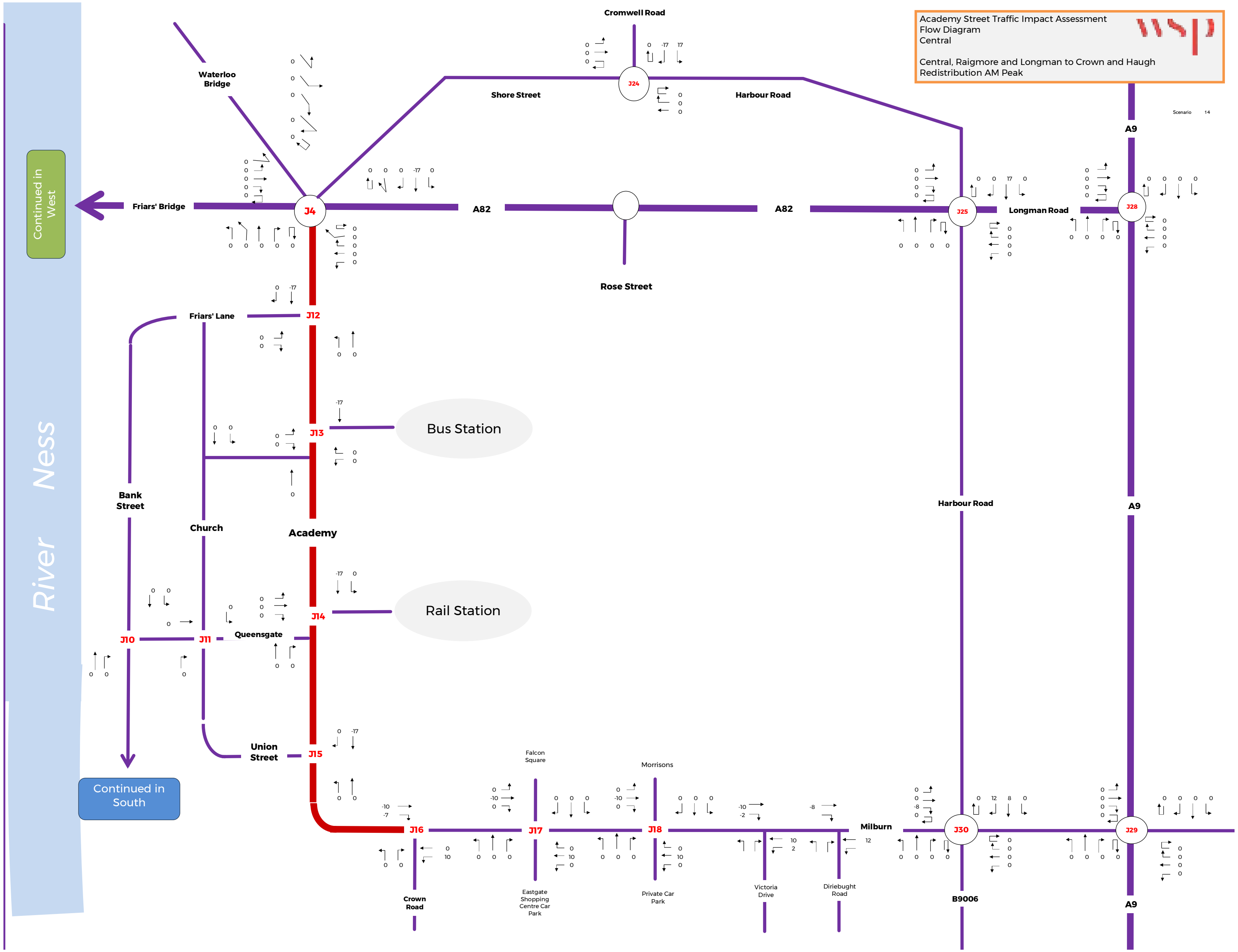
Academy Street Traffic Impact Assessment
Flow Diagram
West

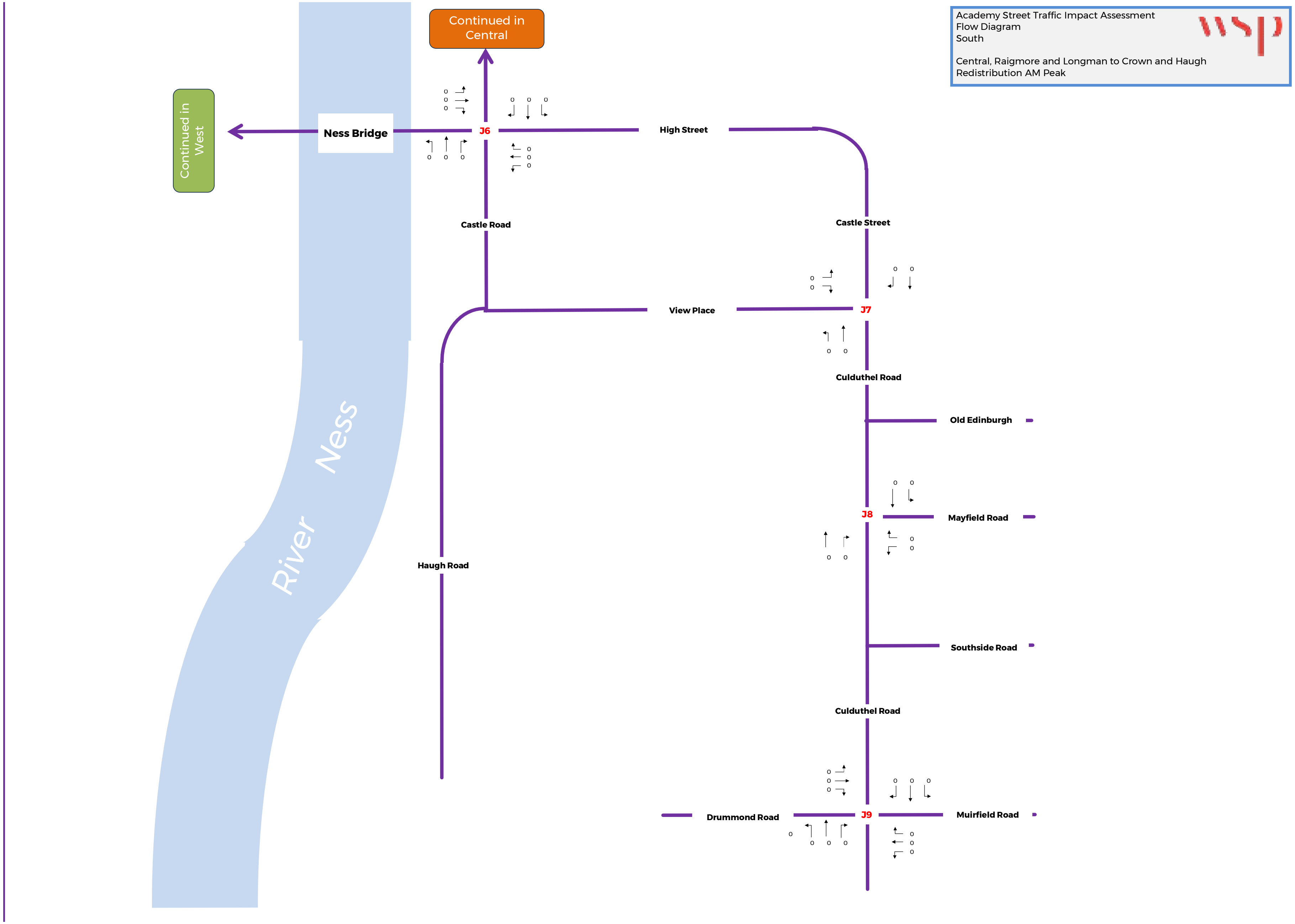
Central, Raigmore and Longman to Crown and Haugh Redistribution AM Peak

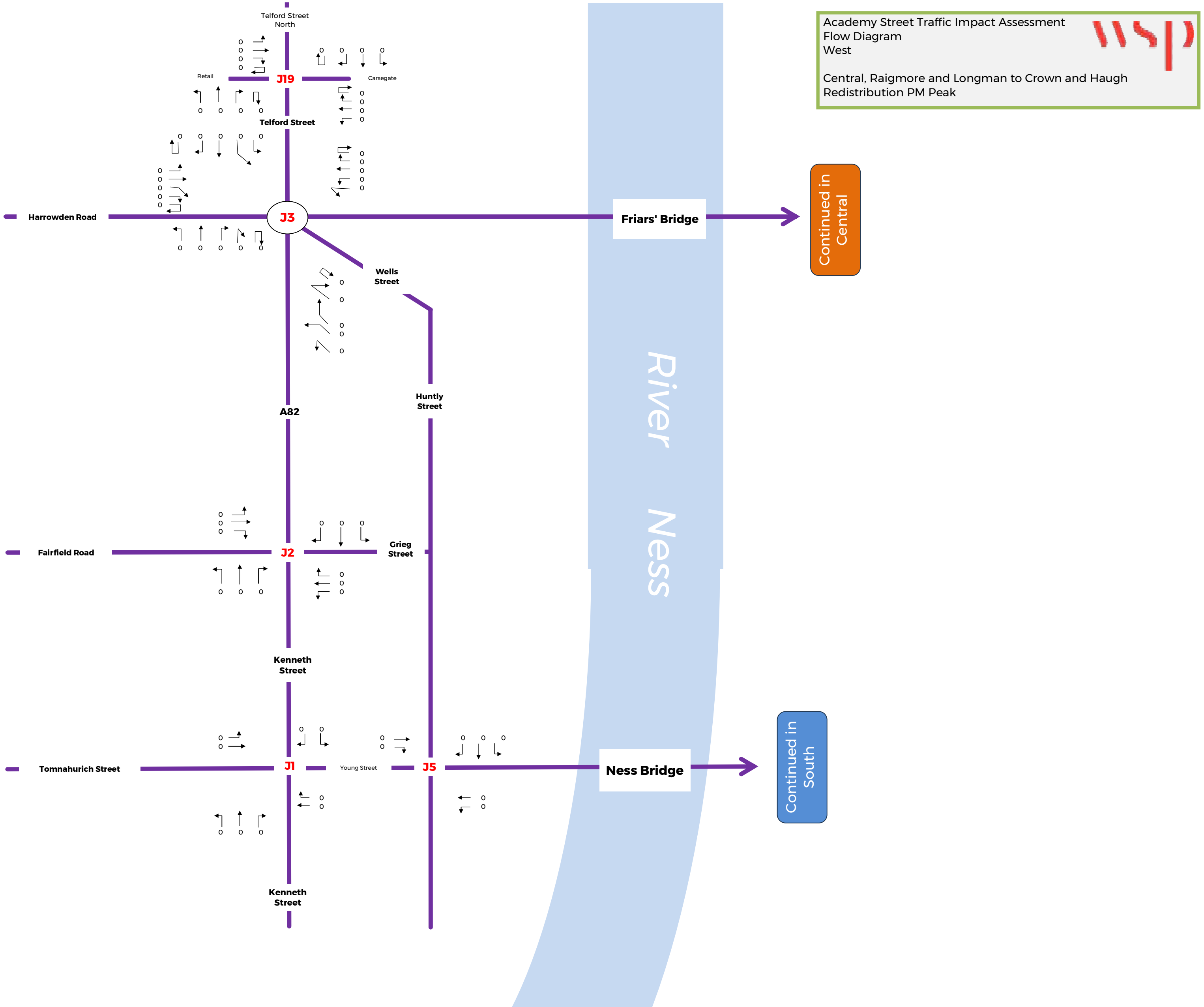


Academy Street Traffic Impact Assessment
Flow Diagram
Central

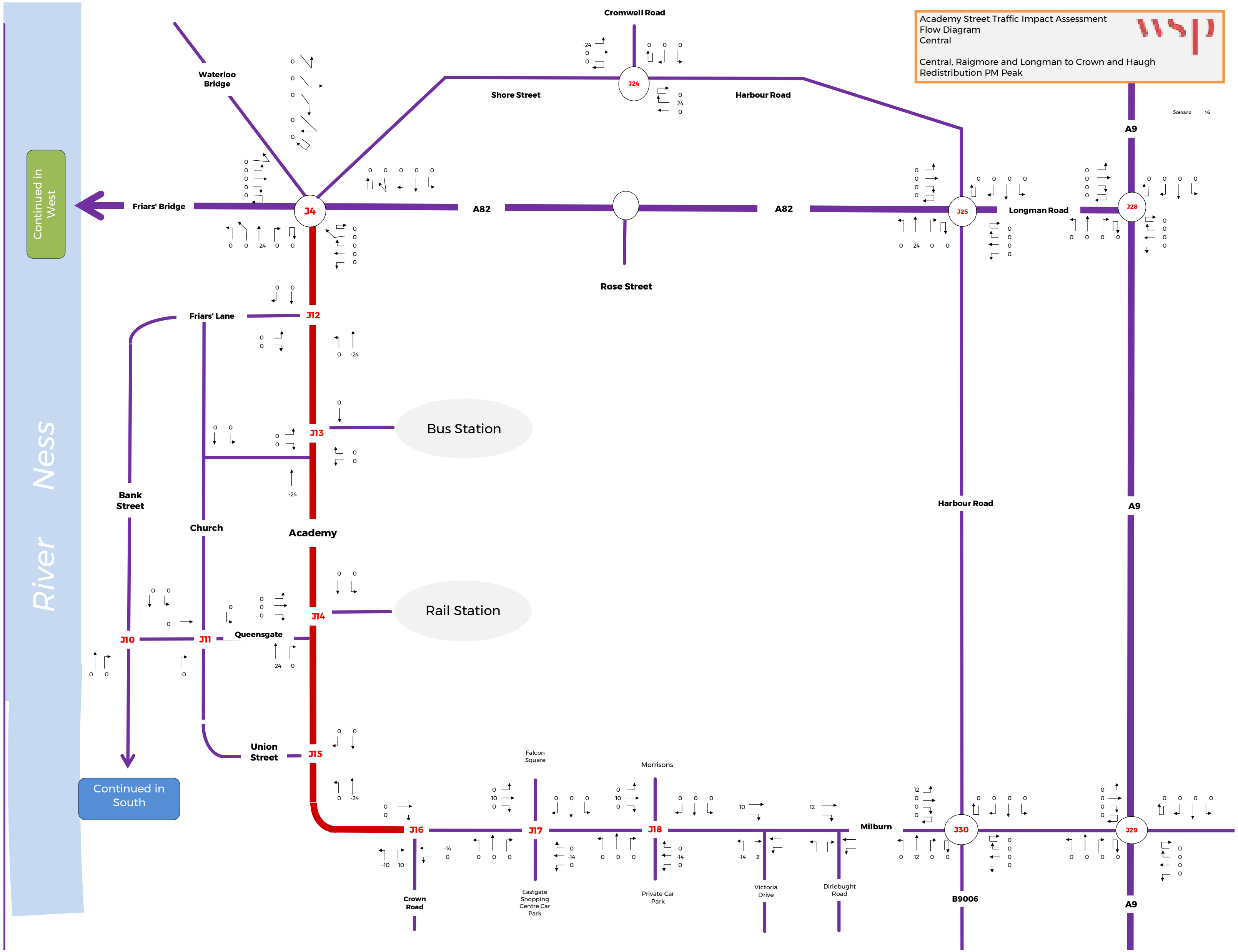
Central, Raigmore and Longman to Crown and Haugh Redistribution AM Peak




Academy Street Traffic Impact Assessment
Flow Diagram
South
Central, Raigmore and Longman to Crown and Haugh Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
River Ness
Haugh Road
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road

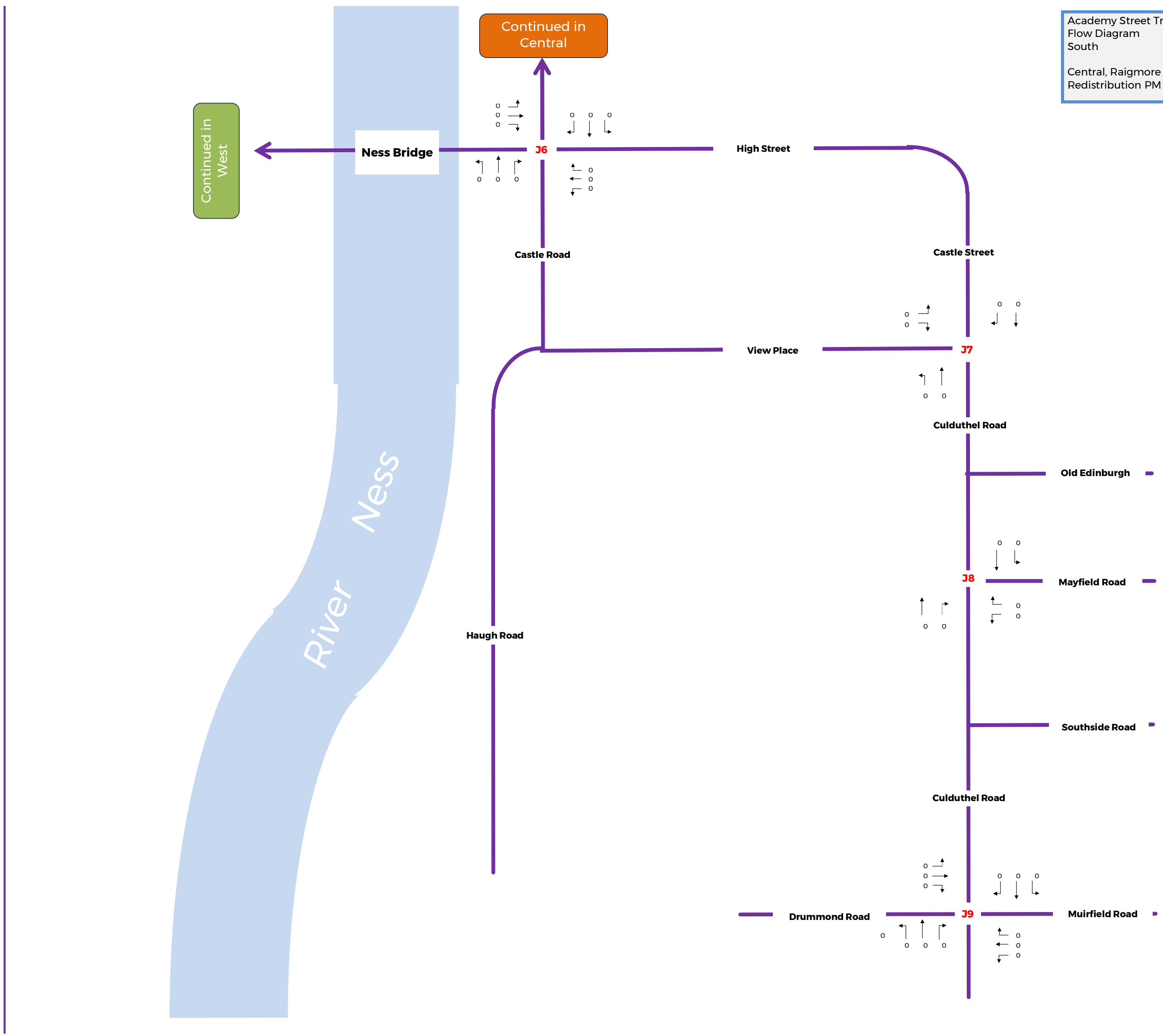


Academy Street Traffic Impact Assessment
Flow Diagram
West
Central, Raigmore and Longman to Crown and Haugh
Redistribution PM Peak
Telford Street North
Retail
J19
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street


Academy Street Traffic Impact Assessment
Flow Diagram
Central
Central, Raigmore and Longman to Crown and Haugh Redistribution PM Peak
Scenario 16
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
A82
Rose Street
Longman Road
A9
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Harbour Road
A9
River Ness
Queensgate
Union Street
Continued in South
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

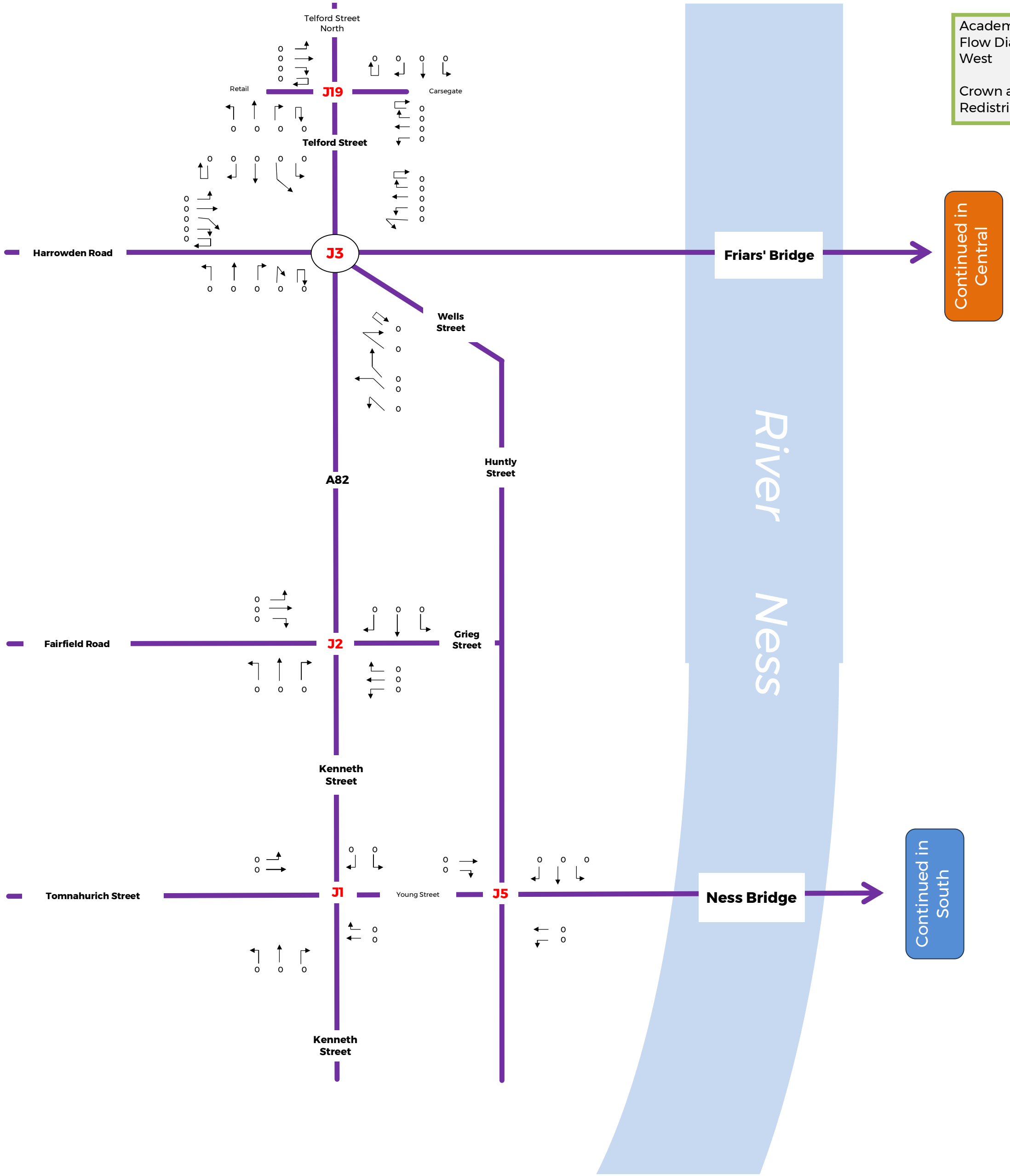
Academy Street Traffic Impact Assessment
Flow Diagram
South

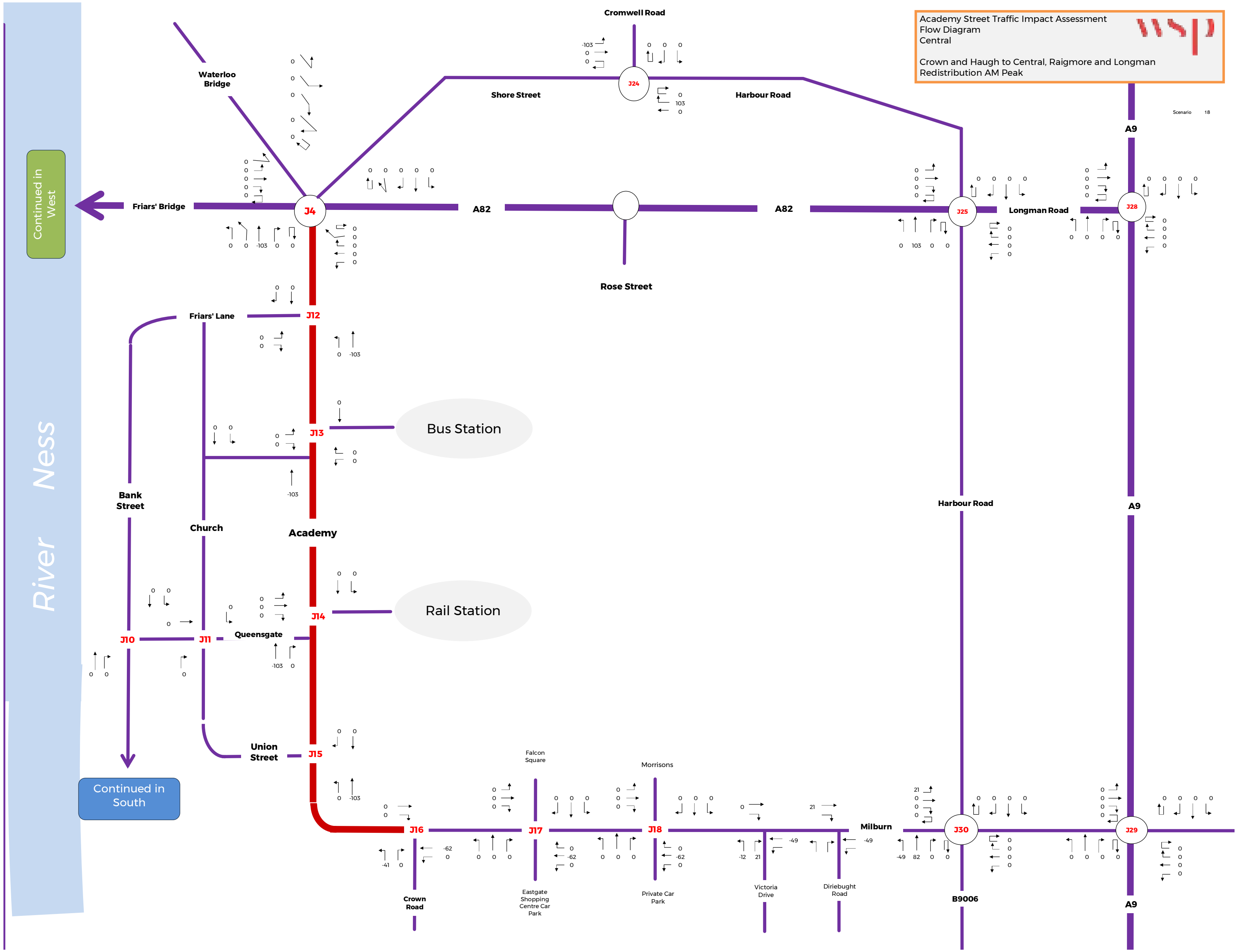
Central, Raigmore and Longman to Crown and Haugh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Central, Raigmore and Longman Redistribution AM Peak

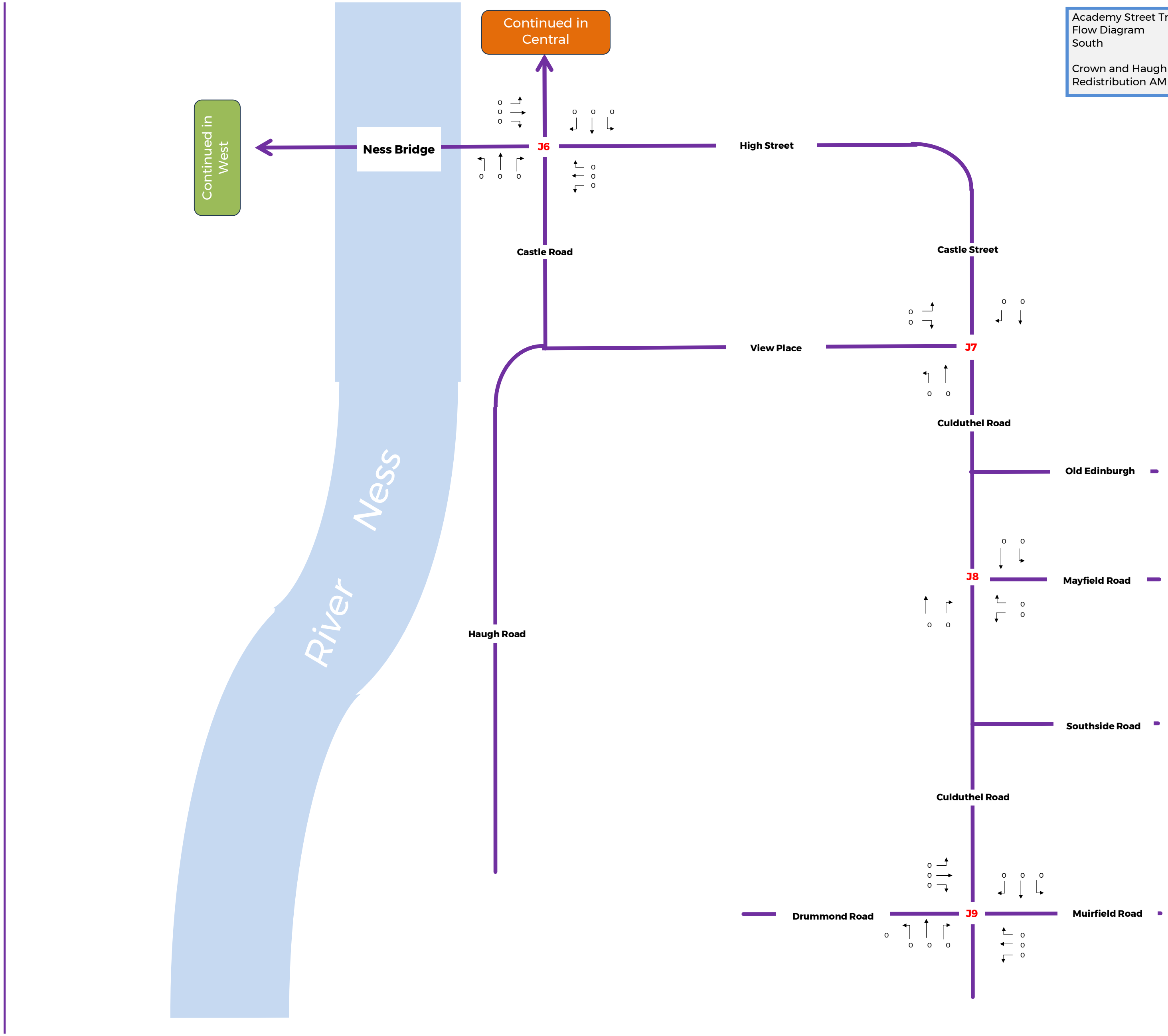




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Central, Raigmore and Longman Redistribution AM Peak
Scenario 18
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
A82
Rose Street
Longman Road
A9
Friars' Lane
Bus Station
Rail Station
River Ness
Bank Street
Church
Academy
Queensgate
Union Street
Continued in South
Harbour Road
A9
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

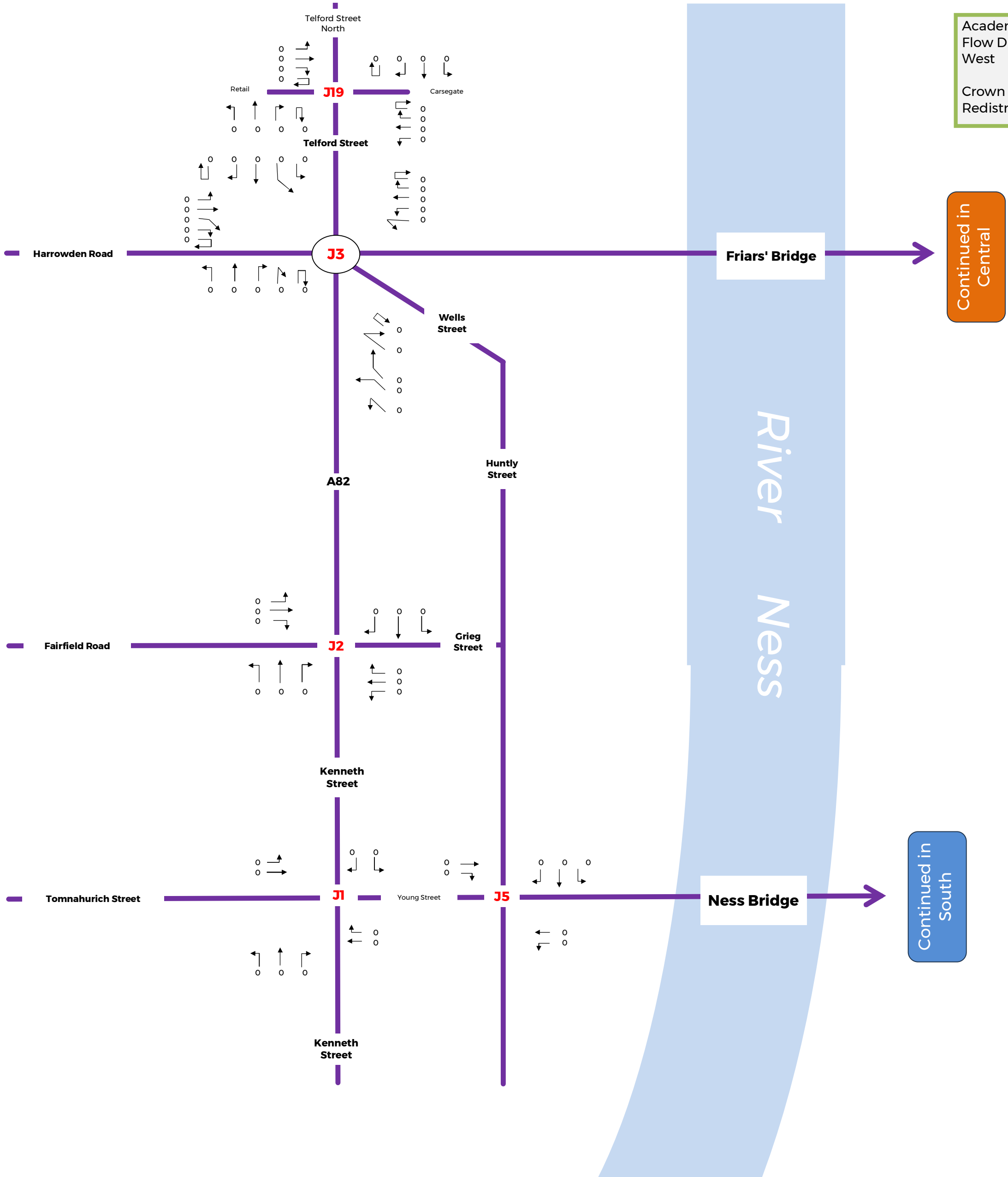
Academy Street Traffic Impact Assessment
Flow Diagram
South

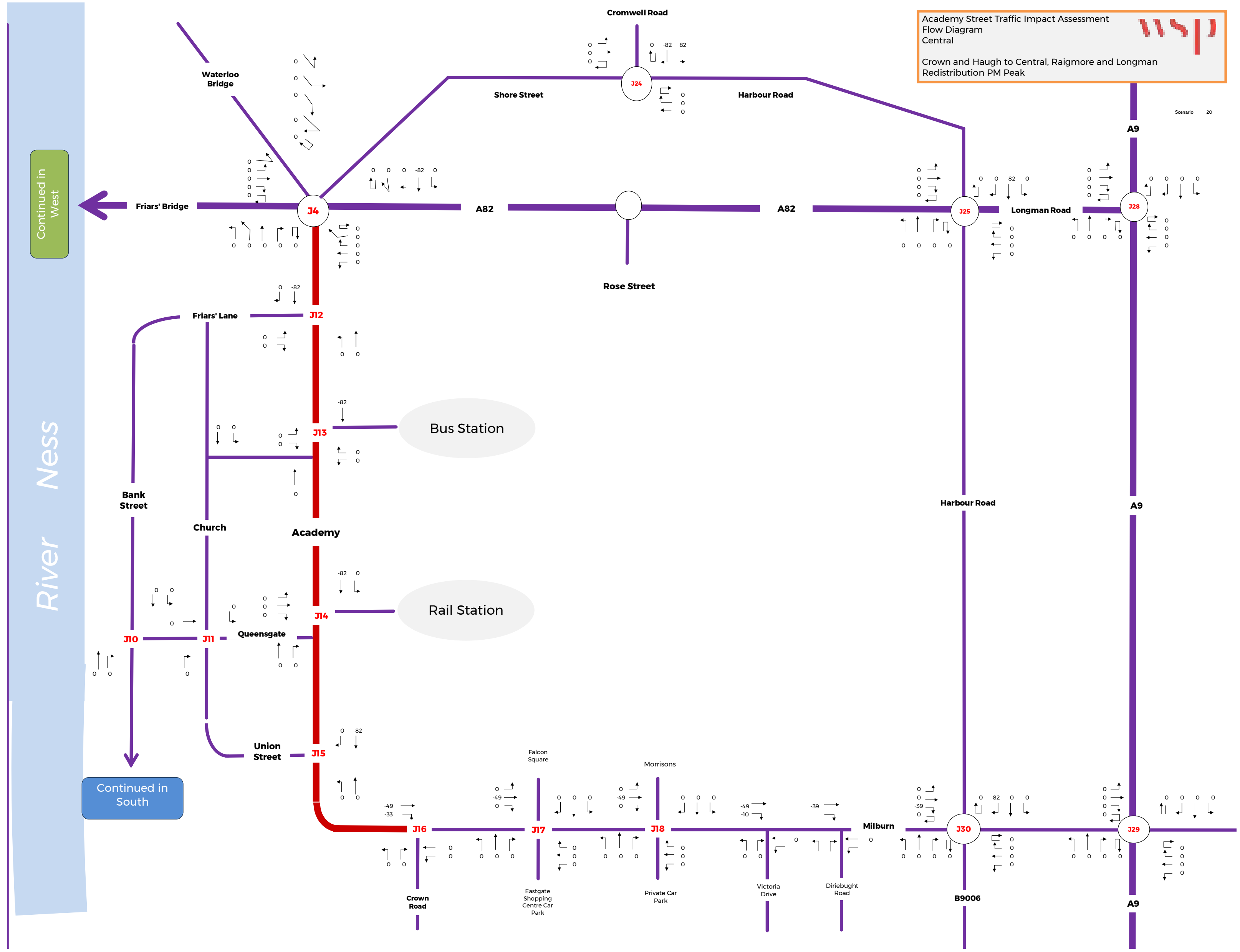
Crown and Haugh to Central, Raigmore and Longman Redistribution AM Peak



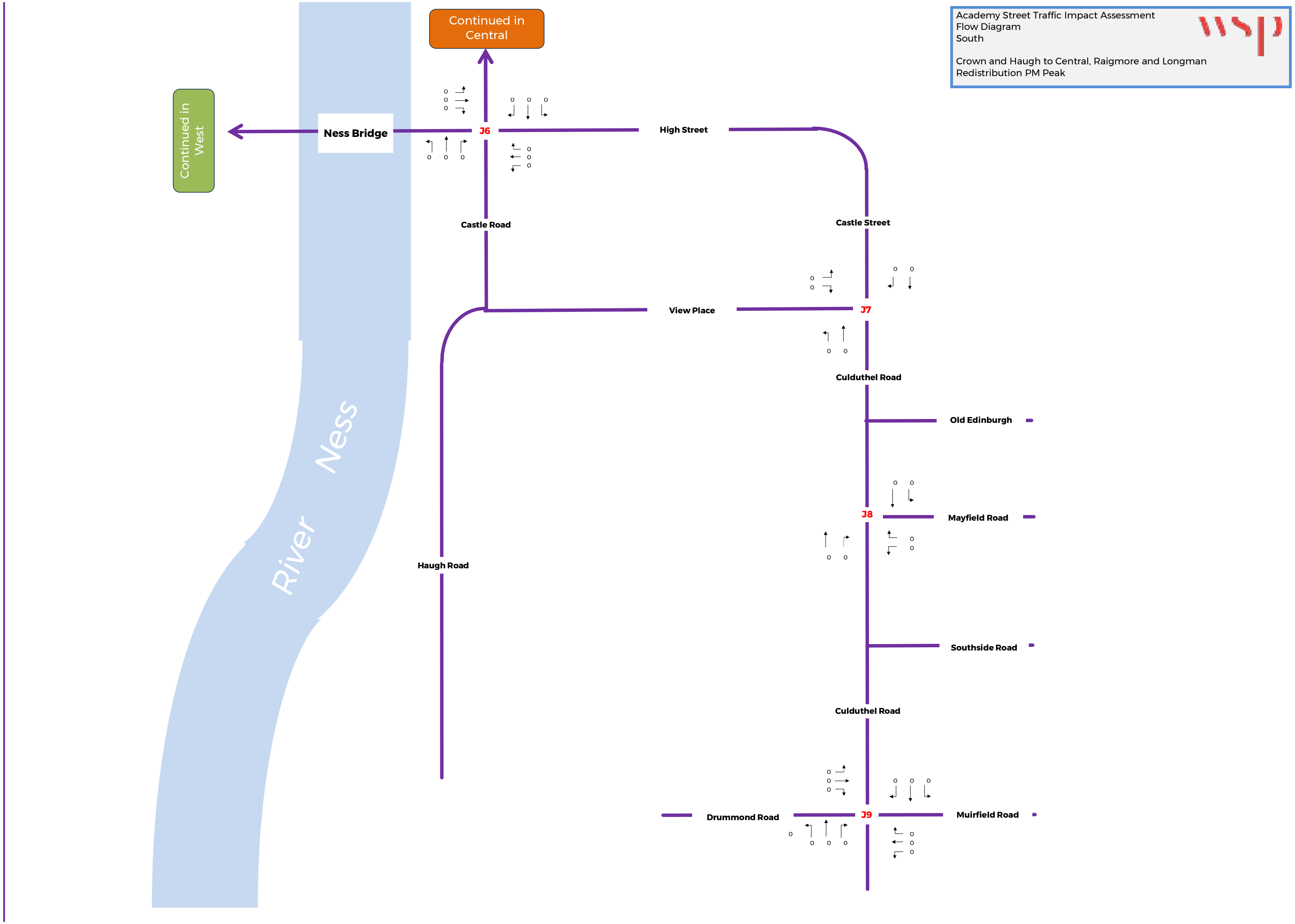
Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Central, Raigmore and Longman
Redistribution PM Peak





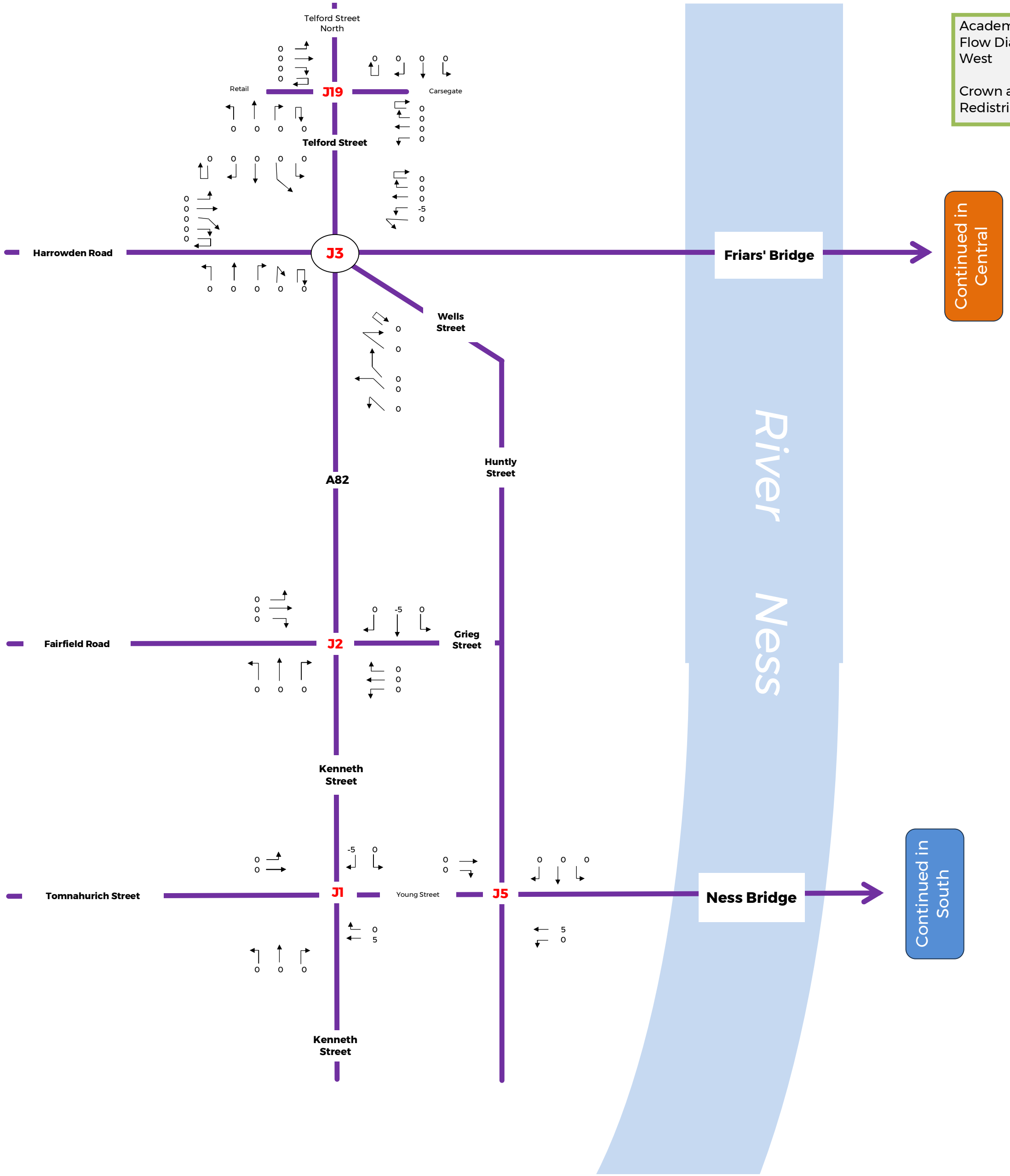
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Central, Raigmore and Longman Redistribution PM Peak
Scenario 20
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
J24
Rose Street
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
River Ness
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

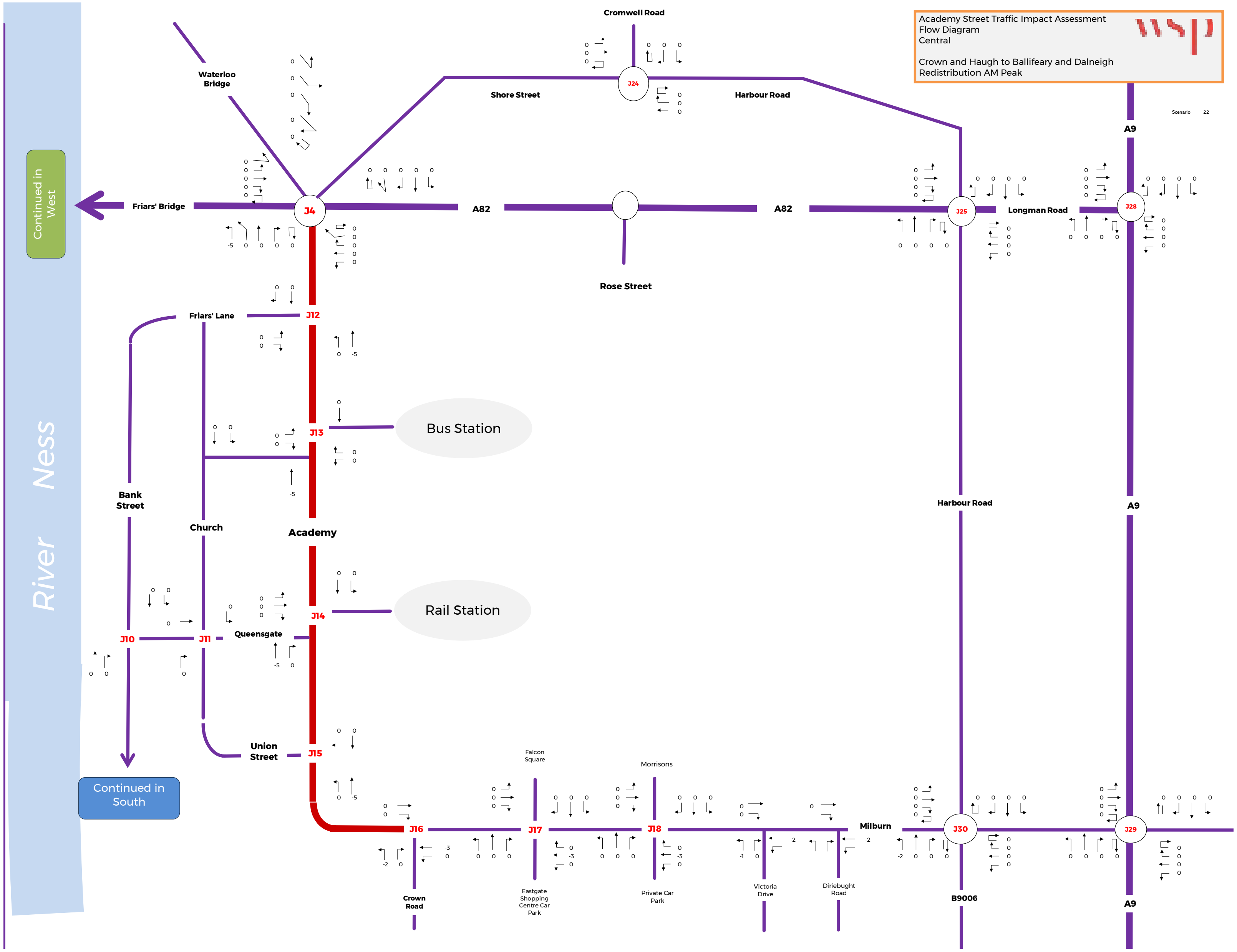


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Central, Raigmore and Longman
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
River Ness
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Ballifeary and Dalneigh
Redistribution AM Peak

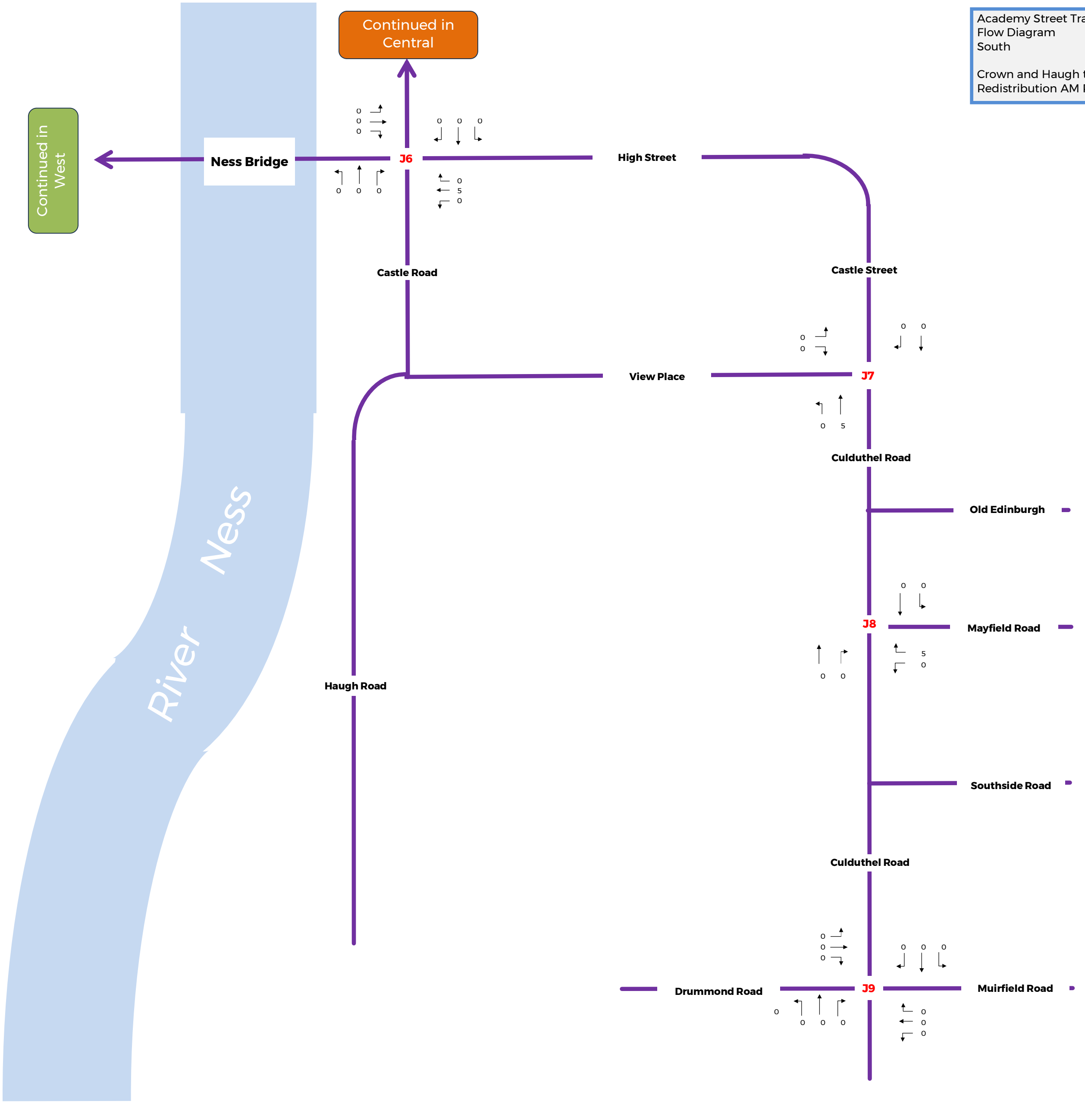




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Ballifeary and Dalneigh Redistribution AM Peak
Scenario 22
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
Longman Road
A9
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

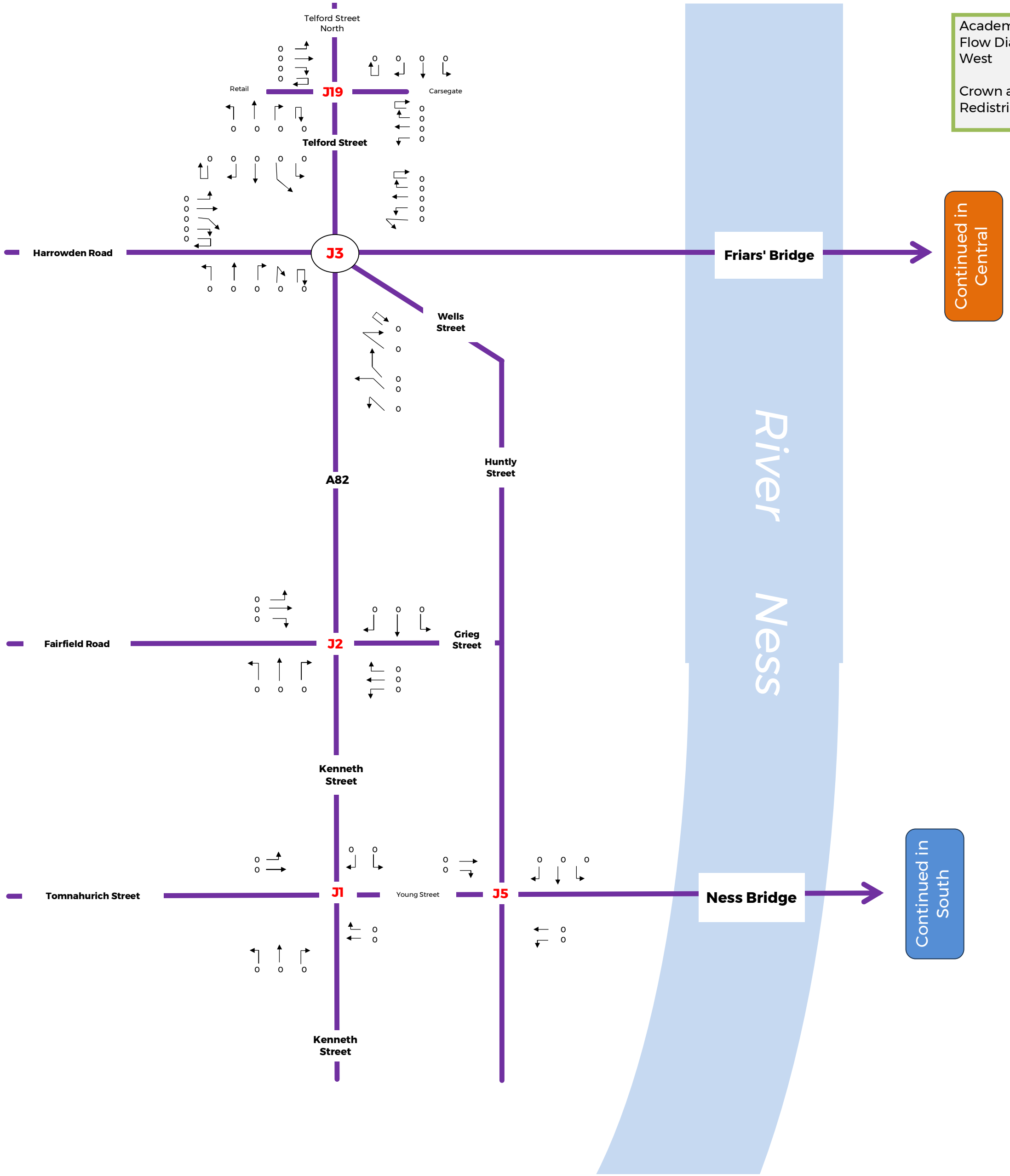
Academy Street Traffic Impact Assessment
Flow Diagram
South

Crown and Haugh to Ballifeary and Dalneigh Redistribution AM Peak



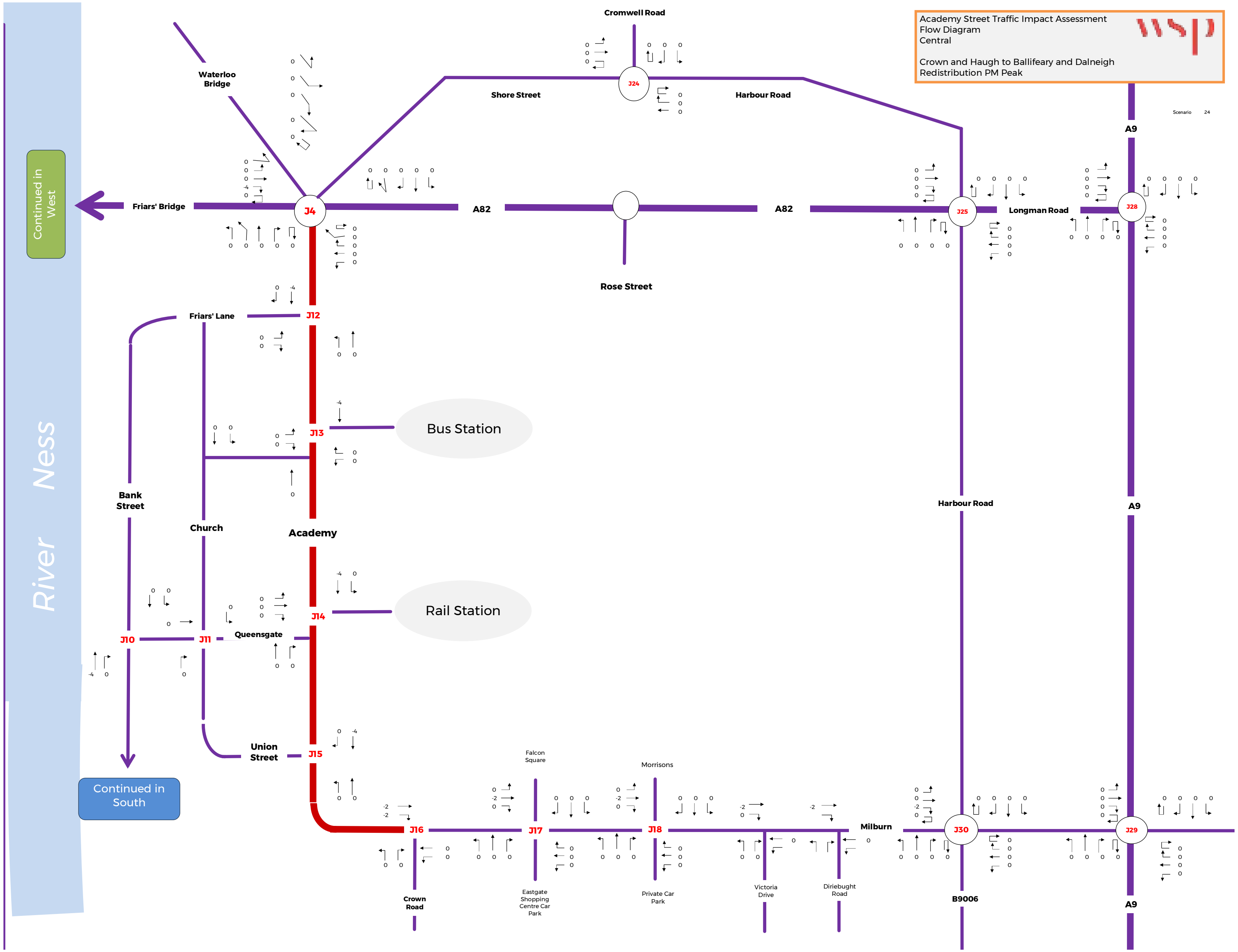
Academy Street Traffic Impact Assessment
Flow Diagram
West

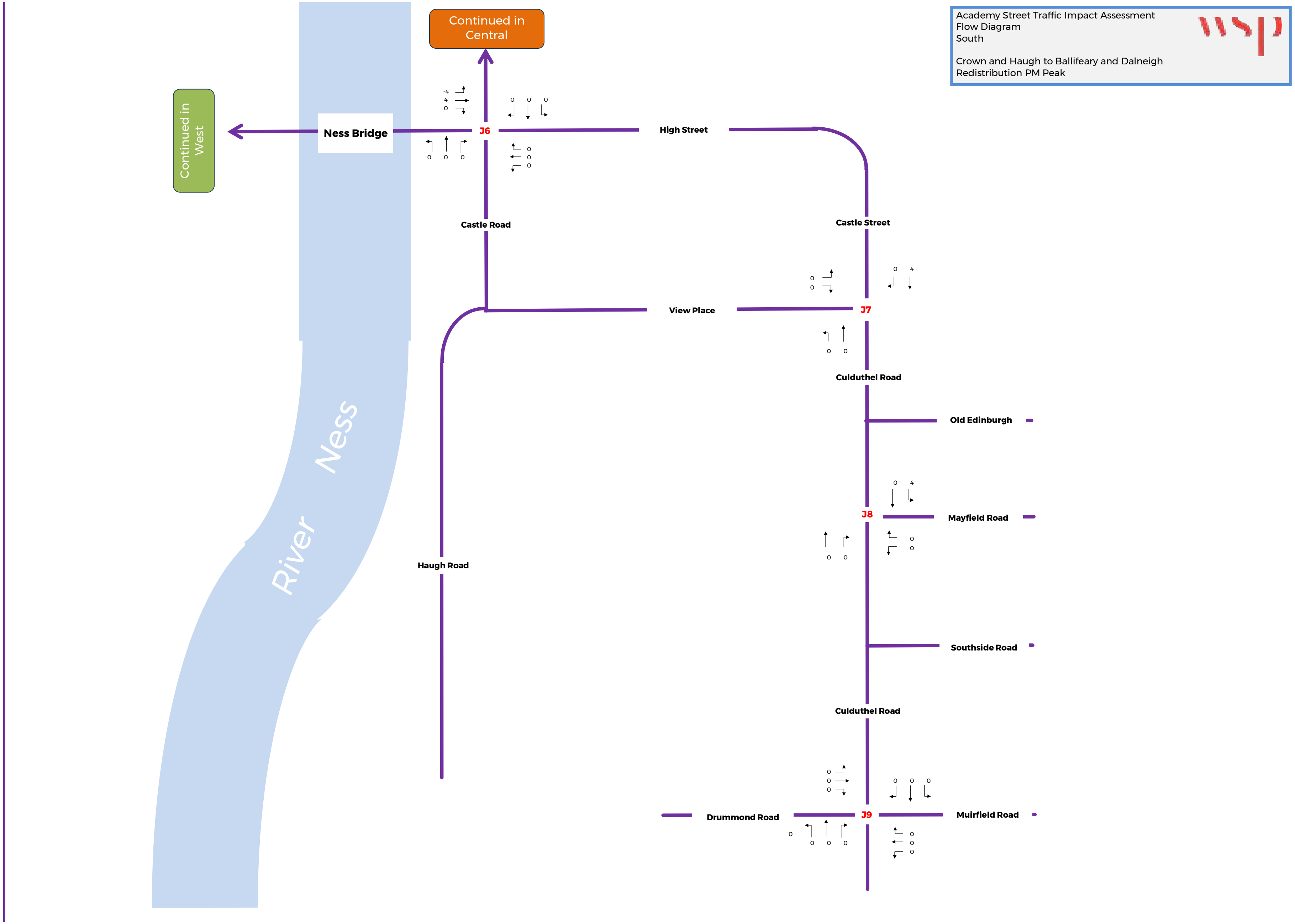
Crown and Haugh to Ballifeary and Dalneigh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
Central

Crown and Haugh to Ballifeary and Dalneigh
Redistribution PM Peak

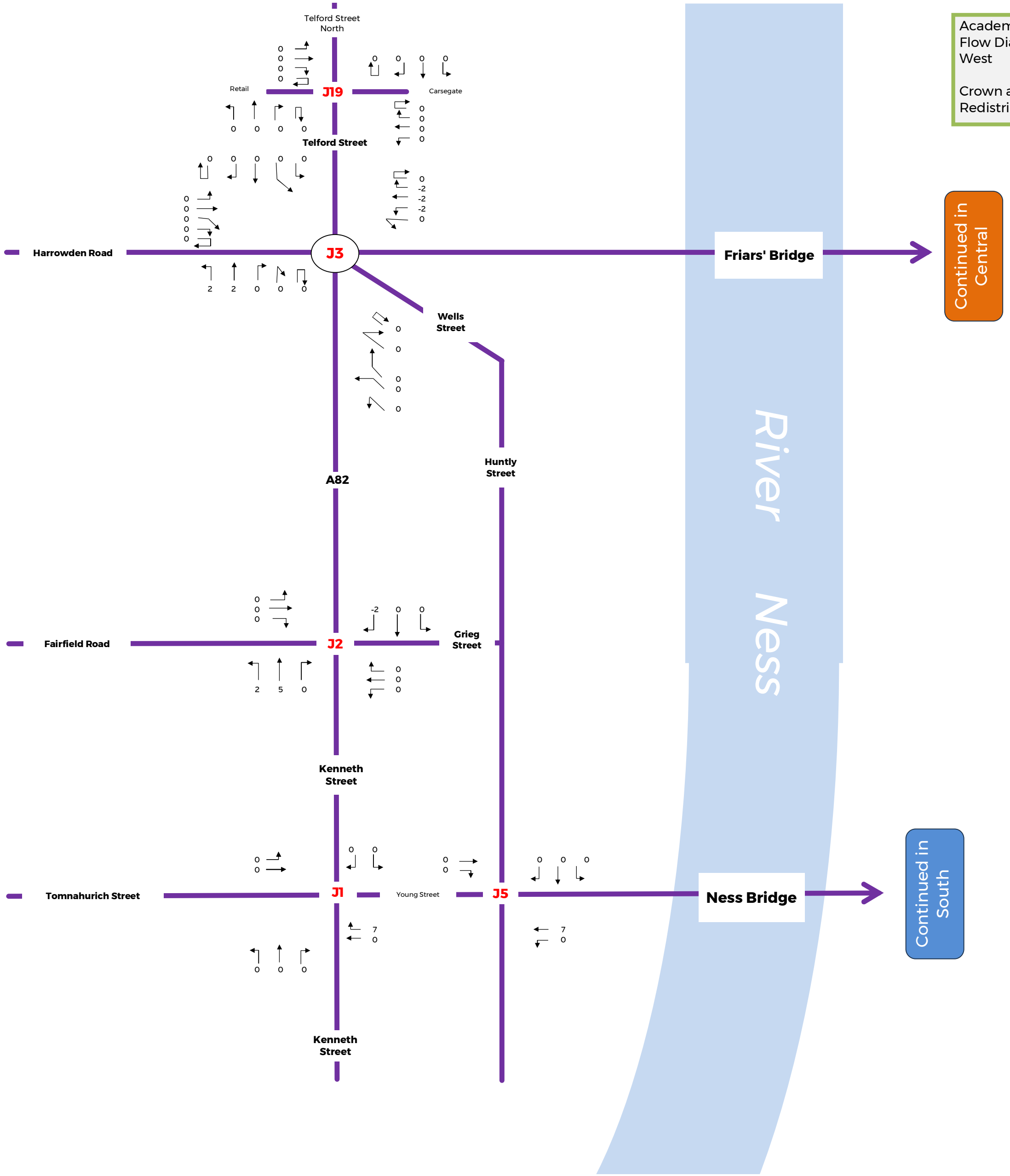


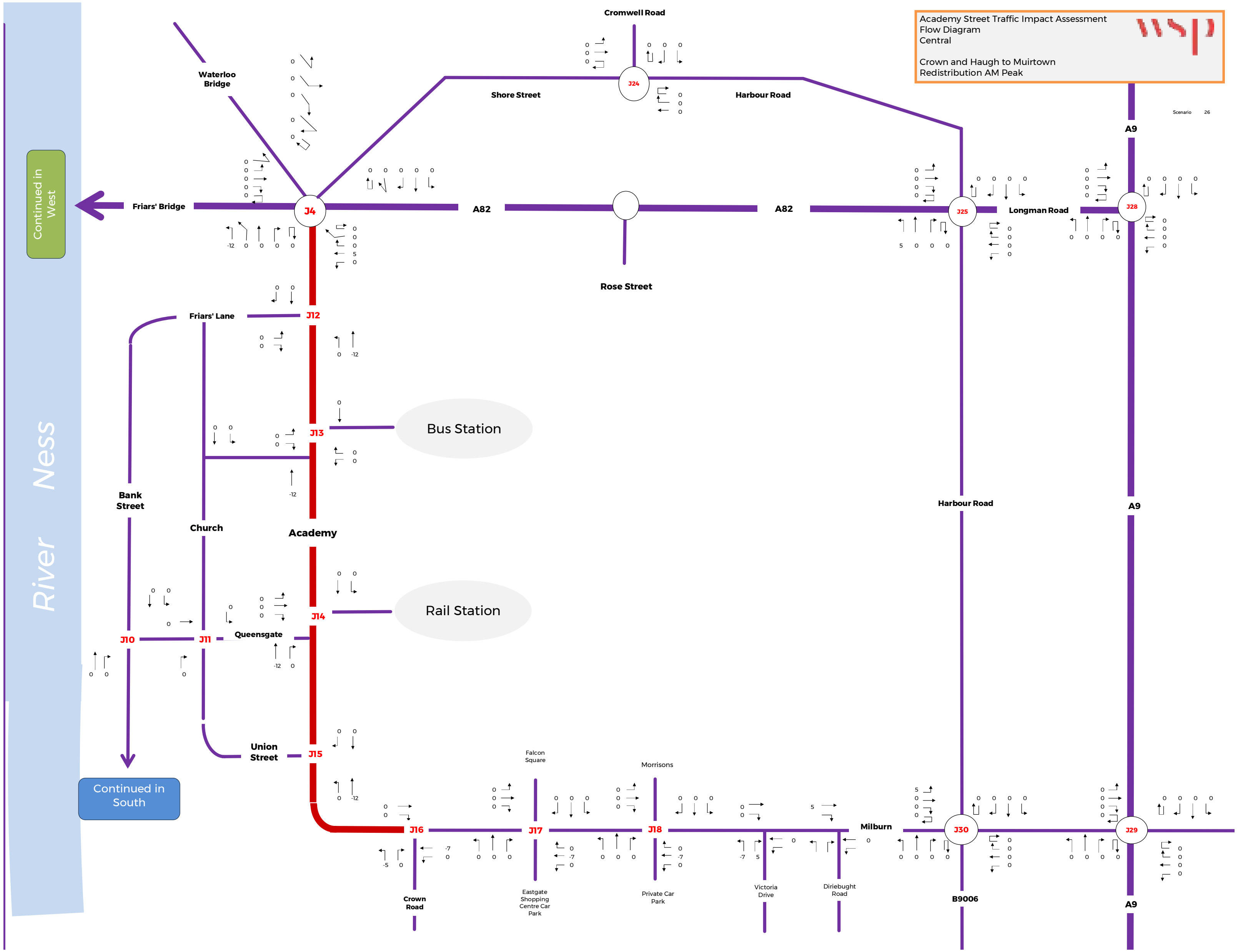


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Ballifeary and Dalneigh
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
River Ness
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road

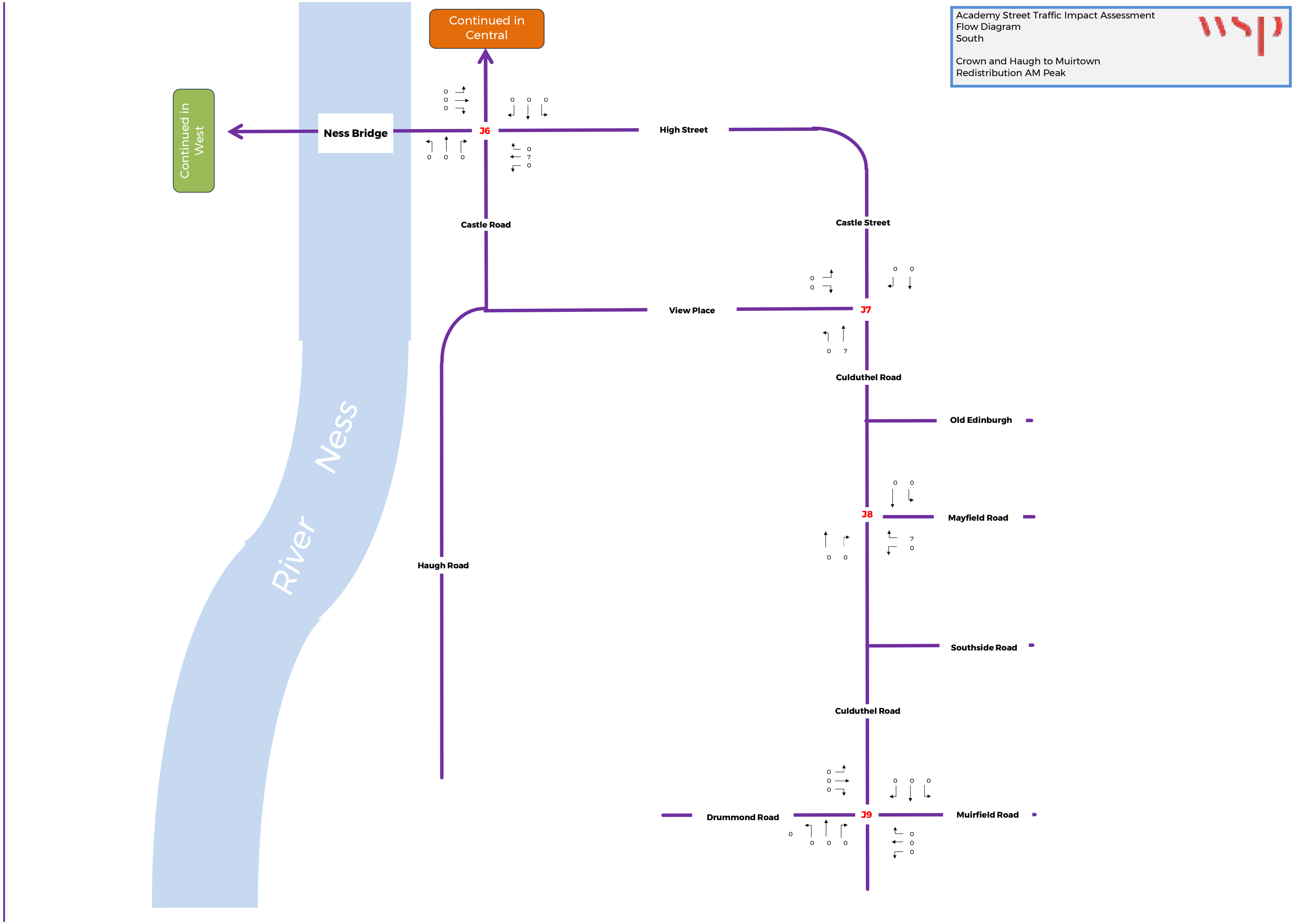
Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Muirtown
Redistribution AM Peak





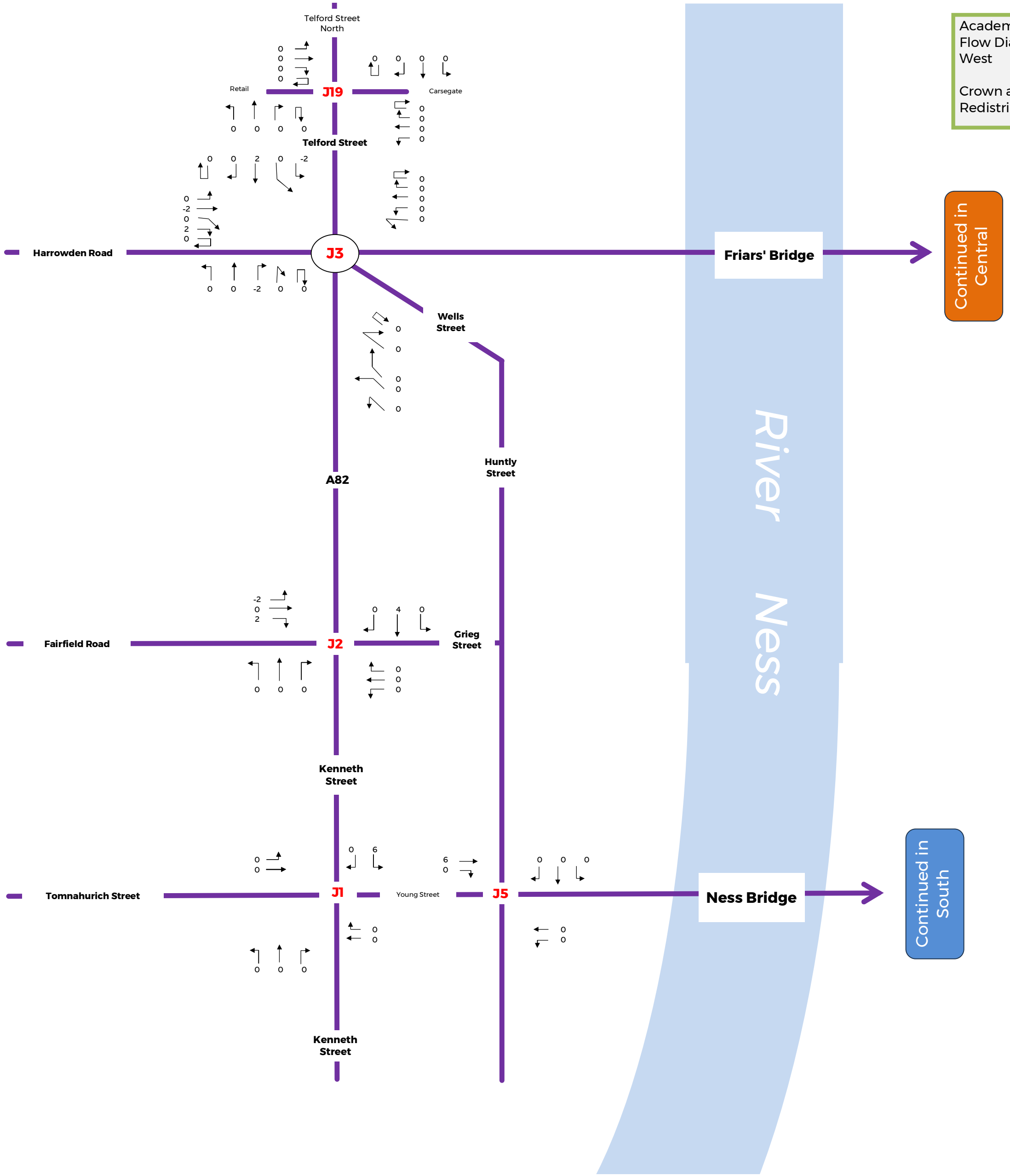
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Muirtown
Redistribution AM Peak
Scenario 26
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
A9
Rose Street
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
River Ness

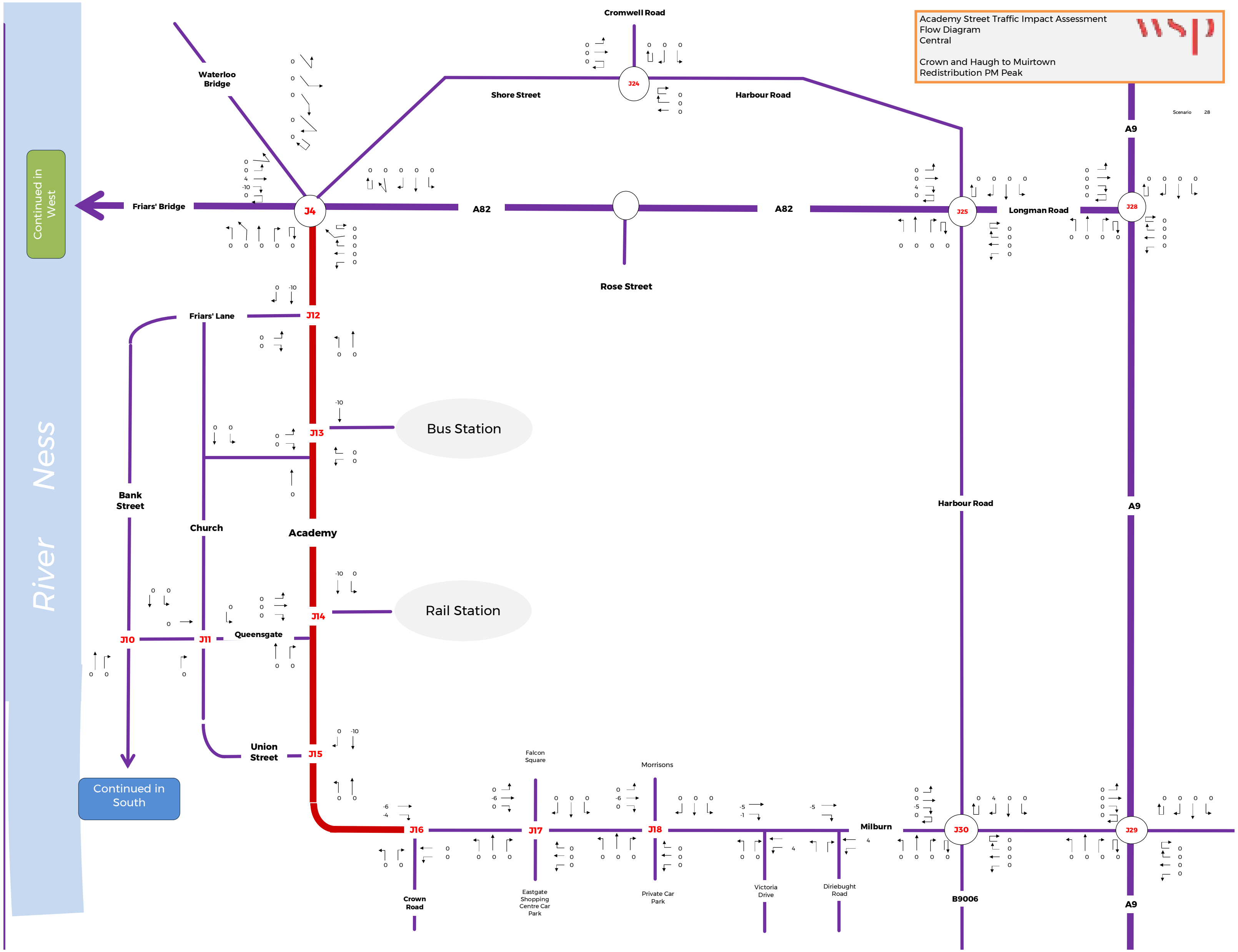


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Muirtown
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
River Ness
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road

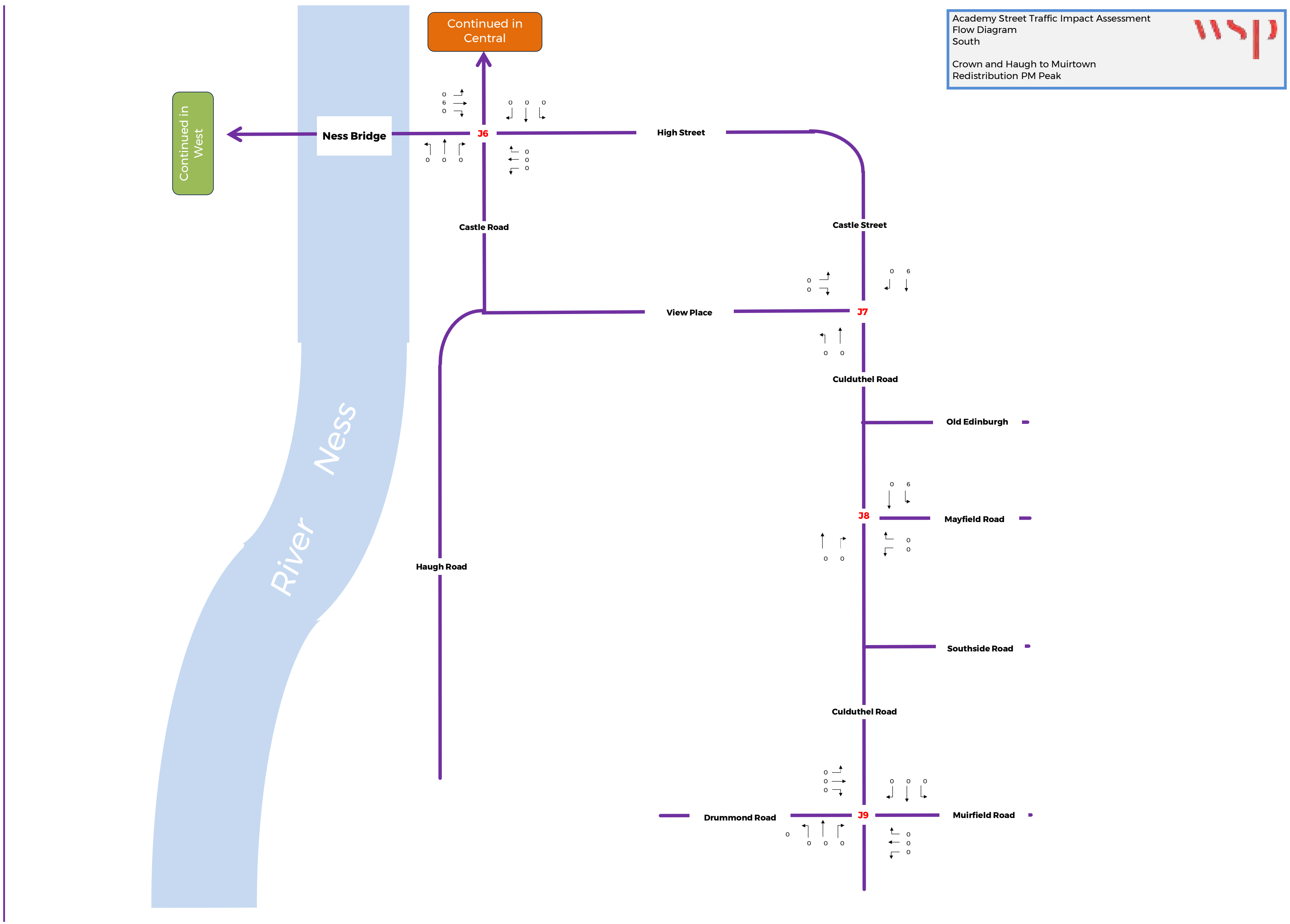
Academy Street Traffic Impact Assessment
Flow Diagram
West

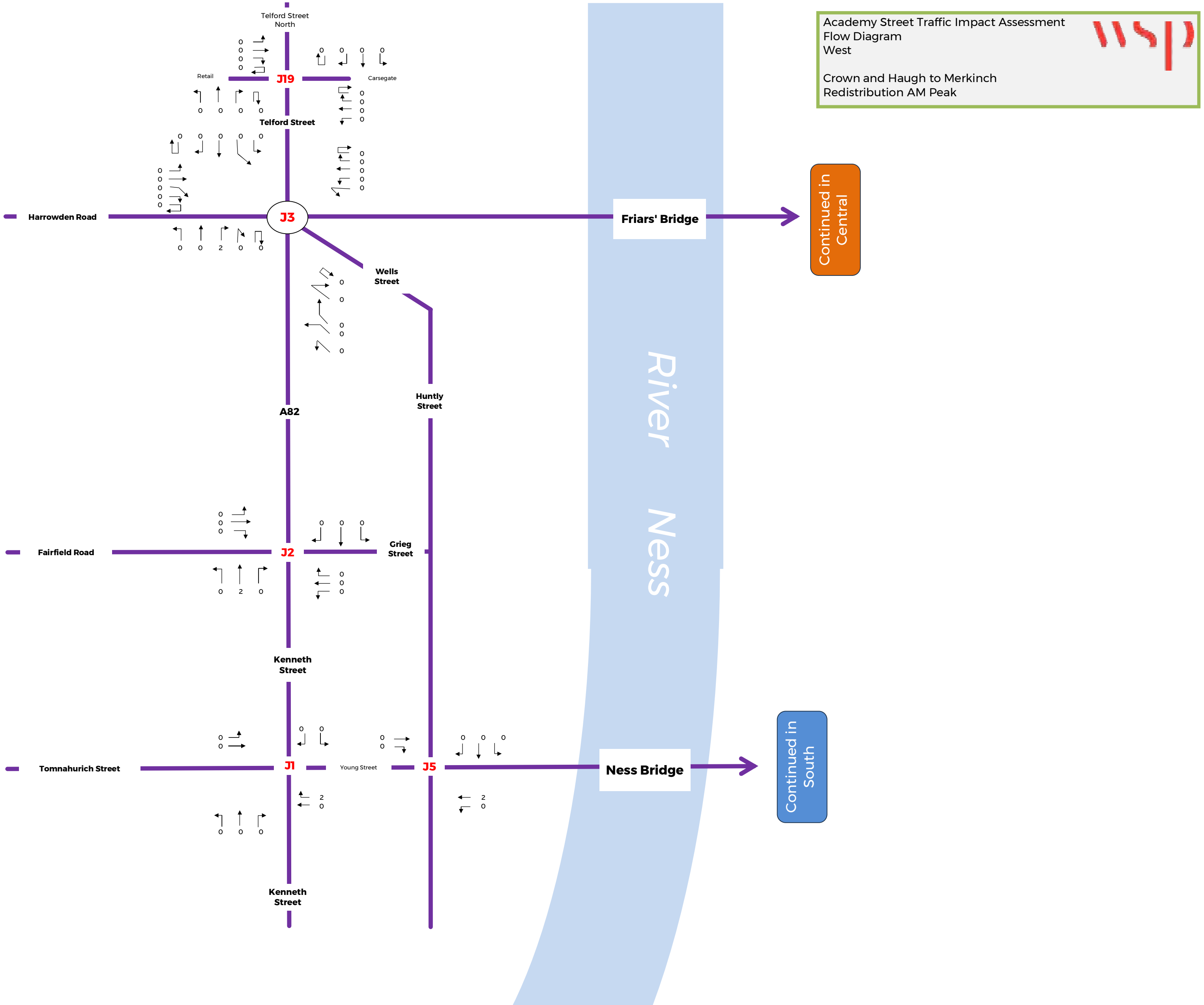
Crown and Haugh to Muirtown
Redistribution PM Peak



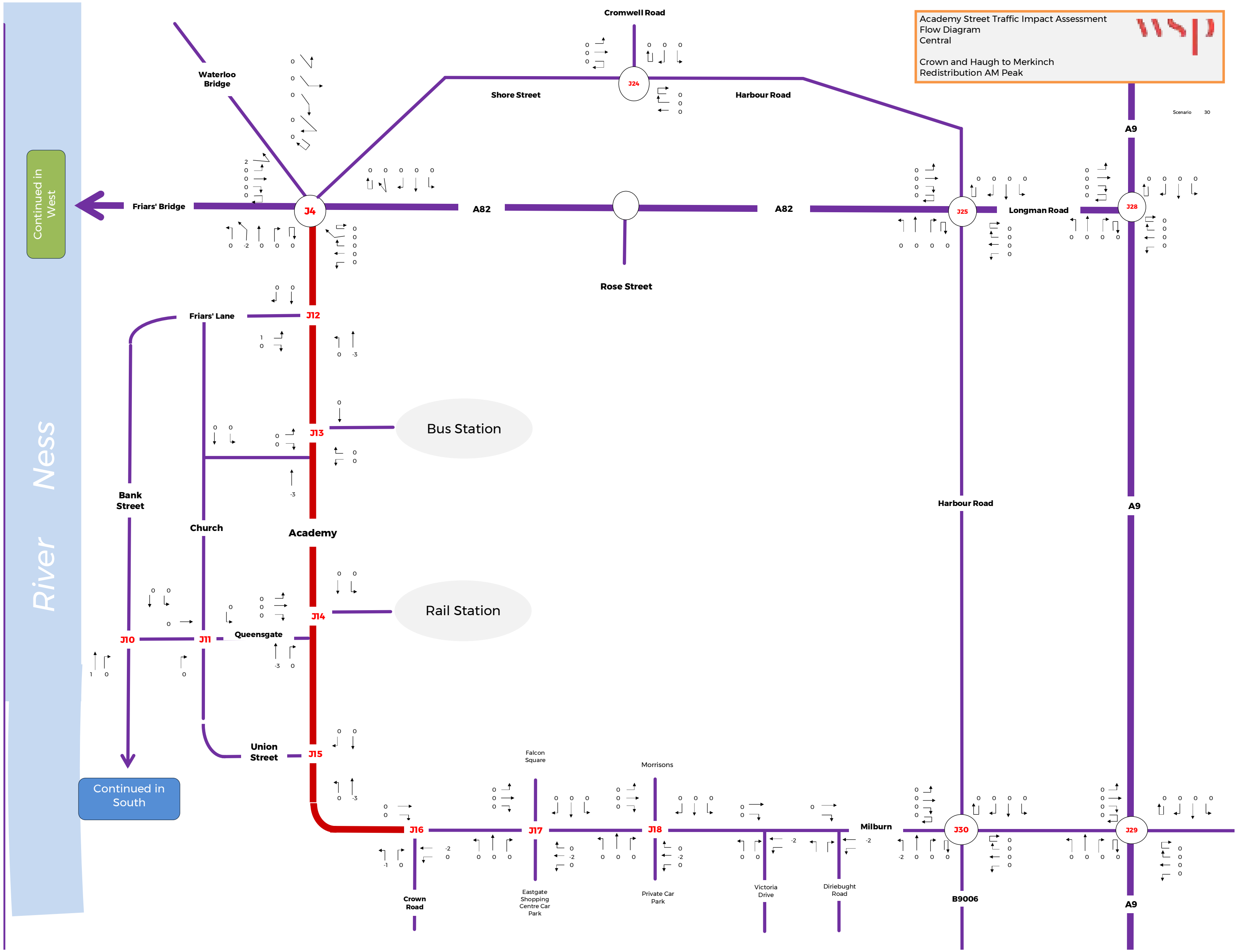


Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Muirtown
Redistribution PM Peak
Scenario 28
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
A9
Continued in West
Friars' Bridge
J4
A82
A82
J24
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
Bus Station
J13
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

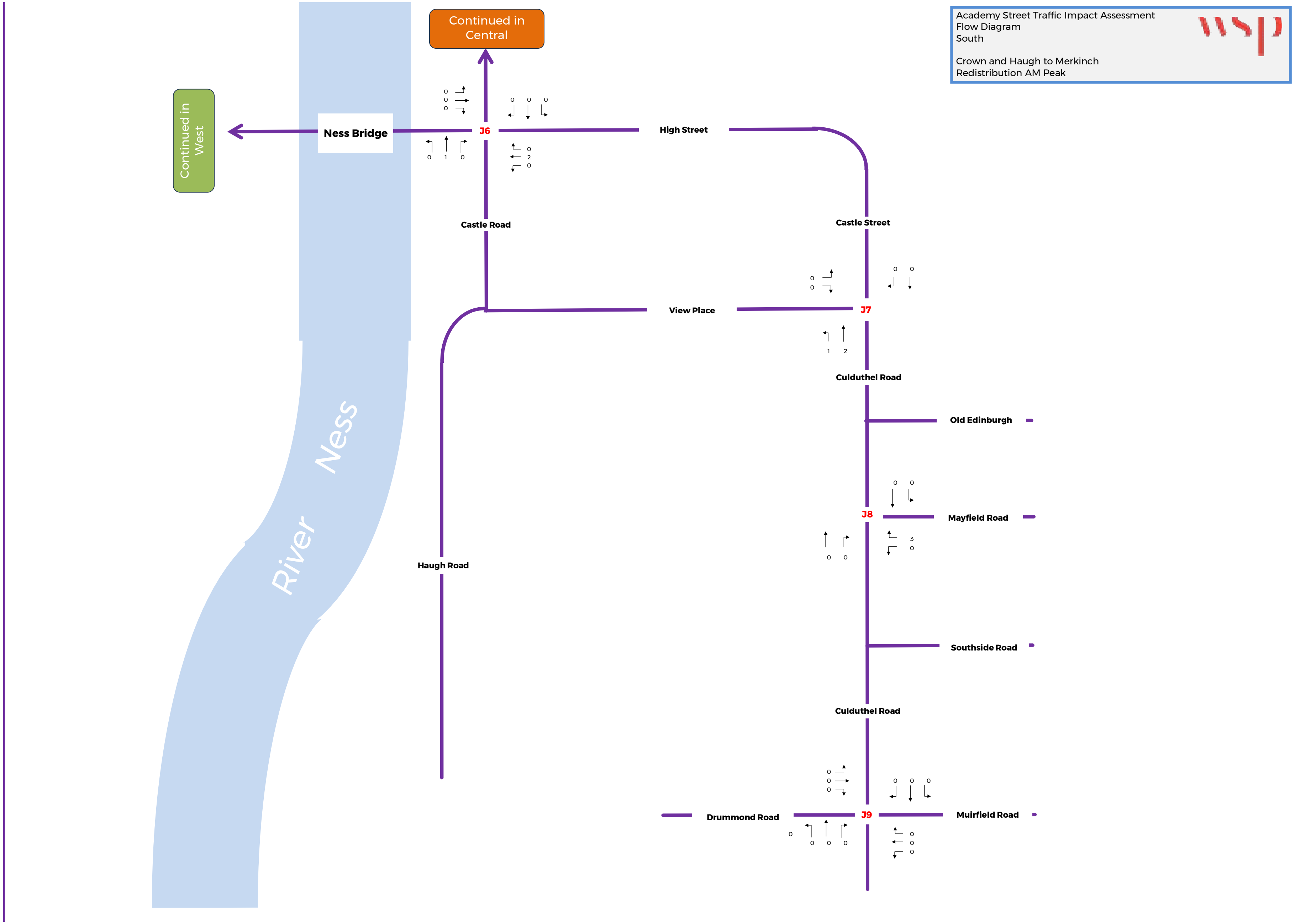

Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Muirtown
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
River Ness
Haugh Road
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road



Academy Street Traffic Impact Assessment
Flow Diagram
West
Crown and Haugh to Merkinch
Redistribution AM Peak
Telford Street North
Retail
J19
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street

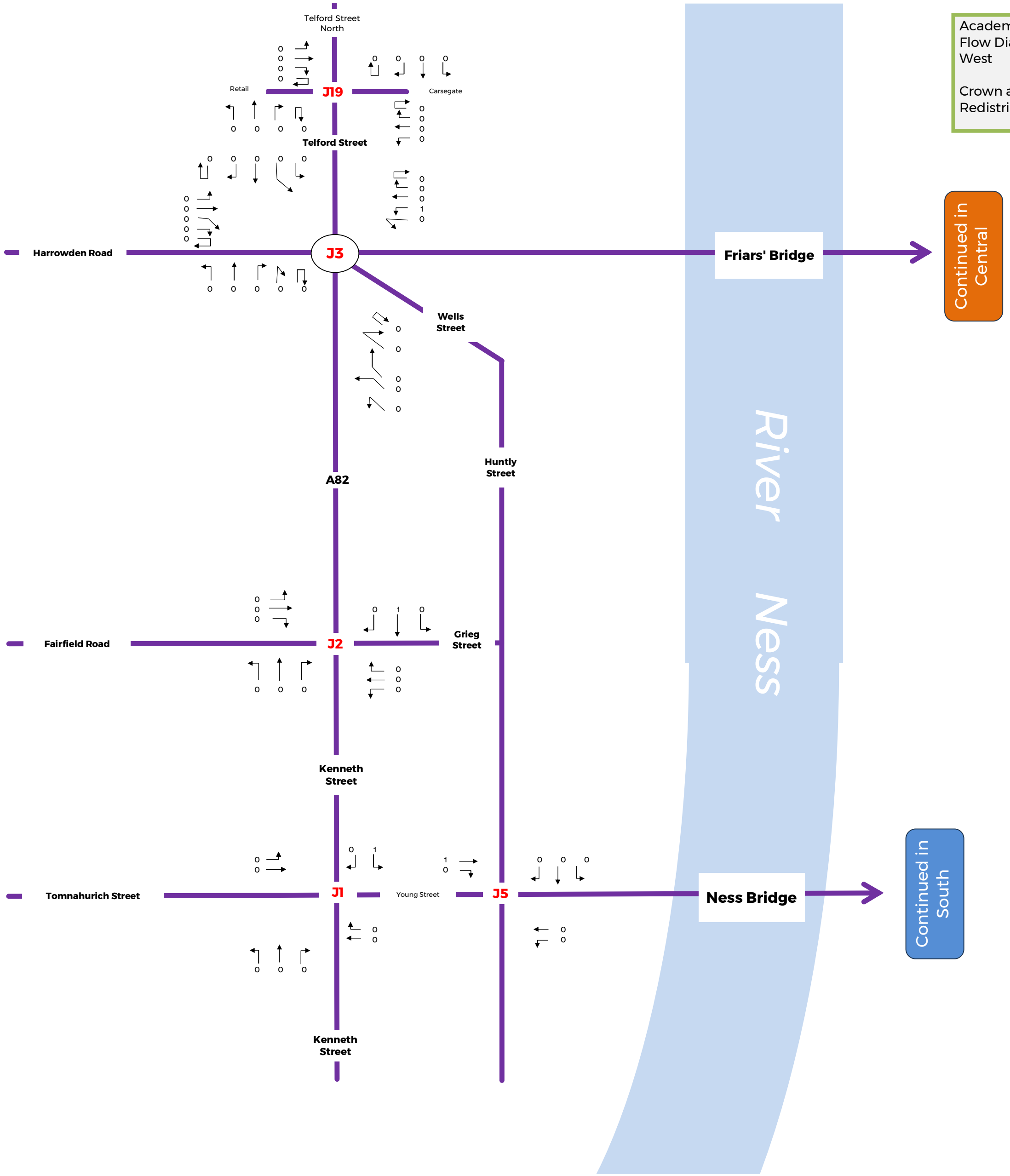


Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Merkinch
Redistribution AM Peak
Scenario 30
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
Rose Street
Longman Road
A9
J4
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30
J10
J11
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
River Ness
Continued in South
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Merkinch
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
River Ness
Drummond Road
J9
Muirfield Road

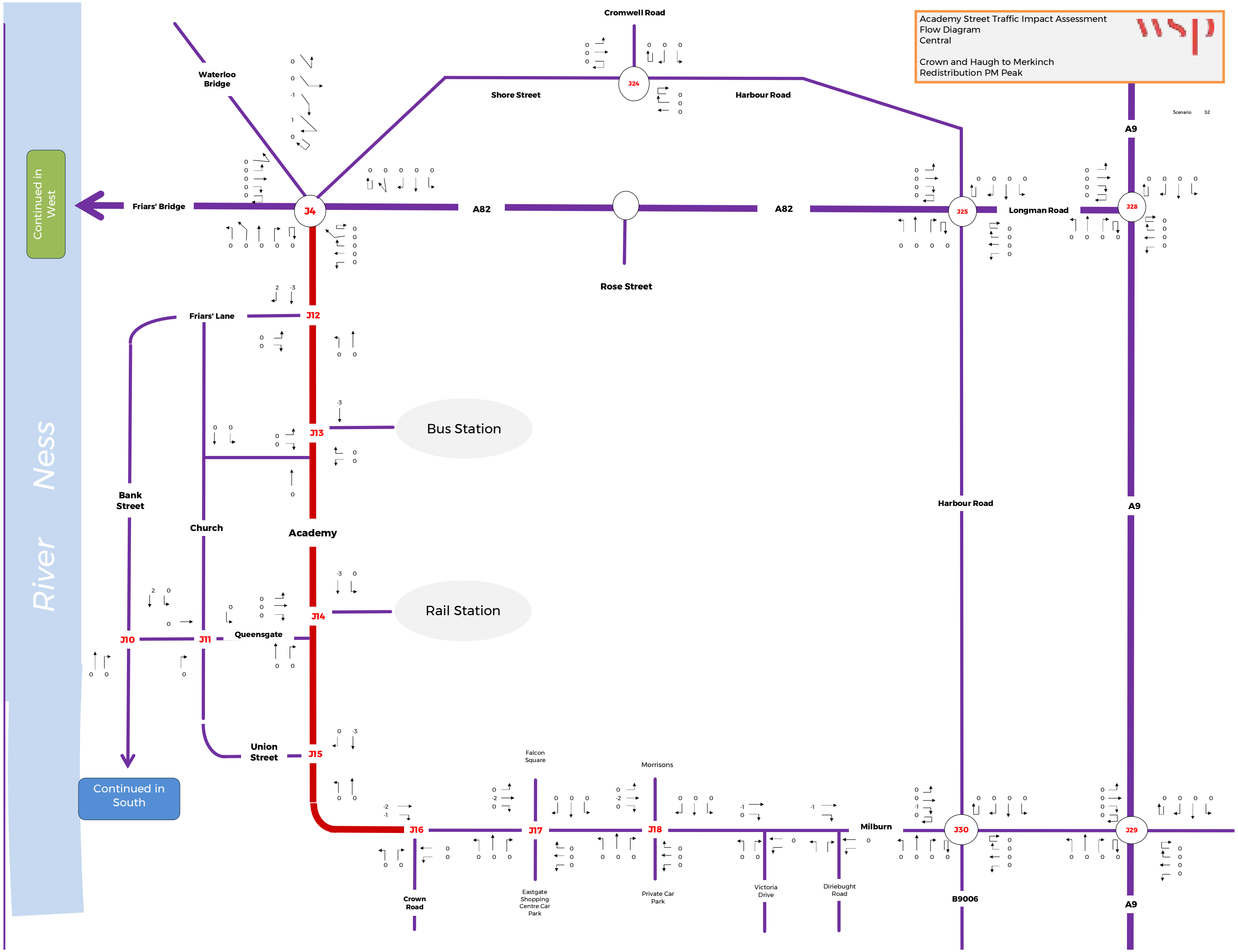
Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Merkinch
Redistribution PM Peak



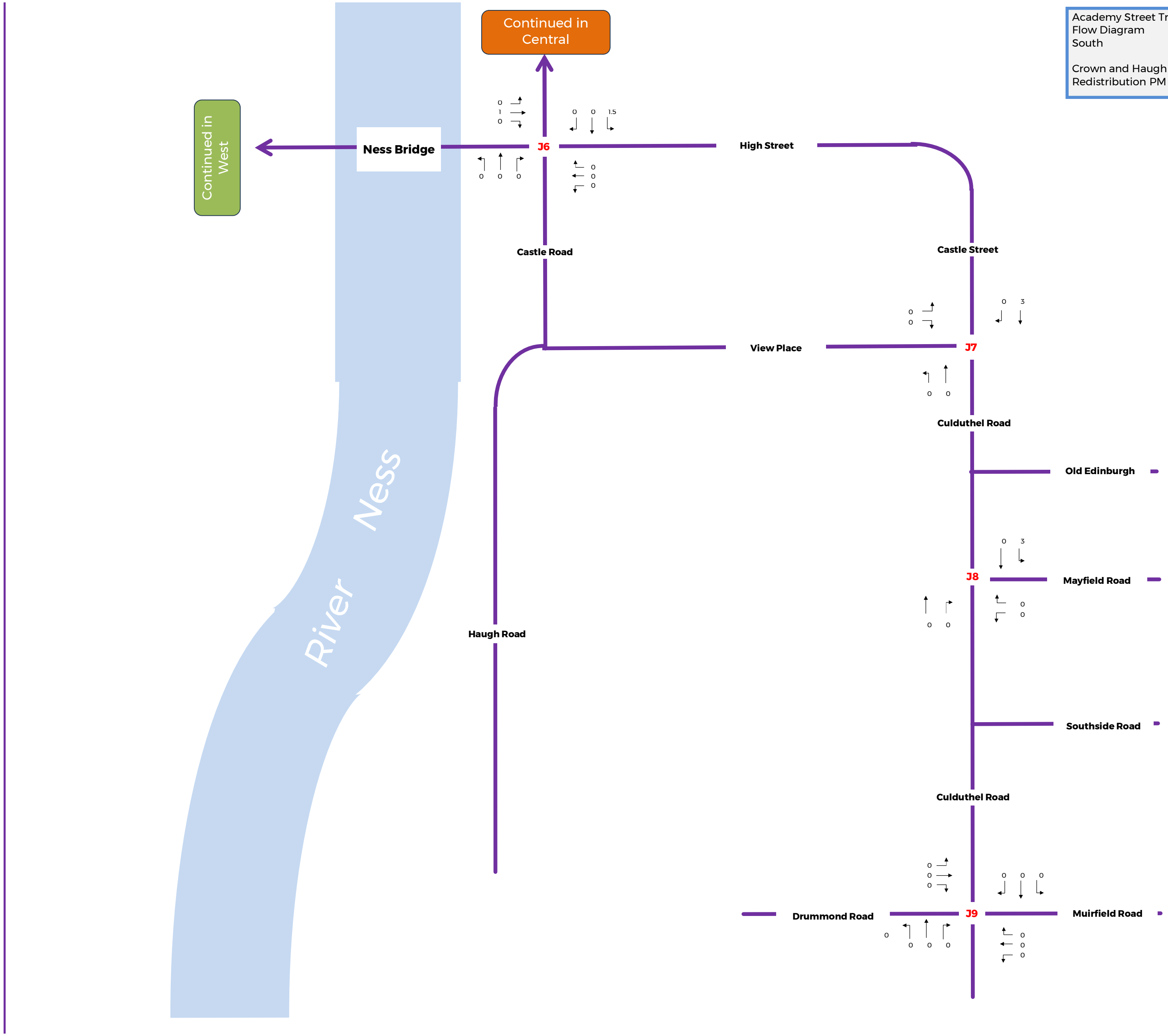
Academy Street Traffic Impact Assessment
Flow Diagram
Central

Crown and Haugh to Merkinch
Redistribution PM Peak



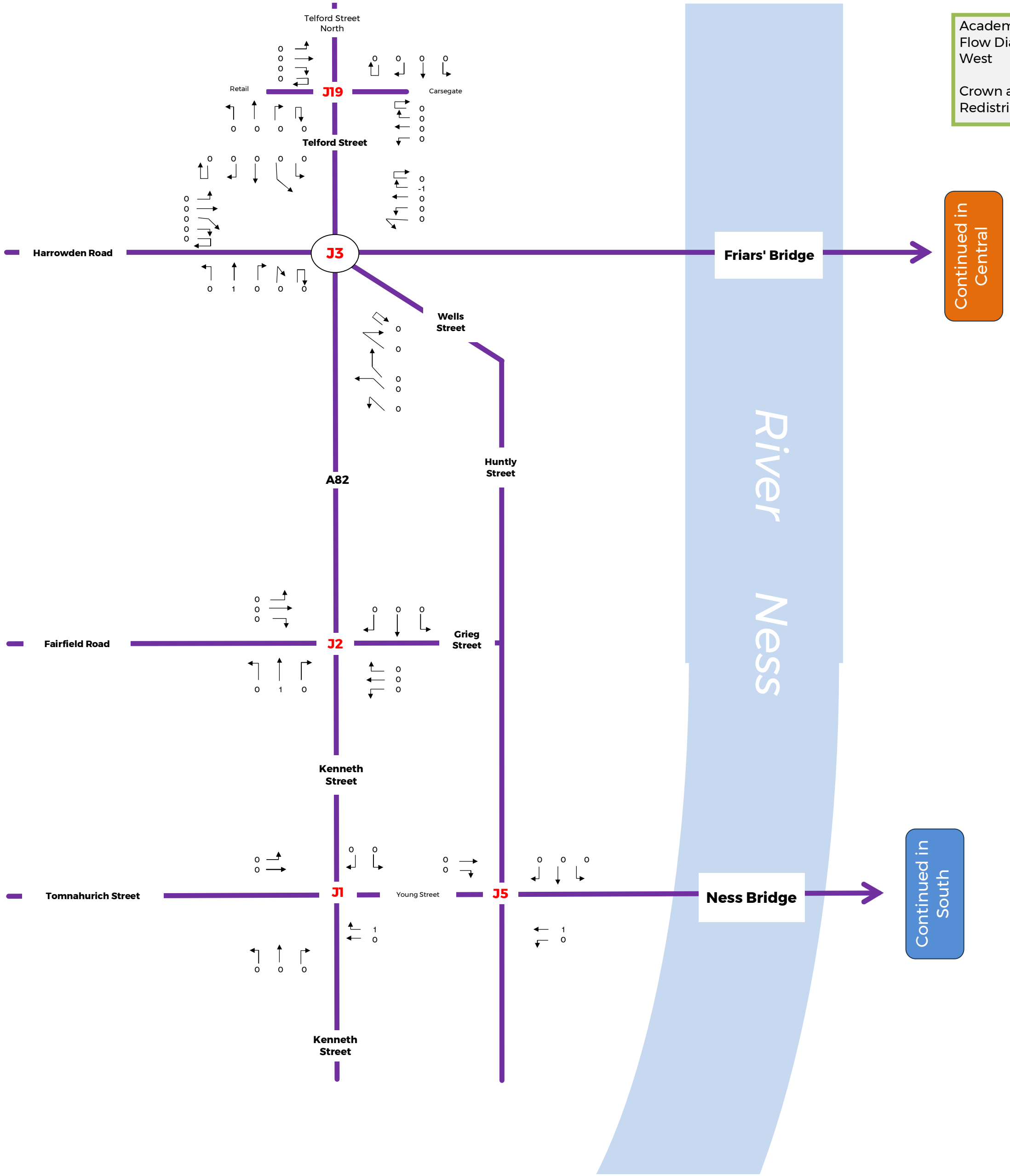
Academy Street Traffic Impact Assessment
Flow Diagram
South

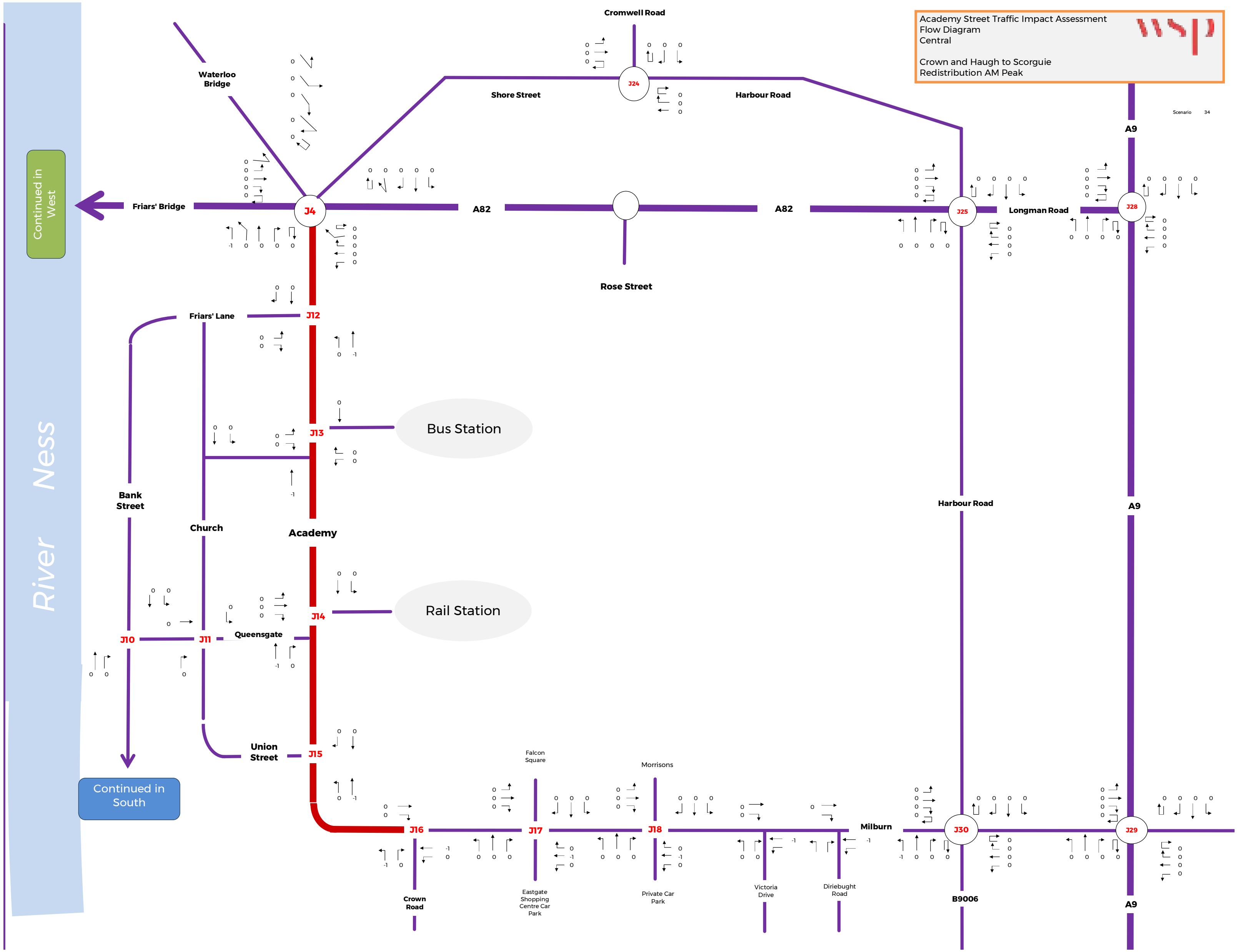
Crown and Haugh to Merkinch
Redistribution PM Peak



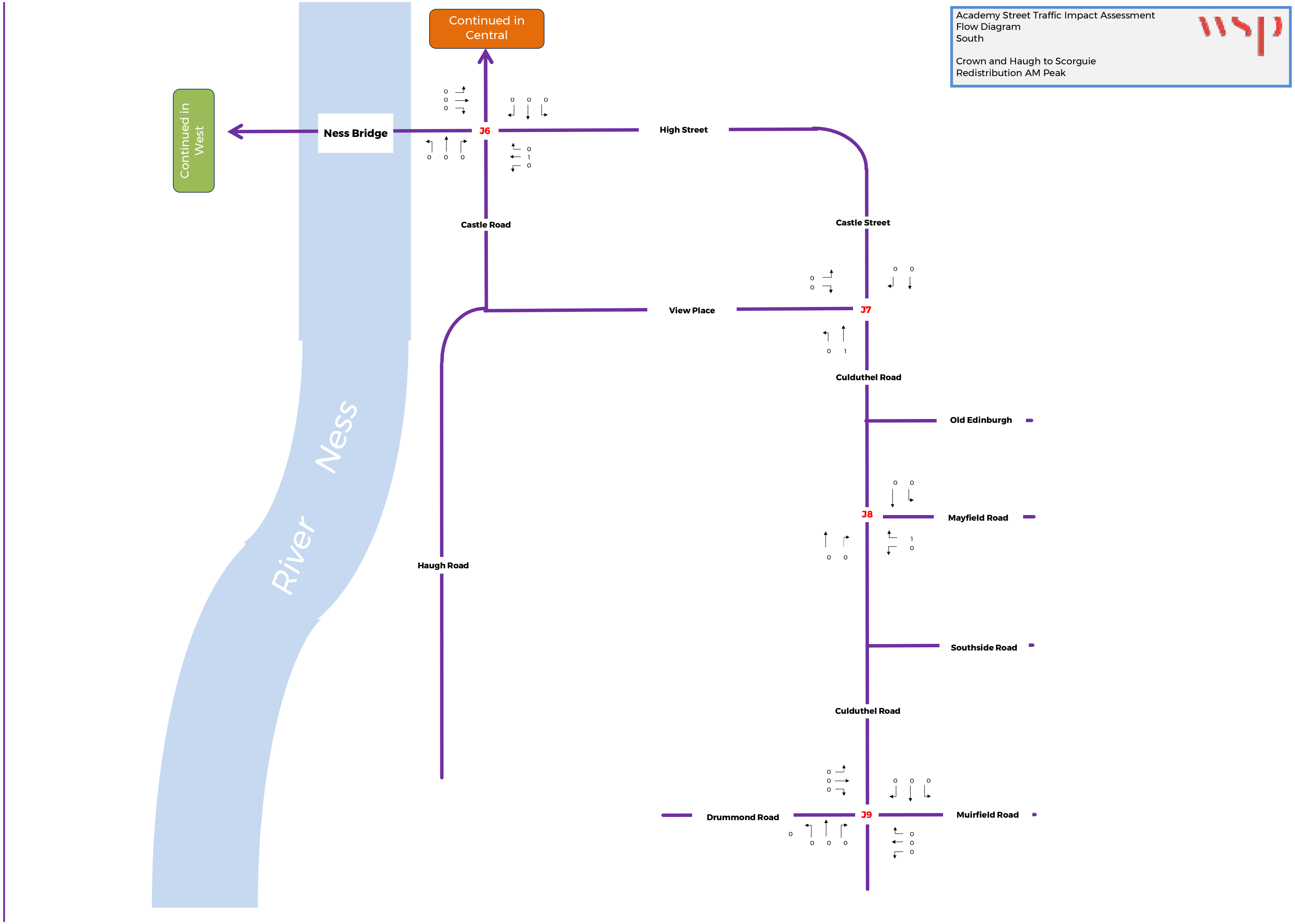
Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Scorguie
Redistribution AM Peak





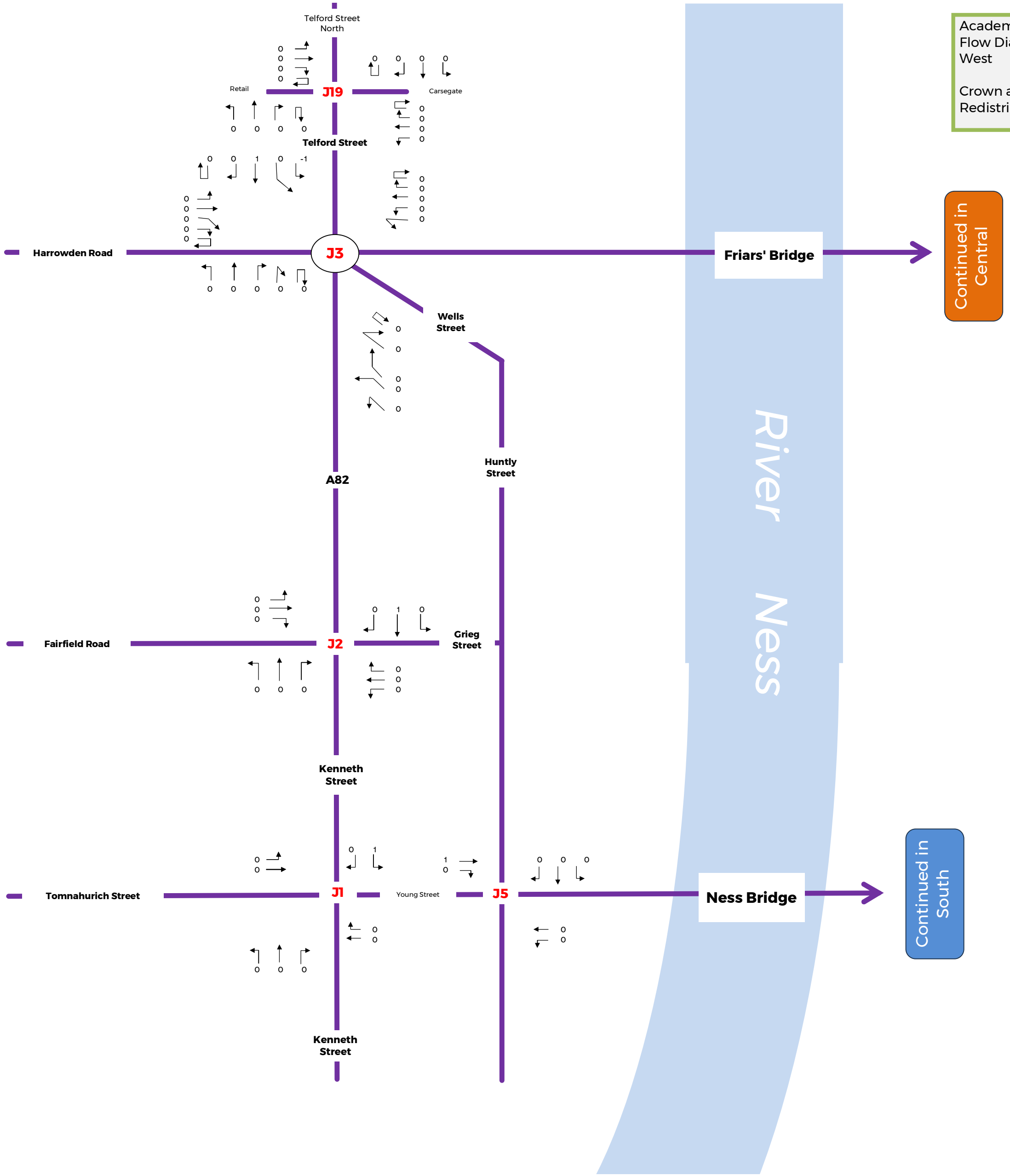
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Scorguie
Redistribution AM Peak
Scenario 34
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

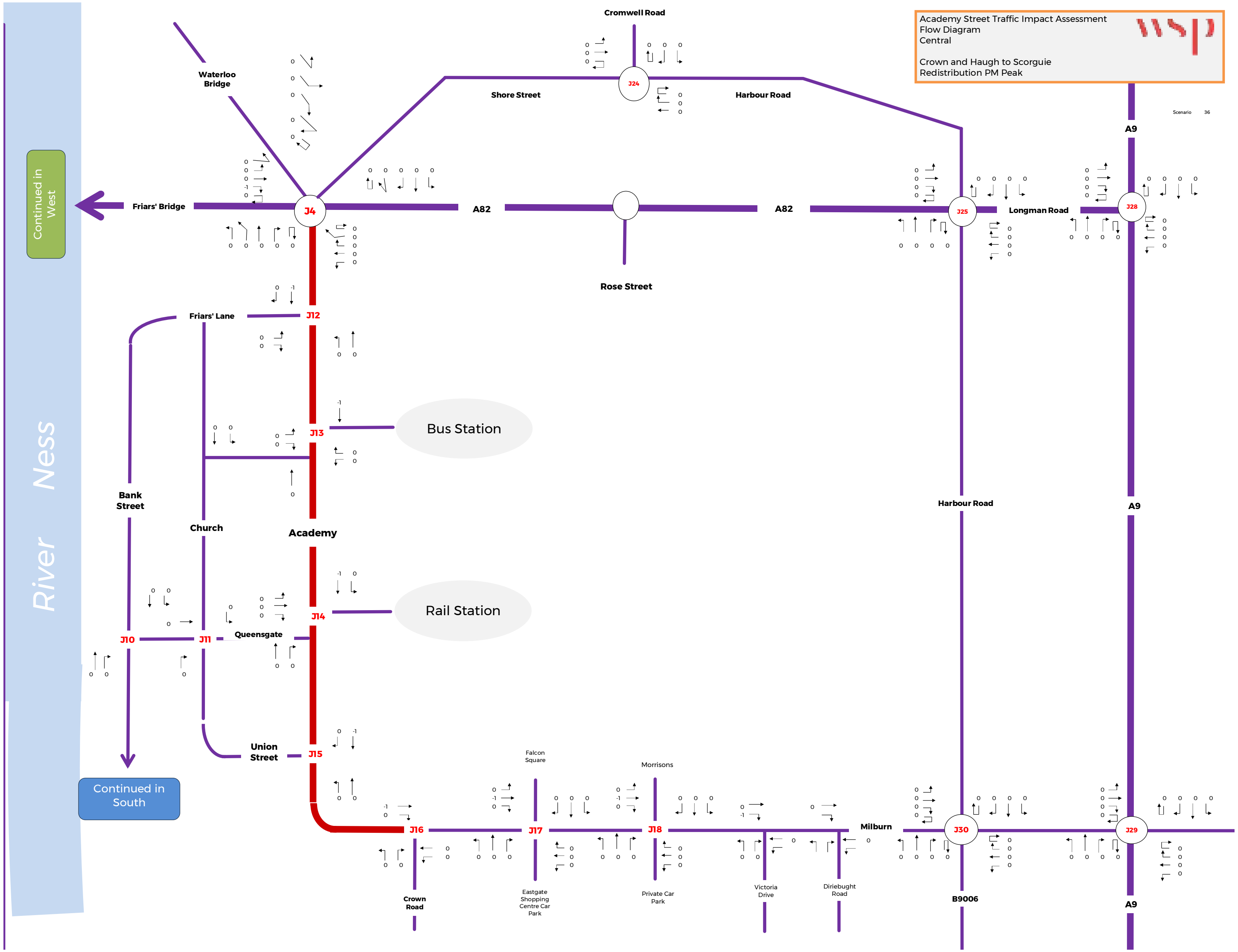


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Scorguie
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
River Ness
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

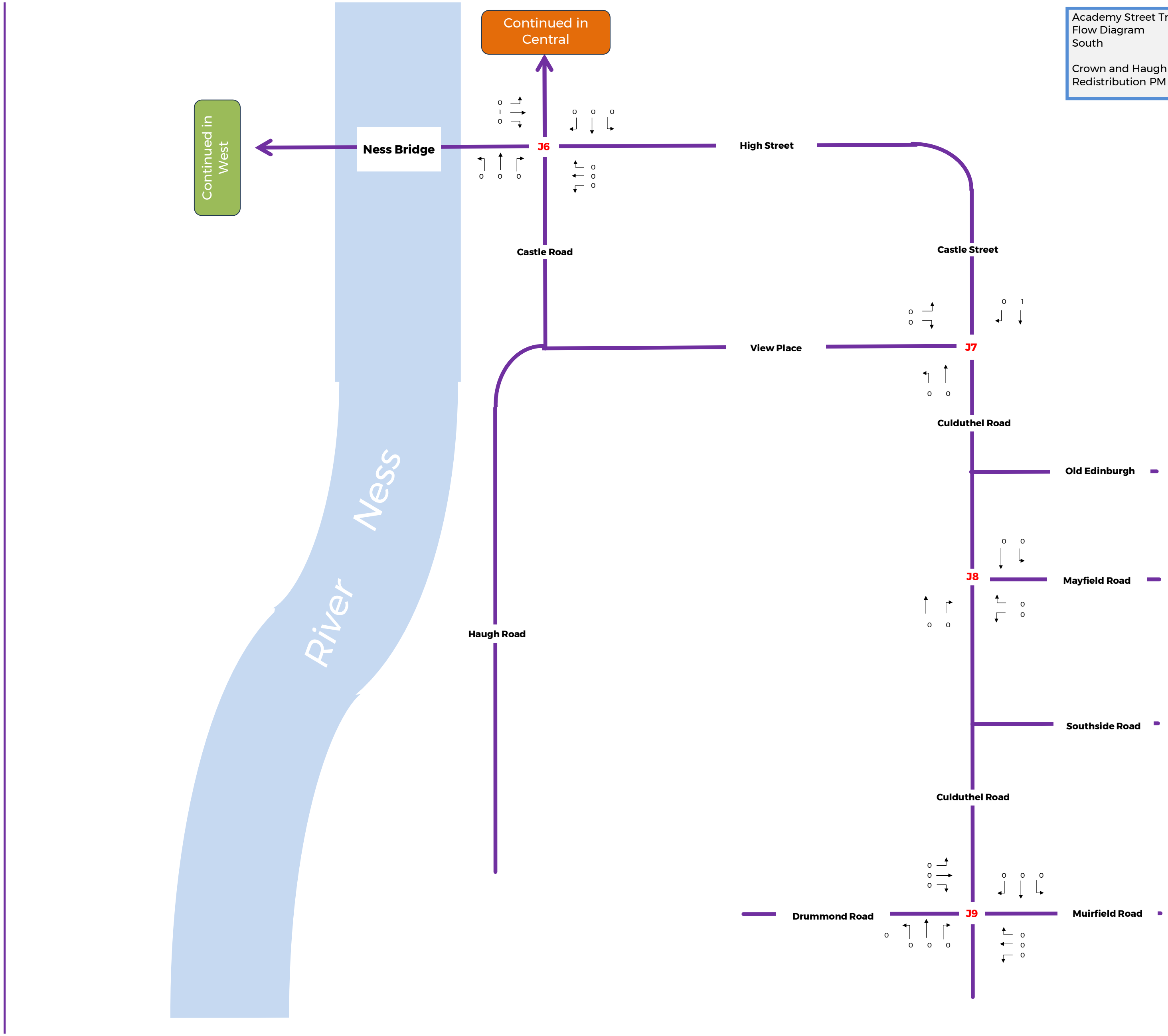
Crown and Haugh to Scorguie
Redistribution PM Peak




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Scorguie
Redistribution PM Peak
Scenario 36
Continued in West
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
J24
Harbour Road
A9
J4
A82
A82
Rose Street
J25
Longman Road
J28
Friars' Lane
J12
Bus Station
J13
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

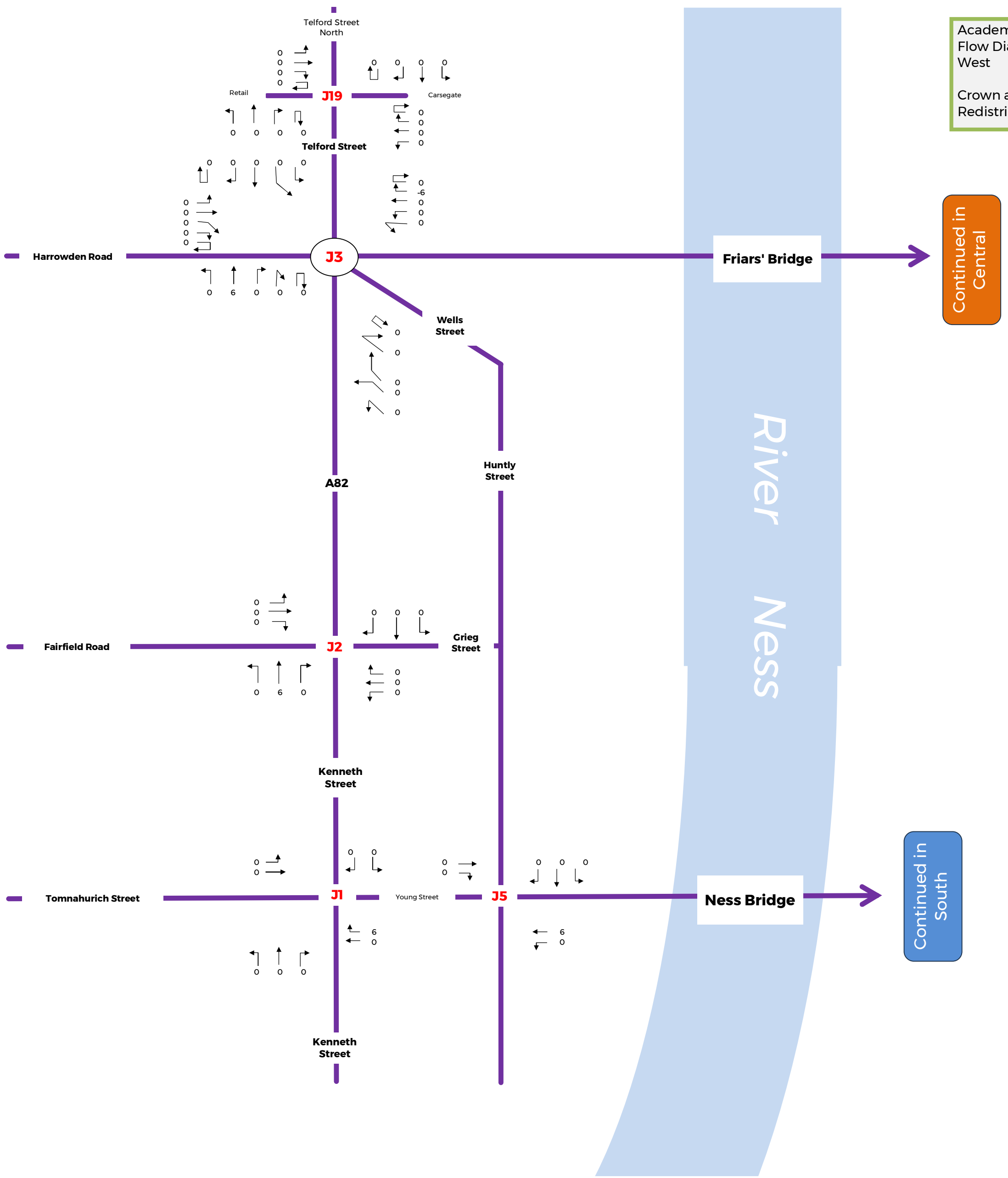
Academy Street Traffic Impact Assessment
Flow Diagram
South

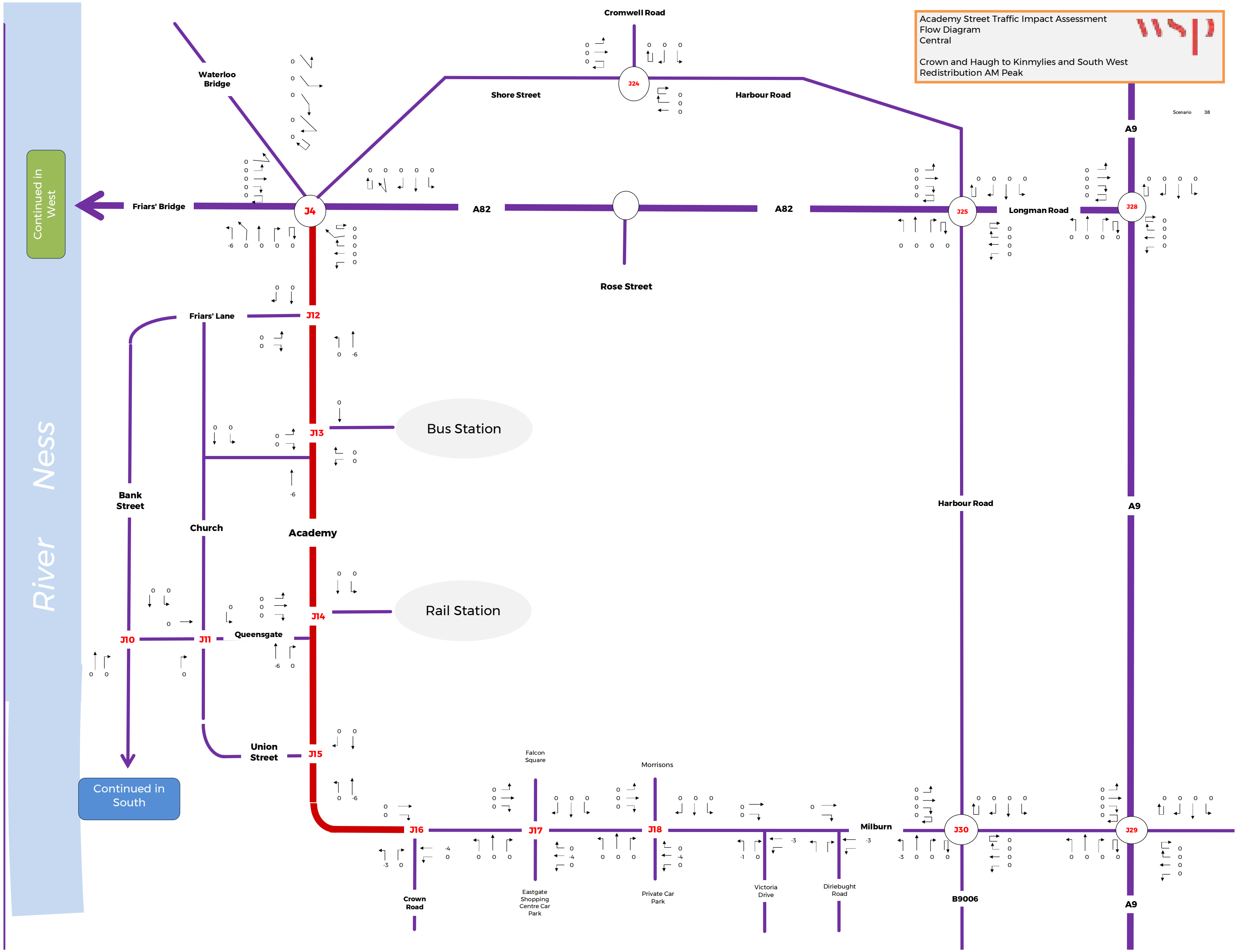
Crown and Haugh to Scorguie
Redistribution PM Peak

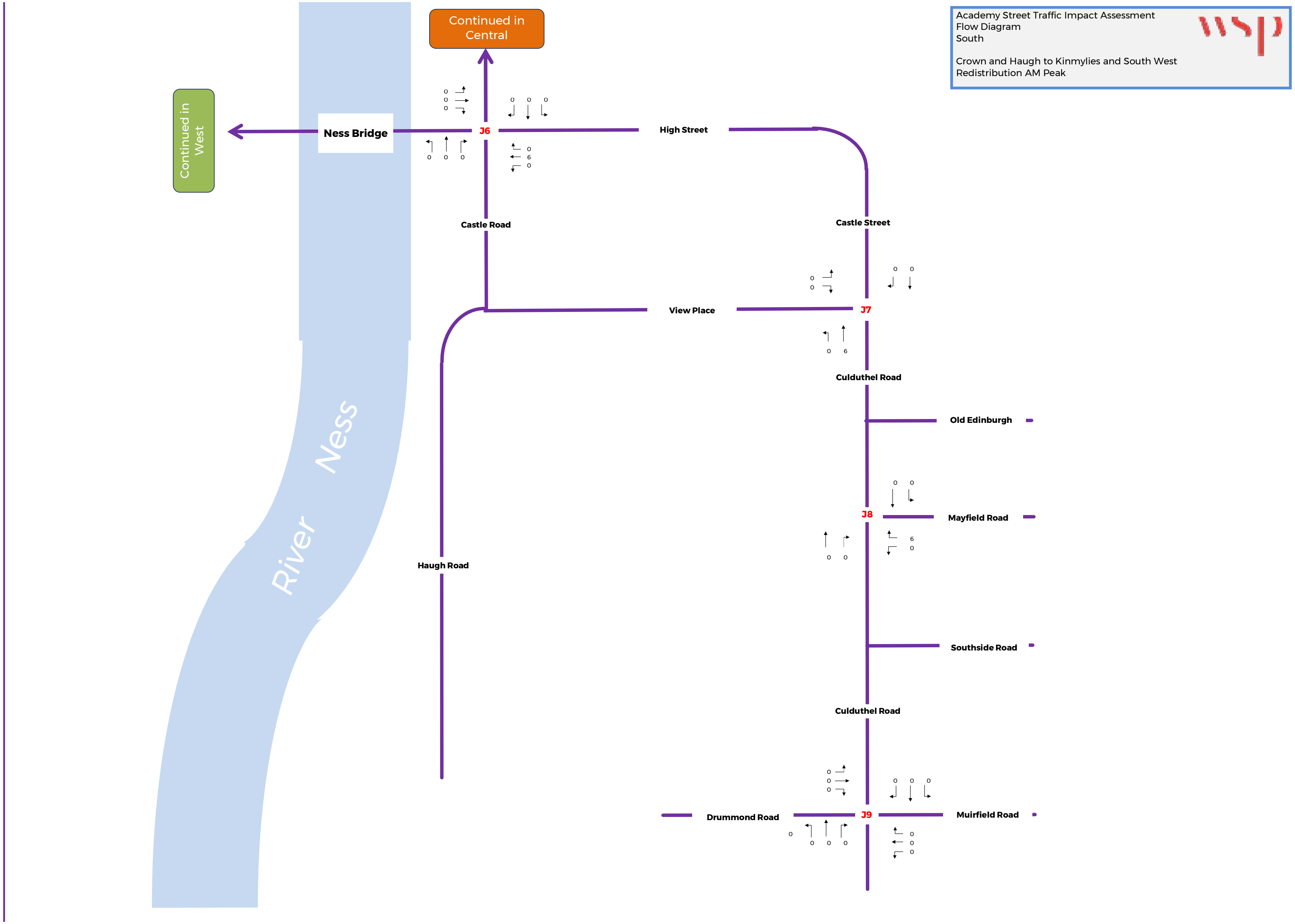


Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Kinmylies and South West Redistribution AM Peak



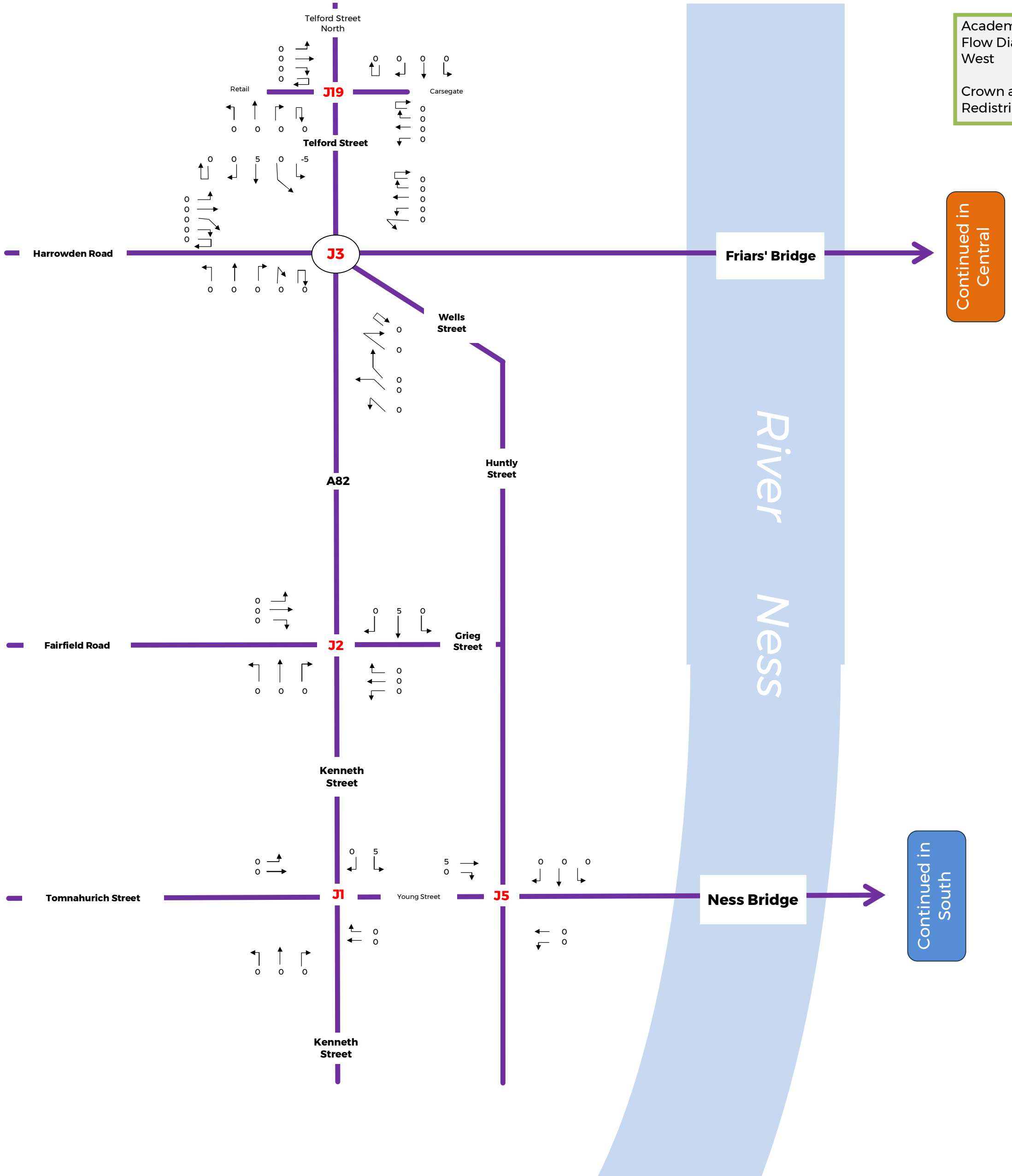

Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Kinmylies and South West Redistribution AM Peak
Scenario 38
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

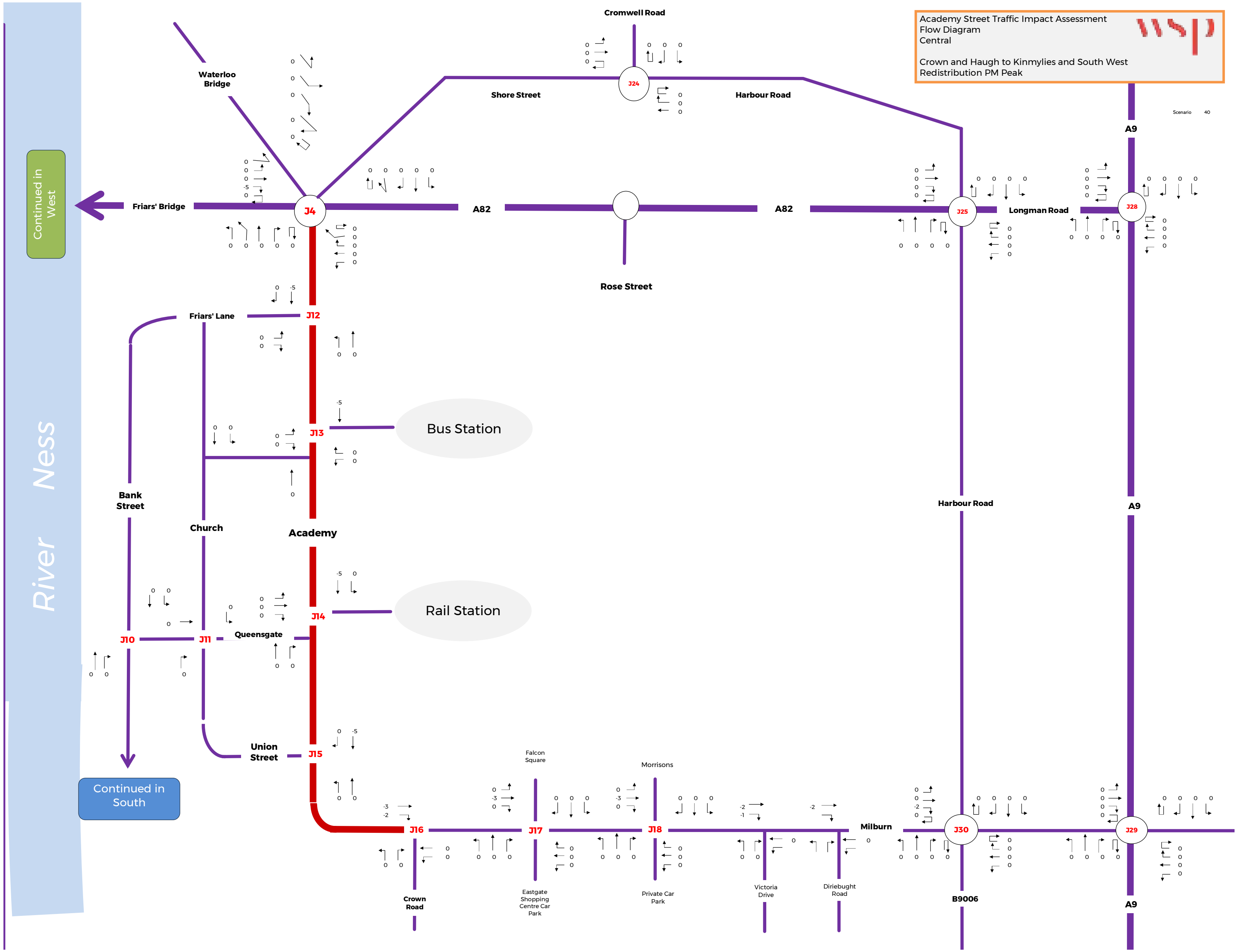


Academy Street Traffic Impact Assessment
Flow Diagram
South
Crown and Haugh to Kinmylies and South West Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
River Ness
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to Kinmylies and South West
Redistribution PM Peak

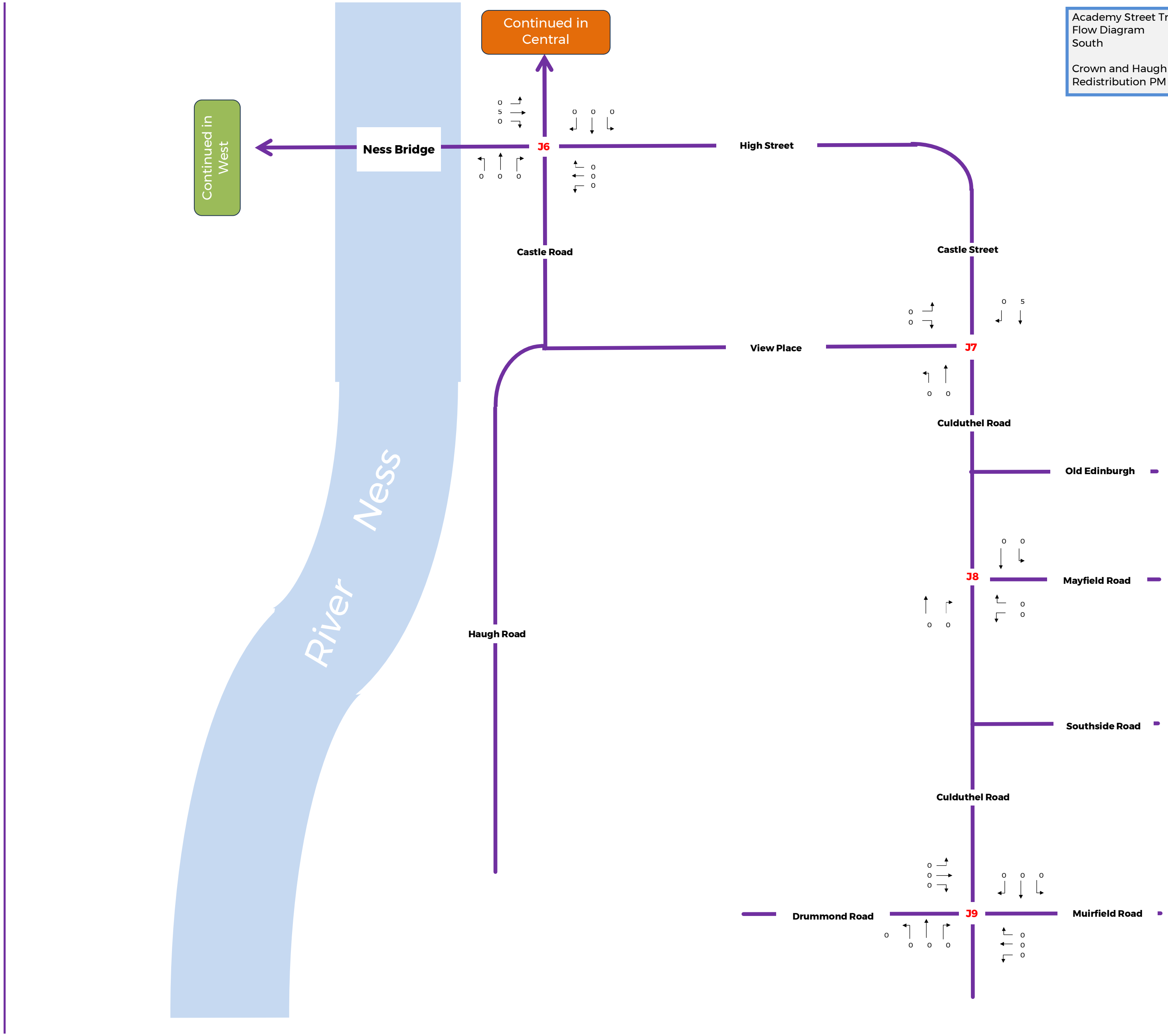




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to Kinmylies and South West Redistribution PM Peak
Scenario 40
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
A9
Continued in West
Friars' Bridge
A82
Longman Road
Rose Street
Friars' Lane
Bus Station
Bank Street
Church
Academy
Harbour Road
River Ness
Rail Station
Queensgate
Union Street
Continued in South
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

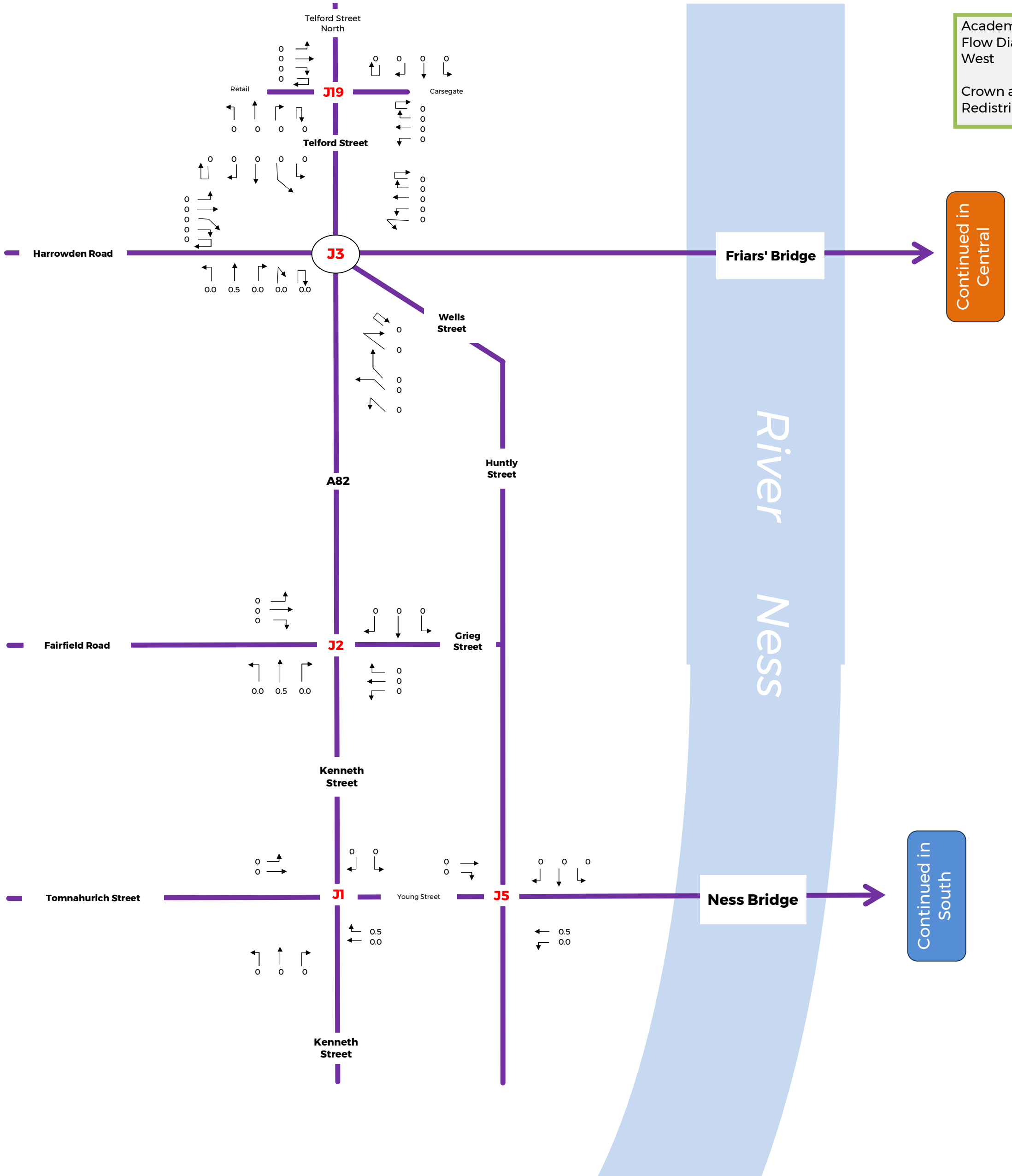
Academy Street Traffic Impact Assessment
Flow Diagram
South

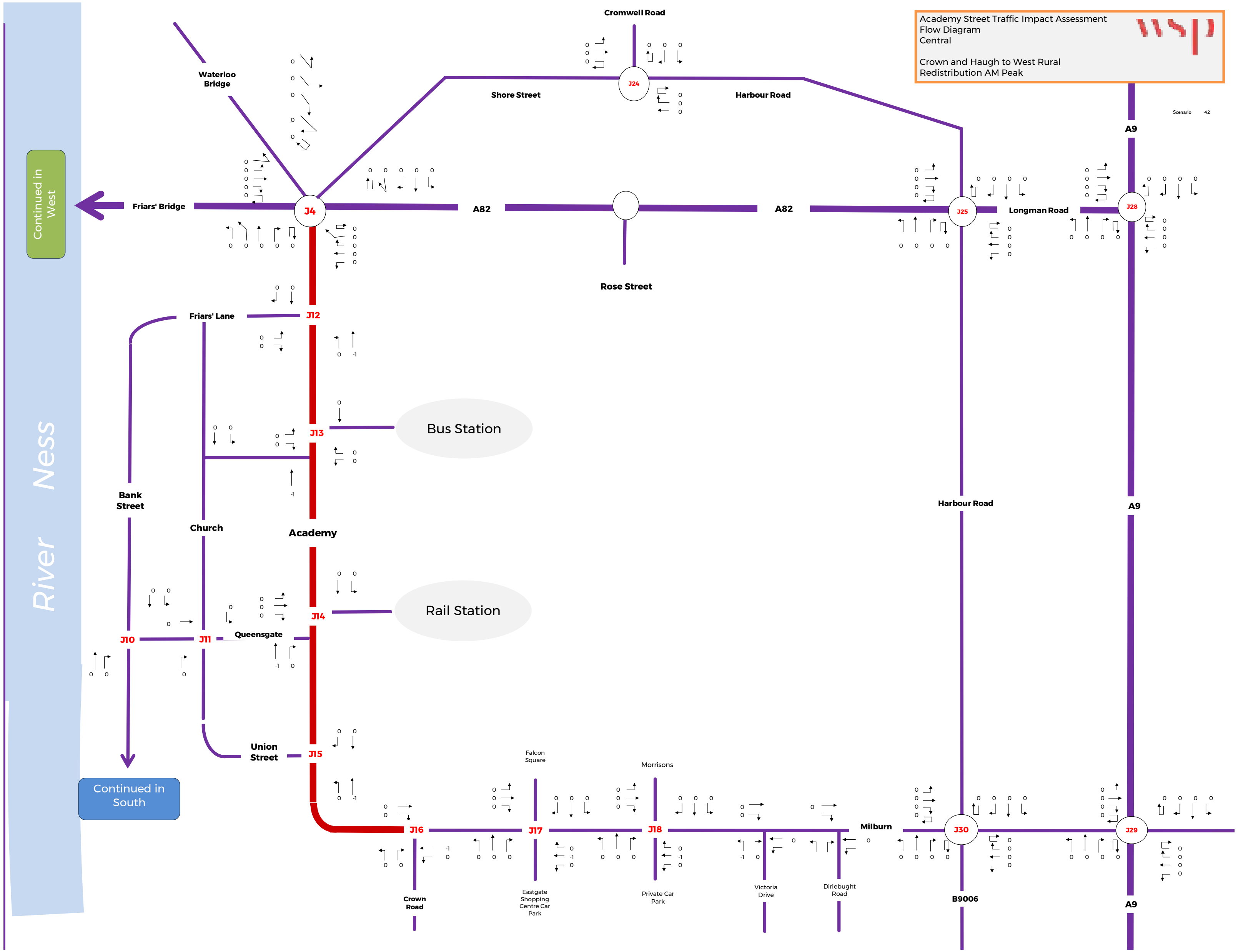
Crown and Haugh to Kinmylies and South West Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to West Rural
Redistribution AM Peak

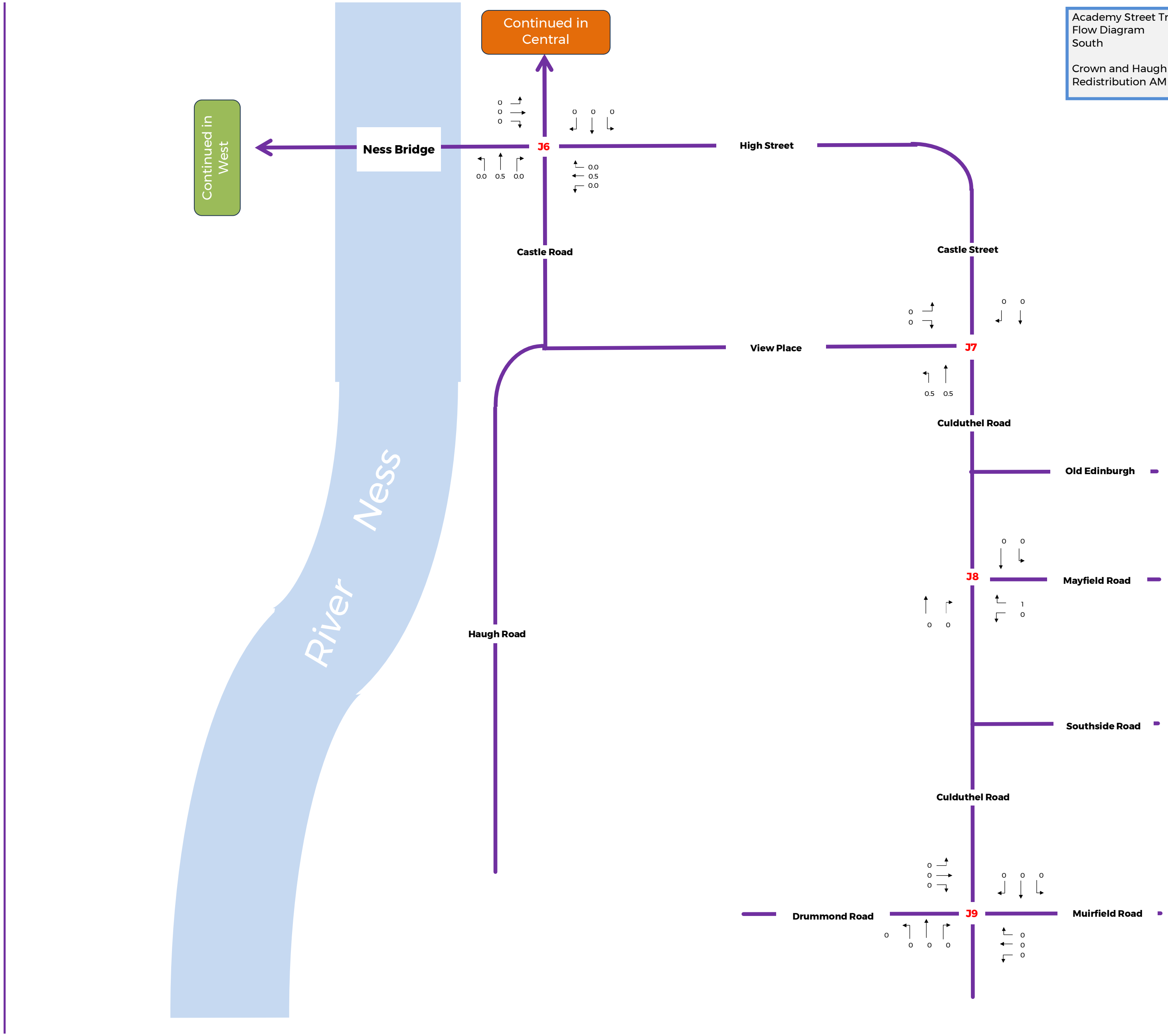




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to West Rural
Redistribution AM Peak
Scenario 42
Cromwell Road
Waterloo Bridge
Shore Street
J24
Harbour Road
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

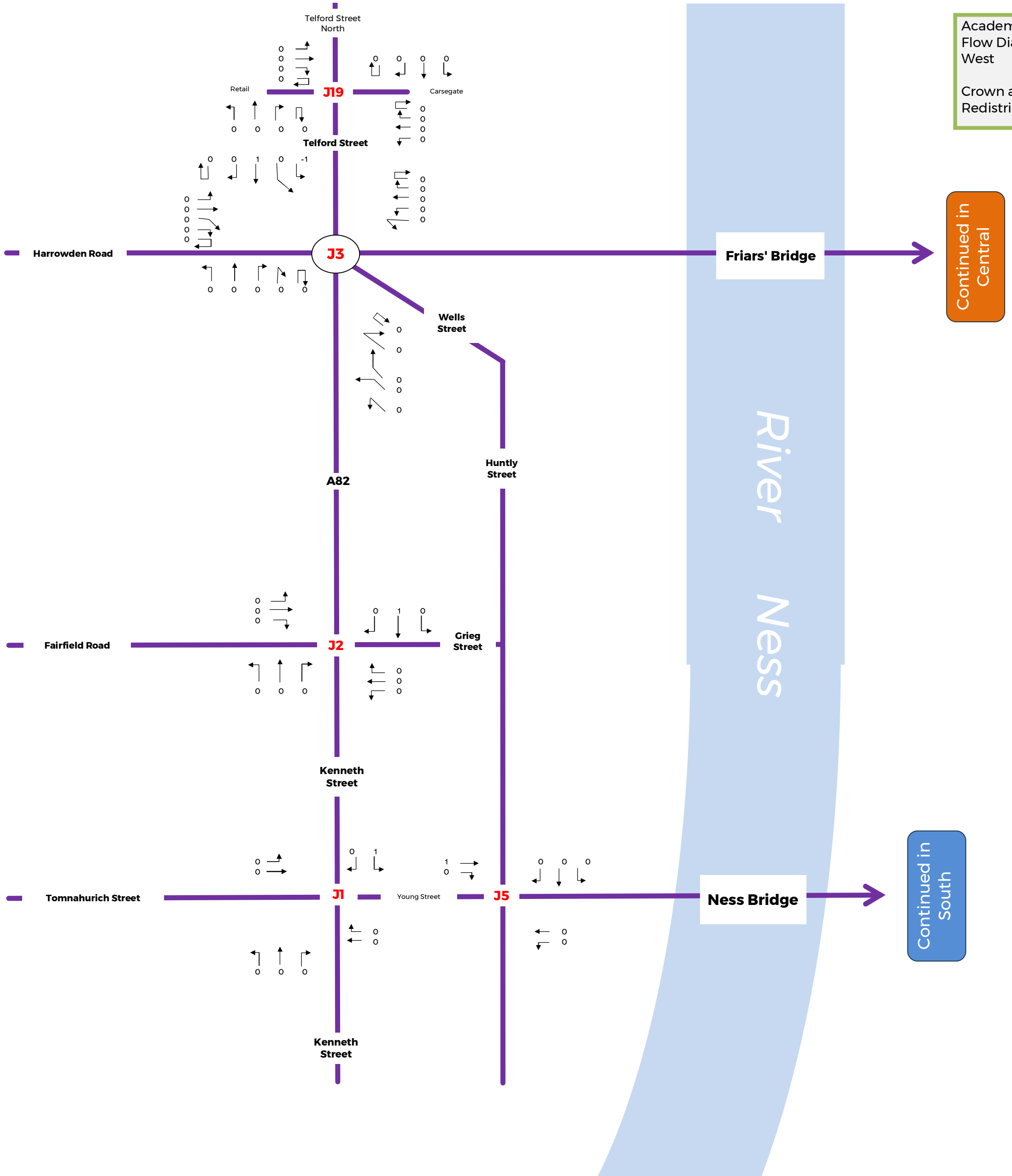
Academy Street Traffic Impact Assessment
Flow Diagram
South

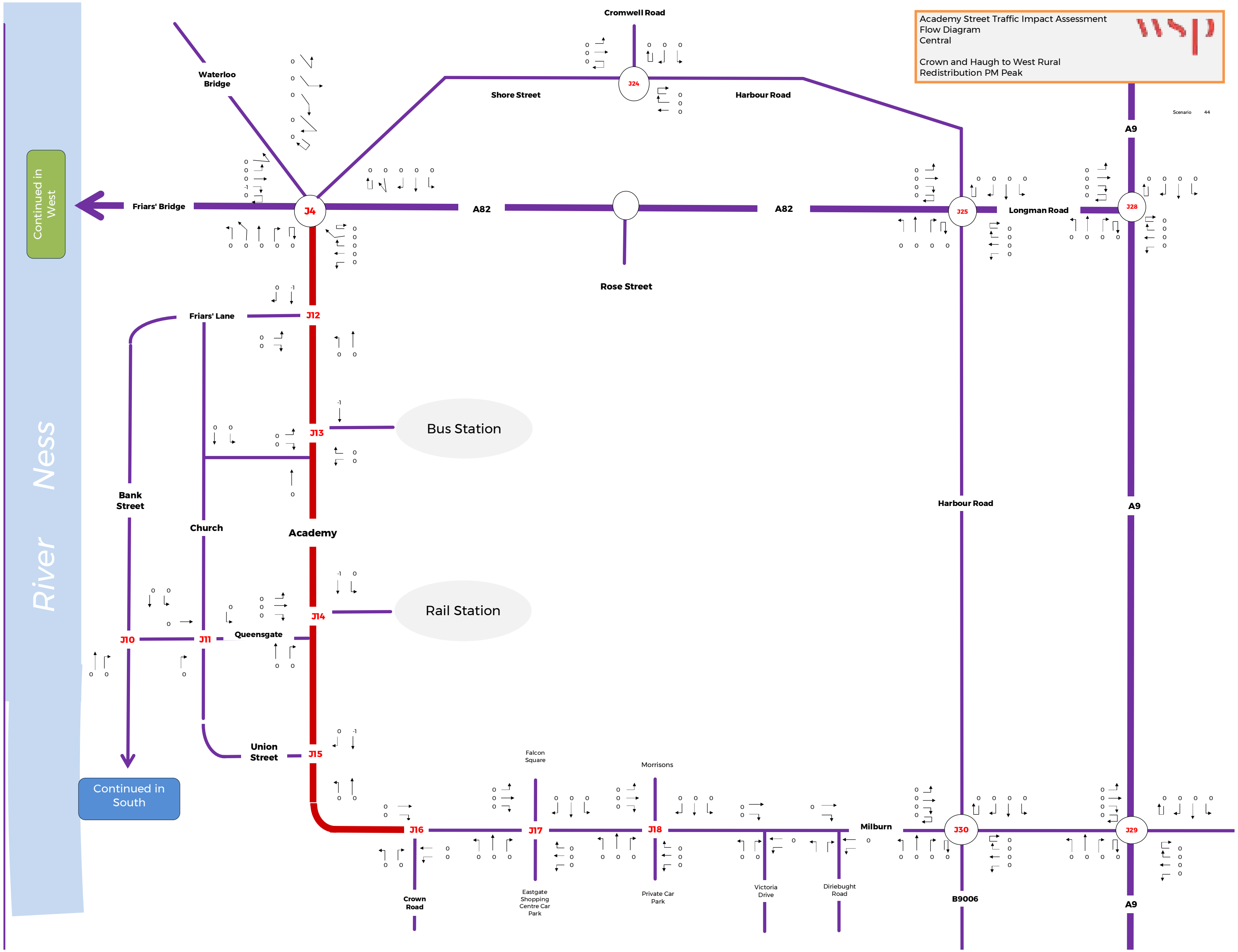
Crown and Haugh to West Rural
Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Crown and Haugh to West Rural
Redistribution PM Peak

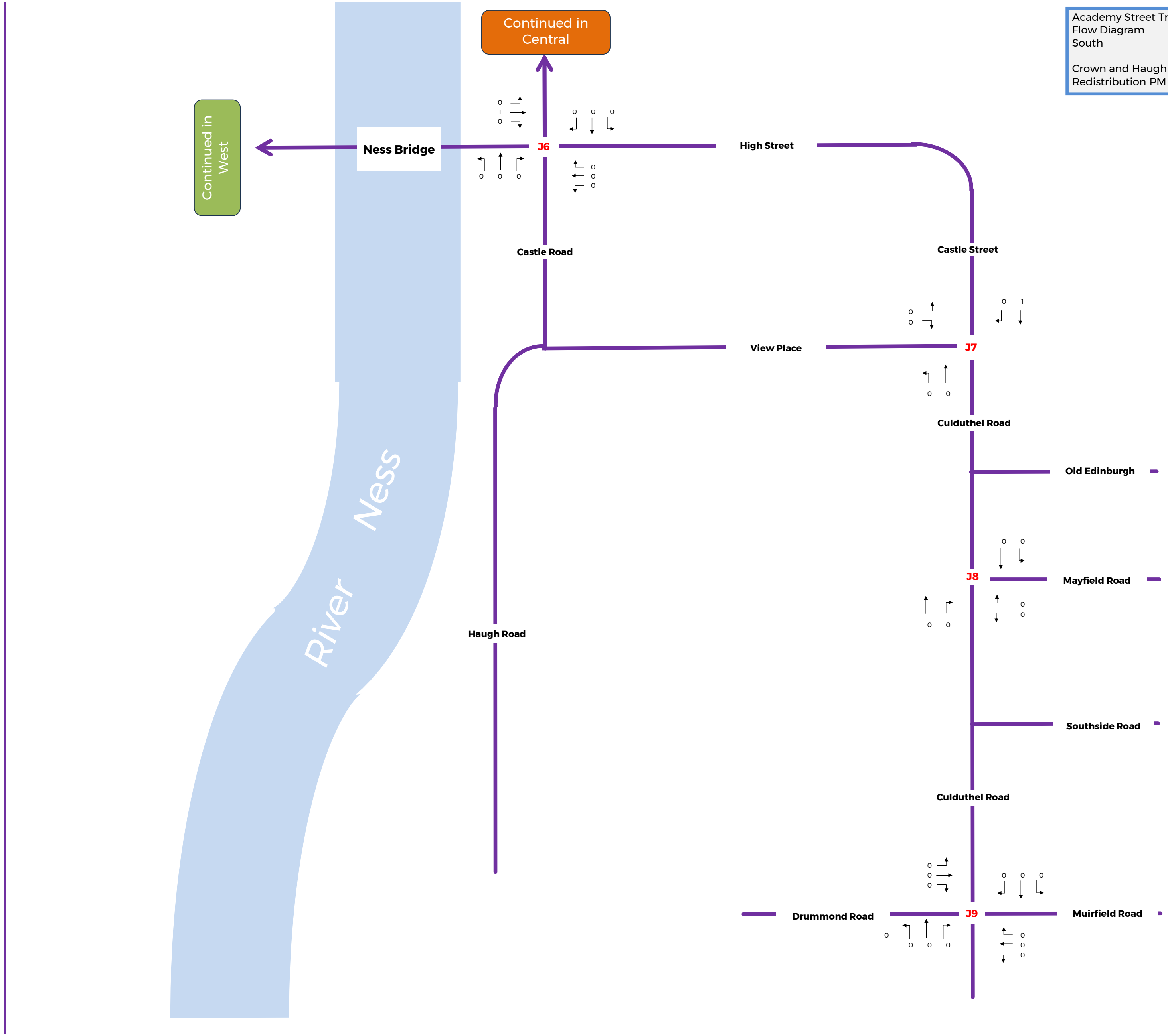




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Crown and Haugh to West Rural
Redistribution PM Peak
Scenario 44
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

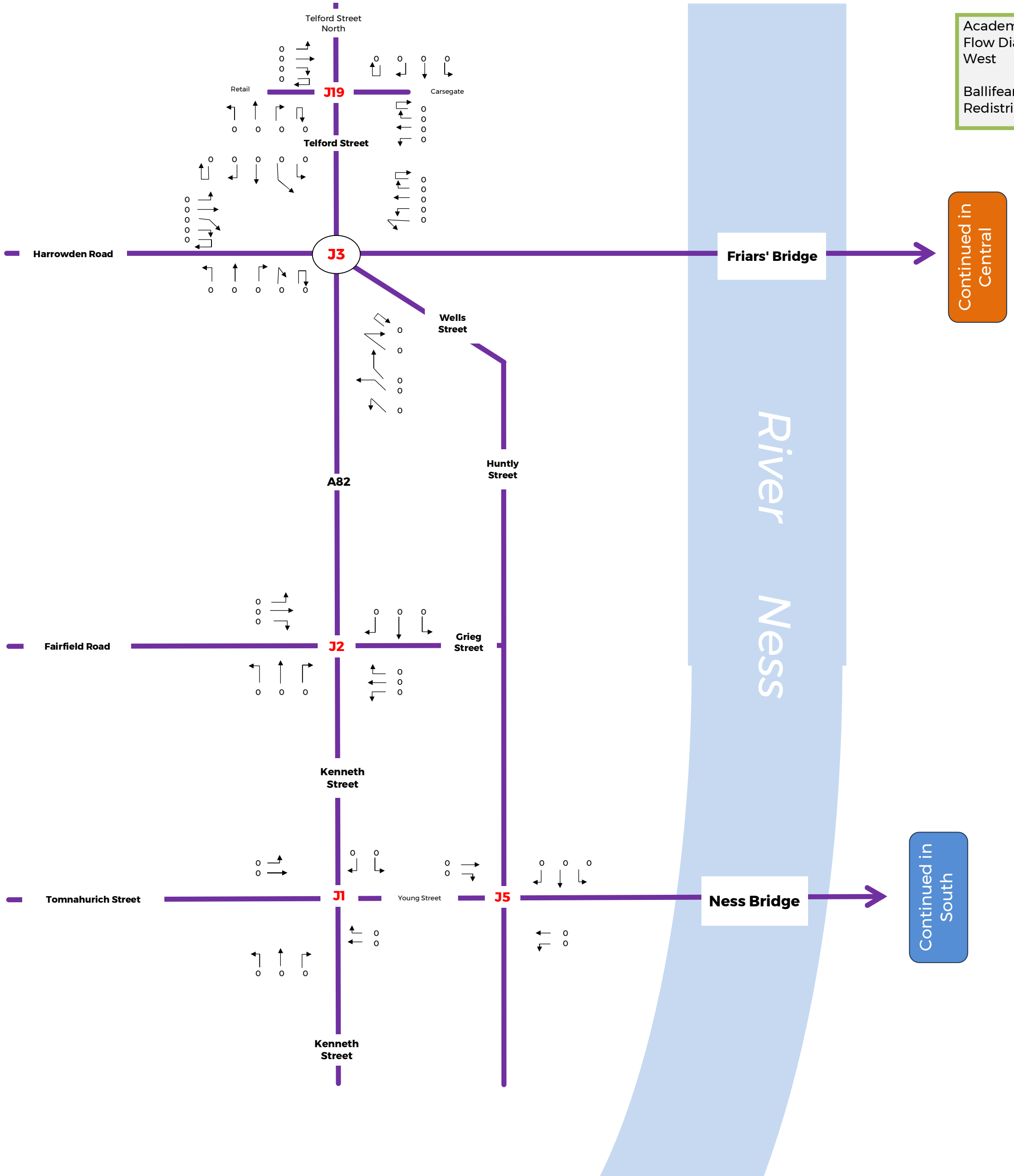
Academy Street Traffic Impact Assessment
Flow Diagram
South

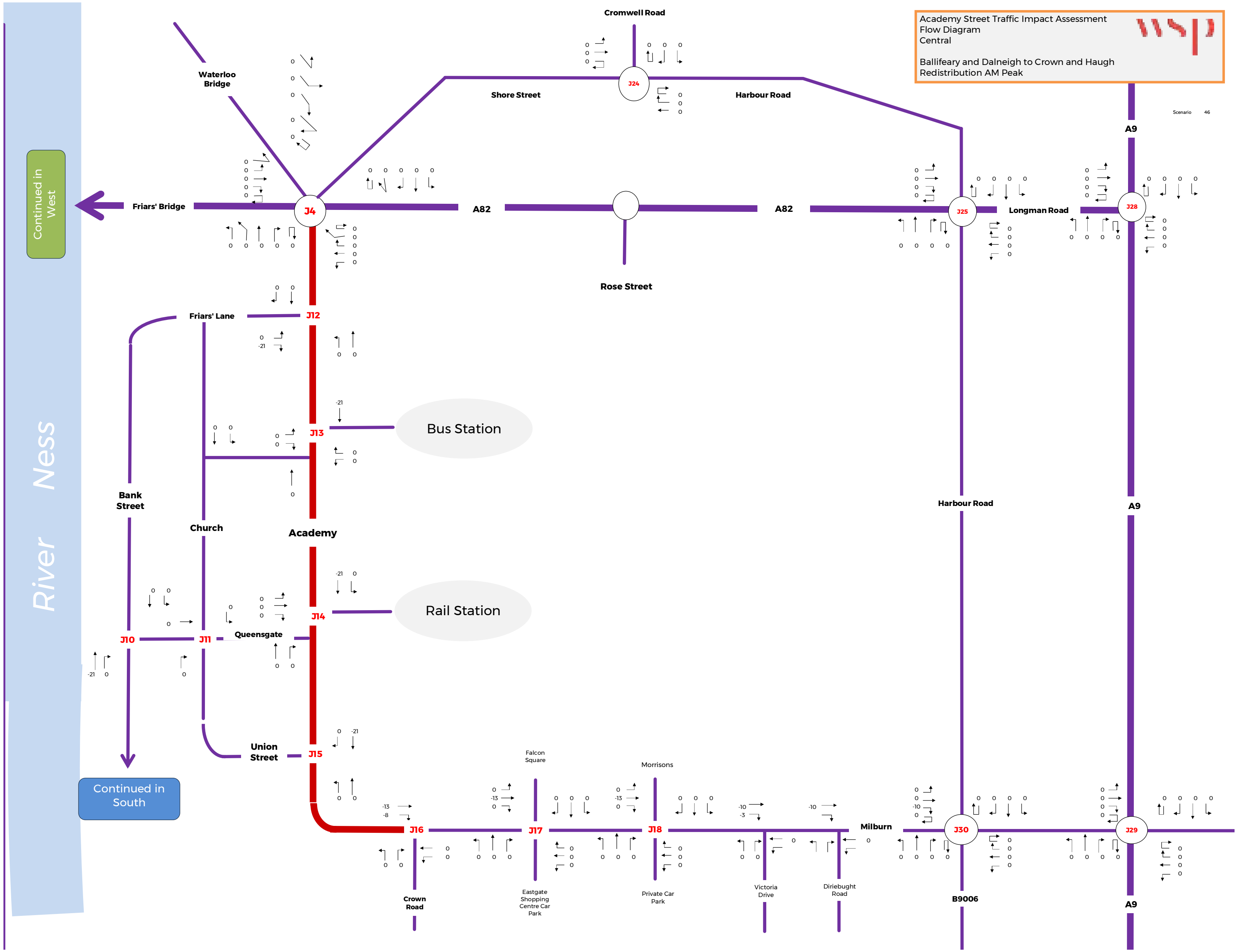
Crown and Haugh to West Rural
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Ballifeary and Dalneigh to Crown and Haugh
Redistribution AM Peak

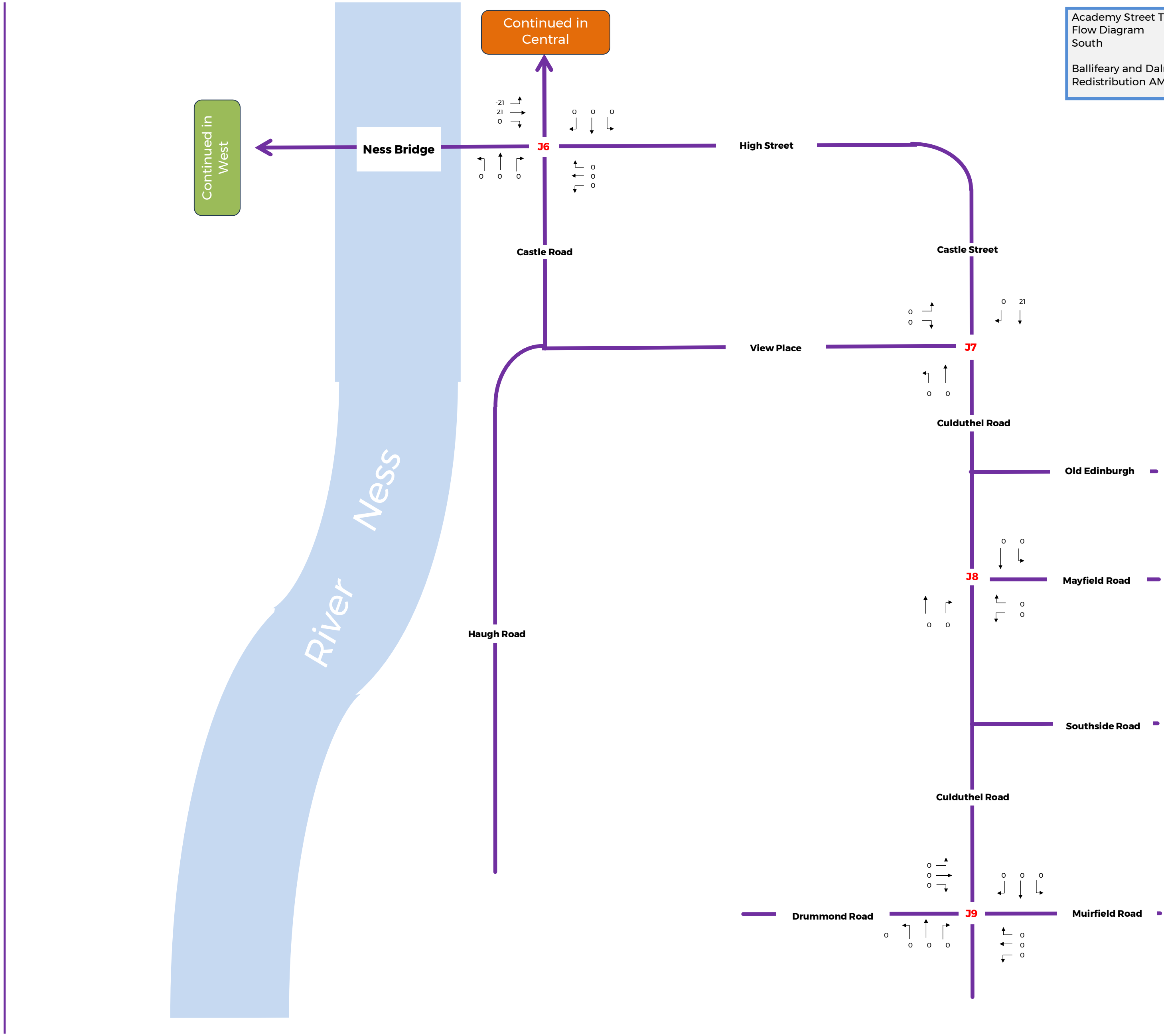




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Ballifeary and Dalneigh to Crown and Haugh Redistribution AM Peak
Scenario 46
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

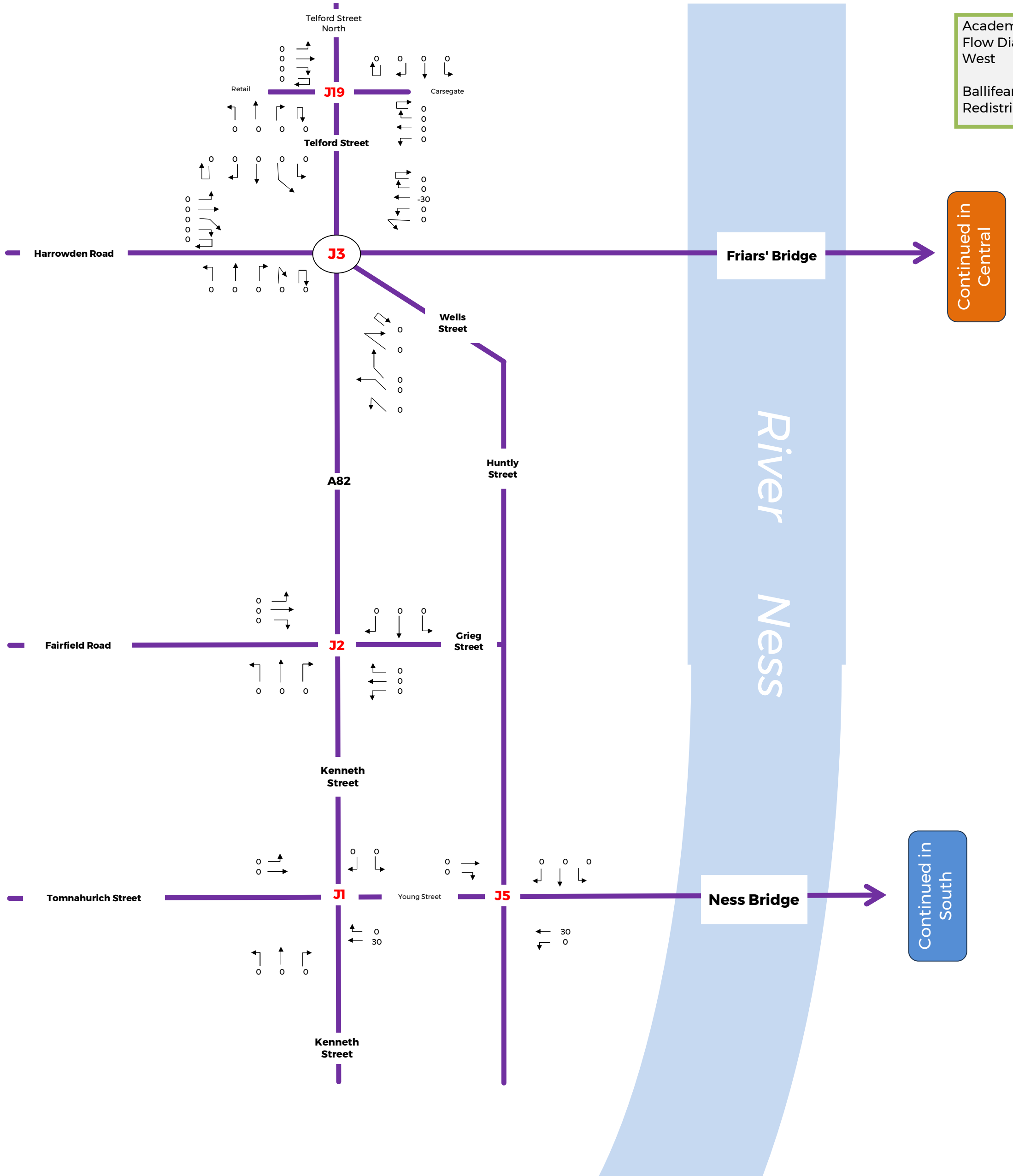
Academy Street Traffic Impact Assessment
Flow Diagram
South

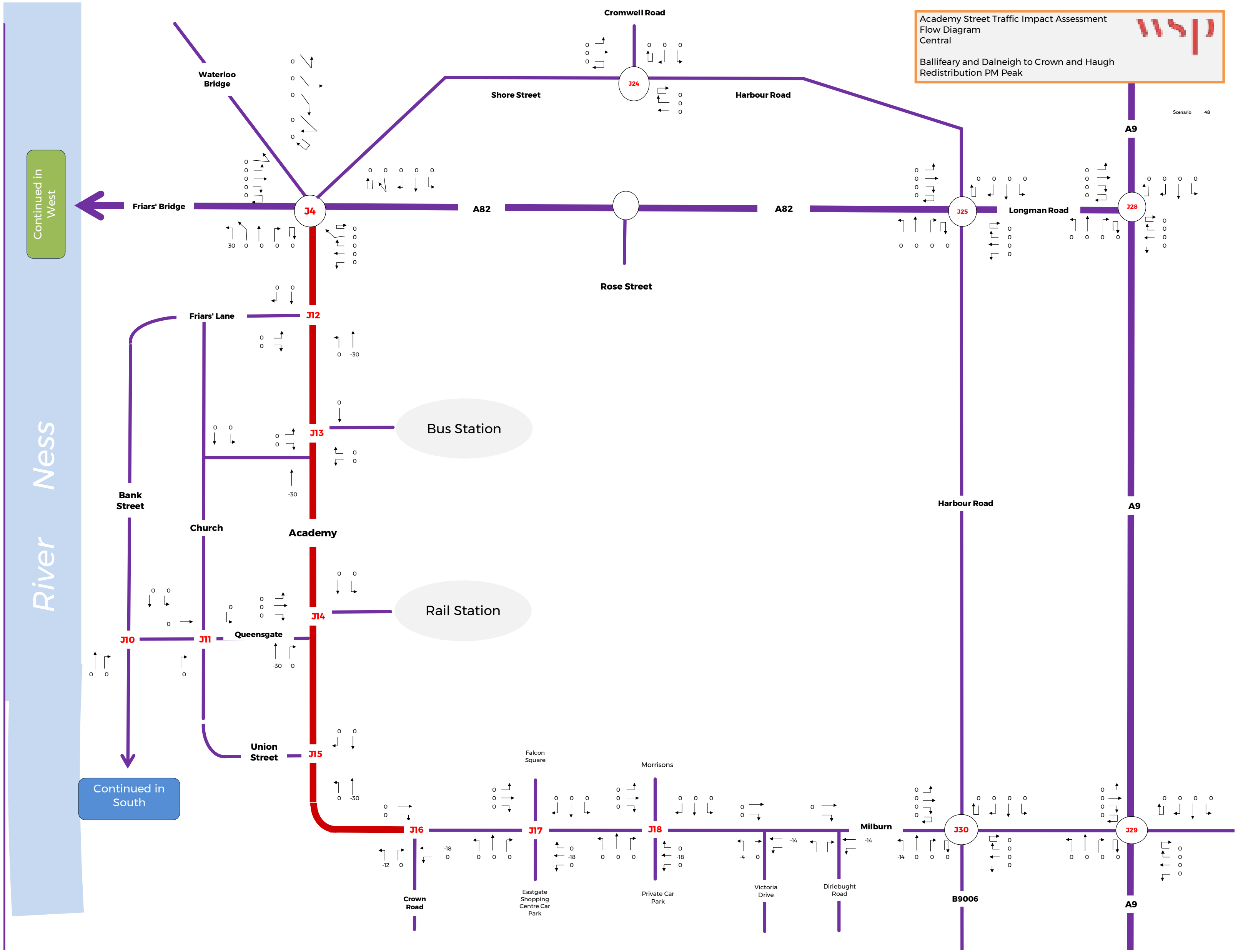
Ballifeary and Dalneigh to Crown and Haugh
Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

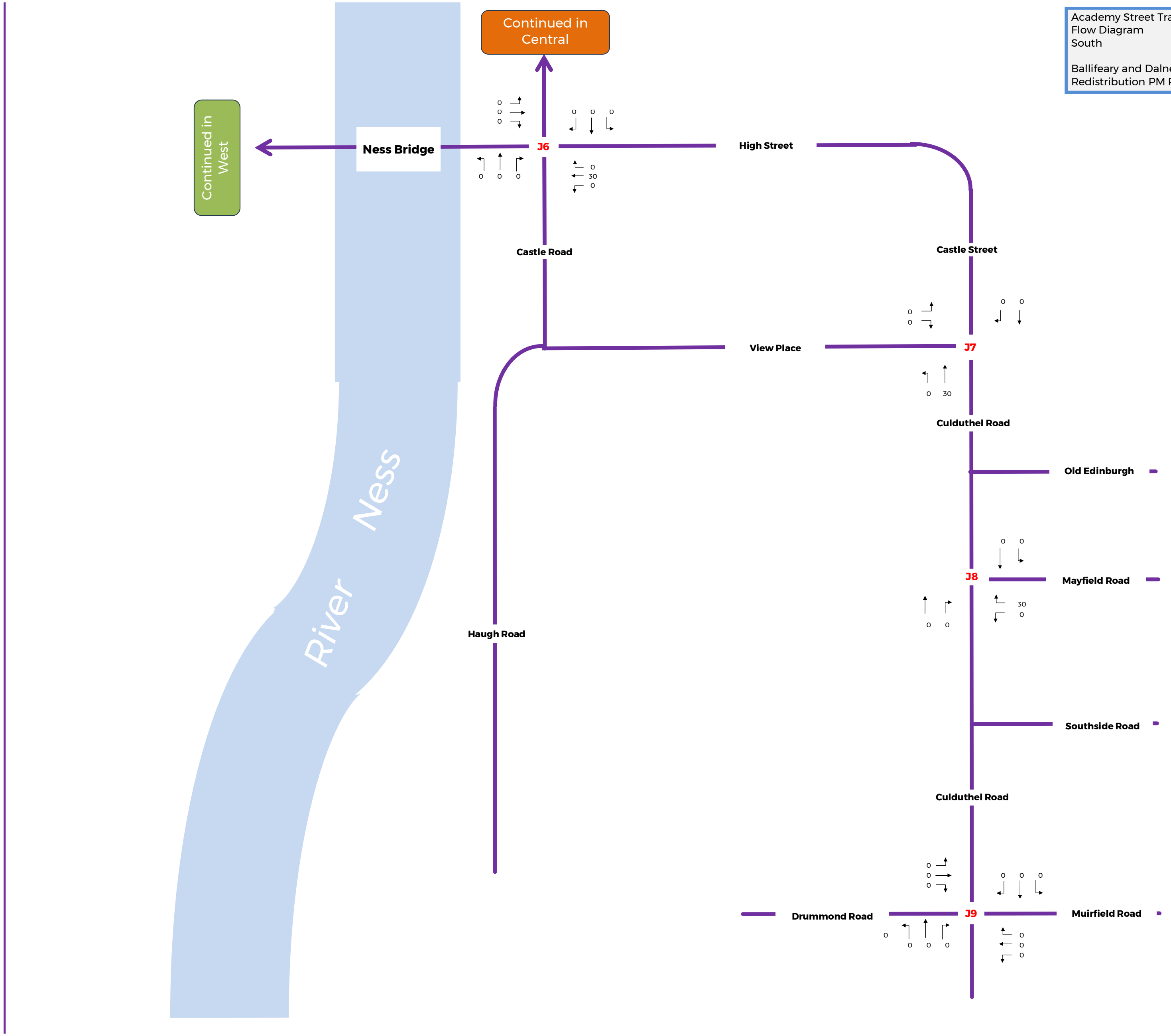
Ballifeary and Dalneigh to Crown and Haugh
Redistribution PM Peak




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Ballifeary and Dalneigh to Crown and Haugh
Redistribution PM Peak
Scenario 48
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
Harbour Road
A9
River Ness
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

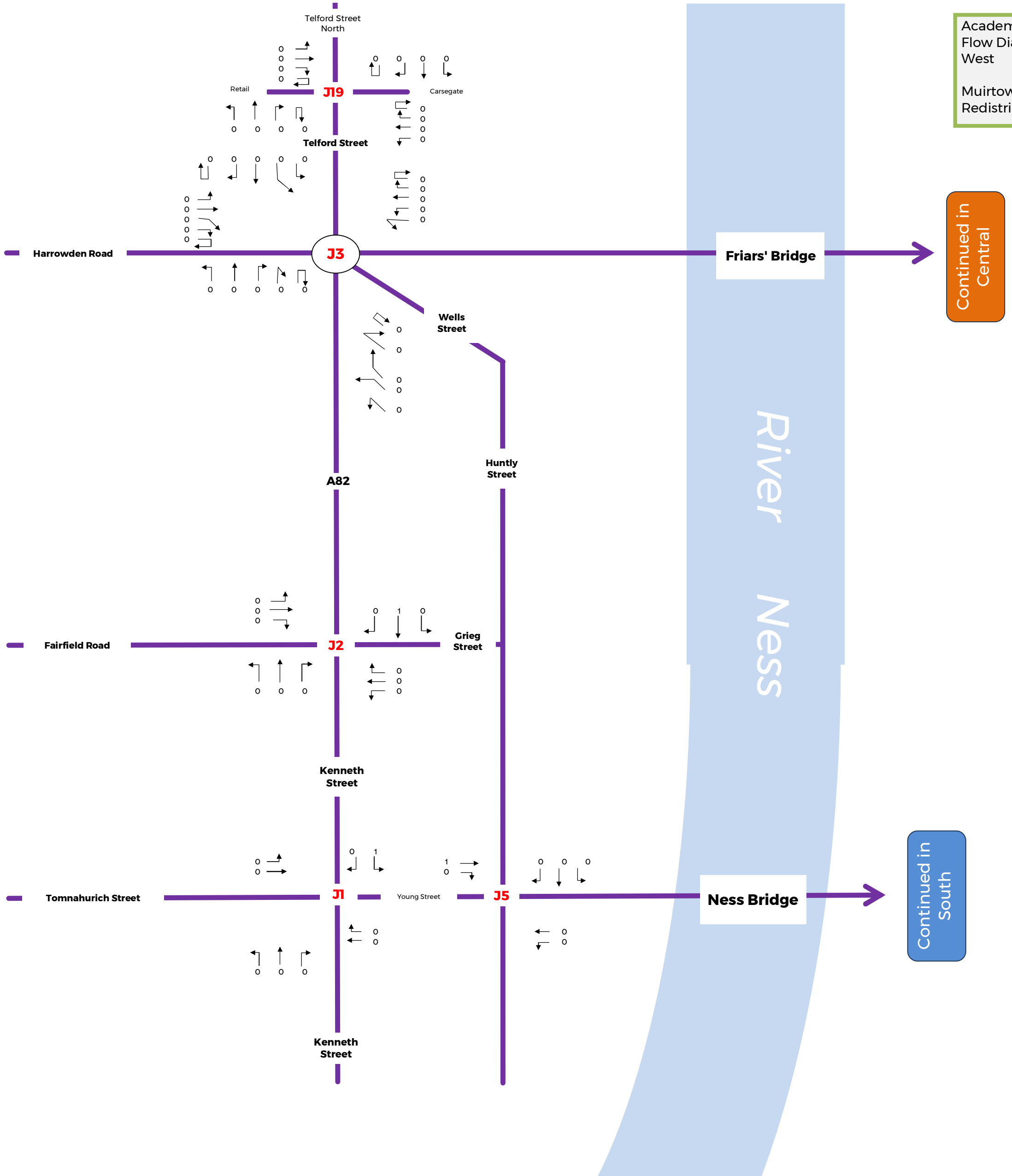
Academy Street Traffic Impact Assessment
Flow Diagram
South

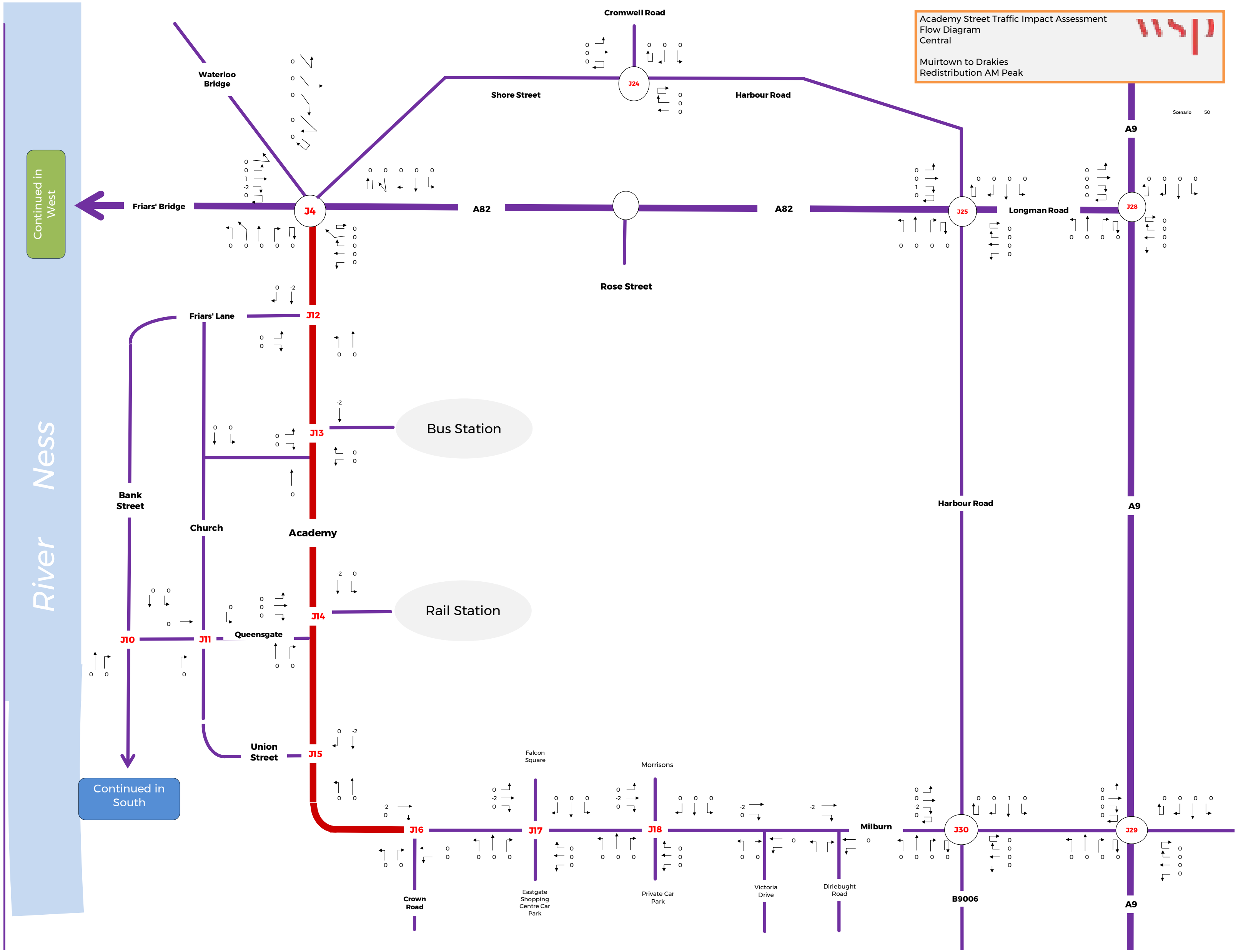
Ballifeary and Dalneigh to Crown and Haugh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

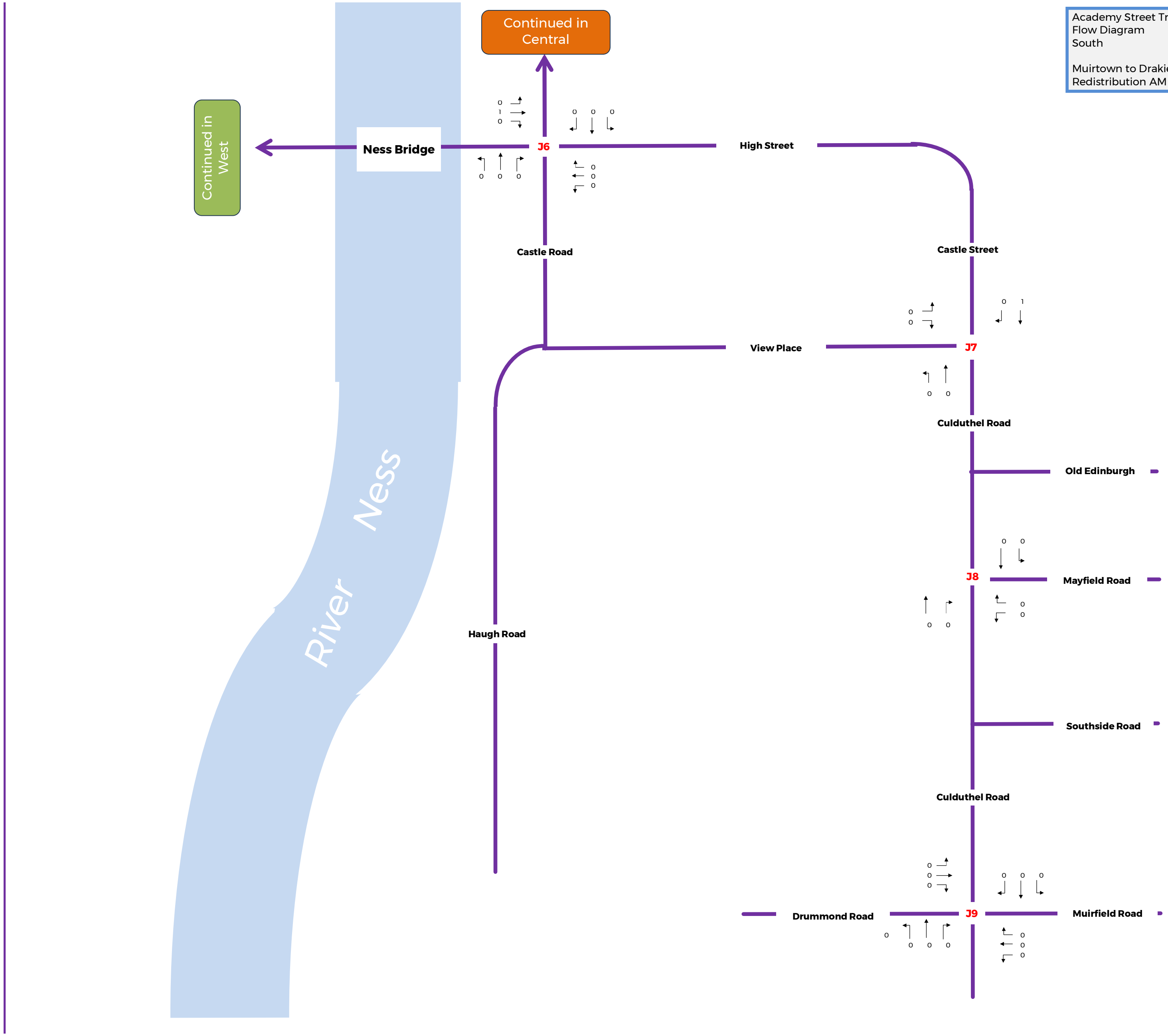
Muirtown to Drakies
Redistribution AM Peak

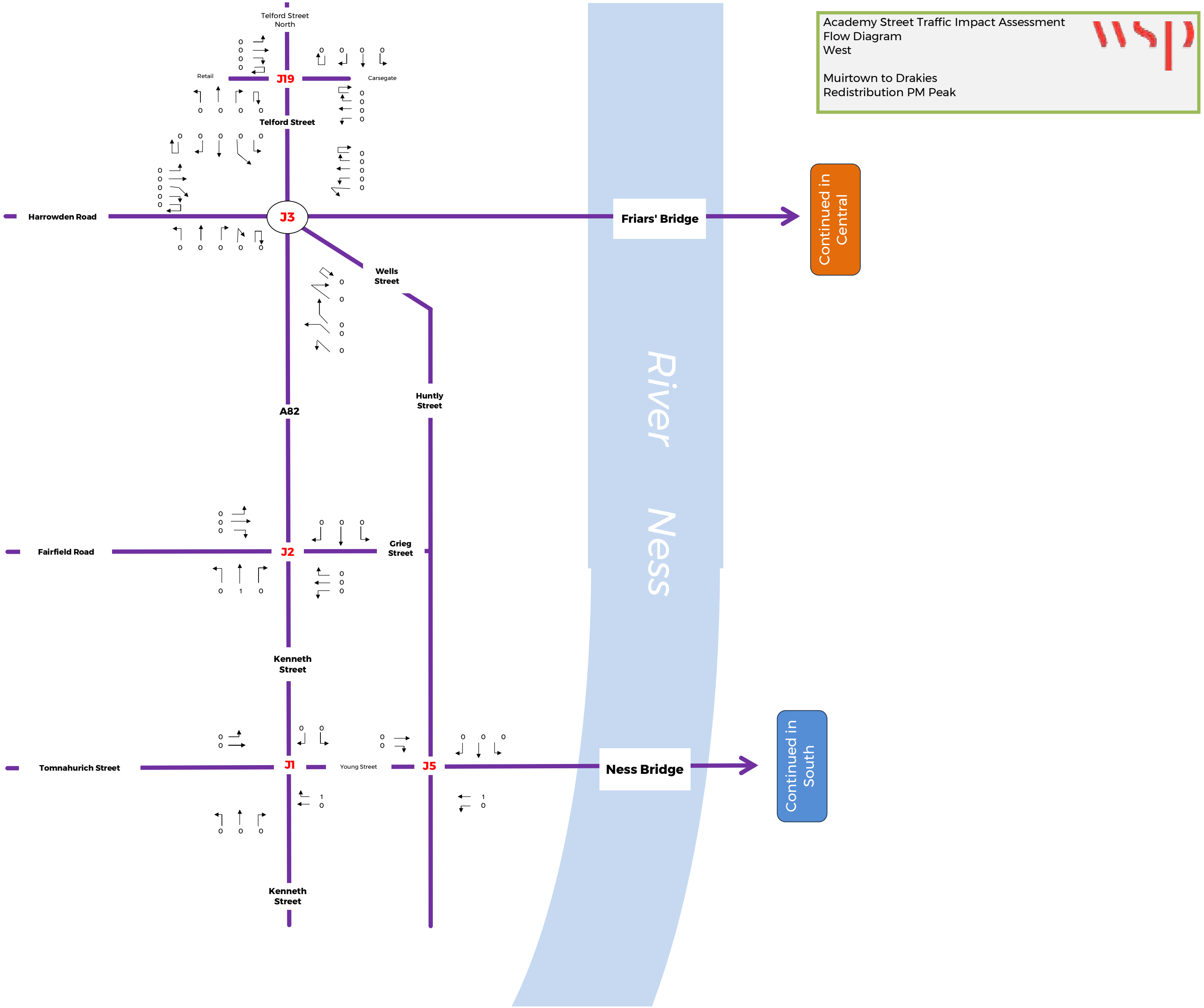


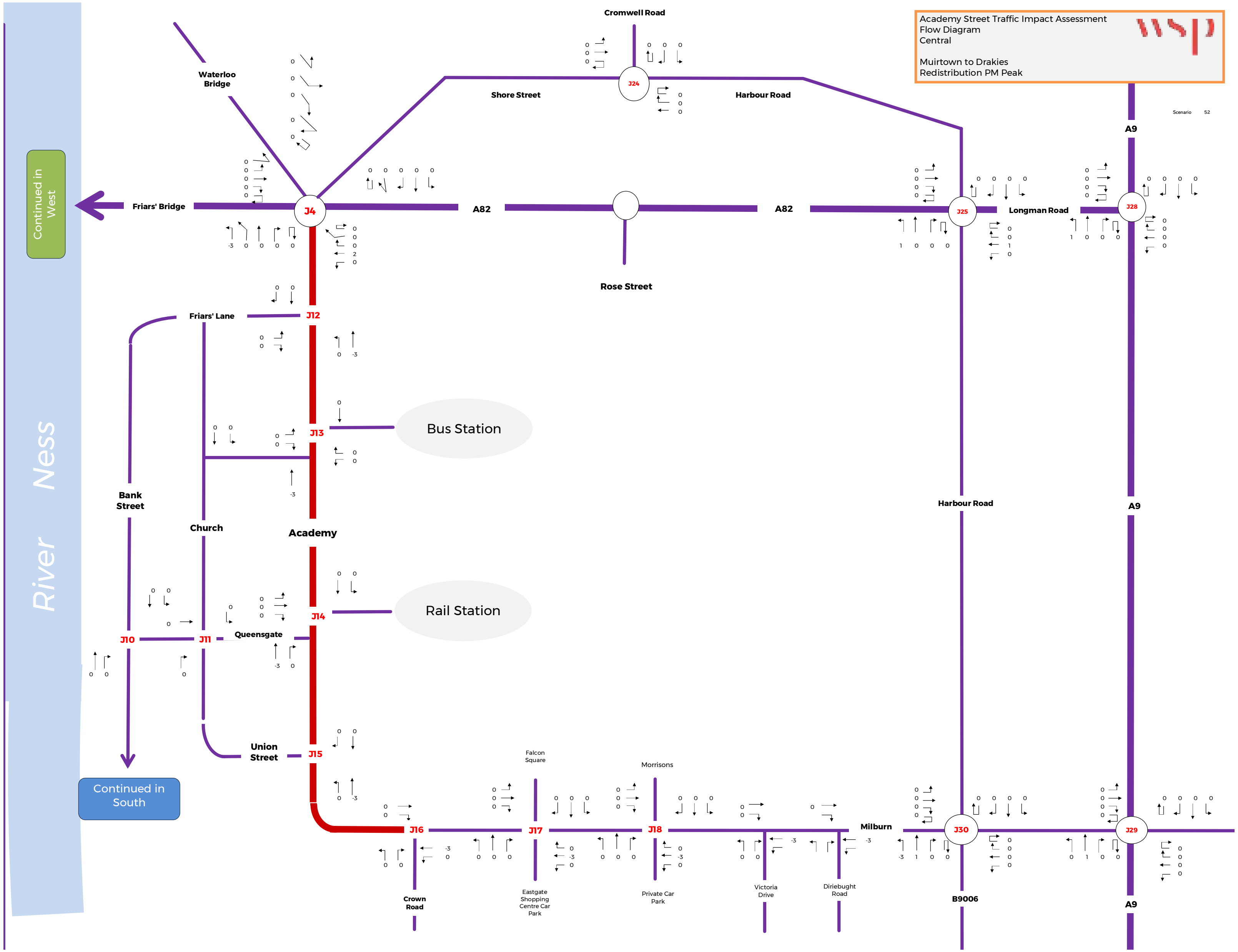

Academy Street Traffic Impact Assessment
Flow Diagram
Central
Muirtown to Drakies
Redistribution AM Peak
Scenario 50
Cromwell Road
Waterloo Bridge
Shore Street
J24
Harbour Road
A9
Continued in West
Friars' Bridge
J4
A82
A82
Rose Street
J25
Longman Road
J28
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
J16
Falcon Square
J17
Morrisons
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Dirriebught Road
B9006
A9

Academy Street Traffic Impact Assessment
Flow Diagram
South

Muirtown to Drakies
Redistribution AM Peak

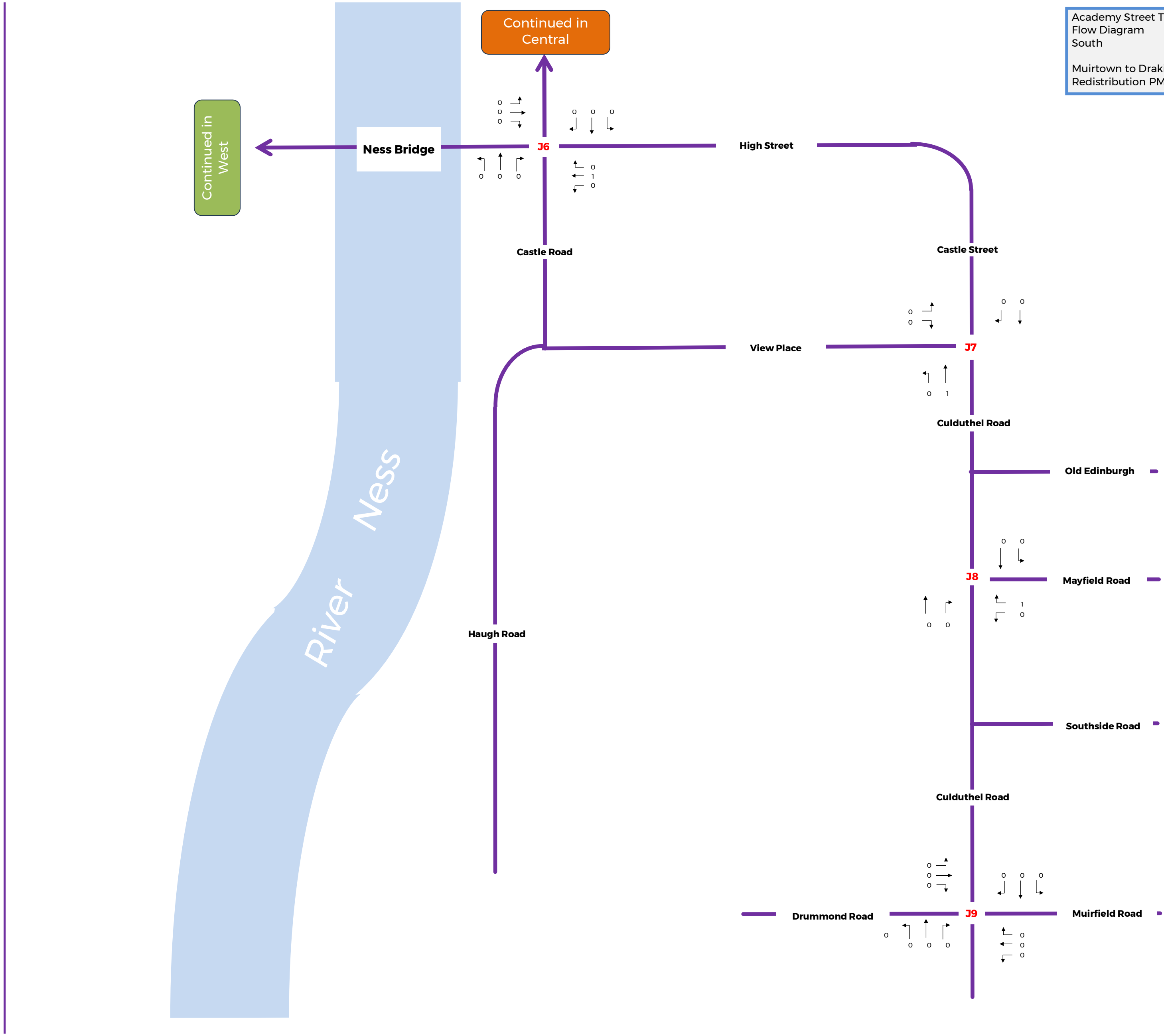



Academy Street Traffic Impact Assessment
Flow Diagram
West
Muirtown to Drakies
Redistribution PM Peak
Telford Street North
Retail
J19
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street


Academy Street Traffic Impact Assessment
Flow Diagram
Central
Muirtown to Drakies
Redistribution PM Peak
Scenario 52
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
Continued in West
Friars' Bridge
J4
A82
Rose Street
J24
J25
J28
A9
Longman Road
Friars' Lane
J12
Bus Station
J13
Bank Street
Church
Academy
Harbour Road
River Ness
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006

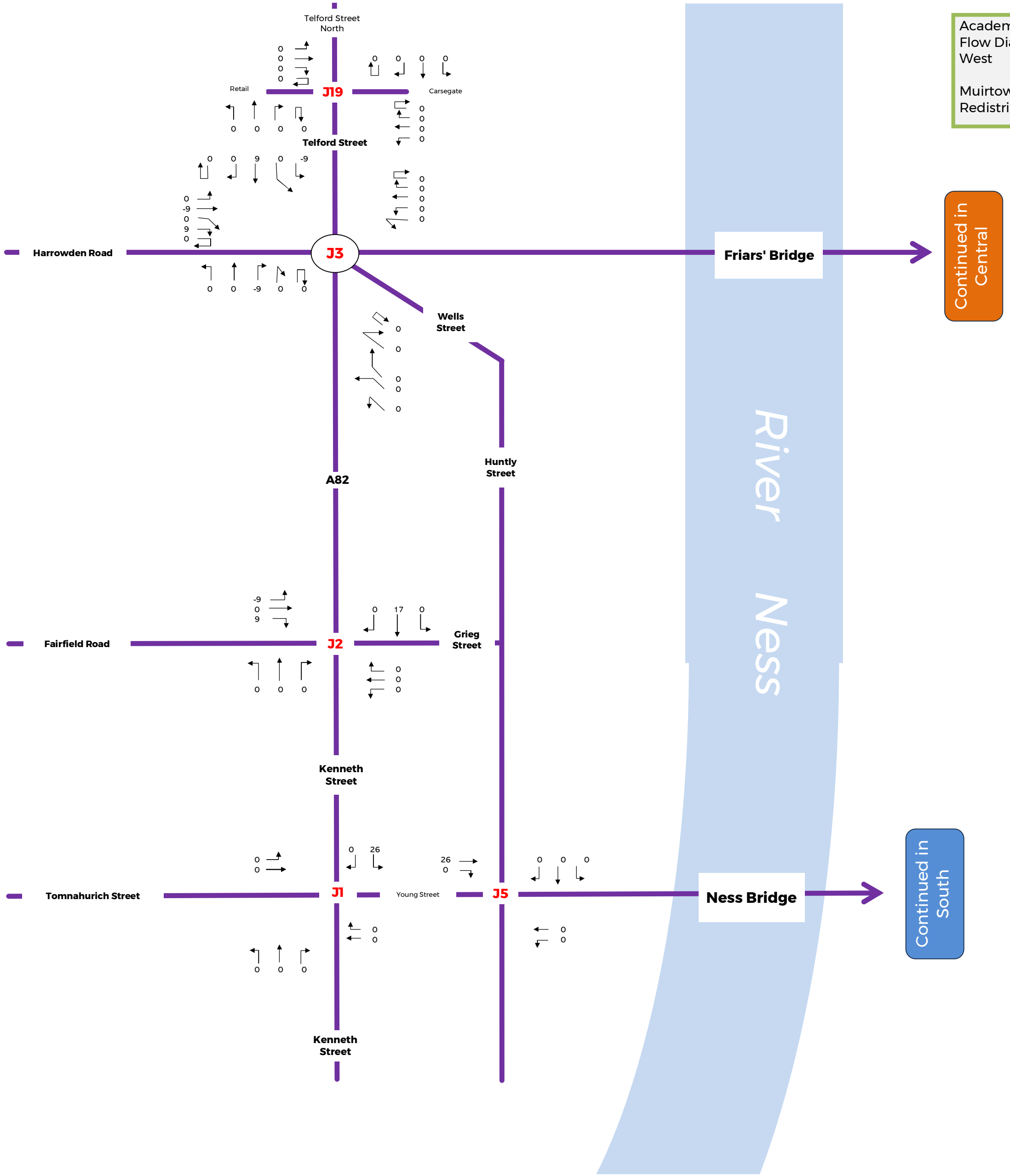
Academy Street Traffic Impact Assessment
Flow Diagram
South

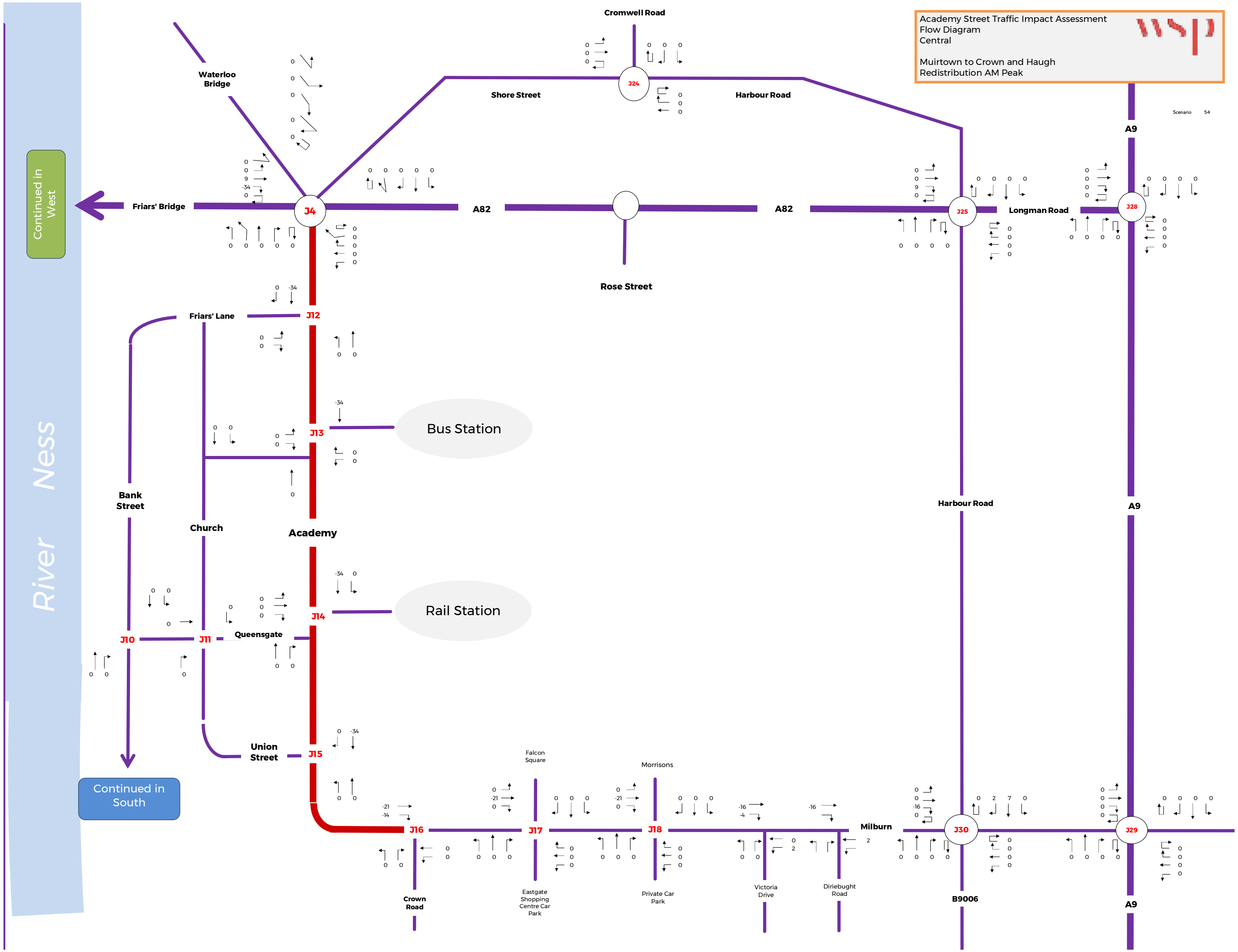
Muirtown to Drakies
Redistribution PM Peak

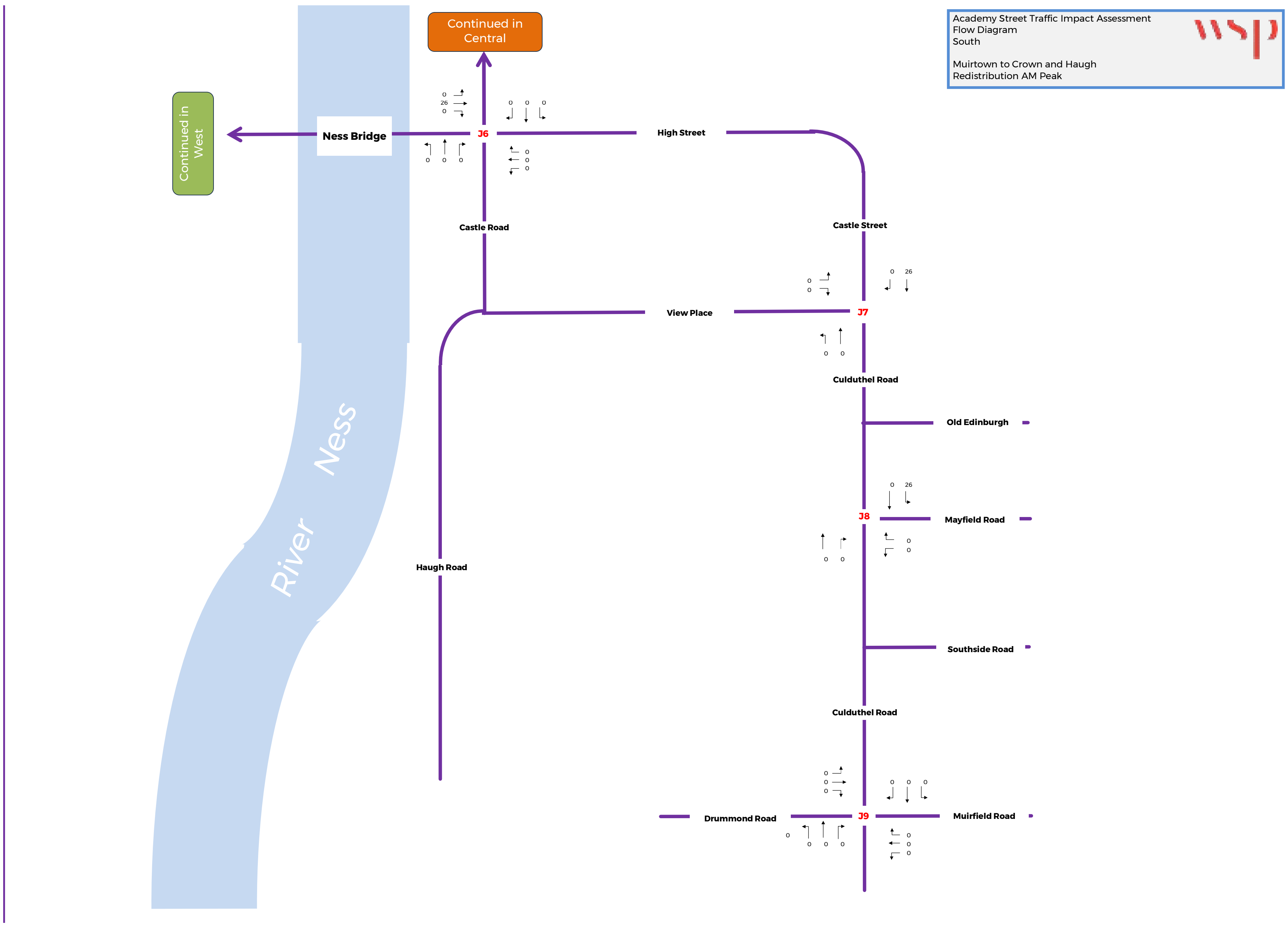


Academy Street Traffic Impact Assessment
Flow Diagram
West

Muirtown to Crown and Haugh
Redistribution AM Peak



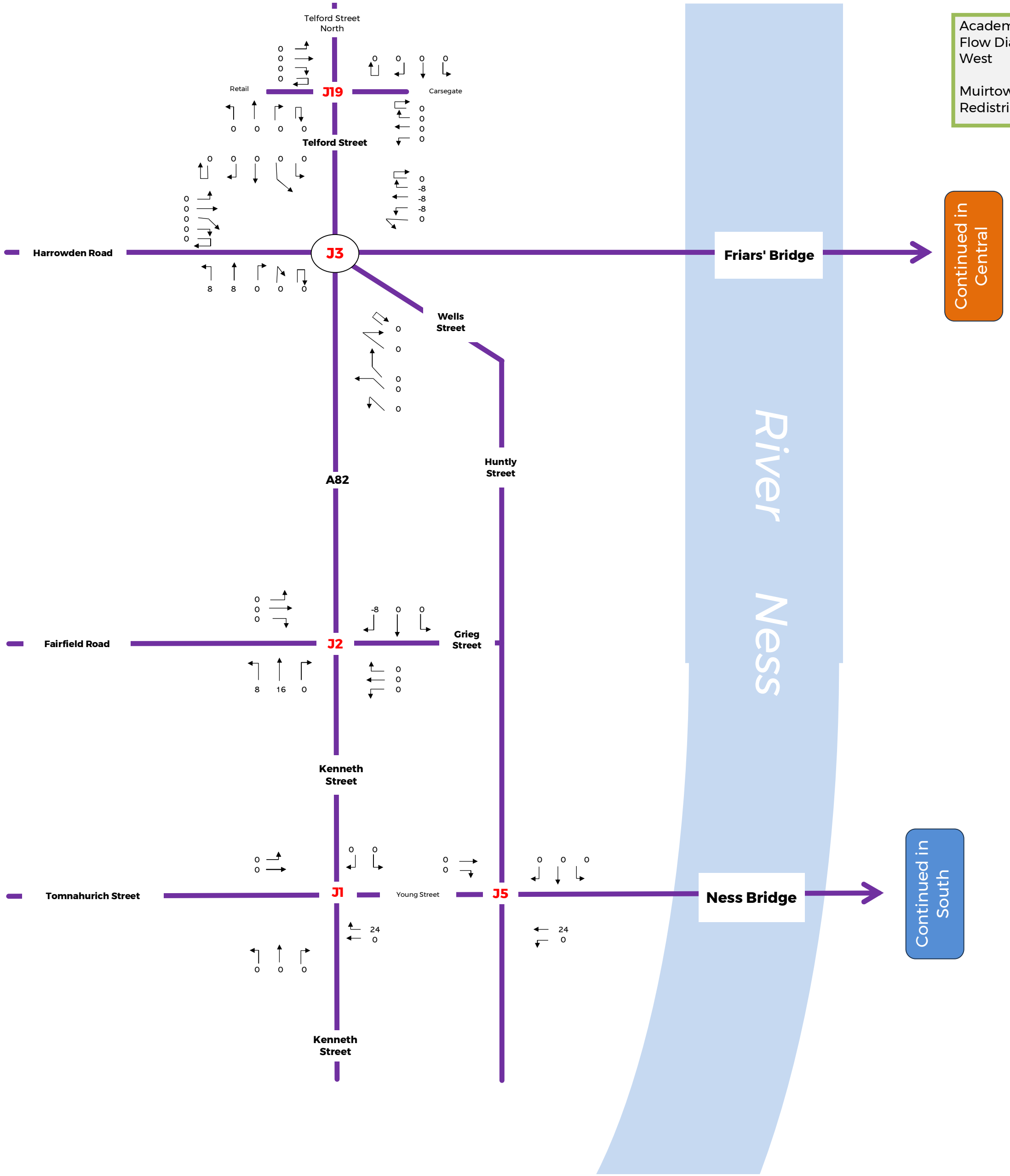

Academy Street Traffic Impact Assessment
Flow Diagram
Central
Muirtown to Crown and Haugh Redistribution AM Peak
Scenario 54
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
A82
Rose Street
Longman Road
A9
A9
A9
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

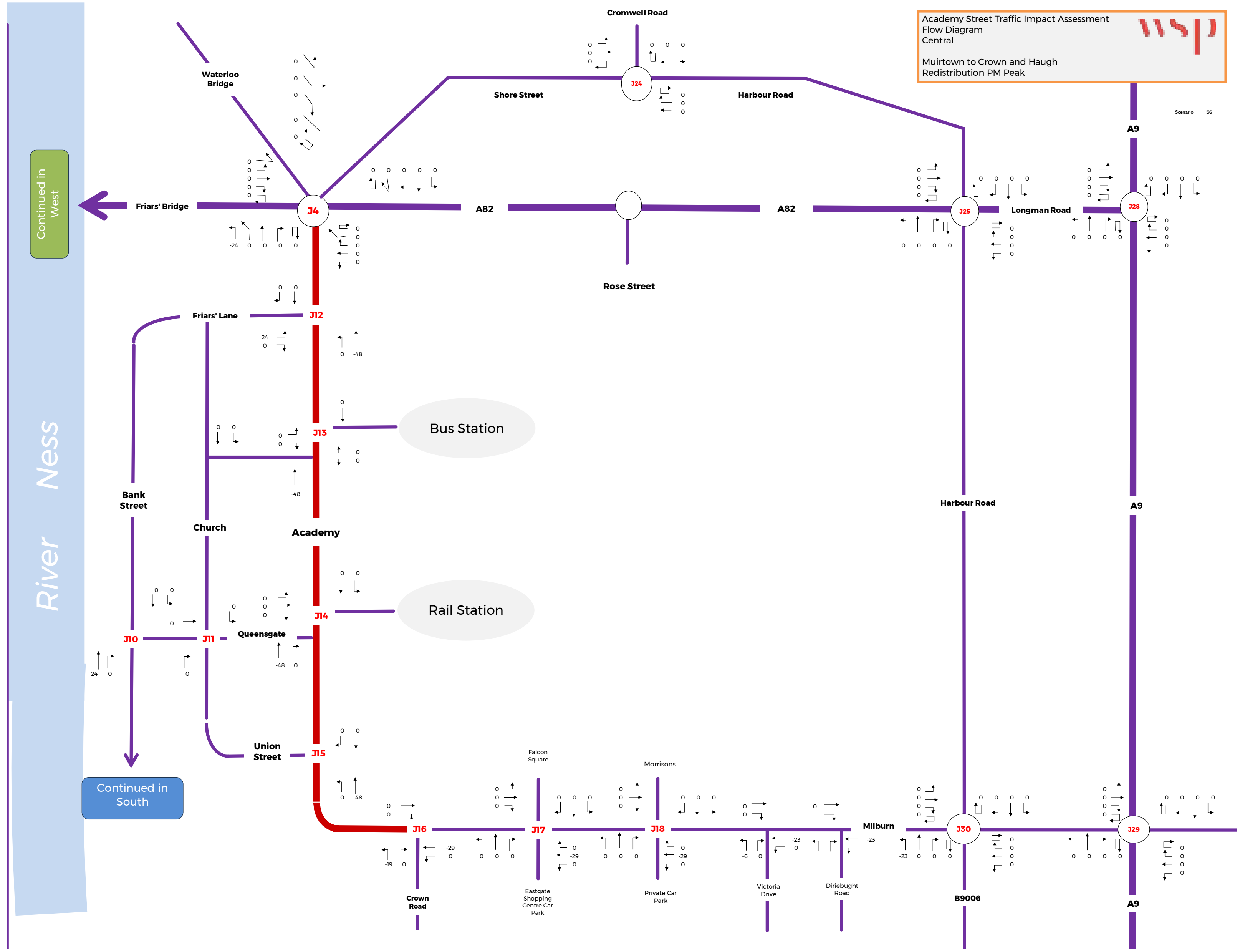


Academy Street Traffic Impact Assessment
Flow Diagram
South
Muirtown to Crown and Haugh
Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
River Ness
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

Muirtown to Crown and Haugh
Redistribution PM Peak

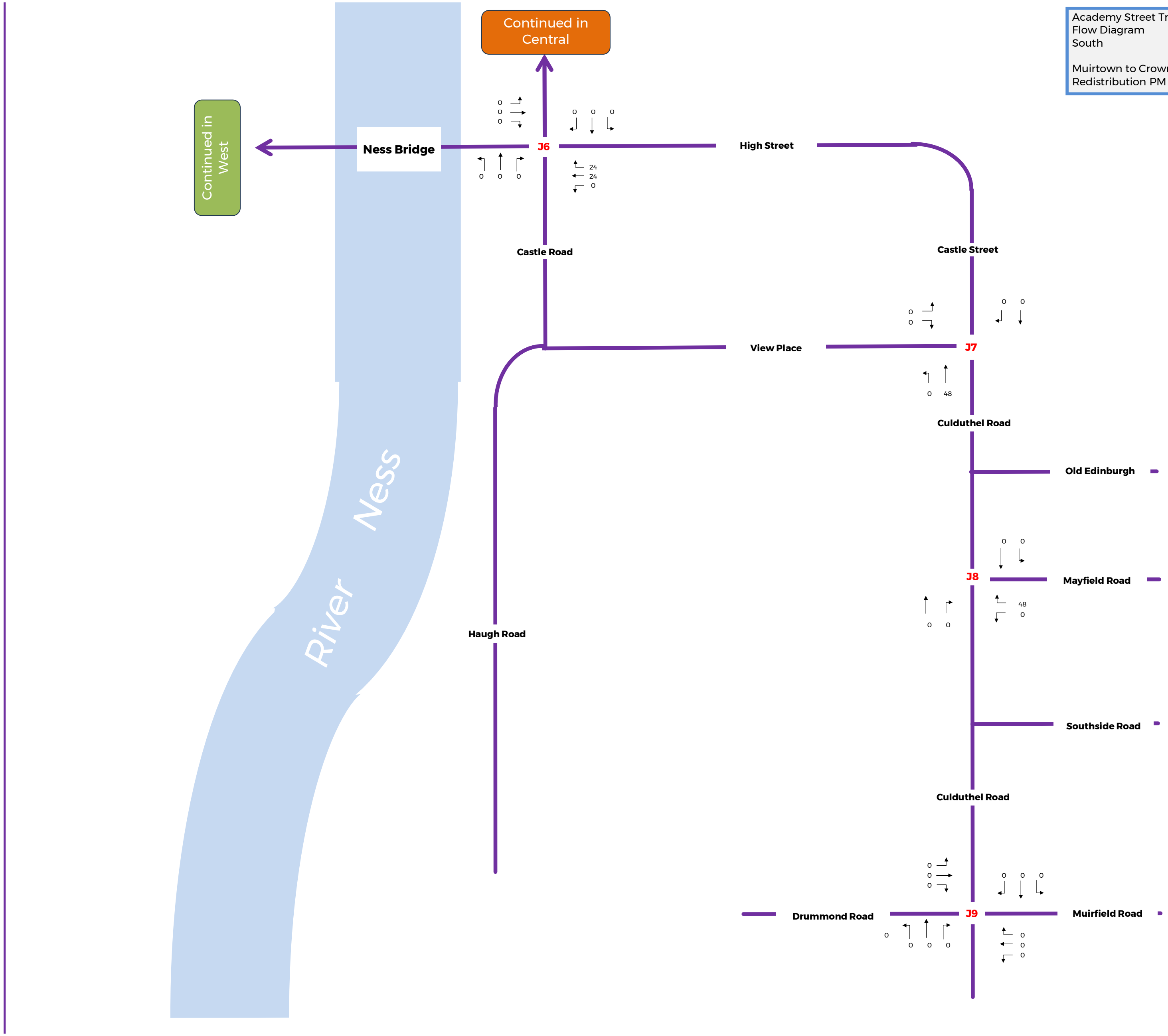




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Muirtown to Crown and Haugh
Redistribution PM Peak
Scenario 56
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
J4
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30
J10
J11
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Harbour Road
Queensgate
Union Street
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006

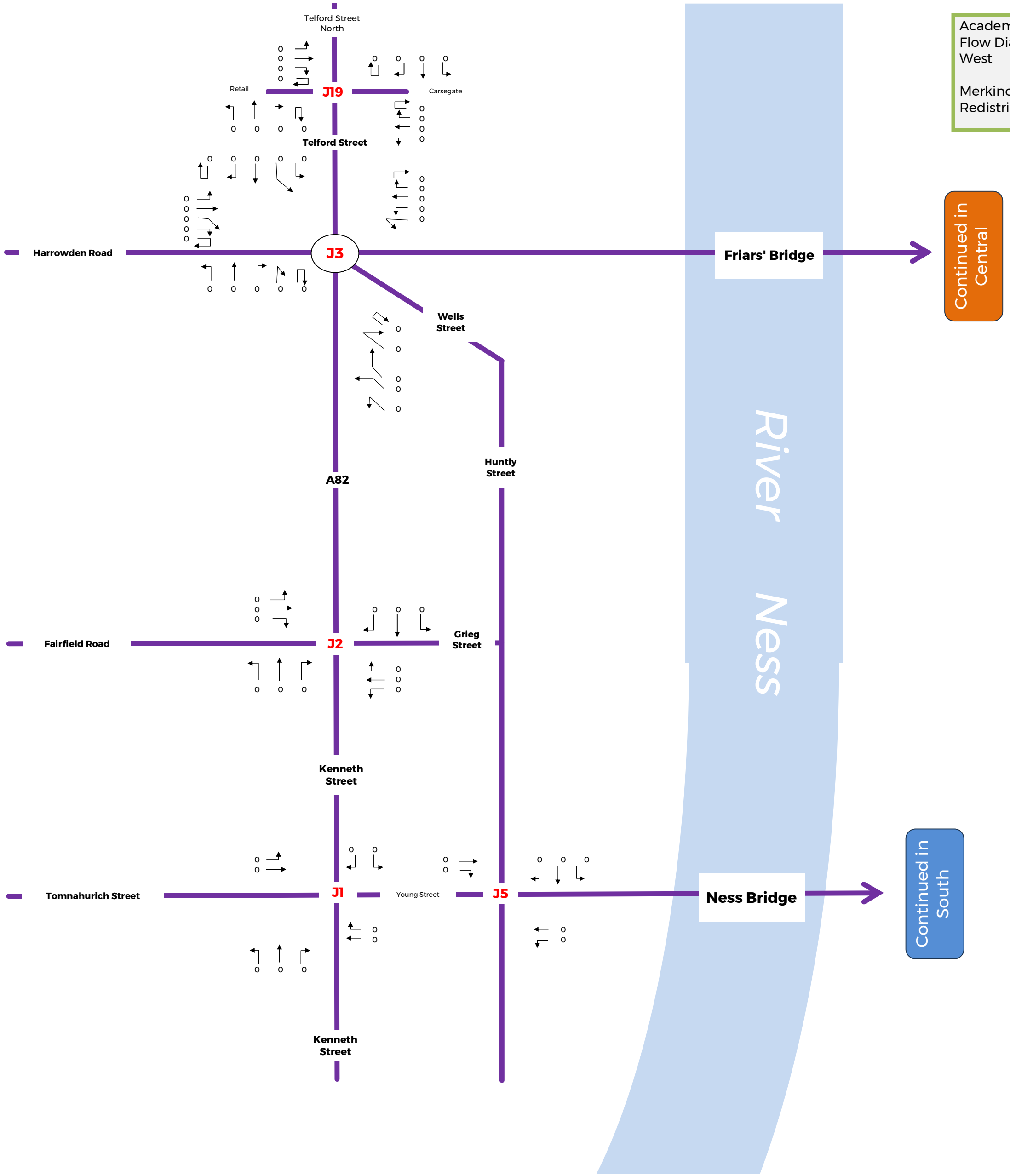
Academy Street Traffic Impact Assessment
Flow Diagram
South

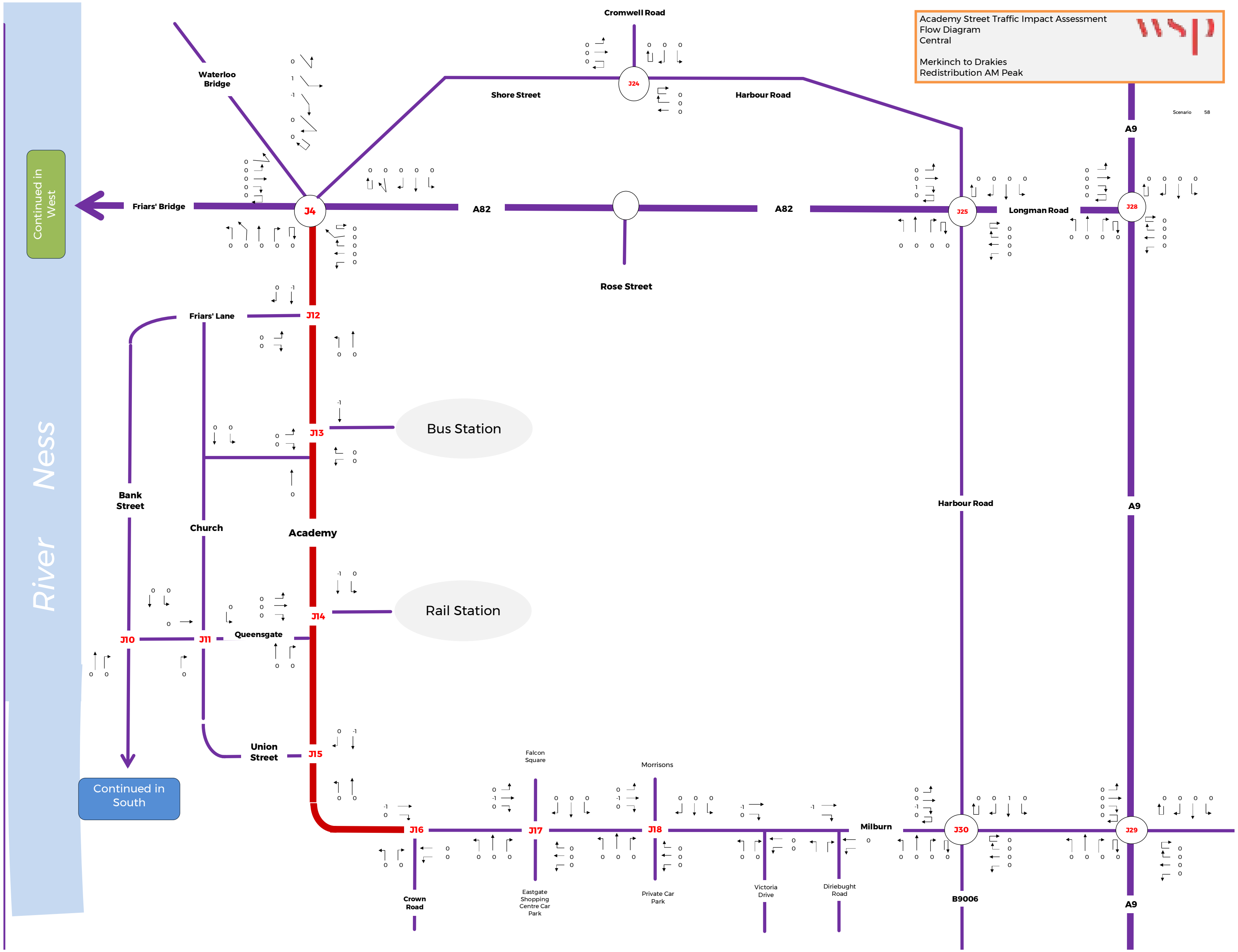
Muirtown to Crown and Haugh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

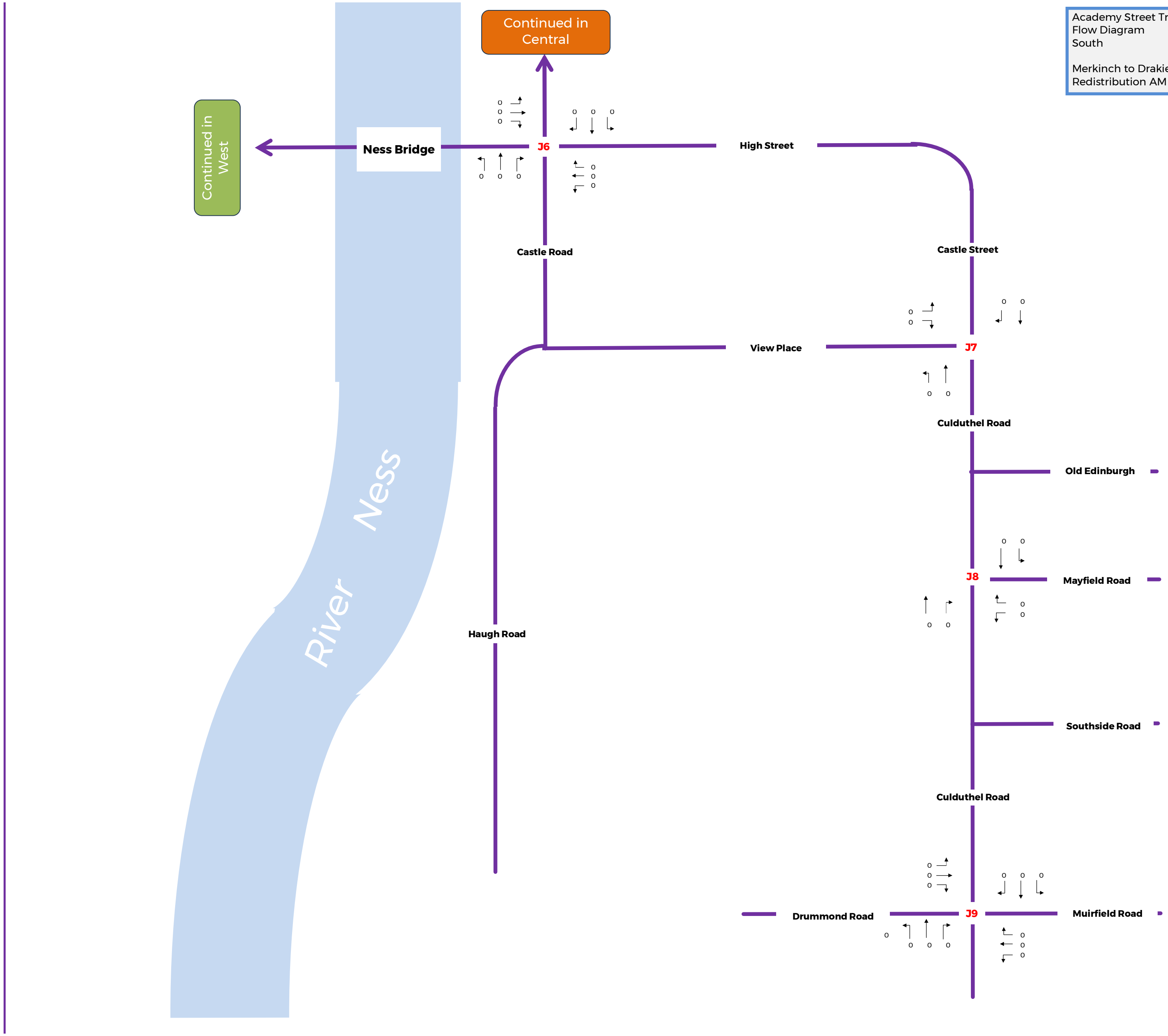
Merkinch to Drakies
Redistribution AM Peak




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Merkinch to Drakies
Redistribution AM Peak
Scenario 58
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
A9
Rose Street
Longman Road
Friars' Lane
Bank Street
Church
Academy
Bus Station
Rail Station
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

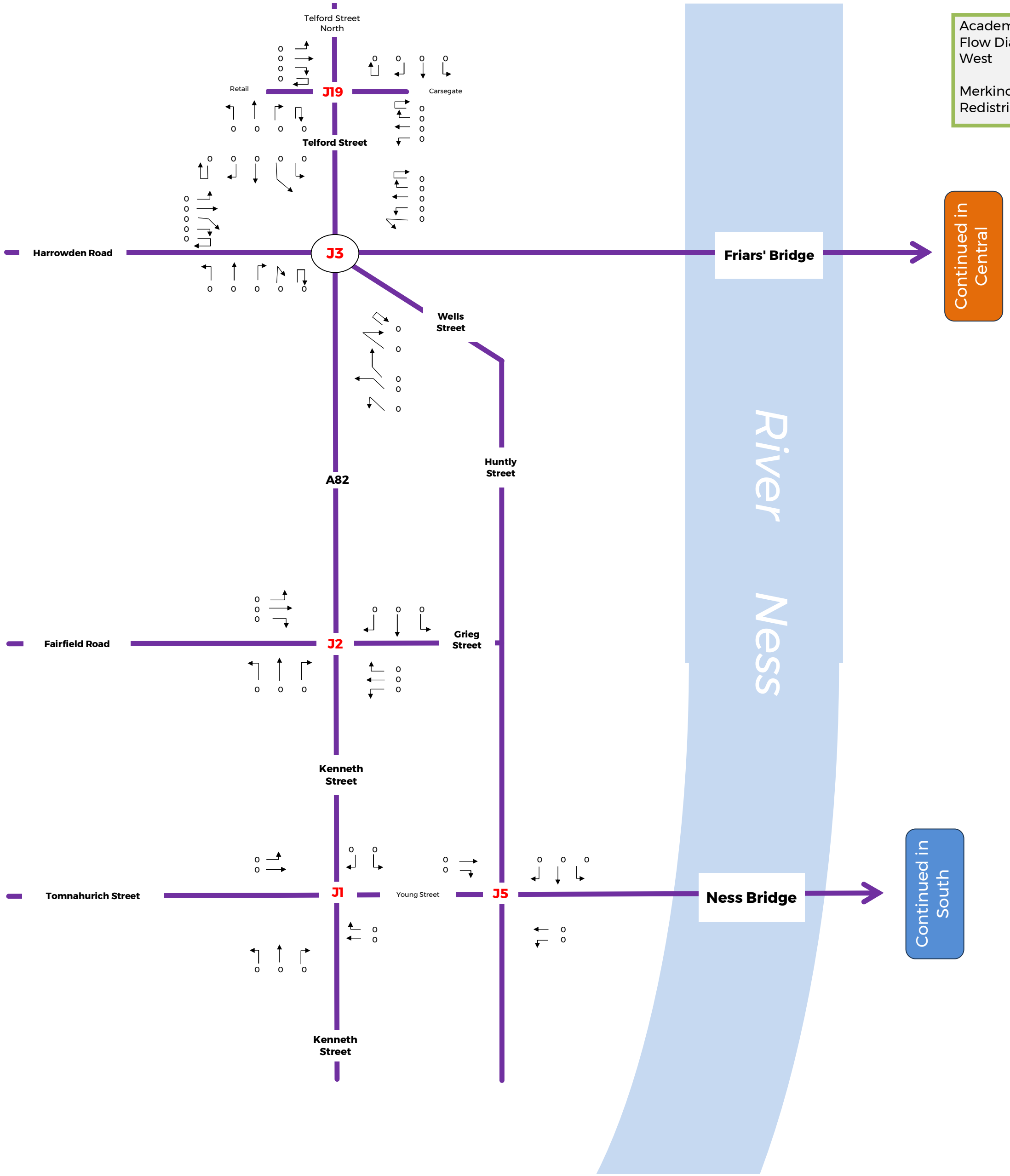
Academy Street Traffic Impact Assessment
Flow Diagram
South

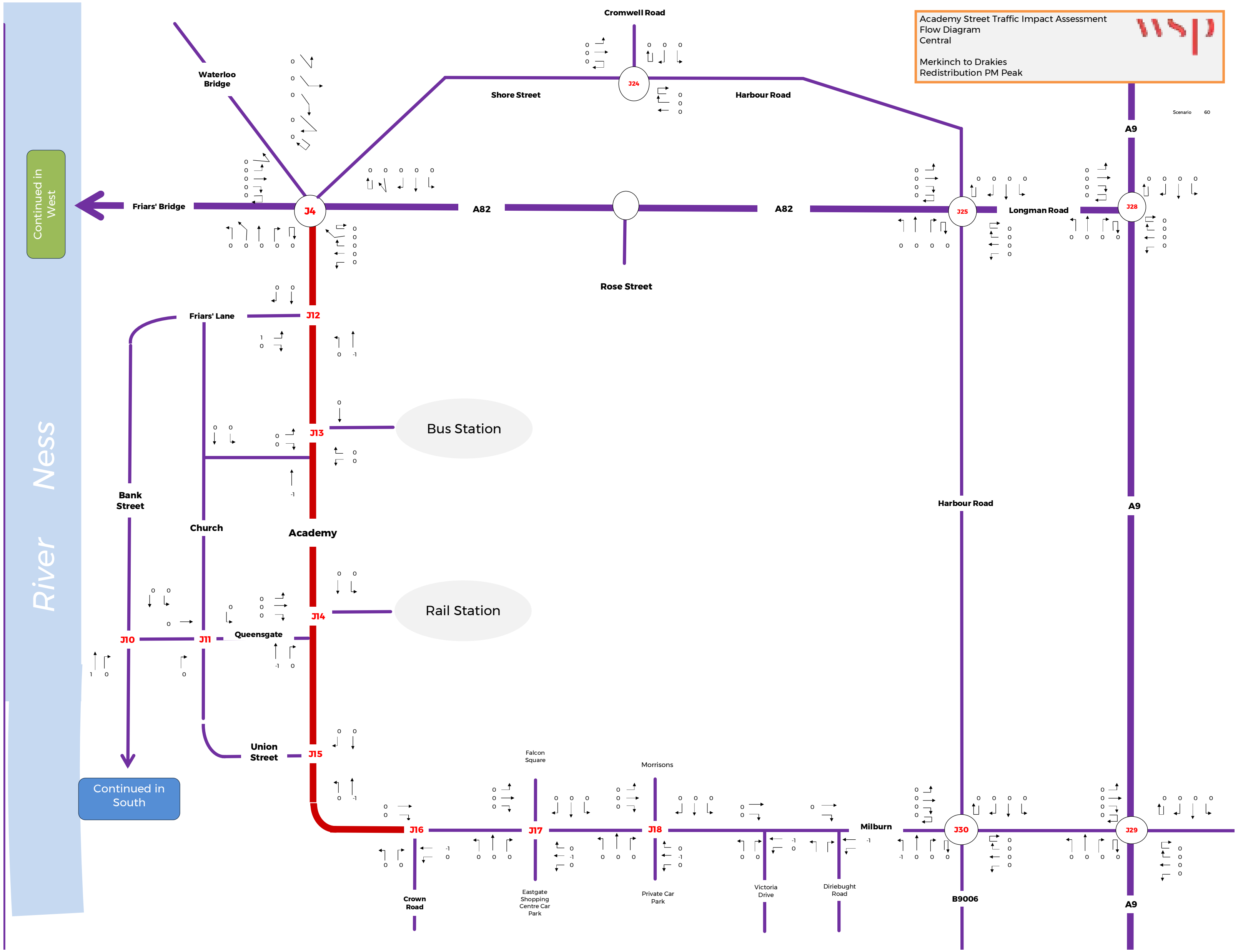
Merkinch to Drakies
Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Merkinch to Drakies
Redistribution PM Peak

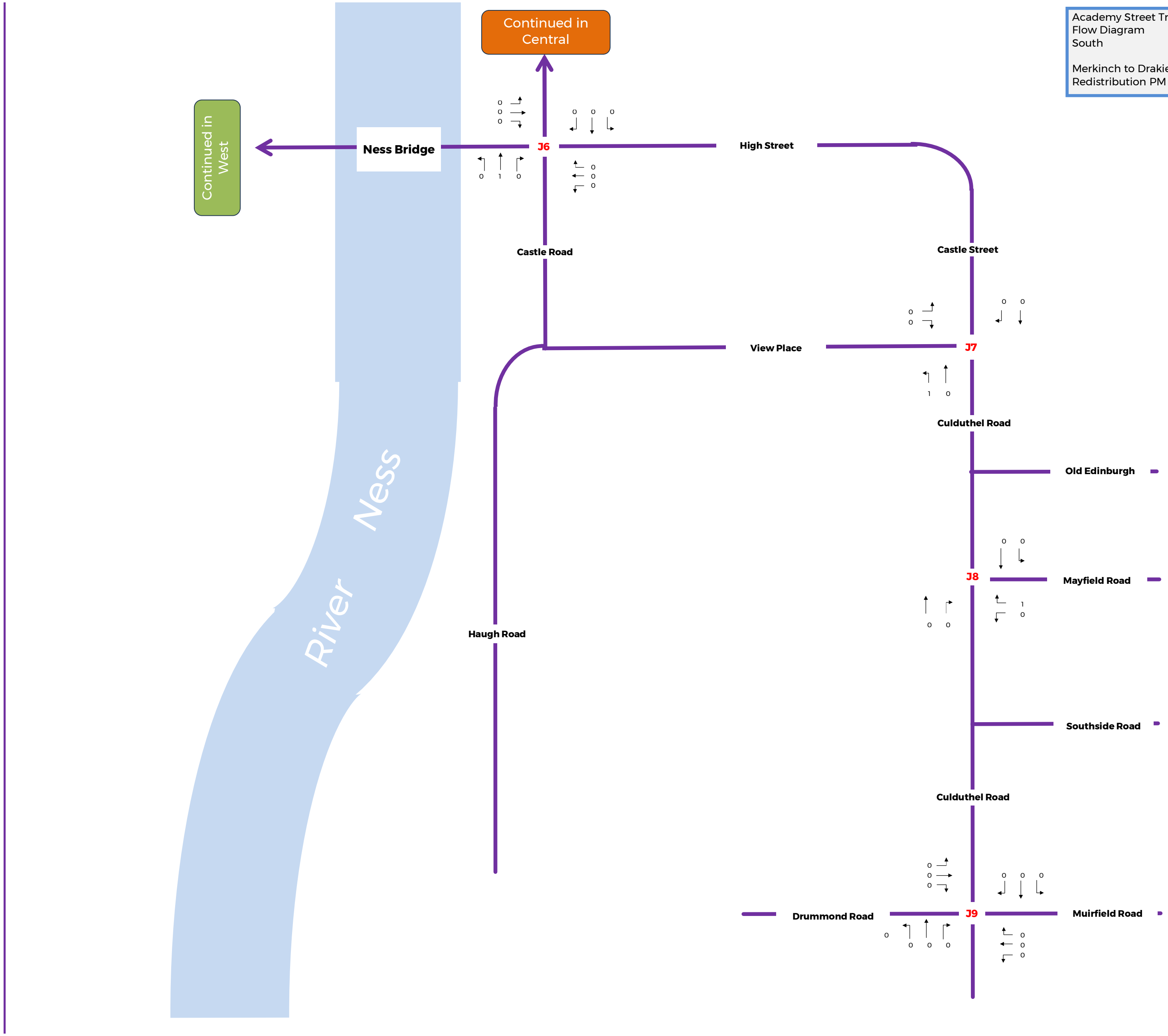


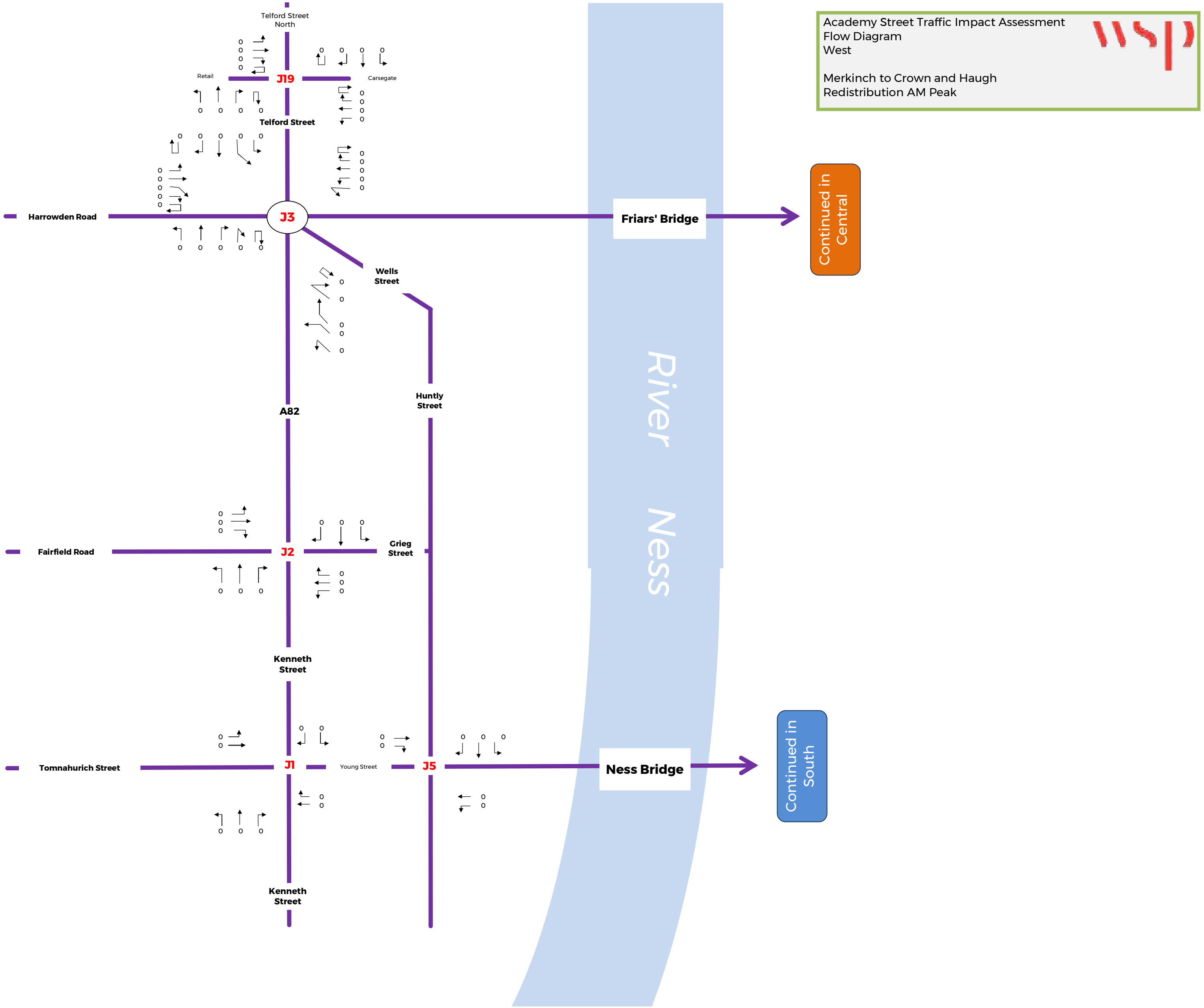


Academy Street Traffic Impact Assessment
Flow Diagram
Central
Merkinch to Drakies
Redistribution PM Peak
Scenario 60
Cromwell Road
Shore Street
Harbour Road
J24
Waterloo Bridge
Friars' Bridge
Continued in West
J4
A82
A82
Rose Street
J25
Longman Road
J28
A9
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

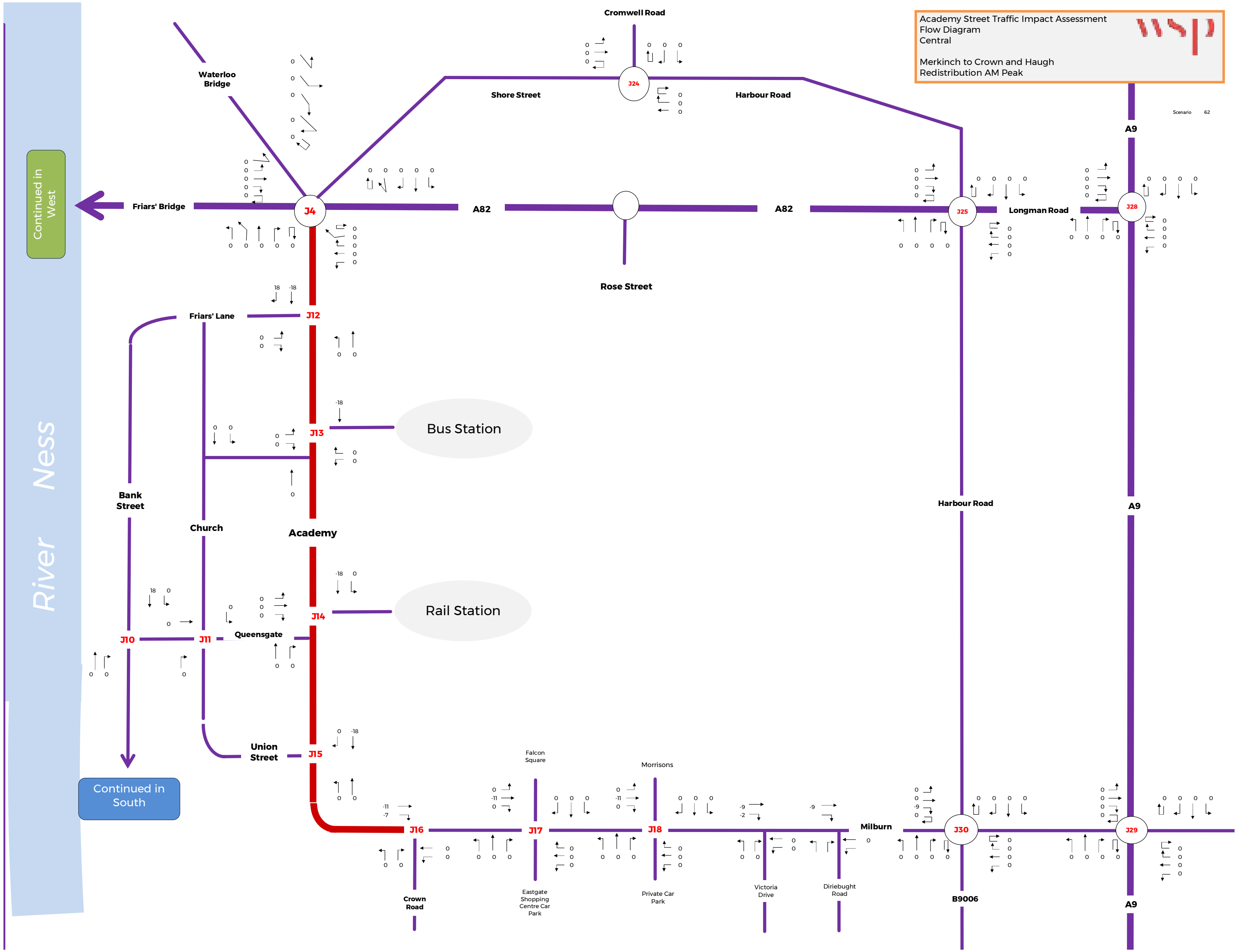
Academy Street Traffic Impact Assessment
Flow Diagram
South

Merkinch to Drakies
Redistribution PM Peak





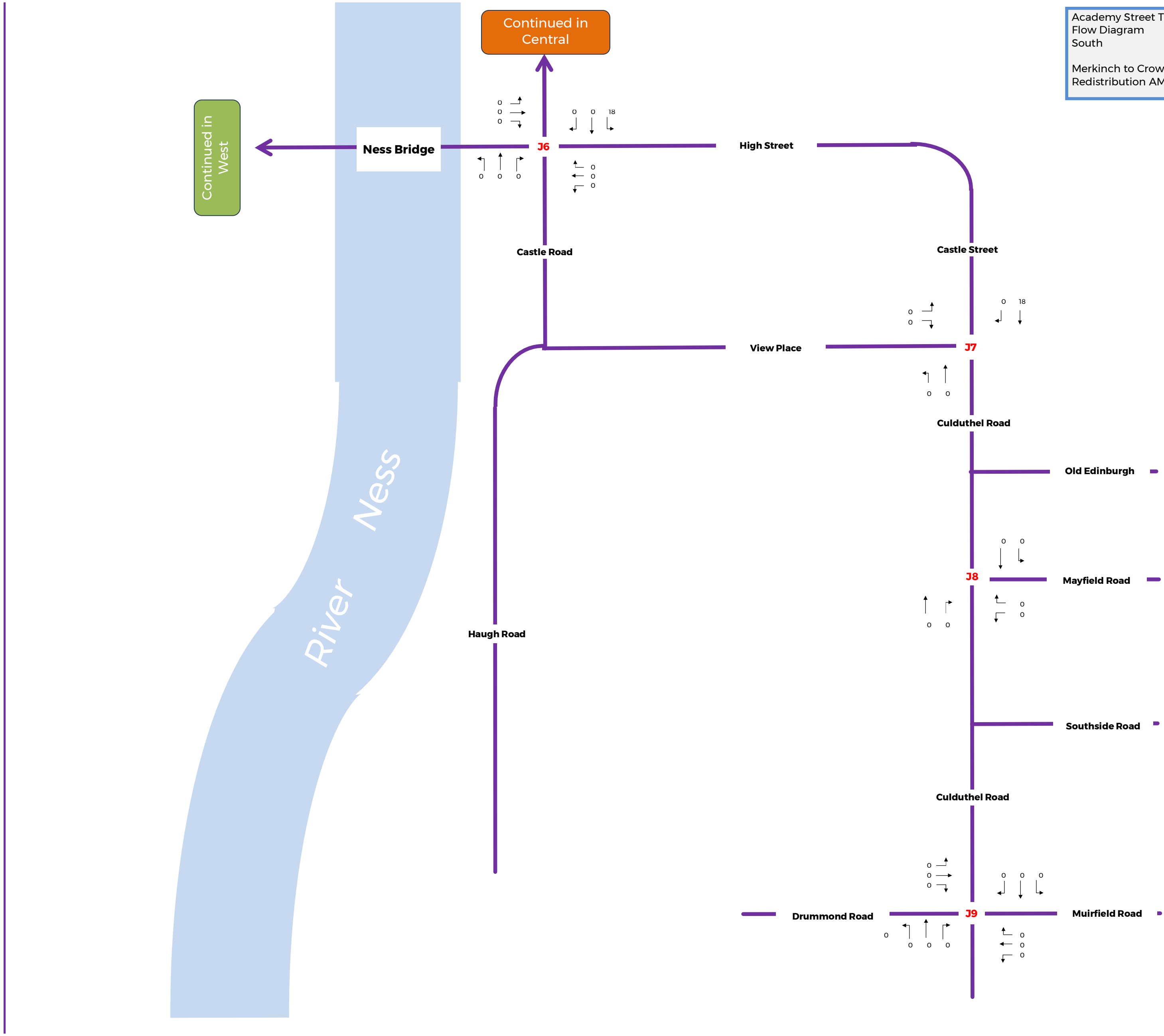
Academy Street Traffic Impact Assessment
Flow Diagram
West
Merkinch to Crown and Haugh
Redistribution AM Peak
Telford Street North
J19
Retail
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street



Academy Street Traffic Impact Assessment
Flow Diagram
Central
Merkinch to Crown and Haugh
Redistribution AM Peak
Scenario 62
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
J12
Friars' Lane
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
Queensgate
J10
J11
Continued in South
Union Street
J15
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

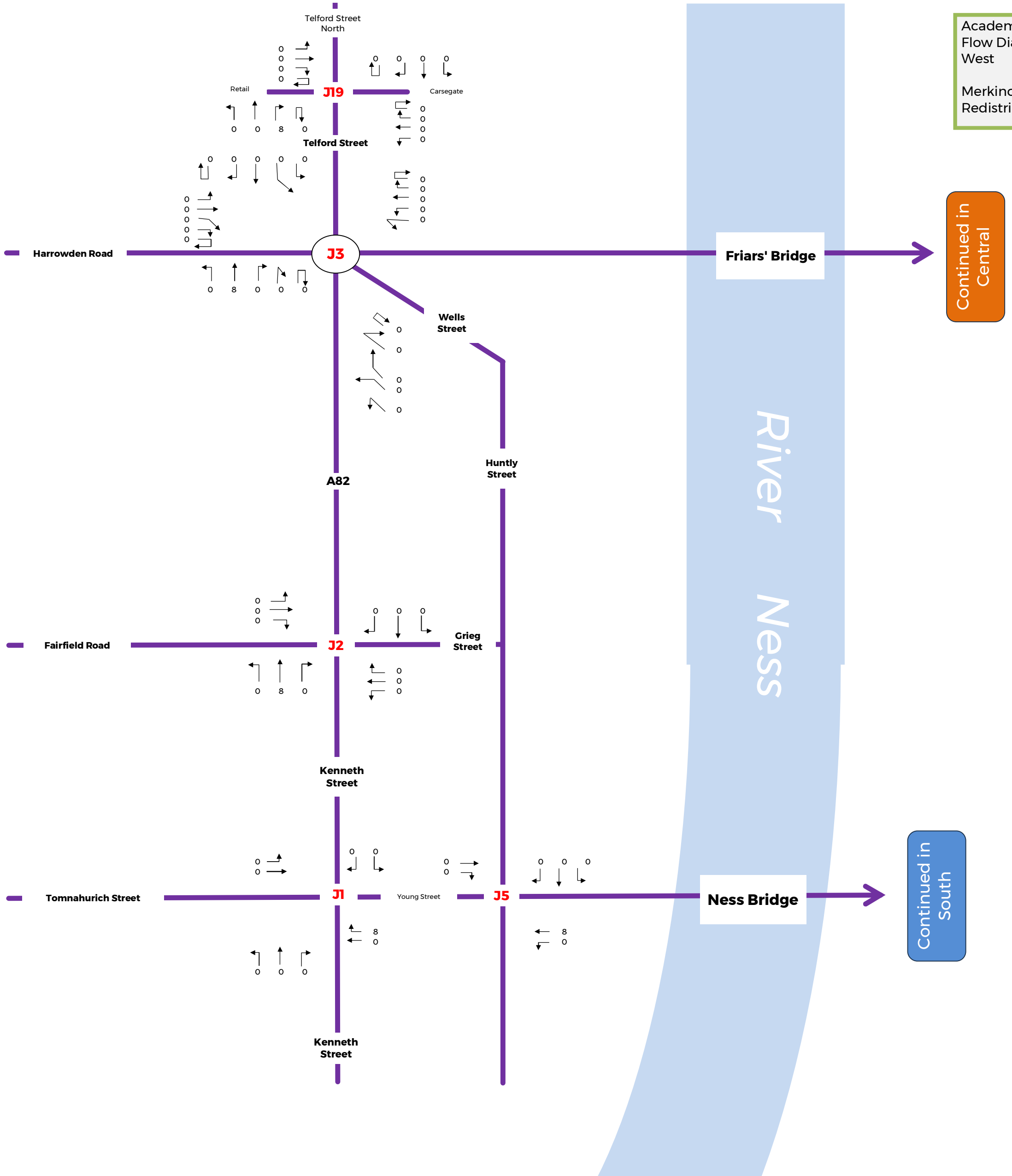
Academy Street Traffic Impact Assessment
Flow Diagram
South

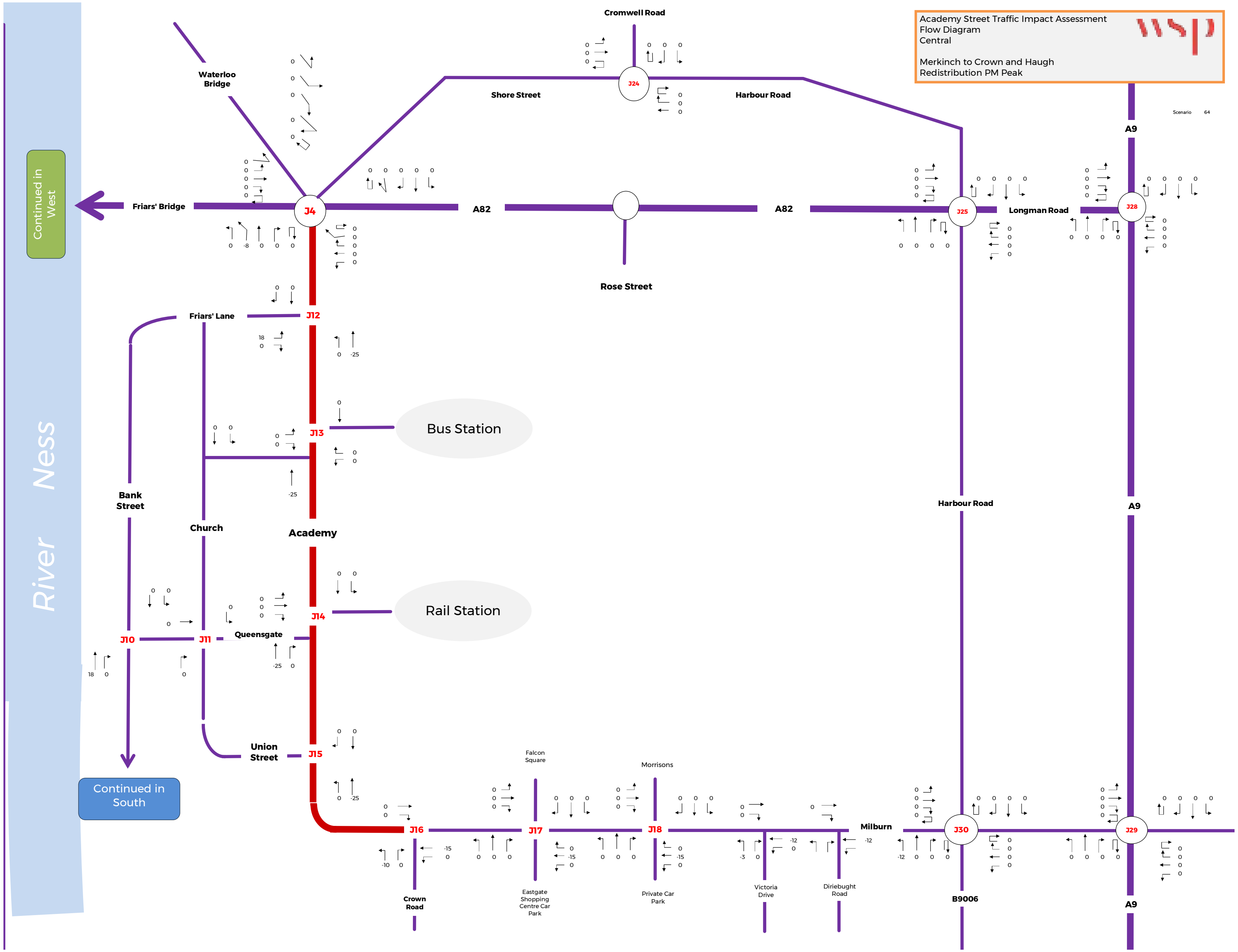
Merkinch to Crown and Haugh
Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

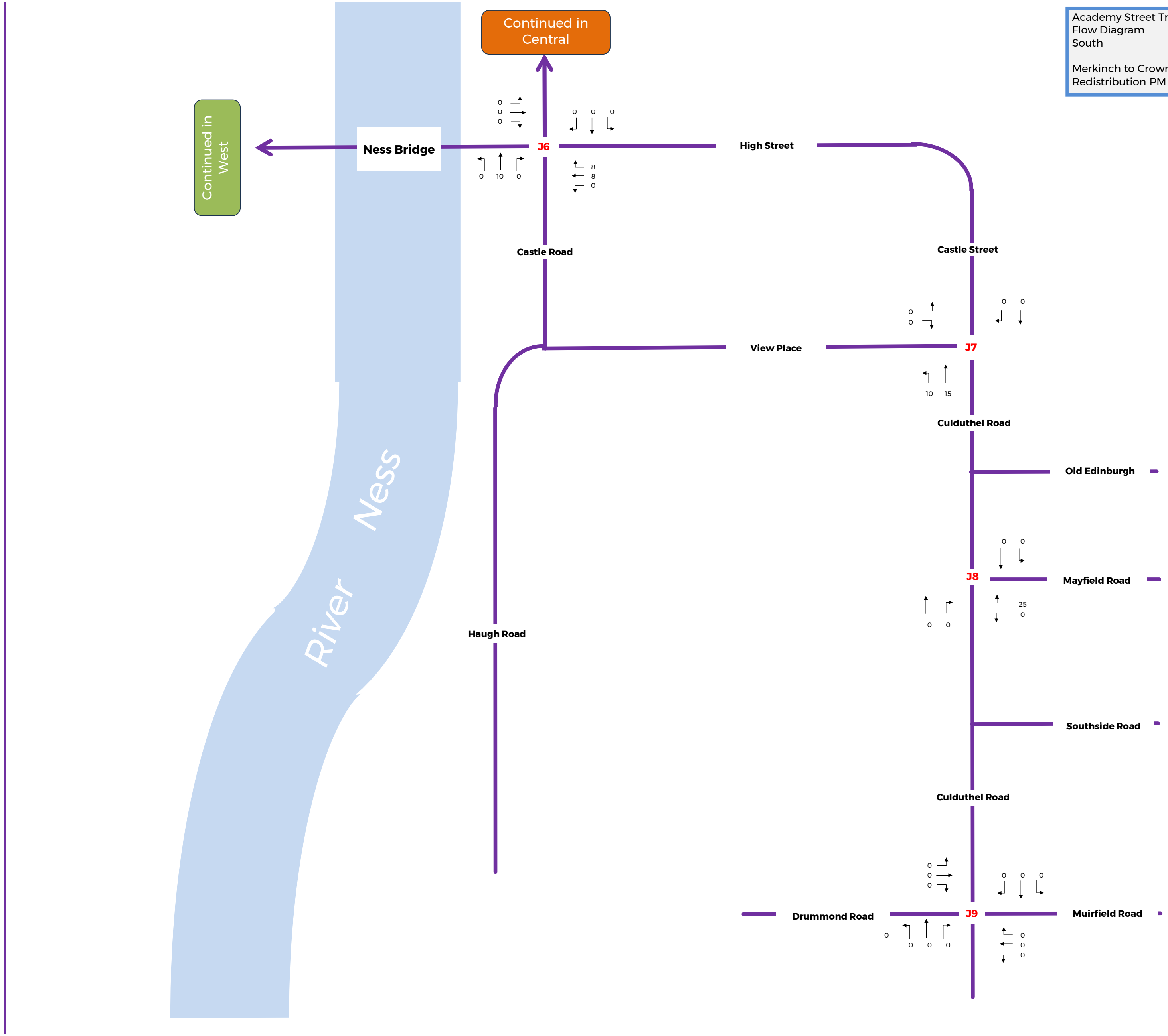
Merkinch to Crown and Haugh
Redistribution PM Peak




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Merkinch to Crown and Haugh
Redistribution PM Peak
Scenario 64
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Continued in West
Friars' Bridge
J4
A82
A82
Rose Street
J24
J25
Longman Road
J28
A9
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
Harbour Road
A9
River Ness
J10
J11
Queensgate
J14
Rail Station
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

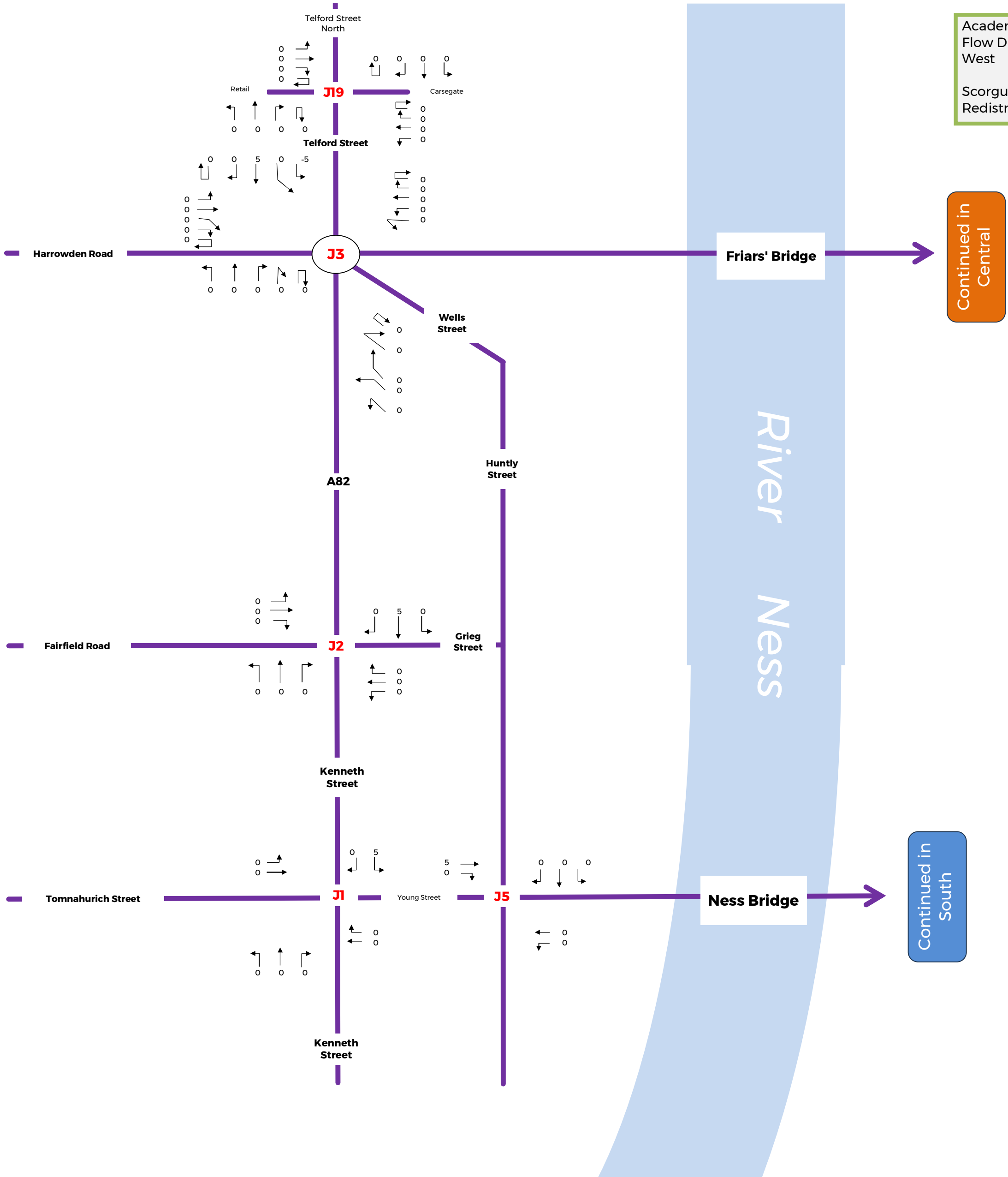
Academy Street Traffic Impact Assessment
Flow Diagram
South

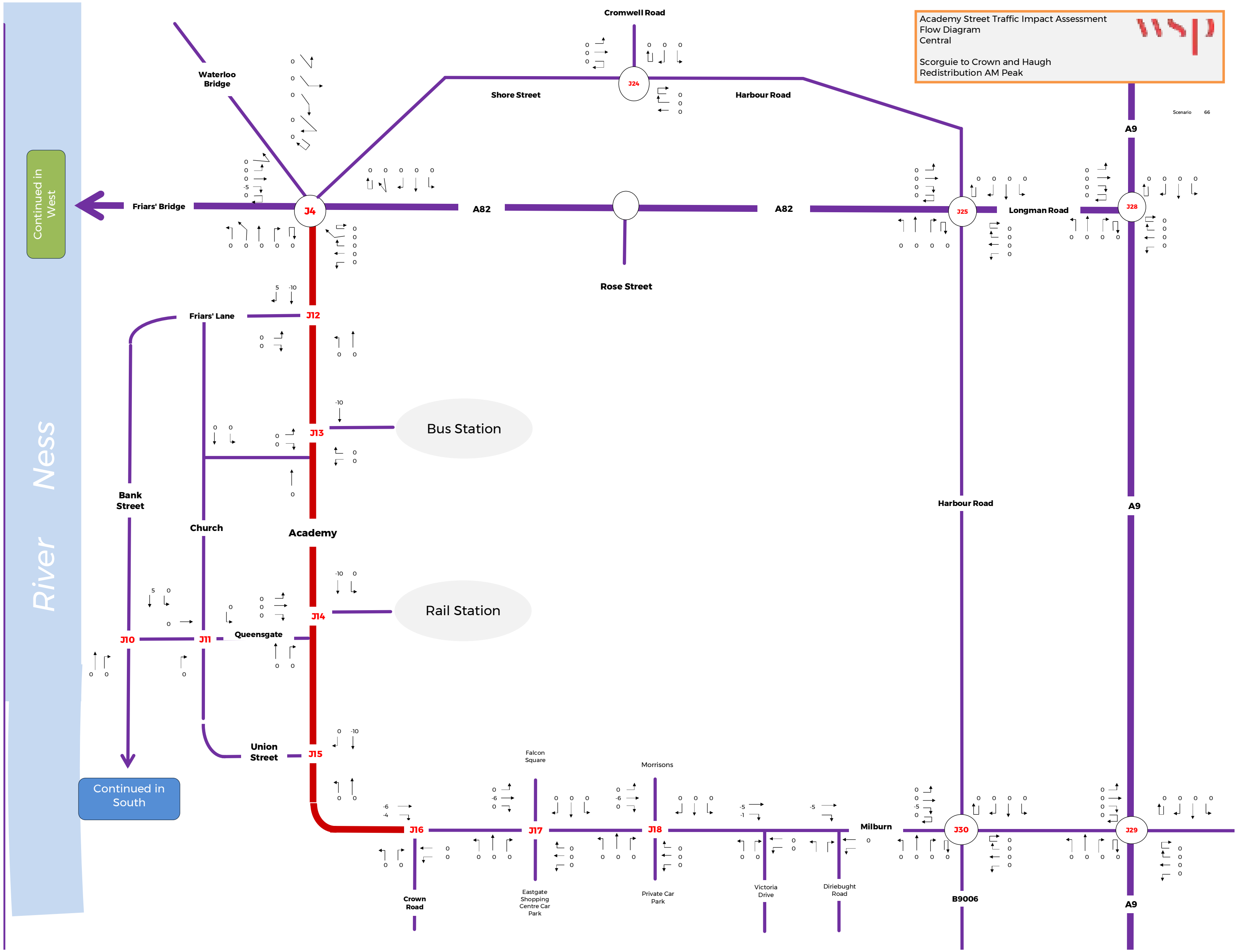
Merkinch to Crown and Haugh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

Scorguie to Crown and Haugh
Redistribution AM Peak

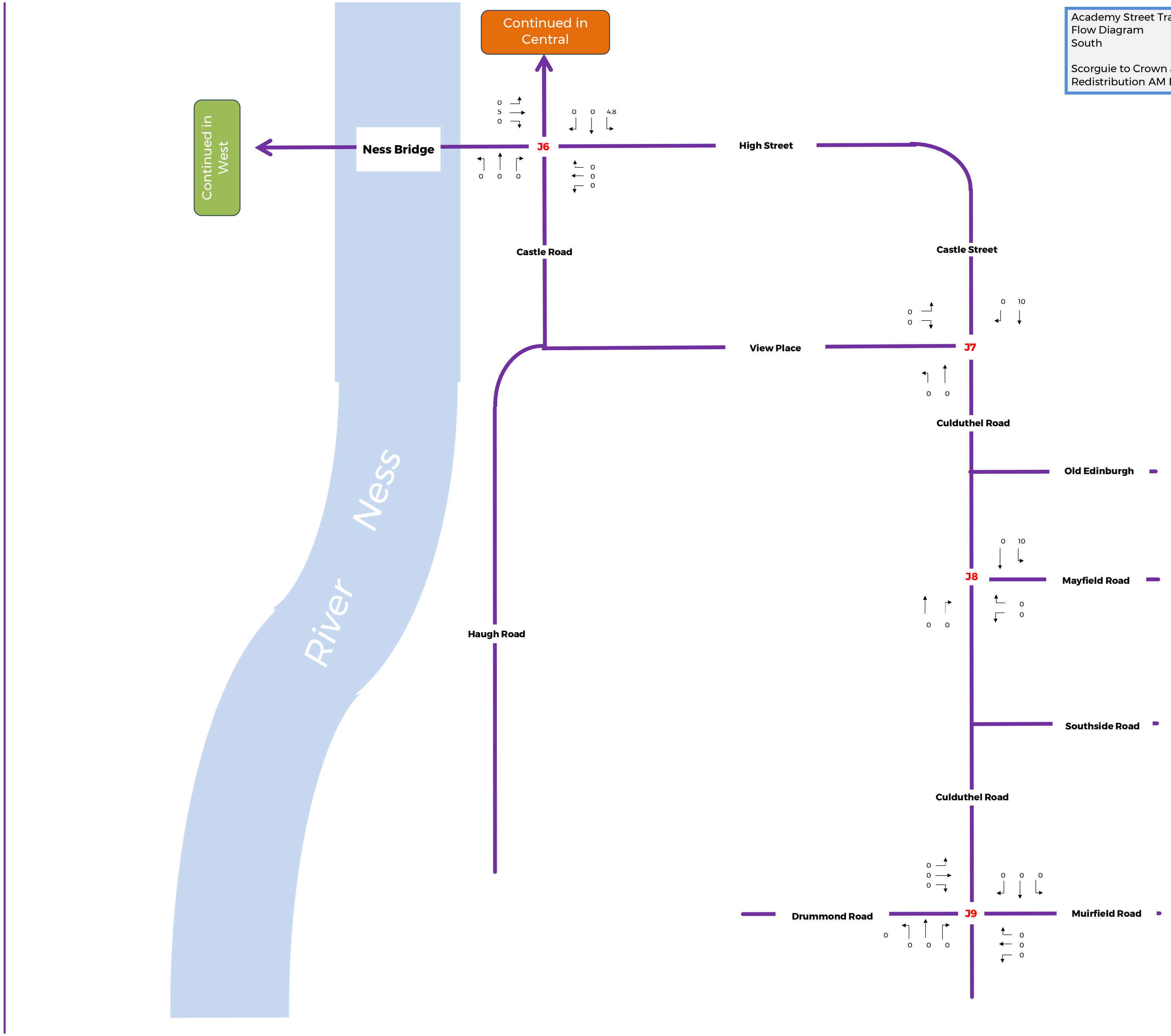




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Scorguie to Crown and Haugh
Redistribution AM Peak
Scenario 66
Cromwell Road
J24
Shore Street
Harbour Road
Waterloo Bridge
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
River Ness
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

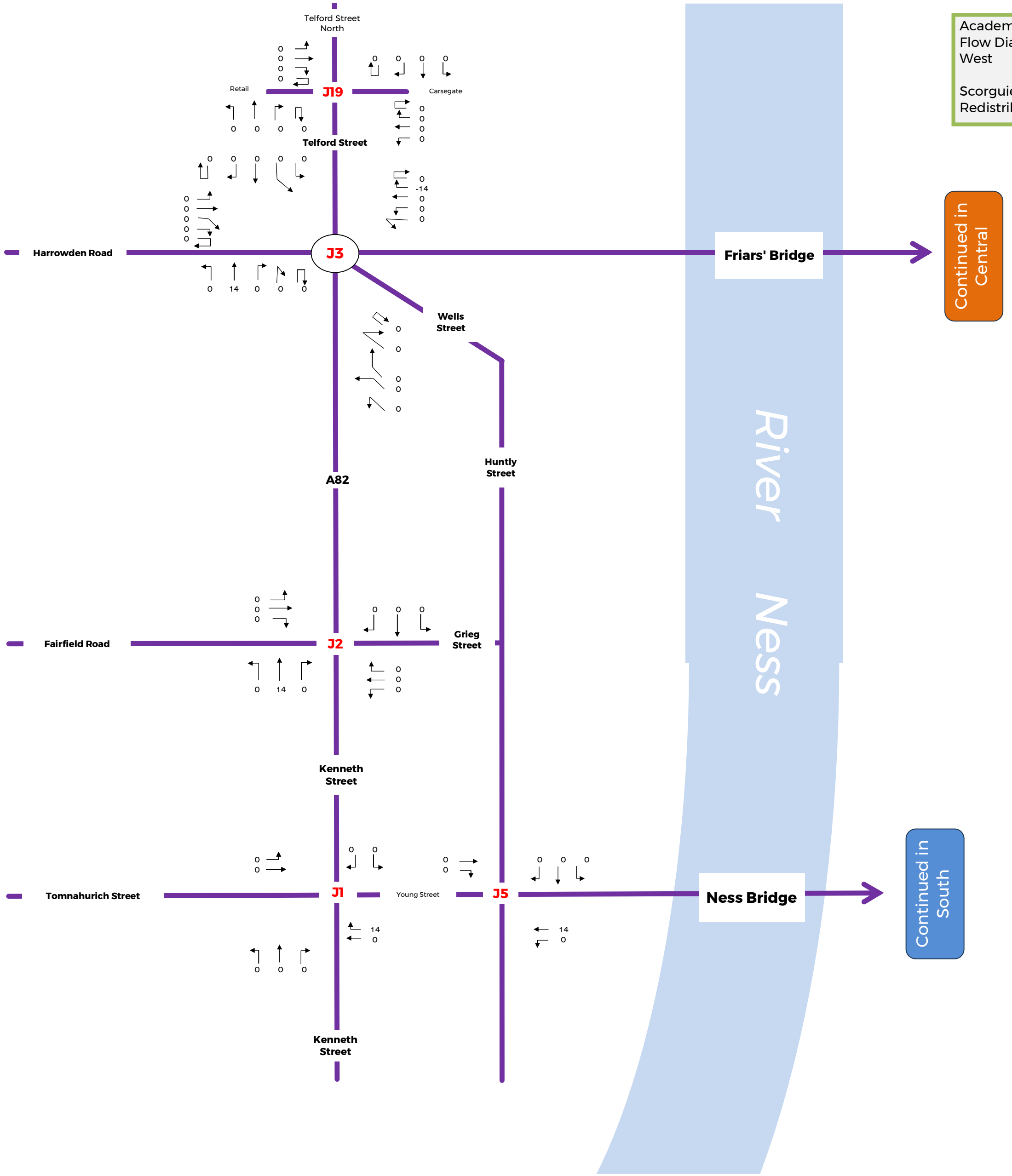
Academy Street Traffic Impact Assessment
Flow Diagram
South

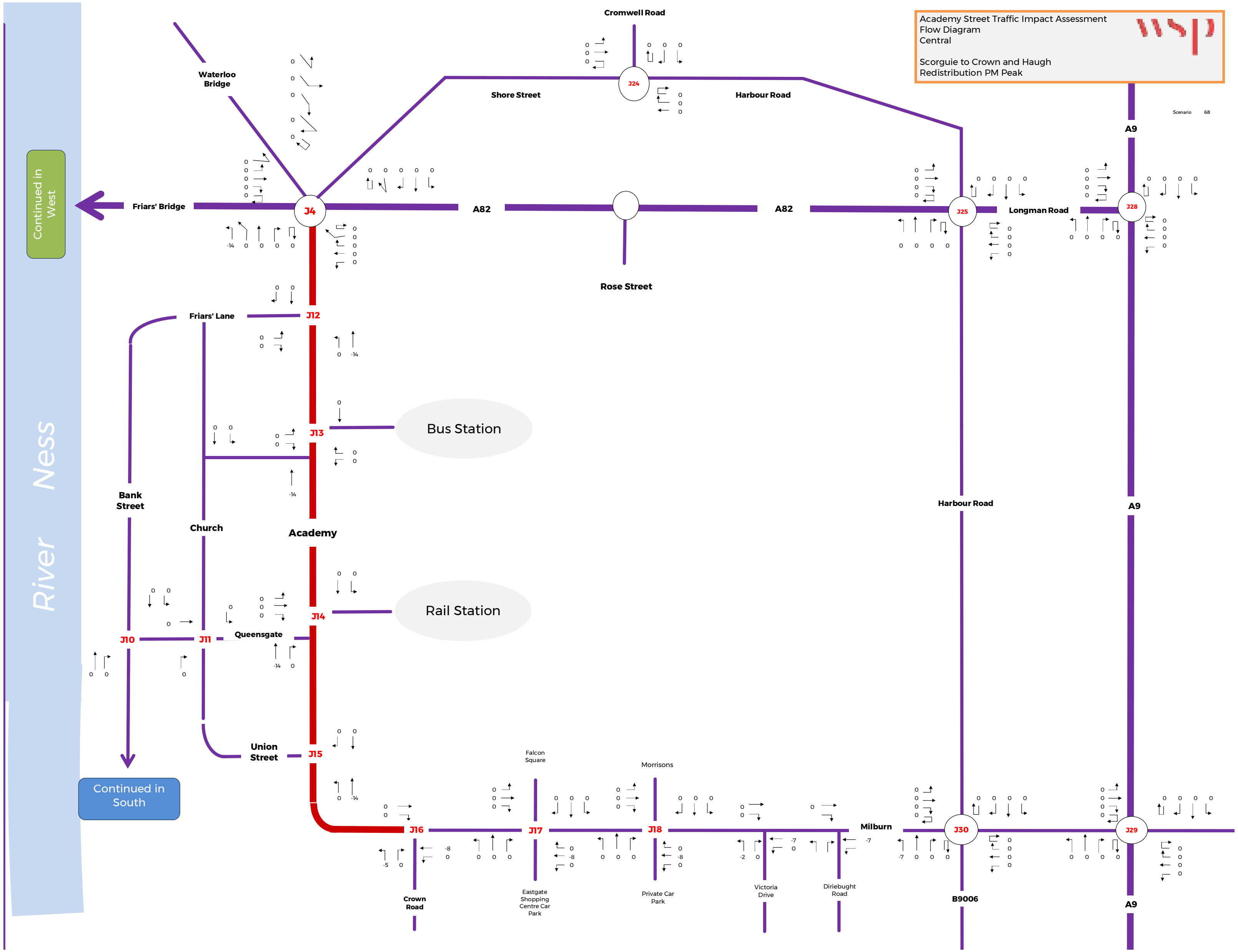
Scorguie to Crown and Haugh
Redistribution AM Peak



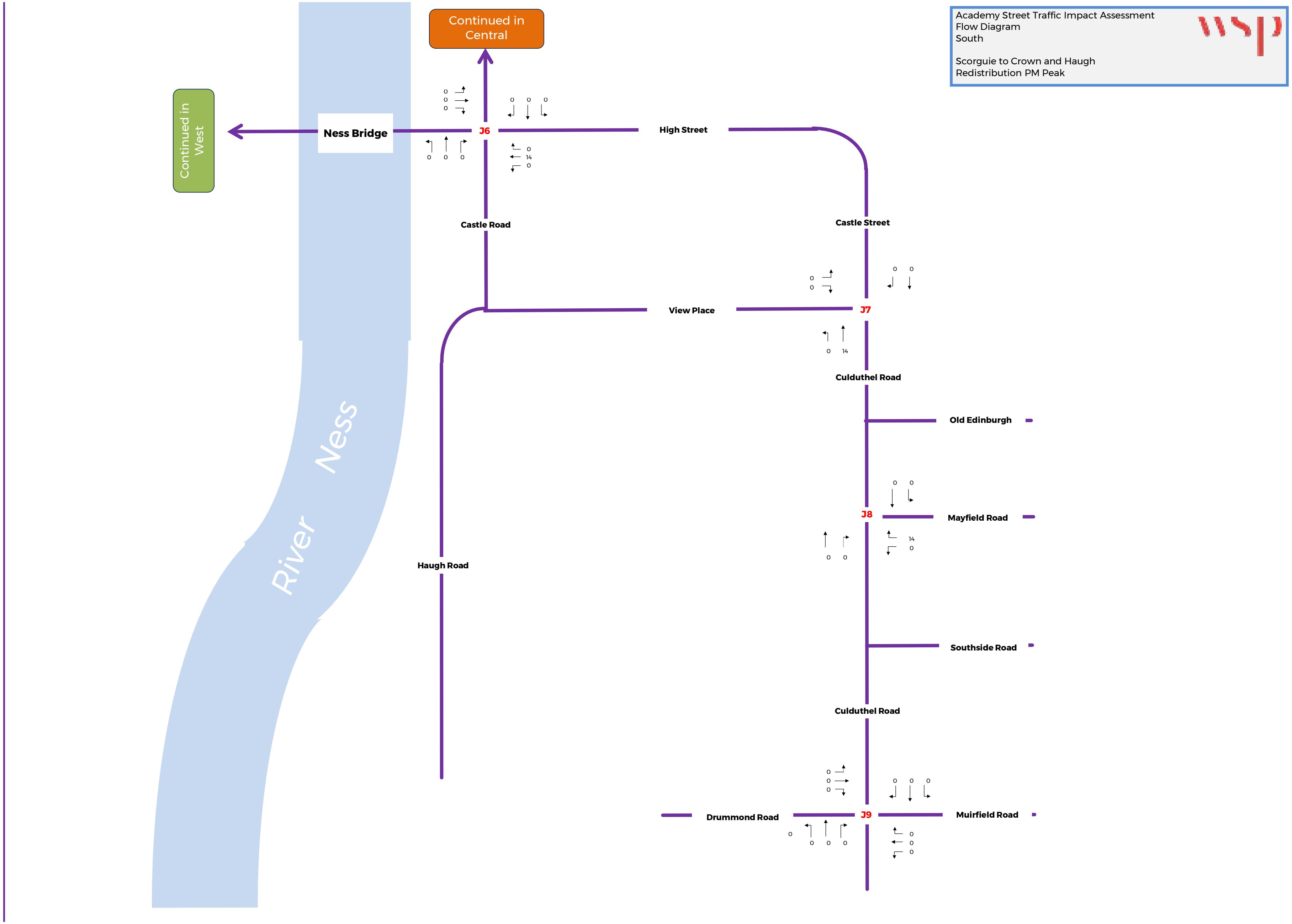
Academy Street Traffic Impact Assessment
Flow Diagram
West

Scorguie to Crown and Haugh
Redistribution PM Peak





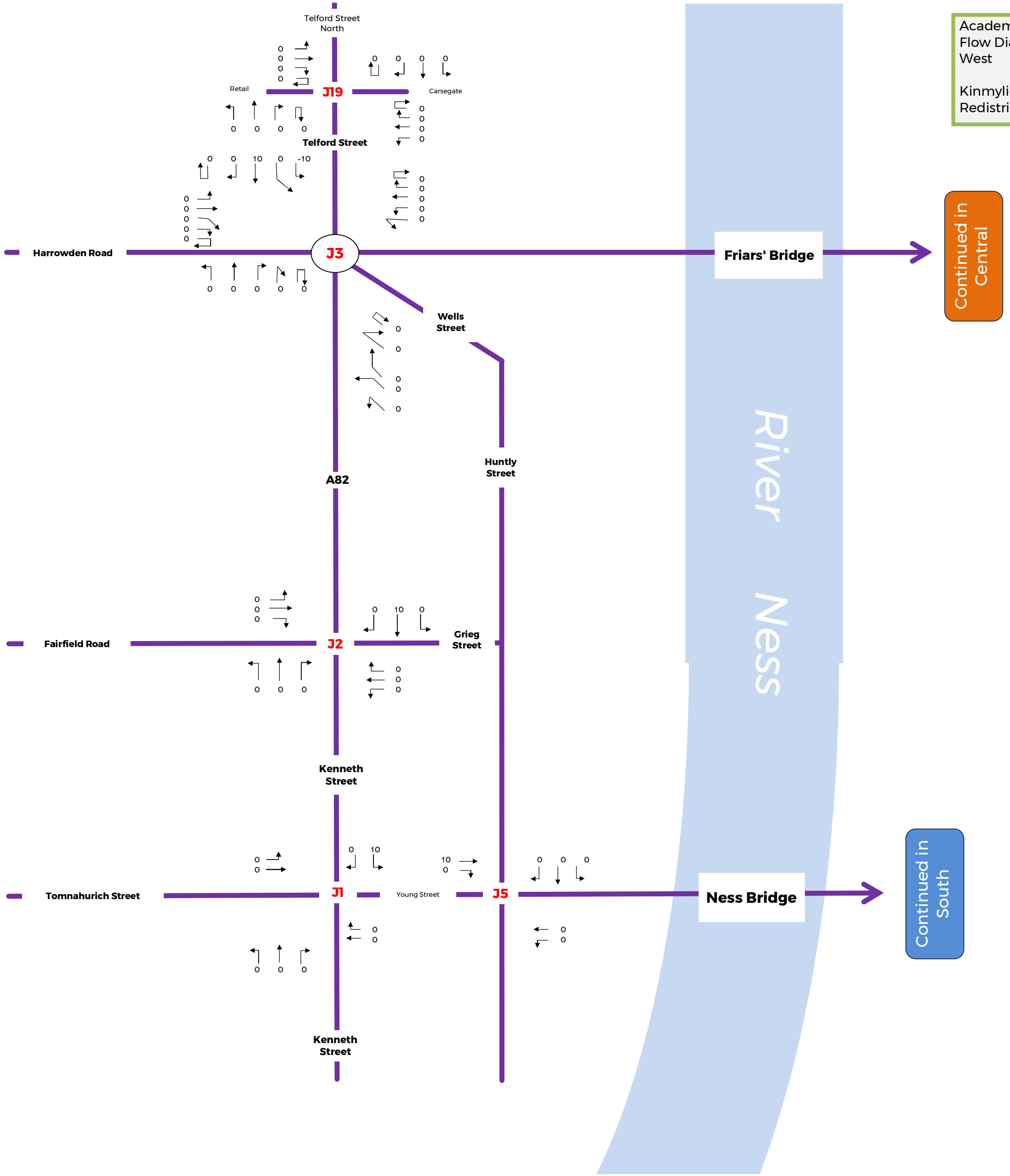
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Scorguie to Crown and Haugh
Redistribution PM Peak
Scenario 68
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
A82
A9
Longman Road
Rose Street
Friars' Lane
Bus Station
Rail Station
River Ness
Bank Street
Church
Academy
Queensgate
Union Street
Continued in South
Harbour Road
A9
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

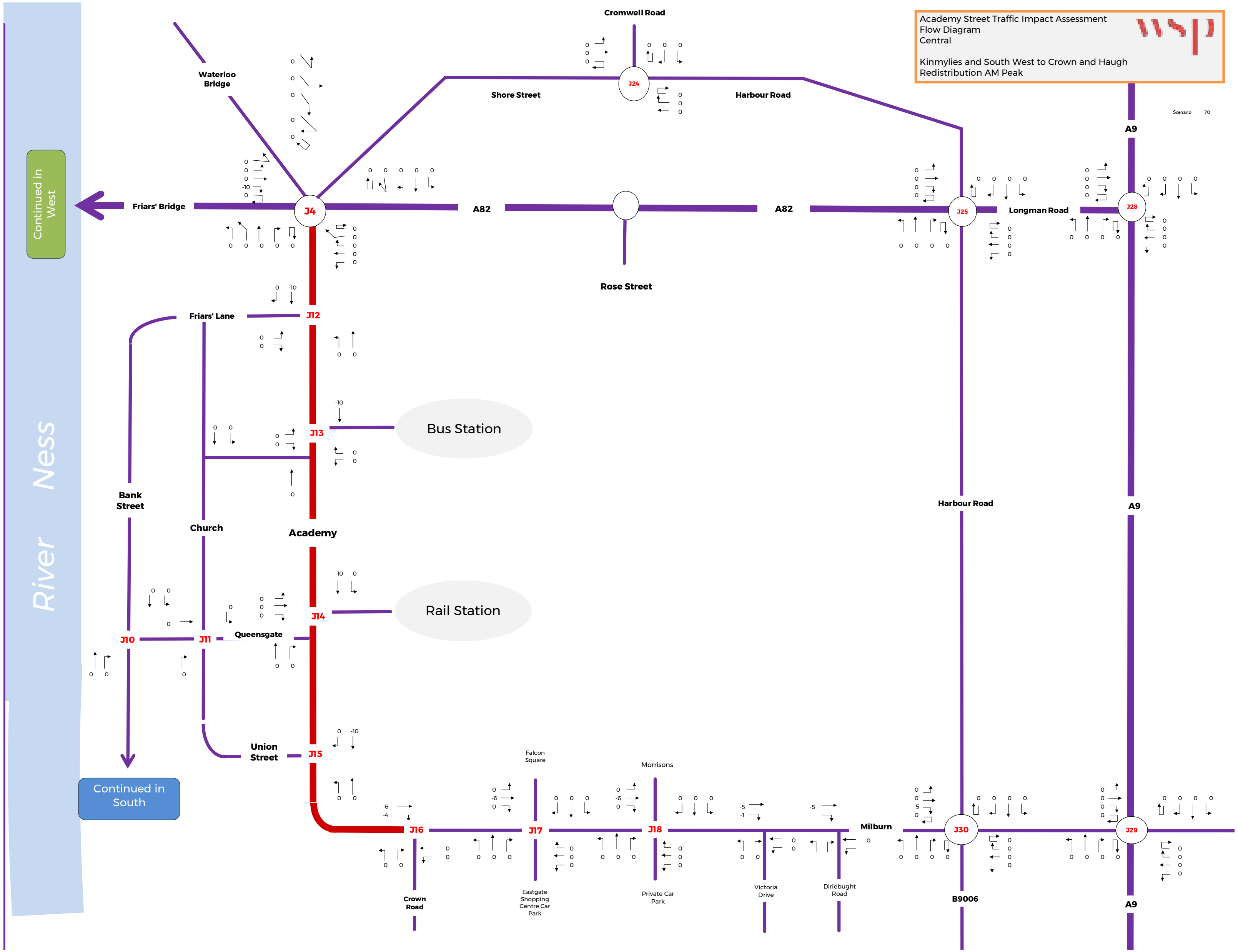


Academy Street Traffic Impact Assessment
Flow Diagram
South
Scorguie to Crown and Haugh
Redistribution PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
River Ness
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road

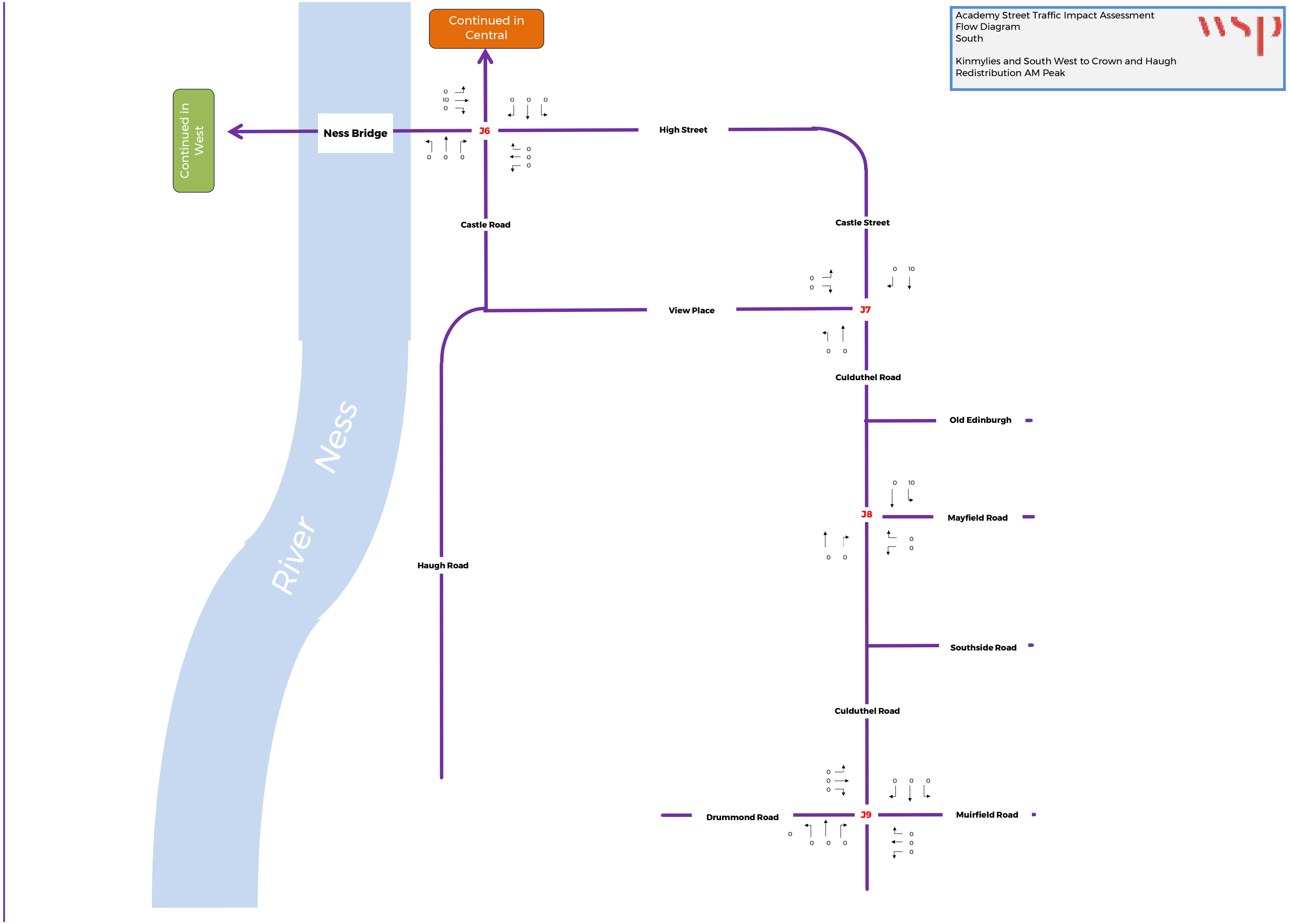
Academy Street Traffic Impact Assessment
Flow Diagram
West

Kinmylies and South West to Crown and Haugh Redistribution AM Peak





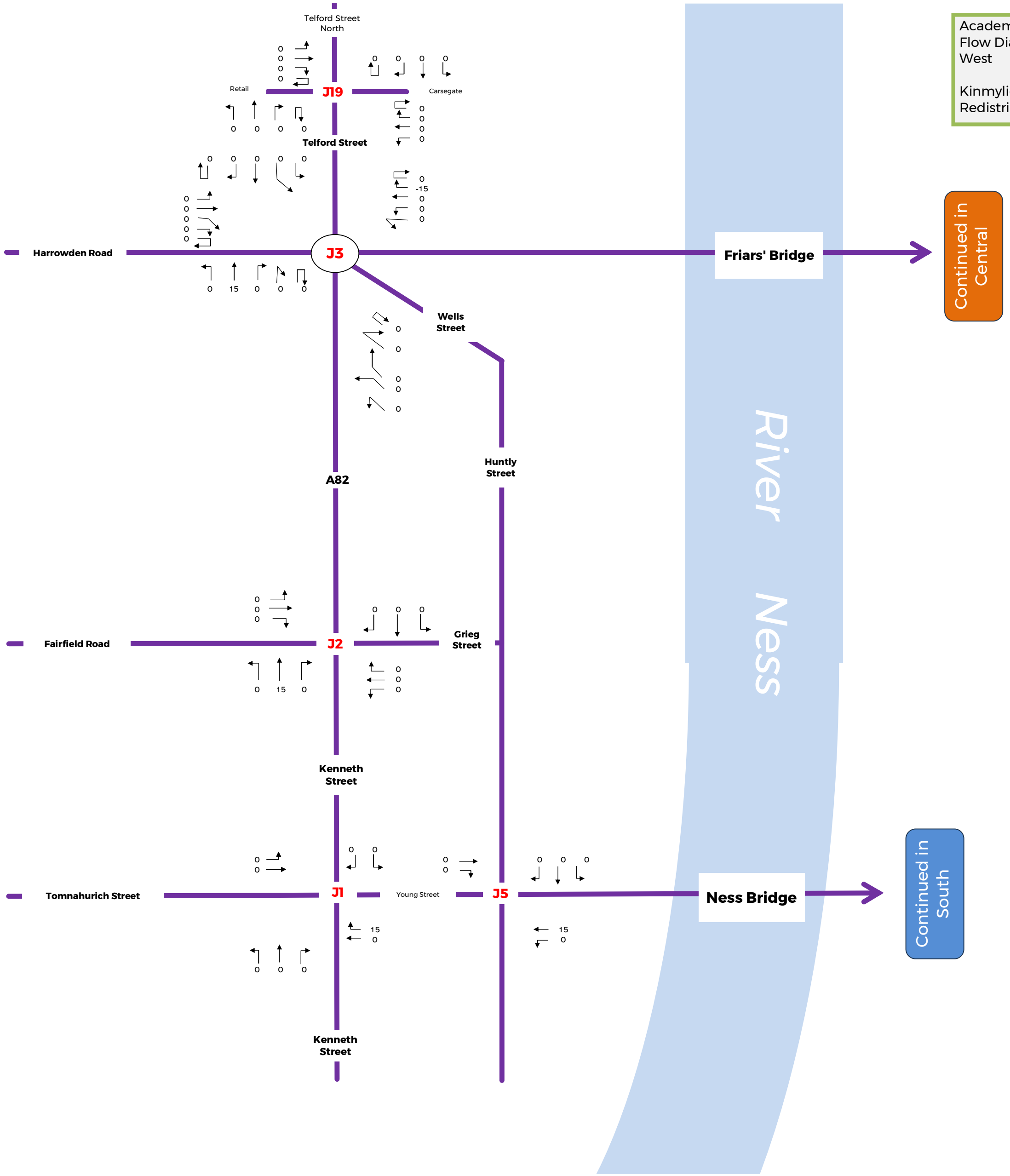
Academy Street Traffic Impact Assessment
Flow Diagram
Central
Kinmylies and South West to Crown and Haugh
Redistribution AM Peak
Scenario 70
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
A82
A9
Longman Road
Rose Street
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Harbour Road
A9
River Ness
Queensgate
Union Street
Continued in South
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

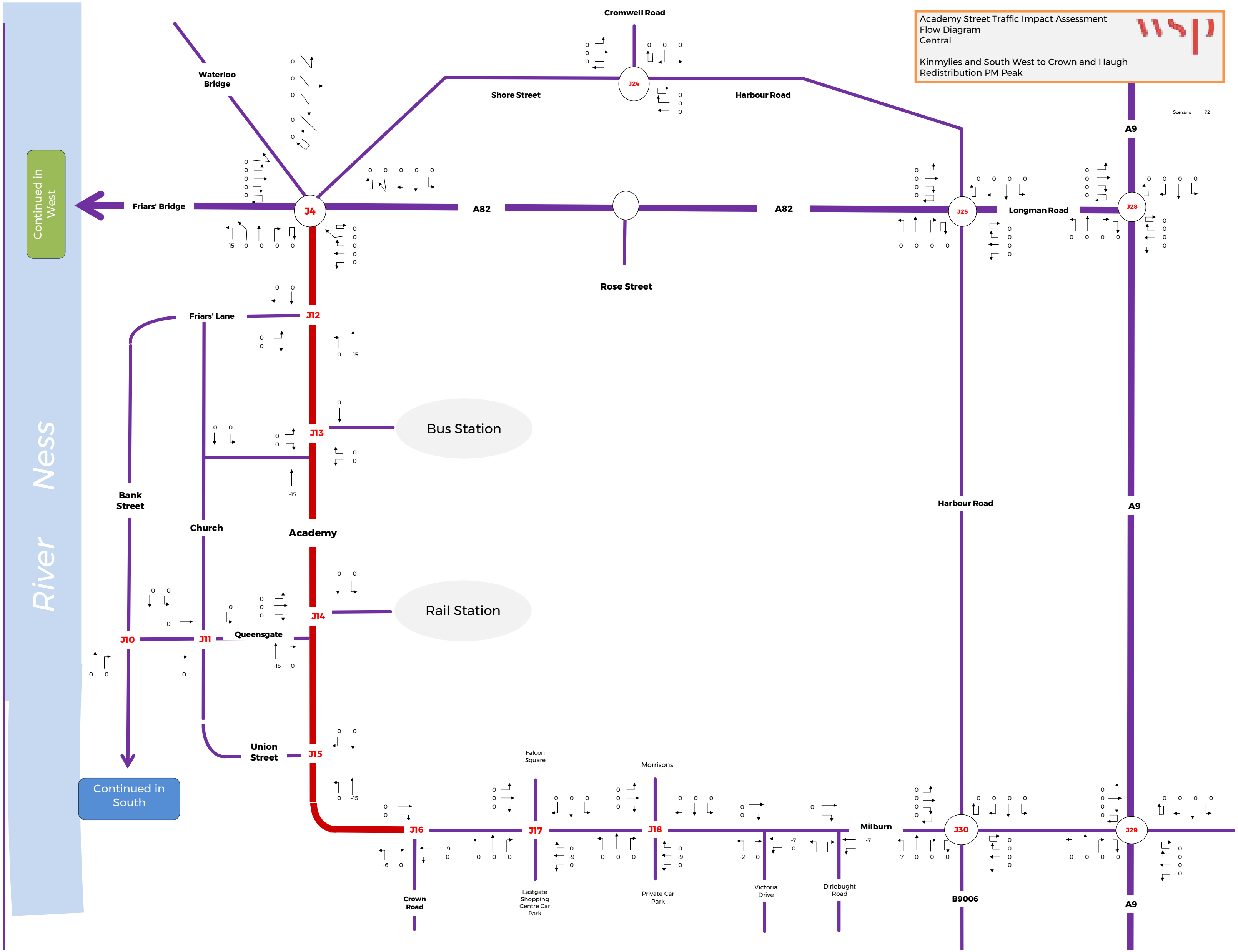


Academy Street Traffic Impact Assessment
Flow Diagram
South
Kinmylies and South West to Crown and Haugh Redistribution AM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
River Ness
Southside Road
Culduthel Road
J9
Drummond Road
Muirfield Road

Academy Street Traffic Impact Assessment
Flow Diagram
West

Kinmylies and South West to Crown and Haugh
Redistribution PM Peak

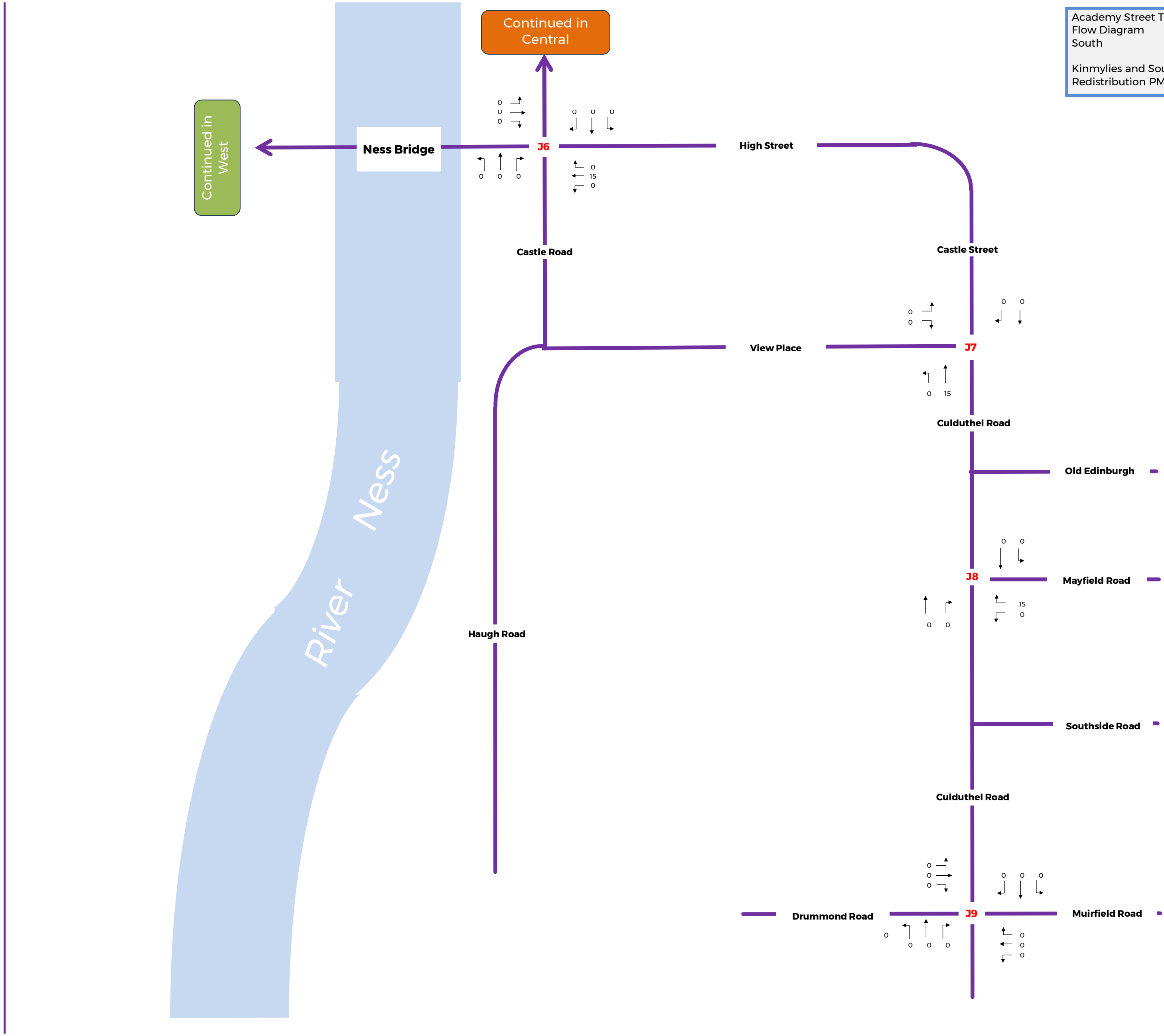




Academy Street Traffic Impact Assessment
Flow Diagram
Central
Kinmylies and South West to Crown and Haugh Redistribution PM Peak
Scenario 72
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
A82
A9
A9
A9
Longman Road
Rose Street
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Harbour Road
Falcon Square
Morrisons
Milburn
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

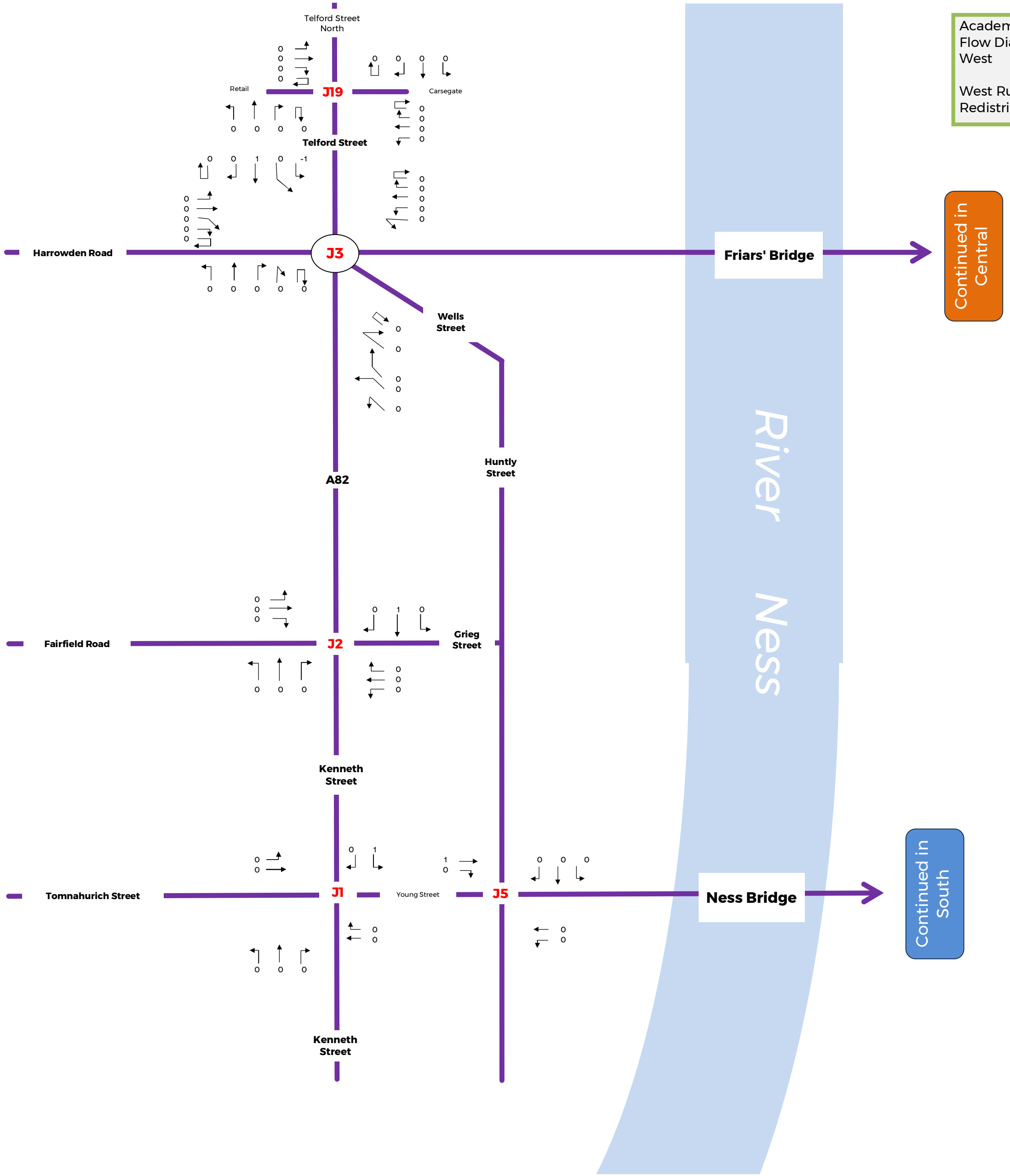
Academy Street Traffic Impact Assessment
Flow Diagram
South

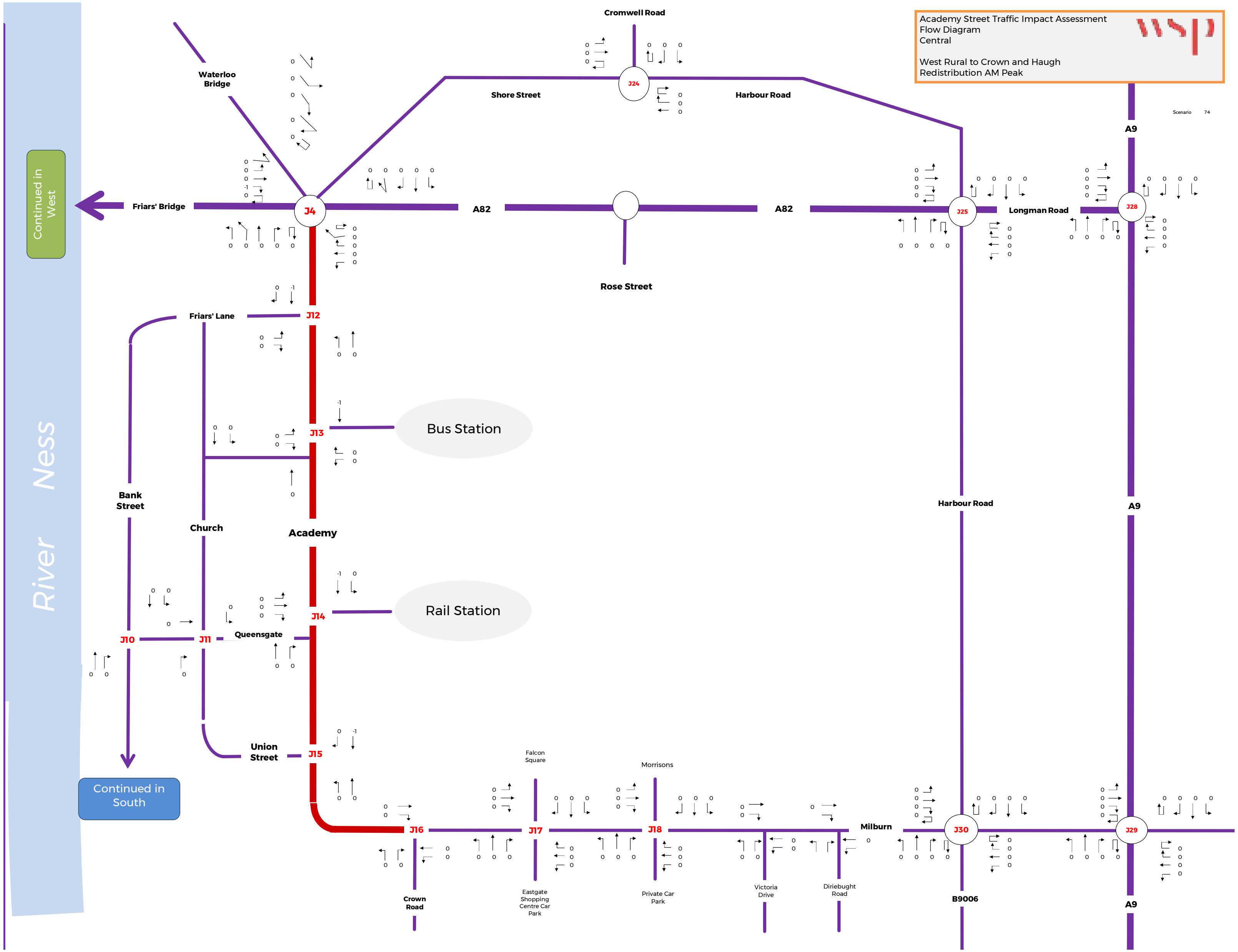
Kinmylies and South West to Crown and Haugh
Redistribution PM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

West Rural to Crown and Haugh
Redistribution AM Peak

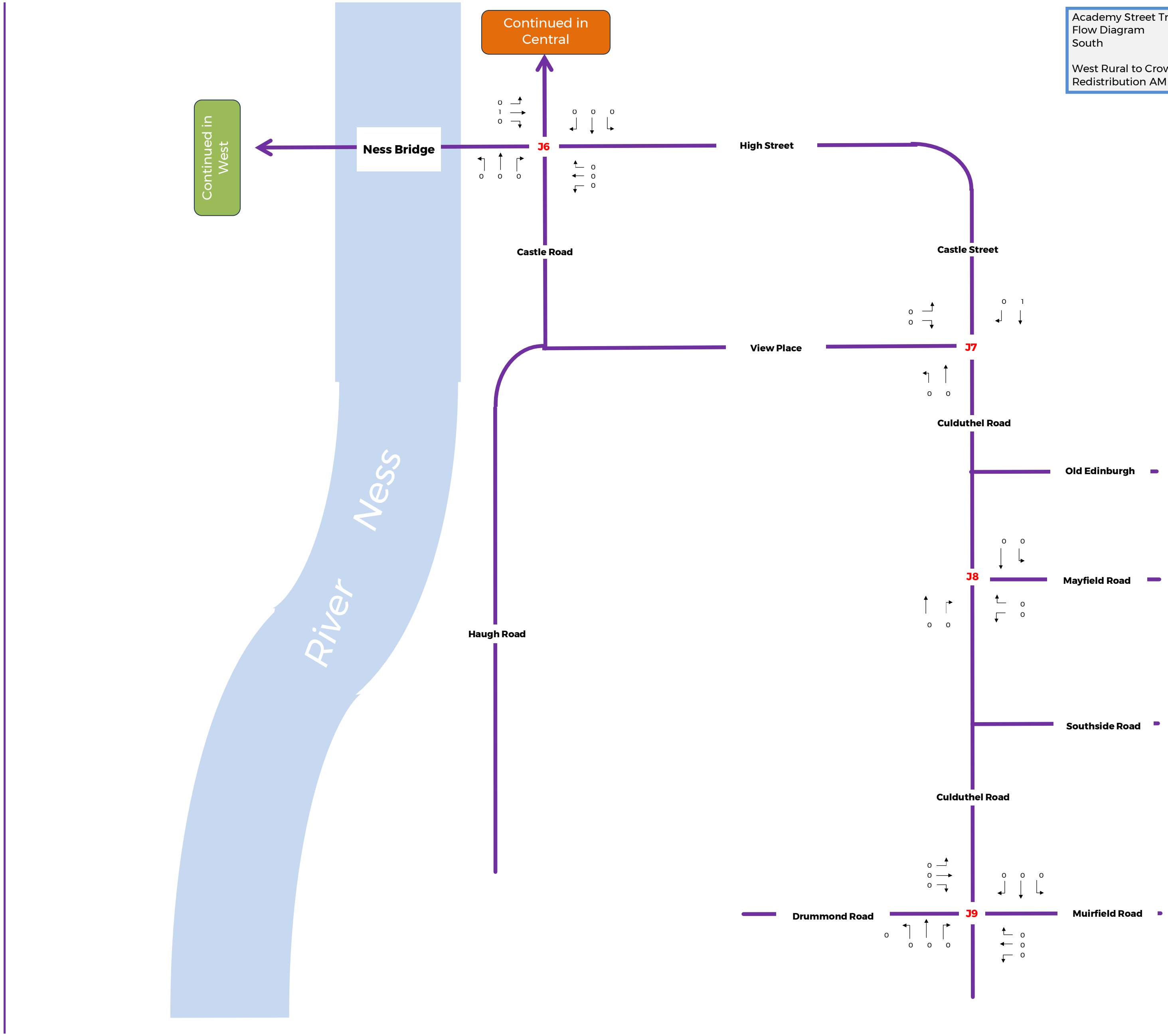




Academy Street Traffic Impact Assessment
Flow Diagram
Central
West Rural to Crown and Haugh
Redistribution AM Peak
Scenario 74
Continued in West
River Ness
Continued in South
Waterloo Bridge
Cromwell Road
Shore Street
Harbour Road
Friars' Bridge
J4
A82
A82
Rose Street
J24
J25
J28
Longman Road
A9
Friars' Lane
J12
J13
Bus Station
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

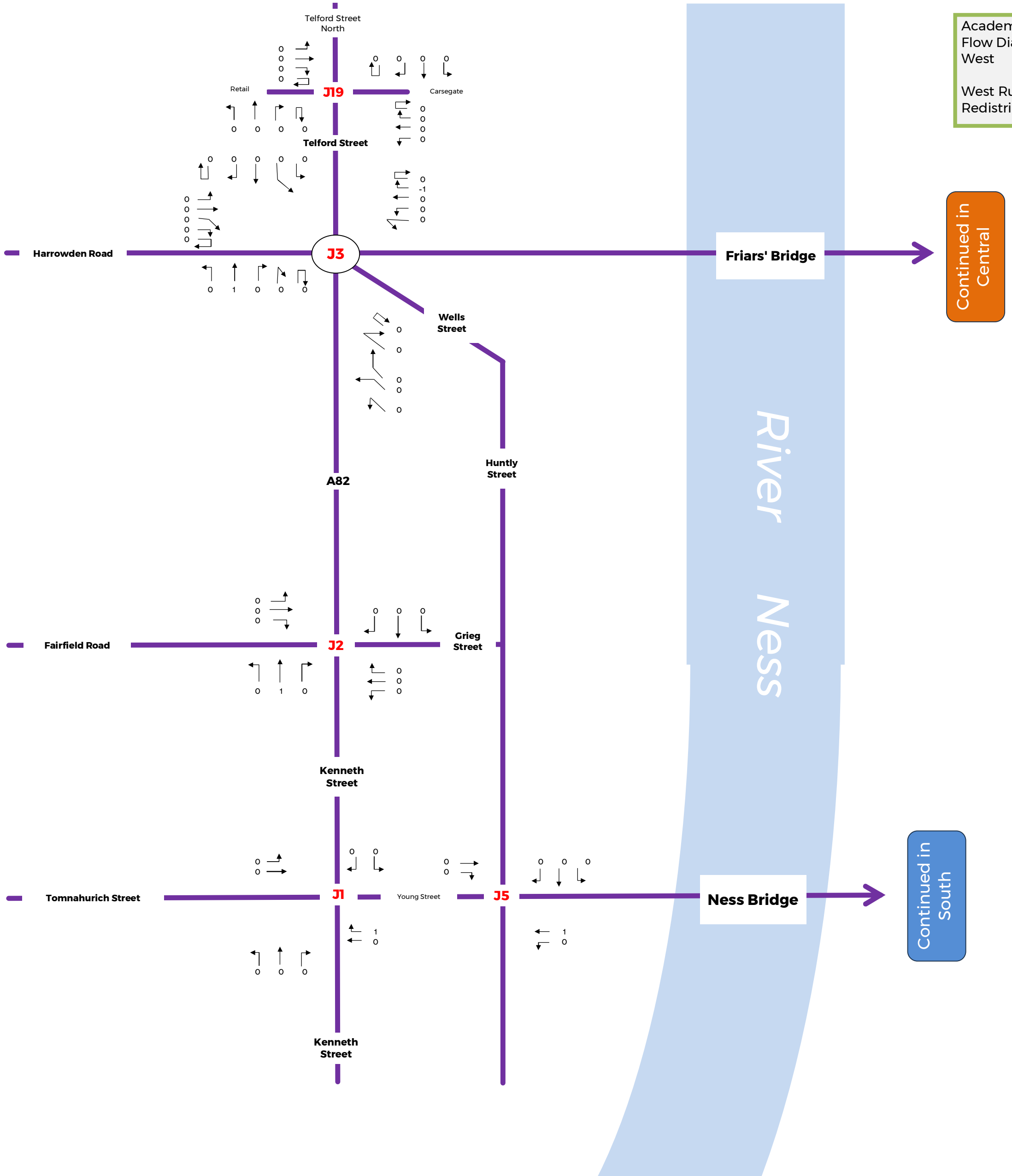
Academy Street Traffic Impact Assessment
Flow Diagram
South

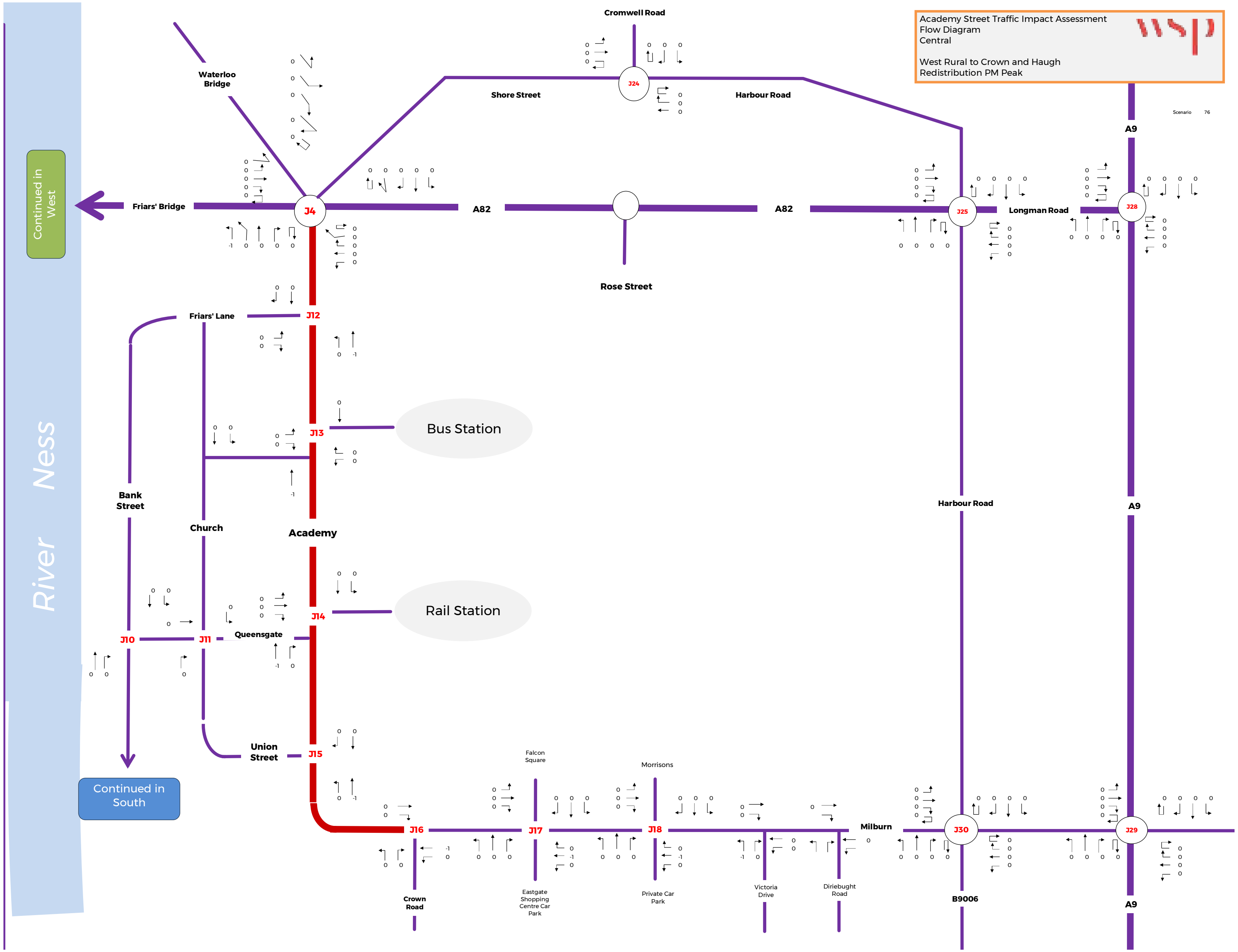
West Rural to Crown and Haugh
Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

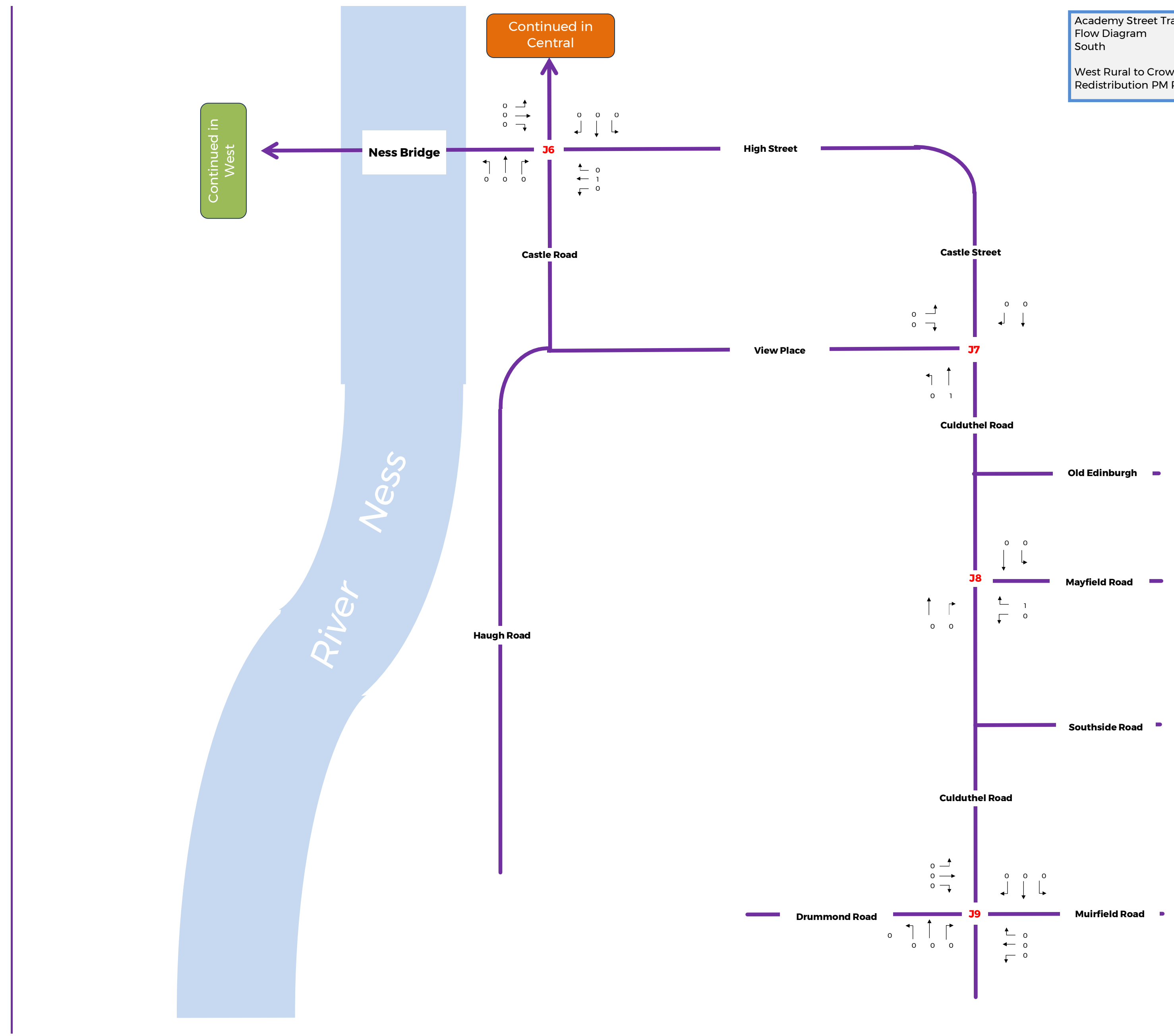
West Rural to Crown and Haugh
Redistribution PM Peak

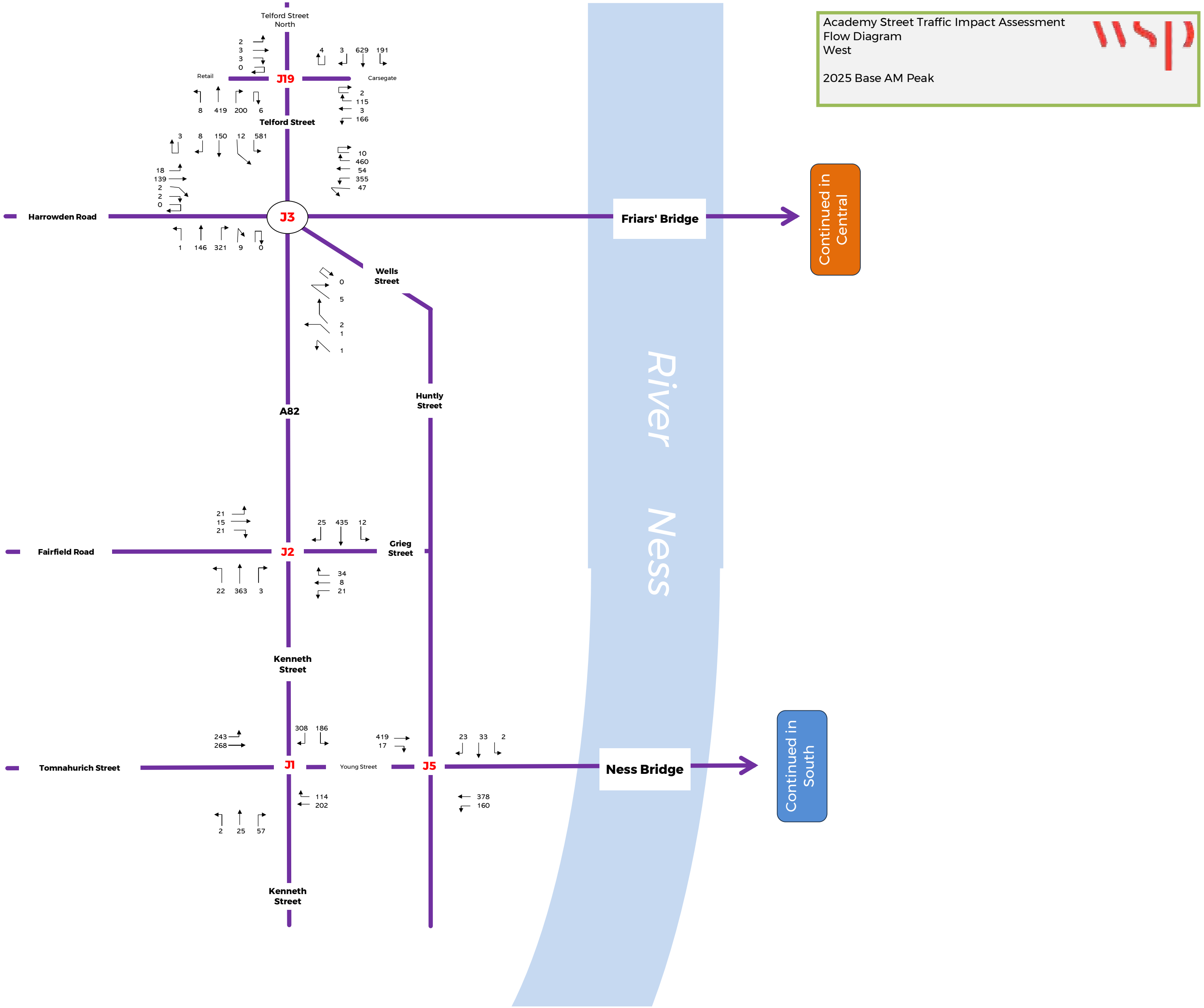



Academy Street Traffic Impact Assessment
Flow Diagram
Central
West Rural to Crown and Haugh
Redistribution PM Peak
Scenario 76
Cromwell Road
Waterloo Bridge
Shore Street
Harbour Road
J24
A9
Continued in West
Friars' Bridge
J4
A82
A82
J25
Longman Road
J28
Rose Street
Friars' Lane
J12
Bus Station
J13
River Ness
Bank Street
Church
Academy
Harbour Road
A9
Rail Station
J14
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

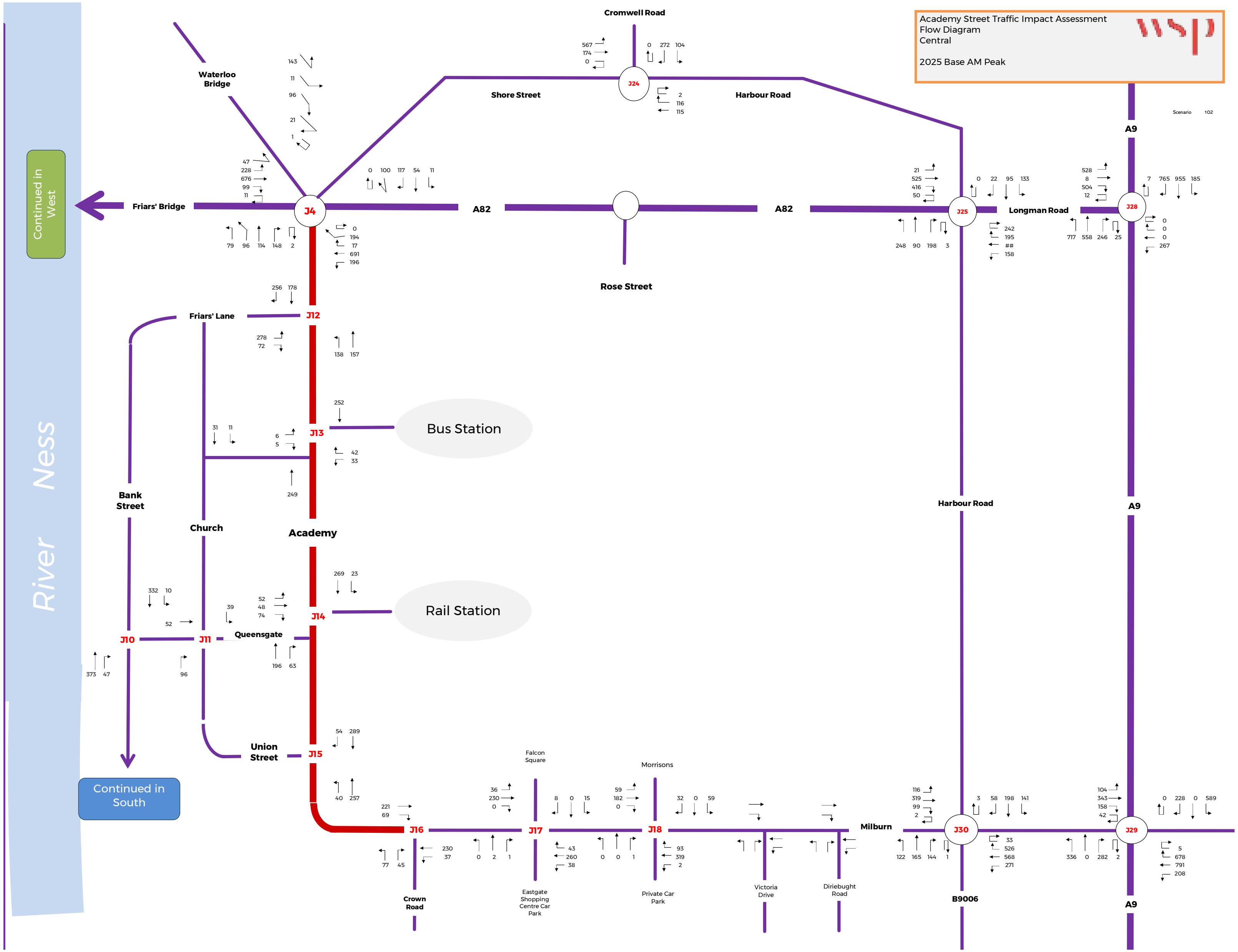
Academy Street Traffic Impact Assessment
Flow Diagram
South

West Rural to Crown and Haugh
Redistribution PM Peak



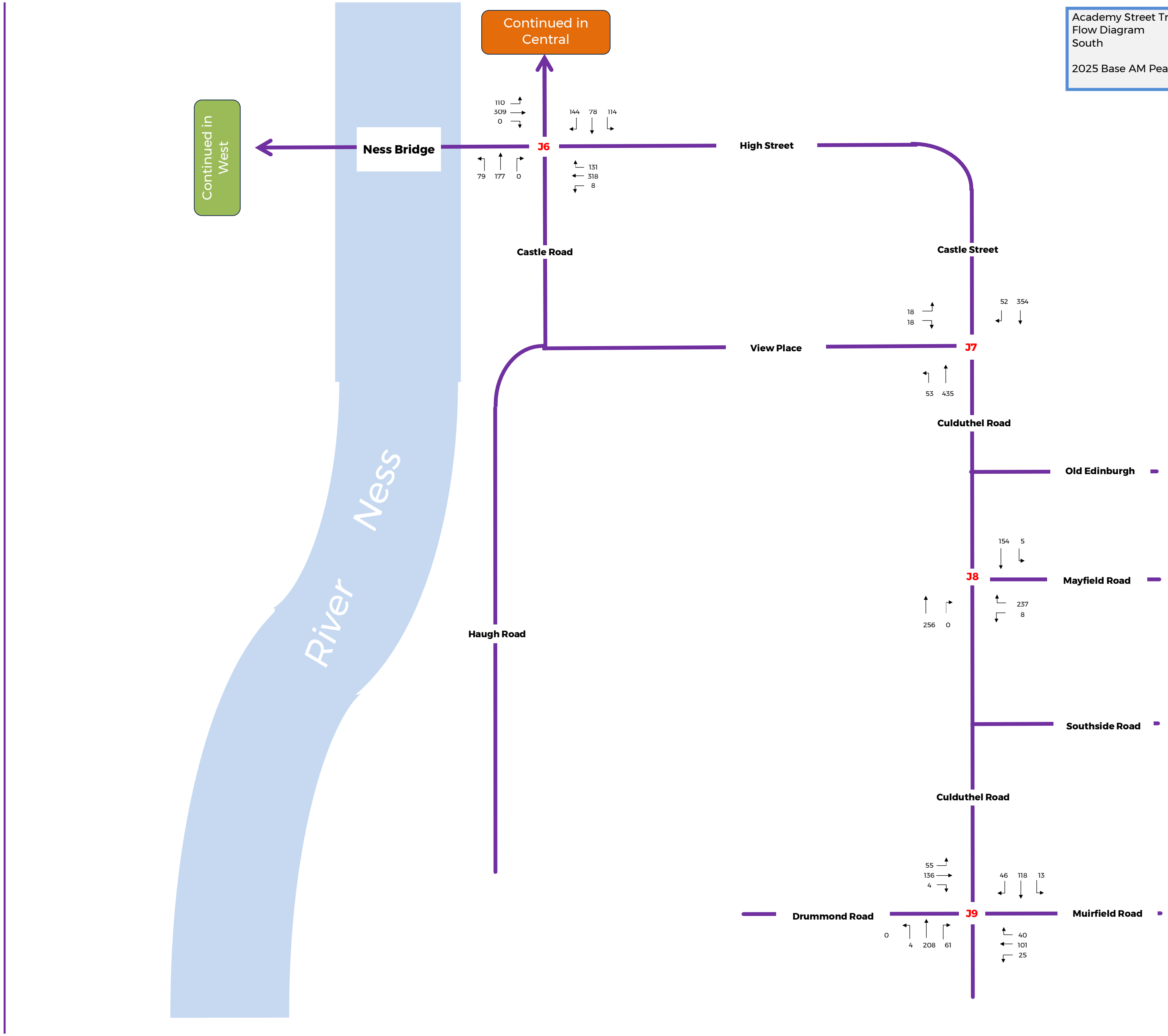


Academy Street Traffic Impact Assessment
Flow Diagram
West
2025 Base AM Peak
Telford Street North
Retail
J19
Carsegate
Telford Street
Harrowden Road
J3
Friars' Bridge
Continued in Central
Wells Street
Huntly Street
A82
River Ness
Fairfield Road
J2
Grieg Street
Kenneth Street
Tomnahurich Street
J1
Young Street
J5
Ness Bridge
Continued in South
Kenneth Street


Academy Street Traffic Impact Assessment
Flow Diagram
Central
2025 Base AM Peak
Scenario 102
Cromwell Road
Shore Street
Harbour Road
Waterloo Bridge
Friars' Bridge
Continued in West
A82
A82
A9
Longman Road
Rose Street
J4
J24
J25
J28
J12
Friars' Lane
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
A9
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

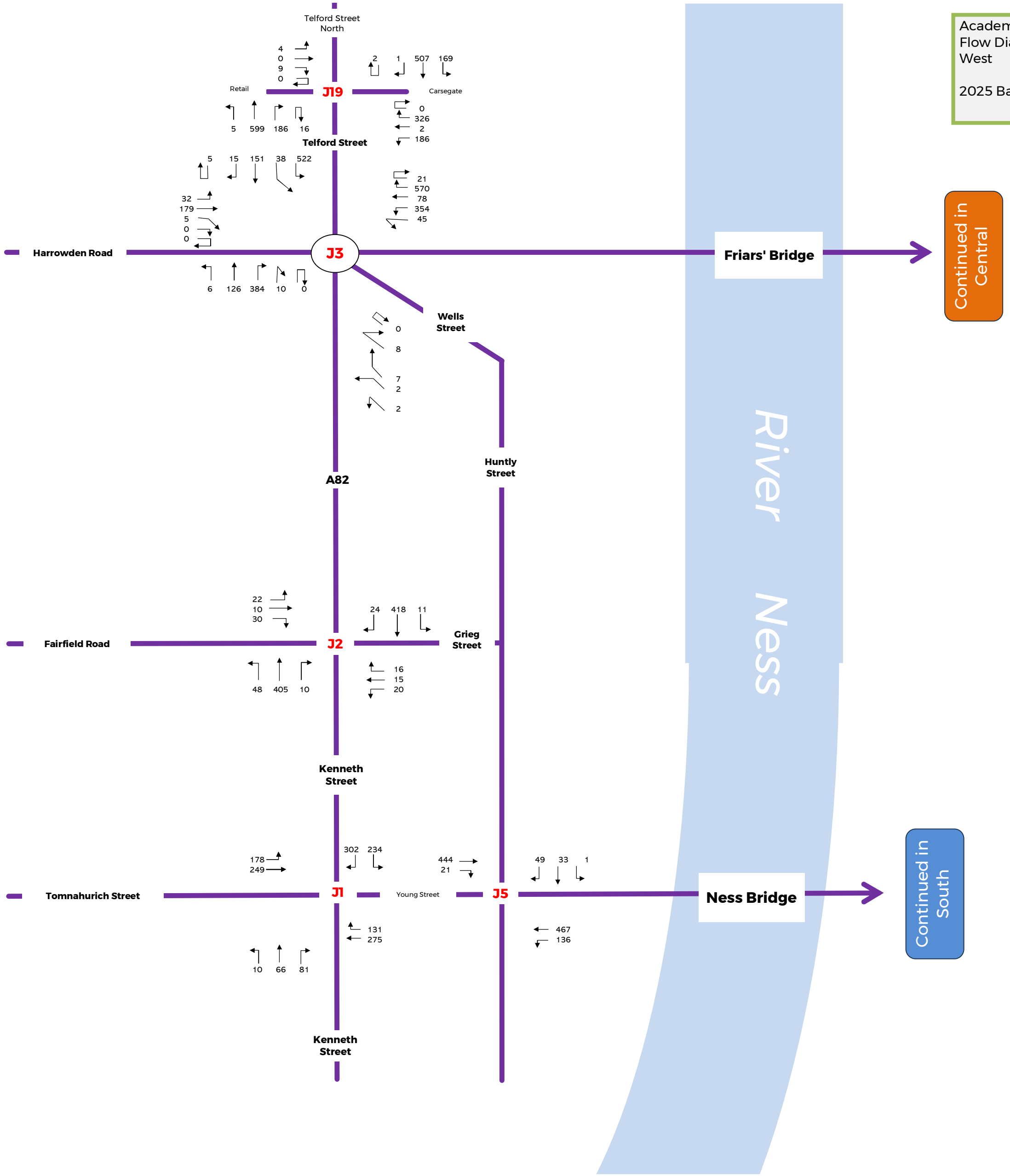
Academy Street Traffic Impact Assessment
Flow Diagram
South

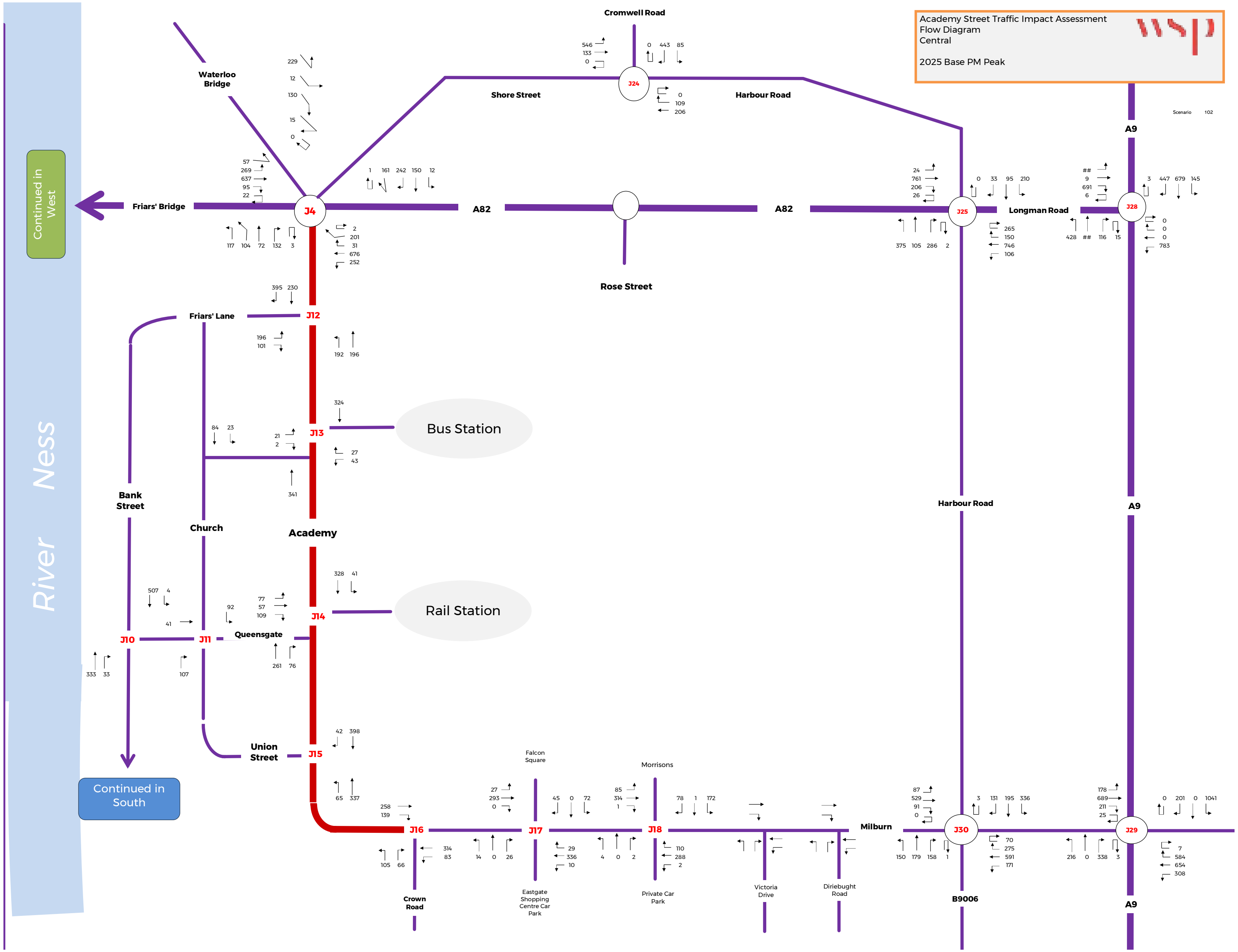
2025 Base AM Peak



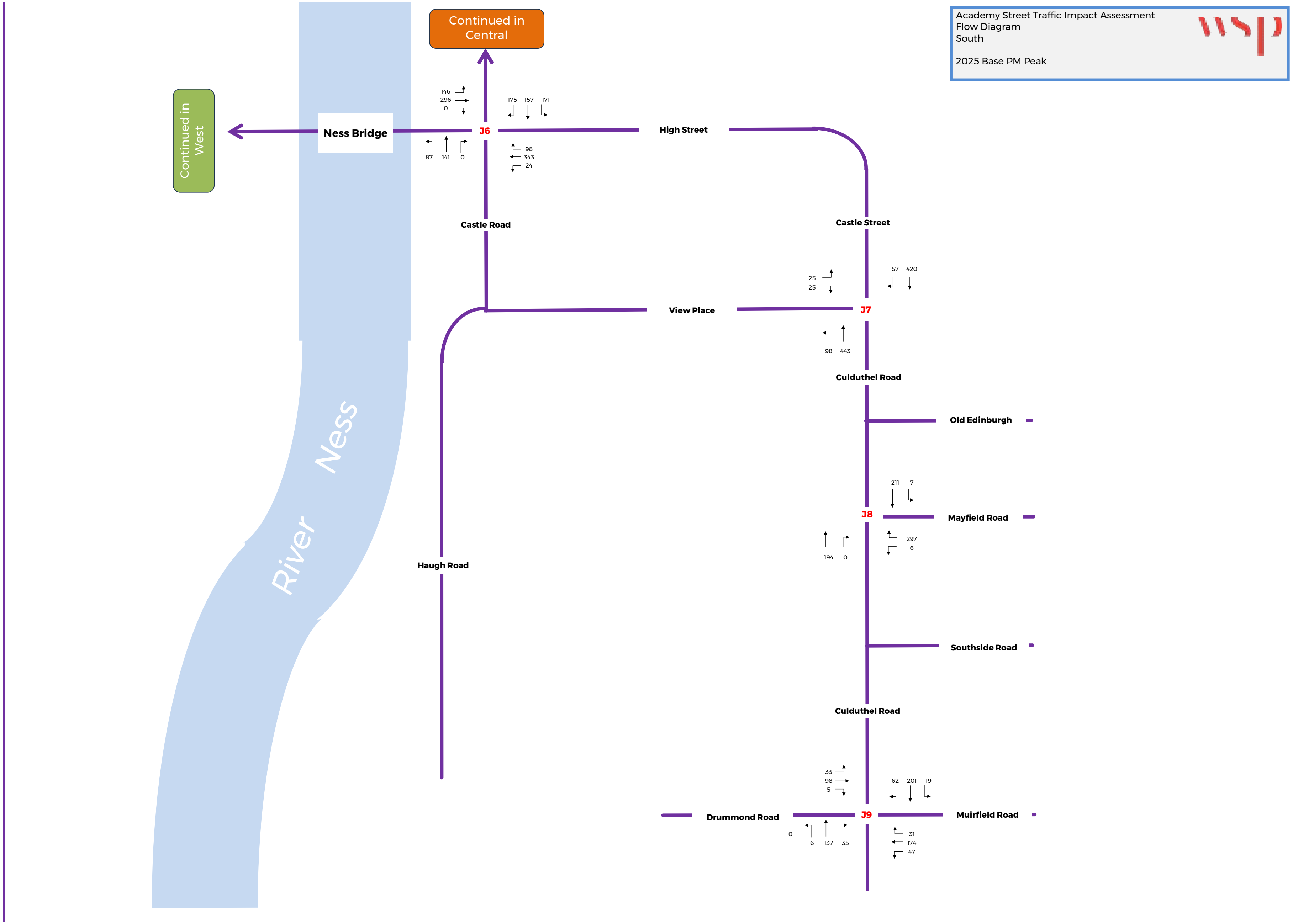
Academy Street Traffic Impact Assessment
Flow Diagram
West

2025 Base PM Peak





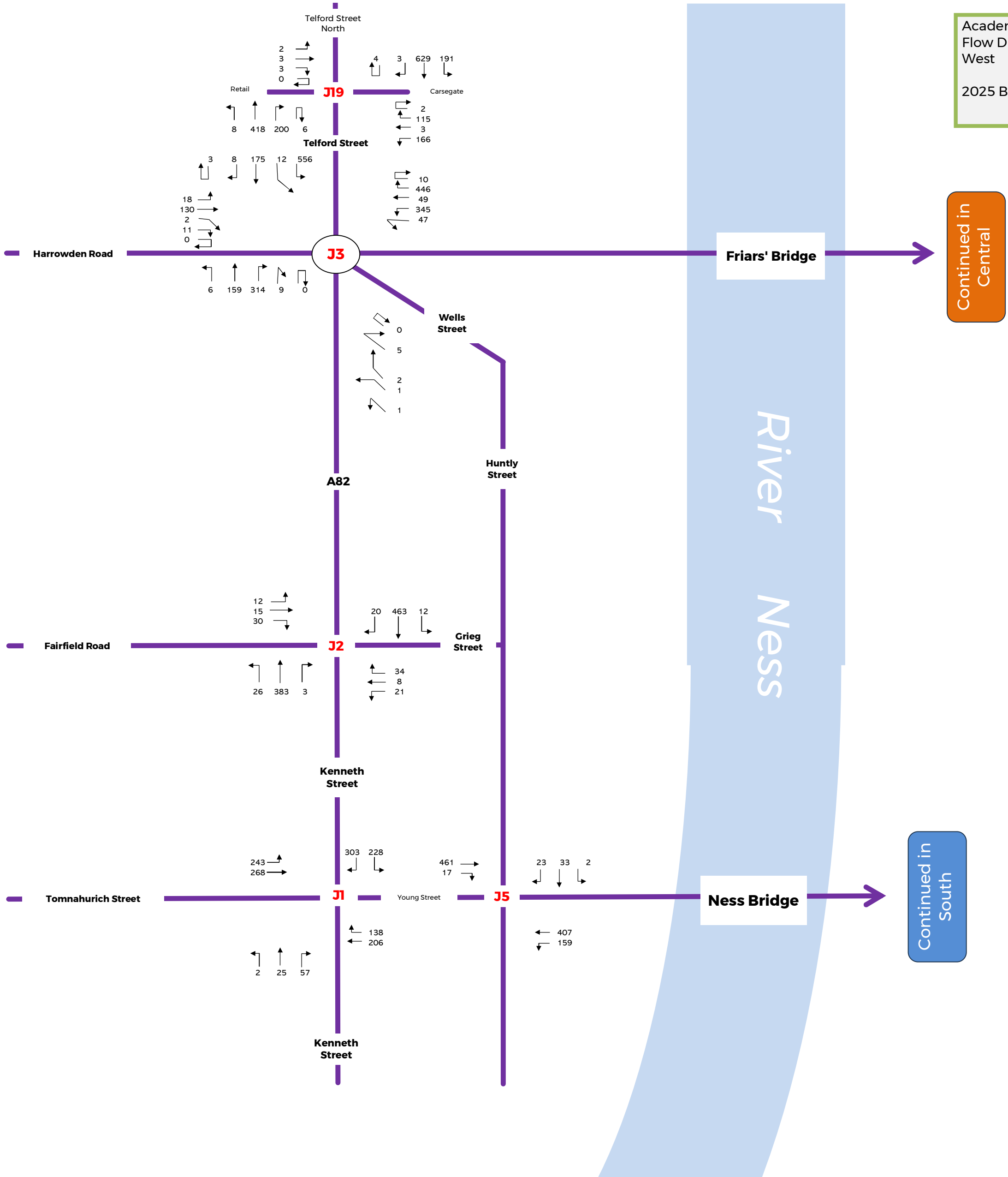
Academy Street Traffic Impact Assessment
Flow Diagram
Central
2025 Base PM Peak
Scenario 102
Continued in West
Friars' Bridge
Waterloo Bridge
Cromwell Road
Shore Street
Harbour Road
J24
J4
A82
Rose Street
J25
Longman Road
J28
A9
Friars' Lane
J12
J13
Bus Station
River Ness
Bank Street
Church
Academy
Harbour Road
J14
Rail Station
J10
J11
Queensgate
Union Street
J15
Continued in South
Falcon Square
Morrisons
J16
J17
J18
Milburn
J30
J29
Crown Road
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
B9006
A9

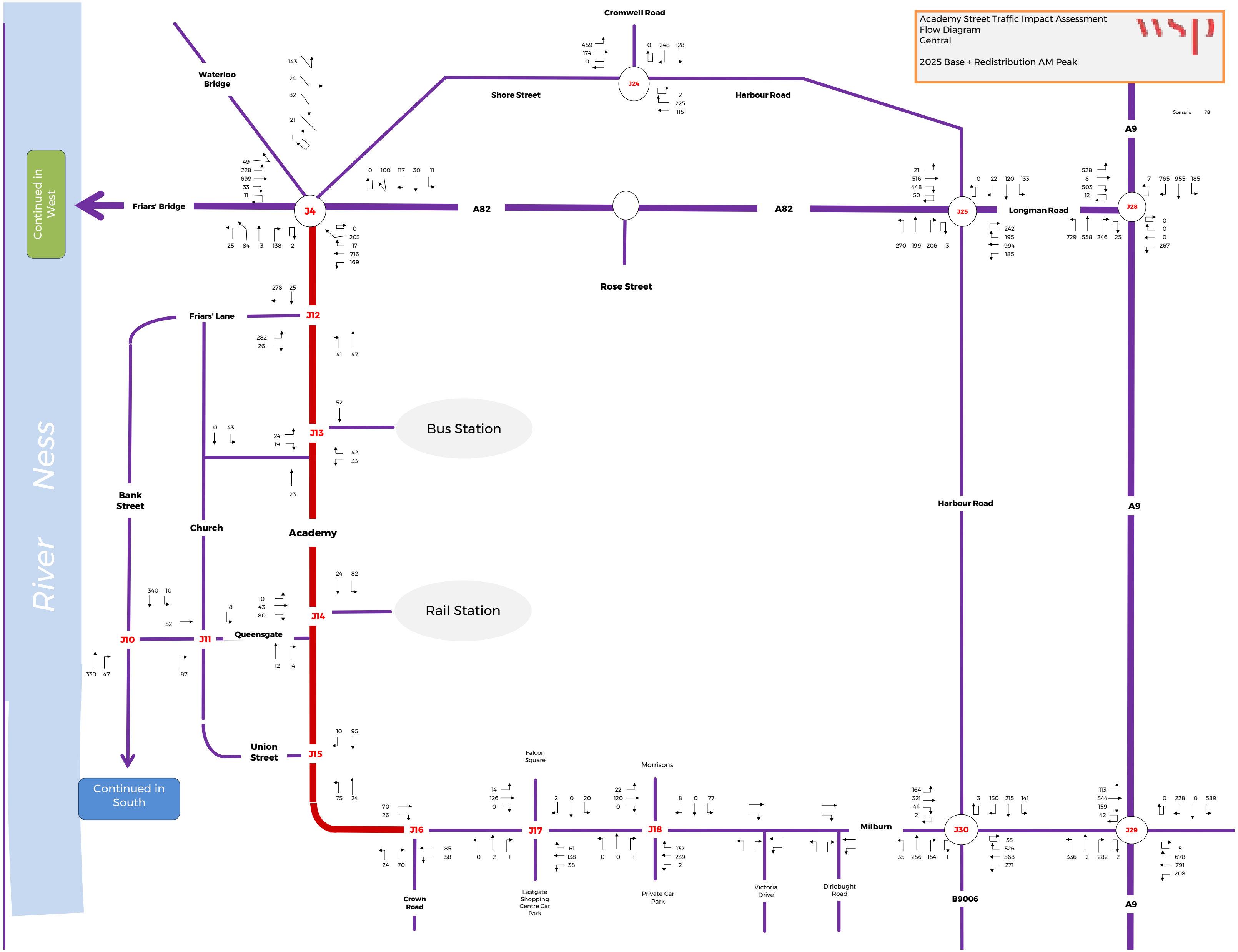


Academy Street Traffic Impact Assessment
Flow Diagram
South
2025 Base PM Peak
Continued in Central
Continued in West
Ness Bridge
J6
High Street
Castle Road
Castle Street
View Place
J7
Culduthel Road
Old Edinburgh
J8
Mayfield Road
Haugh Road
Southside Road
Culduthel Road
Drummond Road
J9
Muirfield Road
River Ness

Academy Street Traffic Impact Assessment
Flow Diagram
West

2025 Base + Redistribution AM Peak

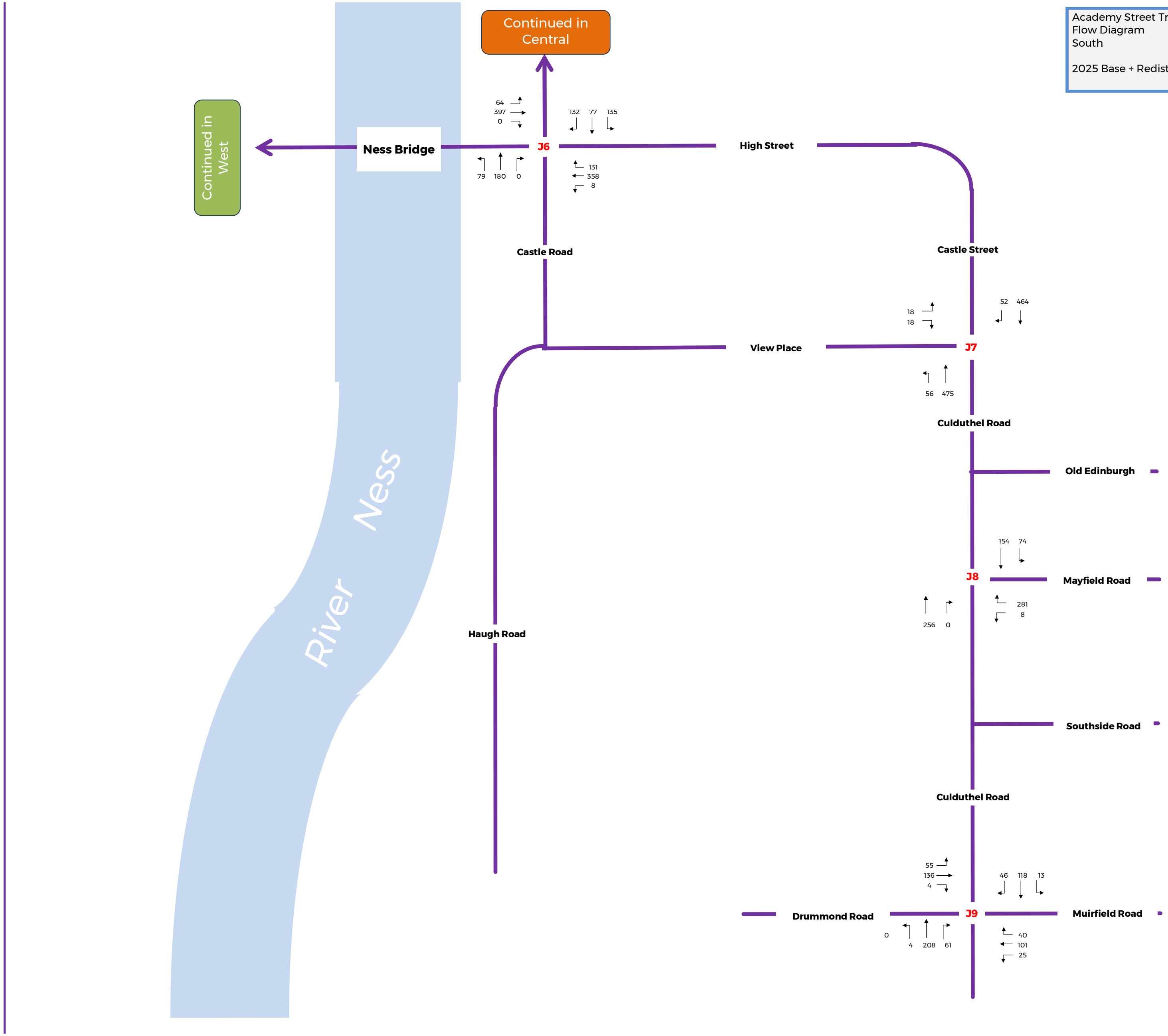




Academy Street Traffic Impact Assessment
Flow Diagram
Central
2025 Base + Redistribution AM Peak
Scenario 78
Continued in West
Continued in South
River Ness
Waterloo Bridge
Friars' Bridge
Cromwell Road
Shore Street
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Falcon Square
Morrisons
Eastgate Shopping Centre Car Park
Private Car Park
Victoria Drive
Diriebught Road
Milburn
Crown Road
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

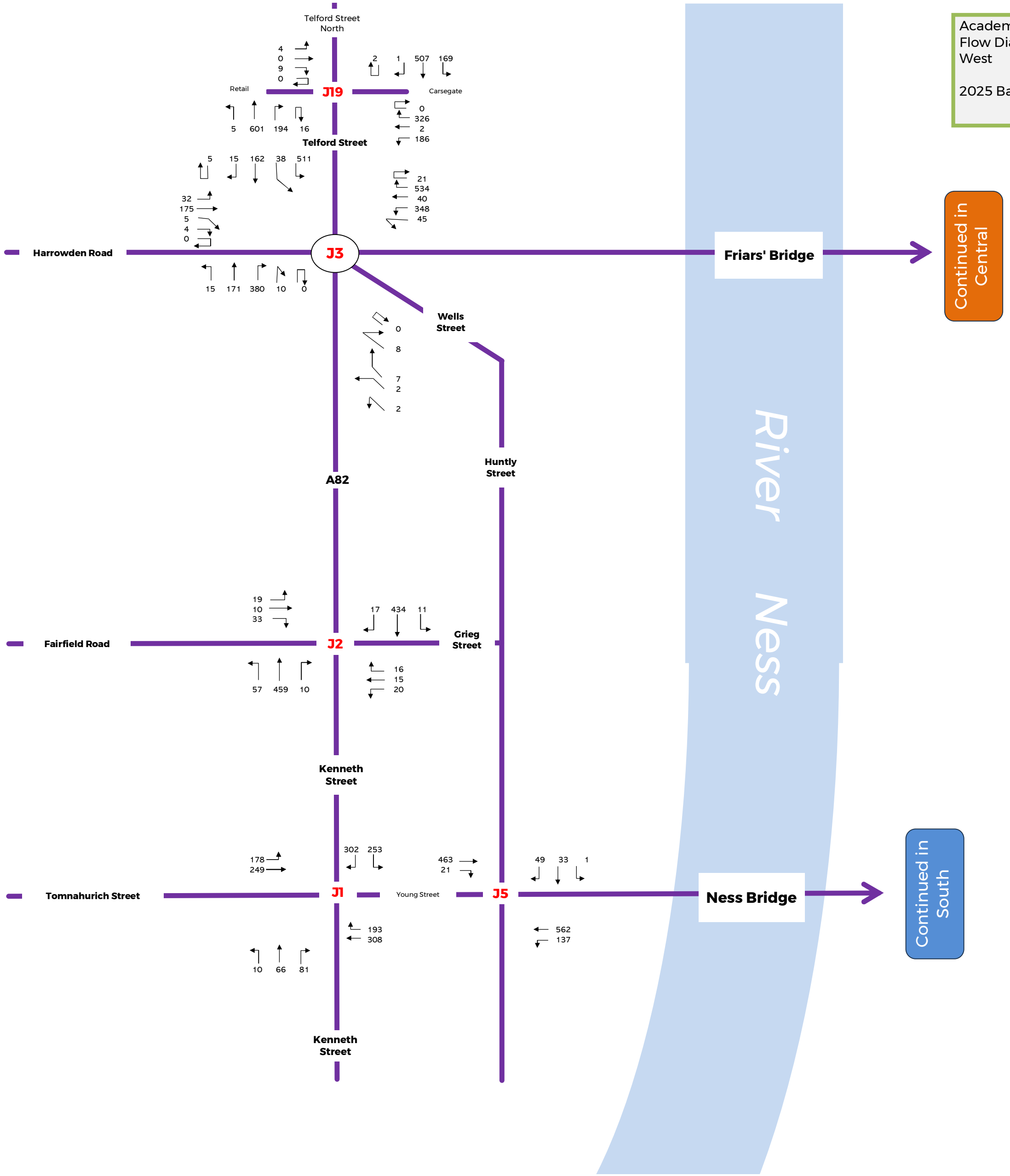
Academy Street Traffic Impact Assessment
Flow Diagram
South

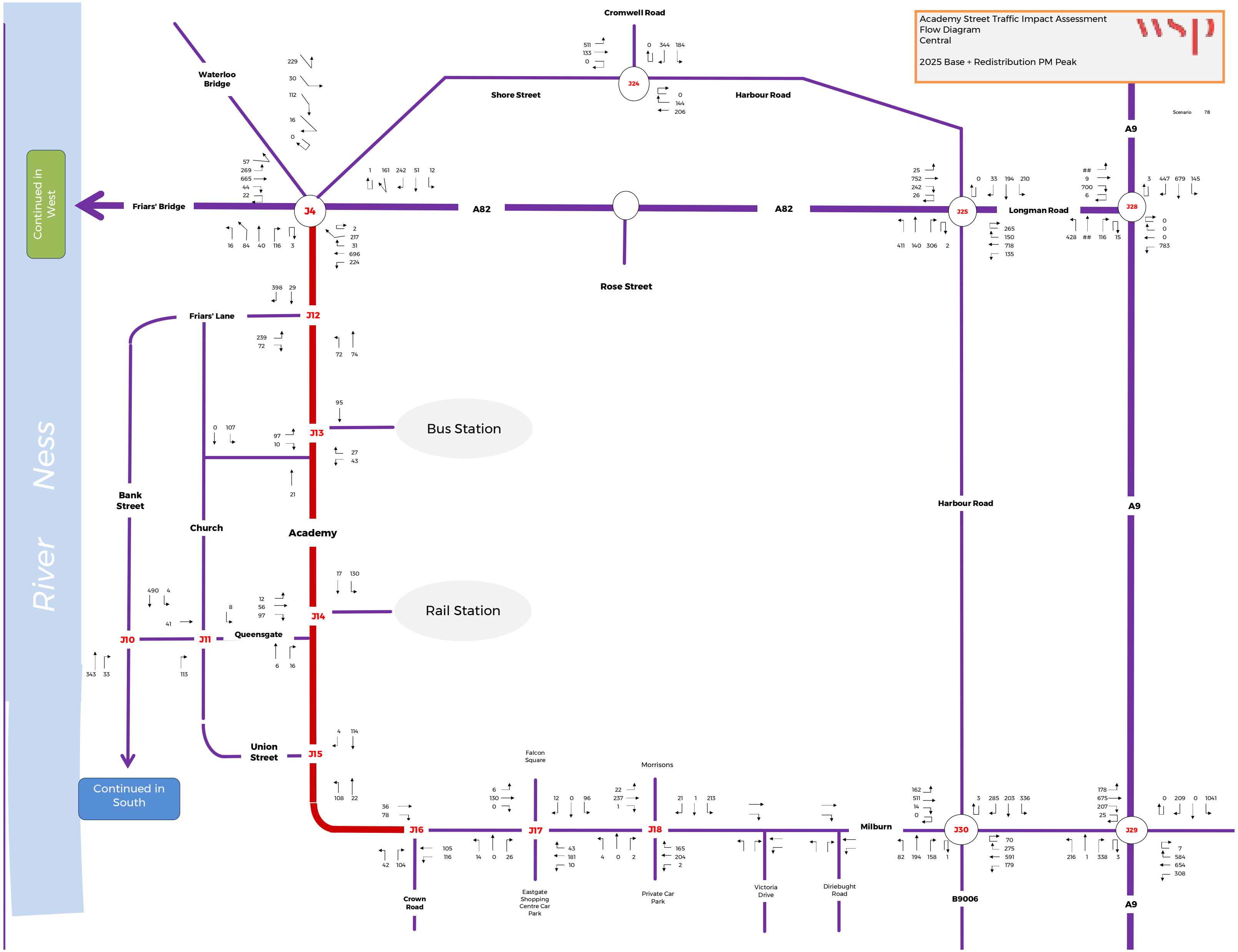
2025 Base + Redistribution AM Peak



Academy Street Traffic Impact Assessment
Flow Diagram
West

2025 Base + Redistribution PM Peak

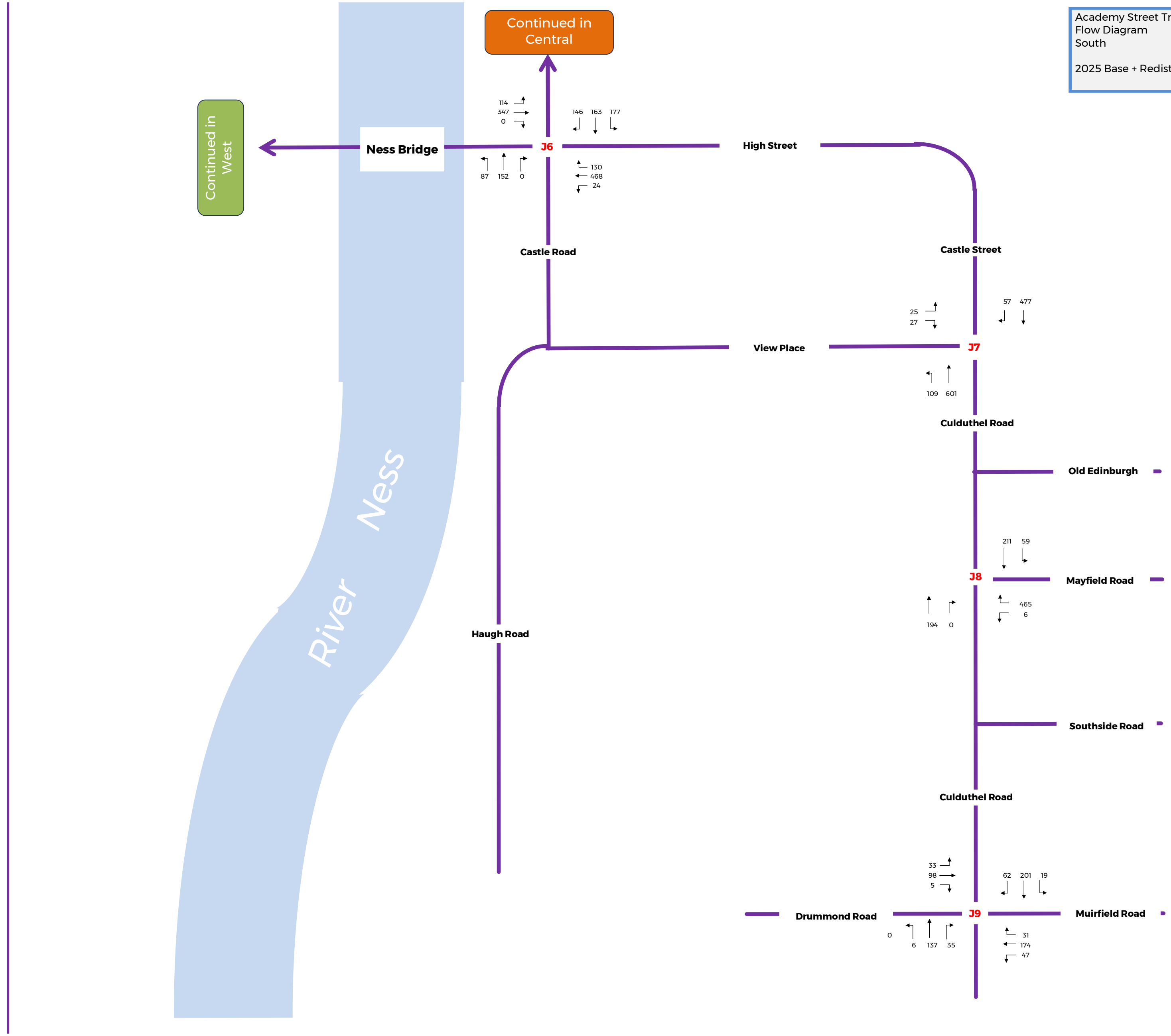




Academy Street Traffic Impact Assessment
Flow Diagram
Central
2025 Base + Redistribution PM Peak
Scenario 78
Continued in West
Continued in South
River Ness
Friars' Bridge
Waterloo Bridge
Shore Street
Cromwell Road
Harbour Road
A82
Rose Street
A9
Longman Road
Friars' Lane
Bus Station
Rail Station
Bank Street
Church
Academy
Queensgate
Union Street
Crown Road
Falcon Square
Eastgate Shopping Centre Car Park
Morrisons
Private Car Park
Victoria Drive
Diriebught Road
Milburn
B9006
J4
J10
J11
J12
J13
J14
J15
J16
J17
J18
J24
J25
J28
J29
J30

Academy Street Traffic Impact Assessment
Flow Diagram
South

2025 Base + Redistribution PM Peak



Appendix C

GRAVITY MODEL

Academy Street Gravity Model

Data zone code	Intermediate Zone	Data Zone	2022 Population	Distance from Academy Street (m)	Population / Distance	Attractiveness (including Destination zone)	Attractiveness(excluding Destination zone)
S01010616	Inverness Drakies	Inverness Drakies - 01	466	2048	0.22750274	1.14%	1.61%
S01010617	Inverness Drakies	Inverness Drakies - 02	498	2173	0.229170946	1.15%	1.62%
S01010618	Inverness Drakies	Inverness Drakies - 03	421	2439	0.172589395	0.86%	1.22%
S01010619	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 01	396	1407	0.281383717	1.41%	1.99%
S01010620	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 02	502	86	5.811592572	29.09%	N/A
S01010621	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 03	598	946	0.632197849	3.16%	4.46%
S01010622	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 04	383	1864	0.205419819	1.03%	1.45%
S01010623	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 05	400	1442	0.277298099	1.39%	1.96%
S01010624	Inverness Central, Raigmore and Longman	Inverness Central, Raigmore and Longman - 06	402	2024	0.198620017	0.99%	1.40%
S01010625	Inverness Crown and Haugh	Inverness Crown and Haugh - 01	410	1277	0.320960779	1.61%	2.27%
S01010626	Inverness Crown and Haugh	Inverness Crown and Haugh - 02	490	1244	0.393778766	1.97%	2.78%
S01010627	Inverness Crown and Haugh	Inverness Crown and Haugh - 03	446	1002	0.445283894	2.23%	3.14%
S01010628	Inverness Crown and Haugh	Inverness Crown and Haugh - 04	637	629	1.012619285	5.07%	7.15%
S01010629	Inverness Crown and Haugh	Inverness Crown and Haugh - 05	567	871	0.650656535	3.26%	4.59%
S01010630	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 01	348	1376	0.252990863	1.27%	1.79%
S01010631	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 02	342	1860	0.183826071	0.92%	1.30%
S01010632	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 03	590	1232	0.47888856	2.40%	3.38%
S01010633	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 04	625	1586	0.393994637	1.97%	2.78%
S01010634	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 05	394	1374	0.286745742	1.44%	2.02%
S01010635	Inverness Ballifeary and Dalneigh	Inverness Ballifeary and Dalneigh - 06	481	1192	0.403386247	2.02%	2.85%
S01010636	Inverness Muirtown	Inverness Muirtown - 01	527	818	0.644459692	3.23%	4.55%
S01010637	Inverness Muirtown	Inverness Muirtown - 02	349	523	0.667002587	3.34%	4.71%
S01010638	Inverness Muirtown	Inverness Muirtown - 03	465	1114	0.417587454	2.09%	2.95%
S01010639	Inverness Muirtown	Inverness Muirtown - 04	735	835	0.880441281	4.41%	6.22%
S01010640	Inverness Muirtown	Inverness Muirtown - 05	471	593	0.794673205	3.98%	5.61%
S01010641	Inverness Merkinch	Inverness Merkinch - 01	684	877	0.77988737	3.90%	5.51%
S01010642	Inverness Merkinch	Inverness Merkinch - 02	664	1471	0.451259787	2.26%	3.19%
S01010643	Inverness Merkinch	Inverness Merkinch - 03	434	1795	0.241821452	1.21%	1.71%
S01010644	Inverness Merkinch	Inverness Merkinch - 04	384	1357	0.283027622	1.42%	2.00%
S01010645	Inverness Scorguie	Inverness Scorguie - 01	362	2255	0.160517527	0.80%	1.13%
S01010646	Inverness Scorguie	Inverness Scorguie - 02	376	2127	0.176753882	0.88%	1.25%
S01010647	Inverness Scorguie	Inverness Scorguie - 03	335	1903	0.176022061	0.88%	1.24%
S01010648	Inverness Scorguie	Inverness Scorguie - 04	365	1583	0.230533436	1.15%	1.63%
S01010649	Inverness Scorguie	Inverness Scorguie - 05	310	1839	0.168601668	0.84%	1.19%
S01010650	Inverness Kinmylies and South West	Inverness Kinmylies and South West - 01	939	5018	0.187133004	0.94%	1.32%
S01010651	Inverness Kinmylies and South West	Inverness Kinmylies and South West - 02	403	2362	0.170584626	0.85%	1.20%
S01010652	Inverness Kinmylies and South West	Inverness Kinmylies and South West - 03	522	2445	0.213514051	1.07%	1.51%
S01010653	Inverness Kinmylies and South West	Inverness Kinmylies and South West - 04	346	1979	0.174838708	0.88%	1.23%
S01010654	Inverness Kinmylies and South West	Inverness Kinmylies and South West - 05	453	1964	0.23068313	1.15%	1.63%
S01010658	Inverness West Rural	Inverness West Rural - 04	477	6889	0.069241447	0.35%	0.49%
		Total (including destination zone)	**18997**	**67822**	**20**	**100.0%**	**100.0%**
		Total (exluding destination zone)	**18495**	**67736**	**14**		

Appendix D

LOCAL JUNCTION MODEL FILES

TRANSYT 16

Version: 16.1.0.1929

For sales and distribution information, program advice and maintenance, contact TRL Software:
+44 (0)1344 379777 software@trl.co.uk trlsoftware.com

Filename: Tomnahurich St Junctions.t16
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\TRANSYT
Report generation date: 19/04/2024 11:16:47

»A1 - (untitled) : D1 - 2025 Base, AM :
»A1 - (untitled) : D2 - 2025 Base + Redistribution, AM :
»A1 - (untitled) : D3 - 2025 Base, PM :
»A1 - (untitled) : D4 - 2025 Base + Redistribution, PM :

Summary of network performance

	AM					PM				
	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated
	(untitled) - 2025 Base									
Network	D1	453.06	29.86	70% (TS 11/2)	0 (0%)	D3	531.58	35.06	86% (TS 9/1)	0 (0%)
	(untitled) - 2025 Base + Redistribution									
Network	D2	494.38	32.55	80% (TS 8/2)	0 (0%)	D4	599.38	39.60	89% (TS 9/1)	0 (0%)

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Network Diagrams

(untitled)

Diagram produced using TRANSYT [illegible]

A1 - (untitled)
D1 - 2025 Base, AM

Signal Timings

Network Default: 120s cycle time; 120 steps

Intergreen Matrix for Controller Stream 1

	To											
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**
From	**A**			6	6				9		9	
	B			6	6		6	6	9		9	
	C	6	6		6		6		9		9	9
	D	6	6	5		6	6	5	9	5	9	9
	E				5		6				9	9
	F		6	6	6	6			9			9
	G		6		6				9			9
	H	0	0	0	0		0	0				
	I				15							

	J	0	0	0	0	0						
	K			0	0	0	0	0				

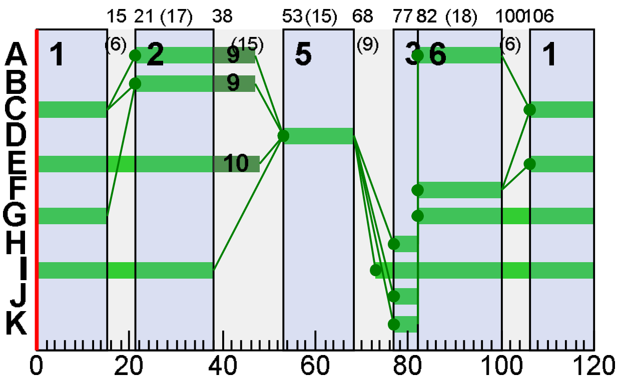
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	C,E,G,I	106	15	29	1	7
	2	✓	2	A,B,E,I	21	38	17	1	1
	3	✓	5	D	53	68	15	1	7
	4	✓	3	H,I,J,K	77	82	5	1	5
	5	✓	6	A,F,G,I	82	100	18	1	7

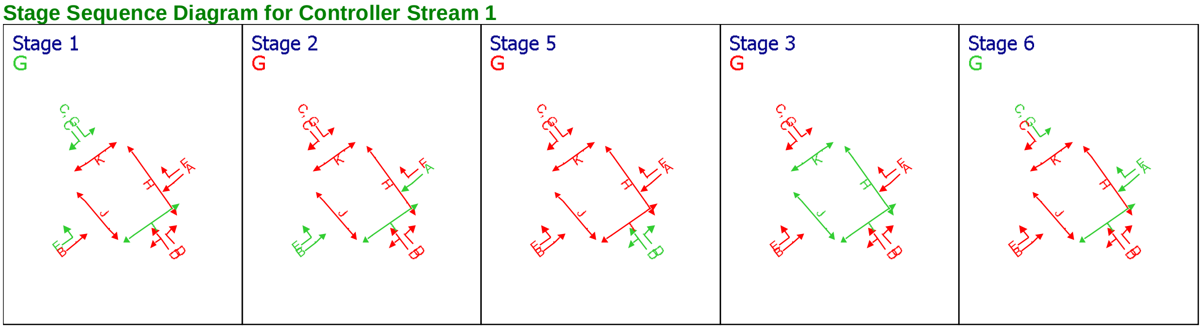
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1	1	1	A	21	47	26	82	100	18
1	2	1	1	F	82	100	18			
2	1	1	1	D	53	68	15			
2	2	1	1	D	53	68	15			
3	1	1	1	E	106	48	62			
3	2	1	1	B	21	47	26			
4	1	1	1	C	106	15	29			
4	2	1	1	C	106	15	29			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To			
		A	B	C	D
From	A			5	7
	B				
	C	5			

	D	14			

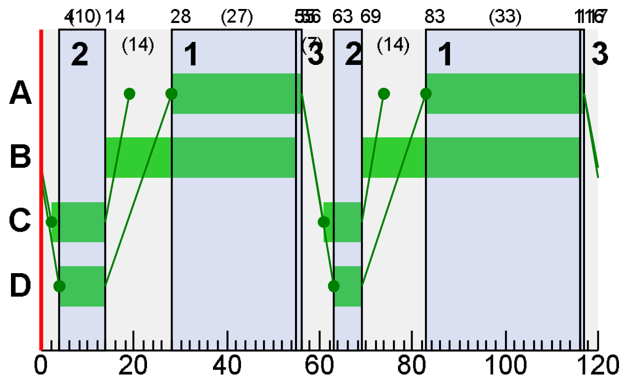
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B	83	116	33	1	1
	2	✓	3	A	116	117	1	1	1
	3	✓	2	C,D	4	14	10	1	5
	4	✓	1	A,B	28	55	27	1	1
	5	✓	3	A	55	56	1	1	1
	6	✓	2	C,D	63	69	6	1	5

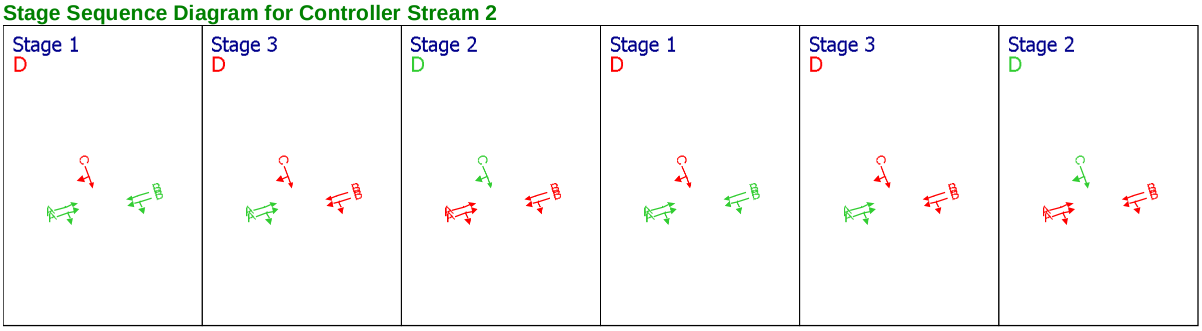
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
5	1	2	2	A	28	56	28	83	117	34
5	2	2	2	A	28	56	28	83	117	34
6	1	2	2	C	2	14	12	61	69	8
7	1	2	2	B	14	55	41	69	116	47
7	2	2	2	B	14	55	41	69	116	47

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Intergreen Matrix for Controller Stream 3

	To										
		A	B	C	D	E	F	G	H	I	J
From	A				6	7	7	8			7
	B					8	8	7	10		5
	C				6		7			10	
	D	7		6		8	8	7	10	10	5
	E	7	7		7				9	5	9

	F	6	7	6	7			7	10	10	
	G	7	7		7		7		10	10	
	H		10		10	10	8	10			
	I			10	10	10	8	10			
	J	5	10		10	10					

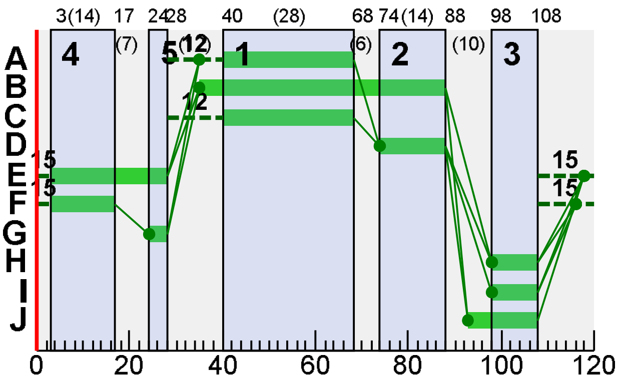
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
3	**1**	✓	1	A,B,C	40	68	28	1	7
	2	✓	2	B,D	74	88	14	1	7
	3	✓	3	H,I,J	98	108	10	1	10
	4	✓	4	E,F	3	17	14	1	7
	5	✓	5	E,G	24	28	4	1	4

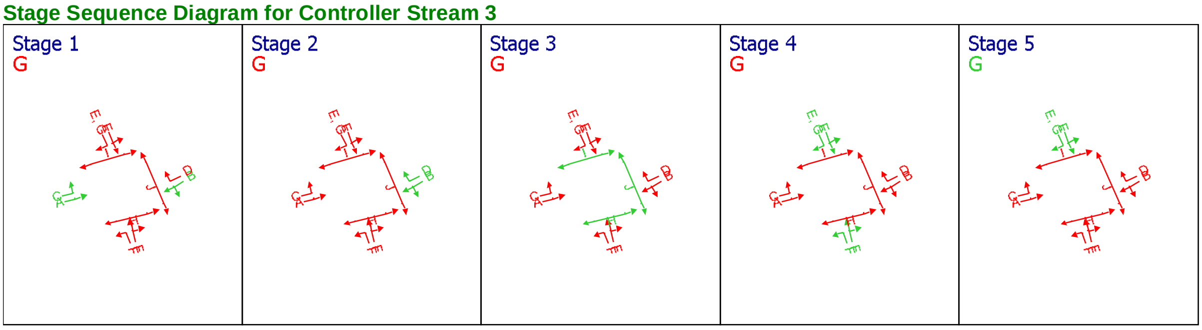
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
8	**1**	3	3	C	40	68	28			
8	**2**	3	3	A	40	68	28			
9	**1**	3	3	E	3	28	25			
9	**2**	3	3	E	3	28	25			
10	**1**	3	3	B	35	88	53			
10	**2**	3	3	D	74	88	14			
11	**1**	3	3	F	3	17	14			
11	**2**	3	3	F	3	17	14			

Phase Timings Diagram for Controller Stream 3



Stage Sequence Diagram for Controller Stream 3



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
1	1		1	1	A		203	1915	44	13.00	28	226	21.29	7.87	41.38	2.14	100	100	0.00	7.35
	2		1	1	F		114	1888	18	1.00	38	135	49.00	35.48	83.27	3.14	100	100	0.00	17.22
2	1		1	1	D		27	1877	15	14.00	11	734	51.80	46.66	87.24	0.79	100	100	0.00	5.27
	2		1	1	D		58	1757	15	12.00	25	264	54.45	49.16	90.27	1.76	100	100	0.00	11.90
3	1		1	1	E		243	1739	62	0.00	27	238	21.45	16.46	54.31	4.50	100	100	0.00	17.43
	2		1	1	B		268	2035	26	0.00	59	54	52.53	47.53	69.42	6.21	100	100	0.00	52.58
4	1		1	1	C	G	186	1649	53	0.00	25	259	25.59	21.28	61.20	3.87	100	100	0.00	17.04
	2		1	1	C		308 <	1921	29	0.00	64	40	51.12	46.81	93.19	9.72 +	100	100	0.00	60.46
5	1		2	2	A		210	1915	62	20.18	21	337	17.72	3.93	25.06	1.48	100	100	0.00	3.92
	2		2	2	A		227	2028	62	20.12	21	328	17.60	3.92	25.04	1.48	100	100	0.00	4.22
6	1		2	2	C		57	1937	20	18.00	16	461	27.33	21.73	82.97	0.85	100	100	0.00	5.48
7	1		2	2	B		350	1737	88	23.00	27	235	7.97	2.37	19.02	4.41	100	100	0.00	4.10
	2		2	2	B		189	2055	88	34.25	12	631	7.39	1.79	16.12	1.46	100	100	0.00	1.72
8	1		3	3	C		110	1662	28	8.00	27	228	30.01	24.22	52.58	1.93	100	100	0.00	11.26
	2		3	3	A		310	2055	28	2.00	62	44	35.69	29.90	57.80	5.88	100	100	0.00	38.76
9	1		3	3	E		192 <	1753	25	0.00	51	78	50.17	46.16	90.40	5.86 +	100	100	0.00	37.13
	2		3	3	E	G	144	1865	25	0.00	36	153	46.37	42.36	85.22	4.14	100	100	0.00	25.60
10	1		3	3	B		326	1888	53	0.00	38	135	27.12	23.37	41.10	4.47	100	100	0.00	31.73
	2		3	3	D		131	1888	14	0.00	56	62	62.48	58.73	99.99	4.42	100	100	0.00	31.99
11	1		3	3	F		80	1662	14	0.00	39	134	57.80	53.66	95.09	2.56	100	100	0.00	17.89

	2		3	3	F		177 <	2035	14	0.00	70	29	70.05	65.91	106.61	6.37 +	100	100	0.00	48.38
12	**1**						513	Unrestricted	120	34.00	0	Unrestricted	9.02	0.00	0.00	0.00	100	100	0.00	0.00
13	**1**						382	Unrestricted	120	23.00	0	Unrestricted	8.55	0.00	0.00	0.00	100	100	0.00	0.00
14	**1**						256	2055	120	35.00	12	622	6.89	0.12	0.00	0.01	100	100	0.00	0.13
	2						256	2055	120	35.00	12	622	6.88	0.12	0.00	0.01	100	100	0.00	0.13
15	**1**		2				201	2055	120	60.00	10	819	5.89	0.10	0.00	0.01	100	100	0.00	0.08
	2		2				201	2055	120	60.00	10	819	5.76	0.10	0.00	0.01	100	100	0.00	0.08
16	**1**		2				210	Unrestricted	120	33.00	0	Unrestricted	6.52	0.00	0.00	0.00	100	100	0.00	0.00
17	**1**		2				210	1915	120	76.00	11	721	4.76	0.12	0.00	0.01	100	100	0.00	0.10
	2		2				210	2055	120	76.62	10	769	4.84	0.20	7.07	1.46	100	100	0.00	0.36
18	**1**		3				271	2055	120	42.57	13	568	5.86	0.42	5.89	2.91	100	100	0.00	0.65
	2		3				271	2055	120	40.00	13	582	5.59	0.13	0.00	0.01	100	100	0.00	0.14
19	**1**		3				418	Unrestricted	120	53.00	0	Unrestricted	7.00	0.00	0.00	0.00	100	100	0.00	0.00
20	**1**		3				424	Unrestricted	120	61.00	0	Unrestricted	6.79	0.00	0.00	0.00	100	100	0.00	0.00
21	**1**		3				86	Unrestricted	120	94.00	0	Unrestricted	6.15	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	429.73	44.18	9.73	29.86	423.95	29.11	0.00	453.06
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	429.73	44.18	9.73	29.86	423.95	29.11	0.00	453.06

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D2 - 2025 Base + Redistribution, AM

Signal Timings

Network Default: 120s cycle time; 120 steps

Intergreen Matrix for Controller Stream 1

		To										
		A	B	C	D	E	F	G	H	I	J	K
From	A			6	6				9		9	
	B			6	6		6	6	9		9	
	C	6	6		6		6		9		9	9
	D	6	6	5		6	6	5	9	5	9	9
	E				5		6				9	9
	F		6	6	6	6			9			9
	G		6		6				9			9
	H	0	0	0	0		0	0				
	I				15							
	J	0	0	0	0	0						
	K			0	0	0	0	0				

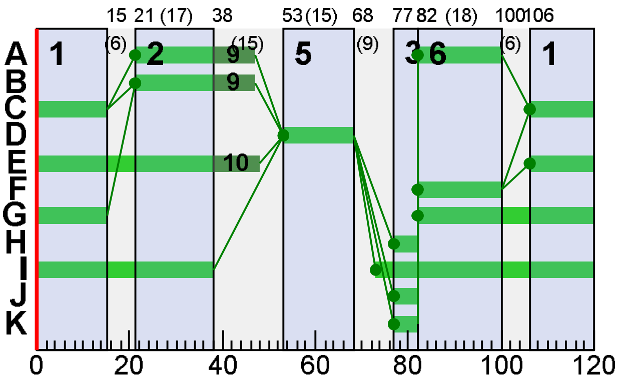
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	C,E,G,I	106	15	29	1	7
	2	✓	2	A,B,E,I	21	38	17	1	1
	3	✓	5	D	53	68	15	1	7
	4	✓	3	H,I,J,K	77	82	5	1	5
	5	✓	6	A,F,G,I	82	100	18	1	7

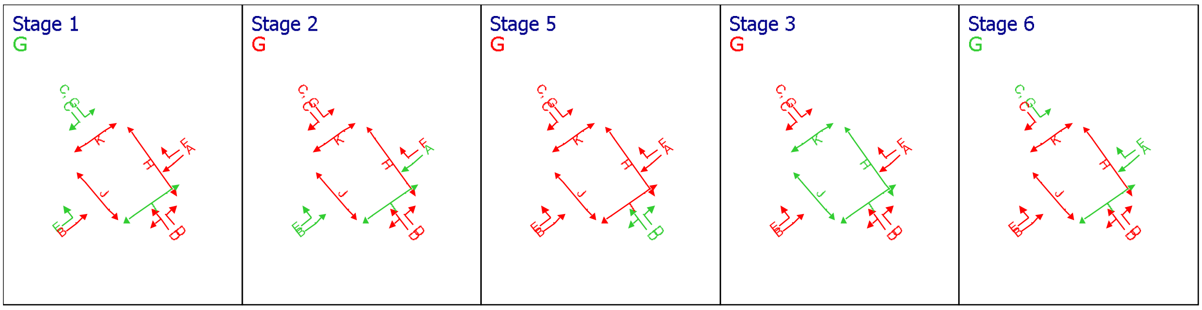
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1	1	1	A	21	47	26	82	100	18
1	2	1	1	F	82	100	18			
2	1	1	1	D	53	68	15			
2	2	1	1	D	53	68	15			
3	1	1	1	E	106	48	62			
3	2	1	1	B	21	47	26			
4	1	1	1	C	106	15	29			
4	2	1	1	C	106	15	29			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To			
		A	B	C	D
From	A			5	7
	B				
	C	5			
	D	14			

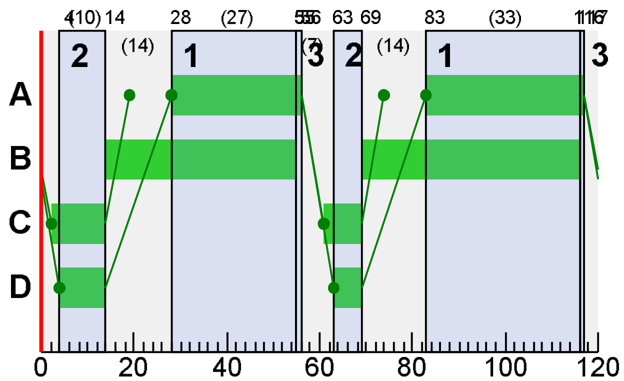
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B	83	116	33	1	1
	2	✓	3	A	116	117	1	1	1
	3	✓	2	C,D	4	14	10	1	5
	4	✓	1	A,B	28	55	27	1	1
	5	✓	3	A	55	56	1	1	1
	6	✓	2	C,D	63	69	6	1	5

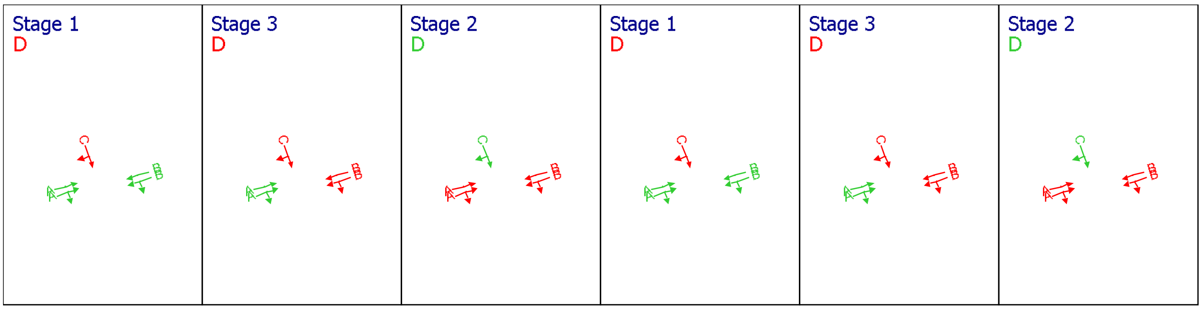
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
5	1	2	2	A	28	56	28	83	117	34
5	2	2	2	A	28	56	28	83	117	34
6	1	2	2	C	2	14	12	61	69	8
7	1	2	2	B	14	55	41	69	116	47
7	2	2	2	B	14	55	41	69	116	47

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Intergreen Matrix for Controller Stream 3

		To									
		A	B	C	D	E	F	G	H	I	J
From	A				6	7	7	8			7
	B					8	8	7	10		5
	C				6		7			10	
	D	7		6		8	8	7	10	10	5
	E	7	7		7				9	5	9
	F	6	7	6	7			7	10	10	
	G	7	7		7		7		10	10	
	H		10		10	10	8	10			
	I			10	10	10	8	10			
	J	5	10		10	10					

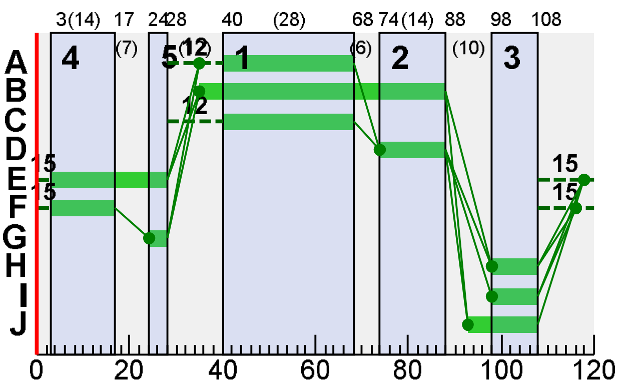
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
3	1	✓	1	A,B,C	40	68	28	1	7
	2	✓	2	B,D	74	88	14	1	7
	3	✓	3	H,I,J	98	108	10	1	10
	4	✓	4	E,F	3	17	14	1	7
	5	✓	5	E,G	24	28	4	1	4

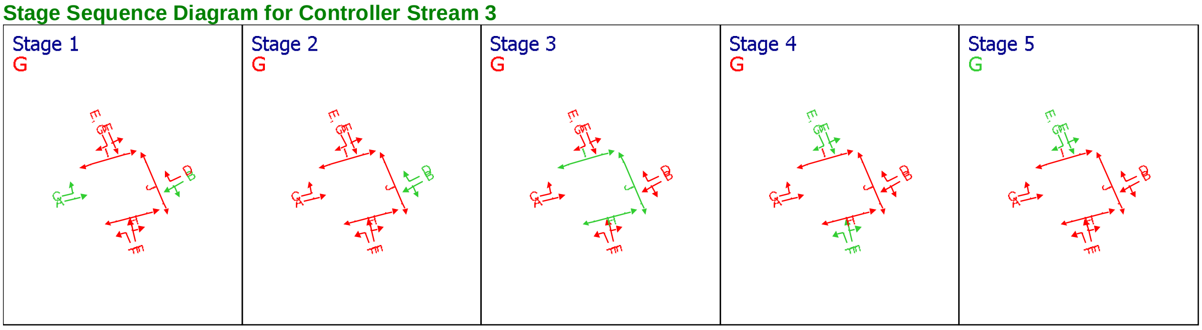
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
8	1	3	3	C	40	68	28			
8	2	3	3	A	40	68	28			
9	1	3	3	E	3	28	25			
9	2	3	3	E	3	28	25			
10	1	3	3	B	35	88	53			
10	2	3	3	D	74	88	14			
11	1	3	3	F	3	17	14			
11	2	3	3	F	3	17	14			

Phase Timings Diagram for Controller Stream 3



Stage Sequence Diagram for Controller Stream 3



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
1	1		1	1	A		207	1915	44	13.00	28	219	22.10	8.68	43.16	2.37	100	100	0.00	8.20
	2		1	1	F		139	1888	18	0.00	46	94	50.46	36.94	82.38	3.81	100	100	0.00	21.62
2	1		1	1	D		27	1877	15	14.00	11	734	51.80	46.66	87.24	0.79	100	100	0.00	5.27
	2		1	1	D		58	1757	15	12.00	25	264	54.45	49.16	90.27	1.76	100	100	0.00	11.90
3	1		1	1	E		243	1739	62	0.00	27	238	21.45	16.46	54.31	4.50	100	100	0.00	17.43
	2		1	1	B		268	2035	26	0.00	59	54	52.53	47.53	69.42	6.21	100	100	0.00	52.58
4	1		1	1	C	G	228	1649	53	0.00	31	193	26.46	22.14	63.12	4.88	100	100	0.00	21.72
	2		1	1	C		303 <	1921	29	0.00	63	43	50.71	46.40	92.47	9.45 +	100	100	0.00	58.97

5	**1**		2	2	A		231	1915	62	21.18	23	297	17.81	4.02	25.53	1.48	100	100	0.00	4.40
	2		2	2	A		248	2031	62	21.15	23	292	17.68	3.99	25.49	1.48	100	100	0.00	4.70
6	**1**		2	2	C		57	1937	20	18.00	16	461	27.33	21.73	82.97	0.85	100	100	0.00	5.48
7	**1**		2	2	B		363	1744	88	25.00	28	224	8.68	3.07	38.82	4.63	100	100	0.00	6.17
	2		2	2	B		204	2055	88	36.63	13	576	7.76	2.16	28.91	1.60	100	100	0.00	2.48
8	**1**		3	3	C		64	1662	28	10.00	16	464	28.04	22.25	43.73	1.46	100	100	0.00	5.98
	2		3	3	A		398 <	2055	28	0.00	80	12	44.06	38.27	66.44	8.77 +	100	100	0.00	63.36
9	**1**		3	3	E		212 <	1740	25	0.00	56	60	52.00	47.99	92.47	6.66 +	100	100	0.00	42.59
	2		3	3	E	G	132	1865	25	0.00	33	176	45.79	41.78	84.74	3.78	100	100	0.00	23.16
10	**1**		3	3	B		366	1888	53	0.00	43	109	28.02	24.27	36.97	4.51	100	100	0.00	36.73
	2		3	3	D		131	1888	14	0.00	56	62	62.48	58.73	99.99	4.42	100	100	0.00	31.99
11	**1**		3	3	F		80	1662	14	0.00	39	134	57.80	53.66	95.09	2.56	100	100	0.00	17.89
	2		3	3	F		180 <	2035	14	0.00	71	27	70.99	66.85	107.85	6.57 +	100	100	0.00	49.90
12	**1**						512	Unrestricted	120	36.00	0	Unrestricted	9.02	0.00	0.00	0.00	100	100	0.00	0.00
13	**1**						407	Unrestricted	120	22.00	0	Unrestricted	8.55	0.00	0.00	0.00	100	100	0.00	0.00
14	**1**						277	2055	120	35.00	13	568	6.90	0.14	0.00	0.01	100	100	0.00	0.15
	2						277	2055	120	35.00	13	568	6.90	0.14	0.00	0.01	100	100	0.00	0.15
15	**1**		2				216	2055	120	62.00	11	757	5.90	0.10	0.00	0.01	100	100	0.00	0.09
	2		2				216	2055	120	62.00	11	757	5.76	0.10	0.00	0.01	100	100	0.00	0.09
16	**1**		2				209	Unrestricted	120	38.00	0	Unrestricted	6.52	0.00	0.00	0.00	100	100	0.00	0.00
17	**1**		2				231	1915	120	77.00	12	646	4.77	0.13	0.00	0.01	100	100	0.00	0.12
	2		2				231	2055	120	78.95	12	681	4.93	0.29	9.08	1.46	100	100	0.00	0.53
18	**1**		3				285	2055	120	42.19	14	537	5.81	0.38	5.35	2.91	100	100	0.00	0.62
	2		3				285	2055	120	40.00	14	549	5.59	0.14	0.00	0.01	100	100	0.00	0.16
19	**1**		3				375	Unrestricted	120	55.00	0	Unrestricted	7.00	0.00	0.00	0.00	100	100	0.00	0.00
20	**1**		3				533	Unrestricted	120	57.00	0	Unrestricted	6.79	0.00	0.00	0.00	100	100	0.00	0.00
21	**1**		3				85	Unrestricted	120	94.00	0	Unrestricted	6.15	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent	Mean journey	Total delay	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue	Performance Index (£ per hr)

		(PCU-hr/hr)	speed (kph)	(PCU-hr/hr)			penalty (£ per hr)	
Normal traffic	455.82	47.75	9.55	32.55	462.23	32.14	0.00	494.38
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	455.82	47.75	9.55	32.55	462.23	32.14	0.00	494.38

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D3 - 2025 Base, PM

Signal Timings

Network Default: 120s cycle time; 120 steps

Intergreen Matrix for Controller Stream 1

	To											
From		**A**	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**
	A			6	6				9		9	
	B			6	6		6	6	9		9	
	C	6	6		6		6		9		9	9
	D	6	6	5		6	6	5	9	5	9	9
	E				5		6				9	9
	F		6	6	6	6			9			9
	G		6		6				9			9
	H	0	0	0	0		0	0				
	I				15							
	J	0	0	0	0	0						
	K			0	0	0	0	0				

Resultant Stages

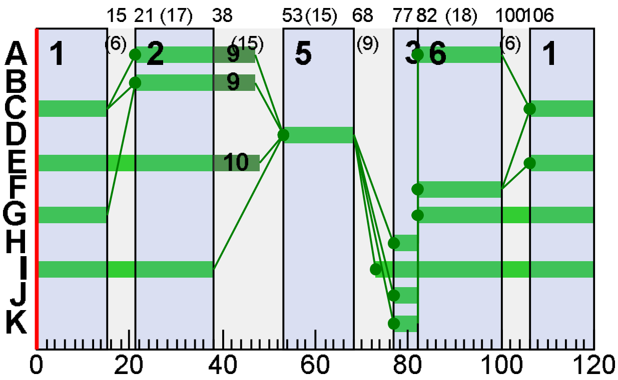
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	C,E,G,I	106	15	29	1	7
	2	✓	2	A,B,E,I	21	38	17	1	1
	3	✓	5	D	53	68	15	1	7
	4	✓	3	H,I,J,K	77	82	5	1	5
	5	✓	6	A,F,G,I	82	100	18	1	7

Traffic Stream Green Times

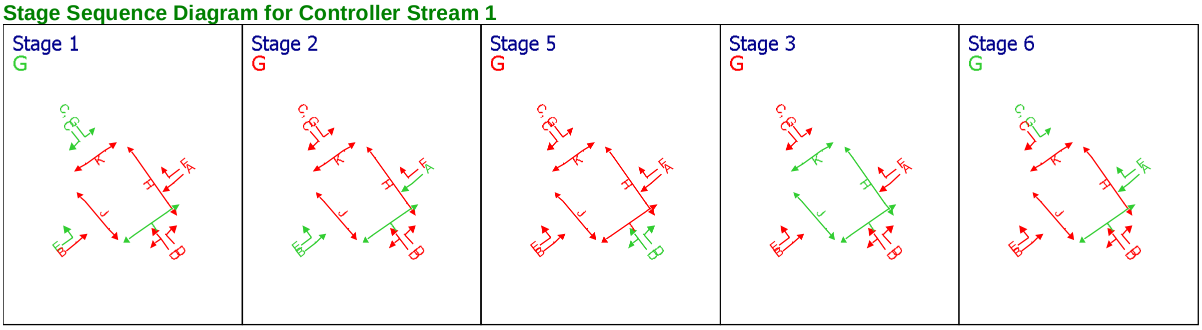
Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	**1**	1	1	A	21	47	26	82	100	18
1	**2**	1	1	F	82	100	18			
2	**1**	1	1	D	53	68	15			

2	2	1	1	D	53	68	15			
3	1	1	1	E	106	48	62			
3	2	1	1	B	21	47	26			
4	1	1	1	C	106	15	29			
4	2	1	1	C	106	15	29			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To			
		A	B	C	D
From	A			5	7
	B				
	C	5			
	D	14			

Resultant Stages

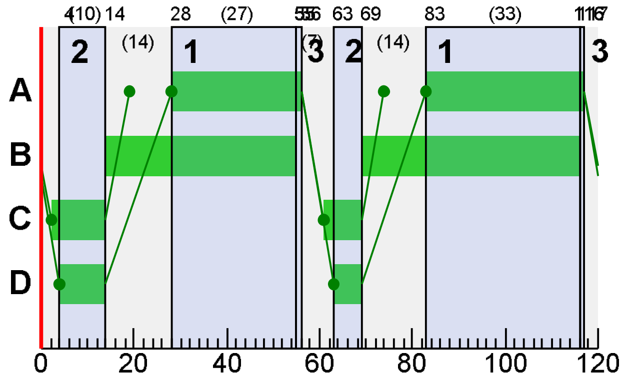
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	1	✓	1	A,B	83	116	33	1	1
	2	✓	3	A	116	117	1	1	1
	3	✓	2	C,D	4	14	10	1	5
	4	✓	1	A,B	28	55	27	1	1
	5	✓	3	A	55	56	1	1	1
	6	✓	2	C,D	63	69	6	1	5

Traffic Stream Green Times

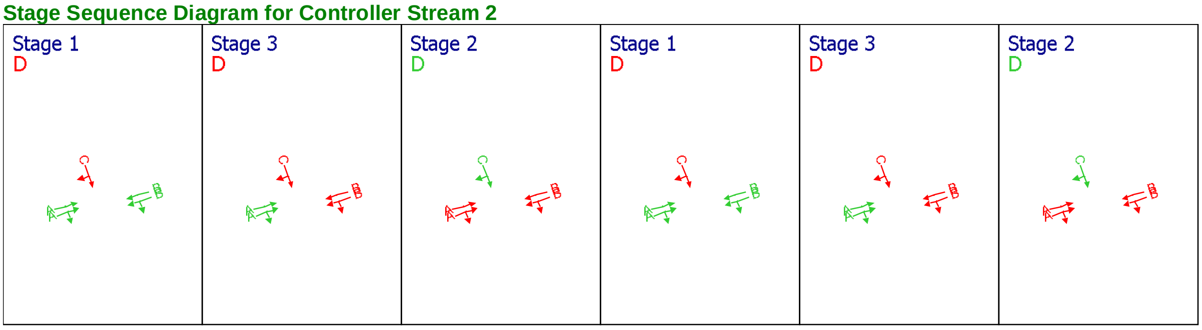
Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
5	1	2	2	A	28	56	28	83	117	34
5	2	2	2	A	28	56	28	83	117	34

6	1	2	2	C	2	14	12	61	69	8
7	1	2	2	B	14	55	41	69	116	47
7	2	2	2	B	14	55	41	69	116	47

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Intergreen Matrix for Controller Stream 3

		To									
		A	B	C	D	E	F	G	H	I	J
From	A				6	7	7	8			7
	B					8	8	7	10		5
	C				6		7			10	
	D	7		6		8	8	7	10	10	5
	E	7	7		7				9	5	9
	F	6	7	6	7			7	10	10	
	G	7	7		7		7		10	10	
	H		10		10	10	8	10			
	I			10	10	10	8	10			
	J	5	10		10	10					

Resultant Stages

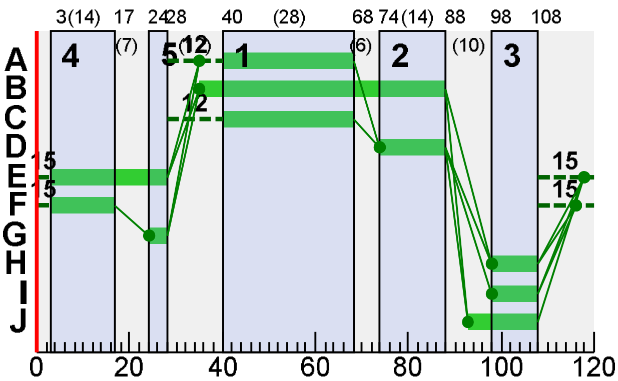
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
3	1	✓	1	A,B,C	40	68	28	1	7
	2	✓	2	B,D	74	88	14	1	7
	3	✓	3	H,I,J	98	108	10	1	10
	4	✓	4	E,F	3	17	14	1	7
	5	✓	5	E,G	24	28	4	1	4

Traffic Stream Green Times

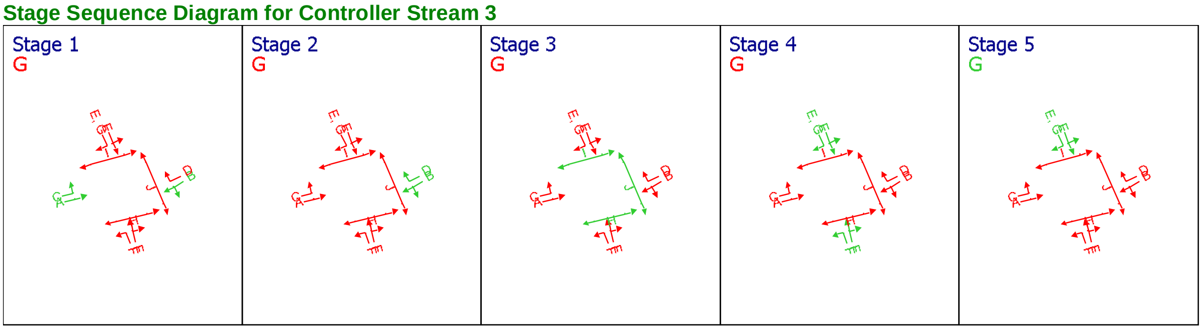
Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration

8	**1**	3	3	C	40	68	28			
8	**2**	3	3	A	40	68	28			
9	**1**	3	3	E	3	28	25			
9	**2**	3	3	E	3	28	25			
10	**1**	3	3	B	35	88	53			
10	**2**	3	3	D	74	88	14			
11	**1**	3	3	F	3	17	14			
11	**2**	3	3	F	3	17	14			

Phase Timings Diagram for Controller Stream 3



Stage Sequence Diagram for Controller Stream 3



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Second phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
1	**1**		1	1	A		277	1915	44	10.00	38	139	21.30	7.87	37.78	2.66	100	100	0.00	9.90
	2		1	1	F		132	1888	18	0.00	44	104	50.53	37.01	81.45	3.58	100	100	0.00	20.59
2	**1**		1	1	D		76	1863	15	0.00	31	194	55.33	50.19	91.65	2.35	100	100	0.00	15.92

	2		1	1	D		82	1757	15	0.00	35	157	56.69	51.39	92.99	2.58	100	100	0.00	17.58
3	**1**		1	1	E		178	1739	62	0.00	19	362	20.56	15.57	51.83	3.14	100	100	0.00	12.09
	2		1	1	B		250	2035	26	0.00	55	65	51.24	46.25	73.43	6.12	100	100	0.00	47.91
4	**1**		1	1	C	G	234	1649	53	0.00	32	185	26.58	22.27	63.23	5.01	100	100	0.00	22.41
	2		1	1	C		302 <	1921	29	0.00	63	43	50.63	46.32	92.41	9.42 +	100	100	0.00	58.67
5	**1**		2	2	A		223	1915	62	21.18	22	311	18.00	4.21	28.97	1.48	100	100	0.00	4.51
	2		2	2	A		244	2025	62	21.08	23	298	17.89	4.20	29.93	1.55	100	100	0.00	4.96
6	**1**		2	2	C		83	1879	20	0.00	24	274	28.30	22.70	85.59	1.28	100	100	0.00	8.32
7	**1**		2	2	B		371	1769	88	23.00	28	222	8.25	2.64	20.96	5.85	100	100	0.00	4.84
	2		2	2	B		235	2055	88	23.38	15	489	7.70	2.10	19.46	1.54	100	100	0.00	2.51
8	**1**		3	3	C		147	1662	28	6.00	36	147	34.35	28.56	61.98	3.07	100	100	0.00	17.64
	2		3	3	A		297	2055	28	2.00	60	50	38.46	32.68	66.04	6.39	100	100	0.00	40.75
9	**1**		3	3	E		328 <	1770	25	0.00	86	5	74.14	70.13	114.27	12.75 +	100	100	0.00	95.43
	2		3	3	E	G	176	1865	25	0.00	44	107	48.09	44.08	87.67	5.20	100	100	0.00	32.54
10	**1**		3	3	B		368	1870	53	0.00	44	106	28.13	24.37	36.82	4.52	100	100	0.00	37.08
	2		3	3	D		98	1888	14	0.00	42	117	57.59	53.84	95.11	3.14	100	100	0.00	21.98
11	**1**		3	3	F		88	1662	14	0.00	42	112	58.96	54.82	95.87	2.84	100	100	0.00	20.09
	2		3	3	F		141	2035	14	0.00	55	62	62.16	58.03	99.44	4.73	100	100	0.00	34.03
12	**1**						589	Unrestricted	120	24.00	0	Unrestricted	9.02	0.00	0.00	0.00	100	100	0.00	0.00
13	**1**						376	Unrestricted	120	17.00	0	Unrestricted	8.55	0.00	0.00	0.00	100	100	0.00	0.00
14	**1**						283	2055	120	33.00	14	554	6.91	0.14	0.00	0.01	100	100	0.00	0.16
	2						283	2055	120	33.00	14	554	6.90	0.14	0.00	0.01	100	100	0.00	0.16
15	**1**		2				260	2055	120	47.00	13	612	5.92	0.13	0.00	0.01	100	100	0.00	0.13
	2		2				260	2055	120	47.00	13	612	5.79	0.13	0.00	0.01	100	100	0.00	0.13
16	**1**		2				191	Unrestricted	120	31.00	0	Unrestricted	6.52	0.00	0.00	0.00	100	100	0.00	0.00
17	**1**		2				223	1915	120	77.00	12	674	4.77	0.12	0.00	0.01	100	100	0.00	0.11
	2		2				223	2055	120	77.72	11	718	4.86	0.22	5.23	1.46	100	100	0.00	0.34

18	**1**		3				304	2055	120	42.55	15	495	5.81	0.38	4.65	1.66	100	100	0.00	0.63
	2		3				304	2055	120	40.00	15	508	5.61	0.15	0.00	0.01	100	100	0.00	0.18
19	**1**		3				386	Unrestricted	120	56.00	0	Unrestricted	7.00	0.00	0.00	0.00	100	100	0.00	0.00
20	**1**		3				468	Unrestricted	120	59.00	0	Unrestricted	6.79	0.00	0.00	0.00	100	100	0.00	0.00
21	**1**		3				181	Unrestricted	120	74.00	0	Unrestricted	6.15	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	477.24	50.97	9.36	35.06	497.88	33.70	0.00	531.58
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	477.24	50.97	9.36	35.06	497.88	33.70	0.00	531.58

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D4 - 2025 Base + Redistribution, PM

Signal Timings

Network Default: 120s cycle time; 120 steps

Intergreen Matrix for Controller Stream 1

		To										
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**	**K**
From	**A**			6	6				9		9	
	B			6	6		6	6	9		9	
	C	6	6		6		6		9		9	9
	D	6	6	5		6	6	5	9	5	9	9
	E				5		6				9	9
	F		6	6	6	6			9			9
	G		6		6				9			9
	H	0	0	0	0		0	0				
	I				15							
	J	0	0	0	0	0						
	K			0	0	0	0	0				

Resultant Stages

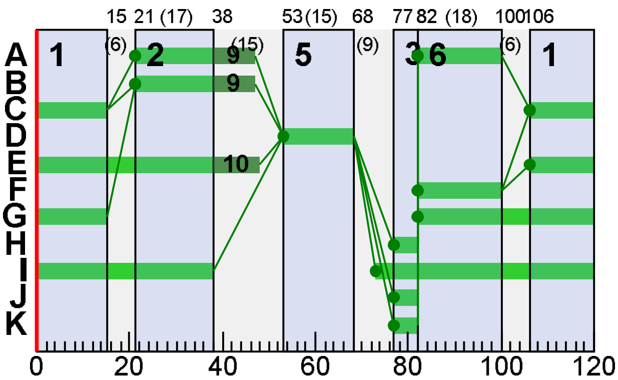
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	C,E,G,I	106	15	29	1	7

	2	✓	2	A,B,E,I	21	38	17	1	1
	3	✓	5	D	53	68	15	1	7
	4	✓	3	H,I,J,K	77	82	5	1	5
	5	✓	6	A,F,G,I	82	100	18	1	7

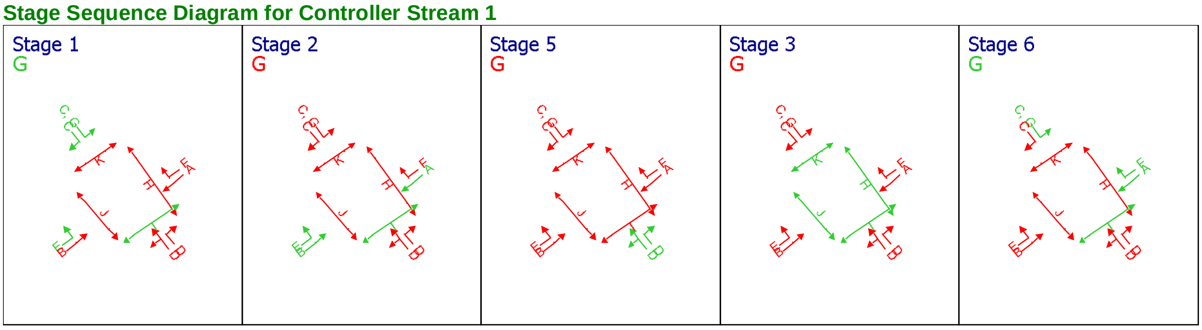
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	**1**	1	1	A	21	47	26	82	100	18
1	**2**	1	1	F	82	100	18			
2	**1**	1	1	D	53	68	15			
2	**2**	1	1	D	53	68	15			
3	**1**	1	1	E	106	48	62			
3	**2**	1	1	B	21	47	26			
4	**1**	1	1	C	106	15	29			
4	**2**	1	1	C	106	15	29			

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Intergreen Matrix for Controller Stream 2

		To			
		A	**B**	**C**	**D**
From	**A**			5	7
	B				
	C	5			
	D	14			

Resultant Stages

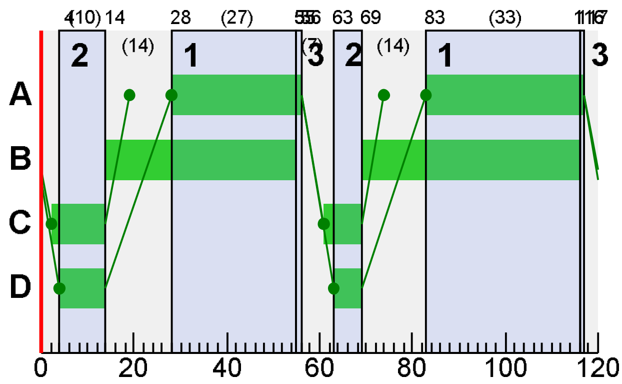
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
2	**1**	✓	1	A,B	83	116	33	1	1

	2	✓	3	A	116	117	1	1	1
	3	✓	2	C,D	4	14	10	1	5
	4	✓	1	A,B	28	55	27	1	1
	5	✓	3	A	55	56	1	1	1
	6	✓	2	C,D	63	69	6	1	5

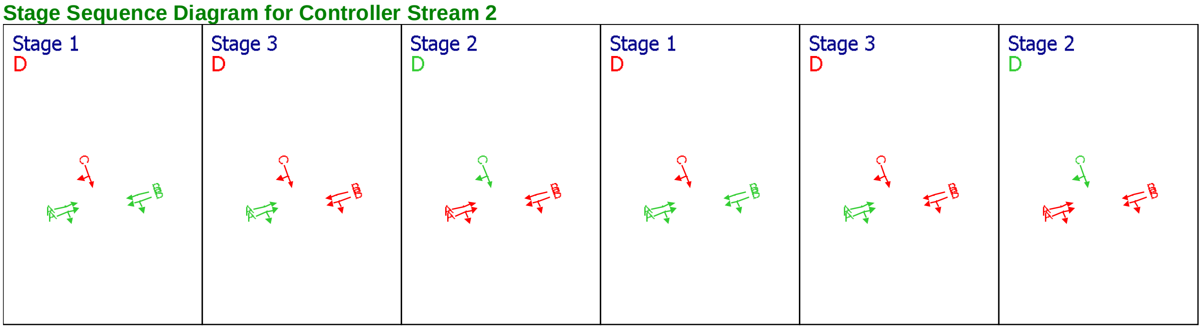
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
5	**1**	2	2	A	28	56	28	83	117	34
5	**2**	2	2	A	28	56	28	83	117	34
6	**1**	2	2	C	2	14	12	61	69	8
7	**1**	2	2	B	14	55	41	69	116	47
7	**2**	2	2	B	14	55	41	69	116	47

Phase Timings Diagram for Controller Stream 2



Stage Sequence Diagram for Controller Stream 2



Intergreen Matrix for Controller Stream 3

		To									
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
From	**A**				6	7	7	8			7
	B					8	8	7	10		5
	C				6		7			10	
	D	7		6		8	8	7	10	10	5
	E	7	7		7				9	5	9
	F	6	7	6	7			7	10	10	
	G	7	7		7		7		10	10	
	H		10		10	10	8	10			
	I			10	10	10	8	10			
	J	5	10		10	10					

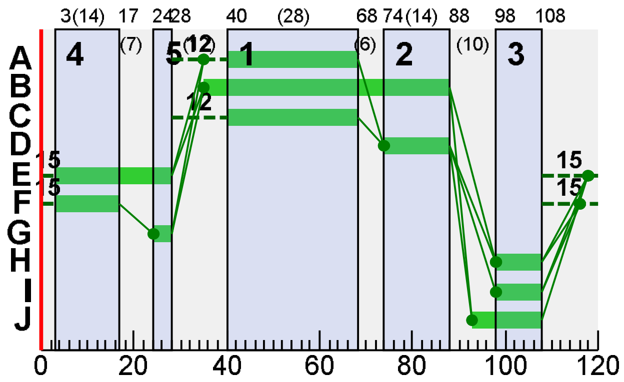
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
3	1	✓	1	A,B,C	40	68	28	1	7
	2	✓	2	B,D	74	88	14	1	7
	3	✓	3	H,I,J	98	108	10	1	10
	4	✓	4	E,F	3	17	14	1	7
	5	✓	5	E,G	24	28	4	1	4

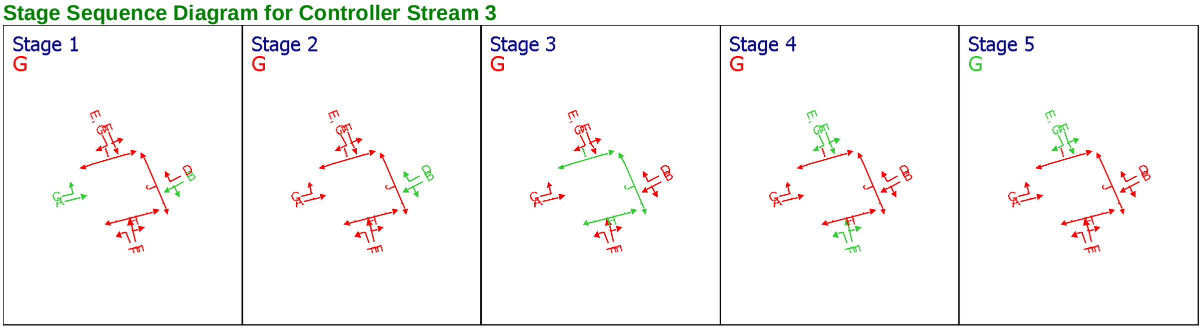
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
8	1	3	3	C	40	68	28			
8	2	3	3	A	40	68	28			
9	1	3	3	E	3	28	25			
9	2	3	3	E	3	28	25			
10	1	3	3	B	35	88	53			
10	2	3	3	D	74	88	14			
11	1	3	3	F	3	17	14			
11	2	3	3	F	3	17	14			

Phase Timings Diagram for Controller Stream 3



Stage Sequence Diagram for Controller Stream 3



Final Prediction Table

Traffic Stream Results

				SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Str	Name	Traffic node	Controller	Phase	Second phase	Calculated flow	Calculated sat flow	Actual green	Wasted tim	Degree of satur	Practical reserve	JourneyTime (s)	Mean Delay	Mean stops	Mean max queue	Delay weighting	Stop weighting	Cost of traffic penal	P.I.

	eam			stream			entering (PCU/hr)	(PCU/hr)	(s (per cycle))	e total (s (per cycle))	ation (%)	capacity (%)		per Veh (s)	per Veh (%)	ue (PCU)	g multiplier (%)	multiplier (%)	ties (£ per hr)	
1	1		1	1	A		309	1915	44	10.00	42	114	21.56	8.13	36.34	2.64	100	100	0.00	11.32
	2		1	1	F		194	1888	18	0.00	65	39	54.33	40.81	81.43	5.30	100	100	0.00	33.13
2	1		1	1	D		76	1863	15	0.00	31	194	55.33	50.19	91.65	2.35	100	100	0.00	15.92
	2		1	1	D		82	1757	15	0.00	35	157	56.69	51.39	92.99	2.58	100	100	0.00	17.58
3	1		1	1	E		178	1739	62	0.00	19	362	20.56	15.57	51.83	3.14	100	100	0.00	12.09
	2		1	1	B		250	2035	26	0.00	55	65	51.24	46.25	73.43	6.12	100	100	0.00	47.91
4	1		1	1	C	G	252	1649	53	0.00	34	165	26.99	22.67	64.16	5.48	100	100	0.00	24.56
	2		1	1	C		302 <	1921	29	0.00	63	43	50.63	46.32	92.41	9.42 +	100	100	0.00	58.67
5	1		2	2	A		232	1915	62	21.18	23	295	18.04	4.25	28.92	1.48	100	100	0.00	4.73
	2		2	2	A		253	2028	62	21.10	23	284	17.92	4.24	29.90	1.55	100	100	0.00	5.18
6	1		2	2	C		83	1879	20	0.00	24	274	28.30	22.70	85.59	1.28	100	100	0.00	8.32
7	1		2	2	B		419	1784	88	23.00	31	188	9.31	3.70	33.12	4.56	100	100	0.00	7.85
	2		2	2	B		281	2055	88	34.76	18	389	8.43	2.83	30.34	2.95	100	100	0.00	4.22
8	1		3	3	C		114	1662	28	8.00	28	217	33.22	27.43	61.16	2.33	100	100	0.00	13.23
	2		3	3	A		348	2055	28	2.00	70	29	42.30	36.51	68.20	7.88	100	100	0.00	53.03
9	1		3	3	E		340 <	1770	25	0.00	89	2	80.78	76.77	119.71	13.90 +	100	100	0.00	108.06
	2		3	3	E	G	146	1865	25	0.00	36	149	46.46	42.46	85.26	4.20	100	100	0.00	26.01
10	1		3	3	B		492	1877	53	0.00	58	55	31.56	27.81	28.96	4.75	100	100	0.00	55.76
	2		3	3	D		130	1888	14	0.00	55	63	62.30	58.55	99.87	4.38	100	100	0.00	31.65
11	1		3	3	F		88	1662	14	0.00	42	112	58.96	54.82	95.87	2.84	100	100	0.00	20.09
	2		3	3	F		152	2035	14	0.00	60	51	64.09	59.96	101.55	5.21	100	100	0.00	37.88
12	1						621	Unrestricted	120	23.00	0	Unrestricted	9.02	0.00	0.00	0.00	100	100	0.00	0.00
13	1						438	Unrestricted	120	14.00	0	Unrestricted	8.55	0.00	0.00	0.00	100	100	0.00	0.00
14	1						292	2055	120	33.00	14	533	6.91	0.15	0.00	0.01	100	100	0.00	0.17
	2						292	2055	120	33.00	14	533	6.90	0.15	0.00	0.01	100	100	0.00	0.17
15	1		2				306	2055	120	58.00	15	504	5.95	0.15	0.00	0.01	100	100	0.00	0.19
	2		2				306	2055	120	58.00	15	504	5.81	0.15	0.00	0.01	100	100	0.00	0.19
16	1		2				191	Unrestricted	120	38.00	0	Unrestricted	6.52	0.00	0.00	0.00	100	100	0.00	0.00

17	**1**		2				232	1915	120	77.00	12	643	4.77	0.13	0.00	0.01	100	100	0.00	0.12
	2		2				232	2055	120	77.49	12	681	4.92	0.28	7.74	1.46	100	100	0.00	0.48
18	**1**		3				351	2055	120	42.12	17	418	5.78	0.34	3.56	1.63	100	100	0.00	0.63
	2		3				351	2055	120	40.00	17	427	5.63	0.18	0.00	0.02	100	100	0.00	0.25
19	**1**		3				396	Unrestricted	120	54.00	0	Unrestricted	7.00	0.00	0.00	0.00	100	100	0.00	0.00
20	**1**		3				525	Unrestricted	120	58.00	0	Unrestricted	6.79	0.00	0.00	0.00	100	100	0.00	0.00
21	**1**		3				187	Unrestricted	120	67.00	0	Unrestricted	6.15	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	521.86	57.00	9.16	39.60	562.39	36.99	0.00	599.38
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	521.86	57.00	9.16	39.60	562.39	36.99	0.00	599.38

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Junction 2 - Fairfield Rd_Greig St.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 09:57:18

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Existing Layout - 2025 Base					
Stream B-CD	0.1	8.07	0.06	0.1	8.51	0.07
Stream B-AD	0.1	12.42	0.12	0.1	12.06	0.08
Stream A-BCD	0.1	4.49	0.07	0.1	4.61	0.07
Stream D-AB	0.1	7.88	0.07	0.1	7.81	0.06
Stream D-BC	0.1	11.30	0.09	0.1	12.09	0.11
Stream C-ABD	0.0	4.60	0.01	0.0	4.43	0.03
	Existing Layout - 2025 Redistribution					
Stream B-CD	0.1	8.25	0.06	0.1	8.71	0.07
Stream B-AD	0.1	12.80	0.13	0.1	12.55	0.08
Stream A-BCD	0.1	4.40	0.05	0.1	4.57	0.05
Stream D-AB	0.1	8.61	0.05	0.1	8.30	0.06
Stream D-BC	0.1	11.94	0.12	0.1	12.81	0.13
Stream C-ABD	0.0	4.55	0.01	0.0	4.28	0.03

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

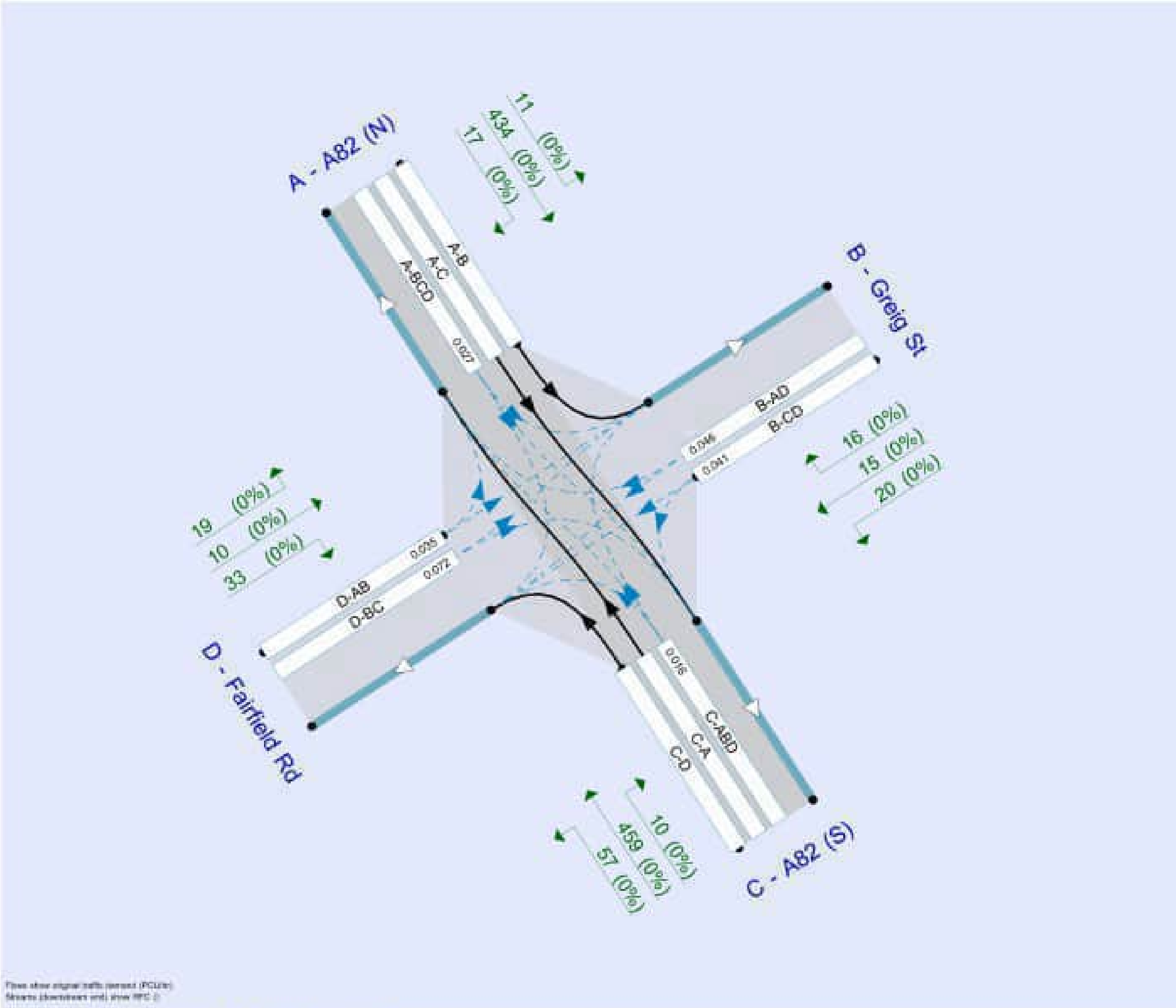
File summary

File Description

Title	
Location	
Site number	
Date	29/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\ukowb002
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2025	Existing Layout	✓	100.000	100.000

Existing Layout - 2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		1.49	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.49	A

Arms

Arms

Arm	Name	Description	Arm type
A	A82 (N)		Major
B	Greig St		Minor
C	A82 (S)		Major
D	Fairfield Rd		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - A82 (N)	6.00			200.0	✓	0.00
C - A82 (S)	6.00			200.0	✓	0.00

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Greig St	One lane plus flare	10.00	4.50	4.00	4.00	4.00	✓	1.00	24	20
D - Fairfield Rd	One lane plus flare	10.00	5.50	4.10	4.00	3.90	✓	1.00	40	33

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	690	-	-	-	-	-	-	0.267	0.382	0.267	-	-	-
B-A	531	0.097	0.244	0.244	-	-	-	0.154	0.349	-	0.244	0.244	0.122
B-C	671	0.103	0.260	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	522	0.095	0.240	0.240	-	-	-	0.151	0.343	0.151	-	-	-
B-D, offside lane	531	0.097	0.244	0.244	-	-	-	0.154	0.349	0.154	-	-	-
C-B	690	0.267	0.267	0.382	-	-	-	-	-	-	-	-	-
D-A	701	-	-	-	-	-	-	0.272	-	0.107	-	-	-
D-B, nearside lane	551	0.160	0.160	0.362	-	-	-	0.254	0.254	0.100	-	-	-
D-B, offside lane	551	0.160	0.160	0.362	-	-	-	0.254	0.254	0.100	-	-	-
D-C	551	-	0.160	0.362	0.127	0.254	0.254	0.254	0.254	0.100	-	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 (N)		ONE HOUR	✓	472	100.000
B - Greig St		ONE HOUR	✓	63	100.000
C - A82 (S)		ONE HOUR	✓	388	100.000
D - Fairfield Rd		ONE HOUR	✓	57	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	12	435	25
	B - Greig St	34	0	21	8
	C - A82 (S)	363	3	0	22
	D - Fairfield Rd	21	15	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	0	0	0
	B - Greig St	0	0	0	0
	C - A82 (S)	0	0	0	0
	D - Fairfield Rd	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.06	8.07	0.1	A	23	35
B-AD	0.12	12.42	0.1	B	35	52
A-BCD	0.07	4.49	0.1	A	45	67
A-B					10	16
A-C					378	567
D-AB	0.07	7.88	0.1	A	27	40
D-BC	0.09	11.30	0.1	B	26	39
C-ABD	0.01	4.60	0.0	A	5	7
C-D					20	30
C-A					331	496

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	530	0.036	19	0.0	0.0	7.035	A
B-AD	28	7	394	0.072	28	0.0	0.1	9.820	A
A-BCD	32	8	834	0.038	31	0.0	0.1	4.487	A
A-B	9	2			9				
A-C	315	79			315				
D-AB	22	5	544	0.040	22	0.0	0.0	6.884	A
D-BC	21	5	413	0.051	21	0.0	0.1	9.170	A
C-ABD	4	0.89	787	0.005	4	0.0	0.0	4.594	A
C-D	16	4			16				
C-A	272	68			272				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	507	0.045	23	0.0	0.0	7.429	A
B-AD	34	8	368	0.092	34	0.1	0.1	10.774	B
A-BCD	42	11	865	0.049	42	0.1	0.1	4.375	A
A-B	10	3			10				
A-C	372	93			372				
D-AB	26	6	521	0.050	26	0.0	0.1	7.264	A
D-BC	25	6	386	0.065	25	0.1	0.1	9.984	A
C-ABD	5	1	810	0.006	5	0.0	0.0	4.472	A
C-D	20	5			20				
C-A	324	81			324				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	474	0.059	28	0.0	0.1	8.067	A
B-AD	41	10	331	0.125	41	0.1	0.1	12.409	B
A-BCD	60	15	910	0.066	60	0.1	0.1	4.234	A
A-B	12	3			12				
A-C	447	112			447				
D-AB	32	8	489	0.065	32	0.1	0.1	7.878	A
D-BC	31	8	349	0.088	31	0.1	0.1	11.292	B
C-ABD	7	2	843	0.008	7	0.0	0.0	4.306	A
C-D	24	6			24				
C-A	397	99			397				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	474	0.059	28	0.1	0.1	8.071	A
B-AD	41	10	331	0.125	41	0.1	0.1	12.423	B
A-BCD	60	15	910	0.066	60	0.1	0.1	4.236	A
A-B	12	3			12				
A-C	447	112			447				
D-AB	32	8	489	0.065	32	0.1	0.1	7.881	A
D-BC	31	8	349	0.088	31	0.1	0.1	11.301	B
C-ABD	7	2	843	0.008	7	0.0	0.0	4.308	A
C-D	24	6			24				
C-A	397	99			397				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	507	0.045	23	0.1	0.0	7.438	A
B-AD	34	8	368	0.092	34	0.1	0.1	10.790	B
A-BCD	42	11	865	0.049	42	0.1	0.1	4.376	A
A-B	10	3			10				
A-C	372	93			372				
D-AB	26	6	521	0.050	26	0.1	0.1	7.288	A
D-BC	25	6	386	0.065	25	0.1	0.1	9.974	A
C-ABD	5	1	809	0.006	5	0.0	0.0	4.474	A
C-D	20	5			20				
C-A	324	81			324				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	530	0.036	19	0.0	0.0	7.043	A
B-AD	28	7	394	0.072	29	0.1	0.1	9.845	A
A-BCD	32	8	834	0.038	32	0.1	0.1	4.489	A
A-B	9	2			9				
A-C	315	79			315				
D-AB	22	5	544	0.040	22	0.1	0.0	6.890	A
D-BC	21	5	413	0.051	21	0.1	0.1	9.186	A
C-ABD	4	0.90	787	0.005	4	0.0	0.0	4.596	A
C-D	16	4			16				
C-A	272	68			272				

Existing Layout - 2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		1.41	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.41	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 (N)		ONE HOUR	✓	453	100.000
B - Greig St		ONE HOUR	✓	51	100.000
C - A82 (S)		ONE HOUR	✓	463	100.000
D - Fairfield Rd		ONE HOUR	✓	62	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	11	418	24
	B - Greig St	16	0	20	15
	C - A82 (S)	405	10	0	48
	D - Fairfield Rd	22	10	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	0	0	0
	B - Greig St	0	0	0	0
	C - A82 (S)	0	0	0	0
	D - Fairfield Rd	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.07	8.51	0.1	A	26	38
B-AD	0.08	12.06	0.1	B	21	32
A-BCD	0.07	4.61	0.1	A	42	64
A-B					10	14
A-C					364	545
D-AB	0.06	7.81	0.1	A	25	38
D-BC	0.11	12.09	0.1	B	32	48
C-ABD	0.03	4.43	0.0	A	18	27
C-D					43	65
C-A					363	545

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	21	5	512	0.041	21	0.0	0.0	7.323	A
B-AD	18	4	388	0.045	17	0.0	0.0	9.704	A
A-BCD	30	8	812	0.037	30	0.0	0.1	4.604	A
A-B	8	2			8				
A-C	303	76			303				
D-AB	21	5	551	0.037	20	0.0	0.0	6.783	A
D-BC	26	7	404	0.065	26	0.0	0.1	9.513	A
C-ABD	13	3	825	0.016	13	0.0	0.0	4.434	A
C-D	36	9			36				
C-A	300	75			300				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	25	6	488	0.051	25	0.0	0.1	7.770	A
B-AD	21	5	361	0.058	21	0.0	0.1	10.576	B
A-BCD	40	10	839	0.048	40	0.1	0.1	4.502	A
A-B	9	2			9				
A-C	358	89			358				
D-AB	25	6	527	0.047	25	0.0	0.0	7.170	A
D-BC	31	8	375	0.083	31	0.1	0.1	10.455	B
C-ABD	17	4	855	0.020	17	0.0	0.0	4.297	A
C-D	42	11			42				
C-A	357	89			357				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	31	8	454	0.068	31	0.1	0.1	8.504	A
B-AD	25	6	324	0.078	25	0.1	0.1	12.051	B
A-BCD	57	14	880	0.065	57	0.1	0.1	4.378	A
A-B	11	3			11				
A-C	430	108			430				
D-AB	30	8	492	0.062	30	0.0	0.1	7.802	A
D-BC	38	9	336	0.113	38	0.1	0.1	12.079	B
C-ABD	25	6	899	0.028	25	0.0	0.0	4.118	A
C-D	51	13			51				
C-A	434	108			434				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	31	8	454	0.068	31	0.1	0.1	8.507	A
B-AD	25	6	324	0.078	25	0.1	0.1	12.061	B
A-BCD	57	14	880	0.065	57	0.1	0.1	4.379	A
A-B	11	3			11				
A-C	430	108			430				
D-AB	30	8	491	0.062	30	0.1	0.1	7.806	A
D-BC	38	9	336	0.113	38	0.1	0.1	12.093	B
C-ABD	25	6	899	0.028	25	0.0	0.0	4.120	A
C-D	51	13			51				
C-A	434	108			434				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	25	6	488	0.051	25	0.1	0.1	7.778	A
B-AD	21	5	361	0.058	21	0.1	0.1	10.589	B
A-BCD	40	10	840	0.048	40	0.1	0.1	4.505	A
A-B	9	2			9				
A-C	358	89			358				
D-AB	25	6	526	0.047	25	0.1	0.0	7.177	A
D-BC	31	8	375	0.083	31	0.1	0.1	10.473	B
C-ABD	17	4	855	0.020	17	0.0	0.0	4.300	A
C-D	42	11			42				
C-A	357	89			357				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	21	5	512	0.041	21	0.1	0.0	7.333	A
B-AD	18	4	388	0.045	18	0.1	0.0	9.721	A
A-BCD	30	8	812	0.037	30	0.1	0.1	4.605	A
A-B	8	2			8				
A-C	303	76			303				
D-AB	21	5	551	0.037	21	0.0	0.0	6.792	A
D-BC	26	7	404	0.065	26	0.1	0.1	9.535	A
C-ABD	13	3	825	0.016	13	0.0	0.0	4.435	A
C-D	36	9			36				
C-A	300	75			300				

Existing Layout - 2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		1.47	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.47	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 (N)		ONE HOUR	✓	455	100.000
B - Greig St		ONE HOUR	✓	63	100.000
C - A82 (S)		ONE HOUR	✓	412	100.000
D - Fairfield Rd		ONE HOUR	✓	57	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	12	453	20
	B - Greig St	34	0	21	8
	C - A82 (S)	383	3	0	26
	D - Fairfield Rd	12	15	30	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	0	0	0
	B - Greig St	0	0	0	0
	C - A82 (S)	0	0	0	0
	D - Fairfield Rd	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.06	8.25	0.1	A	23	35
B-AD	0.13	12.80	0.1	B	35	52
A-BCD	0.05	4.40	0.1	A	37	56
A-B					11	16
A-C					406	609
D-AB	0.05	8.61	0.1	A	18	28
D-BC	0.12	11.94	0.1	B	34	51
C-ABD	0.01	4.55	0.0	A	5	8
C-D					24	36
C-A					349	524

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	524	0.036	19	0.0	0.0	7.120	A
B-AD	28	7	389	0.073	28	0.0	0.1	9.979	A
A-BCD	26	7	844	0.031	26	0.0	0.0	4.402	A
A-B	9	2			9				
A-C	338	84			338				
D-AB	15	4	505	0.030	15	0.0	0.0	7.347	A
D-BC	28	7	410	0.068	28	0.0	0.1	9.420	A
C-ABD	4	0.92	796	0.005	4	0.0	0.0	4.544	A
C-D	19	5			19				
C-A	287	72			287				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	500	0.046	23	0.0	0.0	7.545	A
B-AD	34	8	361	0.094	34	0.1	0.1	11.001	B
A-BCD	35	9	877	0.040	35	0.0	0.1	4.273	A
A-B	10	3			10				
A-C	400	100			400				
D-AB	18	5	478	0.038	18	0.0	0.0	7.820	A
D-BC	33	8	381	0.087	33	0.1	0.1	10.340	B
C-ABD	5	1	820	0.006	5	0.0	0.0	4.414	A
C-D	23	6			23				
C-A	342	86			342				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	465	0.060	28	0.0	0.1	8.241	A
B-AD	41	10	323	0.128	41	0.1	0.1	12.782	B
A-BCD	51	13	926	0.055	51	0.1	0.1	4.112	A
A-B	12	3			12				
A-C	482	120			482				
D-AB	22	6	441	0.051	22	0.0	0.1	8.602	A
D-BC	40	10	342	0.118	40	0.1	0.1	11.922	B
C-ABD	7	2	856	0.008	7	0.0	0.0	4.237	A
C-D	28	7			28				
C-A	418	105			418				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	465	0.060	28	0.1	0.1	8.246	A
B-AD	41	10	323	0.128	41	0.1	0.1	12.799	B
A-BCD	51	13	926	0.055	51	0.1	0.1	4.113	A
A-B	12	3			12				
A-C	482	120			482				
D-AB	22	6	441	0.051	22	0.1	0.1	8.607	A
D-BC	40	10	342	0.118	40	0.1	0.1	11.935	B
C-ABD	7	2	856	0.008	7	0.0	0.0	4.239	A
C-D	28	7			28				
C-A	418	105			418				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	500	0.046	23	0.1	0.0	7.552	A
B-AD	34	8	361	0.094	34	0.1	0.1	11.022	B
A-BCD	35	9	878	0.040	35	0.1	0.1	4.275	A
A-B	10	3			10				
A-C	399	100			399				
D-AB	18	5	478	0.038	18	0.1	0.0	7.825	A
D-BC	33	8	381	0.087	33	0.1	0.1	10.355	B
C-ABD	5	1	820	0.006	5	0.0	0.0	4.416	A
C-D	23	6			23				
C-A	342	86			342				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	524	0.036	19	0.0	0.0	7.132	A
B-AD	28	7	388	0.073	29	0.1	0.1	10.002	B
A-BCD	28	7	844	0.031	28	0.1	0.0	4.404	A
A-B	9	2			9				
A-C	338	84			338				
D-AB	15	4	504	0.030	15	0.0	0.0	7.358	A
D-BC	28	7	409	0.068	28	0.1	0.1	9.442	A
C-ABD	4	0.92	796	0.005	4	0.0	0.0	4.547	A
C-D	19	5			19				
C-A	287	72			287				

Existing Layout - 2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way	Two-way	Two-way	Two-way		1.33	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	1.33	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 (N)		ONE HOUR	✓	452	100.000
B - Greig St		ONE HOUR	✓	51	100.000
C - A82 (S)		ONE HOUR	✓	526	100.000
D - Fairfield Rd		ONE HOUR	✓	62	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	11	434	17
	B - Greig St	16	0	20	15
	C - A82 (S)	459	10	0	57
	D - Fairfield Rd	19	10	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - A82 (N)	B - Greig St	C - A82 (S)	D - Fairfield Rd
From	A - A82 (N)	0	0	0	0
	B - Greig St	0	0	0	0
	C - A82 (S)	0	0	0	0
	D - Fairfield Rd	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.07	8.71	0.1	A	26	38
B-AD	0.08	12.55	0.1	B	21	32
A-BCD	0.05	4.57	0.1	A	31	47
A-B					10	15
A-C					383	574
D-AB	0.06	8.30	0.1	A	22	34
D-BC	0.13	12.81	0.1	B	34	52
C-ABD	0.03	4.28	0.0	A	20	30
C-D					51	77
C-A					411	617

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	21	5	506	0.041	21	0.0	0.0	7.417	A
B-AD	18	4	380	0.046	17	0.0	0.0	9.917	A
A-BCD	22	5	810	0.027	22	0.0	0.0	4.569	A
A-B	8	2			8				
A-C	318	79			318				
D-AB	18	5	528	0.035	18	0.0	0.0	7.062	A
D-BC	28	7	396	0.072	28	0.0	0.1	9.772	A
C-ABD	14	3	855	0.016	14	0.0	0.0	4.277	A
C-D	42	11			42				
C-A	340	85			340				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	25	6	480	0.052	25	0.0	0.1	7.902	A
B-AD	21	5	352	0.059	21	0.0	0.1	10.880	B
A-BCD	29	7	837	0.035	29	0.0	0.0	4.454	A
A-B	10	2			10				
A-C	376	94			376				
D-AB	22	5	500	0.044	22	0.0	0.0	7.524	A
D-BC	34	8	365	0.093	34	0.1	0.1	10.859	B
C-ABD	19	5	892	0.021	19	0.0	0.0	4.121	A
C-D	50	13			50				
C-A	404	101			404				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	31	8	444	0.069	31	0.1	0.1	8.712	A
B-AD	25	6	312	0.081	25	0.1	0.1	12.538	B
A-BCD	42	11	878	0.048	42	0.0	0.1	4.305	A
A-B	12	3			12				
A-C	455	114			455				
D-AB	27	7	461	0.059	27	0.0	0.1	8.297	A
D-BC	41	10	322	0.128	41	0.1	0.1	12.796	B
C-ABD	28	7	946	0.029	28	0.0	0.0	3.921	A
C-D	61	15			61				
C-A	491	123			491				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	31	8	444	0.069	31	0.1	0.1	8.714	A
B-AD	25	6	312	0.081	25	0.1	0.1	12.548	B
A-BCD	42	11	878	0.048	42	0.1	0.1	4.308	A
A-B	12	3			12				
A-C	455	114			455				
D-AB	27	7	461	0.059	27	0.1	0.1	8.302	A
D-BC	41	10	322	0.128	41	0.1	0.1	12.813	B
C-ABD	28	7	946	0.029	28	0.0	0.0	3.923	A
C-D	61	15			61				
C-A	491	123			491				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	25	6	480	0.052	25	0.1	0.1	7.908	A
B-AD	21	5	352	0.059	21	0.1	0.1	10.891	B
A-BCD	29	7	838	0.035	29	0.1	0.0	4.457	A
A-B	10	2			10				
A-C	376	94			376				
D-AB	22	5	500	0.044	22	0.1	0.0	7.530	A
D-BC	34	8	365	0.093	34	0.1	0.1	10.879	B
C-ABD	19	5	892	0.021	19	0.0	0.0	4.123	A
C-D	50	13			50				
C-A	404	101			404				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	21	5	506	0.041	21	0.1	0.0	7.424	A
B-AD	18	4	380	0.046	18	0.1	0.0	9.936	A
A-BCD	22	5	810	0.027	22	0.0	0.0	4.570	A
A-B	8	2			8				
A-C	318	79			318				
D-AB	18	5	527	0.035	18	0.0	0.0	7.073	A
D-BC	28	7	396	0.072	28	0.1	0.1	9.795	A
C-ABD	14	3	855	0.016	14	0.0	0.0	4.278	A
C-D	42	11			42				
C-A	340	85			340				

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Junction 3 - Telford Roundabout - FC.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 10:00:31

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	Existing - 2025 Base					
A - A82 Friar's Bridge	0.7	2.45	0.41	0.9	2.82	0.48
B - Wells Street	0.0	7.11	0.02	0.1	8.70	0.05
C - A82 Kenneth Street	1.4	9.39	0.58	2.3	14.89	0.71
D - Harrowden Road	0.3	6.02	0.23	0.5	8.34	0.36
E - Telford Street	1.6	6.99	0.62	1.7	7.80	0.64
	Existing - 2025 Redistribution					
A - A82 Friar's Bridge	0.7	2.45	0.40	0.8	2.66	0.45
B - Wells Street	0.0	7.15	0.02	0.0	8.03	0.04
C - A82 Kenneth Street	1.4	9.43	0.58	2.7	15.85	0.74
D - Harrowden Road	0.3	5.98	0.23	0.5	8.39	0.36
E - Telford Street	1.6	6.92	0.62	1.7	7.76	0.63

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

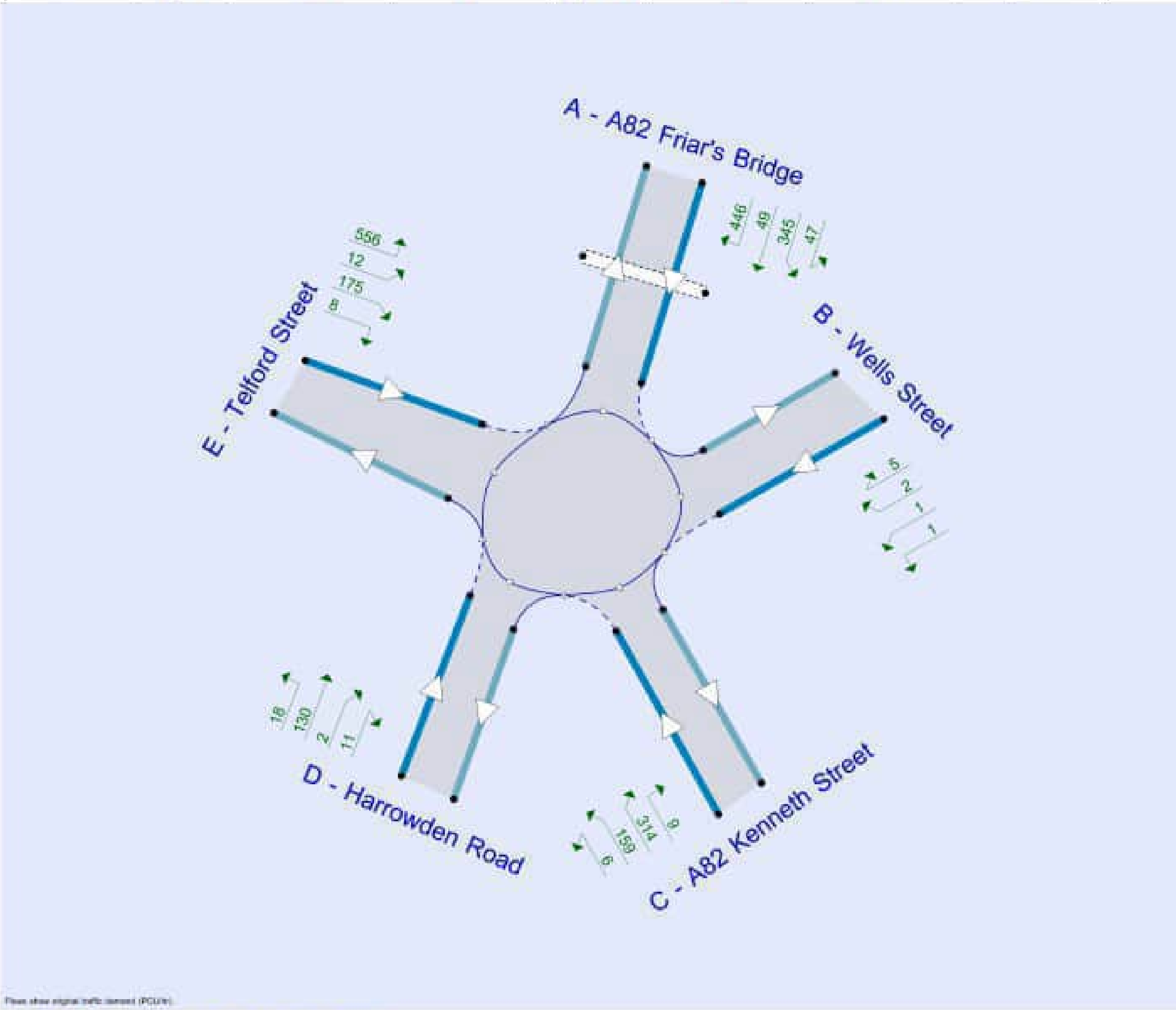
File summary

File Description

Title	Academy Street TIA - Telford Roundabout
Location	Telford Roundabout, Inverness
Site number	J3
Date	24/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKFEC001
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75	✓					0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing	✓	100.000	100.000

Existing - 2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	A - A82 Friar's Bridge - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J3	Telford Roundabout	Standard Roundabout		A, B, C, D, E	5.61	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.61	A

Arms

Arms

Arm	Name	Description	No give-way line
A	A82 Friar's Bridge		
B	Wells Street		
C	A82 Kenneth Street		
D	Harrowden Road		
E	Telford Street		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
A - A82 Friar's Bridge	7.10	11.50	10.7	23.3	49.8	40.6		
B - Wells Street	2.80	5.30	3.8	20.4	49.8	35.5		
C - A82 Kenneth Street	3.70	5.50	2.9	15.4	49.8	48.0		
D - Harrowden Road	4.10	4.70	7.3	11.2	46.7	26.5		
E - Telford Street	5.30	5.80	4.0	16.8	47.2	34.5		

Geometry Notes

Arm	Notes
A - A82 Friar's Bridge	PHI assumed to be 1/2 of angle (in line with unconventional rbt approach)
B - Wells Street	PHI assumed to be 1/2 of angle (in line with unconventional rbt approach)
C - A82 Kenneth Street	PHI assumed to be 1/2 of angle (in line with unconventional rbt approach)
D - Harrowden Road	PHI assumed to be 1/2 of angle (in line with unconventional rbt approach)
E - Telford Street	PHI assumed to be 1/2 of angle (in line with unconventional rbt approach)

Pelican/Puffin Crossings

Arm	Space between crossing and junc. entry (Signalised) (PCU)	Amber time preceding red (s)	Amber time regarded as green (s)	Time from traffic red start to green man start (s)	Time period green man shown (s)	Clearance Period (s)	Traffic minimum green (s)
A - A82 Friar's Bridge	1.00	3.00	2.50	1.00	6.00	6.00	7.00

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
A - A82 Friar's Bridge	0.780	2646
B - Wells Street	0.485	1073
C - A82 Kenneth Street	0.493	1203
D - Harrowden Road	0.546	1350
E - Telford Street	0.607	1671

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 Friar's Bridge		ONE HOUR	✓	926	100.000
B - Wells Street		ONE HOUR	✓	9	100.000
C - A82 Kenneth Street		ONE HOUR	✓	477	100.000
D - Harrowden Road		ONE HOUR	✓	161	100.000
E - Telford Street		ONE HOUR	✓	754	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - A82 Friar's Bridge	[ONEHOUR]	0.00
B - Wells Street		
C - A82 Kenneth Street		
D - Harrowden Road		
E - Telford Street		

Origin-Destination Data

Demand (PCU/hr)

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	10	47	355	54	460
	B - Wells Street	5	0	1	1	2
	C - A82 Kenneth Street	321	9	0	1	146
	D - Harrowden Road	139	2	2	0	18
	E - Telford Street	581	12	150	8	3

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	0	0	0	0	0
	B - Wells Street	0	0	0	0	0
	C - A82 Kenneth Street	0	0	0	0	0
	D - Harrowden Road	0	0	0	0	0
	E - Telford Street	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A82 Friar's Bridge	0.41	2.45	0.7	2.6	A	850	1275
B - Wells Street	0.02	7.11	0.0	0.5	A	8	12
C - A82 Kenneth Street	0.58	9.39	1.4	2.4	A	438	657
D - Harrowden Road	0.23	6.02	0.3	1.3	A	148	222
E - Telford Street	0.62	6.99	1.6	1.9	A	692	1038

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	697	174	139	0.00	2537	0.275	696	791	0.0	0.4	1.953	A
B - Wells Street	7	2	782		693	0.010	7	53	0.0	0.0	5.246	A
C - A82 Kenneth Street	359	90	408		1002	0.358	357	381	0.0	0.6	5.560	A
D - Harrowden Road	121	30	717		958	0.127	121	48	0.0	0.1	4.296	A
E - Telford Street	568	142	365		1450	0.392	565	472	0.0	0.6	4.059	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	832	208	167	0.00	2515	0.331	832	948	0.4	0.5	2.138	A
B - Wells Street	8	2	938		618	0.013	8	63	0.0	0.0	5.896	A
C - A82 Kenneth Street	429	107	488		963	0.445	428	456	0.6	0.8	6.718	A
D - Harrowden Road	145	36	858		881	0.164	145	57	0.1	0.2	4.888	A
E - Telford Street	678	169	438		1406	0.482	677	565	0.6	0.9	4.931	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1020	255	204	0.00	2486	0.410	1019	1159	0.5	0.7	2.451	A
B - Wells Street	10	2	1146		516	0.019	10	77	0.0	0.0	7.106	A
C - A82 Kenneth Street	525	131	597		909	0.578	523	558	0.8	1.3	9.279	A
D - Harrowden Road	177	44	1050		776	0.228	177	70	0.2	0.3	6.004	A
E - Telford Street	830	208	535		1346	0.617	828	691	0.9	1.6	6.906	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1020	255	205	0.00	2488	0.410	1020	1163	0.7	0.7	2.454	A
B - Wells Street	10	2	1147		516	0.019	10	77	0.0	0.0	7.115	A
C - A82 Kenneth Street	525	131	598		908	0.578	525	559	1.3	1.4	9.387	A
D - Harrowden Road	177	44	1053		775	0.229	177	70	0.3	0.3	6.025	A
E - Telford Street	830	208	537		1345	0.617	830	693	1.6	1.6	6.986	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	832	208	168	0.00	2515	0.331	833	953	0.7	0.5	2.143	A
B - Wells Street	8	2	938		617	0.013	8	63	0.0	0.0	5.911	A
C - A82 Kenneth Street	429	107	489		962	0.446	431	458	1.4	0.8	6.801	A
D - Harrowden Road	145	36	862		879	0.165	145	58	0.3	0.2	4.908	A
E - Telford Street	678	169	441		1404	0.483	680	567	1.6	0.9	4.993	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	697	174	140	0.00	2536	0.275	698	797	0.5	0.4	1.959	A
B - Wells Street	7	2	785		692	0.010	7	53	0.0	0.0	5.259	A
C - A82 Kenneth Street	359	90	409		1002	0.359	360	383	0.8	0.6	5.620	A
D - Harrowden Road	121	30	721		956	0.127	121	48	0.2	0.1	4.316	A
E - Telford Street	568	142	368		1448	0.392	569	474	0.9	0.6	4.102	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.38	0.00	0.00	0.38	0.38			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.55	0.55	1.00	1.40	1.45			N/A	N/A
D - Harrowden Road	0.14	0.00	0.00	0.14	0.14			N/A	N/A
E - Telford Street	0.64	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.49	0.00	0.00	0.49	0.49			N/A	N/A
B - Wells Street	0.01	0.01	0.25	0.45	0.48			N/A	N/A
C - A82 Kenneth Street	0.79	0.10	0.67	1.06	1.06			N/A	N/A
D - Harrowden Road	0.20	0.00	0.00	0.20	0.20			N/A	N/A
E - Telford Street	0.92	0.07	0.84	1.56	1.92			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.69	0.03	0.25	0.69	0.69			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	1.34	0.03	0.27	1.34	1.34			N/A	N/A
D - Harrowden Road	0.29	0.03	0.25	0.46	0.48			N/A	N/A
E - Telford Street	1.58	0.03	0.27	1.58	1.58			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.69	0.03	0.28	0.74	2.60			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	1.35	0.03	0.27	1.35	2.43			N/A	N/A
D - Harrowden Road	0.30	0.03	0.31	0.99	1.27			N/A	N/A
E - Telford Street	1.60	0.03	0.27	1.60	1.60			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.50	0.00	0.00	0.50	0.50			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.81	0.10	0.87	1.35	1.35			N/A	N/A
D - Harrowden Road	0.20	0.00	0.00	0.20	0.20			N/A	N/A
E - Telford Street	0.94	0.13	0.98	1.28	1.68			N/A	N/A

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.38	0.00	0.00	0.38	0.38			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.58	0.05	0.48	1.34	1.45			N/A	N/A
D - Harrowden Road	0.15	0.00	0.00	0.15	0.15			N/A	N/A
E - Telford Street	0.65	0.05	0.59	1.11	1.11			N/A	N/A

Existing - 2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	A - A82 Friar's Bridge - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J3	Telford Roundabout	Standard Roundabout		A, B, C, D, E	7.23	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.23	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 Friar's Bridge		ONE HOUR	✓	1068	100.000
B - Wells Street		ONE HOUR	✓	19	100.000
C - A82 Kenneth Street		ONE HOUR	✓	526	100.000
D - Harrowden Road		ONE HOUR	✓	216	100.000
E - Telford Street		ONE HOUR	✓	731	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - A82 Friar's Bridge	[ONEHOUR]	0.00
B - Wells Street		
C - A82 Kenneth Street		
D - Harrowden Road		
E - Telford Street		

Origin-Destination Data

Demand (PCU/hr)

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	21	45	354	78	570
	B - Wells Street	8	0	2	2	7
	C - A82 Kenneth Street	384	10	0	6	128
	D - Harrowden Road	179	5	0	0	32
	E - Telford Street	522	38	151	15	5

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	0	0	0	0	0
	B - Wells Street	0	0	0	0	0
	C - A82 Kenneth Street	0	0	0	0	0
	D - Harrowden Road	0	0	0	0	0
	E - Telford Street	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A82 Friar's Bridge	0.48	2.82	0.9	1.5	A	980	1470
B - Wells Street	0.05	8.70	0.1	0.5	A	17	26
C - A82 Kenneth Street	0.71	14.89	2.3	9.6	B	483	724
D - Harrowden Road	0.36	8.34	0.5	2.5	A	198	297
E - Telford Street	0.64	7.80	1.7	2.1	A	671	1006

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	804	201	168	0.00	2515	0.320	802	834	0.0	0.5	2.100	A
B - Wells Street	14	4	897		637	0.022	14	73	0.0	0.0	5.776	A
C - A82 Kenneth Street	396	99	530		942	0.420	393	381	0.0	0.7	6.527	A
D - Harrowden Road	163	41	848		887	0.183	162	76	0.0	0.2	4.959	A
E - Telford Street	550	138	454		1396	0.394	548	555	0.0	0.6	4.233	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	960	240	201	0.00	2489	0.386	959	999	0.5	0.6	2.352	A
B - Wells Street	17	4	1072		552	0.031	17	88	0.0	0.0	6.728	A
C - A82 Kenneth Street	473	118	634		891	0.531	471	455	0.7	1.1	8.555	A
D - Harrowden Road	194	49	1015		795	0.244	194	91	0.2	0.3	5.981	A
E - Telford Street	657	164	544		1341	0.490	656	664	0.6	1.0	5.245	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1176	294	246	0.00	2454	0.479	1175	1220	0.6	0.9	2.811	A
B - Wells Street	21	5	1313		435	0.048	21	108	0.0	0.0	8.681	A
C - A82 Kenneth Street	579	145	776		820	0.706	574	557	1.1	2.3	14.367	B
D - Harrowden Road	238	59	1240		672	0.354	237	111	0.3	0.5	8.253	A
E - Telford Street	805	201	664		1268	0.635	802	813	1.0	1.7	7.670	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1176	294	247	0.00	2453	0.479	1176	1226	0.9	0.9	2.817	A
B - Wells Street	21	5	1315		435	0.048	21	108	0.0	0.1	8.701	A
C - A82 Kenneth Street	579	145	777		820	0.706	579	558	2.3	2.3	14.895	B
D - Harrowden Road	238	59	1245		670	0.355	238	111	0.5	0.5	8.337	A
E - Telford Street	805	201	668		1266	0.636	805	815	1.7	1.7	7.805	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	960	240	202	0.00	2488	0.386	961	1008	0.9	0.6	2.361	A
B - Wells Street	17	4	1075		551	0.031	17	88	0.1	0.0	6.746	A
C - A82 Kenneth Street	473	118	636		890	0.531	478	457	2.3	1.2	8.828	A
D - Harrowden Road	194	49	1022		791	0.245	195	91	0.5	0.3	6.048	A
E - Telford Street	657	164	550		1337	0.491	660	667	1.7	1.0	5.340	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	804	201	169	0.00	2514	0.320	805	841	0.6	0.5	2.108	A
B - Wells Street	14	4	900		636	0.022	14	74	0.0	0.0	5.791	A
C - A82 Kenneth Street	396	99	532		941	0.421	398	382	1.2	0.7	6.649	A
D - Harrowden Road	163	41	854		883	0.184	163	76	0.3	0.2	4.999	A
E - Telford Street	550	138	459		1393	0.395	552	558	1.0	0.7	4.285	A

Queue Variation Results for each time segment

16:15 - 16:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.47	0.00	0.00	0.47	0.47			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	0.72	0.55	1.00	1.40	1.45			N/A	N/A
D - Harrowden Road	0.22	0.00	0.00	0.22	0.22			N/A	N/A
E - Telford Street	0.65	0.55	1.00	1.40	1.45			N/A	N/A

16:30 - 16:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.63	0.08	0.77	1.36	1.43			N/A	N/A
B - Wells Street	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C - A82 Kenneth Street	1.11	0.07	0.90	2.00	2.80			N/A	N/A
D - Harrowden Road	0.32	0.00	0.00	0.32	0.32			N/A	N/A
E - Telford Street	0.95	0.07	0.83	1.67	2.06			N/A	N/A

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.91	0.03	0.25	0.91	0.91			N/A	N/A
B - Wells Street	0.05	0.03	0.25	0.48	0.48			N/A	N/A
C - A82 Kenneth Street	2.28	0.03	0.29	2.28	9.62			N/A	N/A
D - Harrowden Road	0.54	0.03	0.28	0.54	0.54			N/A	N/A
E - Telford Street	1.70	0.03	0.27	1.70	1.70			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.92	0.03	0.27	0.92	1.05			N/A	N/A
B - Wells Street	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C - A82 Kenneth Street	2.34	0.03	0.28	2.34	8.45			N/A	N/A
D - Harrowden Road	0.55	0.03	0.31	1.49	2.52			N/A	N/A
E - Telford Street	1.72	0.03	0.27	1.72	1.72			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.63	0.55	1.00	1.40	1.45			N/A	N/A
B - Wells Street	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C - A82 Kenneth Street	1.16	0.06	0.72	2.52	3.58			N/A	N/A
D - Harrowden Road	0.33	0.00	0.00	0.33	0.33			N/A	N/A
E - Telford Street	0.98	0.11	0.95	1.50	1.83			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.47	0.00	0.00	0.47	0.47			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	0.74	0.04	0.39	1.66	2.70			N/A	N/A
D - Harrowden Road	0.23	0.00	0.00	0.23	0.23			N/A	N/A
E - Telford Street	0.66	0.05	0.52	1.46	1.46			N/A	N/A

Existing - 2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	A - A82 Friar's Bridge - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J3	Telford Roundabout	Standard Roundabout		A, B, C, D, E	5.65	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	5.65	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 Friar's Bridge		ONE HOUR	✓	897	100.000
B - Wells Street		ONE HOUR	✓	9	100.000
C - A82 Kenneth Street		ONE HOUR	✓	488	100.000
D - Harrowden Road		ONE HOUR	✓	161	100.000
E - Telford Street		ONE HOUR	✓	754	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - A82 Friar's Bridge	[ONEHOUR]	0.00
B - Wells Street		
C - A82 Kenneth Street		
D - Harrowden Road		
E - Telford Street		

Origin-Destination Data

Demand (PCU/hr)

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	10	47	345	49	446
	B - Wells Street	5	0	1	1	2
	C - A82 Kenneth Street	314	9	0	6	159
	D - Harrowden Road	130	2	11	0	18
	E - Telford Street	556	12	175	8	3

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	0	0	0	0	0
	B - Wells Street	0	0	0	0	0
	C - A82 Kenneth Street	0	0	0	0	0
	D - Harrowden Road	0	0	0	0	0
	E - Telford Street	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A82 Friar's Bridge	0.40	2.45	0.7	2.7	A	823	1235
B - Wells Street	0.02	7.15	0.0	0.5	A	8	12
C - A82 Kenneth Street	0.58	9.43	1.4	2.4	A	448	672
D - Harrowden Road	0.23	5.98	0.3	1.3	A	148	222
E - Telford Street	0.62	6.92	1.6	1.9	A	692	1038

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	675	169	165	0.00	2517	0.268	674	760	0.0	0.4	1.951	A
B - Wells Street	7	2	788		691	0.010	7	53	0.0	0.0	5.260	A
C - A82 Kenneth Street	367	92	394		1009	0.364	365	399	0.0	0.6	5.571	A
D - Harrowden Road	121	30	711		961	0.126	121	48	0.0	0.1	4.278	A
E - Telford Street	568	142	360		1453	0.391	565	471	0.0	0.6	4.044	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	806	202	197	0.00	2492	0.324	806	911	0.4	0.5	2.135	A
B - Wells Street	8	2	941		616	0.013	8	63	0.0	0.0	5.919	A
C - A82 Kenneth Street	439	110	471		971	0.452	438	478	0.6	0.8	6.737	A
D - Harrowden Road	145	36	851		885	0.164	145	57	0.1	0.2	4.862	A
E - Telford Street	678	169	432		1409	0.481	677	564	0.6	0.9	4.907	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	988	247	241	0.00	2457	0.402	987	1114	0.5	0.7	2.447	A
B - Wells Street	10	2	1151		514	0.019	10	77	0.0	0.0	7.143	A
C - A82 Kenneth Street	537	134	576		919	0.585	535	585	0.8	1.4	9.317	A
D - Harrowden Road	177	44	1041		781	0.227	177	70	0.2	0.3	5.956	A
E - Telford Street	830	208	528		1351	0.615	828	690	0.9	1.6	6.844	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	988	247	242	0.00	2457	0.402	988	1117	0.7	0.7	2.450	A
B - Wells Street	10	2	1153		513	0.019	10	77	0.0	0.0	7.152	A
C - A82 Kenneth Street	537	134	577		919	0.585	537	586	1.4	1.4	9.431	A
D - Harrowden Road	177	44	1044		780	0.227	177	70	0.3	0.3	5.976	A
E - Telford Street	830	208	530		1350	0.615	830	691	1.6	1.6	6.923	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	806	202	199	0.00	2491	0.324	807	916	0.7	0.5	2.140	A
B - Wells Street	8	2	943		615	0.013	8	63	0.0	0.0	5.932	A
C - A82 Kenneth Street	439	110	472		971	0.452	441	479	1.4	0.8	6.824	A
D - Harrowden Road	145	36	855		883	0.164	145	58	0.3	0.2	4.884	A
E - Telford Street	678	169	434		1408	0.482	680	566	1.6	0.9	4.968	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	675	169	166	0.00	2516	0.268	676	766	0.5	0.4	1.956	A
B - Wells Street	7	2	789		690	0.010	7	53	0.0	0.0	5.273	A
C - A82 Kenneth Street	367	92	395		1009	0.364	368	401	0.8	0.6	5.631	A
D - Harrowden Road	121	30	715		959	0.126	121	48	0.2	0.1	4.299	A
E - Telford Street	568	142	363		1451	0.391	569	473	0.9	0.6	4.086	A

Queue Variation Results for each time segment

08:00 - 08:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.37	0.00	0.00	0.37	0.37			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.57	0.55	1.00	1.40	1.45			N/A	N/A
D - Harrowden Road	0.14	0.00	0.00	0.14	0.14			N/A	N/A
E - Telford Street	0.64	0.55	1.00	1.40	1.45			N/A	N/A

08:15 - 08:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.48	0.00	0.00	0.48	0.48			N/A	N/A
B - Wells Street	0.01	0.01	0.25	0.45	0.48			N/A	N/A
C - A82 Kenneth Street	0.81	0.10	0.87	1.28	1.28			N/A	N/A
D - Harrowden Road	0.19	0.00	0.00	0.19	0.19			N/A	N/A
E - Telford Street	0.92	0.08	0.84	1.54	1.91			N/A	N/A

08:30 - 08:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.67	0.03	0.25	0.67	0.67			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	1.37	0.03	0.27	1.37	1.45			N/A	N/A
D - Harrowden Road	0.29	0.03	0.25	0.46	0.48			N/A	N/A
E - Telford Street	1.56	0.03	0.28	1.56	1.56			N/A	N/A

08:45 - 09:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.67	0.03	0.28	0.91	2.69			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	1.39	0.03	0.27	1.39	2.38			N/A	N/A
D - Harrowden Road	0.29	0.03	0.31	0.58	1.27			N/A	N/A
E - Telford Street	1.58	0.03	0.27	1.58	1.58			N/A	N/A

09:00 - 09:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.48	0.00	0.00	0.48	0.48			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.84	0.10	0.87	1.48	1.48			N/A	N/A
D - Harrowden Road	0.20	0.00	0.00	0.20	0.20			N/A	N/A
E - Telford Street	0.94	0.13	0.96	1.24	1.66			N/A	N/A

09:15 - 09:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.37	0.00	0.00	0.37	0.37			N/A	N/A
B - Wells Street	0.01	0.00	0.00	0.01	0.01			N/A	N/A
C - A82 Kenneth Street	0.58	0.05	0.48	1.36	1.47			N/A	N/A
D - Harrowden Road	0.15	0.00	0.00	0.15	0.15			N/A	N/A
E - Telford Street	0.65	0.06	0.60	1.06	1.06			N/A	N/A

Existing - 2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	A - A82 Friar's Bridge - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
J3	Telford Roundabout	Standard Roundabout		A, B, C, D, E	7.67	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	7.67	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - A82 Friar's Bridge		ONE HOUR	✓	988	100.000
B - Wells Street		ONE HOUR	✓	19	100.000
C - A82 Kenneth Street		ONE HOUR	✓	576	100.000
D - Harrowden Road		ONE HOUR	✓	216	100.000
E - Telford Street		ONE HOUR	✓	731	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A - A82 Friar's Bridge	[ONEHOUR]	0.00
B - Wells Street		
C - A82 Kenneth Street		
D - Harrowden Road		
E - Telford Street		

Origin-Destination Data

Demand (PCU/hr)

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	21	45	348	40	534
	B - Wells Street	8	0	2	2	7
	C - A82 Kenneth Street	380	10	0	15	171
	D - Harrowden Road	175	5	4	0	32
	E - Telford Street	511	38	162	15	5

Vehicle Mix

Heavy Vehicle Percentages

		To				
		A - A82 Friar's Bridge	B - Wells Street	C - A82 Kenneth Street	D - Harrowden Road	E - Telford Street
From	A - A82 Friar's Bridge	0	0	0	0	0
	B - Wells Street	0	0	0	0	0
	C - A82 Kenneth Street	0	0	0	0	0
	D - Harrowden Road	0	0	0	0	0
	E - Telford Street	0	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max 95th percentile Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
A - A82 Friar's Bridge	0.45	2.66	0.8	1.9	A	907	1360
B - Wells Street	0.04	8.03	0.0	0.5	A	17	26
C - A82 Kenneth Street	0.74	15.65	2.7	12.3	C	529	793
D - Harrowden Road	0.38	8.39	0.5	2.5	A	198	297
E - Telford Street	0.63	7.76	1.7	2.0	A	671	1006

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	744	186	179	0.00	2506	0.297	742	820	0.0	0.4	2.039	A
B - Wells Street	14	4	848		661	0.022	14	73	0.0	0.0	5.564	A
C - A82 Kenneth Street	434	108	475		969	0.447	430	387	0.0	0.8	6.644	A
D - Harrowden Road	163	41	851		885	0.184	162	54	0.0	0.2	4.973	A
E - Telford Street	550	138	451		1398	0.394	548	562	0.0	0.6	4.223	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	888	222	214	0.00	2478	0.358	888	982	0.4	0.6	2.263	A
B - Wells Street	17	4	1014		580	0.029	17	88	0.0	0.0	6.389	A
C - A82 Kenneth Street	518	129	568		923	0.561	516	463	0.8	1.3	8.800	A
D - Harrowden Road	194	49	1019		793	0.245	194	65	0.2	0.3	6.004	A
E - Telford Street	657	164	541		1343	0.489	656	672	0.6	0.9	5.228	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1088	272	282	0.00	2441	0.446	1087	1199	0.8	0.8	2.657	A
B - Wells Street	21	5	1241		470	0.045	21	108	0.0	0.0	8.012	A
C - A82 Kenneth Street	634	159	695		860	0.737	629	567	1.3	2.6	15.171	C
D - Harrowden Road	238	59	1245		670	0.355	237	79	0.3	0.5	8.302	A
E - Telford Street	805	201	659		1271	0.633	802	822	0.9	1.7	7.625	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	1088	272	283	0.00	2440	0.446	1088	1205	0.8	0.8	2.661	A
B - Wells Street	21	5	1243		469	0.045	21	108	0.0	0.0	8.027	A
C - A82 Kenneth Street	634	159	696		860	0.737	634	568	2.6	2.7	15.850	C
D - Harrowden Road	238	59	1250		667	0.357	238	79	0.5	0.5	8.395	A
E - Telford Street	805	201	664		1268	0.635	805	825	1.7	1.7	7.759	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	888	222	216	0.00	2477	0.359	889	991	0.8	0.6	2.269	A
B - Wells Street	17	4	1017		579	0.029	17	88	0.0	0.0	6.407	A
C - A82 Kenneth Street	518	129	569		923	0.561	523	465	2.7	1.3	9.140	A
D - Harrowden Road	194	49	1027		788	0.246	195	65	0.5	0.3	6.077	A
E - Telford Street	657	164	547		1339	0.491	660	676	1.7	1.0	5.321	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
A - A82 Friar's Bridge	744	186	180	0.00	2505	0.297	744	827	0.6	0.4	2.046	A
B - Wells Street	14	4	851		660	0.022	14	74	0.0	0.0	5.578	A
C - A82 Kenneth Street	434	108	476		968	0.448	436	389	1.3	0.8	6.782	A
D - Harrowden Road	163	41	857		881	0.185	163	54	0.3	0.2	5.014	A
E - Telford Street	550	138	456		1395	0.395	552	565	1.0	0.7	4.276	A

Queue Variation Results for each time segment

16:15 - 16:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.42	0.00	0.00	0.42	0.42			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	0.80	0.55	1.00	1.40	1.45			N/A	N/A
D - Harrowden Road	0.22	0.00	0.00	0.22	0.22			N/A	N/A
E - Telford Street	0.64	0.55	1.00	1.40	1.45			N/A	N/A

16:30 - 16:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.56	0.07	0.71	1.34	1.42			N/A	N/A
B - Wells Street	0.03	0.03	0.25	0.45	0.48			N/A	N/A
C - A82 Kenneth Street	1.25	0.07	0.90	2.60	3.58			N/A	N/A
D - Harrowden Road	0.32	0.00	0.00	0.32	0.32			N/A	N/A
E - Telford Street	0.95	0.07	0.83	1.66	2.03			N/A	N/A

16:45 - 17:00

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.80	0.03	0.25	0.80	0.80			N/A	N/A
B - Wells Street	0.05	0.03	0.25	0.46	0.48			N/A	N/A
C - A82 Kenneth Street	2.64	0.03	0.30	2.93	12.31			N/A	N/A
D - Harrowden Road	0.54	0.03	0.26	0.54	0.54			N/A	N/A
E - Telford Street	1.69	0.03	0.27	1.69	1.69			N/A	N/A

17:00 - 17:15

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.80	0.03	0.27	0.80	1.92			N/A	N/A
B - Wells Street	0.05	0.00	0.00	0.05	0.05			N/A	N/A
C - A82 Kenneth Street	2.72	0.03	0.28	2.72	8.12			N/A	N/A
D - Harrowden Road	0.55	0.03	0.31	1.49	2.54			N/A	N/A
E - Telford Street	1.71	0.03	0.27	1.71	1.71			N/A	N/A

17:15 - 17:30

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.58	0.55	1.00	1.40	1.45			N/A	N/A
B - Wells Street	0.03	0.00	0.00	0.03	0.03			N/A	N/A
C - A82 Kenneth Street	1.31	0.05	0.64	3.02	4.53			N/A	N/A
D - Harrowden Road	0.33	0.00	0.00	0.33	0.33			N/A	N/A
E - Telford Street	0.97	0.11	0.95	1.49	1.82			N/A	N/A

17:30 - 17:45

Arm	Mean (PCU)	Q05 (PCU)	Q50 (PCU)	Q90 (PCU)	Q95 (PCU)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
A - A82 Friar's Bridge	0.42	0.00	0.00	0.42	0.42			N/A	N/A
B - Wells Street	0.02	0.00	0.00	0.02	0.02			N/A	N/A
C - A82 Kenneth Street	0.82	0.04	0.38	1.93	3.38			N/A	N/A
D - Harrowden Road	0.23	0.00	0.00	0.23	0.23			N/A	N/A
E - Telford Street	0.66	0.05	0.52	1.44	1.44			N/A	N/A

TRANSYT 16

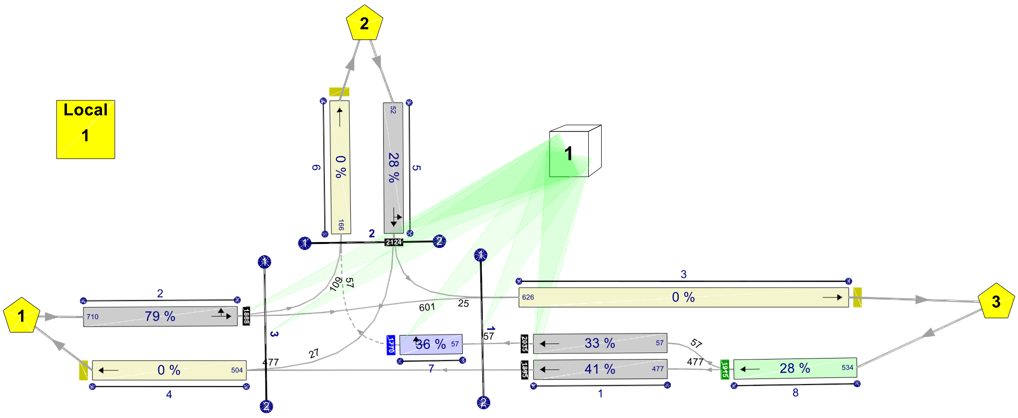
Filename: J7 - Castle St_View Pl 2.t16
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\TRANSYT
Report generation date: 19/04/2024 10:13:14

»A1 - Existing Layout : D1 - 2025 Base, AM :
»A1 - Existing Layout : D2 - 2025 Base + Redistribution, AM :
»A1 - Existing Layout : D3 - 2025 Base, PM :
»A1 - Existing Layout : D4 - 2025 Base + Redistribution, PM :

Summary of network performance

	AM			PM		
	Set ID	Total delay (PCU-hr/hr)	Highest DOS	Set ID	Total delay (PCU-hr/hr)	Highest DOS
	Existing Layout - 2025 Base					
Network	D1	4.63	54% (TS 2/1)	D3	5.63	60% (TS 2/1)
	Existing Layout - 2025 Base + Redistribution					
Network	D2	5.44	59% (TS 2/1)	D4	8.17	79% (TS 2/1)

Network Diagrams



(untitled)
Cycletime 0s / 90s
Timesteps 89 / 90
4
Diagram produced using TRANSYT 16.1.2.2043

A1 - Existing Layout
D1 - 2025 Base, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To						
		A	B	C	D	E	F	G
From	A			5	6	6	6	6
	B				6	6	6	6
	C	5			6	6	6	6
	D	6	6	6		6	6	6
	E	8	8	8	8			
	F	8	8	8	8			
	G	8	8	8	8			

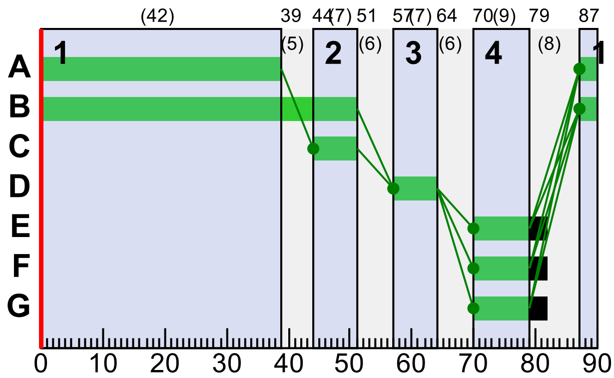
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	87	39	42	1	7
	2	✓	2	B,C	44	51	7	1	7
	3	✓	3	D	57	64	7	1	7
	4	✓	4	E,F,G	70	79	9	1	9

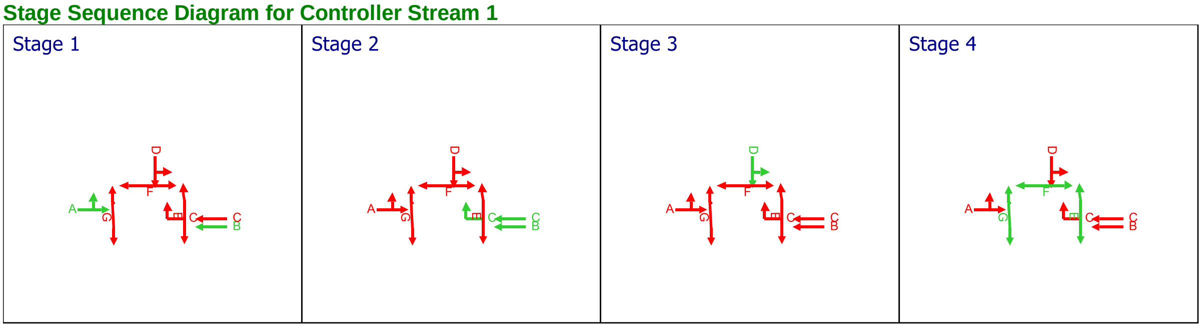
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	B	87	51	54
1	2		1	C	44	51	7
2	1		1	A	87	39	42
5	1		1	D	57	64	7
7	1		1	C	44	51	7

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	B	354	1895	54	0.00	31	194	27.72	9.16	48.54	4.20	100	100	0.00	14.94
	2			1	C	52	2035	7	5.26	30	203	48.26	42.86	95.86	1.36	100	100	0.00	9.42
2	**1**			1	A	488	1890	42	0.00	54	67	33.15	18.88	70.60	8.86	100	100	0.00	40.67
3	**1**					453	Unrestricted	90	7.00	0	Unrestricted	51.20	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					372	Unrestricted	90	9.00	0	Unrestricted	38.36	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	36	2123	7	6.00	19	372	52.42	40.32	93.38	0.85	100	100	0.00	6.15
6	**1**					105	Unrestricted	90	33.00	0	Unrestricted	26.15	0.00	0.00	0.00	100	100	0.00	0.00
7	**1**			1	C	52	1770	7	1.00	33	172	10.47	8.43	9.61	0.13	100	100	0.00	1.79
8	**1**					406	1915	90	0.00	21	325	11.66	0.25	0.00	0.03	100	100	0.00	0.40

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	493.28	21.08	23.41	4.63	65.78	7.58	0.00	73.37
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	493.28	21.08	23.41	4.63	65.78	7.58	0.00	73.37

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - Existing Layout
D2 - 2025 Base + Redistribution, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To						
		A	**B**	**C**	**D**	**E**	**F**	**G**
From	**A**			5	6	6	6	6
	B				6	6	6	6
	C	5			6	6	6	6
	D	6	6	6		6	6	6
	E	8	8	8	8			
	F	8	8	8	8			
	G	8	8	8	8			

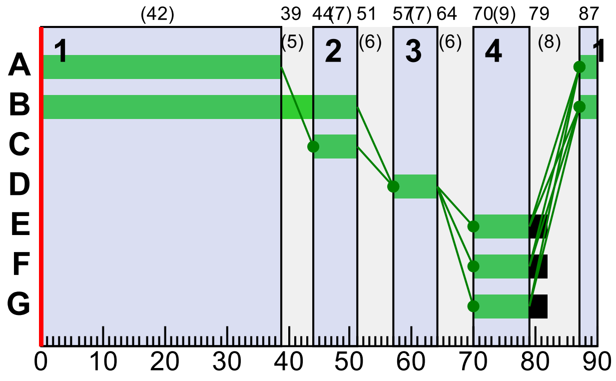
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	87	39	42	1	7
	2	✓	2	B,C	44	51	7	1	7
	3	✓	3	D	57	64	7	1	7
	4	✓	4	E,F,G	70	79	9	1	9

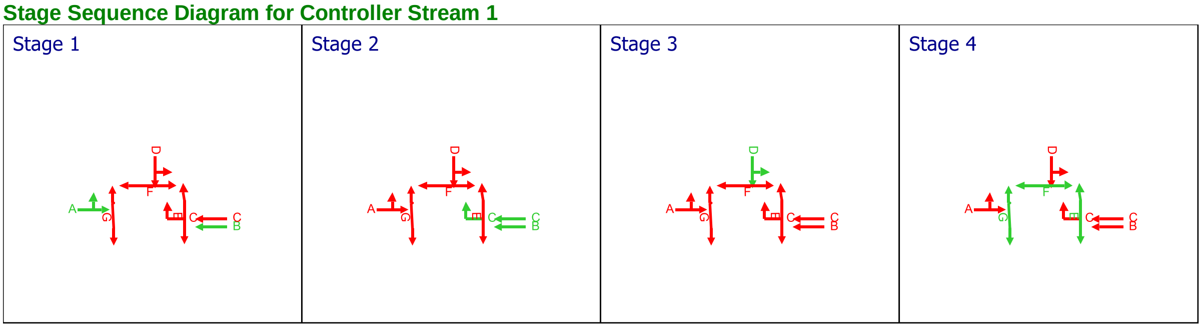
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	B	87	51	54
1	2		1	C	44	51	7
2	1		1	A	87	39	42
5	1		1	D	57	64	7
7	1		1	C	44	51	7

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	B	464	1895	54	0.00	40	125	28.77	10.21	51.65	6.13	100	100	0.00	21.68
	2			1	C	52	2035	7	5.26	30	203	48.26	42.86	95.86	1.36	100	100	0.00	9.42
2	**1**			1	A	531	1890	42	0.00	59	53	34.16	19.90	73.27	10.00	100	100	0.00	46.56
3	**1**					493	Unrestricted	90	6.00	0	Unrestricted	51.20	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					482	Unrestricted	90	7.00	0	Unrestricted	38.36	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	36	2123	7	6.00	19	372	52.42	40.32	93.38	0.85	100	100	0.00	6.15
6	**1**					108	Unrestricted	90	29.00	0	Unrestricted	26.15	0.00	0.00	0.00	100	100	0.00	0.00
7	**1**			1	C	52	1770	7	1.00	33	172	10.47	8.43	9.61	0.13	100	100	0.00	1.79
8	**1**					516	1915	90	0.00	27	234	11.75	0.35	0.00	0.05	100	100	0.00	0.71

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	578.74	24.74	23.40	5.44	77.31	8.99	0.00	86.30
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	578.74	24.74	23.40	5.44	77.31	8.99	0.00	86.30

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - Existing Layout
D3 - 2025 Base, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To						
		A	**B**	**C**	**D**	**E**	**F**	**G**
From	**A**			5	6	6	6	6
	B				6	6	6	6
	C	5			6	6	6	6
	D	6	6	6		6	6	6
	E	8	8	8	8			
	F	8	8	8	8			
	G	8	8	8	8			

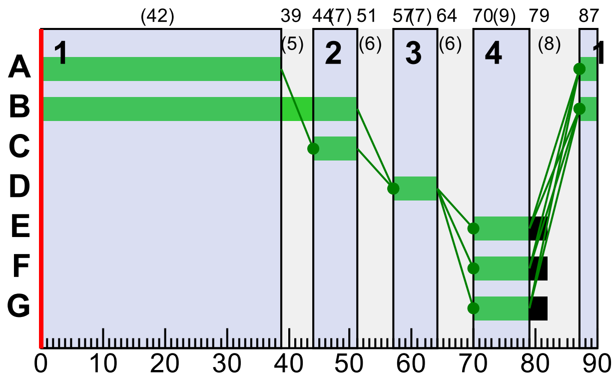
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	87	39	42	1	7
	2	✓	2	B,C	44	51	7	1	7
	3	✓	3	D	57	64	7	1	7
	4	✓	4	E,F,G	70	79	9	1	9

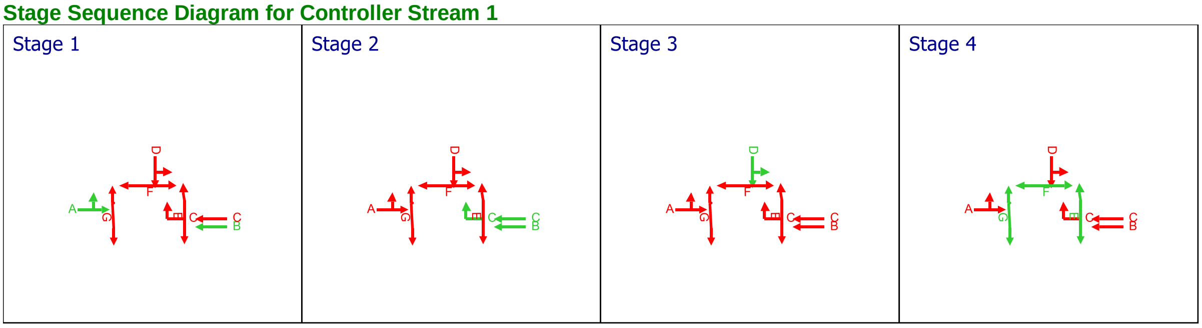
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	B	87	51	54
1	2		1	C	44	51	7
2	1		1	A	87	39	42
5	1		1	D	57	64	7
7	1		1	C	44	51	7

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	B	420	1895	54	0.00	36	148	28.32	9.76	50.98	5.24	100	100	0.00	18.86
	2			1	C	57	2035	7	5.26	33	176	48.97	43.57	98.43	1.41	100	100	0.00	10.50
2	**1**			1	A	541	1887	42	0.00	60	50	34.45	20.18	73.78	10.22	100	100	0.00	48.08
3	**1**					468	Unrestricted	90	4.00	0	Unrestricted	51.20	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					445	Unrestricted	90	7.00	0	Unrestricted	38.36	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	50	2123	7	6.00	26	240	53.78	41.68	94.68	1.20	100	100	0.00	8.81
6	**1**					155	Unrestricted	90	21.00	0	Unrestricted	26.15	0.00	0.00	0.00	100	100	0.00	0.00
7	**1**			1	C	57	1770	7	1.00	36	148	11.38	9.34	10.60	0.15	100	100	0.00	2.17
8	**1**					477	1915	90	0.00	25	261	11.72	0.31	0.00	0.04	100	100	0.00	0.59

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	558.89	24.26	23.04	5.63	79.95	9.06	0.00	89.01
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	558.89	24.26	23.04	5.63	79.95	9.06	0.00	89.01

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - Existing Layout
D4 - 2025 Base + Redistribution, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To						
		A	**B**	**C**	**D**	**E**	**F**	**G**
From	**A**			5	6	6	6	6
	B				6	6	6	6
	C	5			6	6	6	6
	D	6	6	6		6	6	6
	E	8	8	8	8			
	F	8	8	8	8			
	G	8	8	8	8			

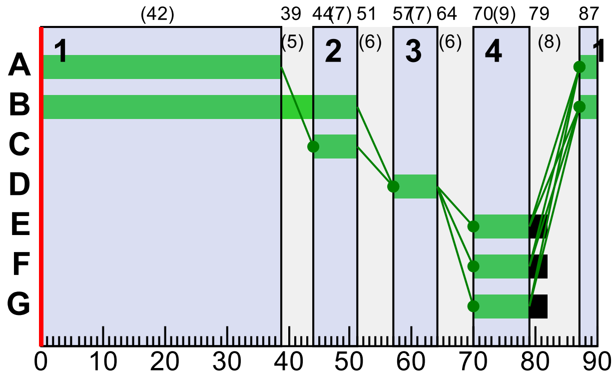
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	87	39	42	1	7
	2	✓	2	B,C	44	51	7	1	7
	3	✓	3	D	57	64	7	1	7
	4	✓	4	E,F,G	70	79	9	1	9

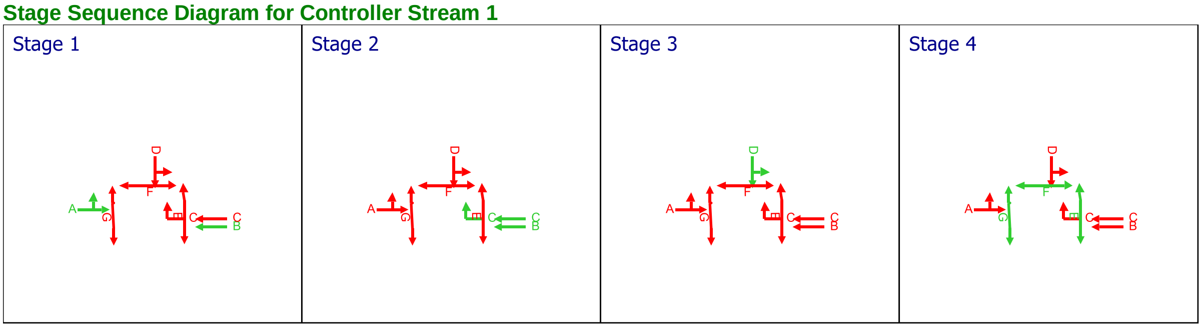
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	B	87	51	54
1	2		1	C	44	51	7
2	1		1	A	87	39	42
5	1		1	D	57	64	7
7	1		1	C	44	51	7

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	B	477	1895	54	0.00	41	119	28.91	10.35	53.11	6.24	100	100	0.00	22.65
	2			1	C	57	2035	7	5.26	33	176	48.97	43.57	98.43	1.41	100	100	0.00	10.50
2	**1**			1	A	710	1888	42	0.00	79	14	41.15	26.88	88.57	16.21	100	100	0.00	83.17
3	**1**					626	Unrestricted	90	1.00	0	Unrestricted	51.20	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					504	Unrestricted	90	5.00	0	Unrestricted	38.36	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	52	2124	7	5.00	28	227	54.01	41.91	95.70	1.27	100	100	0.00	9.22
6	**1**					166	Unrestricted	90	21.00	0	Unrestricted	26.15	0.00	0.00	0.00	100	100	0.00	0.00
7	**1**			1	C	57	1770	7	1.00	36	148	11.38	9.34	10.60	0.15	100	100	0.00	2.17
8	**1**					534	1915	90	0.00	28	223	11.77	0.36	0.00	0.05	100	100	0.00	0.77

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	682.08	30.91	22.07	8.17	116.01	12.46	0.00	128.48
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	682.08	30.91	22.07	8.17	116.01	12.46	0.00	128.48

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

TRANSYT 16

Version: 16.1.2.2043

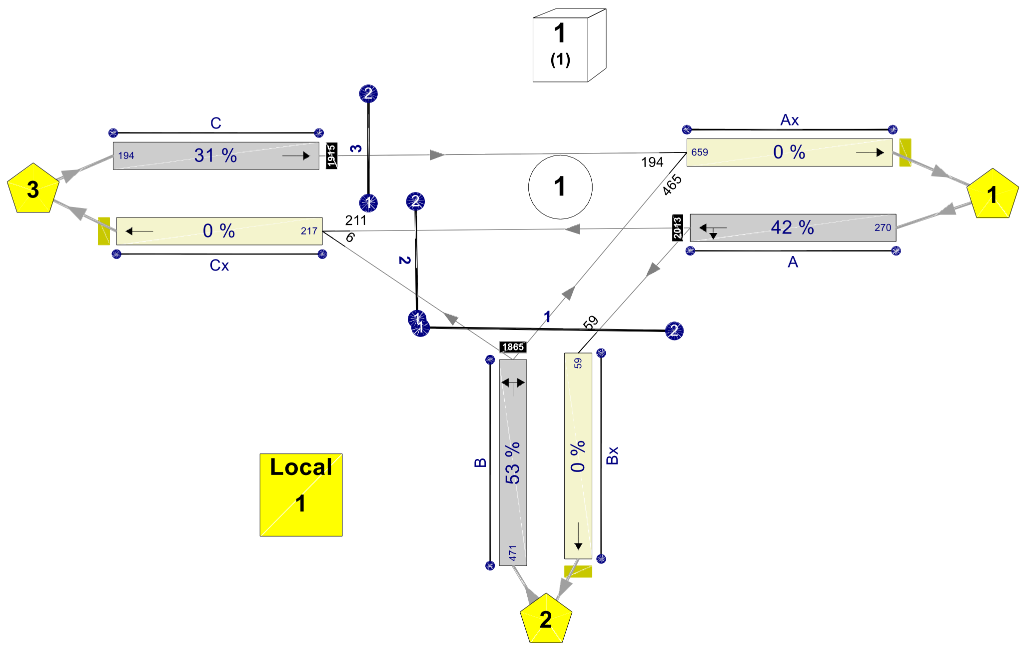
Filename: J8 - Castle St_Mayfield Rd.t16
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\TRANSYT
Report generation date: 19/04/2024 10:18:32

»A1 - (untitled) : D1 - 2025 Base, AM :
»A1 - (untitled) : D3 - 2025 Base + Redistribution, AM :
»A1 - (untitled) : D4 - 2025 Base, PM :
»A1 - (untitled) : D5 - 2025 Base + Redistribution, PM :

Summary of network performance

	AM					PM				
	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated
	(untitled) - 2025 Base									
Network	D1	53.97	3.42	44% (TS B/1)	0 (0%)	D4	61.64	3.91	44% (TS B/1)	0 (0%)
	(untitled) - 2025 Base + Redistribution									
Network	D3	65.58	4.16	48% (TS B/1)	0 (0%)	D5	89.45	5.69	53% (TS B/1)	0 (0%)

Network Diagrams



(untitled)
Cycletime 0s / 90s
Timesteps 89 / 90
5
Diagram produced using TRANSYT 16.1.2.2043

A1 - (untitled)
D1 - 2025 Base, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To					
		A	B	C	D	E	F
From	A			7	5	7	
	B			6	7	5	5
	C	7	6		0	0	
	D	5	7	5			
	E	7	5	7			
	F		6				

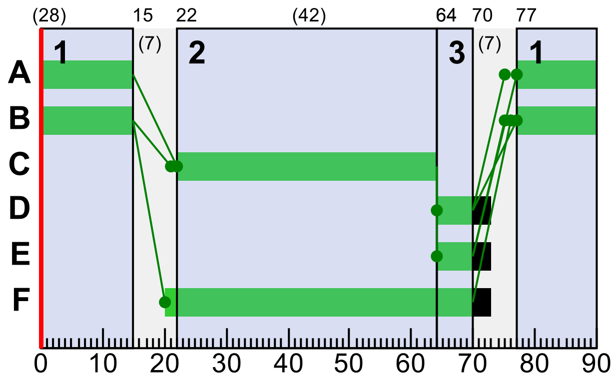
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,B	77	15	28	1	7
	2	✓	2	C,F	22	64	42	1	7
	3	✓	3	D,E,F	64	70	6	1	6

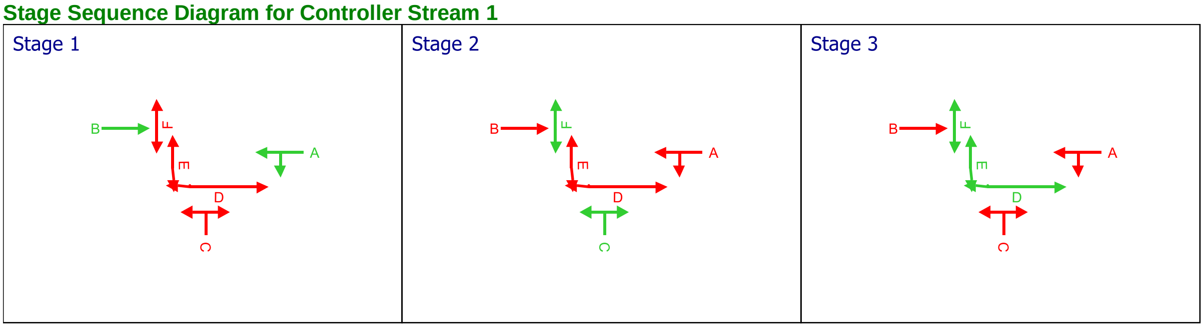
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	1	1	1	A	77	15	28
B	1	1	1	C	22	64	42
C	1	1	1	B	77	15	28

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES		WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Mean end of red queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
A	1	Culduthel Road (N)	1	1	A	159	2032	44	0.00	16	475	24.54	12.54	52.38	2.13	2.00	100	100	0.00	8.91

Ax	**1**	(untitled)				493	Unrestricted	90	5.00	0	Unrestricted	15.90	0.00	0.00	0.00		100	100	0.00	0.00
B	**1**	Mayfield Road	1	1	C	245	1865	26	0.00	44	106	39.89	27.89	81.27	5.07	4.46	100	100	0.00	29.45
Bx	**1**	(untitled)				5	Unrestricted	90	90.00	0	Unrestricted	13.17	0.00	0.00	0.00		100	100	0.00	0.00
C	**1**	Culduthel Road (S)	1	1	B	256	1915	44	0.00	27	237	20.42	13.67	56.07	3.68	3.25	100	100	0.00	15.61
Cx	**1**	(untitled)				162	Unrestricted	90	41.00	0	Unrestricted	13.75	0.00	0.00	0.00		100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	139.23	8.07	17.26	3.19	0.23	48.63	5.34	0.00	53.97
Bus									
Tram									
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	139.23	8.07	17.26	3.19	0.23	48.63	5.34	0.00	53.97

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D3 - 2025 Base + Redistribution, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To					
		A	**B**	**C**	**D**	**E**	**F**
From	**A**			7	5	7	
	B			6	7	5	5
	C	7	6		0	0	
	D	5	7	5			
	E	7	5	7			
	F		6				

Resultant Stages

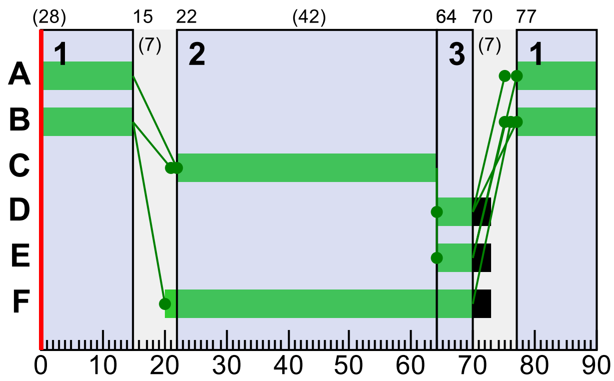
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	A,B	77	15	28	1	7
	2	✓	2	C,F	22	64	42	1	7

	3	✓	3	D,E,F	64	70	6	1	6

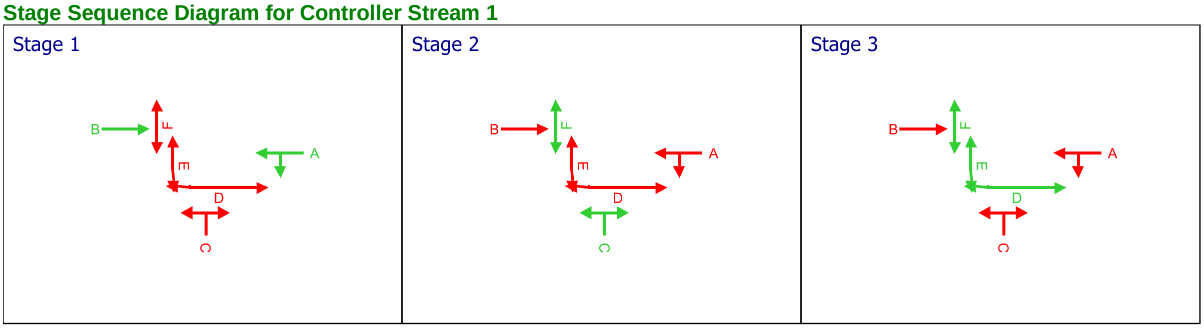
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	**1**	1	1	A	77	15	28
B	**1**	1	1	C	22	64	42
C	**1**	1	1	B	77	15	28

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES		WEIGHTS		PENALTIES	P.I.
Arm	**Traffic Stream**	**Name**	**Traffic node**	**Controller stream**	**Phase**	**Calculated flow entering (PCU/hr)**	**Calculated sat flow (PCU/hr)**	**Actual green (s (per cycle))**	**Wasted time total (s (per cycle))**	**Degree of saturation (%)**	**Practical reserve capacity (%)**	**JourneyTime (s)**	**Mean Delay per Veh (s)**	**Mean stops per Veh (%)**	**Mean max queue (PCU)**	**Mean end of red queue (PCU)**	**Delay weighting multiplier (%)**	**Stop weighting multiplier (%)**	**Cost of traffic penalties (£ per hr)**	**P.I.**
A	**1**	Culduthel Road (N)	1	1	A	228	2004	42	0.00	24	278	26.44	14.44	57.27	3.39	3.01	100	100	0.00	14.62
Ax	**1**	(untitled)				537	Unrestricted	90	4.00	0	Unrestricted	15.90	0.00	0.00	0.00		100	100	0.00	0.00

B	**1**	Mayfield Road	1	1	C	289	1865	28	0.00	48	87	39.23	27.23	81.20	6.00	5.12	100	100	0.00	33.98
Bx	**1**	(untitled)				74	Unrestricted	90	47.00	0	Unrestricted	13.17	0.00	0.00	0.00		100	100	0.00	0.00
C	**1**	Culduthel Road (S)	1	1	B	256	1915	42	0.00	28	222	21.69	14.94	59.14	3.89	3.40	100	100	0.00	16.98
Cx	**1**	(untitled)				162	Unrestricted	90	43.00	0	Unrestricted	13.75	0.00	0.00	0.00		100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	163.93	9.63	17.03	3.85	0.31	59.11	6.48	0.00	65.58
Bus									
Tram									
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	163.93	9.63	17.03	3.85	0.31	59.11	6.48	0.00	65.58

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D4 - 2025 Base, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To					
		A	**B**	**C**	**D**	**E**	**F**
From	**A**			7	5	7	
	B			6	7	5	5
	C	7	6		0	0	
	D	5	7	5			
	E	7	5	7			
	F		6				

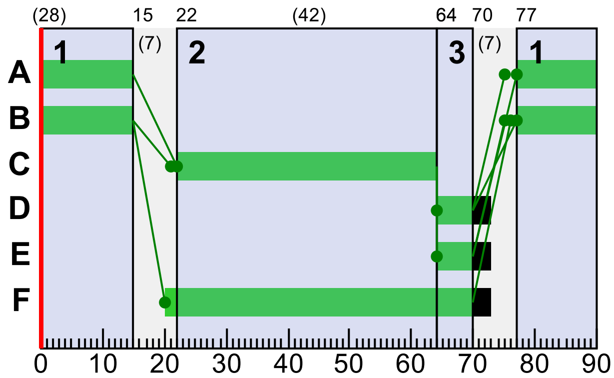
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	A,B	77	15	28	1	7
	2	✓	2	C,F	22	64	42	1	7
	3	✓	3	D,E,F	64	70	6	1	6

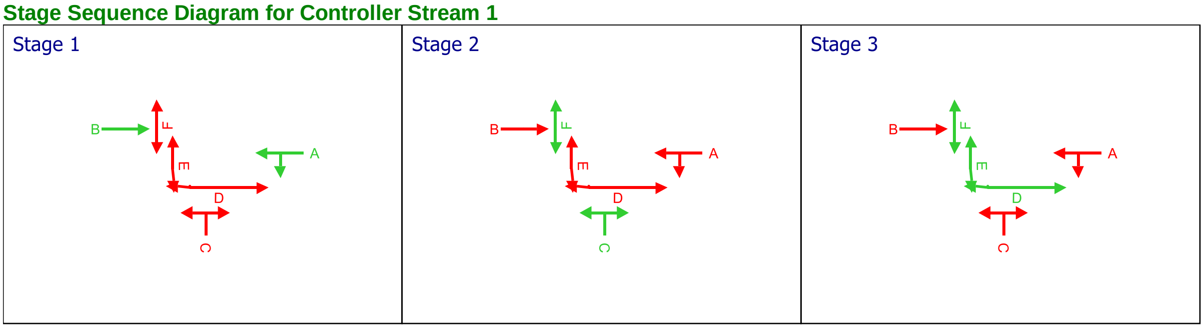
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
A	**1**	1	1	A	77	15	28
B	**1**	1	1	C	22	64	42
C	**1**	1	1	B	77	15	28

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

			SIGNALS			FLOWS		PERFORMANCE				PER PCU			QUEUES		WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Mean end of red queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
A	**1**	Culdutheл Road (N)	1	1	A	218	2032	38	0.00	25	264	28.86	16.86	62.27	3.49	3.13	100	100	0.00	16.20
Ax	**1**	(untitled)				491	Unrestricted	90	5.00	0	Unrestricted	15.90	0.00	0.00	0.00		100	100	0.00	0.00
B	**1**	Mayfield Road	1	1	C	303	1865	32	0.00	44	103	35.64	23.64	75.55	5.90	4.97	100	100	0.00	31.12

Bx	**1**	(untitled)				7	Unrestricted	90	90.00	0	Unrestricted	13.17	0.00	0.00	0.00		100	100	0.00	0.00
C	**1**	Culduthel Road (S)	1	1	B	194	1915	38	0.00	23	285	23.50	16.75	61.61	3.05	2.78	100	100	0.00	14.32
Cx	**1**	(untitled)				217	Unrestricted	90	46.00	0	Unrestricted	13.75	0.00	0.00	0.00		100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	153.70	9.04	17.01	3.66	0.25	55.57	6.07	0.00	61.64
Bus									
Tram									
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	153.70	9.04	17.01	3.66	0.25	55.57	6.07	0.00	61.64

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D5 - 2025 Base + Redistribution, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To					
		A	**B**	**C**	**D**	**E**	**F**
From	**A**			7	5	7	
	B			6	7	5	5
	C	7	6		0	0	
	D	5	7	5			
	E	7	5	7			
	F		6				

Resultant Stages

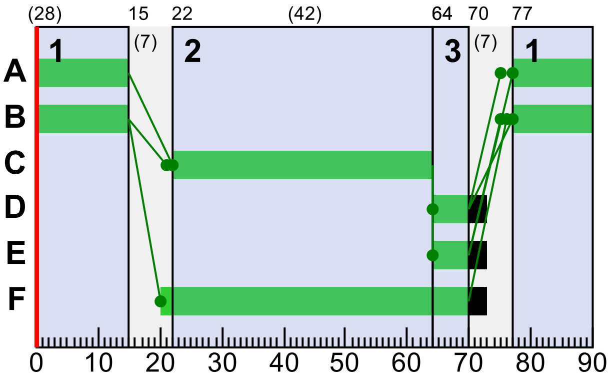
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	A,B	77	15	28	1	7
	2	✓	2	C,F	22	64	42	1	7
	3	✓	3	D,E,F	64	70	6	1	6

Traffic Stream Green Times

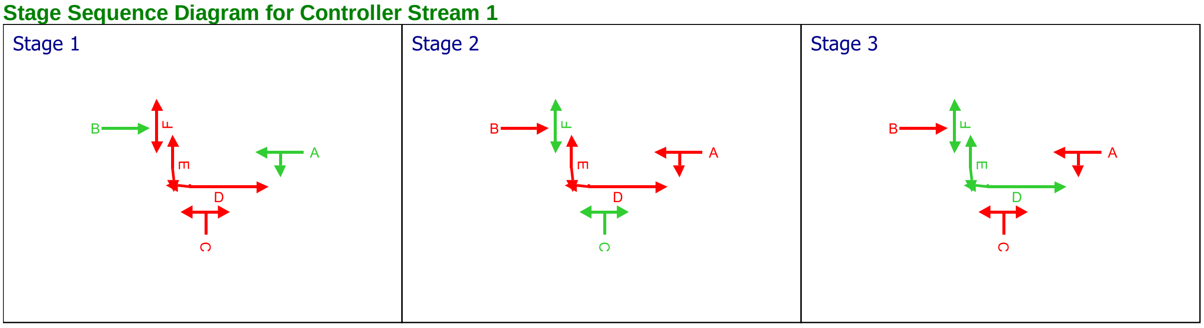
Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration

A	**1**	1	1	A	77	15	28
B	**1**	1	1	C	22	64	42
C	**1**	1	1	B	77	15	28

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES		WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Mean end of red queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
A	**1**	Culdthel Road (N)	1	1	A	270	2013	28	0.00	42	116	37.86	25.86	78.42	5.40	4.72	100	100	0.00	30.19
Ax	**1**	(untitled)				659	Unrestricted	90	2.00	0	Unrestricted	15.90	0.00	0.00	0.00		100	100	0.00	0.00
B	**1**	Mayfield Road	1	1	C	471	1865	42	0.00	53	70	30.68	18.68	69.75	8.41	6.44	100	100	0.00	38.82
Bx	**1**	(untitled)				59	Unrestricted	90	61.00	0	Unrestricted	13.17	0.00	0.00	0.00		100	100	0.00	0.00
C	**1**	Culdthel	1	1	B	194	1915	28	0.00	31	186	31.09	24.34	74.60	3.68	3.36	100	100	0.00	20.44

		Road (S)																		
Cx	**1**	(untitled)				217	Unrestricted	90	56.00	0	Unrestricted	13.75	0.00	0.00	0.00		100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Uniform delay (PCU-hr/hr)	Random plus oversat delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	203.67	12.48	16.31	5.18	0.52	80.86	8.59	0.00	89.45
Bus									
Tram									
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	203.67	12.48	16.31	5.18	0.52	80.86	8.59	0.00	89.45

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Junction 10 - Bank St_Fraser St.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 09:53:59

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2025 Base					
Stream B-AC	0.0	0.00	0.00	0.0	0.00	0.00
Stream C-B	0.1	6.60	0.08	0.1	7.07	0.05
	2025 Redistribution					
Stream B-AC	0.0	0.00	0.00	0.0	0.00	0.00
Stream C-B	0.1	6.76	0.09	0.1	7.11	0.07

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

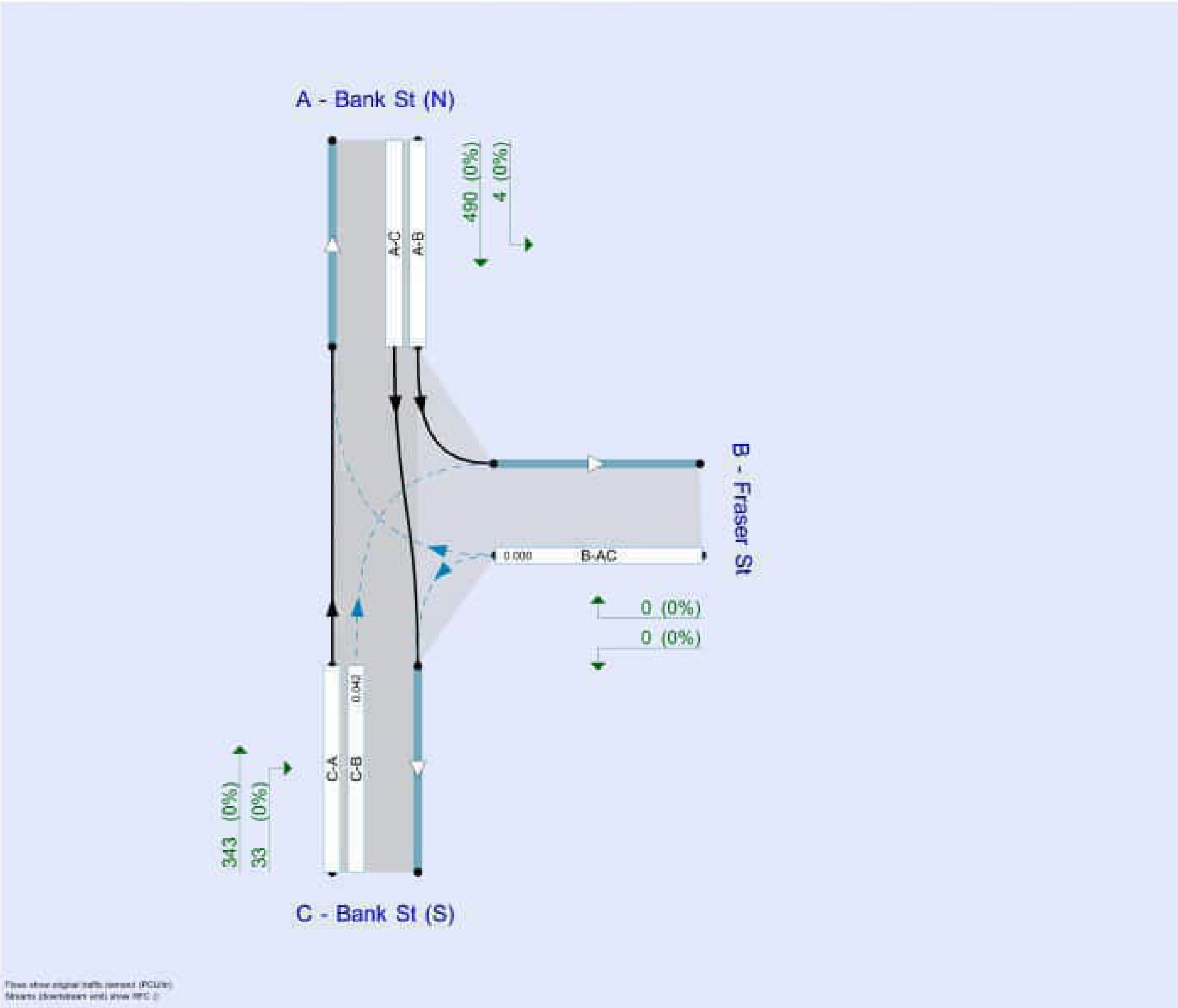
File summary

File Description

Title	
Location	
Site number	
Date	29/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\ukcwb002
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.39	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.39	A

Arms

Arms

Arm	Name	Description	Arm type
A	Bank St (N)		Major
B	Fraser St		Minor
C	Bank St (S)		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Width for right-turn storage (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C - Bank St (S)	6.50		✓	3.00	95.0		-

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Fraser St	One lane	5.00	19	18

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	591	0.105	0.266	0.168	0.381
B-C	782	0.114	0.289	-	-
C-B	684	0.259	0.259	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bank St (N)		ONE HOUR	✓	320	100.000
B - Fraser St		ONE HOUR	✓	0	100.000
C - Bank St (S)		ONE HOUR	✓	411	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	13	307
	B - Fraser St	0	0	0
	C - Bank St (S)	368	43	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	0	0
	B - Fraser St	0	0	0
	C - Bank St (S)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-A					338	507
C-B	0.08	6.60	0.1	A	39	59
A-B					12	18
A-C					282	423

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	561	0.000	0	0.0	0.0	0.000	A
C-A	277	69			277				
C-B	32	8	621	0.052	32	0.0	0.1	6.109	A
A-B	10	2			10				
A-C	231	58			231				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	539	0.000	0	0.0	0.0	0.000	A
C-A	331	83			331				
C-B	39	10	609	0.063	39	0.1	0.1	6.309	A
A-B	12	3			12				
A-C	276	69			276				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	510	0.000	0	0.0	0.0	0.000	A
C-A	405	101			405				
C-B	47	12	592	0.080	47	0.1	0.1	6.603	A
A-B	14	4			14				
A-C	338	85			338				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	510	0.000	0	0.0	0.0	0.000	A
C-A	405	101			405				
C-B	47	12	592	0.080	47	0.1	0.1	6.603	A
A-B	14	4			14				
A-C	338	85			338				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	539	0.000	0	0.0	0.0	0.000	A
C-A	331	83			331				
C-B	39	10	609	0.063	39	0.1	0.1	6.313	A
A-B	12	3			12				
A-C	276	69			276				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	561	0.000	0	0.0	0.0	0.000	A
C-A	277	69			277				
C-B	32	8	621	0.052	32	0.1	0.1	6.113	A
A-B	10	2			10				
A-C	231	58			231				

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.21	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.21	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bank St (N)		ONE HOUR	✓	511	100.000
B - Fraser St		ONE HOUR	✓	0	100.000
C - Bank St (S)		ONE HOUR	✓	357	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	6	505
	B - Fraser St	0	0	0
	C - Bank St (S)	331	26	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	0	0
	B - Fraser St	0	0	0
	C - Bank St (S)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-A					304	456
C-B	0.05	7.07	0.1	A	24	36
A-B					6	8
A-C					463	695

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	526	0.000	0	0.0	0.0	0.000	A
C-A	249	62			249				
C-B	20	5	584	0.034	19	0.0	0.0	6.374	A
A-B	5	1			5				
A-C	380	95			380				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	498	0.000	0	0.0	0.0	0.000	A
C-A	298	74			298				
C-B	23	6	565	0.041	23	0.0	0.0	6.649	A
A-B	5	1			5				
A-C	454	113			454				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	458	0.000	0	0.0	0.0	0.000	A
C-A	364	91			364				
C-B	29	7	538	0.053	29	0.0	0.1	7.067	A
A-B	7	2			7				
A-C	556	139			556				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	458	0.000	0	0.0	0.0	0.000	A
C-A	364	91			364				
C-B	29	7	538	0.053	29	0.1	0.1	7.067	A
A-B	7	2			7				
A-C	556	139			556				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	498	0.000	0	0.0	0.0	0.000	A
C-A	298	74			298				
C-B	23	6	565	0.041	23	0.1	0.0	6.650	A
A-B	5	1			5				
A-C	454	113			454				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	526	0.000	0	0.0	0.0	0.000	A
C-A	249	62			249				
C-B	20	5	584	0.034	20	0.0	0.0	6.377	A
A-B	5	1			5				
A-C	380	95			380				

2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.44	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.44	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bank St (N)		ONE HOUR	✓	350	100.000
B - Fraser St		ONE HOUR	✓	0	100.000
C - Bank St (S)		ONE HOUR	✓	377	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	10	340
	B - Fraser St	0	0	0
	C - Bank St (S)	330	47	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	0	0
	B - Fraser St	0	0	0
	C - Bank St (S)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-A					303	454
C-B	0.09	6.78	0.1	A	43	65
A-B					9	14
A-C					312	468

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	556	0.000	0	0.0	0.0	0.000	A
C-A	248	62			248				
C-B	35	9	615	0.057	35	0.0	0.1	6.200	A
A-B	8	2			8				
A-C	256	64			256				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	534	0.000	0	0.0	0.0	0.000	A
C-A	297	74			297				
C-B	42	11	602	0.070	42	0.1	0.1	6.428	A
A-B	9	2			9				
A-C	306	76			306				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	504	0.000	0	0.0	0.0	0.000	A
C-A	363	91			363				
C-B	52	13	584	0.089	52	0.1	0.1	6.784	A
A-B	11	3			11				
A-C	374	94			374				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	504	0.000	0	0.0	0.0	0.000	A
C-A	363	91			363				
C-B	52	13	584	0.089	52	0.1	0.1	6.784	A
A-B	11	3			11				
A-C	374	94			374				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	534	0.000	0	0.0	0.0	0.000	A
C-A	297	74			297				
C-B	42	11	602	0.070	42	0.1	0.1	6.432	A
A-B	9	2			9				
A-C	306	76			306				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	556	0.000	0	0.0	0.0	0.000	A
C-A	248	62			248				
C-B	35	9	615	0.057	35	0.1	0.1	6.209	A
A-B	8	2			8				
A-C	256	64			256				

2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	Two-way	Two-way		0.27	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	0.27	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Bank St (N)		ONE HOUR	✓	494	100.000
B - Fraser St		ONE HOUR	✓	0	100.000
C - Bank St (S)		ONE HOUR	✓	376	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	4	490
	B - Fraser St	0	0	0
	C - Bank St (S)	343	33	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A - Bank St (N)	B - Fraser St	C - Bank St (S)
From	A - Bank St (N)	0	0	0
	B - Fraser St	0	0	0
	C - Bank St (S)	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.00	0.00	0.0	A	0	0
C-A					315	472
C-B	0.07	7.11	0.1	A	30	45
A-B					4	6
A-C					450	674

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	527	0.000	0	0.0	0.0	0.000	A
C-A	258	65			258				
C-B	25	6	587	0.042	25	0.0	0.0	6.396	A
A-B	3	0.75			3				
A-C	369	92			369				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	499	0.000	0	0.0	0.0	0.000	A
C-A	308	77			308				
C-B	30	7	569	0.052	30	0.0	0.1	6.678	A
A-B	4	0.90			4				
A-C	440	110			440				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	460	0.000	0	0.0	0.0	0.000	A
C-A	378	94			378				
C-B	36	9	543	0.067	36	0.1	0.1	7.107	A
A-B	4	1			4				
A-C	540	135			540				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	460	0.000	0	0.0	0.0	0.000	A
C-A	378	94			378				
C-B	36	9	543	0.067	36	0.1	0.1	7.107	A
A-B	4	1			4				
A-C	540	135			540				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	499	0.000	0	0.0	0.0	0.000	A
C-A	308	77			308				
C-B	30	7	569	0.052	30	0.1	0.1	6.680	A
A-B	4	0.90			4				
A-C	440	110			440				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	0	0	527	0.000	0	0.0	0.0	0.000	A
C-A	258	65			258				
C-B	25	6	587	0.042	25	0.1	0.0	6.400	A
A-B	3	0.75			3				
A-C	369	92			369				

Junctions 10

PICADY 10 - Priority Intersection Module

Filename: Junction 11 - Fraser Street _Church Street.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 10:03:28

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2025 Base											
Stream B-ACD	D1	0.1	5.94	0.07	A	187 % [Stream D-ABC]	D2	0.2	6.55	0.16	A	143 % [Stream D-ABC]
Stream A-BCD		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Stream D-ABC		0.3	11.13	0.25	B			0.4	11.93	0.28	B	
Stream C-ABD		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
	2025 Base + Redistribution											
Stream B-ACD	D3	0.0	5.60	0.01	A	163 % [Stream D-ABC]	D4	0.0	5.60	0.01	A	139 % [Stream D-ABC]
Stream A-BCD		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
Stream D-ABC		0.4	11.52	0.28	B			0.5	12.02	0.31	B	
Stream C-ABD		0.0	0.00	0.00	A			0.0	0.00	0.00	A	

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Network Residual Capacity indicates the amount by which network flow could be increased before a user-definable threshold (see Analysis Options) is met.

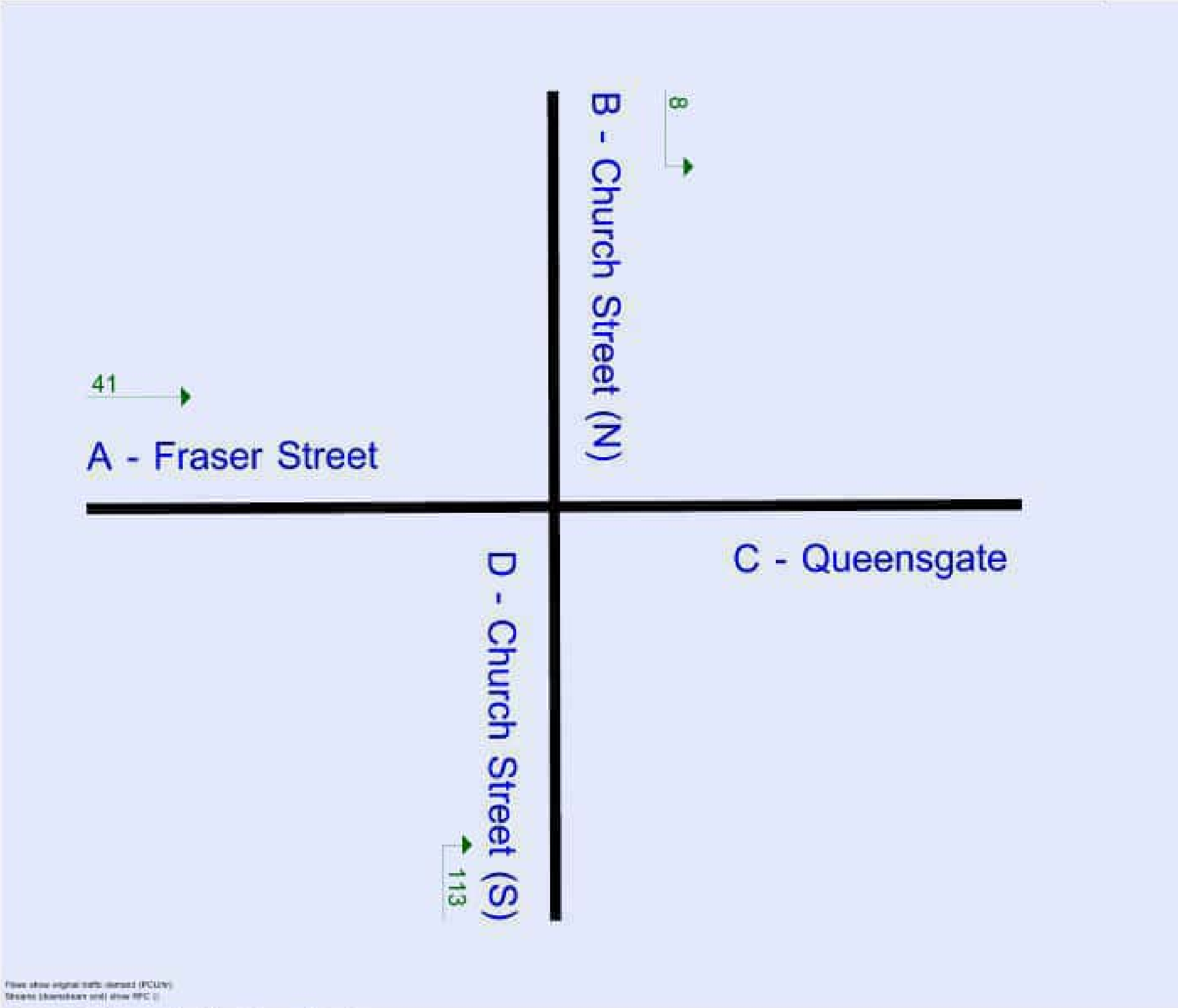
File summary

File Description

Title	
Location	
Site number	
Date	04/03/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKAKM003
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	Residual capacity criteria type	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75					✓	Delay	0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Base + Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Base + Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Entry Only	Entry Only	Exit Only	Entry Only		6.95	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	187	Stream D-ABC	6.95	A

Arms

Arms

Arm	Name	Description	Arm type
A	Fraser Street		Major
B	Church Street (N)		Minor
C	Queensgate		Major
D	Church Street (S)		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right-turn storage	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - Fraser Street	4.00			0.0	✓	0.00
C - Queensgate	4.00				✓	

Geometries for Arm C are measured opposite Arm B. Geometries for Arm A (if relevant) are measured opposite Arm D.

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B - Church Street (N)	One lane	3.50	0	10
D - Church Street (S)	One lane	2.20	15	0

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	574	-	-	-	-	-	-	0.203	0.290	0.203	-	-	-
B-A	507	0.084	0.213	0.213	-	-	-	0.134	0.304	-	0.213	0.213	0.107
B-C	662	0.093	0.234	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	507	0.084	0.213	0.213	-	-	-	0.134	0.304	0.134	-	-	-
B-D, offside lane	507	0.084	0.213	0.213	-	-	-	0.134	0.304	0.134	-	-	-
C-B	574	0.203	0.203	0.290	-	-	-	-	-	-	-	-	-
D-A	574	-	-	-	-	-	-	0.203	-	0.080	-	-	-
D-B, nearside lane	444	0.117	0.117	0.267	-	-	-	0.187	0.187	0.074	-	-	-
D-B, offside lane	444	0.117	0.117	0.267	-	-	-	0.187	0.187	0.074	-	-	-
D-C	444	-	0.117	0.267	0.093	0.187	0.187	0.187	0.187	0.074	-	-	-

The slopes and intercepts shown above include custom intercept adjustments only.

Streams may be combined, in which case capacity will be adjusted.

Values are shown for the first time segment only; they may differ for subsequent time segments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fraser Street		ONE HOUR	✓	52	100.000
B - Church Street (N)		ONE HOUR	✓	39	100.000
C - Queensgate		ONE HOUR	✓	0	100.000
D - Church Street (S)		ONE HOUR	✓	96	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	52	0
	B - Church Street (N)	0	0	39	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	96	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	0	0
	B - Church Street (N)	0	0	0	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.07	5.94	0.1	A	36	54
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					48	72
D-ABC	0.25	11.13	0.3	B	88	132
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0	0
C-A					0	0

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	29	7	653	0.045	29	0.0	0.0	5.773	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	39	10			39				
D-ABC	72	18	434	0.167	71	0.0	0.2	9.916	A
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	35	9	651	0.054	35	0.0	0.1	5.845	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	47	12			47				
D-ABC	86	22	432	0.200	86	0.2	0.2	10.404	B
C-ABD	0	0	564	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	43	11	648	0.066	43	0.1	0.1	5.945	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	57	14			57				
D-ABC	106	26	429	0.246	105	0.2	0.3	11.109	B
C-ABD	0	0	562	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	43	11	648	0.066	43	0.1	0.1	5.945	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	57	14			57				
D-ABC	106	26	429	0.246	106	0.3	0.3	11.129	B
C-ABD	0	0	562	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	35	9	651	0.054	35	0.1	0.1	5.846	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	47	12			47				
D-ABC	86	22	432	0.200	87	0.3	0.3	10.437	B
C-ABD	0	0	564	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	29	7	653	0.045	29	0.1	0.0	5.778	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	39	10			39				
D-ABC	72	18	434	0.167	72	0.3	0.2	9.970	A
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Entry Only	Entry Only	Exit Only	Entry Only		7.83	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	143	Stream D-ABC	7.83	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fraser Street		ONE HOUR	✓	41	100.000
B - Church Street (N)		ONE HOUR	✓	92	100.000
C - Queensgate		ONE HOUR	✓	0	100.000
D - Church Street (S)		ONE HOUR	✓	107	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	41	0
	B - Church Street (N)	0	0	92	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	107	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	0	0
	B - Church Street (N)	0	0	0	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.16	6.55	0.2	A	84	127
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					38	56
D-ABC	0.28	11.93	0.4	B	98	147
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0	0
C-A					0	0

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	69	17	655	0.106	69	0.0	0.1	6.140	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	81	20	427	0.188	80	0.0	0.2	10.326	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	83	21	653	0.127	83	0.1	0.1	6.310	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	96	24	424	0.227	96	0.2	0.3	10.963	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	101	25	651	0.156	101	0.1	0.2	6.543	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	118	29	420	0.281	117	0.3	0.4	11.897	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	101	25	651	0.156	101	0.2	0.2	6.545	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	118	29	420	0.281	118	0.4	0.4	11.928	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	83	21	653	0.127	83	0.2	0.1	6.315	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	96	24	424	0.227	97	0.4	0.3	11.006	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	69	17	655	0.106	69	0.1	0.1	6.154	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	81	20	427	0.189	81	0.3	0.2	10.399	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

2025 Base + Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Entry Only	Entry Only	Exit Only	Entry Only		8.31	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	163	Stream D-ABC	8.31	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Base + Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fraser Street		ONE HOUR	✓	41	100.000
B - Church Street (N)		ONE HOUR	✓	8	100.000
C - Queensgate		ONE HOUR	✓	0	100.000
D - Church Street (S)		ONE HOUR	✓	113	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	41	0
	B - Church Street (N)	0	0	8	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	113	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	0	0
	B - Church Street (N)	0	0	0	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.01	5.60	0.0	A	7	11
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					38	56
D-ABC	0.28	11.52	0.4	B	104	156
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0	0
C-A					0	0

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	2	655	0.009	6	0.0	0.0	5.550	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	85	21	439	0.194	84	0.0	0.2	10.114	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	7	2	653	0.011	7	0.0	0.0	5.572	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	102	25	438	0.232	101	0.2	0.3	10.677	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	2	651	0.014	9	0.0	0.0	5.603	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	124	31	437	0.285	124	0.3	0.4	11.490	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	2	651	0.014	9	0.0	0.0	5.603	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	124	31	437	0.285	124	0.4	0.4	11.517	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	7	2	653	0.011	7	0.0	0.0	5.572	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	102	25	438	0.232	102	0.4	0.3	10.717	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	2	655	0.009	6	0.0	0.0	5.552	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	85	21	439	0.194	85	0.3	0.2	10.182	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

2025 Base + Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Arm A Direction	Arm B Direction	Arm C Direction	Arm D Direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Entry Only	Entry Only	Exit Only	Entry Only		8.89	A

Junction Network

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold	Network delay (s)	Network LOS
Left	Normal/unknown	139	Stream D-ABC	8.89	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Base + Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - Fraser Street		ONE HOUR	✓	41	100.000
B - Church Street (N)		ONE HOUR	✓	8	100.000
C - Queensgate		ONE HOUR	✓	0	100.000
D - Church Street (S)		ONE HOUR	✓	125	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	41	0
	B - Church Street (N)	0	0	8	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	125	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - Fraser Street	B - Church Street (N)	C - Queensgate	D - Church Street (S)
From	A - Fraser Street	0	0	0	0
	B - Church Street (N)	0	0	0	0
	C - Queensgate	0	0	0	0
	D - Church Street (S)	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-ACD	0.01	5.60	0.0	A	7	11
A-BCD	0.00	0.00	0.0	A	0	0
A-B					0	0
A-C					38	56
D-ABC	0.31	12.02	0.5	B	115	172
C-ABD	0.00	0.00	0.0	A	0	0
C-D					0	0
C-A					0	0

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	2	655	0.009	6	0.0	0.0	5.550	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	94	24	439	0.214	93	0.0	0.3	10.368	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	7	2	653	0.011	7	0.0	0.0	5.572	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	112	28	438	0.256	112	0.3	0.3	11.027	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	2	651	0.014	9	0.0	0.0	5.603	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	138	34	437	0.315	137	0.3	0.5	11.990	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	9	2	651	0.014	9	0.0	0.0	5.603	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	45	11			45				
D-ABC	138	34	437	0.315	138	0.5	0.5	12.023	B
C-ABD	0	0	565	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	7	2	653	0.011	7	0.0	0.0	5.572	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	37	9			37				
D-ABC	112	28	438	0.256	113	0.5	0.4	11.075	B
C-ABD	0	0	566	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-ACD	6	2	655	0.009	6	0.0	0.0	5.552	A
A-BCD	0	0	574	0.000	0	0.0	0.0	0.000	A
A-B	0	0			0				
A-C	31	8			31				
D-ABC	94	24	439	0.214	94	0.4	0.3	10.450	B
C-ABD	0	0	568	0.000	0	0.0	0.0	0.000	A
C-D	0	0			0				
C-A	0	0			0				

TRANSYT 16

Version: 16.1.2.2043

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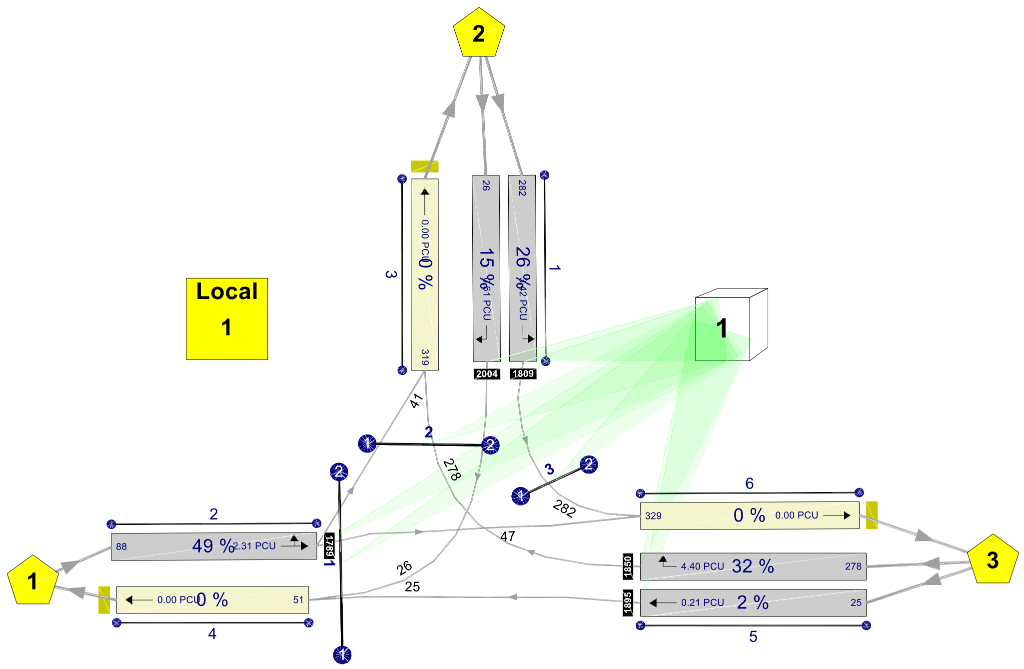
Filename: J12 - Friars Bridge_Academy Street (Updated Internal Flows).t16
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\TRANSYT
Report generation date: 19/04/2024 10:23:47

»A1 - (untitled) : D1 - 2025 Base, AM :
»A1 - (untitled) : D2 - 2025 Base, PM :
»A1 - (untitled) : D3 - 2025 Base + Redistribution, AM :
»A1 - (untitled) : D4 - 2025 Base + Redistribution, PM :

Summary of network performance

	AM					PM				
	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated
	(untitled) - 2025 Base									
Network	D1	117.40	7.56	62% (TS 2/1)	0 (0%)	D2	179.18	11.64	78% (TS 2/1)	0 (0%)
	(untitled) - 2025 Base + Redistribution									
Network	D3	54.89	3.49	49% (TS 2/1)	0 (0%)	D4	91.95	5.91	57% (TS 2/1)	0 (0%)

Network Diagrams



(untitled)
Cycletime 0s / 90s
Timesteps 89 / 90
3
Diagram produced using TRANSYT 16.1.2.2043

A1 - (untitled)
D1 - 2025 Base, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
From	**A**		5	6		5	5	0	
	B	5			5	5	7	5	
	C	5							0
	D		5				7		
	E	5	5					8	
	F	10	5		5				
	G	5	9			5			
	H			6					

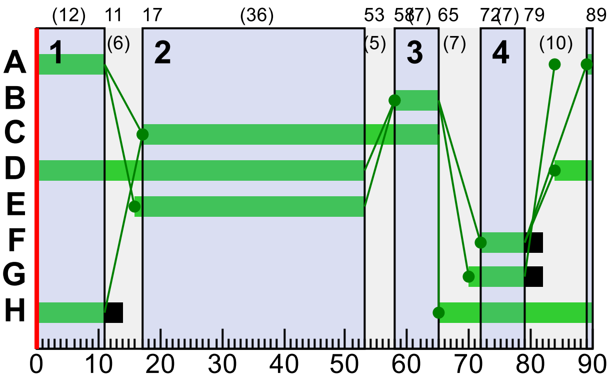
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	D,A,H	89	11	12	1	7
	2	✓	2	D,E,C	17	53	36	1	6
	3	✓	3	C,B	58	65	7	1	7
	4	✓	4	F,G,H	72	79	7	1	7

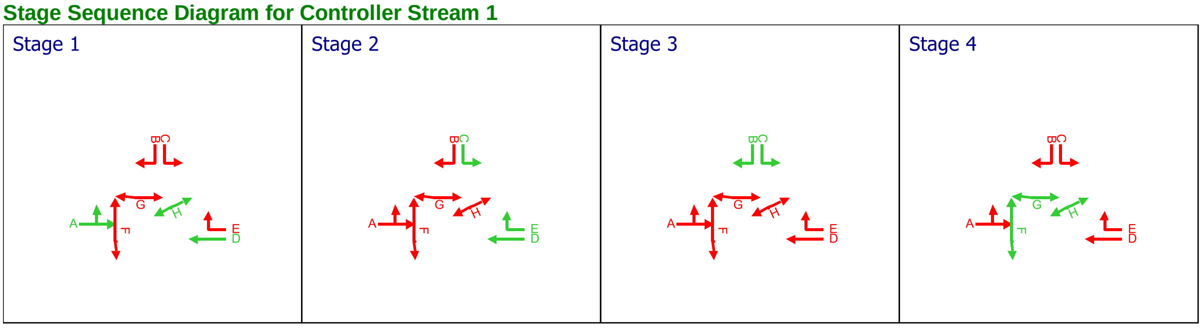
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	C	17	65	48
1	2		1	B	58	65	7
2	1		1	A	89	11	12
5	1		1	D	84	53	59
5	2		1	E	16	53	37

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	C	278 <	1809	37	0.00	36	147	31.45	19.10	67.68	4.81 +	100	100	0.00	23.31
	2			1	B	72	2004	7	0.00	40	123	57.89	45.54	100.12	1.84	100	100	0.00	13.84
2	**1**			1	A	295	1789	23	0.00	62	46	48.64	35.02	91.98	6.97	100	100	0.00	44.15
3	**1**					394	Unrestricted	90	18.00	0	Unrestricted	30.76	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					250	Unrestricted	90	0.00	0	Unrestricted	35.21	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	178	1895	59	0.00	14	539	20.74	5.76	35.12	1.64	100	100	0.00	4.83
	2			1	E	256	1850	26	0.00	46	95	43.34	28.36	82.16	5.39	100	100	0.00	31.27
6	**1**					435	Unrestricted	90	7.00	0	Unrestricted	32.96	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	417.51	21.47	19.44	7.56	107.31	10.09	0.00	117.40
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	417.51	21.47	19.44	7.56	107.31	10.09	0.00	117.40

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D2 - 2025 Base, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
From	**A**		5	6		5	5	0	
	B	5			5	5	7	5	
	C	5							0
	D		5				7		
	E	5	5					8	
	F	10	5		5				
	G	5	9			5			
	H			6					

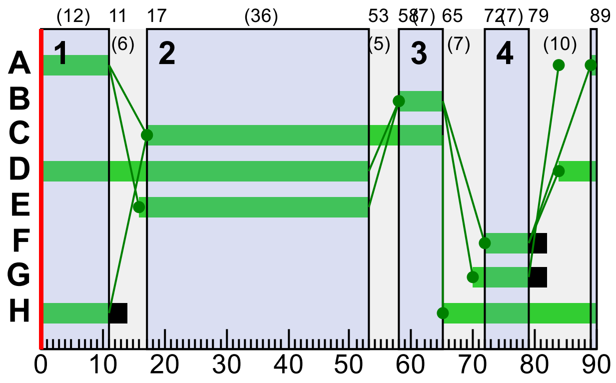
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	D,A,H	89	11	12	1	7
	2	✓	2	D,E,C	17	53	36	1	6
	3	✓	3	C,B	58	65	7	1	7
	4	✓	4	F,G,H	72	79	7	1	7

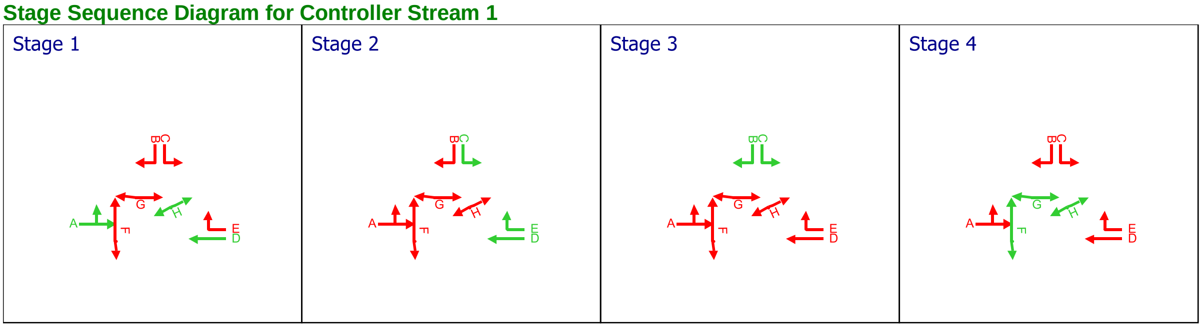
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	C	17	65	48
1	2		1	B	58	65	7
2	1		1	A	89	11	12
5	1		1	D	84	53	59
5	2		1	E	16	53	37

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	1			1	C	196 <	1809	36	0.00	26	241	30.73	18.38	65.04	3.26 +	100	100	0.00	15.81
	2			1	B	101	2004	7	0.00	57	59	64.63	52.28	108.07	2.78	100	100	0.00	22.20
2	1			1	A	388	1784	24	0.00	78	15	56.22	42.60	103.31	10.30	100	100	0.00	70.22
3	1					587	Unrestricted	90	11.00	0	Unrestricted	30.76	0.00	0.00	0.00	100	100	0.00	0.00
4	1					331	Unrestricted	90	0.00	0	Unrestricted	35.21	0.00	0.00	0.00	100	100	0.00	0.00
5	1			1	D	230	1895	59	0.00	18	394	20.99	6.01	36.32	2.19	100	100	0.00	6.50
	2			1	E	395	1850	25	0.00	74	22	53.22	38.24	98.25	9.91	100	100	0.00	64.45
6	1					392	Unrestricted	90	10.00	0	Unrestricted	32.96	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	507.88	28.57	17.78	11.64	165.27	13.91	0.00	179.18
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	507.88	28.57	17.78	11.64	165.27	13.91	0.00	179.18

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D3 - 2025 Base + Redistribution, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
From	**A**		5	6		5	5	0	
	B	5			5	5	7	5	
	C	5							0
	D		5				7		
	E	5	5					8	
	F	10	5		5				
	G	5	9			5			
	H			6					

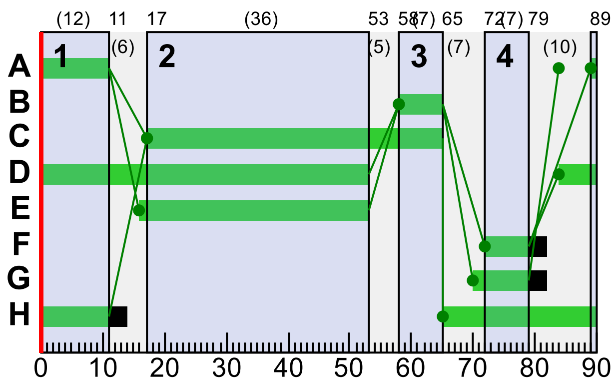
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	D,A,H	89	11	12	1	7
	2	✓	2	D,E,C	17	53	36	1	6
	3	✓	3	C,B	58	65	7	1	7
	4	✓	4	F,G,H	72	79	7	1	7

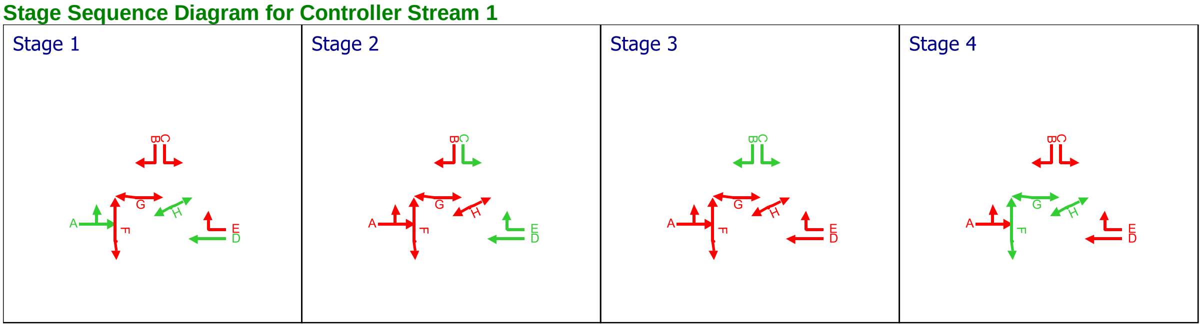
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	C	17	65	48
1	2		1	B	58	65	7
2	1		1	A	89	11	12
5	1		1	D	84	53	59
5	2		1	E	16	53	37

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	C	282 <	1809	52	0.00	26	240	21.97	9.62	47.03	3.42 +	100	100	0.00	12.37
	2			1	B	26	2004	7	6.00	15	517	51.95	39.60	92.77	0.61	100	100	0.00	4.36
2	**1**			1	A	88	1789	8	0.00	49	83	61.56	47.94	103.35	2.31	100	100	0.00	17.78
3	**1**					319	Unrestricted	90	21.00	0	Unrestricted	30.76	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					51	Unrestricted	90	68.00	0	Unrestricted	35.21	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	25	1895	59	59.00	2	4448	20.18	5.20	32.05	0.21	100	100	0.00	0.61
	2			1	E	278	1850	41	0.00	32	179	31.04	16.06	61.77	4.40	100	100	0.00	19.76
6	**1**					329	Unrestricted	90	8.00	0	Unrestricted	32.96	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	266.61	12.37	21.54	3.49	49.53	5.36	0.00	54.89
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	266.61	12.37	21.54	3.49	49.53	5.36	0.00	54.89

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D4 - 2025 Base + Redistribution, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To							
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**
From	**A**		5	6		5	5	0	
	B	5			5	5	7	5	
	C	5							0
	D		5				7		
	E	5	5					8	
	F	10	5		5				
	G	5	9			5			
	H			6					

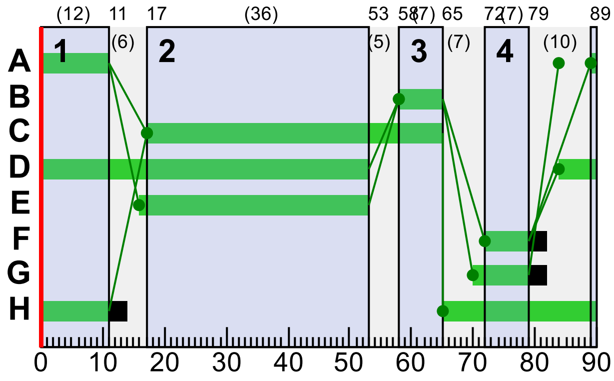
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	D,A,H	89	11	12	1	7
	2	✓	2	D,E,C	17	53	36	1	6
	3	✓	3	C,B	58	65	7	1	7
	4	✓	4	F,G,H	72	79	7	1	7

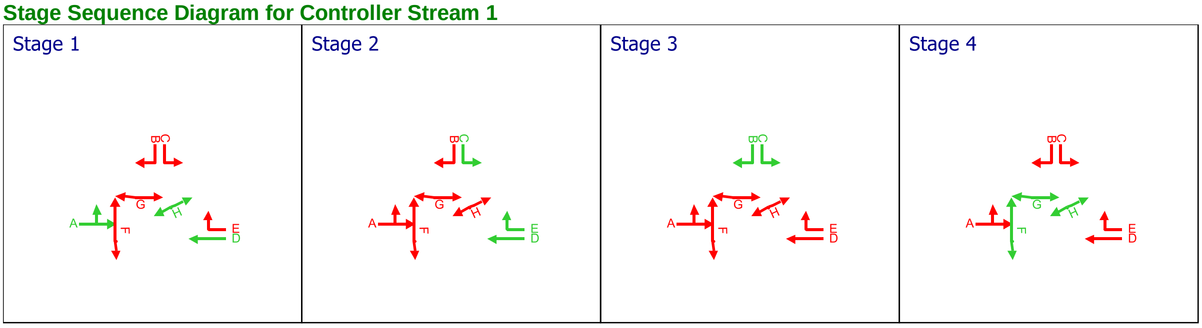
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1		
					Start	End	Duration
1	1		1	C	17	65	48
1	2		1	B	58	65	7
2	1		1	A	89	11	12
5	1		1	D	84	53	59
5	2		1	E	16	53	37

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

1	**1**			1	C	239 <	1809	48	0.00	24	271	23.70	11.35	51.16	3.16 +	100	100	0.00	12.24
	2			1	B	72	2004	7	0.00	40	123	57.89	45.54	100.12	1.84	100	100	0.00	13.84
2	**1**			1	A	146	1784	12	0.00	57	59	58.48	44.86	100.64	3.73	100	100	0.00	27.68
3	**1**					470	Unrestricted	90	17.00	0	Unrestricted	30.76	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					101	Unrestricted	90	50.00	0	Unrestricted	35.21	0.00	0.00	0.00	100	100	0.00	0.00
5	**1**			1	D	29	1895	59	59.00	2	3821	20.18	5.20	32.06	0.24	100	100	0.00	0.71
	2			1	E	398	1850	37	0.00	51	77	36.51	21.53	74.00	7.56	100	100	0.00	37.49
6	**1**					313	Unrestricted	90	10.00	0	Unrestricted	32.96	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	337.97	17.17	19.68	5.91	83.86	8.09	0.00	91.95
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	337.97	17.17	19.68	5.91	83.86	8.09	0.00	91.95

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

TRANSYT 16

Version: 16.1.2.2043

Filename: J13-14 - Academy Street_Queensgate_Margaret St (Updated Internal Flows).t16
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\TRANSYT
Report generation date: 19/04/2024 10:30:43

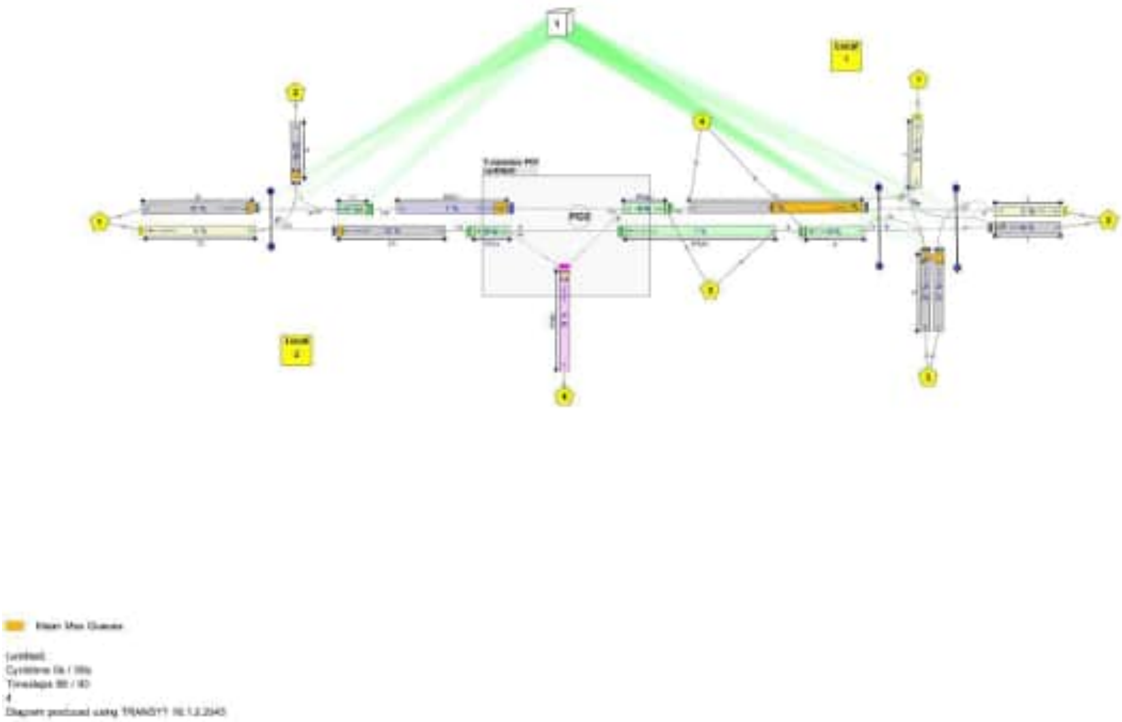
»A1 - (untitled) : D1 - 2025 Base, AM :
»A1 - (untitled) : D2 - 2025 Base + Redistribution, AM :
»A1 - (untitled) : D3 - 2025 Base, PM :
»A1 - (untitled) : D4 - 2025 Base + Redistribution, PM :

Summary of network performance

	AM					PM				
	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated	Set ID	PI (£ per hr)	Total delay (PCU-hr/hr)	Highest DOS	Number oversaturated
	(untitled) - 2025 Base									
Network	D1	89.38	5.57	32% (TS 9/1)	0 (0%)	D3	125.69	7.85	43% (TS 10/1)	0 (0%)
	(untitled) - 2025 Base + Redistribution									
Network	D2	37.78	2.41	20% (TS 8/1)	0 (0%)	D4	52.97	3.38	27% (TS 5/2)	0 (0%)

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Network Diagrams



A1 - (untitled)
D1 - 2025 Base, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A		6						8		8
	B	7		7					8	6	8
	C		6						8		8
	D						6	6			
	E						6	6			
	F				6	6		8			
	G				8	8	8				
	H	8	8	8							
	I		7								

	J	8	8	8							

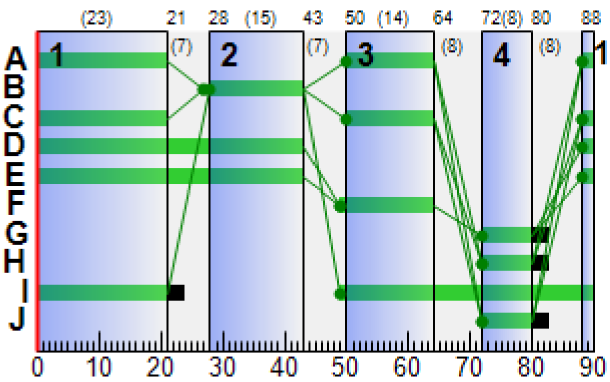
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,C,D,E,I	88	21	23	1	7
	2	✓	2	B,D,E	28	43	15	1	7
	3	✓	3	A,C,F,I	50	64	14	1	7
	4	✓	4	G,H,I,J	72	80	8	1	8

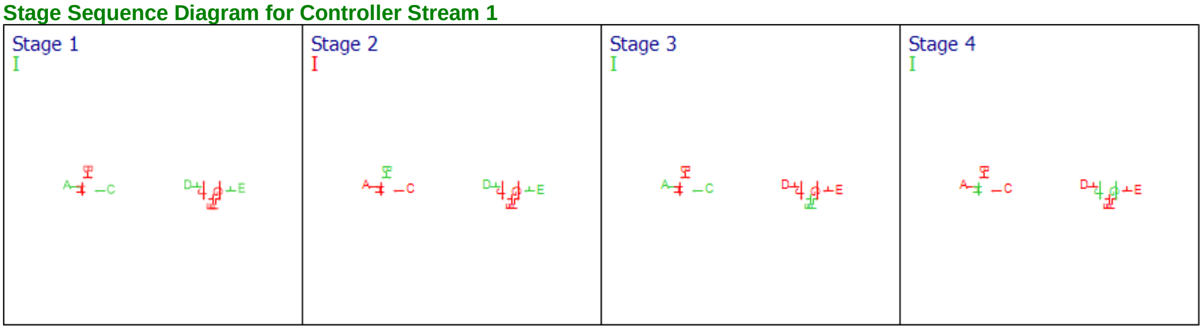
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1		1	E	88	43	45			
2	1		1	D	88	43	45			
5	1		1	F	49	64	15			
5	2		1	F	49	64	15			
8	1		1	B	28	43	15			
9	1		1	A	50	64	14	88	21	23
10	1		1	C	50	64	14	88	21	23

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Str	Name	Traffic node	Controller stream	Phase	Calculated flow enteri	Calculated sat flow	Actual green	Wasted tim	Degree of satur	Practical reserve	JourneyTime (s)	Mean Delay	Mean stop	Mean max que	Delay weighting	Stop weighting multi	Cost of traffic penalt	P.I.

	ea m					ng (PCU/ hr)	(PCU/ hr)	(s (pe r cyc le))	e tota l (s (per cycl e))	ation (%)	capac ity (%)		pe r Ve h (s)	s pe r Ve h (%)	ue (PC U)	multi plier (%)	plier (%)	ies (£ per hr)	
PO Ax	**1**					290 <	1915	90	55.69	21	325	3.71	2.71	12.28	1.04 +	100	100	0.00	3.31
PO Cx	**1**					255	2055	90	39.00	12	625	1.12	0.12	0.00	0.01	100	100	0.00	0.12
1	**1**			1	E	259	1915	45	0.00	26	240	25.13	13.13	54.06	3.50	100	100	0.00	15.17
PO A1	**1**		PO 2			249	2055	90	39.00	12	643	9.16	0.12	0.00	0.01	100	100	0.00	0.12
PO B1	**1**		PO 2			11	432	90	0.00	3	3436	16.25	8.51	0.00	0.03	100	100	0.00	0.37
PO C1	**1**		PO 2			285	1915	90	47.46	15	502	9.29	0.25	0.83	1.47	100	100	0.00	0.32
2	**1**			1	D	292	1915	45	12.00	30	202	8.04	6.12	20.72	1.51	100	100	0.00	7.80
3	**1**					343	Unrestricted	90	40.00	0	Unrestricted	32.73	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					248	2055	90	39.00	12	646	1.12	0.12	0.00	0.01	100	100	0.00	0.12
5	**1**			1	F	100	1915	15	0.00	29	206	48.26	34.30	86.87	2.17	100	100	0.00	14.62
	2			1	F	74	2055	15	0.37	21	334	47.03	33.06	85.87	1.59	100	100	0.00	10.45
7	**1**					134	Unrestricted	90	39.00	0	Unrestricted	27.07	0.00	0.00	0.00	100	100	0.00	0.00
8	**1**			1	B	75	1800	15	0.00	23	284	43.59	33.48	86.33	1.62	100	100	0.00	10.72
9	**1**			1	A	252	1800	37	0.00	32	179	29.55	9.60	63.46	2.18	100	100	0.00	11.54
10	**1**			1	C	255	2055	37	20.36	30	203	36.16	11.63	88.97	3.61	100	100	0.00	14.54
11	**1**					285	1915	90	47.00	15	505	1.36	0.16	0.00	0.01	100	100	0.00	0.18
12	**1**					297	Unrestricted	90	66.00	0	Unrestricted	34.55	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	408.76	19.26	21.22	5.57	79.08	10.30	0.00	89.38
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	408.76	19.26	21.22	5.57	79.08	10.30	0.00	89.38

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D2 - 2025 Base + Redistribution, AM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A		6						8		8
	B	7		7					8	6	8
	C		6						8		8
	D						6	6			
	E						6	6			
	F				6	6		8			
	G				8	8	8				
	H	8	8	8							
	I		7								
	J	8	8	8							

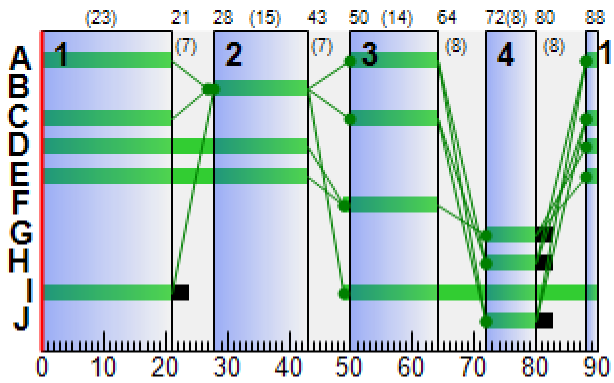
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,C,D,E,I	88	21	23	1	7
	2	✓	2	B,D,E	28	43	15	1	7
	3	✓	3	A,C,F,I	50	64	14	1	7
	4	✓	4	G,H,I,J	72	80	8	1	8

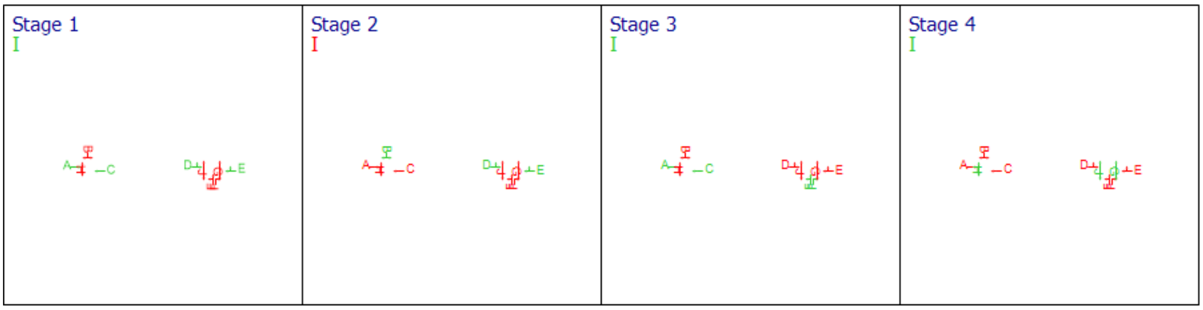
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1		1	E	88	43	45			
2	1		1	D	88	43	45			
5	1		1	F	49	64	15			
5	2		1	F	49	64	15			
8	1		1	B	28	43	15			
9	1		1	A	50	64	14	88	21	23
10	1		1	C	50	64	14	88	21	23

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
POAx	**1**					104	1915	90	50.00	5	1557	1.05	0.05	0.00	0.00	100	100	0.00	0.02
POCx	**1**					47	2055	90	87.00	2	3835	1.02	0.02	0.00	0.00	100	100	0.00	0.00
1	**1**			1	E	26	1915	32	0.00	4	2331	30.47	18.47	63.44	0.41	100	100	0.00	2.10
POA1	**1**		PO2			23	2055	90	87.00	1	7941	9.05	0.01	0.00	0.00	100	100	0.00	0.00
POB1	**1**		PO2			43	494	90	0.00	9	933	15.70	7.95	0.00	0.09	100	100	0.00	1.35
POC1	**1**		PO2			85	1915	90	84.00	4	1928	9.10	0.07	0.00	0.00	100	100	0.00	0.02
2	**1**			1	D	106	1915	32	18.33	15	490	18.95	17.03	49.45	1.46	100	100	0.00	7.78
3	**1**					104	Unrestricted	90	54.00	0	Unrestricted	32.73	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					22	2055	90	87.00	1	8307	1.01	0.01	0.00	0.00	100	100	0.00	0.00
5	**1**			1	F	53	1915	28	0.00	9	948	35.54	21.57	68.08	1.45	100	100	0.00	4.96
	2			1	F	80	2055	28	0.25	12	639	35.99	22.03	68.20	1.46	100	100	0.00	7.64
7	**1**					139	Unrestricted	90	73.00	0	Unrestricted	27.07	0.00	0.00	0.00	100	100	0.00	0.00
8	**1**			1	B	75	1800	18	0.00	20	356	40.50	30.40	82.26	1.55	100	100	0.00	9.77

9	**1**			1	A	52	1800	34	0.00	7	1146	28.72	8.77	60.43	0.45	100	100	0.00	2.19
10	**1**			1	C	47	2055	34	34.00	6	1474	32.74	8.21	69.59	0.43	100	100	0.00	1.93
11	**1**					85	1915	90	84.00	4	1928	1.24	0.04	0.00	0.00	100	100	0.00	0.01
12	**1**					89	Unrestricted	90	84.00	0	Unrestricted	34.55	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	142.43	7.17	19.86	2.41	34.20	3.58	0.00	37.78
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	142.43	7.17	19.86	2.41	34.20	3.58	0.00	37.78

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D3 - 2025 Base, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To									
		A	**B**	**C**	**D**	**E**	**F**	**G**	**H**	**I**	**J**
From	**A**		6						8		8
	B	7		7					8	6	8
	C		6						8		8
	D						6	6			
	E						6	6			
	F				6	6		8			
	G				8	8	8				
	H	8	8	8							
	I		7								
	J	8	8	8							

Resultant Stages

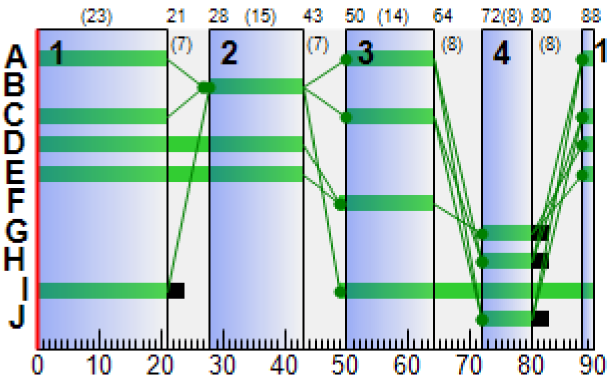
Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	**1**	✓	1	A,C,D,E,I	88	21	23	1	7

	2	✓	2	B,D,E	28	43	15	1	7
	3	✓	3	A,C,F,I	50	64	14	1	7
	4	✓	4	G,H,I,J	72	80	8	1	8

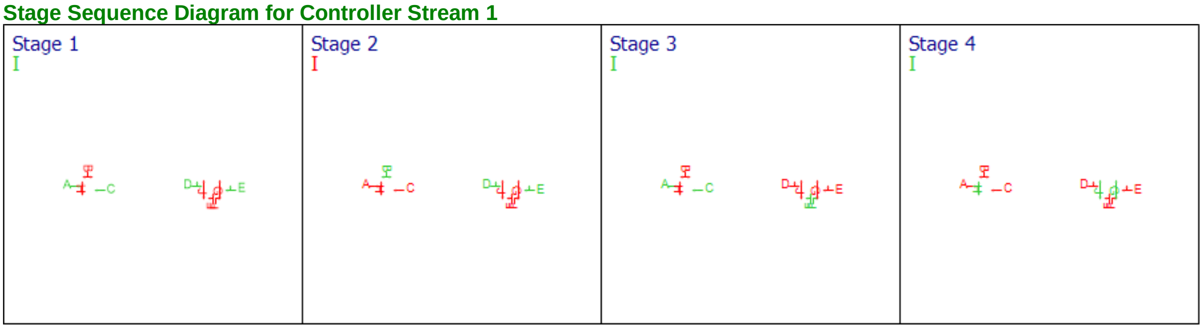
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1		1	E	88	43	45			
2	1		1	D	88	43	45			
5	1		1	F	49	64	15			
5	2		1	F	49	64	15			
8	1		1	B	28	43	15			
9	1		1	A	50	64	14	88	21	23
10	1		1	C	50	64	14	88	21	23

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.

PO Ax	**1**					369 <	1915	90	55.33	27	236	4.24	3.24	11.53	1.06 +	100	100	0.00	4.96
PO Cx	**1**					362	2055	90	26.00	18	411	1.19	0.19	0.00	0.02	100	100	0.00	0.27
1	**1**			1	E	337	1915	45	0.00	34	161	26.09	14.09	56.66	4.79	100	100	0.00	21.12
PO A1	**1**		PO 2			341	2055	90	28.00	17	442	9.21	0.17	0.00	0.02	100	100	0.00	0.23
PO B1	**1**		PO 2			23	360	90	7.00	7	1138	22.13	14.38	50.43	1.53	100	100	0.00	1.45
PO C1	**1**		PO 2			367	1915	90	55.37	27	237	11.06	2.02	8.54	2.97	100	100	0.00	3.32
2	**1**			1	D	369	1915	45	11.00	38	139	7.18	5.26	16.94	1.56	100	100	0.00	8.45
3	**1**					437	Unrestricted	90	39.00	0	Unrestricted	32.73	0.00	0.00	0.00	100	100	0.00	0.00
4	**1**					338	2055	90	28.00	16	447	1.17	0.17	0.00	0.02	100	100	0.00	0.23
5	**1**			1	F	134	1915	15	0.00	39	129	50.12	36.16	88.81	3.05	100	100	0.00	20.60
	2			1	F	109	2055	15	0.50	31	192	48.62	34.65	86.93	2.37	100	100	0.00	16.09
7	**1**					174	Unrestricted	90	38.00	0	Unrestricted	27.07	0.00	0.00	0.00	100	100	0.00	0.00
8	**1**			1	B	70	1800	15	0.00	22	311	43.33	33.23	85.56	1.51	100	100	0.00	9.92
9	**1**			1	A	324	1800	37	0.00	42	117	30.49	10.54	65.12	3.08	100	100	0.00	16.11
10	**1**			1	C	362	2055	37	12.99	43	110	37.44	12.91	92.02	5.27	100	100	0.00	22.62
11	**1**					367	1915	90	48.00	19	370	1.42	0.22	0.00	0.02	100	100	0.00	0.32
12	**1**					389	Unrestricted	90	59.00	0	Unrestricted	34.55	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	536.66	25.83	20.78	7.85	111.47	14.22	0.00	125.69
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	536.66	25.83	20.78	7.85	111.47	14.22	0.00	125.69

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

A1 - (untitled)
D4 - 2025 Base + Redistribution, PM

Signal Timings

Network Default: 90s cycle time; 90 steps

Intergreen Matrix for Controller Stream 1

		To									
		A	B	C	D	E	F	G	H	I	J
From	A		6						8		8
	B	7		7					8	6	8
	C		6						8		8
	D						6	6			
	E						6	6			
	F				6	6		8			
	G				8	8	8				
	H	8	8	8							
	I		7								
	J	8	8	8							

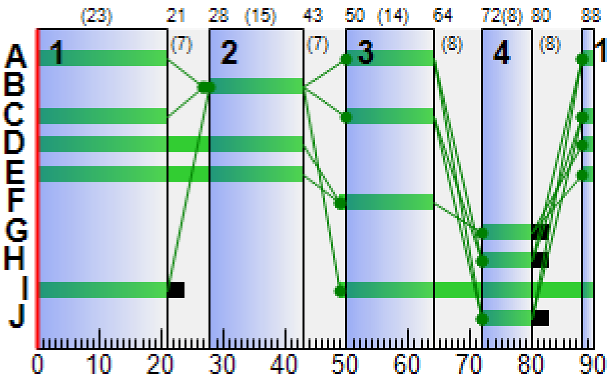
Resultant Stages

Controller Stream	Resultant Stage	Is base stage	Library Stage ID	Phases in this stage	Stage start (s)	Stage end (s)	Stage duration (s)	User stage minimum (s)	Stage minimum (s)
1	1	✓	1	A,C,D,E,I	88	21	23	1	7
	2	✓	2	B,D,E	28	43	15	1	7
	3	✓	3	A,C,F,I	50	64	14	1	7
	4	✓	4	G,H,I,J	72	80	8	1	8

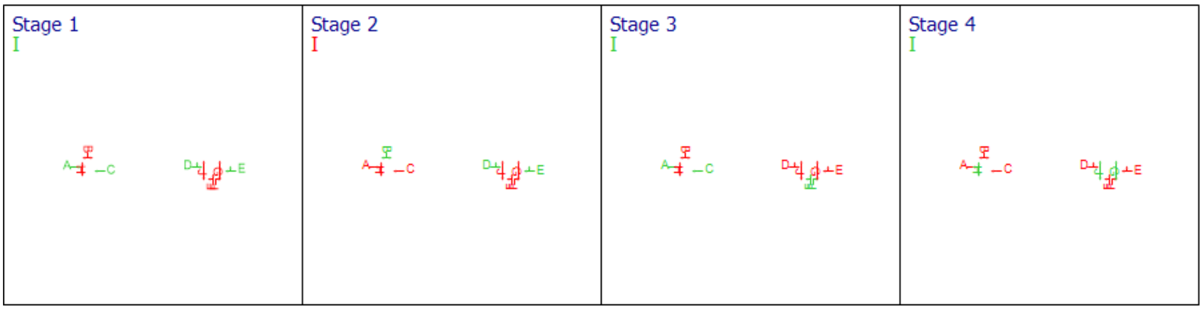
Traffic Stream Green Times

Arm	Traffic Stream	Traffic Node	Controller Stream	Phase	Green Period 1			Green Period 2		
					Start	End	Duration	Start	End	Duration
1	1		1	E	88	43	45			
2	1		1	D	88	43	45			
5	1		1	F	49	64	15			
5	2		1	F	49	64	15			
8	1		1	B	28	43	15			
9	1		1	A	50	64	14	88	21	23
10	1		1	C	50	64	14	88	21	23

Phase Timings Diagram for Controller Stream 1



Stage Sequence Diagram for Controller Stream 1



Final Prediction Table

Traffic Stream Results

				SIGNALS		FLOWS		PERFORMANCE				PER PCU			QUEUES	WEIGHTS		PENALTIES	P.I.
Arm	Traffic Stream	Name	Traffic node	Controller stream	Phase	Calculated flow entering (PCU/hr)	Calculated sat flow (PCU/hr)	Actual green (s (per cycle))	Wasted time total (s (per cycle))	Degree of saturation (%)	Practical reserve capacity (%)	JourneyTime (s)	Mean Delay per Veh (s)	Mean stops per Veh (%)	Mean max queue (PCU)	Delay weighting multiplier (%)	Stop weighting multiplier (%)	Cost of traffic penalties (£ per hr)	P.I.
POAx	1					148	1915	90	48.00	8	1065	1.08	0.08	0.00	0.00	100	100	0.00	0.05
POCx	1					118	2055	90	0.00	6	1467	1.05	0.05	0.00	0.00	100	100	0.00	0.02
1	1			1	E	22	1915	45	0.00	2	3904	23.04	11.04	48.94	0.27	100	100	0.00	1.09
POA1	1		PO2			21	2055	90	86.00	1	8707	9.04	0.01	0.00	0.00	100	100	0.00	0.00
POB1	1		PO2			107	549	90	0.00	19	362	15.85	8.10	0.00	0.24	100	100	0.00	3.42
POC1	1		PO2			138	1915	90	48.13	7	1147	9.15	0.11	0.40	1.45	100	100	0.00	0.07
2	1			1	D	147	1915	45	16.36	15	495	11.87	9.95	38.54	1.46	100	100	0.00	6.48
3	1					114	Unrestricted	90	66.00	0	Unrestricted	32.73	0.00	0.00	0.00	100	100	0.00	0.00
4	1					18	2055	90	86.00	1	10175	1.01	0.01	0.00	0.00	100	100	0.00	0.00
5	1			1	F	68	1915	15	0.00	20	351	46.85	32.89	83.78	1.48	100	100	0.00	9.54
	2			1	F	97	2055	15	0.50	27	228	48.05	34.09	86.56	2.10	100	100	0.00	14.09
7	1					202	Unrestricted	90	57.00	0	Unrestricted	27.07	0.00	0.00	0.00	100	100	0.00	0.00
8	1			1	B	70	1800	15	0.00	22	311	43.33	33.23	85.56	1.51	100	100	0.00	9.92
9	1			1	A	95	1800	37	0.00	12	639	28.02	8.07	57.38	1.46	100	100	0.00	3.71
10	1			1	C	118	2055	37	0.37	13	573	32.30	7.77	62.38	1.46	100	100	0.00	4.54
11	1					138	1915	90	48.00	7	1149	1.27	0.07	0.00	0.00	100	100	0.00	0.04
12	1					145	Unrestricted	90	48.00	0	Unrestricted	34.55	0.00	0.00	0.00	100	100	0.00	0.00

Network Results

	Distance travelled (PCU-km/hr)	Time spent (PCU-hr/hr)	Mean journey speed (kph)	Total delay (PCU-hr/hr)	Weighted cost of delay (£ per hr)	Weighted cost of stops (£ per hr)	Excess queue penalty (£ per hr)	Performance Index (£ per hr)
Normal traffic	209.85	10.40	20.18	3.38	48.00	4.98	0.00	52.97
Bus								
Tram								
Pedestrians	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
TOTAL	209.85	10.40	20.18	3.38	48.00	4.98	0.00	52.97

- *< = adjusted flow warning (upstream links/traffic streams are over-saturated)*
- ** = Traffic Stream - Normal, Bus or Tram Stop or Delay weighting has been set to a value other than 100%*
- *^ = Traffic Stream - Normal, Bus or Tram Stop or Delay Path weighting has been set to a value other than 100%*
- *+ = average link/traffic stream excess queue is greater than 0*
- ***P.I. = PERFORMANCE INDEX***

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Junction 24 - Cromwell Rd_Harbour Rd.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 10:08:08

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	2025 Base									
1 - Cromwell Rd	D1	0.7	6.48	0.43	A	D2	1.4	8.63	0.58	A
2 - Harbour Rd		0.5	7.19	0.34	A		1.2	12.57	0.55	B
3 - Shore St		22.3	98.41	1.01	F		8.7	45.04	0.92	E
	2025 Redistribution									
1 - Cromwell Rd	D3	0.7	6.51	0.43	A	D4	1.4	8.63	0.58	A
2 - Harbour Rd		0.9	9.07	0.49	A		1.2	11.34	0.55	B
3 - Shore St		12.4	67.70	0.96	F		7.4	40.14	0.90	E

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

File summary

File Description

Title	
Location	
Site number	
Date	29/01/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\ukcwb002
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin

The junction diagram reflects the last run of Junctions.

Analysis Options

Mini-roundabout model	Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
JUNCTIONS 9	5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Mini-roundabout		Mini-roundabout appears to have unbalanced flows and may behave like a priority junction; treat results with caution. See User Guide for details.[Arms 1 and 3 have 82% of the total flow for the roundabout for one or more time segments]
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	57.06	F

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		57.06	F

Arms

Arms

Arm	Name	Description
1	Cromwell Rd	
2	Harbour Rd	
3	Shore St	

Mini Roundabout Geometry

Arm	Approach road half-width (m)	Minimum approach road half-width (m)	Entry width (m)	Effective flare length (m)	Distance to next arm (m)	Entry corner kerb line distance (m)	Gradient over 50m (%)	Kerbed central island
1 - Cromwell Rd	3.30	3.30	5.74	20.9	18.50	15.60	0.0	
2 - Harbour Rd	3.30	3.30	5.70	10.0	19.20	12.10	0.0	
3 - Shore St	3.90	3.90	3.90	0.0	20.00	16.70	0.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Cromwell Rd	0.703	1101
2 - Harbour Rd	0.659	954
3 - Shore St	0.683	896

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Cromwell Rd		ONE HOUR	✓	376	100.000
2 - Harbour Rd		ONE HOUR	✓	233	100.000
3 - Shore St		ONE HOUR	✓	741	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	104	272
	2 - Harbour Rd	116	2	115
	3 - Shore St	567	174	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	0	0
	2 - Harbour Rd	0	0	0
	3 - Shore St	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Cromwell Rd	0.43	6.48	0.7	A	345	518
2 - Harbour Rd	0.34	7.19	0.5	A	214	321
3 - Shore St	1.01	96.41	22.3	F	680	1020

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	283	71	131	1009	0.281	282	508	0.0	0.4	4.940	A
2 - Harbour Rd	175	44	204	820	0.214	174	209	0.0	0.3	5.566	A
3 - Shore St	558	139	88	836	0.667	550	290	0.0	1.9	12.290	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	338	85	156	991	0.341	338	608	0.4	0.5	5.502	A
2 - Harbour Rd	209	52	244	793	0.264	209	250	0.3	0.4	6.156	A
3 - Shore St	666	167	106	824	0.809	659	347	1.9	3.8	20.862	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	414	103	183	972	0.426	413	716	0.5	0.7	6.427	A
2 - Harbour Rd	257	64	299	757	0.339	256	297	0.4	0.5	7.170	A
3 - Shore St	816	204	130	808	1.010	789	425	3.8	15.5	59.551	F

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	414	103	187	969	0.427	414	731	0.7	0.7	6.485	A
2 - Harbour Rd	257	64	299	757	0.339	257	302	0.5	0.5	7.192	A
3 - Shore St	816	204	130	808	1.010	788	426	15.5	22.3	98.407	F

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	338	85	175	978	0.346	339	667	0.7	0.5	5.641	A
2 - Harbour Rd	209	52	245	793	0.264	210	268	0.5	0.4	6.185	A
3 - Shore St	666	167	106	824	0.809	736	349	22.3	5.0	53.067	F

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	283	71	135	1006	0.281	284	523	0.5	0.4	4.991	A
2 - Harbour Rd	175	44	205	819	0.214	176	214	0.4	0.3	5.800	A
3 - Shore St	558	139	89	835	0.668	569	292	5.0	2.1	14.065	B

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	25.69	D

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		25.69	D

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Cromwell Rd		ONE HOUR	✓	528	100.000
2 - Harbour Rd		ONE HOUR	✓	315	100.000
3 - Shore St		ONE HOUR	✓	679	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	85	443
	2 - Harbour Rd	109	0	206
	3 - Shore St	546	133	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	0	0
	2 - Harbour Rd	0	0	0
	3 - Shore St	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Cromwell Rd	0.58	8.63	1.4	A	485	727
2 - Harbour Rd	0.55	12.57	1.2	B	289	434
3 - Shore St	0.92	45.04	8.7	E	623	935

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	398	99	99	1031	0.386	395	488	0.0	0.6	5.638	A
2 - Harbour Rd	237	59	331	736	0.322	235	163	0.0	0.5	7.166	A
3 - Shore St	511	128	81	841	0.608	505	485	0.0	1.5	10.553	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	475	119	119	1017	0.467	474	585	0.6	0.9	6.610	A
2 - Harbour Rd	283	71	397	692	0.409	282	195	0.5	0.7	8.760	A
3 - Shore St	610	153	98	830	0.735	606	582	1.5	2.6	15.779	C

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	581	145	143	1000	0.581	579	705	0.9	1.4	8.508	A
2 - Harbour Rd	347	87	488	634	0.547	345	238	0.7	1.2	12.365	B
3 - Shore St	748	187	119	815	0.918	728	712	2.6	7.5	35.275	E

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	581	145	146	998	0.582	581	717	1.4	1.4	8.625	A
2 - Harbour Rd	347	87	488	633	0.548	347	239	1.2	1.2	12.567	B
3 - Shore St	748	187	120	814	0.918	743	714	7.5	8.7	45.044	E

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	475	119	124	1013	0.468	477	608	1.4	0.9	6.731	A
2 - Harbour Rd	283	71	400	691	0.410	285	201	1.2	0.7	8.916	A
3 - Shore St	610	153	99	829	0.736	633	586	8.7	3.0	20.235	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	398	99	101	1030	0.386	399	498	0.9	0.6	5.713	A
2 - Harbour Rd	237	59	334	734	0.323	238	165	0.7	0.5	7.271	A
3 - Shore St	511	128	82	840	0.609	517	490	3.0	1.6	11.318	B

2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	35.76	E

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		35.76	E

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Cromwell Rd		ONE HOUR	✓	376	100.000
2 - Harbour Rd		ONE HOUR	✓	343	100.000
3 - Shore St		ONE HOUR	✓	631	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	128	248
	2 - Harbour Rd	226	2	115
	3 - Shore St	457	174	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	0	0
	2 - Harbour Rd	0	0	0
	3 - Shore St	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Cromwell Rd	0.43	6.51	0.7	A	345	518
2 - Harbour Rd	0.49	9.07	0.9	A	315	472
3 - Shore St	0.96	67.70	12.4	F	579	869

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	283	71	131	1009	0.281	282	509	0.0	0.4	4.941	A
2 - Harbour Rd	258	65	186	832	0.310	256	227	0.0	0.4	6.237	A
3 - Shore St	475	119	170	780	0.609	469	272	0.0	1.5	11.374	B

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	338	85	157	990	0.341	338	610	0.4	0.5	5.505	A
2 - Harbour Rd	308	77	223	808	0.382	308	272	0.4	0.6	7.192	A
3 - Shore St	567	142	205	757	0.750	562	326	1.5	2.8	18.036	C

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	414	103	186	970	0.427	413	731	0.5	0.7	6.454	A
2 - Harbour Rd	378	94	272	775	0.487	376	327	0.6	0.9	9.006	A
3 - Shore St	695	174	250	725	0.958	667	399	2.8	9.8	47.126	E

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	414	103	191	967	0.428	414	744	0.7	0.7	6.514	A
2 - Harbour Rd	378	94	273	774	0.488	378	332	0.9	0.9	9.071	A
3 - Shore St	695	174	251	725	0.958	684	400	9.8	12.4	67.702	F

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	338	85	168	982	0.344	339	641	0.7	0.5	5.600	A
2 - Harbour Rd	308	77	224	807	0.382	310	284	0.9	0.6	7.255	A
3 - Shore St	567	142	206	756	0.751	604	327	12.4	3.3	28.005	D

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	283	71	134	1006	0.281	284	519	0.5	0.4	4.984	A
2 - Harbour Rd	258	65	187	831	0.311	259	231	0.6	0.5	6.301	A
3 - Shore St	475	119	172	779	0.610	482	274	3.3	1.6	12.376	B

2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Mini-roundabout		1, 2, 3	22.55	C

Junction Network

Driving side	Lighting	Road surface	In London	Network delay (s)	Network LOS
Left	Normal/unknown	Normal/unknown		22.55	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Cromwell Rd		ONE HOUR	✓	528	100.000
2 - Harbour Rd		ONE HOUR	✓	352	100.000
3 - Shore St		ONE HOUR	✓	642	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	184	344
	2 - Harbour Rd	146	0	206
	3 - Shore St	509	133	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		1 - Cromwell Rd	2 - Harbour Rd	3 - Shore St
From	1 - Cromwell Rd	0	0	0
	2 - Harbour Rd	0	0	0
	3 - Shore St	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Cromwell Rd	0.58	8.63	1.4	A	465	727
2 - Harbour Rd	0.55	11.34	1.2	B	323	485
3 - Shore St	0.90	40.14	7.4	E	589	884

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	398	99	99	1031	0.386	395	488	0.0	0.6	5.638	A
2 - Harbour Rd	265	66	257	785	0.338	263	237	0.0	0.5	6.874	A
3 - Shore St	483	121	109	822	0.588	478	411	0.0	1.4	10.306	B

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	475	119	119	1017	0.467	474	585	0.6	0.9	6.610	A
2 - Harbour Rd	316	79	309	751	0.421	316	284	0.5	0.7	8.252	A
3 - Shore St	577	144	131	807	0.715	573	493	1.4	2.4	15.141	C

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	581	145	143	1000	0.581	579	707	0.9	1.4	8.514	A
2 - Harbour Rd	388	97	377	706	0.549	386	345	0.7	1.2	11.186	B
3 - Shore St	707	177	160	787	0.898	690	603	2.4	6.5	32.656	D

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	581	145	146	998	0.582	581	718	1.4	1.4	8.629	A
2 - Harbour Rd	388	97	379	705	0.550	387	348	1.2	1.2	11.339	B
3 - Shore St	707	177	161	787	0.899	703	605	6.5	7.4	40.145	E

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	475	119	123	1014	0.468	477	604	1.4	0.9	6.725	A
2 - Harbour Rd	316	79	311	750	0.422	318	290	1.2	0.7	8.379	A
3 - Shore St	577	144	132	806	0.716	596	497	7.4	2.7	18.453	C

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Cromwell Rd	398	99	101	1030	0.386	399	497	0.9	0.6	5.713	A
2 - Harbour Rd	265	66	260	783	0.338	266	240	0.7	0.5	6.970	A
3 - Shore St	483	121	110	821	0.589	488	415	2.7	1.5	10.969	B

Junctions 10

ARCADY 10 - Roundabout Module

Version: 10.0.2.1574

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Filename: Junction 25 - Longman Rd_Harbour Rd_1.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 16:02:44

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
2025 Base										
1 - Harbour Rd (E)	D1	0.5	6.44	0.33	A	D2	0.9	9.26	0.49	A
2 - Longman Rd (S)		4.9	10.18	0.83	B		1.5	3.97	0.61	A
3 - Harbour Rd (W)		3.4	21.78	0.79	C		6.8	31.02	0.89	D
4 - Longman Rd (N)		1.0	3.08	0.49	A		1.0	3.31	0.51	A
2025 Redistribution										
1 - Harbour Rd (E)	D3	0.6	7.01	0.37	A	D4	1.9	14.33	0.66	B
2 - Longman Rd (S)		5.8	12.20	0.86	B		1.7	4.54	0.64	A
3 - Harbour Rd (W)		14.3	71.25	0.97	F		15.9	62.92	0.97	F
4 - Longman Rd (N)		1.1	3.46	0.52	A		1.1	3.57	0.53	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

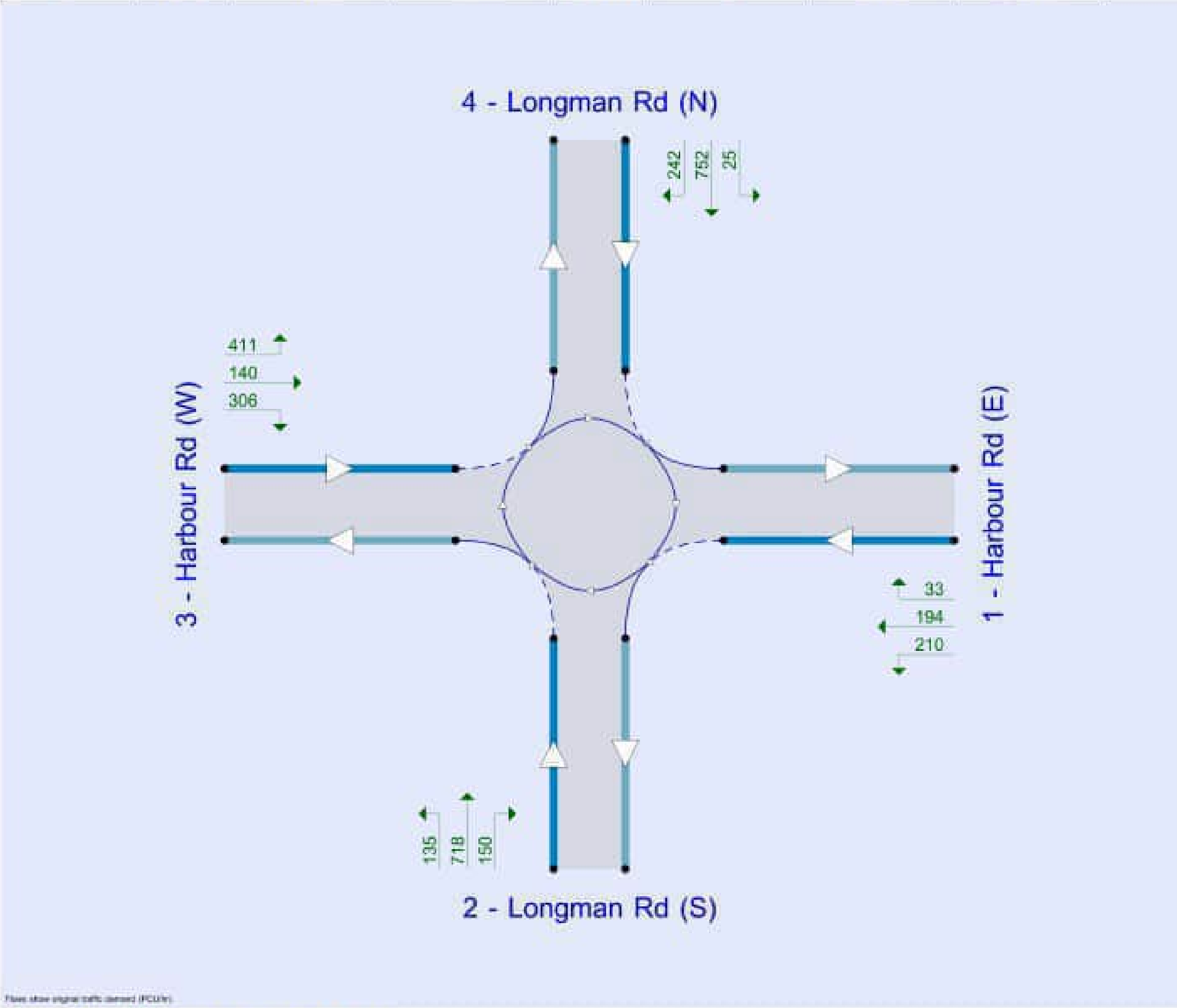
File summary

File Description

Title	Longman Rd_Harbour Road
Location	57.485717, -4.220726
Site number	1
Date	08/02/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\INJA05275
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	✓	100.000	100.000

2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Longman Rd/Harbour Road	Standard Roundabout		1, 2, 3, 4	9.63	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.63	A

Arms

Arms

Arm	Name	Description	No give-way line
1	Harbour Rd (E)		
2	Longman Rd (S)		
3	Harbour Rd (W)		
4	Longman Rd (N)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1 - Harbour Rd (E)	6.20	6.50	0.4	32.0	51.0	54.0		
2 - Longman Rd (S)	7.30	10.50	25.4	22.5	51.0	62.0		
3 - Harbour Rd (W)	3.90	7.30	20.0	22.5	51.0	45.0		
4 - Longman Rd (N)	7.39	9.70	27.1	26.5	51.0	14.5		

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Harbour Rd (E)	0.601	1783
2 - Longman Rd (S)	0.742	2597
3 - Harbour Rd (W)	0.603	1763
4 - Longman Rd (N)	0.862	2972

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Harbour Rd (E)		ONE HOUR	✓	250	100.000
2 - Longman Rd (S)		ONE HOUR	✓	1604	100.000
3 - Harbour Rd (W)		ONE HOUR	✓	539	100.000
4 - Longman Rd (N)		ONE HOUR	✓	1012	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	133	95	22
	2 - Longman Rd (S)	195	242	158	1009
	3 - Harbour Rd (W)	90	198	3	248
	4 - Longman Rd (N)	21	525	416	50

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	0	0	0
	2 - Longman Rd (S)	0	0	0	0
	3 - Harbour Rd (W)	0	0	0	0
	4 - Longman Rd (N)	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Harbour Rd (E)	0.33	6.44	0.5	A	229	344
2 - Longman Rd (S)	0.83	10.18	4.9	B	1472	2208
3 - Harbour Rd (W)	0.79	21.78	3.4	C	495	742
4 - Longman Rd (N)	0.49	3.08	1.0	A	929	1393

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	188	47	1078	1136	0.166	187	229	0.0	0.2	3.790	A
2 - Longman Rd (S)	1208	302	440	2270	0.532	1203	824	0.0	1.1	3.381	A
3 - Harbour Rd (W)	406	101	1139	1077	0.377	403	504	0.0	0.6	5.331	A
4 - Longman Rd (N)	762	190	546	2502	0.305	760	996	0.0	0.4	2.065	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	225	56	1287	1009	0.223	224	274	0.2	0.3	4.584	A
2 - Longman Rd (S)	1442	360	526	2206	0.654	1439	985	1.1	1.9	4.677	A
3 - Harbour Rd (W)	485	121	1362	942	0.514	483	603	0.6	1.0	7.809	A
4 - Longman Rd (N)	910	227	653	2410	0.378	909	1192	0.4	0.6	2.397	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	275	69	1573	838	0.329	274	334	0.3	0.5	6.381	A
2 - Longman Rd (S)	1766	442	644	2118	0.834	1755	1203	1.9	4.7	9.610	A
3 - Harbour Rd (W)	593	148	1661	762	0.779	585	738	1.0	3.2	19.460	C
4 - Longman Rd (N)	1114	279	794	2288	0.487	1113	1452	0.6	0.9	3.061	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	275	69	1578	834	0.330	275	337	0.5	0.5	6.438	A
2 - Longman Rd (S)	1766	442	645	2118	0.834	1765	1208	4.7	4.9	10.179	B
3 - Harbour Rd (W)	593	148	1671	756	0.785	593	740	3.2	3.4	21.775	C
4 - Longman Rd (N)	1114	279	801	2282	0.488	1114	1462	0.9	1.0	3.082	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	225	56	1296	1004	0.224	226	278	0.5	0.3	4.629	A
2 - Longman Rd (S)	1442	360	528	2205	0.654	1454	993	4.9	1.9	4.866	A
3 - Harbour Rd (W)	485	121	1375	934	0.519	494	606	3.4	1.1	8.349	A
4 - Longman Rd (N)	910	227	663	2401	0.379	911	1207	1.0	0.6	2.419	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	188	47	1081	1133	0.166	189	231	0.3	0.2	3.812	A
2 - Longman Rd (S)	1208	302	442	2269	0.532	1211	828	1.9	1.1	3.411	A
3 - Harbour Rd (W)	406	101	1146	1072	0.378	408	507	1.1	0.6	5.432	A
4 - Longman Rd (N)	762	190	550	2496	0.305	763	1003	0.6	0.4	2.076	A

2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Longman Rd/Harbour Road	Standard Roundabout		1, 2, 3, 4	10.43	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	10.43	B

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Harbour Rd (E)		ONE HOUR	✓	338	100.000
2 - Longman Rd (S)		ONE HOUR	✓	1267	100.000
3 - Harbour Rd (W)		ONE HOUR	✓	768	100.000
4 - Longman Rd (N)		ONE HOUR	✓	1017	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	210	95	33
	2 - Longman Rd (S)	150	265	106	746
	3 - Harbour Rd (W)	105	288	2	375
	4 - Longman Rd (N)	24	761	206	26

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	0	0	0
	2 - Longman Rd (S)	0	0	0	0
	3 - Harbour Rd (W)	0	0	0	0
	4 - Longman Rd (N)	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Harbour Rd (E)	0.49	9.26	0.9	A	310	465
2 - Longman Rd (S)	0.61	3.97	1.5	A	1163	1744
3 - Harbour Rd (W)	0.89	31.02	6.8	D	705	1057
4 - Longman Rd (N)	0.51	3.31	1.0	A	933	1400

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	254	64	1160	1086	0.234	253	209	0.0	0.3	4.318	A
2 - Longman Rd (S)	954	238	272	2395	0.398	951	1142	0.0	0.7	2.490	A
3 - Harbour Rd (W)	578	145	916	1211	0.478	575	307	0.0	0.9	5.628	A
4 - Longman Rd (N)	766	191	606	2450	0.312	764	885	0.0	0.5	2.133	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	304	76	1388	949	0.320	303	250	0.3	0.5	5.565	A
2 - Longman Rd (S)	1139	285	325	2355	0.484	1138	1366	0.7	0.9	2.954	A
3 - Harbour Rd (W)	690	173	1096	1102	0.626	687	367	0.9	1.6	8.608	A
4 - Longman Rd (N)	914	229	725	2348	0.389	914	1059	0.5	0.6	2.508	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	372	93	1693	765	0.486	370	304	0.5	0.9	9.075	A
2 - Longman Rd (S)	1395	349	397	2301	0.606	1393	1668	0.9	1.5	3.951	A
3 - Harbour Rd (W)	846	211	1341	955	0.886	827	449	1.6	6.2	25.376	D
4 - Longman Rd (N)	1120	280	880	2214	0.506	1118	1289	0.6	1.0	3.280	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	372	93	1701	761	0.489	372	307	0.9	0.9	9.265	A
2 - Longman Rd (S)	1395	349	399	2301	0.606	1395	1675	1.5	1.5	3.974	A
3 - Harbour Rd (W)	846	211	1343	953	0.887	843	450	6.2	6.8	31.021	D
4 - Longman Rd (N)	1120	280	888	2207	0.507	1120	1298	1.0	1.0	3.311	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	304	76	1399	942	0.323	306	254	0.9	0.5	5.676	A
2 - Longman Rd (S)	1139	285	327	2354	0.484	1141	1379	1.5	0.9	2.973	A
3 - Harbour Rd (W)	690	173	1099	1100	0.627	711	369	6.8	1.7	9.707	A
4 - Longman Rd (N)	914	229	738	2337	0.391	916	1072	1.0	0.6	2.536	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	254	64	1166	1082	0.235	255	211	0.5	0.3	4.357	A
2 - Longman Rd (S)	954	238	273	2394	0.398	955	1148	0.9	0.7	2.503	A
3 - Harbour Rd (W)	578	145	920	1209	0.478	581	308	1.7	0.9	5.770	A
4 - Longman Rd (N)	766	191	610	2446	0.313	766	891	0.6	0.5	2.143	A

2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Longman Rd/Harbour Road	Standard Roundabout		1, 2, 3, 4	20.40	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	20.40	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	08:00	09:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Harbour Rd (E)		ONE HOUR	✓	275	100.000
2 - Longman Rd (S)		ONE HOUR	✓	1616	100.000
3 - Harbour Rd (W)		ONE HOUR	✓	678	100.000
4 - Longman Rd (N)		ONE HOUR	✓	1035	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	133	120	22
	2 - Longman Rd (S)	195	242	185	994
	3 - Harbour Rd (W)	199	206	3	270
	4 - Longman Rd (N)	21	516	448	50

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	0	0	0
	2 - Longman Rd (S)	0	0	0	0
	3 - Harbour Rd (W)	0	0	0	0
	4 - Longman Rd (N)	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Harbour Rd (E)	0.37	7.01	0.6	A	252	379
2 - Longman Rd (S)	0.86	12.20	5.8	B	1483	2224
3 - Harbour Rd (W)	0.97	71.25	14.3	F	622	933
4 - Longman Rd (N)	0.52	3.46	1.1	A	950	1425

Main Results for each time segment

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	207	52	1099	1122	0.184	206	311	0.0	0.2	3.926	A
2 - Longman Rd (S)	1217	304	483	2238	0.544	1212	823	0.0	1.2	3.492	A
3 - Harbour Rd (W)	510	128	1127	1083	0.471	507	567	0.0	0.9	6.208	A
4 - Longman Rd (N)	779	195	833	2427	0.321	777	1001	0.0	0.5	2.181	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	247	62	1315	993	0.249	247	372	0.2	0.3	4.823	A
2 - Longman Rd (S)	1453	363	577	2168	0.670	1449	984	1.2	2.0	4.988	A
3 - Harbour Rd (W)	610	152	1348	950	0.641	606	679	0.9	1.7	10.357	B
4 - Longman Rd (N)	930	233	757	2320	0.401	930	1198	0.5	0.7	2.588	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	303	76	1598	822	0.368	302	445	0.3	0.6	6.905	A
2 - Longman Rd (S)	1779	445	707	2072	0.859	1765	1194	2.0	5.6	11.232	B
3 - Harbour Rd (W)	746	187	1642	773	0.965	712	829	1.7	10.5	44.371	E
4 - Longman Rd (N)	1140	285	905	2192	0.520	1138	1448	0.7	1.1	3.412	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	303	76	1608	816	0.371	303	452	0.6	0.6	7.006	A
2 - Longman Rd (S)	1779	445	708	2071	0.859	1778	1203	5.6	5.8	12.196	B
3 - Harbour Rd (W)	746	187	1654	766	0.975	731	832	10.5	14.3	71.248	F
4 - Longman Rd (N)	1140	285	921	2179	0.523	1139	1464	1.1	1.1	3.463	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	247	62	1338	980	0.252	248	390	0.6	0.3	4.925	A
2 - Longman Rd (S)	1453	363	580	2166	0.671	1468	1006	5.8	2.1	5.262	A
3 - Harbour Rd (W)	610	152	1365	940	0.648	659	683	14.3	1.9	15.026	C
4 - Longman Rd (N)	930	233	794	2288	0.407	932	1230	1.1	0.7	2.659	A

09:15 - 09:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	207	52	1106	1119	0.185	207	314	0.3	0.2	3.952	A
2 - Longman Rd (S)	1217	304	485	2237	0.544	1220	828	2.1	1.2	3.552	A
3 - Harbour Rd (W)	510	128	1135	1079	0.473	514	570	1.9	0.9	6.421	A
4 - Longman Rd (N)	779	195	640	2421	0.322	780	1010	0.7	0.5	2.194	A

2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Longman Rd/Harbour Road	Standard Roundabout		1, 2, 3, 4	19.33	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	19.33	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Harbour Rd (E)		ONE HOUR	✓	437	100.000
2 - Longman Rd (S)		ONE HOUR	✓	1269	100.000
3 - Harbour Rd (W)		ONE HOUR	✓	859	100.000
4 - Longman Rd (N)		ONE HOUR	✓	1045	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	210	194	33
	2 - Longman Rd (S)	150	266	135	718
	3 - Harbour Rd (W)	140	306	2	411
	4 - Longman Rd (N)	25	752	242	26

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Harbour Rd (E)	2 - Longman Rd (S)	3 - Harbour Rd (W)	4 - Longman Rd (N)
From	1 - Harbour Rd (E)	0	0	0	0
	2 - Longman Rd (S)	0	0	0	0
	3 - Harbour Rd (W)	0	0	0	0
	4 - Longman Rd (N)	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1 - Harbour Rd (E)	0.66	14.33	1.9	B	401	601
2 - Longman Rd (S)	0.64	4.54	1.7	A	1164	1747
3 - Harbour Rd (W)	0.97	62.92	15.9	F	788	1182
4 - Longman Rd (N)	0.53	3.57	1.1	A	959	1438

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	329	82	1196	1064	0.309	327	236	0.0	0.4	4.873	A
2 - Longman Rd (S)	955	239	373	2320	0.412	953	1150	0.0	0.7	2.627	A
3 - Harbour Rd (W)	647	162	895	1223	0.529	642	430	0.0	1.1	6.152	A
4 - Longman Rd (N)	787	197	647	2414	0.326	785	891	0.0	0.5	2.206	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	393	98	1430	923	0.426	392	282	0.4	0.7	6.757	A
2 - Longman Rd (S)	1141	285	446	2265	0.504	1140	1376	0.7	1.0	3.195	A
3 - Harbour Rd (W)	772	193	1071	1117	0.691	768	514	1.1	2.2	10.188	B
4 - Longman Rd (N)	939	235	774	2305	0.408	939	1065	0.5	0.7	2.633	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	481	120	1738	738	0.652	477	340	0.7	1.8	13.567	B
2 - Longman Rd (S)	1397	349	544	2192	0.637	1394	1671	1.0	1.7	4.495	A
3 - Harbour Rd (W)	946	236	1311	973	0.972	906	628	2.2	12.1	40.373	E
4 - Longman Rd (N)	1151	288	930	2171	0.530	1149	1287	0.7	1.1	3.515	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	481	120	1749	731	0.658	481	344	1.8	1.9	14.331	B
2 - Longman Rd (S)	1397	349	547	2190	0.638	1397	1683	1.7	1.7	4.538	A
3 - Harbour Rd (W)	946	236	1313	971	0.974	931	631	12.1	15.9	62.921	F
4 - Longman Rd (N)	1151	288	943	2159	0.533	1151	1301	1.1	1.1	3.568	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	393	98	1455	909	0.432	397	292	1.9	0.8	7.100	A
2 - Longman Rd (S)	1141	285	450	2263	0.504	1144	1402	1.7	1.0	3.224	A
3 - Harbour Rd (W)	772	193	1075	1115	0.693	827	518	15.9	2.4	14.785	B
4 - Longman Rd (N)	939	235	806	2278	0.412	941	1098	1.1	0.7	2.696	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Harbour Rd (E)	329	82	1203	1060	0.310	330	238	0.8	0.5	4.942	A
2 - Longman Rd (S)	955	239	375	2318	0.412	957	1158	1.0	0.7	2.648	A
3 - Harbour Rd (W)	647	162	899	1221	0.530	652	432	2.4	1.1	6.379	A
4 - Longman Rd (N)	787	197	653	2409	0.327	788	898	0.7	0.5	2.222	A

Junctions 10

ARCADY 10 - Roundabout Module

Filename: Junction 30 - Millburn Road_Harbour Rd.j10
Path: \\uk.wspgroup.com\central data\Projects\70117xxx\70117193 - THC Academy Street EIA and TA\04 Traffic Impact Assessment\007 Junction Modelling\Base and Redistribution Models
Report generation date: 19/04/2024 16:11:51

Summary of junction performance

	AM					PM				
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Set ID	Queue (PCU)	Delay (s)	RFC	LOS
	Existing Millburn Rd / Harbour Rd - 2025 Base									
Arm 1	D1	0.7	5.77	0.41	A	D2	3.7	18.88	0.80	C
Arm 2		8.8	21.73	0.91	C		2.7	8.24	0.74	A
Arm 3		0.7	5.71	0.43	A		0.8	5.49	0.45	A
Arm 4		0.8	4.65	0.43	A		1.1	5.07	0.52	A
	Existing Millburn Rd / Harbour Rd - 2025 Redistribution									
Arm 1	D3	1.0	6.54	0.49	A	D4	10.4	44.08	0.93	E
Arm 2		9.9	24.73	0.92	C		3.2	9.64	0.77	A
Arm 3		1.1	7.06	0.52	A		0.8	5.97	0.44	A
Arm 4		0.8	5.06	0.45	A		1.0	4.98	0.51	A

There are warnings associated with one or more model runs - see the 'Data Errors and Warnings' tables for each Analysis or Demand Set.

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle.

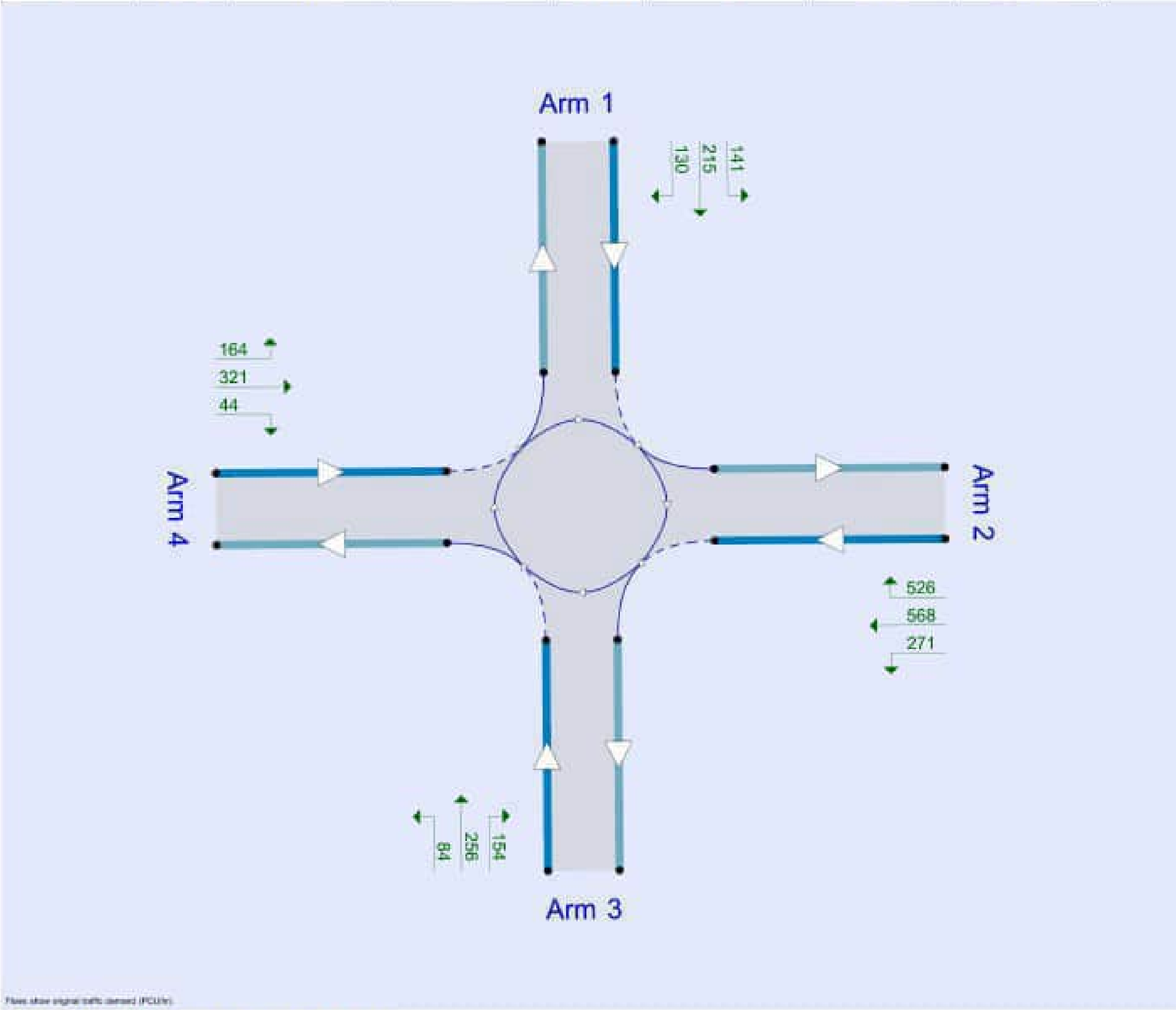
File summary

File Description

Title	Junction 30 - Millburn Rd / Harbour Rd
Location	Inverness
Site number	30
Date	19/02/2024
Version	v1
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORP\UKSXC779
Description	

Units

Distance units	Speed units	Traffic units input	Traffic units results	Flow units	Average delay units	Total delay units	Rate of delay units
m	kph	PCU	PCU	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Show lane queues in feet / metres	Show all PICADY stream intercepts	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)	Use iterations with HCM roundabouts	Max number of iterations for roundabouts
5.75						0.85	36.00	20.00		500

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	00:00	01:30	15	✓
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓
D3	2025 Redistribution	AM	ONE HOUR	00:00	01:30	15	✓
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A1	Existing Millburn Rd / Harbour Rd	✓	100.000	100.000

Existing Millburn Rd / Harbour Rd - 2025 Base, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	13.61	B

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	13.61	B

Arms

Arms

Arm	Name	Description	No give-way line
1	Harbour Road (N)		
2	Millburn Road (B865) (E)		
3	Old Perth Road (B9006) (S)		
4	Millburn Road (B865) (W)		

Roundabout Geometry

Arm	V - Approach road half-width (m)	E - Entry width (m)	l' - Effective flare length (m)	R - Entry radius (m)	D - Inscribed circle diameter (m)	PHI - Conflict (entry) angle (deg)	Entry only	Exit only
1	3.50	6.00	8.0	15.0	56.0	32.0		
2	6.60	6.60	0.0	22.0	56.0	40.0		
3	3.60	6.50	27.0	145.0	56.0	4.0		
4	6.70	6.70	0.0	20.0	56.0	41.0		

Geometry Notes

Arm	Notes
1	TWO LANE ENTRY
2	TWO LANE ENTRY
3	TWO LANE ENTRY TO JUCNTION
4	TWO LANE ENTRY

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1	0.520	1407
2	0.614	1939
3	0.665	1976
4	0.614	1953

The slope and intercept shown above include any corrections and adjustments.

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2025 Base	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	400	100.000
2		ONE HOUR	✓	1398	100.000
3		ONE HOUR	✓	432	100.000
4		ONE HOUR	✓	536	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	3	141	198	58
	2	526	33	271	568
	3	165	144	1	122
	4	116	319	99	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.41	5.77	0.7	A	367	551
2	0.91	21.73	8.8	C	1283	1924
3	0.43	5.71	0.7	A	396	595
4	0.43	4.65	0.8	A	492	738

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	301	75	449	1174	0.257	300	607	0.0	0.3	4.120	A
2	1052	263	271	1773	0.594	1047	478	0.0	1.4	4.918	A
3	325	81	891	1384	0.235	324	426	0.0	0.3	3.395	A
4	404	101	653	1551	0.260	402	562	0.0	0.3	3.128	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	90	537	1128	0.319	359	726	0.3	0.5	4.681	A
2	1257	314	324	1740	0.722	1252	572	1.4	2.5	7.313	A
3	388	97	1066	1267	0.306	388	510	0.3	0.4	4.091	A
4	482	120	782	1472	0.327	481	672	0.3	0.5	3.630	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	657	1065	0.413	439	883	0.5	0.7	5.744	A
2	1539	385	397	1696	0.908	1517	699	2.5	8.0	18.259	C
3	476	119	1292	1117	0.426	474	622	0.4	0.7	5.594	A
4	590	148	950	1369	0.431	589	816	0.5	0.8	4.609	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	658	1064	0.414	440	891	0.7	0.7	5.787	A
2	1539	385	397	1695	0.908	1536	701	8.0	8.8	21.728	C
3	476	119	1308	1106	0.430	476	626	0.7	0.7	5.706	A
4	590	148	959	1364	0.433	590	825	0.8	0.8	4.653	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	360	90	539	1126	0.319	361	738	0.7	0.5	4.706	A
2	1257	314	325	1740	0.722	1281	575	8.8	2.7	8.248	A
3	388	97	1090	1252	0.310	390	517	0.7	0.5	4.183	A
4	482	120	795	1465	0.329	483	685	0.8	0.5	3.672	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	301	75	451	1172	0.257	302	612	0.5	0.3	4.138	A
2	1052	263	272	1772	0.594	1057	480	2.7	1.5	5.070	A
3	325	81	900	1378	0.236	326	430	0.5	0.3	3.423	A
4	404	101	659	1548	0.261	404	567	0.5	0.4	3.147	A

Existing Millburn Rd / Harbour Rd - 2025 Base, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	9.41	A

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	9.41	A

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2025 Base	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	665	100.000
2		ONE HOUR	✓	1107	100.000
3		ONE HOUR	✓	488	100.000
4		ONE HOUR	✓	707	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	3	336	195	131
	2	275	70	171	591
	3	179	158	1	150
	4	87	529	91	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.80	18.86	3.7	C	610	915
2	0.74	8.24	2.7	A	1016	1524
3	0.45	5.49	0.8	A	448	672
4	0.52	5.07	1.1	A	649	973

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	125	637	1076	0.465	497	408	0.0	0.9	6.189	A
2	833	208	315	1746	0.477	830	819	0.0	0.9	3.911	A
3	367	92	802	1443	0.255	366	343	0.0	0.3	3.338	A
4	532	133	514	1637	0.325	530	653	0.0	0.5	3.248	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	149	762	1010	0.592	596	488	0.9	1.4	8.630	A
2	995	249	377	1708	0.583	993	981	0.9	1.4	5.028	A
3	439	110	960	1338	0.328	438	411	0.3	0.5	3.998	A
4	636	159	616	1574	0.404	635	782	0.5	0.7	3.827	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	732	183	933	922	0.794	724	597	1.4	3.5	17.463	C
2	1219	305	459	1657	0.735	1214	1197	1.4	2.7	8.016	A
3	537	134	1172	1197	0.449	536	501	0.5	0.8	5.439	A
4	778	195	753	1490	0.522	777	955	0.7	1.1	5.034	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	732	183	935	921	0.795	732	599	3.5	3.7	18.855	C
2	1219	305	463	1655	0.736	1219	1203	2.7	2.7	8.239	A
3	537	134	1178	1193	0.450	537	504	0.8	0.8	5.490	A
4	778	195	755	1489	0.523	778	960	1.1	1.1	5.067	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	598	149	765	1009	0.593	607	491	3.7	1.5	9.140	A
2	995	249	383	1704	0.584	1000	989	2.7	1.4	5.153	A
3	439	110	968	1332	0.329	440	415	0.6	0.5	4.039	A
4	636	159	619	1572	0.404	637	789	1.1	0.7	3.856	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	501	125	640	1074	0.466	503	410	1.5	0.9	6.334	A
2	833	208	318	1744	0.478	835	825	1.4	0.9	3.972	A
3	367	92	808	1439	0.255	368	346	0.5	0.3	3.362	A
4	532	133	518	1635	0.326	533	658	0.7	0.5	3.289	A

Existing Millburn Rd / Harbour Rd - 2025 Redistribution, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	15.09	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	15.09	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D3	2025 Redistribution	AM	ONE HOUR	00:00	01:30	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	489	100.000
2		ONE HOUR	✓	1398	100.000
3		ONE HOUR	✓	495	100.000
4		ONE HOUR	✓	531	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	3	141	215	130
	2	526	33	271	568
	3	256	154	1	84
	4	164	321	44	2

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.49	6.54	1.0	A	449	673
2	0.92	24.73	9.9	C	1283	1924
3	0.52	7.06	1.1	A	454	681
4	0.45	5.06	0.8	A	487	731

Main Results for each time segment

00:00 - 00:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	368	92	416	1190	0.309	366	711	0.0	0.4	4.381	A
2	1052	263	296	1756	0.599	1047	487	0.0	1.5	5.023	A
3	373	93	945	1348	0.276	371	398	0.0	0.4	3.682	A
4	400	100	729	1505	0.266	398	587	0.0	0.4	3.248	A

00:15 - 00:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	498	1148	0.383	439	851	0.4	0.6	5.075	A
2	1257	314	355	1722	0.730	1252	583	1.5	2.6	7.592	A
3	445	111	1131	1224	0.363	444	476	0.4	0.6	4.611	A
4	477	119	872	1417	0.337	477	703	0.4	0.5	3.827	A

00:30 - 00:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	538	135	609	1090	0.494	537	1034	0.6	1.0	6.454	A
2	1539	385	434	1673	0.920	1514	712	2.6	8.9	20.068	C
3	545	136	1369	1066	0.511	543	579	0.6	1.0	6.860	A
4	585	146	1060	1302	0.449	583	852	0.5	0.8	5.003	A

00:45 - 01:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	538	135	611	1089	0.494	538	1043	1.0	1.0	6.536	A
2	1539	385	435	1672	0.920	1535	714	8.9	9.9	24.734	C
3	545	136	1386	1054	0.517	545	584	1.0	1.1	7.064	A
4	585	146	1070	1296	0.451	585	862	0.8	0.8	5.062	A

01:00 - 01:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	440	110	501	1146	0.384	441	865	1.0	0.6	5.113	A
2	1257	314	356	1721	0.730	1285	586	9.9	2.8	8.781	A
3	445	111	1158	1206	0.369	447	484	1.1	0.6	4.752	A
4	477	119	888	1407	0.339	479	717	0.8	0.5	3.881	A

01:15 - 01:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	368	92	419	1189	0.310	369	717	0.6	0.5	4.392	A
2	1052	263	298	1756	0.599	1058	490	2.8	1.5	5.190	A
3	373	93	954	1341	0.278	373	401	0.6	0.4	3.724	A
4	400	100	735	1501	0.266	400	593	0.5	0.4	3.271	A

Existing Millburn Rd / Harbour Rd - 2025 Redistribution, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	untitled	Standard Roundabout		1, 2, 3, 4	17.37	C

Junction Network

Driving side	Lighting	Network delay (s)	Network LOS
Left	Normal/unknown	17.37	C

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D4	2025 Redistribution	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
✓	✓	HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1		ONE HOUR	✓	827	100.000
2		ONE HOUR	✓	1115	100.000
3		ONE HOUR	✓	435	100.000
4		ONE HOUR	✓	687	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1	2	3	4
From	1	3	336	203	285
	2	275	70	179	591
	3	194	158	1	82
	4	162	511	14	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		1	2	3	4
From	1	0	0	0	0
	2	0	0	0	0
	3	0	0	0	0
	4	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
1	0.93	44.08	10.4	E	759	1138
2	0.77	9.64	3.2	A	1023	1535
3	0.44	5.97	0.8	A	399	599
4	0.51	4.98	1.0	A	630	946

Main Results for each time segment

16:15 - 16:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	623	156	566	1113	0.560	618	475	0.0	1.2	7.200	A
2	839	210	378	1707	0.492	836	805	0.0	1.0	4.112	A
3	327	82	917	1367	0.240	326	297	0.0	0.3	3.455	A
4	517	129	526	1630	0.317	515	717	0.0	0.5	3.224	A

16:30 - 16:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	743	186	677	1055	0.705	739	569	1.2	2.3	11.259	B
2	1002	251	452	1662	0.603	1000	964	1.0	1.5	5.426	A
3	391	98	1097	1247	0.314	390	356	0.3	0.5	4.202	A
4	618	154	629	1568	0.394	617	859	0.5	0.6	3.766	A

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	911	228	828	976	0.933	884	695	2.3	8.8	32.673	D
2	1228	307	542	1607	0.764	1221	1171	1.5	3.1	9.184	A
3	479	120	1333	1090	0.440	478	430	0.5	0.8	5.871	A
4	756	189	769	1481	0.511	755	1042	0.6	1.0	4.951	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	911	228	830	975	0.934	904	698	8.8	10.4	44.075	E
2	1228	307	553	1600	0.767	1227	1181	3.1	3.2	9.640	A
3	479	120	1345	1082	0.443	479	435	0.8	0.8	5.971	A
4	756	189	772	1479	0.512	756	1052	1.0	1.0	4.983	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	743	186	680	1053	0.706	775	573	10.4	2.5	14.295	B
2	1002	251	474	1648	0.608	1009	981	3.2	1.6	5.684	A
3	391	98	1117	1233	0.317	392	386	0.8	0.5	4.288	A
4	616	154	633	1564	0.395	619	876	1.0	0.7	3.819	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1	623	156	569	1111	0.560	627	478	2.5	1.3	7.517	A
2	839	210	384	1704	0.493	842	812	1.6	1.0	4.189	A
3	327	82	925	1361	0.241	328	300	0.5	0.3	3.486	A
4	517	129	529	1628	0.318	518	724	0.7	0.5	3.247	A

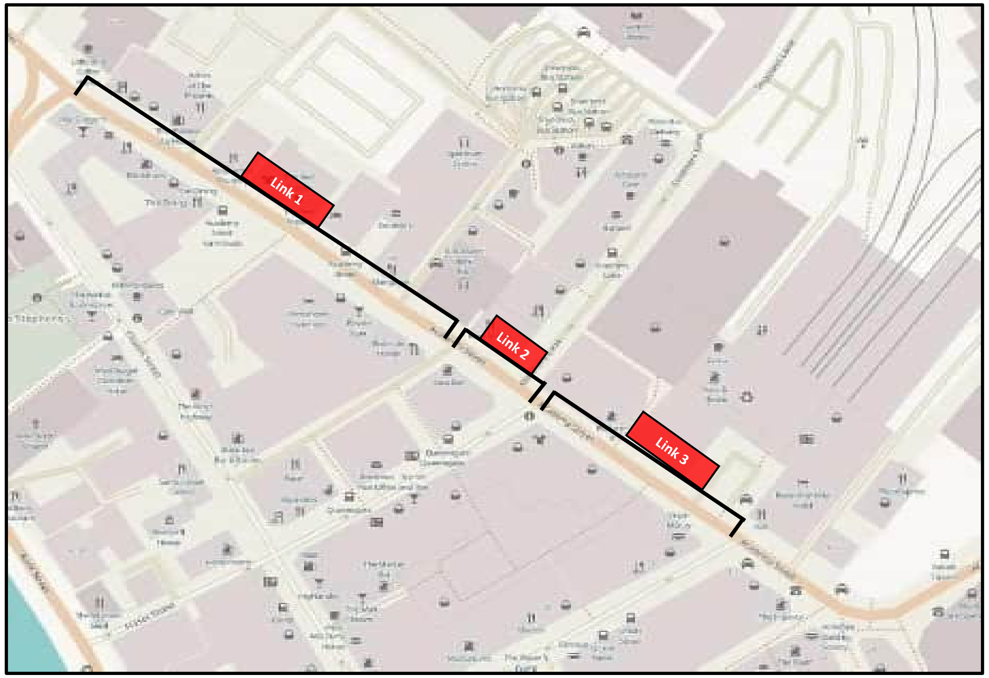
Appendix E

POST SCHEME TRAFFIC - ACADEMY STREET

PUBLIC

Academy Street Pre Scheme Traffic

Link	1 - Friars Ln to Margaret Ln		2 - Post Office Ave to Strothers Ln		3 - Queensgate to Union Street	
Time	NB	SB	NB	SB	NB	SB
0700 - 0800	161	111	150	141	122	172
0800 - 0900	288	240	246	272	193	319
0900 - 1000	291	260	249	305	192	371
1000 - 1100	340	299	313	348	250	404
1100 - 1200	348	336	294	381	234	458
1200 - 1300	376	350	339	390	269	470
1300 - 1400	380	282	325	353	265	436
1400 - 1500	400	334	373	383	298	497
1500 - 1600	430	336	354	396	283	487
1600 - 1700	381	286	348	325	265	398
1700 - 1800	408	374	348	432	275	497
1800 - 1900	386	264	353	297	282	389
Total	**4190**	**3474**	**3691**	**4022**	**2929**	**4899**
Two-Way Traffic (PCUs)	**7664**		**7713**		**7828**	



Academy Street Post Scheme Traffic

Link	1 - Friars Ln to Margaret Ln		2 - Post Office Ave to Strothers Ln		3 - Queensgate to Union Street	
Time	NB	SB	NB	SB	NB	SB
0700 - 0800	41	36	12	68	7	77
0800 - 0900	83	58	17	98	7	92
0900 - 1000	85	59	14	131	7	113
1000 - 1100	106	55	29	117	13	102
1100 - 1200	101	69	12	119	17	136
1200 - 1300	106	54	26	113	19	131
1300 - 1400	98	9	11	91	3	148
1400 - 1500	122	57	21	127	17	158
1500 - 1600	135	67	29	139	24	162
1600 - 1700	143	66	29	119	21	105
1700 - 1800	143	74	16	132	5	138
1800 - 1900	130	63	22	114	21	120
Total	**1293**	**667**	**240**	**1368**	**162**	**1483**
Two-Way Traffic (PCUs)	**1959**		**1608**		**1645**	
Cycling By Design Level of Service	**High**		**High**		**High**	
Difference	**-2897**	**-2807**	**-3451**	**-2654**	**-2767**	**-3416**

Link Average | **1737**

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