Castlehill West, Whinney Lane, Harrogate

784- A081951-3

Transport Assessment

Banks Group

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Registered in England number: 03050297

TETRA TECH

Tetra Tech Leeds, 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

Tetra Tech Environment Planning Transport Limited. Registered in England number: 03050297
Registered Office: 3 Sovereign Square, Sovereign Street, Leeds, United Kingdom, LS1 4ER

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TABLE OF CONTENTS

1.0 INTRODUCTION 1

2.0 EXISTING SITUATION 2

3.0 PROPOSED DEVELOPMENT 7

4.0 ACCESSIBILITY 9

5.0 HIGHWAY SAFETY 13

6.0 TRIP GENERATION AND TRAFFIC ASSIGNMENT 21

7.0 OPERATIONAL ASSESSMENT 26

8.0 CUMULATIVE ASSESSMENT 32

9.0 SUMMARY 33

APPENDICES

Appendix A FIGURES

Appendix B DRAWINGS

Appendix C HIGHWAY LINKS REVIEW

Appendix D COMMITTED DEVELOPMENT TRAFFIC DIAGRAMS

Appendix E ACCIDENT DATA RECORDS

Appendix F TECHNICAL NOTE 8D

Appendix G MODEL OUTPUTS

1.0 INTRODUCTION

1.1 Tetra Tech (TT) have been appointed by Banks Group to produce a Transport Assessment (TA) and Travel Plan (TP) for submission with a planning application for a residential development of up to 251 units and provision of a Primary School on land west of Whinney Lane, Harrogate. Figure 1 in Appendix A shows the site location and the site masterplan is shown on the Pegasus Group drawing P22-4321_DE_001_011_B at Appendix B.

1.2 The TA has been produced having due regard for the advice contained in:

- National Planning Policy Framework (NPPF) published by Ministry for Housing, Communities & Local Government (MHCLG).
- MHCLG's Transport Assessment and Travel Plan guidelines set out in Planning Practice Guidance.

1.3 This report has been produced following extensive scoping discussions with highway officers at NYCC and the preparation of a parameters plan for the wider local plan allocation sites to the west of Harrogate. A Scoping Report was issued to NYCC in July 2019 and a revised scope was issued in January 2020 following amendments to the parameters plan. Further scoping discussions have taken place with NYCC regarding the cumulative assessments of the West of Harrogate sites and the TA has therefore adopted the parameters agreed for the cumulative assessments.

1.4 TT (formerly WYG) has previously considered the potential highways impacts of both the H51 and H70 residential allocations to the south-west of Harrogate and have had discussions with North Yorkshire CC and Harrogate Borough Council officers on these matters. TT have also undertaken an assessment of the approved residential development on site H70 for up to 130 units on land to the east of Whinney Lane.

1.5 The current application considers development of part of the H51 site on the west side of Whinney Lane, based on the principles set out for the masterplan of the full H51 and H70 site allocations and in accordance with the parameters plan.

1.6 The main purposes of the TA are to review the accessibility of the site for pedestrians, cyclists or users of public transport, to ensure there is a choice of transport mode, and to consider the impacts of traffic generated by the proposed development on the local road network and mitigate where necessary.

1.7 TT have also produced an Interim Travel Plan, submitted alongside the planning application under separate cover. The Interim TP has been prepared in broad accordance with the DfT publications Making Residential Travel Plans Work, North Yorkshire County Councils Travel Plan checklist and Good Practice Guidelines: Delivering Travel Plans through the Planning Process, presenting the parameters on which the Full TP is likely to be based.

2.0 EXISTING SITUATION

Development Site

2.1 The development site comprises a parcel of agricultural land, which forms part of allocation H51, located to the west of Whinney Lane, south-west of Harrogate. The site is bounded by adjacent agricultural land to the north and east, by Whinney Lane to the south and Lady Lane to the west. Figure 1 at Appendix A shows the site location.

Local Transportation Networks

2.2 Whinney Lane is a single carriageway road which has a north-east to south-west alignment between Pannal Ash roundabout in the north and a T-junction with Lady Lane and Hill Top Lane in the south. It has residential development on both sides of the road for the first c.175m, south from Pannal Ash roundabout, then residential development only on the east side for a further 100m, thereafter the road is a rural character until the Squinting Cat public house where there is a small cluster of homes.

2.3 Whinney Lane has a variable carriageway width along its length, although the carriageway has been widened to 6.5m between the Stonebridge Homes site access and Castle Hill Drive. There are 2m footways provided on both sides of Whinney Lane between the Stonebridge Homes site access and Castle Hill Drive to the north east of the proposed site access. Footway provision continues to the west of Castle Hill Drive on both sides of Whinney Lane to the Yew Tree Lane roundabout. To the south of the proposed site access there is a continuous footway provided on the western side of Whinney Lane which varies in width.

2.4 Waiting is not restricted on Whinney Lane except in the vicinity of the Squinting Cat public house, here there are No Waiting at Any Time restrictions on both sides of Whinney Lane for a distance of c.330m north of the junction with Hilltop Lane. From Pannal Ash roundabout, south along Whinney Lane, the road is subject to a 30mph speed limit for some 700m and is also lit by a system of street lighting. Further south, by the Squinting Cat, Whinney Lane has no street lighting and is subject to the National Speed Limit.

2.5 Lady Lane is an unlit, rural, single carriageway road which is subject to the national speed limit. It generally has a north-west to south-east alignment connecting to Beckwith Head Road/ How Hill Quarry Road junction in the north west to the Whinney Lane / Hill Top Lane junction. The carriageway has a variable carriageway width of between c.4.5m and c.5.4m with wide grass verges either side of the carriageway which range from between c.0.9m and c.3.8m wide along its eastern side and from c.1.9m to c.6.3m wide along its western side.

2.6 Hill Top Lane, later named Hill Foot Lane, is an unlit, rural, single carriageway road which has a variable carriageway width of between c.4.1m and c.5.5m. Hill Top Lane has a north to south alignment from the T-junction with Whinney Lane to Fall Lane which continues west to east as Hill Foot Lane. The road is subject to the national speed limit for c.750m south of the Whinney Lane T-junction which then changes to a posted 40mph speed limit for c.860m. The speed limit then changes to 30mph through Burn Bridge village. Hill Top Lane forms the south-eastern continuation of Lady Lane to a mini-roundabout junction with Burn Bridge Lane on the outskirts of Burn Bridge

village. Burn Bridge Road has traffic calming in the form of speed cushions from the mini-roundabout junction with Hill Foot Lane to the mini-roundabout with Malthouse Lane. Burn Bridge Lane forms a T-junction with the A61 to the south of Burn Bridge village which provides a route to Leeds.

2.7 Beckwith Road forms the western arm of the Pannal Ash roundabout which runs in a north west to south east alignment to form a priority junction with the B6162 Otley Road in the west. It has residential development on both sides of the road and is a bus route. Beckwith Road is a street-lit, single carriageway road with a carriageway width of approximately 7.3m and 2.0m wide footway on both sides. There are no waiting restrictions on Beckwith Road and it is subject to a 30mph speed limit with traffic calming along the route in the form of speed cushions.

2.8 Pannal Ash Road forms the northern arm of the Pannal Ash roundabout and runs broadly northwards to a signalised crossroads junction with the B6162 Otley Road and Manor Drive. Pannal Ash Road has residential development on both sides of the road and serves Rossett Sports Centre, Rossett Acre Primary School and Rossett School. It is a bus route and, in part, a cycle route. The road has a carriageway width of approximately 6.1m and 2.0m wide footway on both sides for most of the route and at least on one side for the full length. There are no waiting restrictions on Pannal Ash Road and there is white edge of carriageway lines along both sides of the road. Pannal Ash Road is subject to a 30mph speed limit for c.340m from its junction with Otley Road to Rossett Holt Drive and then subject to a 20mph speed limit for c.640m to Pannal Ash roundabout, including Rossett Acre Primary school. There is a Puffin pedestrian crossing at the entrance to Rossett Acre Primary school, Rossett School and Rossett Sports Centre.

2.9 Green Lane forms the eastern arm of Pannal Ash Roundabout and has a north-west to south- east alignment from the roundabout to a priority junction with Leadhall Lane. It is largely residential in character, but serves Rossett School, a local secondary school, on the north side adjacent to the roundabout, and Ashville College, an independent school for pupils between the ages of 4 and 18. The road is a street-lit, single carriageway road with a typical carriageway width of c.7.3m. There is a continuous 1.5m wide footway along the south side of the road, and a similar width footway on the north side between Pannal Ash roundabout and Rossett School. There are no waiting restrictions on Green Lane, except for No Stopping outside the Rosset School and Ashville College entrances, and it is subject to a 30mph speed limit.

2.10 Yew Tree Lane has a north-east to south-west alignment from the Pannal Ash Roundabout to form a mini-roundabout with Burn Bridge Road and Spring Lane. Approximately 1km of the northern section of Yew Tree Lane has residential development on both sides, with an access to Ashville College car park, and Ashville College sports fields, with 700m of the southern section being rural in character, before entering Burn Bridge village. The residential section of Yew Tree Lane is a street-lit, single carriageway road with a typical carriageway width of 6.0m with 2.0m footway on both sides for 650m and continues on the east side with a varied width.

2.11 The B6162 Otley Road has a broadly east to west alignment which begins at the A61 Leeds Road/ A6040 York Place roundabout. To the west, the B6162 Otley Road meets a roundabout with Pot Bank where the B6161 continues southwards through Leathley where it is named the B6161 Leathley Lane. From this point, the B6161 continues eastwards to form a priority junction with the A658 north of Pool in Wharfedale.

2.12 Within the Harrogate built-up area, the B6162 Otley Road serves mainly residential areas of Harrogate from a number of priority junctions, as well as the RHS Harlow Moor Gardens and Cardale Park – a major employment area. Within Harrogate, the B6162 is street-lit, has a typical carriageway width of 7.3m with 2.0m-3.0m wide footway on the south side with 1.5m-1.8m wide footway on the north side and is a bus and cycle route. On the south side of the B6162, there are areas of residential on-street parking separated by double yellow line waiting restrictions, with double yellow line waiting restrictions also present on the north side. The B6162 has a posted speed limit of 30mph within Harrogate which changes to National Speed Limit, some 25m west of the Beckwith Head Road junction.

2.13 In scoping discussions NYCC have requested a review of a number of highway links in the vicinity of the Castle Hill West site and other development sites to the west of Harrogate. A summary of this review is provided in Table C1 in Appendix C. In conclusion it is considered unlikely that the Castle Hill West development would result in a significant impact on the majority of the links highlighted by NYCC. Further consideration of the potential impact of the development on adjacent junctions is provided later in the report.

Walking/ Cycling

2.14 Within the vicinity of the site, there are a number of existing public footways and bridleways which provide access across the wider network which are shown in Figure 2 at Appendix A. Within close proximity to the site, there are public rights of way connecting to Lady Lane in the west, with routes continuing to the east of site H70 via a route connecting to Yew Tree Lane to the south of Rossett College. Improvements to the public right of way between H70 and Yew Tree Lane have been completed by Banks during 2022 provide a surfaced route to encourage walking and cycling in the area.

2.15 The Harrogate Ringway runs to the south of the site and is a 32-km circular walking route around Harrogate, with 5-6.5kms of the route being on country lanes and pathways. The route is accessible from Yew Tree Lane and connects to Hill Top Lane, approximately 300m south of the public right of way which runs along the rear of H70. To the north, connections to the B6162 Otley Road can be made, and to the south, the public right of way routes to Pannal before following a route around the town with connections to other rights of way from this route to the wider areas of Harrogate available. The route also provides a connection to the Knaresborough Round route to the north-eastern side of Harrogate.

2.16 There is a local cycle route which provides access to the National Cycle Route 67 (NCN67) that is accessible from St. George's Road, Westbourne Avenue, Alderson Road and St.James' Drive. NCN67 is situated to the east of the site and can be accessed via the existing footway provisions, through on road-cycle access and via the public right of way routes. This route runs locally from Ripley along the Nidderdale Greenway to the north of Harrogate before continuing through the town, past the showground and southwards towards Wetherby where it links to the wider national cycle network.

2.17 National Cycle Route 636 is situated to the north east of the site and runs between Harrogate and Knaresborough and is approximately 6.5 kms in length. The route is a combination of urban / rural and runs along Bilton Lane, commencing at Dragon Cycleway and provides a link between the two

towns without the requirement to use the A59. The National Cycle Routes in relation to the site are shown in Figure 3 at Appendix A.

2.18 In addition to the above facilities, there are existing footways provided adjacent to residential streets to the north and east of the site, which provide access to surrounding local facilities. The accessibility from the site to nearby destinations on foot or by bike is considered in more detail in Section 4 of the report.

Public Transport

2.19 The nearest bus stops to the site are situated to the north east of the development at Pannal Ash Roundabout and can be seen in Figure 4 of Appendix A.

2.20 A bus stop is located on Pannal Ash Road, 60m north of the roundabout junction with Yew Tree Lane. This stop is approximately a 750m walk from the centre of the site. This stop is a flag stop, with timetable information with no bus stop lay-by or cage provisions and no existing shelter or access provisions. This stop is served by the number 6 route operated by Harrogate Bus Company.

2.21 Another bus stop is provided on the eastbound approach to the roundabout junction on Beckwith Road and is approximately 780m walk distance from the centre of the site. This stop is also a flag stop with timetable only with no shelter or access provisions currently in place. This stop is also served by the number 6 route operated by Harrogate Bus Company.

2.22 The services available from these stops are discussed in more detail in Section 4 of this report.

Committed Development

2.23 The TA will consider the traffic impacts of local planning permissions which affect the road network local to the development, as agreed with NYCC during scoping discussions. NYCC have identified a number of sites for inclusion in assessments as committed development, which are summarised in Table 2.1 below.

Table 2.1 – Committed Development Sites

Local Plan Allocation Ref.	Site Name (no. dwellings)	Planning Portal Ref
H74	Crag Lane/Harlow Grange (125)	14/00259/OUTMAJ
H46	Otley Road (Horticap) (125)	15/01999/EIAMAJ
	Pannal business park (120 + other)	14/02804/OUTMAJ
H50	Penny Pot Lane (600)	14/02737/EIAMAJ
H88	Beckwithknowle employment	16/01066/FULMAJ
H88	Beckwith Knowle employment	17/00094/OUTMAJ
H71	Skipton Road phase 1 (210)	14/00854/OUTMAJ

Local Plan Allocation Ref.	Site Name (no. dwellings)	Planning Portal Ref
H72	Skipton Road phase 2 (135)	14/02944/OUTMAJ
H73	Skipton Road (Bellway-part) (170)	14/03119/FULMAJ
H51	Whinney Lane - Mulgrave (40)	18/02960/FULMAJ
H6	St Georges former BT training (88)	15/05478/OUTMAJ
H70	Castle Hill Farm, Whinney Lane (130)	17/05595/OUTMAJ

2.24 Whilst it is understood that a number of the committed development sites have commenced on site the predicted traffic flows from the relevant TA's have been added to the baseline surveyed flows in order to provide a robust assessment developments. Traffic flow diagrams for the committed development traffic are included in Appendix D.

2.25 In addition to the committed developments identified above the impacts of a number of sites to the west of Harrogate that have been allocated in the Local Plan but that have not received planning approval have also been assessed in a separate cumulative impact assessment report produced on behalf of the developers. This assessment has considered the cumulative effects of the committed and allocated development sites and identifies appropriate mitigation measures necessary. Table 2.2 below summarises the additional sites assessed as part of the cumulative impact assessment.

Table 2.2 – Cumulative Impact Assessment Sites

Local Plan Allocation Ref.	Site Name (no. dwellings/ GFA)
H16	Employment Allocation (12,000sm B1/B2/B8)
H28	Employment Allocation (16,000sm B2/B8)
H36	Police Training centre, Yew Tree Lane (200)
H45	Bluecoat Park (480)
H49	Windmill Farm (890 dwellings, primary school and local centre)
H51	Lady Lane/Whinney Lane (750 dwellings, 2.43 hectares of employment)
H70	Castle Hill Farm (remaining 100 dwellings)
K25	Highfield Farm, Knaresborough (402 dwellings)
PN18	Employment Allocation (46,500sm B1/B2)

2.26 The results of the cumulative impact assessments are considered further later in the report.

3.0 PROPOSED DEVELOPMENT

3.1 The development proposals are for up to 251 residential units and provision of a Primary School on part of the H51 allocation site. The proposed layout is shown on the Pegasus Group drawing P22-4321_DE_001_011_B at Appendix B.

Access

3.2 The development will be accessed via a new arm onto the existing roundabout junction on Whinney Lane.

3.3 A compact 4-arm roundabout junction also provides access to the approved residential development on site H70 to the east of Whiney Lane. The proposed layout is shown on Wardell Armstrong drawing NT16079-004 Rev C in Appendix B.

3.4 As shown in the site masterplan at Appendix B the internal site layout has been designed with a single point of access from Whinney Lane, however the layout also provides for future vehicular connections to the wider H51 site allocation in order to ensure permeability of both sites and to enable future public transport improvements.

3.5 Footways with a width of 2.0m are to be provided on both sides of Whinney Lane between the roundabout access and the existing footway provision to the north of the site. A 2m footway will also be provided on the north side of Whinney Lane to the south of the roundabout access tying in to the existing footway provision to the south of the site providing a continuous route along Whinney Lane. Refuge splitter islands are to be provided on each arm of the roundabout to facilitate pedestrians crossing Whinney Lane and the site access.

3.6 Following construction of the access to the H70 site to the east the carriageway width of Whinney Lane has also been widened to 6.5m along the site frontage as per the Local Distributor road type in the NYCC Design Guide to accommodate future bus access.

3.7 The proposed development also includes provision of a new half width bus layby on Whinney Lane adjacent to the roundabout junction. The bus layby was considered as part of the development of H70 and deemed acceptable. The layby would be implemented once public transport services are diverted via the site/ Whinney Lane. The layout of the bus layby is shown on WYG Drawing No. A081951-3 91-18-C003 Rev H in Appendix B.

3.8 The proposed site layout includes provision of footways/cycleways adjacent the main spine road within the site in addition to a separate shared use foot/ cyclepath within the site running parallel to the southern section of Whinney Lane to connect into a separate east/ west shared use foot/cycle path. The layout also includes a separate footpath link running adjacent to Lady Lane. In addition to the proposed vehicular access point the site layout will also provide a number of separate pedestrian access points on Whinney Lane and Lady Lane providing links to the existing footway and PROW network in the vicinity of the site as well as proposed connections to the wider H51 development site to ensure permeability of the proposed layout for non-car users.

Servicing

3.9 The internal site layout is indicative at this stage, however the development layout will be designed

to ensure a refuse vehicle and fire tender can adequately access the site with appropriate turning heads provided.

Car Parking

3.10 Car parking will be provided in accordance with appropriate NYCC parking standards. Visitor parking will be provided throughout the development.

4.0 ACCESSIBILITY

4.1 NPPF was updated in July 2021, replacing the previous version of the Framework. At Paragraph 104 c) NPPF identifies "opportunities to promote walking, cycling and public transport use are identified and pursued" for development proposals and at Paragraph 105 it indicates "opportunities to maximise sustainable transport solutions will vary between urban and rural areas, and this should be taken into account in both plan-making and decision-making". The accessibility of the development has been considered based on this guidance.

Walking

4.2 TT (formerly WYG) have analysed walking for all purposes as the main mode of travel (from home) by interrogating data collected through the National Travel Survey (NTS), to calculate the average and 85th percentile distances travelled. The survey data was collected from 7,700 households covering over 18,000 individuals, and so provides a robust sample which can be reviewed for variations across UK regions and variations between different reasons for travelling. The analysis has revealed the average distance people walk is 1.15km and the 85th percentile distance is 1.95km. The NTS data is available on request and was reported in Local Transport Today in October 2017.

4.3 For this review an acceptable maximum walk distance of 1.95km has been adopted, i.e. approximately a 24 min walk (at a typical walking speed of 1.3m per sec) from the centre of the proposed development. These have been assessed with due consideration to the local public rights of ways identified in Figure 2 and the existing pedestrian connections discussed in Chapter 2. A walking catchment plan is shown at Figure 5 at Appendix A.

4.4 The internal footway networks within the site would connect to the existing footway provision on the west side of Whinney Lane, as well as providing connections to adjacent developments both on allocation sites H51 and H70. The enhanced footway provision on Whinney Lane would provide the main connection to existing pedestrian routes from the site to local schools and facilities in surrounding areas.

4.5 At the Pannal Ash roundabout, there are currently dropped kerbs and tactile paving on Green Lane and Pannal Ash Road crossing points. To further facilitate movements across the junction from Whinney Lane there is potential to provide a pedestrian crossing refuge by extending the existing splitter island into the area of hatching on the approach from Beckwith Road, with dropped kerbs and tactile paving provision provided on the approaches. This will facilitate movements to the eastern side of Pannal Ash Road and to the northern side of Beckwith Road where there are existing bus stops as well as providing accessible routes towards the schools and facilities situated along these routes.

4.6 On Pannal Ash Road there is a signalised pedestrian crossing at the junction with the Rossett Acre Primary School allowing full pedestrian movements across the carriageway on all approaches and access from the existing bus stops.

4.7 Beyond the new primary school proposed on site the nearest primary school is Rossett Acre Primary School which is approximately 1.1km from the centre of the site in a northbound direction

via Whinney Lane and Pannal Ash Road. This school is accessible via the existing pedestrian network and the proposed footway along the western side of Whinney Lane.

4.8 Rossett School is the nearest secondary school with a sixth form and is situated to the north of Green Lane. This school is approximately 1.1km from the centre of the site via Whinney Lane and Pannal Ash Road.

4.9 Both the Stagecoach Harrogate Theatre Arts School and the Rossett Sports Centre are located to the north of the proposed development to the rear of the Rossett School. The Theatre Arts School provides opportunities for 14-18 year olds to participate in drama, music and theatrical classes. The Sports Centre provides access to a range of indoor and outdoor sporting facilities including tennis pitches, gymnasiums and artificial sports pitches. These sites are approximately 1.2km north of the site via Whinney Lane.

4.10 The nearest convenience store is the Co-op located north east of the site on Otley Road to the north of its junction with Pannal Ash Drive. The store can be reached within a c1.7km walking distance via existing footways provided.

4.11 The Squinting Cat is the nearest public house which also offers a restaurant. The site is situated to the south of the proposed development and is within close walking proximity within approximately 400m via Whinney Lane.

4.12 Cardale Park, to the south of the B6162 Otley Road, can be reached within a 1.8km walk from the centre of the site and provides potential job opportunities.

4.13 There are a number of local education, employment, retail, health and community facilities which could be reached on foot from the development site.

Cycling

4.14 TT have analysed cycling for all purposes as the main mode of travel (from home) by interrogating data collected through the NTS, to calculate the average and 85th percentile distances travelled. The survey data was again collected from 7,700 households covering over 18,000 individuals. The analysis revealed the average distance people cycle is 4.3km and the 85th percentile distance is 7.25km. The NTS data is available on request.

4.15 For this review an acceptable maximum cycle distance of 7.25km has been adopted, i.e. approximately a 36-minute ride (at a typical cycle speed of 200m per minute) from the centre of the proposed development. A cycle catchment plan is shown in Figure 6 at Appendix A.

4.16 Residents at the development site could cycle to a wide range of education, employment, retail, health and community opportunities, some of which they may view as beyond a reasonable walk distance. A 10-minute bike ride (5km) reaches all of those destinations which are within a 25-minute walk (2km).

4.17 To the north-east of the site, all of Harrogate Town Centre is accessible within the 85th percentile cycling catchment. Within this catchment access to additional education facilities can be reached which includes Harrogate Grammar School, Harrogate High School St John' Fisher Catholic High School and St Aiden's Church of England High School in addition to further retail and employment opportunities both within the town centre.

4.18 To the south, Pannal and Burn Bridge can also be reached where there are a number of additional food-stores and local shops including a Co-op Food-store as well as Pannal Primary School also being accessible within approximately 3.5km.

4.19 In addition to education and retail facilities, healthcare is accessible within a 5km cycle catchment with the nearest doctors' surgery being Leeds Road Surgery, with Harrogate District Hospital also being accessible within the catchment area.

4.20 Within the extents of the cycle catchment, further access to retail opportunities is available which includes Harrogate Retail Park, situated to the north of the site where there is a B & Q and Pets at Home store. Plumpton Retail Park is located to the north-east of the site where a Morrison's, Homebase and PC World are situated along with a number of smaller retail units.

4.21 Hornbeam Park Railway Station is situated south of Hookstone Road and is accessible within a 3km cycle ride from the centre of the site and has cycle storage facilities. Rail services from Hornbeam Park include those to Leeds, Knaresborough and York. Pannal Station is also located approximately 3km to the south of the site and also provides access to trains towards York/ Leeds. Hornbeam Park station provides cycle parking including cycle lockers and cycle stands. Cycle stands are also provided at Pannal station

4.22 There are a range of education, employment, retail, health and community opportunities which could be reached by bike from the development site.

Public Transport - Bus

4.23 TT (formerly WYG) have analysed distances for those trips where walking was the 1st stage mode of travel and bus was the 2nd stage mode of travel. The NTS data from 2010 to 2012 was used to calculate the average and 85th percentile walk distances to a bus stop. The analysis, published in Logistics and Transport Focus March 2018, shows, outside of London, the average distance people walk to a bus stop is 580m and it can be concluded at 580m there is a good prospect people would walk to a bus stop.

4.24 The nearest existing bus stops to the development site, as shown in Figure 4 in Appendix A, are the stops located on Beckwith Road and Pannal Ash Road. The bus stop located on Beckwith Road is approximately an 780m walking distance from the centre of the site, with the bus stop on Pannal Ash Road an approximate 740m walking distance, both of these stops are served by the 6 service. Although these stops are beyond the normal target distance of 400m, they are within the 85th percentile and at that distance there is still a good prospect that residents will use the services at these stops.

4.25 The consented H70 to the east of development provided for the construction of a bus stop at some point in the future to the north of the roundabout including the provision of a half width layby on Whinney Lane.

4.26 As noted earlier in the report discussions have been undertaken with bus operators regarding the diversion of existing services to serve the proposed development and other developments coming forward in the surrounding area in the future.

4.27 Both existing stops have a flag / pole design with timetable information provided although there are no shelters provided. The new bus stop including flag and pole on Whinney lane will come forward via S278 works.

4.28 **Table 4.1** below summarises the local bus services.

Table 4.1 – Bus Routes Accessible from the Development

Route No.	Route Description	Location of Bus Stop	Monday to Saturday	Sunday
6	Harrogate to Pannal Ash Harrogate Bus Station, Harrow Hill, Pannal Ash	Beckwith Road / Pannal Ash Road	Half hourly	Hourly

4.29 The current number 6 service offers regular and frequent journey opportunities to Harrogate Town Centre where local facilities can be accessed and proposals to extend the service would further enhance the site's accessibility.

4.30 This development site forms part the H51 allocation and adjoins the H70 allocation which will provide around 900 new homes in total. A comprehensive approach to the delivery of these sites and their public transport provision will be necessary and is being promoted by Banks Group. The development provides for this comprehensive approach by the provision of infrastructure which supports this specific site, but also the greater needs of the wider allocations. As a result, the proposed site access junction also serves site H70. A bus layby is provided to facilitate future bus access as H51 and H70 are developed. This will therefore make provision for long-term bus routing but would also permit an extension of existing services, when practical.

Conclusion

4.31 The development site is accessible on foot, by bike and public transport to a range of local destinations across the local and wider Harrogate area via the existing network of paths and routes.

4.32 The site forms part of the H51 allocation and provides the necessary highway infrastructure to facilitate bus access in the future when the level of housing development increases. Site H51 also provides a primary school, food retail, recreation, and additional employment opportunities.

5.0 HIGHWAY SAFETY

5.1 Road traffic accident records for the 3-year period between the 1st January 2017 and the 29th February 2020, prior to covid lockdown/ travel restrictions, have been obtained from Highways North Yorkshire at North Yorkshire County Council for the local road network which has been assessed for highway capacity.

5.2 In addition, more recent accident data for 2020 and 2021 for the study network has been obtained from the Crashmap website and has been reviewed as a comparison with the pre-covid accident records. Copies of the accident records are attached in Appendix E.

Whinney Lane/ Site Access Roundabout

5.3 There were no reported accidents within 250m in both directions of the Whinney Lane/ Site Access roundabout junction during the 3-year assessment period.

Prince of Wales Roundabout (A61 Leeds Road/ West Park/ B6162 Otley Road)

5.4 There were ten reported accidents at the Prince of Wales roundabout junction during the 3-year assessment period. Table 5.1 below presents a summary of the accidents that occurred.

Table 5.1 – Access Summary – Prince of Wales Roundabout

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1800608	B6162 Otley Road, Harrogate	Daylight	Wet/Damp	Slight	1 Pedestrian
A pedestrian walked across B6162 Otley Road on the two-lane approach to the Prince of Wales Roundabout. A car stopped to allow the pedestrian to cross the first lane. Another car travelling east in the second lane, did not see the pedestrian as they crossed the road from the other side of the stationary car and the pedestrian was unaware that there was a second lane. The pedestrian walked out into the second lane and the car ran over their foot. Contributory Factors: Failed to look properly, Crossed road masked by stationary vehicle					
2000137	A61 West Park at j/w Raglan Street	Darkness	Dry	Slight	1 Driver
A car travelled west on Raglan Street and stopped at the junction with A61 West Park. The driver looked left to check for any oncoming vehicles on the one-way street and pulled out onto A61 West Park. A car travelled southbound on A61 West Park, the wrong way on the one-way street, and the car pulled out without seeing the southbound car which led to a collision. Contributory Factors: Other, Failed to look properly, Illegal turn or direction of travel					
2000067	A61 Swindon Lane, Harrogate	Daylight	Wet/Damp	Slight	2 Drivers
A car travelled south on the A61 and attempted to overtake the car in front. Another car travelled in the opposite direction which forced the southbound car to get back in lane, and in doing so, the car has collided with the car in front. Contributory Factors: Loss of control, Illness or disability, mental or physical					

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1800434	B6162 Otley Road, Harrogate	Daylight	Dry	Slight	1 Pedestrian
A car travelled east towards the Prince of Wales roundabout in the nearside lane of B6162 Otley Road and came to a stop at the end of a queue in heavy traffic. Another car travelled east in the offside lane of the B6162 Otley Road. As the offside lane car passed the nearside lane car, a pedestrian walked out into the offside lane and collided into the car. Contributory Factors: Failed to look properly, Stationary or parked vehicle					
1800015	A61 York Place at j/w Prince of Wales r/about	Daylight	Dry	Slight	1 Pedestrian
A car travelled westbound on A61 York Place and approached the Prince of Wales roundabout where it stopped to give way. A pedestrian attempted to cross A61 York Place from south to north and side stepped into the carriageway and into the path of the car. The car collided into the pedestrian. Contributory Factors: Failed to look properly, Failed to judge vehicles path or speed, Failed to look properly					
12180031077	A61 Leeds Road at j/w Prince of Wales r/about	Daylight	Dry	Slight	1 Driver
A car travelled north on A61 Leeds Road and on the approach to the Prince of Wales roundabout attempted to move into the nearside lane. As the car moved into the nearside lane, it collided into a car travelling northbound in the nearside lane. Contributory Factors: Careless/reckless/in a hurry					
12170124818	A61 West Park at j/w Prince of Wales r/about	Daylight	Dry	Slight	1 Passenger
Three cars travelled north on A61 West Park in single file with stationary traffic ahead. On the approach to the back of the queue, the front two cars stopped and the third car failed to stop and collided into the rear of the car in front which in turn collided into the leading car. Contributory Factors: Distraction in vehicle, Failed to look properly					
12170113587	A61 York Place at j/w Prince of Wales r/about	Daylight	Dry	Slight	1 Pedestrian
A car travelled east to A61 York Place from the Prince of Wales roundabout when a pedestrian attempted to cross from north to south and collided into the car. Contributory Factors: Failed to judge vehicles path or speed					
12170099234	A61 York Place at j/w Prince of Wales r/about	Daylight	Dry	Serious	1 Driver
A car travelled west on A61 York Place and the driver lost control which led to the car colliding into a parked vehicle. Contributory Factors: Illness or disability, mental or physical					
12170051913	B6162 Otley Road at j/w Prince of Wales r/about	Daylight	Dry	Serious	1 Pedestrian

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
A car was stationary on the B6162 Otley Road arm of the Prince of Wales roundabout, waiting to turn right. A pedestrian crossed the road from the nearside and was struck by the car as it set off. Contributory Factors: Failed to look properly, Crossed road masked by stationary vehicle, Junction restart					

5.5 The number of accidents that occurred at the Prince of Wales roundabout during the 3-year assessment period is not unreasonably high with an average of approximately 3 accidents per year. The main contributory factor listed was "failed to look properly" which was cited as a cause in 60% of the accidents. One accident was caused by a driver travelling against traffic on the A61 West Park, which is one-way working. Two of the accidents were caused by the driver having a mental or physical illness or disability and another accident was caused by a distraction within the vehicle. All of which point to factors other than inadequate highway design as the cause of the accidents. 50% of the accidents that occurred resulted in a pedestrian casualty. Overall, the accidents were distributed between the approaches with no common causal factors suggesting any existing road safety issues.

B6162 Otley Road/ Cold Bath Road/ Arthur's Avenue Traffic Signals

5.6 There were six reported accidents at the B6162 Otley Road/ Cold Bath Road/ Arthur's Avenue traffic signals junction during the 3-year assessment period. Table 5.2 below presents a summary of the accidents that occurred.

Table 5.2 – Accident Summary – B6162 Otley Road/Cold Bath Road/Arthur's Avenue Traffic Signals

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1901153	Cold Bath Road, Harrogate	Daylight	Dry	Slight	1 Pedestrian
A car travelled north east on B6162 Otley Road when a pedestrian stepped out into its path, colliding into the offside wing mirror. Contributory Factors: Failed to look properly, Failed to judge vehicles path or speed					
1901190	B6162 Otley Road at j/w Cold Bath Road, Harrogate	Daylight	Dry	Slight	1 Cyclist
A motorcycle rider travelled south west on B6162 Otley Road and turned right to Cold Bath Road. As the rider turned right they crossed the path of a cyclist travelling north-eastbound on B6162 Otley Road, this caused the cyclist to perform an evasive manoeuvre which caused the cyclist to collided into a stationary goods vehicle. Contributory Factors: No factors were provided					
1900653	Cold Bath Road, Harrogate	Daylight	Dry	Slight	1 Pedestrian
A car travelled south on Cold Bath Road when a pedestrian ran out into the road from the offside and collided into its wing mirror. Contributory Factors: Failed to look properly, Carless/reckless/in a hurry					
2000098	Cold Bath Road at j/w B6162	Darkness	Wet/Damp	Slight	1 Driver

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
	Otley Road, Harrogate				
A car was stationary on Cold Bath Road at the traffic signals junction with B6162 Otley Road when another car travelled south on Cold Bath Road at high speed and collided into the rear of the stationary car. Contributory Factors: No factors were provided					
12180078208	B6162 Otley Road at j/w Cold Bath Road, Harrogate	Darkness	Dry	Serious	2 Drivers, 1 Passenger
An emergency vehicle travelled north east on B6162 Otley Road through a set of red lights at the junction with Cold Bath Road. A car travelled south on Cold Bath Road and turned right at the junction, with green lights on, and collided into the emergency vehicle on B6162 Otley Road. Contributory Factors: Emergency vehicle on call					
12170208429	Arthur's Avenue at j/w Cundall Way	Daylight	Wet/Damp	Slight	1 Pedestrian
A car travelled south east on Arthur's Avenue when a pedestrian crossed the road in front of the car and was clipped by the car. Contributory Factors: Failed to look properly, Failed to judge vehicles path or speed, Rain, sleet, snow, or fog					

5.7 The number of accidents that occurred at the B6162 Otley Road/ Cold Bath Road/ Arthur's Avenue traffic signals junction during the 3-year assessment period is reasonably low. 50% of the accidents resulted in a pedestrian casualty (3 in total) and 2 of these pedestrians were children. The 3 accidents which involved pedestrians were caused by the pedestrian failing to look properly before they crossed the road. Of the remaining accidents, one was caused by a driver not seeing an emergency vehicle with sirens on, and the other two were caused by what appear to be careless driving. Inadequate highway design does not appear to be at fault for the accidents that occurred. No further assessment is required on highway safety grounds.

B6162 Otley Road/ Pannal Ash Road/ Manor Drive Traffic Signals

5.8 There were five reported accidents at the B6162 Otley Road/ Pannal Ash Road/ Manor Drive traffic signals junction during the 3-year assessment period. Table 5.3 below presents a summary of the accidents that occurred.

Table 5.3 – Accident Summary – B6162 Otley Road/Pannal Ash Road/Manor Drive Traffic Signals

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1900743	B6162 Otley Road at j/w Manor Drive	Daylight	Dry	Slight	1 Pedestrian
A pedestrian left the Co-Op store on B6162 Otley Road when a car has entered the car park across the path of the pedestrian, who collided into the car. Contributory Factors: Failed to look properly					

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1800375	B6162 Otley Road	Daylight	Dry	Slight	1 Driver
A car travelled south-west on B6162 Otley Road and went through a red light. Another car turned right from Pannal Ash Road onto B6162 Otley Road. The car which disobeyed the traffic signal has collided into the front offside of the right-turning car. Contributory Factors: Disobeyed automatic traffic signal, Failed to look properly					
12170213896	B6162 Otley Road nr j/w Pannal Ash Road	Daylight	Dry	Slight	1 Driver
Two cars travelled north-west on B6162 Otley Road and approached the traffic signals at the junction with Pannal Ash Road. The car travelling in front stopped at the lights, but the following car did not brake and collided into the rear of the car. Contributory Factors: Failed to look properly					
12180042417	B6162 Otley Road at j/w Pannal Ash Road	Daylight	Wet/Damp	Slight	1 Driver
A car travelled north east on the B6162 Otley Road and another car travelled south west, both cars approached the junction with Pannal Ash Road. As the north-eastbound car turned right into Pannal Ash Road, it crossed the path of the south-westbound car and collided into the car. Contributory Factors: Failed to look properly, Rain, sleet, snow, or fog					
12180055098	Manor Drive at j/w B6162 Otley Road	Daylight	Dry	Serious	1 Pedestrian
A pedestrian crossed Manor Drive as a stationary car began to reverse towards B6162 Otley Drive and in doing so has collided into the pedestrian. Contributory Factors: Failed to look properly, Vehicle blind spot					

5.9 The number of accidents that occurred at the B6162 Otley Road/ Pannal Ash Road/ Manor Drive traffic signals junction during the 3-year assessment period is reasonably low. All of the accidents cited a failure to look properly as a contributory factor which appears to be the main cause of the accidents as opposed to inadequate highway design. No further assessment is required on highway safety grounds.

Pannal Ash Road/ Richmond Avenue Priority Junction

5.10 There was one reported accident at the Pannal Ash Road/ Richmond Avenue priority junction during the 3-year assessment period. Table 5.4 below presents a summary of the accident that occurred.

Table 5.4 - Accident Summary – Pannal Ash Road/ Richmond Avenue Priority Junction

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1800395	Pannal Ash Road at j/w	Daylight	Dry	Slight	1 Motorcycle Rider

	Richmond Avenue				

A motorcycle rider travelled north on Pannal Ash Road on the offside of a queue of stationary traffic and approached the junction with Richmond Avenue when a stationary car has gone to turn right and has collided into the motorcycle.

Contributory Factors: Travelling too fast for conditions, Failed to judge other persons path or speed, Failed to look properly

5.11 The number of accidents that occurred at the Pannal Ash Road/ Richmond Avenue priority junction during the 3-year assessment period is very low. The main cause of the accident was the driver not looking properly as they went to turn right as opposed to inadequate highway design. No further assessment is required on highway safety grounds.

Pannal Ash Road/ Beckwith Road/ Green Lane/ Yew Tree Lane/ Whinney Lane Roundabout

5.12 There were three reported accidents at the Pannal Ash Road/ Beckwith Road/ Green Lane/ Yew Tree Lane/ Whinney Lane roundabout during the 3-year assessment period. Table 5.5 below presents a summary of the accident that occurred.

Table 5.5 - Accident Summary – Pannal Ash Road/ Beckwith Road/ Green Lane/ Yew Tree Lane/ Whinney Lane Roundabout

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
1800138	Green Lane at j/w Pannal Ash Road r/about	Daylight	Wet/Damp	Slight	1 Cyclist

A car travelled south on Pannal Ash Road and approached the roundabout junction with Green Lane. A cyclist entered the roundabout from Yew Tree Lane and went to take the exit at Green Lane. The southbound car slowed at the roundabout but edged out over the give way and the cyclist collided into the front offside of the car.

Contributory Factors: Failed to look properly, Failed to judge other persons path or speed

12170045739	Green Lane, Harrogate	Daylight	Dry	Slight	1 Passenger

A car was parked on Green Lane at the entrance to Rossett Acre Primary School Harrogate and a goods vehicle reversed back and collided into the rear of the parked car.

Contributory Factors: Failed to look properly

12180087561	Yew Tree Lane, Harrogate	Daylight	Dry	Serious	2 Pedestrians

Two pedestrians walked south east on Yew Tree Lane and a car travelled north west on Yew Tree Lane past them. The driver realised that they had missed their turn and reversed back to the junction and into the path of the pedestrians, colliding into both pedestrians.

Contributory Factors: Failed to look properly, Vehicle blind spot

5.13 The number of accidents that occurred at the Pannal Ash Road/ Beckwith Road/ Green Lane/ Yew Tree Lane/ Whinney Lane roundabout junction during the 3-year assessment period is low. The main cause of the accidents was failing to look properly as opposed to inadequate highway design. No further assessment is required on highway safety grounds.

Burn Bridge Lane/ Brackenthwaite Lane Priority Junction

5.14 There was one reported accident at the Burn Bridge Lane/ Brackenthwaite Lane priority junction during the 3-year assessment period Table 5.6 below presents a summary of the accident that occurred.

Table 5.6 - Accident Summary – Burn Bridge Lane/ Brackenthwaite Lane Priority Junction

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
12170129630	Burn Bridge Lane at j/w Brackenthwaite Lane, Harrogate	Daylight	Dry	Slight	1 Cyclist
A cyclist travelled north on Burn Bridge Lane and a car travelling behind went to overtake but drove too close to the cyclist and knocked the rider from their bike. Contributory Factors: Loss of control, Careless/reckless/in a hurry					

5.15 The number of accidents that occurred at the Burn Bridge Lane/ Brackenthwaite Lane priority junction during the 3-year assessment period is very low. The main cause of the accident was careless driving as opposed to inadequate highway design. No further assessment is required on highway safety grounds.

A61 Harrogate Road/ Burn Bridge Road Priority Junction

5.16 There was one reported accident A61 Harrogate Road/ Burn Bridge Road priority junction during the 3-year assessment period. Table 5.7 below presents a summary of the accident that occurred.

Table 5.7 - Accident Summary – A61 Harrogate Road/ Burn Bridge Road Priority Junction

Ref No	Location	Lighting	Rd Surface	Severity	Casualties
12170131159	A61 Harrogate Road at j/w Burn Bridge Lane	Daylight	Dry	Slight	1 Driver
A car travelled northbound on A61 and approached the junction with Burn Bridge Lane and collided into another car. Contributory Factors: Failed to look properly, Poor turn or manoeuvre, Impaired by alcohol, Nervous/uncertain/panic, Swerved, Fatigue					

5.17 The number of accidents that occurred A61 Harrogate Road/ Burn Bridge Road priority junction during the 3-year assessment period is very low. The main cause of the accident was that the driver was impaired by alcohol and as a result was not in control of their vehicle as opposed to inadequate highway design. No further assessment is required on highway safety grounds.

5.18 In addition, a review of more recent accident data obtained from the Crashmap website for 2020 and 2021 for the study network does not indicate any significant changes from the pre-covid accident records. The data is attached in Appendix E.

Conclusion

5.19 The frequency of accidents that occurred on the local road network to the site is reasonably low during the most recent 3-year period.

5.20 There were no reported accidents within 250m in both directions of the Whinney Lane/ Site Access roundabout junction during the 3-year assessment period.

5.21 In most cases the accidents resulted from driver error which can be difficult to address with engineering measures and therefore mitigation measures for highway safety reasons are not required.

6.0 TRIP GENERATION AND TRAFFIC ASSIGNMENT

Traffic Generation

6.1 As noted in Section 1 of the report extensive scoping discussions have taken place with NYCC highways officers regarding the methodology for the assessment of the impacts of the Castle Hill West site as well as a number of other development/ allocation sites to the west of Harrogate.

6.2 Scoping discussions have considered assumptions relating to the likely trip generation and distribution patterns of the proposed developments. The proposed trip generation rates agreed with NYCC for the purposes of the cumulative assessment of the West of Harrogate sites is summarised in the Ashely Helme Technical Note 8D, a copy of which is attached at Appendix F.

6.3 The agreed residential trip rates as set out in Technical Note 8D are shown at Table 6.1 below for the AM and PM peak hours respectively, and those rates have been used to predict the traffic flows generated by 251 homes.

Table 6.1 - Residential Trip Rates and Predicted Trips (251 Units)

	Arrivals		Departures	
Time Period	**Trip Rate**	**Trips**	**Trip Rate**	**Trips**
Weekday AM Peak Hour 08:00 to 09:00	0.141	35	0.371	93
Weekday PM Peak Hour 17:00 to 18:00	0.345	87	0.169	42

Assignment

6.4 To more accurately assign the traffic generated by the proposed development we have taken into account different routing for work based, education based on other trip purposes from National Travel Survey (NTS) information to produce a layered assignment which has previously been agreed with NYCC. The previously agreed methodology regarding assignment of trip types has therefore been adopted for the current assessment although some of the previous assumptions relating to distribution of trips have been amended following discussions with NYCC.

6.5 In considering the routing of generated traffic consideration has been given to the purposes for which journeys are undertaken, for example the routing of trips to schools may be different to that for work purposes. TT have grouped together several of the purposes as below:

- Work Related trips comprise:
  - Commuting, and taking others to/ from work e.g. car share.
  - Business, i.e. trips during the course of work, including taking others.
- Education Related trips comprise:
  - Students driving themselves to/ from schools or colleges.
  - Parents escorting children to/ from school.
- Other Purposes trips comprise both direct and escort journeys for:
  - Shopping, both food and non-food.

- Health/ medical related.
- Social, entertaining and sport, including visiting friends.
- Holiday.
- Personal business and other.

6.6 The trip generation peak hour periods adopted for assessment purposes are 08:00 to 09:00 and 17:00 to 18:00, and so the NTS data for these time periods have been analysed.

Weekday AM Peak Hour (08:00 to 08:59)

6.7 Vehicle trips starting from or ending at home were distributed between the grouped journey purposes as set out in Table 6.2 below.

Table 6.2 - AM Peak, Purpose of Journeys Starting or Ending at Home

	Arrivals	Departures
Work	19.2%	55.8%
Education	53.9%	25.7%
Other	26.9%	18.5%

6.8 Table 6.2 shows, in the AM peak Work trips account for nearly three-fifths of the departure journeys with education accounting for one-fifth and nearly one-fifth being other journey purposes. The education element is dominated by escort journeys, education Escort; is 24.2% and education is 1.5% of the 25.7%, and for the most part parents after completing the escort journey either return home or travel to another destination.

Weekday PM Peak Hour (17:00 to 17:59)

6.9 Vehicle trips starting from or ending at home were distributed between the grouped journey purposes as set out in Table 6.3 below.

Table 6.3 - PM Peak, Purpose of Journeys Starting or Ending at Home

	Arrivals	Departures
Work	65.9%	21.6%
Education	2.2%	2.9%
Other	31.9%	75.5%

6.10 In the PM peak the proportion of education journeys is much smaller and no special consideration of these trips is needed. Table 6.3 shows that in the PM peak work trips account for approximately two-thirds of the arrival journeys with other journey purposes accounting for the remaining one-third.

6.11 Table 6.4 below allocated the traffic generated by the proposed development between the main journey purposes for the AM and PM peak hours separately.

Table 6.4 - Proposed Development, Car Driver Trips by Journey Purpose

	Journey Purpose		
Time Period	Work	Education	Total
Weekday AM Peak (%) Car Trips - Departures	67%	33%	100%
	62	31	93
Weekday AM Peak (%) Car Trips – Arrivals	67%	33%	100%
	24	12	35
Time Period	Work	Other	Total
Weekday PM Peak (%) Car Trips - Departures	67%	33%	100%
	28	14	42
Weekday PM Peak (%) Car Trips – Arrivals	67%	33%	100%
	58	29	87

Journeys for Work

6.12 Work-related vehicle trips generated by the proposed development have been distributed on the local road network using the Census 2011 data for car-based trips among residents of the Harrogate 020 Middle Super Output Area (MSOA), in which the development is located as is shown at Figure 7 in Appendix A, to workplace destinations.

6.13 The distribution of journey to work trips is based on information provided by NYCC during scoping discussions for the Harrogate 020 MSOA area, which has been amended to reflect likely routing from the Castle Hill West site.

6.14 The numbers of vehicle trips for Journeys to Work at Table 6.4 have been distributed on the surrounding road network using the assignment shown at Figure 8, which derives the AM and PM peak flows for Figures 9 and 10 also in Appendix A.

Journeys for Education

6.15 The proposals for the Castle Hill West site include provision of a 2-form entry primary school on the site. This is likely to significantly reduce off-site school trips associated with the Castle Hill West site as these would be accommodated on site.

6.16 Previous assessments of the H70 site assumed that 80% of school trips were related to primary school trips and 20% to secondary school. The secondary school trips have therefore been assigned off-site as per previous assessments, however the primary school trips are assumed to remain on the Castle Hill West site as a result of the provision of the primary school.

6.17 All high school vehicle trips have been equally split between Harrogate High School and Rossett Academy School (20%).

6.18 Figure 11 in Appendix A shows the Education-based assignment for the site, and Figure 12 in Appendix A shows the resulting traffic generations during the AM peak hour.

6.19 Whilst the above methodology takes account of the off-site education trips associated with the Castle Hill West site the provision of a new primary school is also likely to generate additional

education trips from surrounding areas, including other developments and site allocations coming forward. An assessment of the potential traffic generation associated with the school has therefore been carried out based on primary school trip rates from the TRICS database. The trip rates and predicted trip generation for a 2-form entry primary school are summarised in Table 6.5 Below.

Table 6.5 - Primary School Trip Rates and Predicted Trips (2 Form Entry)

	Arrivals		Departures	
Time Period	**Trip Rate**	**Trips**	**Trip Rate**	**Trips**
Weekday AM Peak Hour 08:00 to 09:00	0.240	101	0.169	71
Weekday PM Peak Hour 17:00 to 18:00	0.024	10	0.039	16

6.20 The figures in Table 6.5 provide an estimate of the total trip generation of a 2-form entry school, however a number of the trips will be associated with the residential elements of the Banks development site. The primary school trips associated with the Banks site have therefore been discounted from the overall trip generation of the school and the discounted trip generations are summarised in Table 6.6 below.

Table 6.6 - Primary School Trips (Discounted)

	Arrivals	Departures
Weekday AM Peak Hour 08:00 to 09:00	91	46
Weekday PM Peak Hour 17:00 to 18:00	10	16

6.21 The trips in Table 6.6 above have therefore been added to the predicted development traffic flows at the site access junction in order to ensure a robust assessment.

Journeys for Other Purposes

6.22 As discussed in paragraph 6.6, trips for other purposes combine a range of journey purposes, however for the most part it is reasonable to assume these peak hour trips are to/ from facilities in nearby local centres and retail parks.

6.23 To the north-east of the site, within a 2½-km drive, Harrogate Town Centre provides a wide range of shops, facilities and services.

6.24 To the east of Harrogate Town Centre there is a large Asda store on Dragon Road and Odeon Cinema on Station Avenue, both of which can be reached within an approximate 2½ to 3-km drive of the development site.

6.25 To the north of Harrogate Town Centre Harrogate Retail Park includes a range of shops, including a DIY outlet and Pet Store etc. Harrogate Retail Park can be reached via an approximate 4 to 5 kms from the development site. East of the site, Plumpton Retail Park is also accessible from Hookstone Chase, via a 5-km drive, and offers a Morrison's supermarket as well as a number of DIY & computing shops.

6.26 In addition to the above the H51 allocation would also provide additional retail and recreation provision on the site. A proportion of the other traffic generation is therefore assumed to be internal within the H51 allocation site.

6.27 The following splits have therefore been assumed for “other” trips to/ from the above off-site destinations:

- Local facilities in Harrogate Town Centre - 40%.
- Asda and Odeon Cinema – 30%
- Harrogate Retail Park - 10%.
- Plumpton Retail Park – 20%.

6.28 The number of vehicle trips for other purpose trips presented at Table 6.4 has been distributed on the surrounding road networks using PM peak assignment shown at Figure 13 at Appendix A, which derives the other trips shown at Figure 14 in Appendix A. These are the assigned traffic flows for other purpose trips to/ from the development site during the PM peak hour.

Total Vehicle Trips

6.29 Figure 15 in Appendix A shows the total numbers of vehicle trips for all journey purposes generated by the development during the AM peak hour. Figure 16 also in Appendix A shows the total number of generated vehicle trips in the PM peak.

7.0 OPERATIONAL ASSESSMENT

Extent of Assessment

7.1 The extent of the local road network to be assessed in this TA has been identified by the predicted traffic impacts of the proposed development and based on scoping discussions with NYCC.

7.2 Below is a list of the junctions to be assessed.

1. Whinney Lane/ Site Access Roundabout.
2. Whinney Lane/ Pannal Ash Road/ Yew Tree Lane/ Green Lane Roundabout.
3. B6162 Otley Road/ Cold Bath Road/ Arthurs Avenue traffic signals.
4. Prince of Wales Roundabout (A61 York Place / A61 Leeds Road / B6162 Otley Road / A61 W Park).

Committed Developments

7.3 The junction assessments have included the traffic predicted to be generated by the following committed developments summarised in Table 7.1 below:

Table 7.1 – Committed Development Sites

Local Plan Allocation Ref.	Site Name (no. dwellings)	Planning Portal Ref
H74	Crag Lane/Harlow Grange (125)	14/00259/OUTMAJ
H46	Otley Road (Horticap) (125)	15/01999/EIAMAJ
	Pannal business park (120 + other)	14/02804/OUTMAJ
H50	Penny Pot Lane (600)	14/02737/EIAMAJ
H88	Beckwithknowle employment	16/01066/FULMAJ
H88	Beckwith Knowle employment	17/00094/OUTMAJ
H71	Skipton Road phase 1 (210)	14/00854/OUTMAJ
H72	Skipton Road phase 2 (135)	14/02944/OUTMAJ
H73	Skipton Road (Bellway-part) (170)	14/03119/FULMAJ
H51	Whinney Lane - Mulgrave (40)	18/02960/FULMAJ
H6	St Georges former BT training (88)	15/05478/OUTMAJ
H70	Castle Hill Farm, Whinney Lane (130)	17/05595/OUTMAJ

Assessment Year

7.4 Traffic assessments have been undertaken for a baseline of 2020 with future year assessments carried out for 2030.

7.5 Traffic survey data has been obtained for a number of junctions on the surrounding highway network as part of the cumulative impact assessments carried out for the West of Harrogate sites.

7.6 For assessment purposes surveyed traffic flows have been projected to 2020 and 2030 by applying factors extracted from the DfT's TEMPRO software.

7.7 The 2020 baseline flows at adjacent junctions from the cumulative impact assessment are shown in Figures 17 and 18 for the AM and PM peak periods respectively. Those flows have been factored to 2030 using TEMPRO growth factors and the and the committed development flows from the sites in Table 7.1 have been added to provide 2030 No Development flows shown in Figures 19 and 20 at Appendix A.

7.8 The development generated traffic shown in Figures 15 and 16 have been added to the 2030 No Development flows shown in Figures 19 and 20 to provide 2030 With Development flows shown in Figures 21 and 22 at Appendix A.

Junction Assessments

7.9 Based on pre-application discussions with NYCC highways, the local road network to be assessed comprises the junctions listed below:

1. Whinney Lane/ Site Access Roundabout.
2. Whinney Lane/ Pannal Ash Road/ Yew Tree Lane/ Green Lane Roundabout.
3. B6162 Otley Road/ Cold Bath Road/ Arthurs Avenue traffic signals.
4. Prince of Wales Roundabout (A61 York Place / A61 Leeds Road / B6162 Otley Road / A61 W Park).

7.10 In addition to undertaking detailed assessments at the above junctions, consideration has been given to the impact of the development on a number of other junctions on the surrounding network. These include the following junctions:

- Hill Foot Lane/ Yew Tree Lane
- A61/ Burn Bank Road
- B6162 Otley Road/ B6161 Pot Bank, Beckwithshaw

7.11 Based on the predicted trip generation and assignment the impact of proposed development traffic at the above junctions was not considered material and therefore no detailed junction assessments have been carried out at these locations.

7.12 The ability of the local road network to accommodate additional traffic flows generated by the proposed development has been assessed using the Transport Research Laboratory's (TRL's) JUNCTIONS 9 computer program for the three roundabout junctions being assessed.

7.13 The two signalised junctions on Otley Road have been modelled as linked junctions using the LINSIG junction modelling software.

7.14 JUNCTIONS 9 models report the Ratio of Flow to Capacity (RFC), the average number of vehicles queuing, and the average delay per vehicle for all approaches during each 15-min interval throughout the assessment period.

7.15 LINSIG models report the Degree of Saturation (DoS), the Mean Maximum Queue (MMQ) and the average delay per vehicle for all approaches throughout the assessment period. The MMQ represents the average maximum number of vehicles queuing on any approach during each traffic signal cycle.

Junction 1: Whinney Lane Site Access Roundabout

7.16 The proposed layout of the Whinney Lane site access roundabout has been tested with the predicted development traffic flows for the design year of 2030 with full development. The junction output files are attached at Appendix G. The proposed site access layout is shown on Wardell Armstrong drawing NT16079-004 Rev C in Appendix B.

7.17 Table 7.2 below shows the proposed Whinney Lane/ site access roundabout operates well within capacity with no queuing and only minimal delays across the junction during both peak periods in 2030.

Table 7.2 – Whinney Lane/Site Access Roundabout

		2030	
		AM Peak With Dev	PM Peak With Dev
Whinney Lane North	RFC	0.21	0.11
	Av. Q	0	0
	Av. Delay (s)	3	3
Proposed Eastern Site Access	RFC	0.05	0.02
	Av. Q	0	0
	Av. Delay (s)	3	3
Whinney Lane South	RFC	0.13	0.08
	Av. Q	0	0
	Av. Delay (s)	4	3
Proposed Western Site Access	RFC	0.10	0.04
	Av. Q	0	0
	Av. Delay (s)	3	3

Junction 2: Whinney Lane/ Pannal Ash Road/ Yew Tree Lane/ Green Lane

7.18 Table 7.3 below summarises the ARCADY 9 results for the Pannal Ash Roundabout in 2020 and in 2030 for both the No Development and With Development scenarios. The junction output file is attached at Appendix G.

Table 7.3 - Whinney Lane/ Pannal Ash Road Roundabout

		2020		2030 No Dev		2030 With Dev	
		AM	PM	AM	PM	AM	PM
Green Lane	RFC	0.41	0.33	0.43	0.35	0.44	0.38
	Av. Q	1	1	1	1	1	1
	Av. Delay (s)	6	5	6	5	6	5
Yew Tree Lane	RFC	0.66	0.36	0.68	0.38	0.76	0.41
	Av. Q	2	1	2	1	3	1
	Av. Delay (s)	14	7	16	8	21	9
Whinney Lane	RFC	0.26	0.15	0.35	0.20	0.48	0.25
	Av. Q	0	0	1	0	1	0
	Av. Delay (s)	9	7	11	7	14	8
Beckwith Road	RFC	0.32	0.27	0.34	0.28	0.37	0.29
	Av. Q	1	0	1	0	1	0
	Av. Delay (s)	6	5	6	5	6	5
Pannal Ash Road	RFC	0.65	0.45	0.69	0.59	0.73	0.55
	Av. Q	2	1	2	1	3	1
	Av. Delay (s)	15	9	17	910	20	11

7.19 The results of the ARCADY 9 assessment show that in the 2030 No Development scenario the junction is predicted to operate within capacity on all approaches with short queues and delays. The effect of development generated traffic is to increase the queues by 1 vehicle and to increase delays by 3 to 5 seconds at most. The junction is predicted to operate satisfactorily with the addition of development traffic and no mitigation measures are therefore required.

Junction 3: B6162 Otley Road/ Pannal Ash Road/ Cold Bath Lane

7.20 The LINSIG assessments of these closely spaced traffic signal junctions in 2020 and in 2030 for both No Development and With Development scenarios are summarised in Table 7.4 below. The LINSIG model is based on the modelling assumptions adopted in the Vectos Otley Road Corridor Capacity Appraisal report produced to consider the cumulative impacts of the West of Harrogate sites and taking into account the recent changes at the junction as part of the Otley Road cycle corridor scheme. The junction output files are attached at Appendix G.

7.21 The results in Table 7.4 summarise the operation of the junction in 2020. The junction is predicted to operate within capacity with queuing on a number of approaches in both the AM and PM peak periods and is considered representative of the existing operation of the junction.

7.22 In the 2030 No Development scenario the junction is predicted to continue to operate within capacity in both the AM and PM peak hours with increased Degrees of Saturation on the Otley Road approaches to both junctions and associated increases in queuing and delay. The Cold Bath Road

and Pannal Ash Road approaches are also predicted to experience increased Degrees of Saturation in 2030 without the addition of development traffic.

7.23 The addition of development traffic in 2030 results in small increases in the maximum Degrees of Saturation in both the AM and PM peaks with the maximum increase in DoS during the AM peak of 2.9% on the Pannal Ash Road approach. The maximum increase in DoS in the PM peak is also on the Pannal Ash Road approach with an increase of 2.4%.

7.24 Overall the impact of development generated traffic on the predicted queuing and delay at the junction in the future year is low and the impact is not considered severe and as a result no mitigation measures are considered necessary.

Table 7.4 – B6162 Otley Road/Pannal Ash Road/Cold Bath Lane

		2020		2030 No Dev		2030 With Dev	
		AM	PM	AM	PM	AM	PM
J1: Otley Road/Cold Bath Road							
Otley Road (E)	DoS	76.5%	69.1%	78.2%	72.9%	77.3%	74.7%
	MMQ	14.3	12.7	14.9	14.0	14.8	14.8
	Delay (s)	31.4	22.8	32.4	24.2	31.0	25.1
Arthurs Avenue	DoS	59.1%	36.4%	59.3%	37.1%	64.3%	36.3%
	MMQ	6.5	2.8	6.5	2.9	6.8	2.8
	Delay (s)	41.6	42.3	41.9	42.4	45.4	41.9
Otley Road (W)	DoS	68.7%	65.6%	79.0%	71.1%	81.9%	70.9%
	MMQ	9.3	9.3	10.8	9.1	11.8	9.8
	Delay (s)	17.5	13.2	20.9	14.6	22.1	14.5
Cold Bath Road	DoS	73.9%	68.2%	75.9%	72.2%	79.3%	73.6%
	MMQ	8.2	6.7	8.6	7.4	9.0	7.7
	Delay (s)	39.0	42.1	40.0	43.9	43.0	44.8
J2: Otley Road/Pannal Ash Road							
Otley Road (E)	DoS	67.2%	67.2%	69.3%	71.5%	70.8%	72.8%
	MMQ	5.1	5.0	4.8	4.4	5.1	5.0
	Delay (s)	7.8	8.7	8.2	9.5	8.7	9.4
Pannal Ash Road	DoS	67.6%	67.0%	72.7%	71.1%	75.6%	73.5%
	MMQ	6.3	6.0	7.4	7.0	8.3	7.6
	Delay (s)	42.5	40.6	45.2	42.5	46.1	43.9
Otley Road (W)	DoS	53.3%	57.6%	61.5%	62.0%	62.5%	61.2%
	MMQ	8.9	10.0	11.1	11.2	11.4	11.0
	Delay (s)	18.4	20.0	20.3	21.1	21.3	20.9

Junction 4: A61 York Place / A61 Leeds Road / B6162 Otley Road

7.25 Table 7.5 below summarises the ARCADY 9 results for the Prince of Wales Roundabout in 2020 and in 2030 for both the No Development and With Development scenarios. The junction output file is attached at Appendix G. It should be noted that the northern arm of the roundabout, A61 West Park, is a one-way road with no entry to the roundabout.

Table 7.5 – Prince of Wales Roundabout

		2020		2030 No Dev		2030 With Dev	
		AM	PM	AM	PM	AM	PM
A61 Leeds Road	RFC	0.62	0.76	0.67	0.79	0.67	0.80
	Av. Q	2	3	2	4	2	4
	Av. Delay (s)	7	11	8	13	8	14
B6162 Otley Road	RFC	0.85	0.85	0.96	0.95	0.98	0.97
	Av. Q	5	5	14	12	18	14
	Av. Delay (s)	21	25	52	54	62	60
A61 York Place	RFC	0.77	0.75	0.80	0.78	0.80	0.79
	Av. Q	3	3	4	4	4	4
	Av. Delay (s)	8	7	9	8	9	8

7.26 The results of the ARCADY 9 assessment show that in 2030 in the No Development scenario the junction is predicted to operate within capacity on the A61 approaches, and close to capacity on the Otley Road approach in the AM and PM peak periods. The junction is predicted to continue to operate within capacity on the A61 approaches, and close to capacity on the Otley Road approach with the addition of development traffic. The effect of development traffic on the Otley Road approach is to increase the queue by 4 vehicles in the AM peak and 2 vehicles in the PM peak with an additional 10 seconds of delay in the AM peak and 6 seconds in the PM peak.

7.27 The junction is therefore predicted to operate within capacity in the future year and the impact of the proposed development traffic is not considered severe and as a result no mitigation measures are considered necessary.

Summary

7.28 The impact of the proposed development of 251 homes and a primary school on the site has been assessed in 2030 including the traffic generated by committed development sites and background traffic growth.

7.29 The assessment has shown that at all four junctions assessed the impact of the development is not severe and no mitigation measures are required.

8.0 CUMULATIVE ASSESSMENT

Introduction

8.1 The junction assessments in Chapter 7 include the traffic generated by a number of committed developments summarised in Table 7.1 above. In addition, there are a number of allocated sites to the west of Harrogate which in combination with the proposed development may affect the performance of the local highway network. The sites included in the cumulative impact assessment are summarised in Table 8.1 below.

Table 8.1 – Cumulative Impact Assessment

Local Plan Allocation Ref.	Site Name (no. dwellings)
H16	Employment Allocation (12,000sm B1/B2/B8)
H28	Employment Allocation (16,000sm B2/B8)
H36	Police Training centre, Yew Tree Lane (200)
H45	Bluecoat Park (480)
H49	Windmill Farm (890 dwellings, primary school and local centre)
H51	Lady Lane/Whinney Lane (750 dwellings, 2.43 hectares of employment)
H70	Castle Hill Farm (remaining 100 dwellings)
K25	Highfield Farm, Knaresborough (402 dwellings)
PN18	Employment Allocation (46,500sm B1/B2)

8.2 The results of the cumulative assessment of the above sites along with committed development traffic and traffic growth are summarised in the West of Harrogate Transport Strategy report produced by Ashley Helme Associates on behalf of the West of Harrogate site developers.

8.3 The Transport Strategy report identifies the cumulative impacts of the West of Harrogate sites and identifies mitigation measures required in order to accommodate the combined impacts of the sites on the surrounding network. The mitigation measures include capacity improvements at junctions where necessary as well as improvements to pedestrian/ cycle facilities at a number of locations.

8.4 Given the cumulative impact of the West of Harrogate sites the proposed mitigation measures would be delivered either via S278 works for specific improvements or a S106 contribution to the wider package of mitigation measures.

9.0 SUMMARY

9.1 Tetra Tech (TT) have been appointed by Banks Group to produce a Transport Assessment (TA) and Travel Plan (TP) for submission with a planning application for a residential development of up to 251 units and provision of a Primary School on land west of Whinney Lane, Harrogate.

9.2 The development will be accessed from a 4-arm roundabout junction with Whinney Lane which will also serve the land east of Whinney Lane which has planning permission as part of allocation H70.

9.3 The current application considers development of part of the H51 site on the west side of Whinney Lane, based on the principles set out for the masterplan of the full H51 and H70 site allocations as well as the parameters plan for the West of Harrogate allocation sites. There is a planning application lodged by Gladman (18/05202/EIAMAJ) which sets out the development proposals for the remaining part of the H51 site.

9.4 The development site is accessible on foot or by bike to a range of local destinations across the local and wider Harrogate area via the existing network of paths and routes. Access to bus services would be improved by extending the number 6 route on Whinney Lane and the proposed layout has been designed to accommodate future bus access as well provision of a layby on Whinney Lane adjacent to the proposed site access.

9.5 Accidents on the local road network including the junctions have been assessed. There were no reported incidents within 250m in both directions of the Whinney Lane/ Site Access roundabout junction during this period. The frequency of accidents that occurred on the road network local to the site is reasonably low and in most cases the incidents resulted from driver error which can be difficult to address with engineering measures and therefore mitigation measures for highway safety reasons are not required.

9.6 The proposed site access junction is expected to operate well within capacity in 2030 with the addition of traffic growth, committed development and development traffic.

9.7 The impact of the development on the local road network in 2030 has been assessed, including the traffic generated by a number of committed developments and background traffic growth. The assessment has shown that at all four junctions the impact of the development is not severe and no mitigation measures are required.

9.8 A cumulative assessment of the impact of the West of Harrogate sites has also been undertaken and is summarised in the West of Harrogate Transport Strategy report. This report considers the cumulative impact of all of the allocated west of Harrogate sites as well as the impacts of traffic growth and committed development traffic. Mitigation measures have been identified at a number of junctions and locations including capacity improvements and improved pedestrian/ cycle facilities.

9.9 The wider package of mitigation measures to deal with the cumulative impact of development would be secured via either S278 or S106 agreements.

9.10 The proposed development therefore meets the sustainable transport objectives of the National Planning Policy Framework and its residual traffic impacts are not considered severe. On that basis, there is no justifiable transportation reason why planning consent should be withheld.

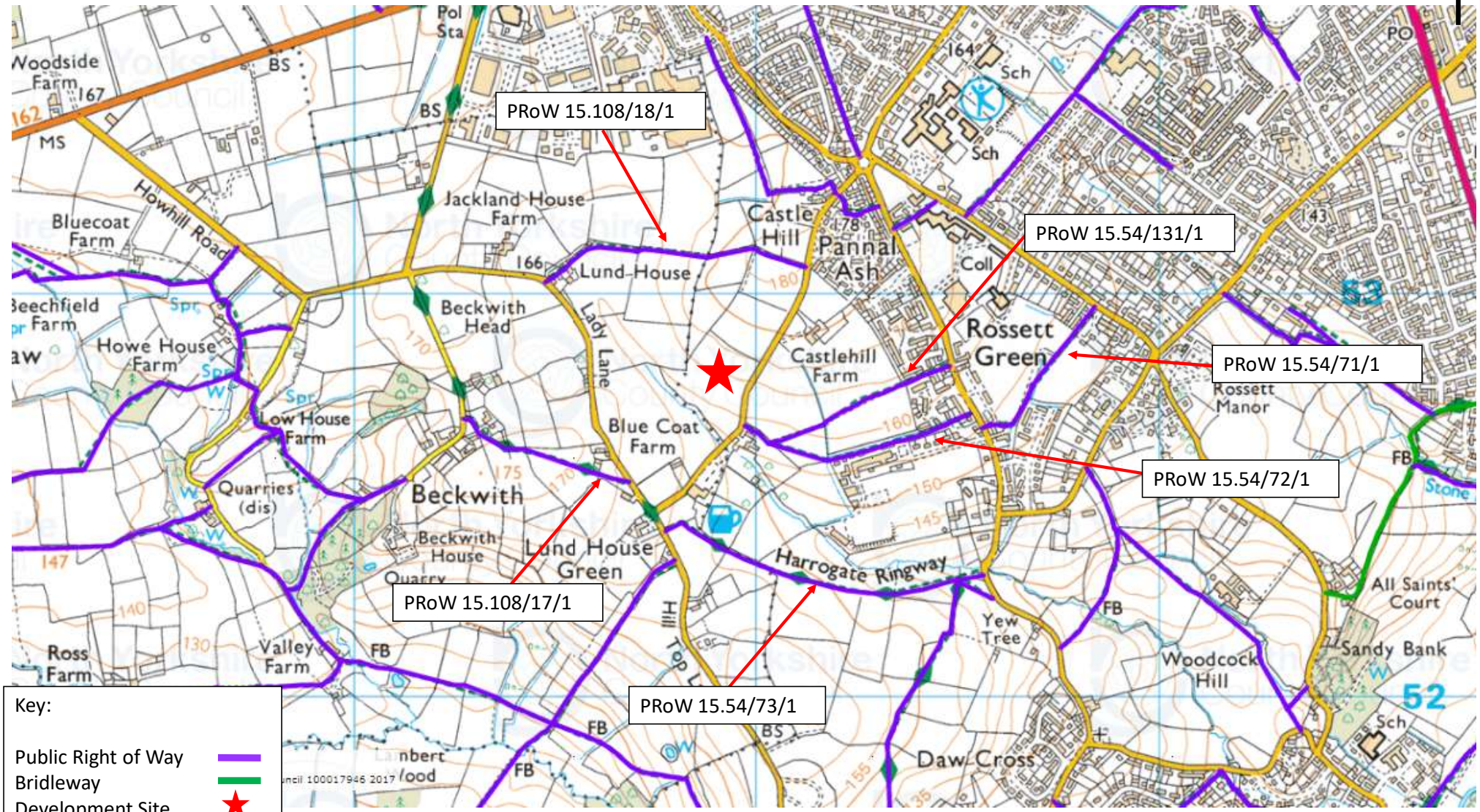
APPENDIX A – FIGURES

Castlehill West, Whinney Lane, Harrogate

Site Location Plan

Figure 1

TETRA TECH



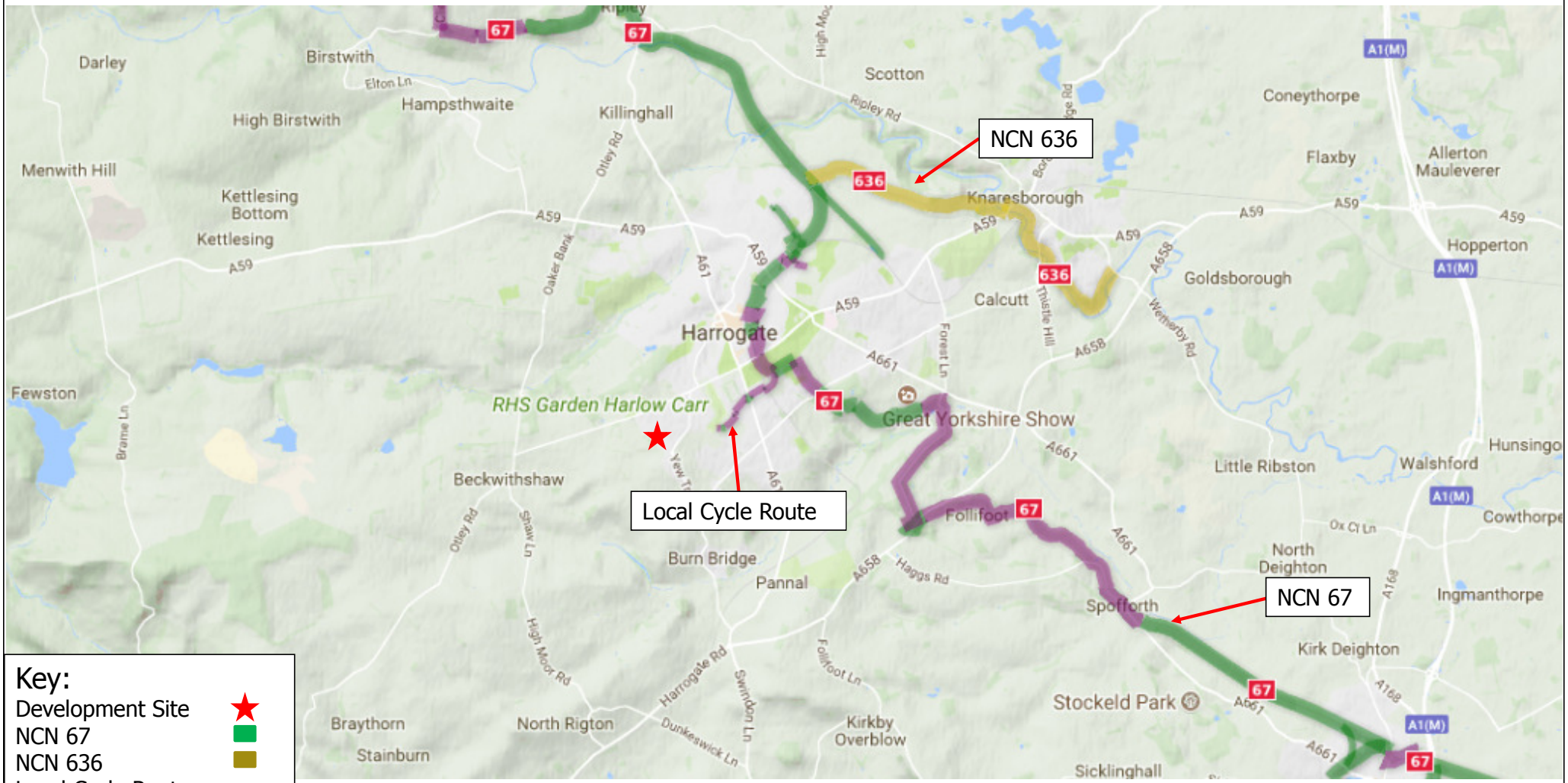
Source: Open Cycle Map

Castlehill West, Whinney Lane, Harrogate

Public Rights of Way

Figure 2

TETRA TECH



Castlehill West, Whinney Lane, Harrogate

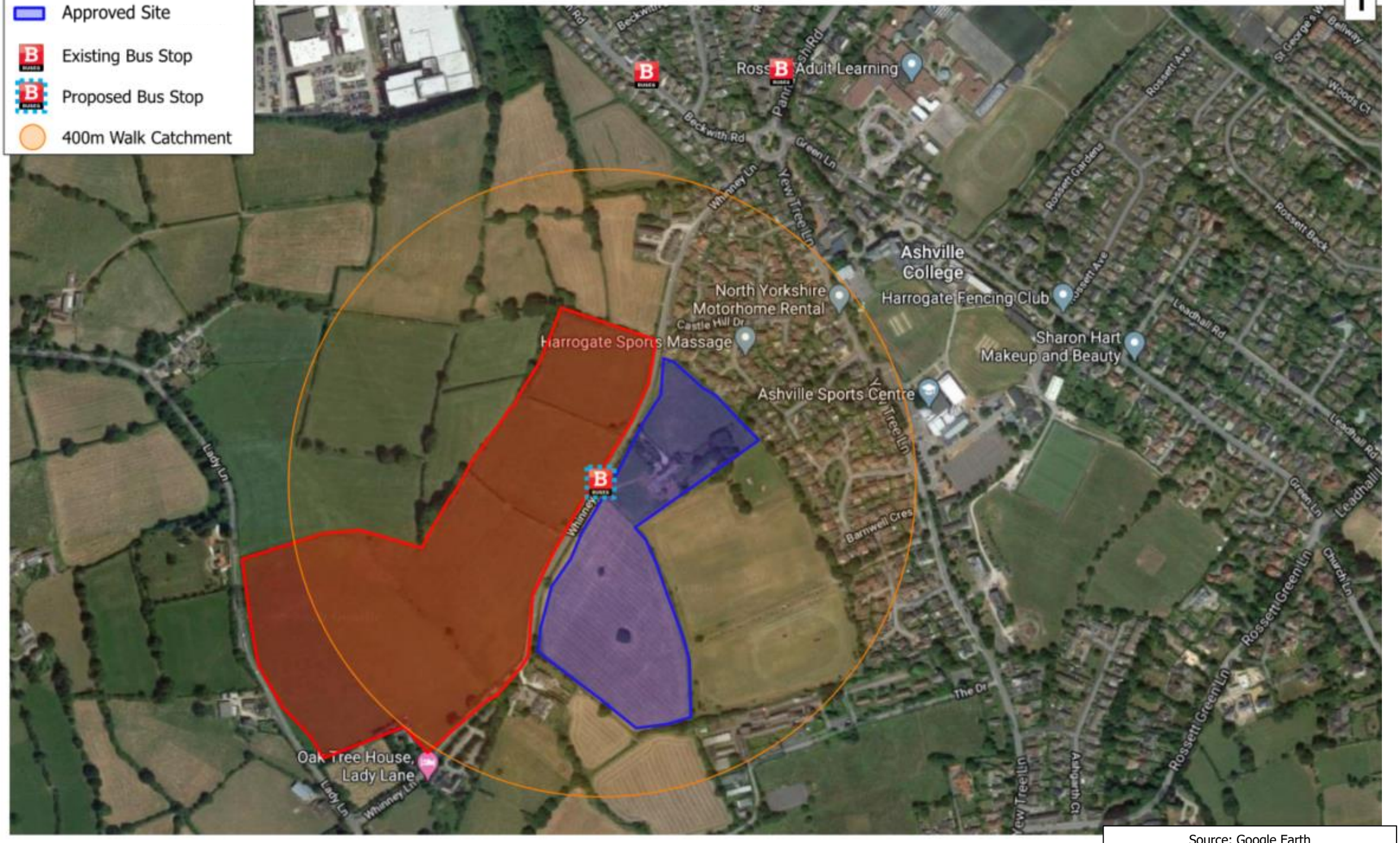
Local Cycle Plan

Figure 3

TETRA TECH

Key

- Development Site
- Approved Site
- Existing Bus Stop
- Proposed Bus Stop
- 400m Walk Catchment



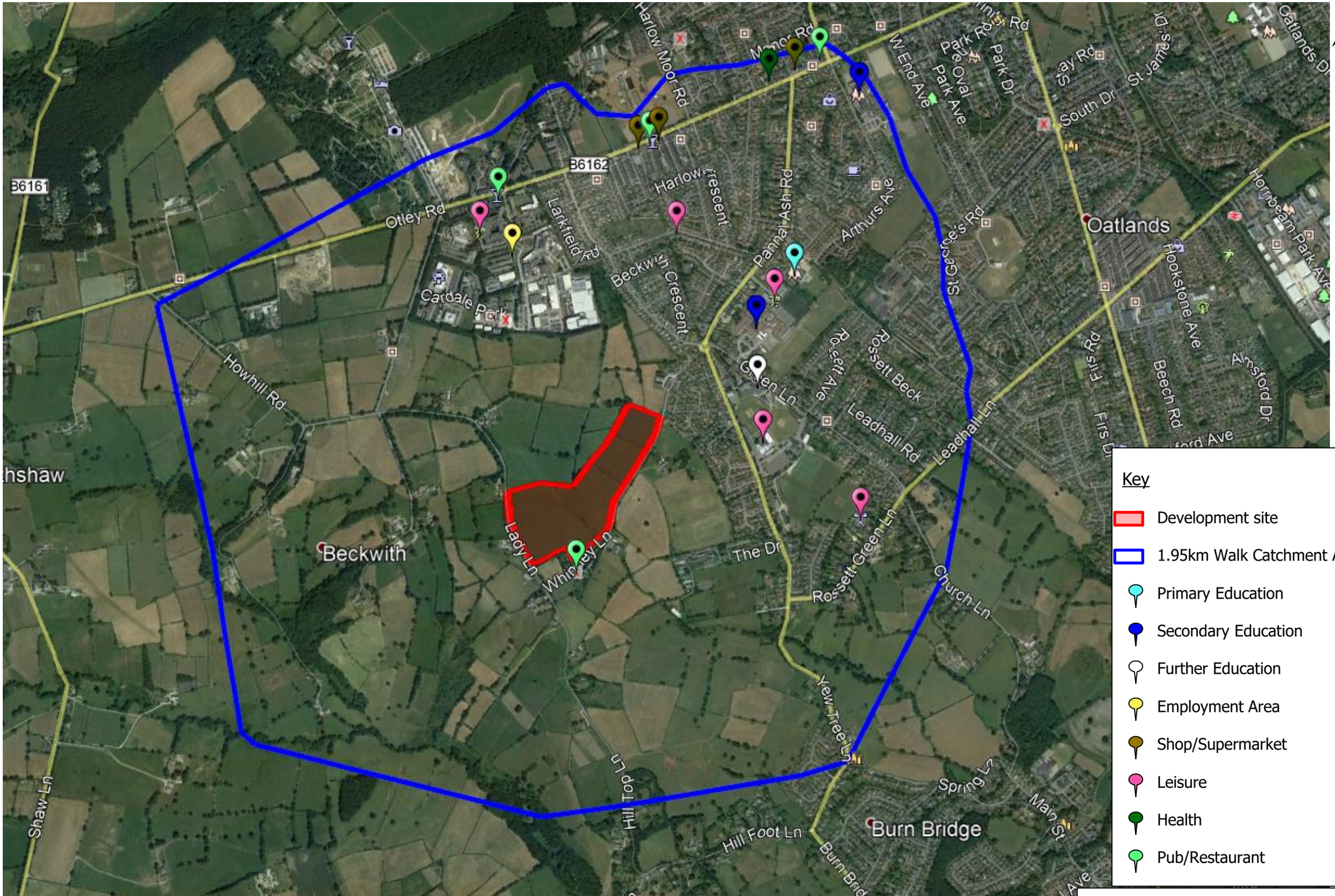
Source: Google Earth

Castlehill West, Whinney Lane, Harrogate

Existing and Proposed Bus Stop Locations

Figure 4

TETRA TECH



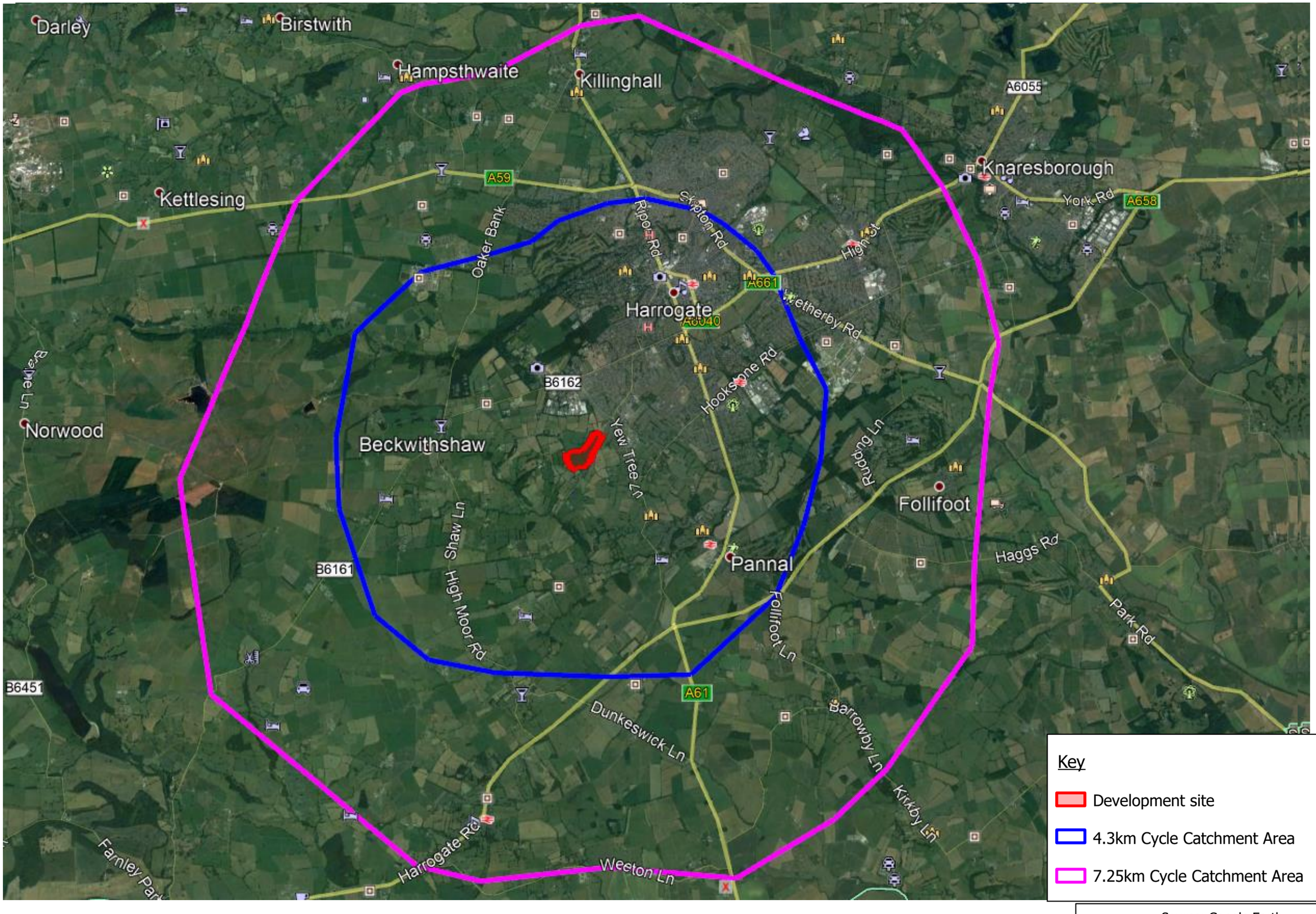
Source: Google Earth

Castlehill West, Whinney Lane, Harrogate

Walk Catchment Plan

Figure 5

TETRA TECH



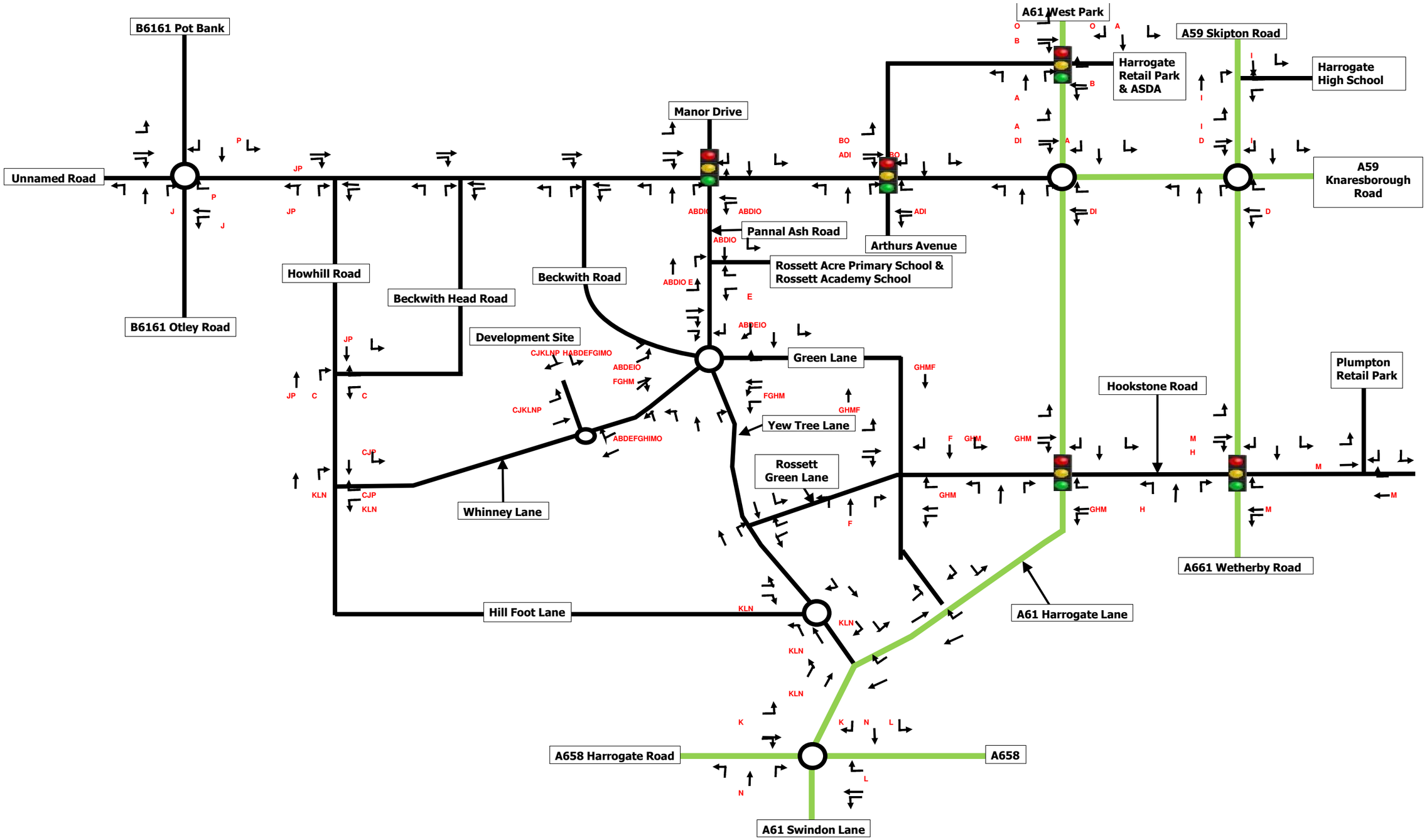
Source: Google Earth

Castlehill West, Whinney Lane, Harrogate

Cycle Catchment Plan

Figure 6

TETRA TECH

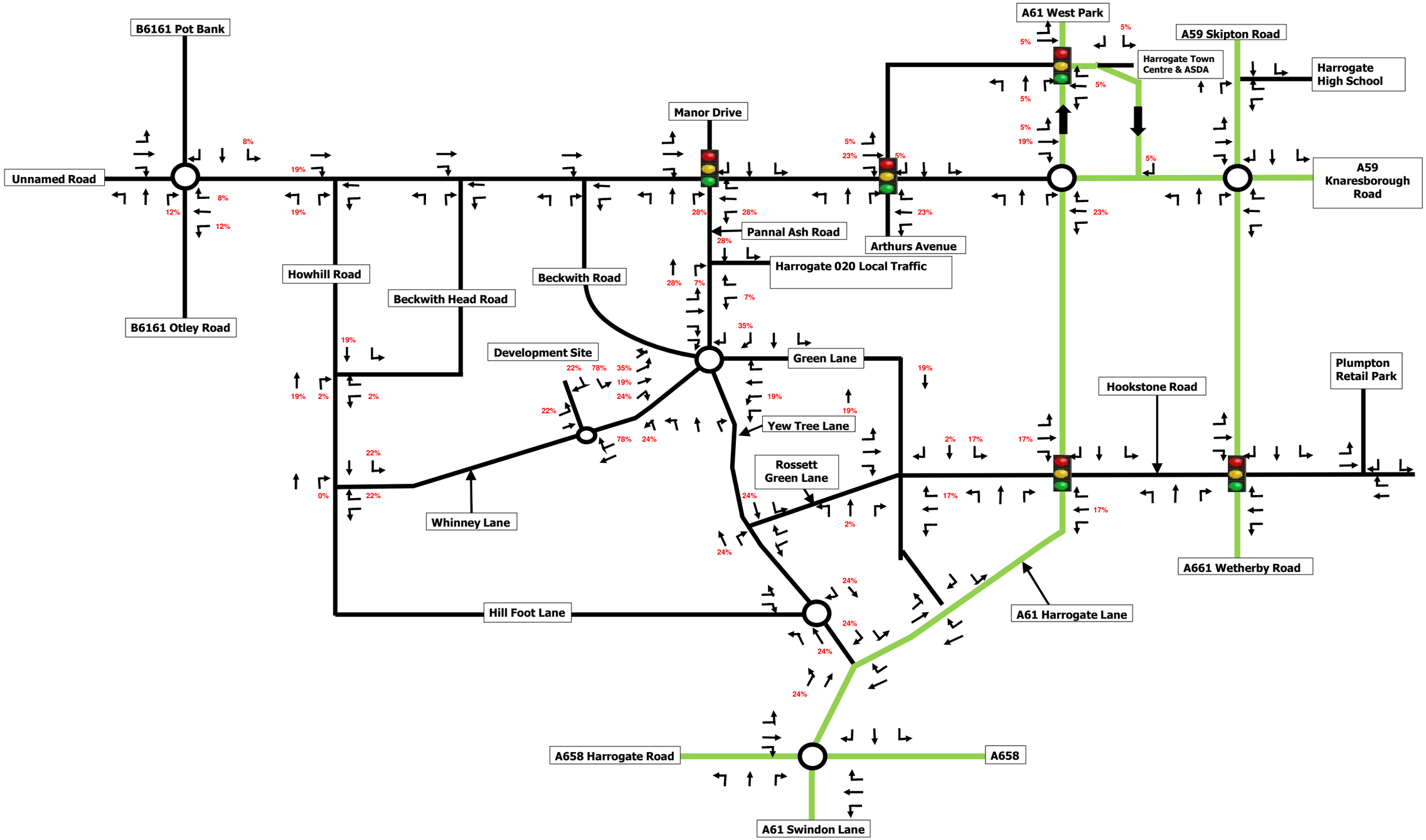


Castlehill West, Whinney Lane, Harrogate

Journey to Work Routing

Figure 7

TETRA TECH

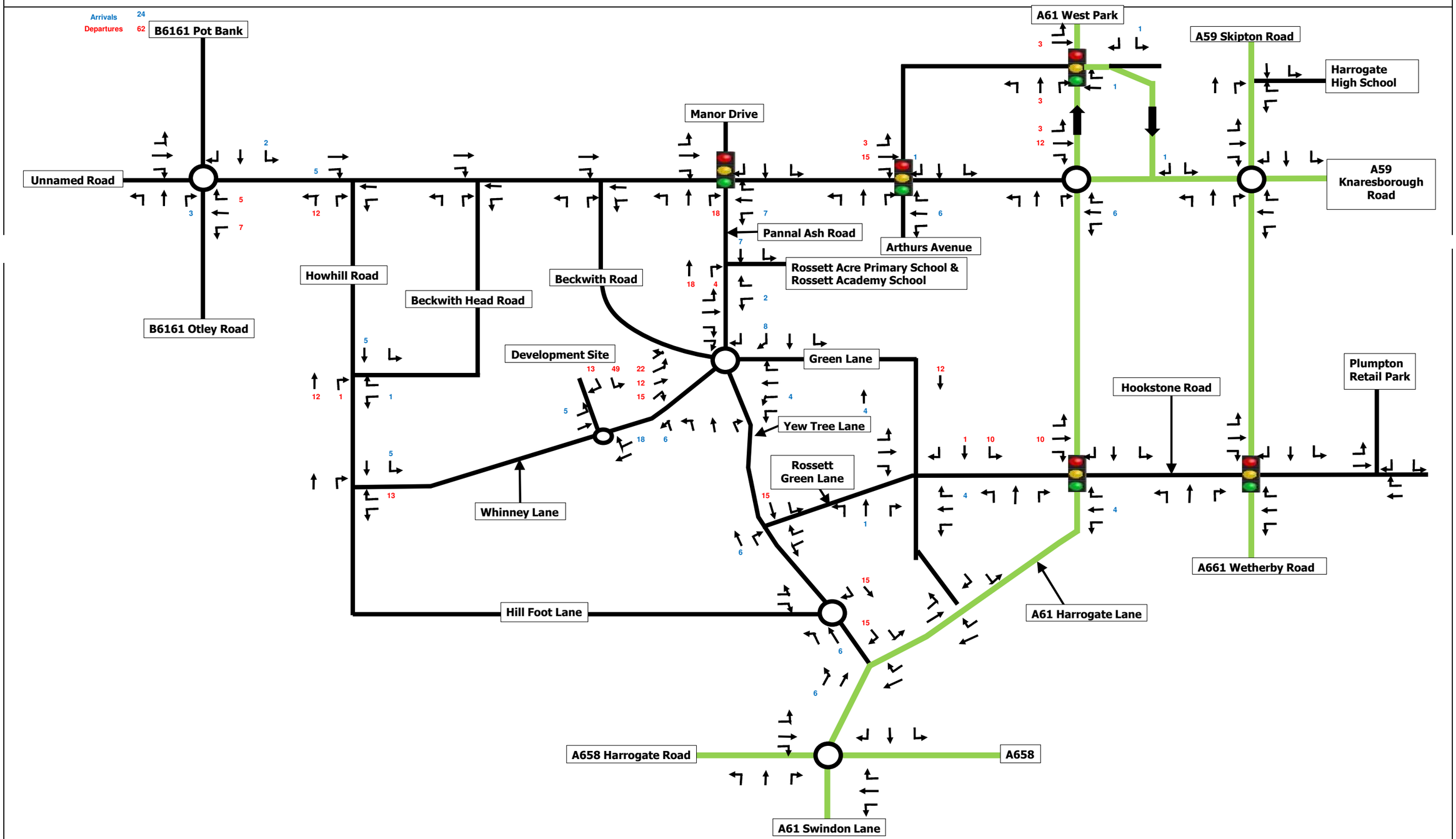


Castlehill West, Whinney Lane, Harrogate

Journey to Work Distribution

Figure 8

TETRA TECH

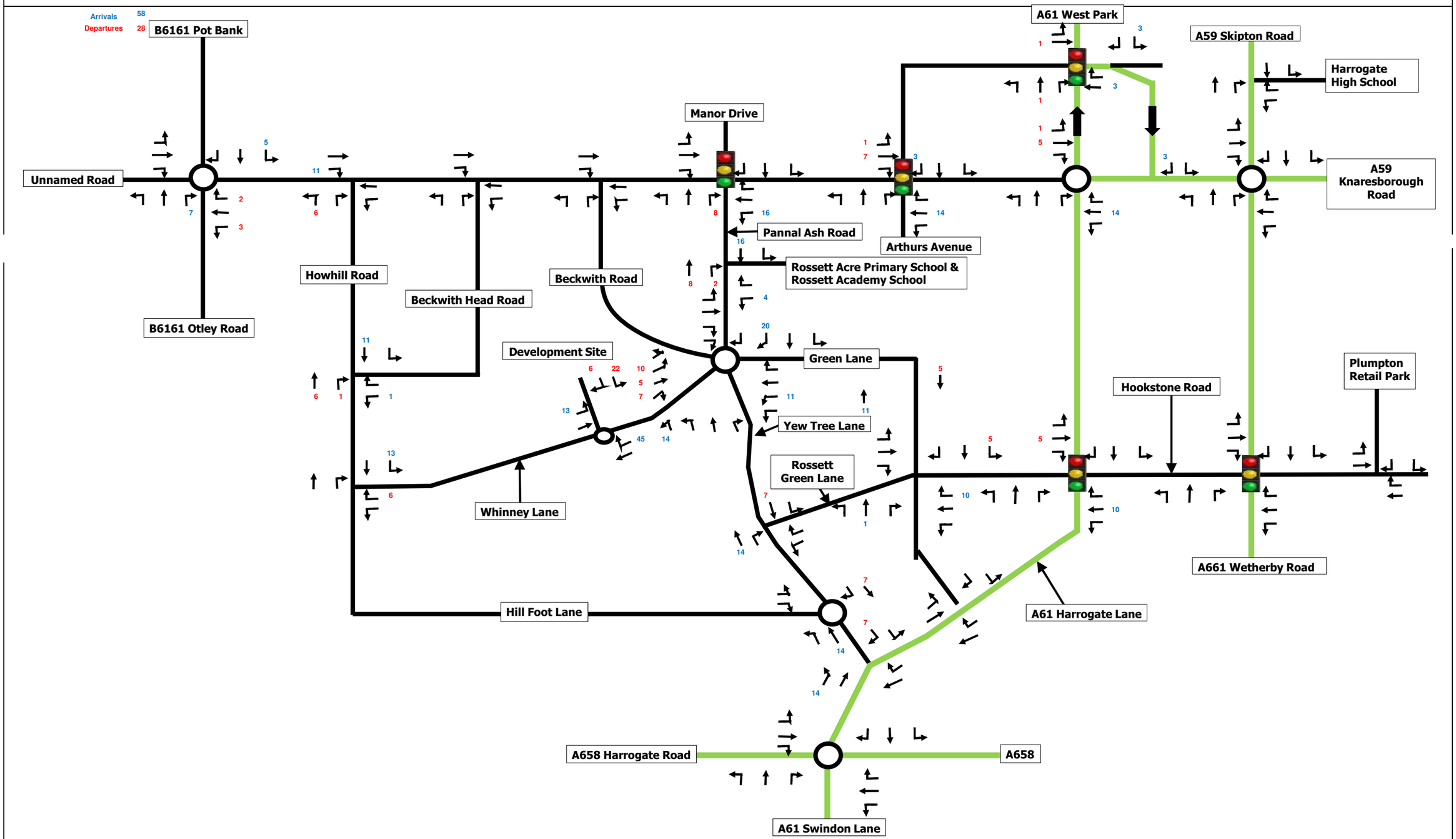


Castlehill West, Whinney Lane, Harrogate

Journey to Work AM Peak

Figure 9

TETRA TECH

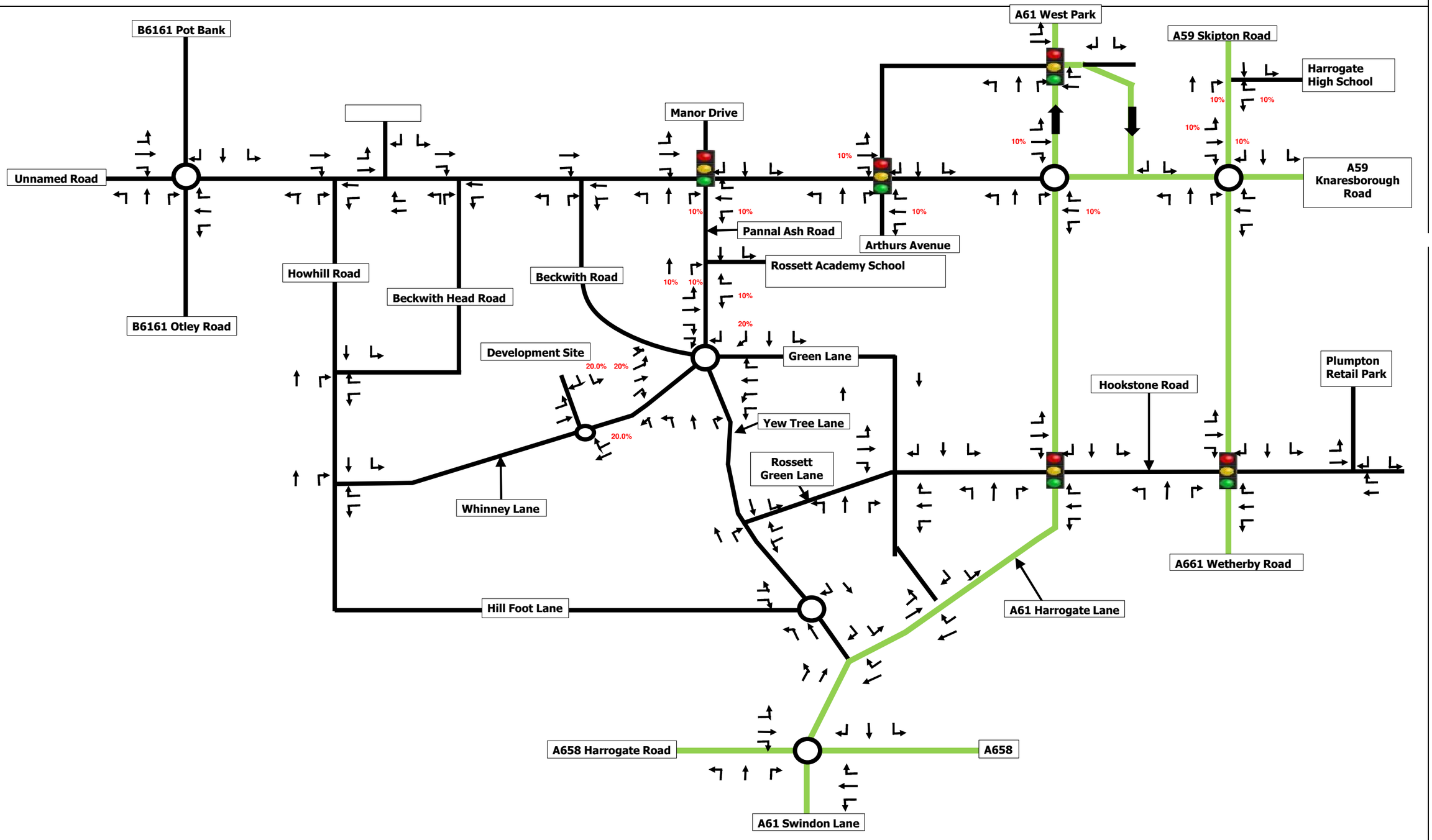


Castlehill West, Whinney Lane, Harrogate

Journey to Work PM Peak

Figure 10

TETRA TECH

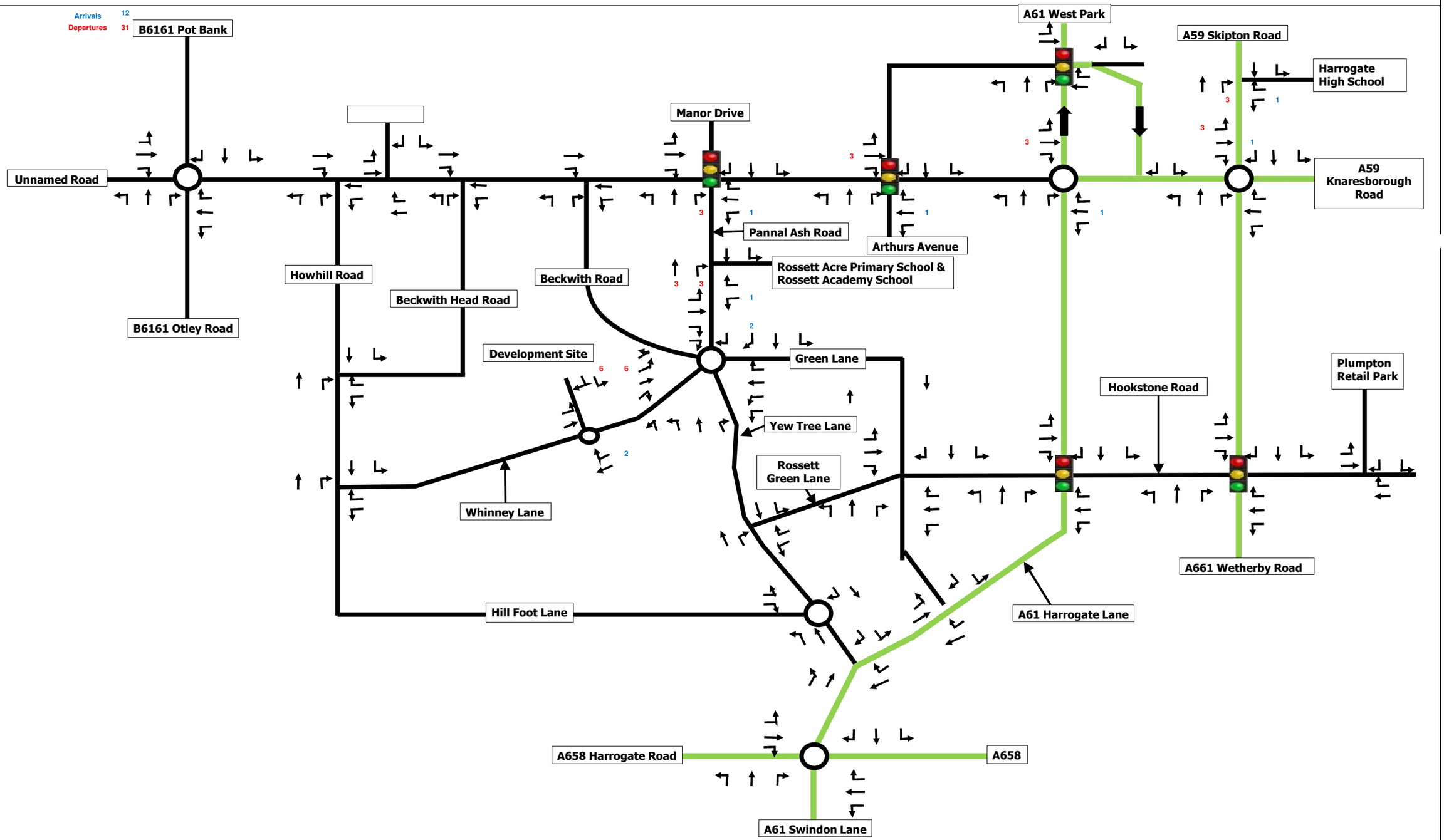


Castlehill West, Whinney Lane, Harrogate

Education Trips Distribution

Figure 11

TETRA TECH

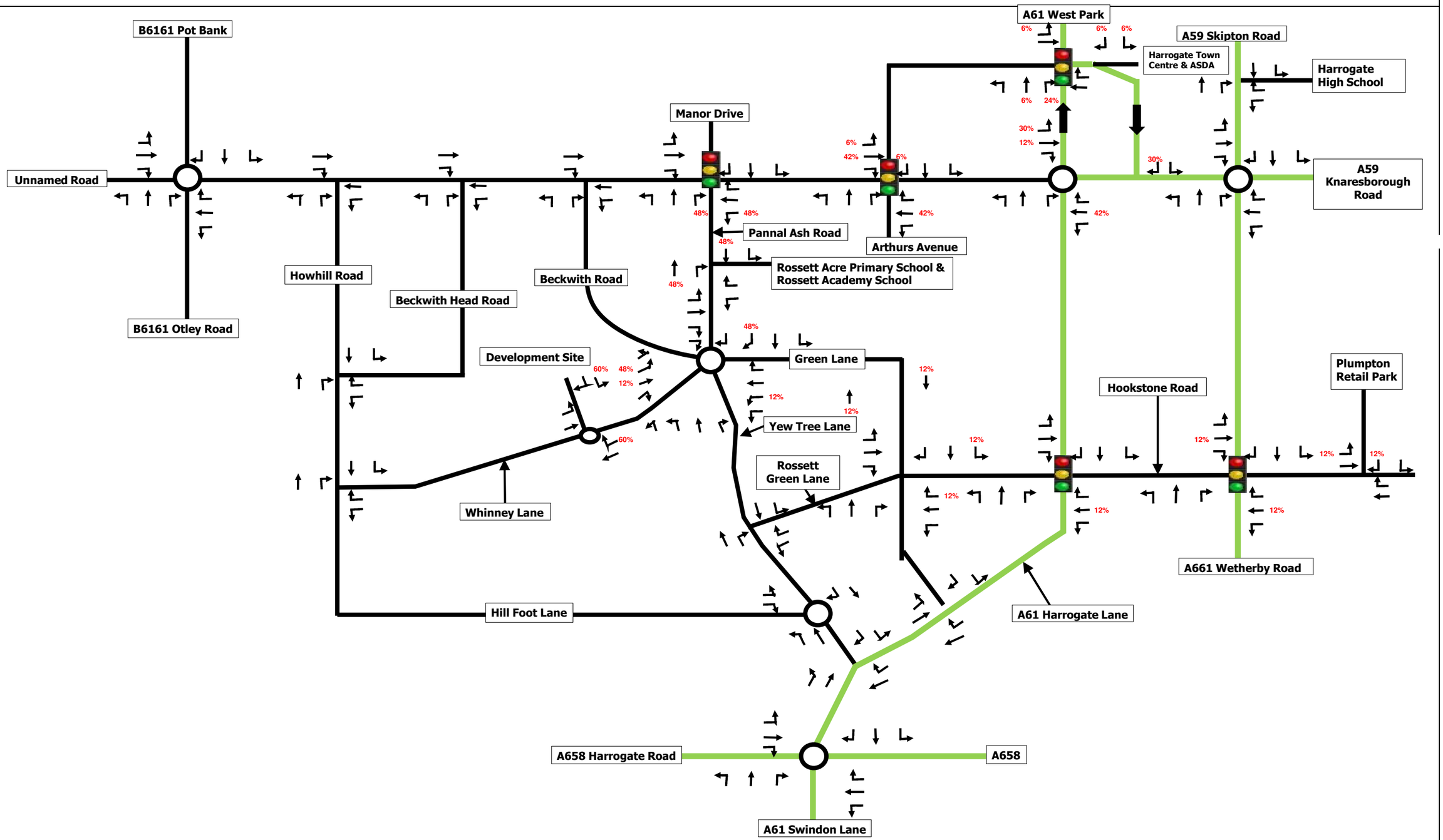


Castlehill West, Whinney Lane, Harrogate

Education Trips AM Peak

Figure 12

TETRA TECH

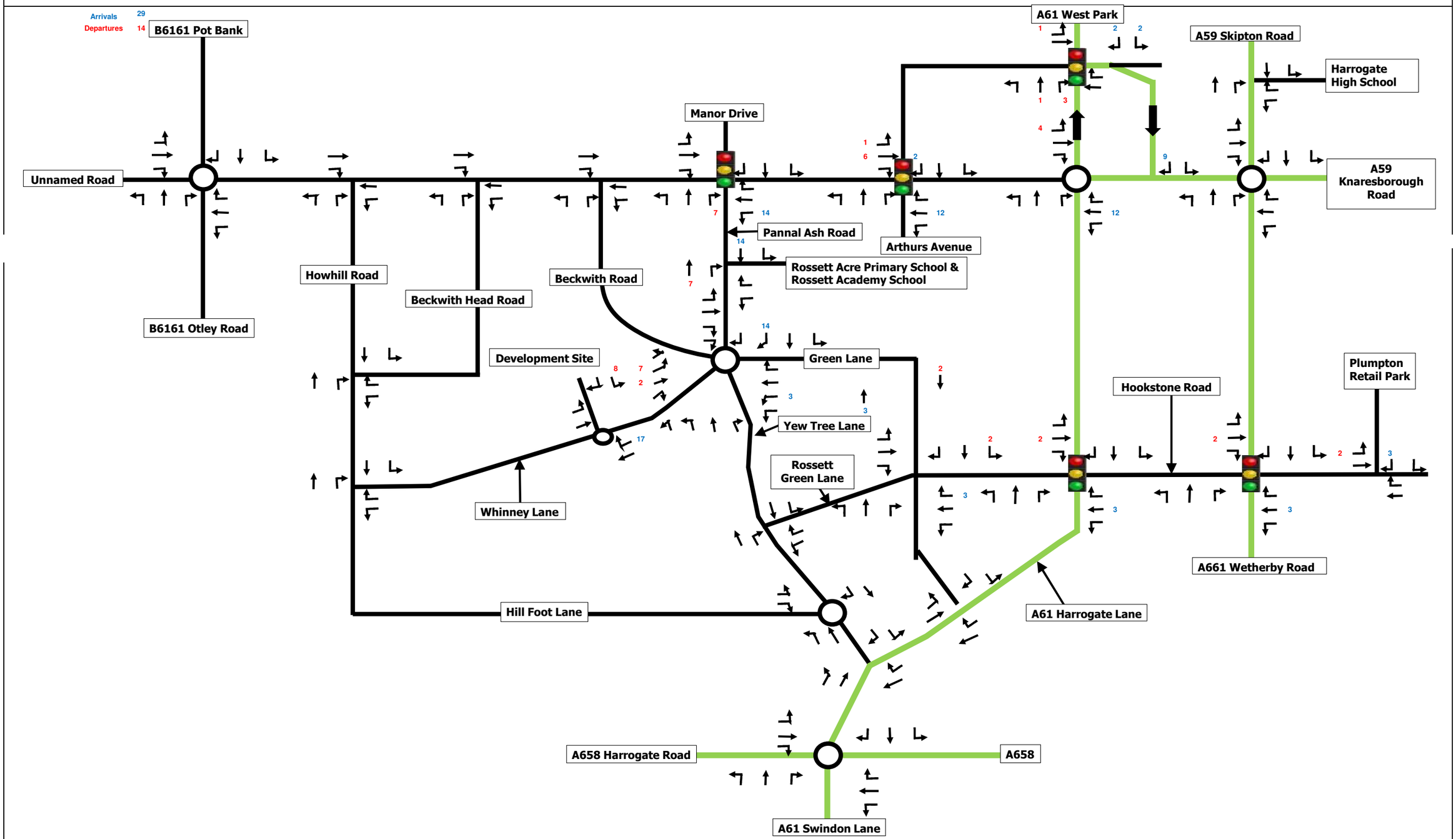


Castlehill West, Whinney Lane, Harrogate

Other Trips Distribution

Figure 13

TETRA TECH

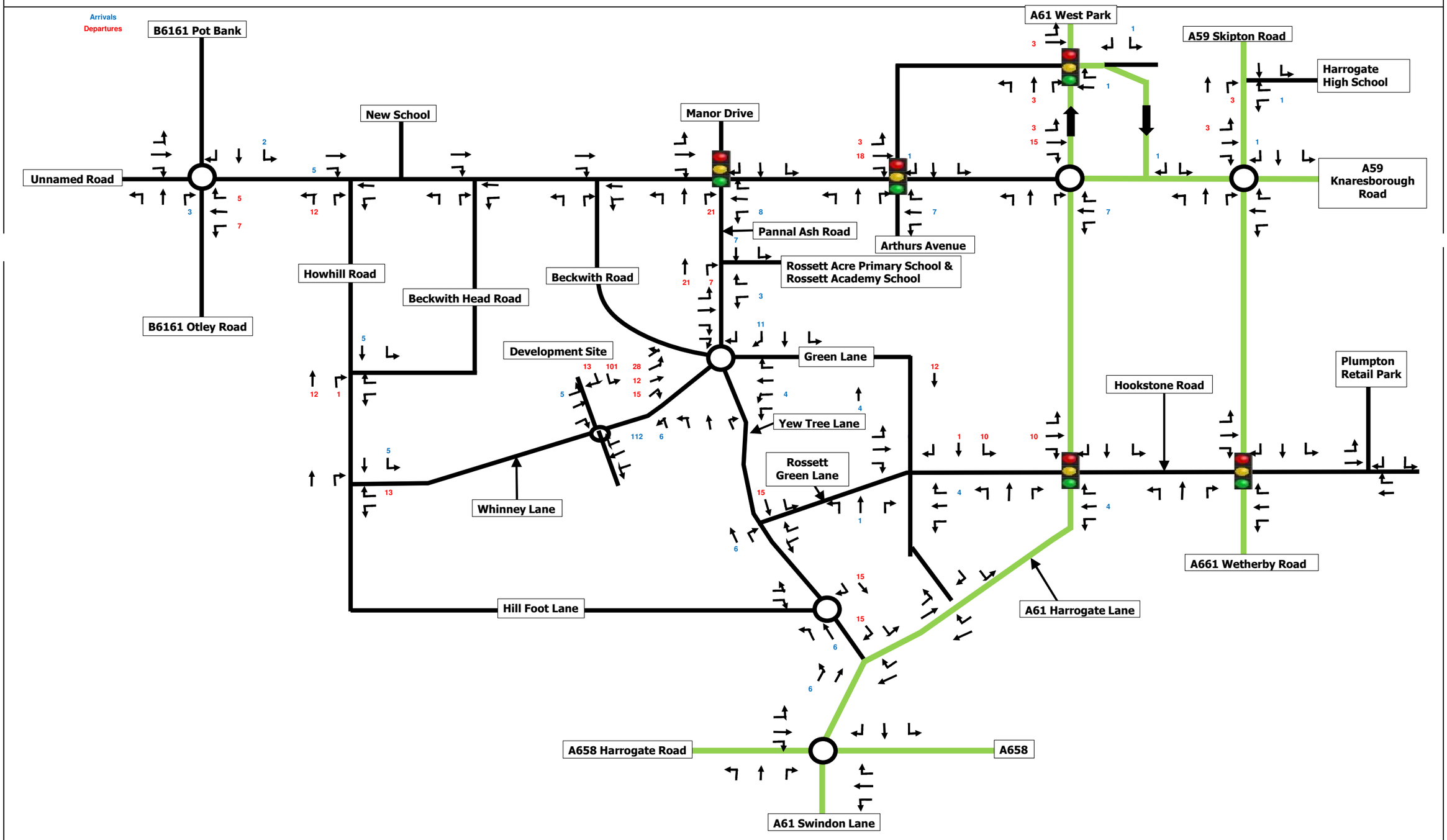


Castlehill West, Whinney Lane, Harrogate

Other Trips PM Peak

Figure 14

TETRA TECH

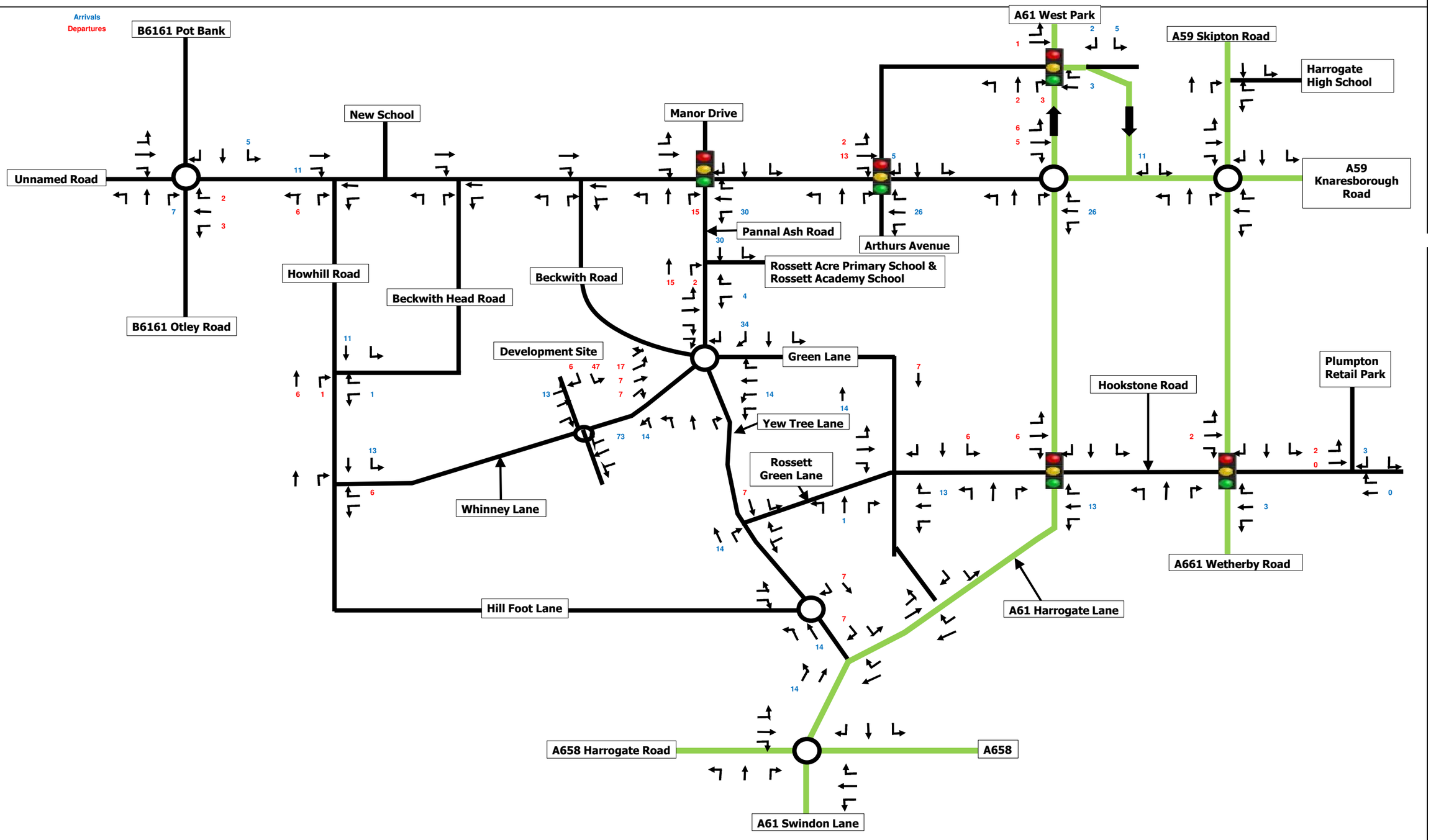


Castlehill West, Whinney Lane, Harrogate

Total Development Trips AM Peak

Figure 15

TETRA TECH

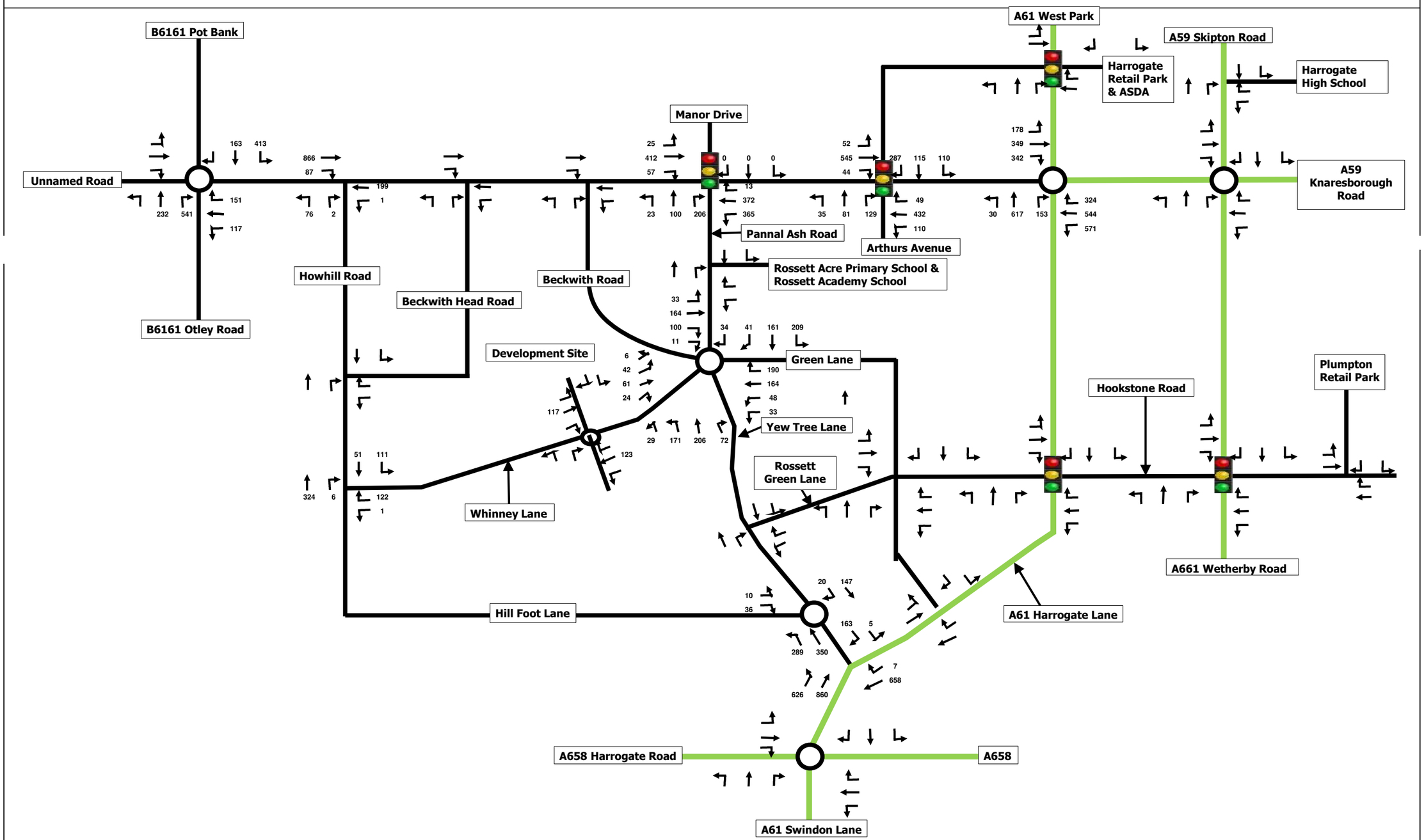


Castlehill West, Whinney Lane, Harrogate

Total Development Trips PM Peak

Figure 16

TETRA TECH

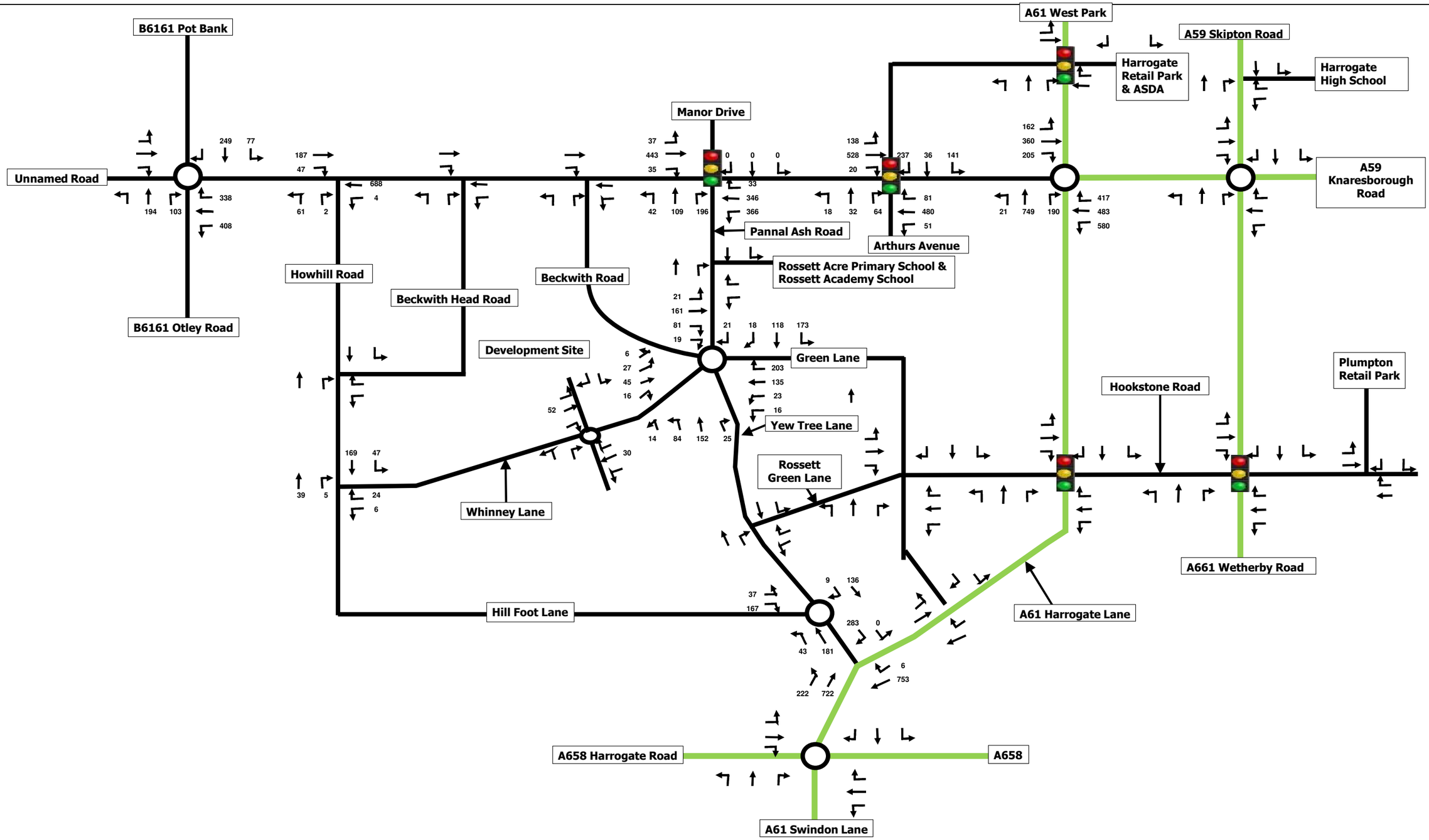


Castlehill West, Whinney Lane, Harrogate

AM Peak 2020 Flows

Figure 17

TETRA TECH

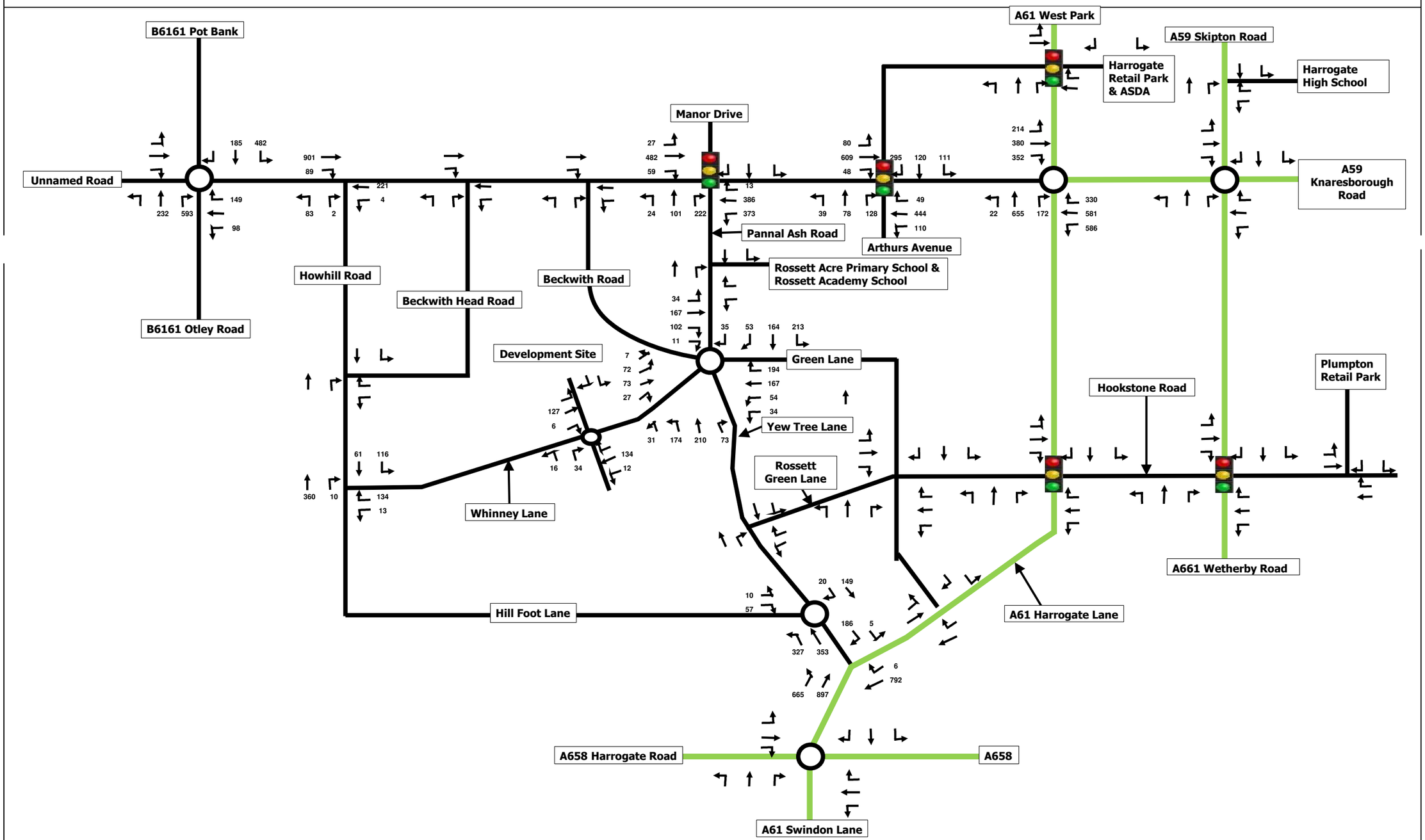


Castlehill West, Whinney Lane, Harrogate

PM Peak 2020 Flows

Figure 18

TETRA TECH

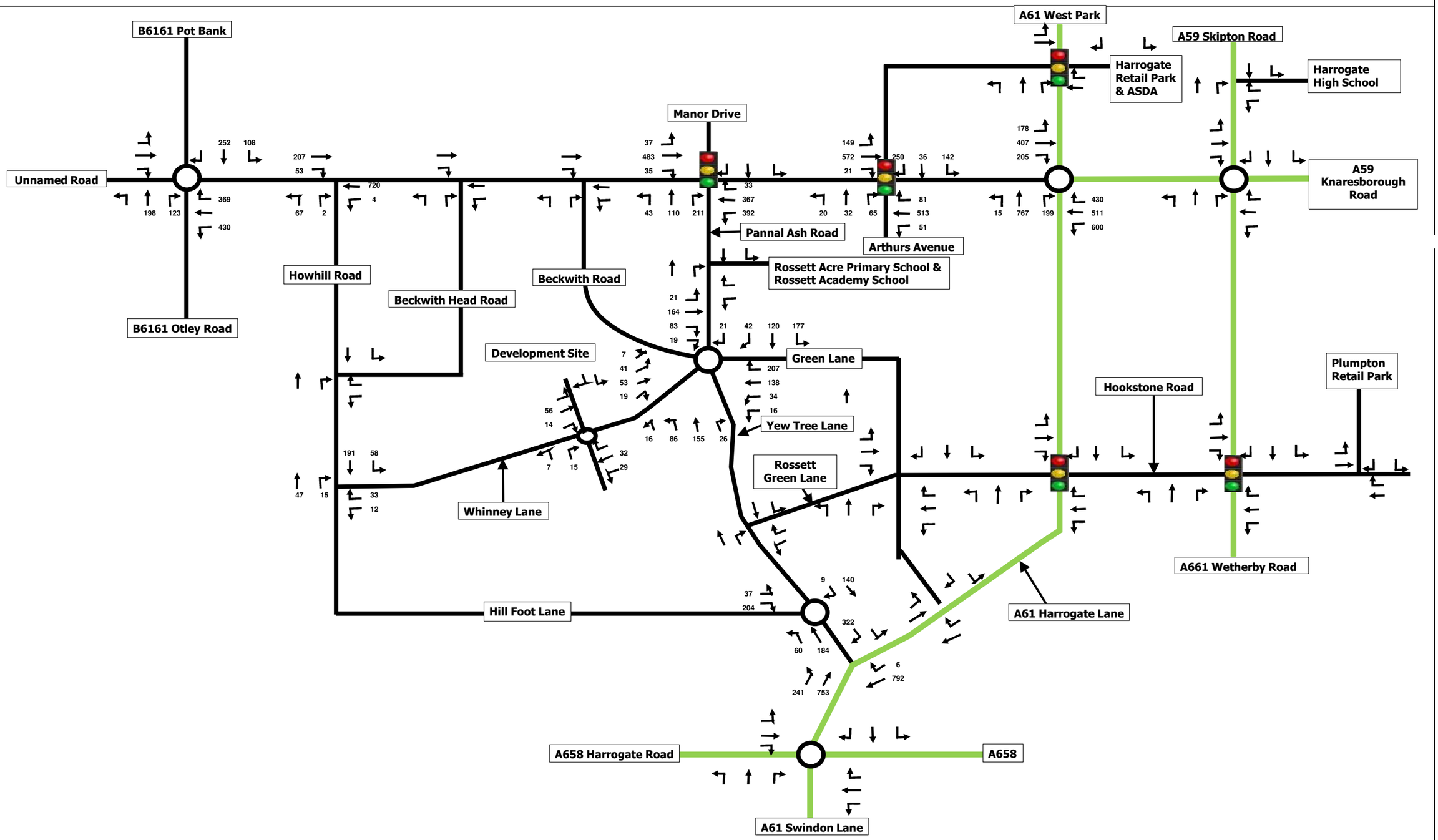


Castlehill West, Whinney Lane, Harrogate

2030 AM Peak No Development Flows

Figure 19

TETRA TECH

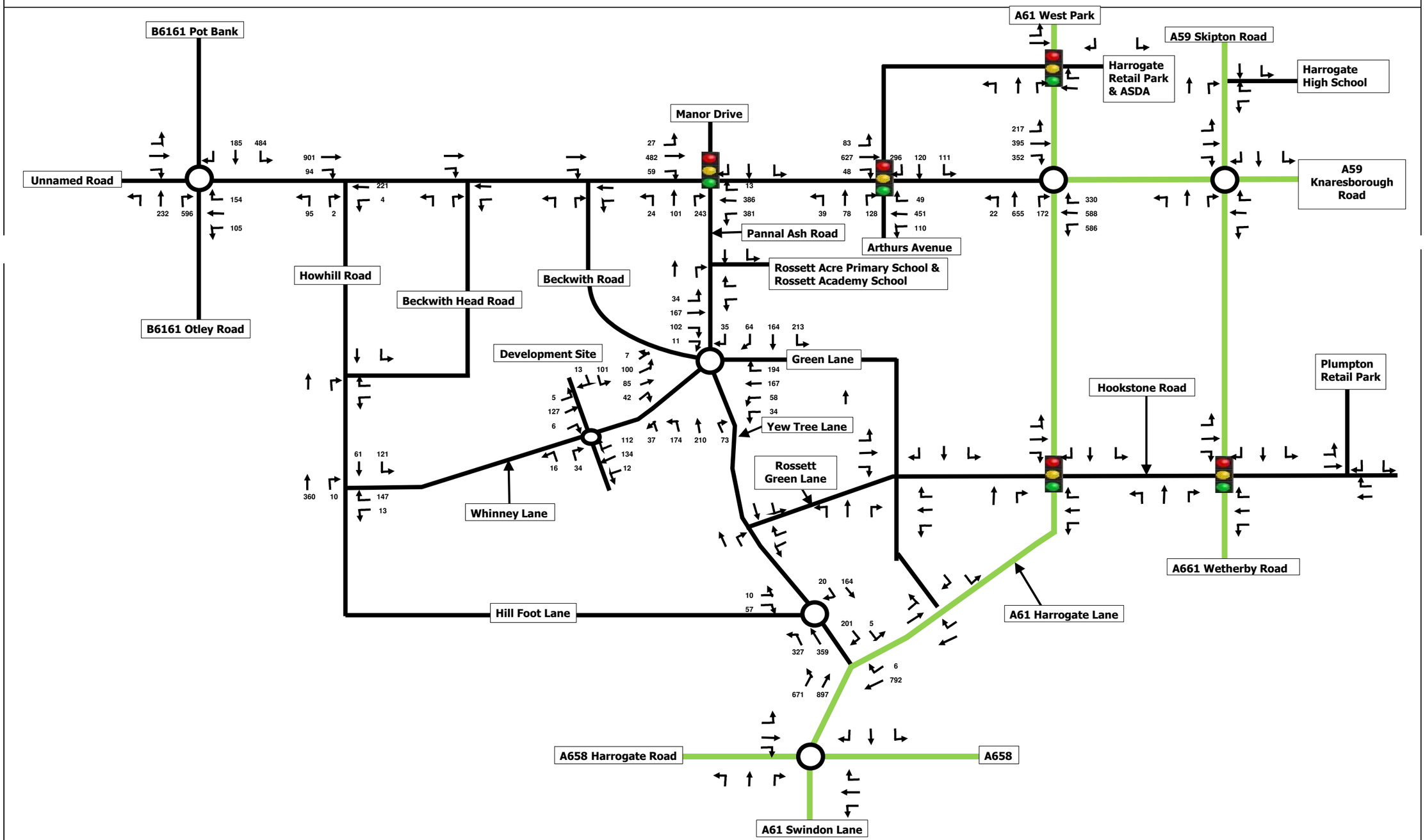


Castlehill West, Whinney Lane, Harrogate

2030 PM Peak No Development Flows

Figure 20

TETRA TECH

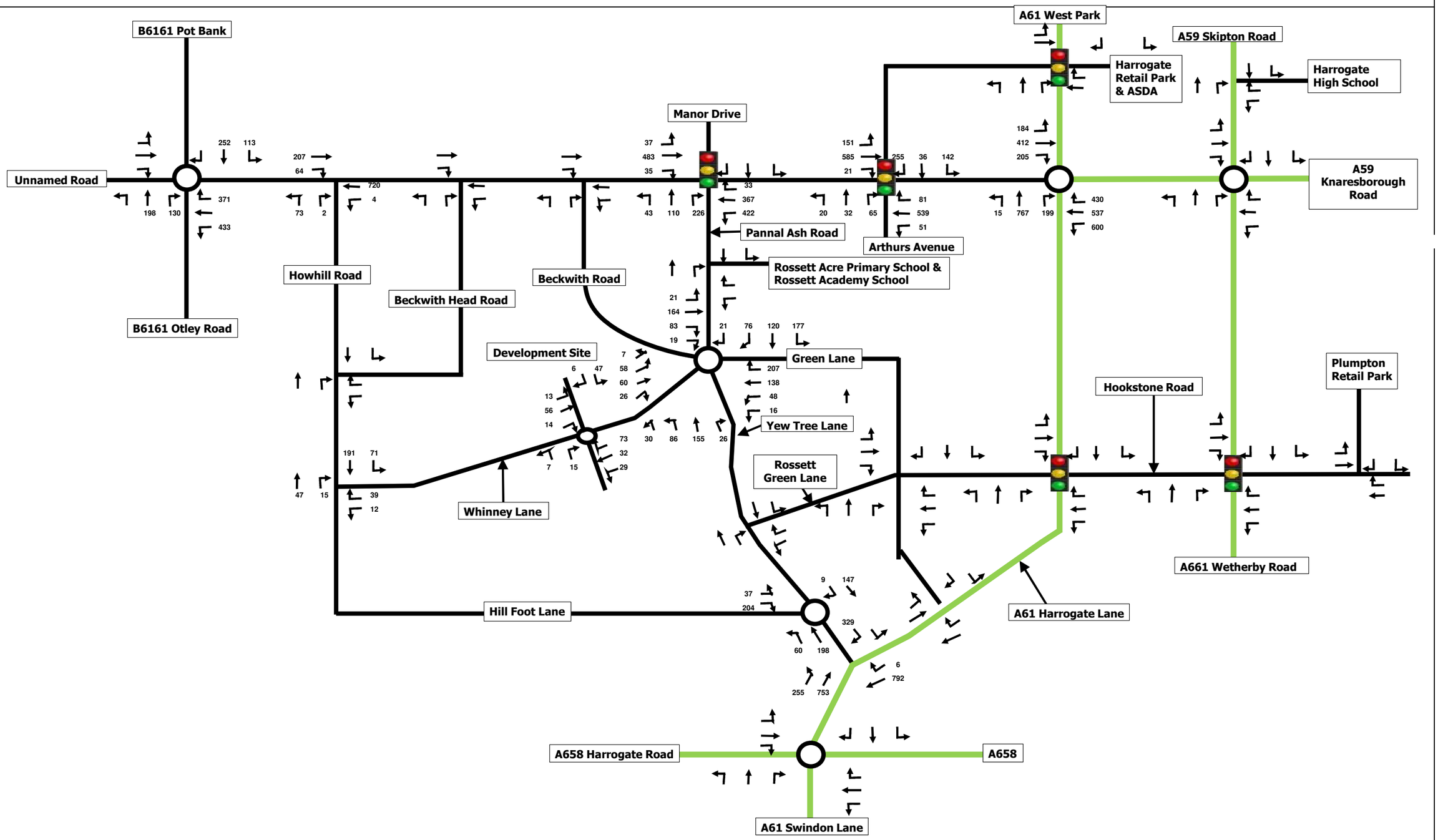


Castlehill West, Whinney Lane, Harrogate

2030 AM Peak With Development Flows

Figure 21

TETRA TECH



Castlehill West, Whinney Lane, Harrogate

2030 PM Peak With Development Flows

Figure 22

TETRA TECH

APPENDIX B – DRAWINGS

High level schedule breakdown

1 beds - 10 homes

2 beds - **61 homes**

3 beds - **125 homes**

4/5 beds - **55 homes**

Total cumulative homes
251 homes

Of which 40% are affordable (note not split between affordable rent and intermediate at present)

Total affordable - **100 homes**

Proposed primary school land

Viewpoint from public footpath to Almscliffe Crag

Footpath link

Raised table at access route to school

Allowance for straight connection through to Gladman and wider H51 site allocation (primary vehicular route)

Access for primary school set at 35m from roundabout - create none developable area if Almscliffe Crag view respected?

Primary vehicular access route set as per design guidance

Primary vehicular access route (part of wider strategic H51 allocation)

Design avoid RPA conflict zones

Pedestrian / cycle link to north

Futureproofed connection should vehicular access be required in the future. If not, can function as drawn with pedestrian and cycle connections only

Potential for future link to Lady Lane

Issues

17/05595/OUTMAJ approved Stonebridge Homes scheme

Development along Whinney Lane primarily keeps out of Almscliffe Crag view corridor whilst generally offering softer southern forms gradually leading to more terrace and semi-detached further north

4.2m shared cycleway / footpath

Primary green infrastructure as per design guidance

Large plots with key marker forms as per design guidance

Allowance for public open space, footpath routes and hedging prior to housing to respect nature of Lady Lane

Arranged street pattern to form appropriate gateway from south-western public footpath and associated countryside walks beyond

Gladman site

Syke House Farm

Summerbeck House

The Old Poor House

Squinting Cat (PH)

Lund House Green Farm

Ingle Close

Poultry House

WHINNEY LANE

LADY LANE

Path (um)

Track

162.6m

168.9m

179.0m

162.5m

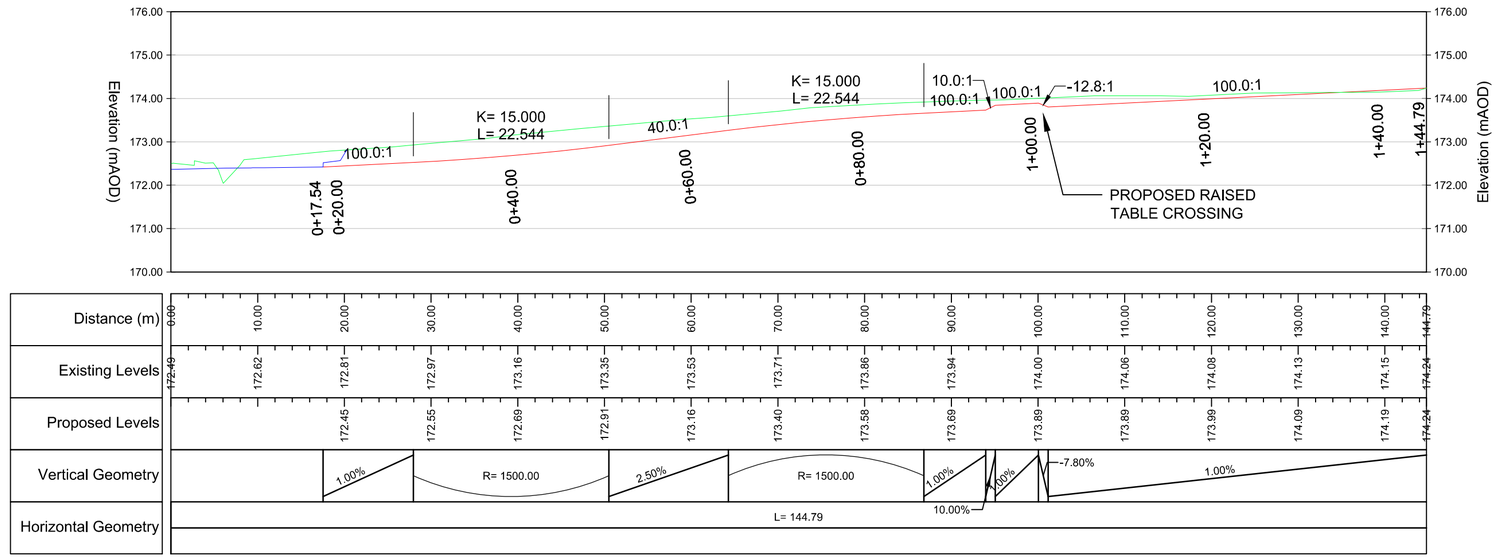
159.1m

DRAFT

Land Off Whinney Lane, Harrogate - Testing Layout - A

| PEGASUSGROUP.CO.UK | TEAM/DRAWN BY: SN | APPROVED BY: JSB | DATE: 03/08/2022 | SCALE: 1:1000@A1 | DRWG: P22-4321_DE_001_011_B | CLIENT: Banks Group |

ROAD LONGSECTION
SCALE @ 1:500



ACCESS ROAD LONGSECTION -
VERTICAL EXAGGERATION X 5.00 SCALE @ 1:500

SITE OVERVIEW
SCALE @ 1:500

FUTURE
DEVELOPMENT
AREA

PROPOSED
PEDESTRIAN/CYCLEWAY
CROSSING, INCLUDING DROPPED
KERBS & TACTILE PAVING.

PROPOSED SIGNALISED
PEDESTRIAN/CYCLEWAY
CROSSING. INCLUDING
RAISED TABLE.

PROPOSED
PEDESTRIAN/CYCLEWAY
CROSSING, INCLUDING DROPPED
KERBS & TACTILE PAVING.

PROPOSED
PEDESTRIAN/CYCLEWAY
CROSSING, INCLUDING DROPPED
KERBS & TACTILE PAVING.

SPLITTER ISLAND COMPLETE WITH
CROSSING POINT, INCLUDING
DROPPED KERBS AND TACTILE PAVING

Ch 144.79
Ch 140.00
Ch 120.00
Ch 100.00
Ch 080.00
Ch 040.00
Ch 000.00
R6.00
R24.50
R20.00
R54.50
R50.00
5.50
6.50
4.50
2.00
2.50
0.50
3.00

DO NOT SCALE FROM THIS DRAWING

KEY:

- PROPOSED ROAD PROFILE
- PHASE 1 ROAD PROFILE
- EXISTING GROUND LEVEL

NOTES:

1. LONGSECTION IS SHOWN WITH A VERTICAL EXAGGERATION OF x5
2. DESIGN SHOWN IS PRELIMINARY PURPOSES ONLY AND SUBJECT TO FULL DETAILED DESIGN.

REVISION	DETAILS	DATE	DRAWN	CHK'D	APP'D
C	AMENDED AS PER CLIENT & NYCC COMMENTS	17-11-22	PAG	AP	AP
B	CYCLE ROUTE AMENDED AS PER CLIENT COMMENTS	02-11-22	PAG	AP	AP
A	CYCLE ROUTE AMENDED AS PER CLIENT COMMENTS	19-10-22	PAG	AP	AP

CLIENT

BANKS PROPERTY

PROJECT

CASTLE HILL WEST HARROGATE

DRAWING TITLE

ACCESS ROAD
GENERAL ARRANGEMENT & LONGSECTION

DRG No.	REV
NT16079-004	C

DRG SIZE	SCALE	DATE
A2	1:500 @ A2	07-10-2022

DRAWN BY	CHECKED BY	APPROVED BY
PAG	AP	AP

wardell armstrong
NEWCASTLE UPON TYNE | TEL 0191 232 0943
WWW.WARDELL-ARMSTRONG.COM
BIRMINGHAM · BOLTON · CARDIFF · CARLISLE · EDINBURGH · GLASGOW · LONDON · MANCHESTER · SHEFFIELD · STOKE ON TRENT

N:\NT\NT16079 - WHINNEY LANE HARROGATE ROUNDABI\03 - DESIGN\AUTOCAD\NT16079-004C ACCESS ROAD GENERAL ARRANGEMENT LONGSECTION.DWG

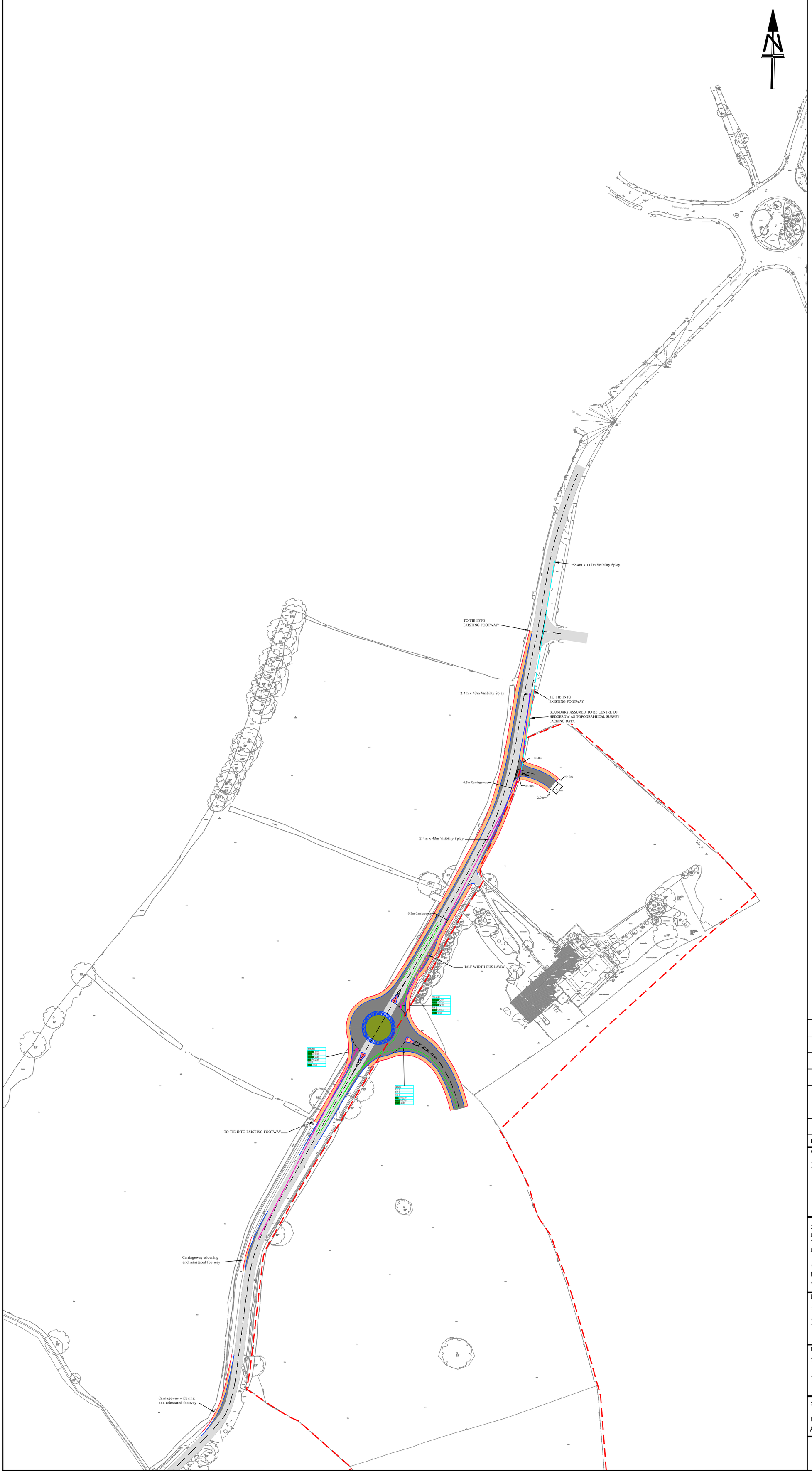
DO NOT SCALE: CONTRACTOR TO CHECK ALL DIMENSIONS AND REPORT ANY OMISSIONS OR ERRORS

NOTE:

1. THIS DRAWING DEPICTS AN ILLUSTRATIVE DESIGN, THE FINAL DETAILED DESIGN WILL BE SUBJECT TO THE APPROVAL OF THE HIGHWAY AUTHORITY AS PART OF THE HIGHWAYS ACT SECTION 278 PROCESS DETAILS NOT SHOWN ON THIS DRAWING THAT IT IS ASSUMED WILL BE DEVELOPED AS PART THE FUTURE SECTION 278 INCLUDE:
   - VERTICAL ALIGNMENT
   - DRAINAGE AND DUCTING;
   - MEASURES TO PROTECT STATUTORY UTILITY APPARATUS;
   - LIGHTING AND ELECTRICAL WORKS;
   - EXTENTS OF SURFACING WORKS;
   - DROP KERBS AND TACTILE PAVING
   - MATERIALS INCLUDING LANDSCAPING;
   - EARTHWORKS;
   - HIGHWAY BOUNDARY TREATMENTS.
2. JUNCTION SUBJECT TO DETAILED OPERATIONAL MODELLING

KEY

- NEW KERB
- NEW PIN KERB
- 120m STOPPING SIGHT DISTANCE (SSD)
- FASTEST PATH
- 2.4m x 43m VISIBILITY SPLAY
- EXISTING CARRIAGEWAY
- NEW CARRIAGEWAY
- NEW FOOTWAY
- NEW VERGE



REV	DESCRIPTION	BY	CHK	APP	DATE
H	Amendment to reinstated footway	AS	RR	NB	06.12.18
F	Proposed widening of Whinney Lane	AS	RR	NB	22.10.18
E	Maximum visibility to the North	AS	RR	NB	25.04.18
D	Amendment to Footpath	IW	RR	NB	19.12.17
C	Topographical Survey Base Included	IW	RR	NB	05.12.17
B	Secondary Access Included	IW	NB	NB	23.11.17
A	Arrangement Amended	IW	GW	NB	20.09.17

Client:

BANKS GROUP

2 St. JAMES GATE
NEWCASTLE UPON TYNE
TYNE & WEAR
NE1 4AD

TEL: +44 (0)191 255 7300
FAX: +44 (0)191 255 7301
e-mail: newcastle@wyg.com

Project:

WHINNEY LANE,
HARROGATE, NORTH YORKSHIRE

Drawing Title:

WHINNEY LANE
PROPOSED HIGHWAY WORKS

Scale @ A1	Drawn Date	Checked Date	Approved Date
1:1000	IW 20.04.17	NB 20.04.17	NB 20.04.17

Project No.	Office	Type	Drawing No.	Revision
A081951-3	91	18	C003	H

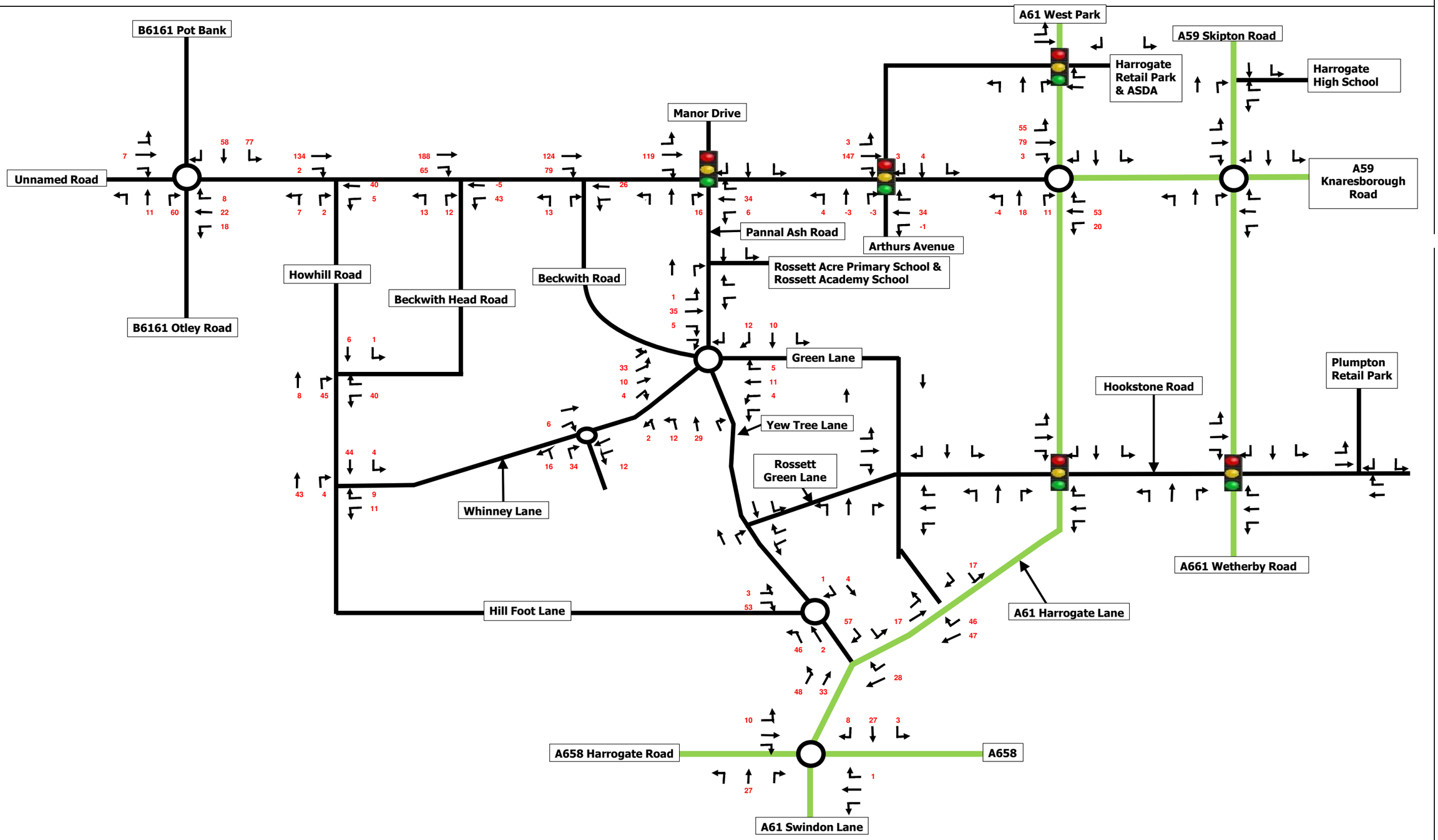
APPENDIX C – HIGHWAY LINKS REVIEW

Road	Section	Length	Speed Limit	Approximate Widths	Potential Constraints	Description
Howhill Road	Howhill Road between Lady Lane and B6162 Otley Road.	0.99km	Derestricted	Approximately 4.5-4.7m between the edge of carriageway markings. Additional 0.5-0.7m (each side) of asphalt surface between the edge of carriageway markings and grass verge.	Sharp bend at junction with Howhill Quarry Road.	Howhill Road is rural in nature. It is generally straight, except at junction with Howhill Quarry Road. There are no sudden changes in vertical alignment. On-street parking has not been observed. The carriageway allows two-way working for cars. HGVs may be required to use the additional land outside of the edge of carriageway markings to pass other vehicles.
Beckwith Head Road	Full length of road between Lady Lane and B6162 Otley Road.	0.76km	30/40mph	Approximately 6.2-6.8m carriageway.	On street parking occurs in the vicinity of the business park (where restriction not in place). This can reduce the carriageway to one-way working, particularly for larger vehicles.	Beckwith Head Road is a straight and has no sudden changes in vertical alignment. It is generally two-way working, but this can be reduced where on-street parking is present at the northern end of the road.
Lady Lane	Between Beckwith Head Road and Whinney Lane	1.0km	Derestricted	Approximately 4.5-5.4m wide.	• Several bends, • Localised narrowing.	Lady Lane is rural in character. It is predominately two-way working for cars.
Whinney Lane	Between Yew Tree Lane R/A and Lady lane.	1.0km	30mph and derestricted	Approximately 5.0-6.5m wide.	• On-street parking, • Sharp bend, • Localised narrowing.	It has residential development on both sides of the road for the first 175m, south from Pannal Ash roundabout, then residential development only on the east side for a further 100m, thereafter the road is a rural character. It is predominately two-way working for cars. On-street parking occurs at the northern end of Whinney Lane.
Hill Top Lane/Hill Foot Lane	Between Whinney Lane and Burn Bridge Road.	1.7km	30/40mph and derestricted.	Generally the road is around 4.1-5.5m between edge of carriageway markings. However, the carriageway narrows to 3.9-4.0m on the sharp bend where road changes name from Hill Top Lane to Hill Foot Lane.	• Several bends and changes to the vertical alignment that restrict forward visibility, • Localised narrowing is several sections.	Hill Top Lane/Hill Foot Lane is rural in nature. The carriageway is generally wide enough to allows two cars to pass one another, though there are narrow sections with evidence of grass verges being used to allow vehicle to pass one another.
Yew Tree Lane	Section between Whinney Lane R/A and Rosset Green Lane.	0.94km	30mph	Approximately 6.0m carriageway.	Some on-street parking occurs along the northern section near the school/college.	This section of Yew Tree Lane has the characteristics of a modern residential road. It is wide enough for two-way working, though on-street parking can restrict this in some locations.
Yew Tree Lane	Section between Rosset Green and Burn Bridge Road.	0.94km	30mph	Approximately 5.0-6.1m wide.	• Several bends and changes in the vertical alignment, • Priority controlled one-way working and speed hump to the south of Spring Lane.	This section of Yew Tree Lane is more rural in nature than the northern section. It is generally narrower, and the alignment is much more bendy. However, there is little on-street parking along this section. There are some traffic calming features on the southern part of Yew Tree Lane.

Spring Lane/Rosedale	Between Yew Tree Lane and Main Street.	0.67km	20/30mph	Spring Lane is approximately 4.4-5.8m wide. Rosedale is 7.5m wide.	• On-street parking and narrow sections (Spring Lane).	Spring Lane is semi-rural in nature. The road varies in width and there is no footway over most of its length. It is generally wide enough for two cars to pass each other, but on-street parking can restrict to one-way working in some places. Rosedale is a modern carriageway with footway on both sides and provides an alternative route to Main Street than the last section of Spring Lane.
Green Lane	Between Whinney Lane R/A and Rosset Green Lane.	0.88km	30mph	Approximately 7.3m wide.	• On-street parking in vicinity of school and college.	Green Lane is a modern urban road. At around 7.3m wide it can accommodate parking on one side whist still allowing two-way working.
Church Lane	Between Rosset Green Lane and Main Street.	1.2km	20/30mph	Generally 5.7-6.2m wide, but narrows to 4.8m at southern end.	• Several bends along the route, • Narrowing of the carriageway at the southern end of Church Lane.	Green Lane is predominately rural in nature. It is wide enough for two-way working and there is little on-street parking. The road narrows on the approach to Main Street. The road is still wide enough to allow two-way working for cars.
Main Street/Station Road	Between Church Lane and A61 Leeds Road.	0.72km	20/30mph	Approximately 5.7-7.3m wide.	• Traffic calming (speed humps), • Localised narrowing (eg bridge over Crimple Beck), • One-way working (traffic signals) over railway line, • A61 Leeds Road/Station Road traffic signals.	Main Street/Station Road is two-way working. There are traffic calming features and some narrower sections.
Burn Bridge Road	Between Hill Foot Lane and A61 Harrogate Road.	1.26km	30mph and derestricted	Approximately 5.5-6.1m wide.	• Traffic calming features (speed humps), • One-way working over Crimple Beck bridge, • Junction with Brackenthwaite Lane, • Localised narrowing such as the bridge over the railway line, • A61/Burn Bridge Road Junction.	Burn Bridge Road is semi-rural in nature with house on at least one side of the road until Brackenthwaite Lane and some traffic calming features, after which it is firmly rural in character.
Brackenthwaite Lane	Between Burn Bridge Lane and Shaw Lane.	3.4km	30mph and derestricted	Approximately 4.5m-5.1m.	• Several bends, some which are particularly sharp one, • Localised narrowing including on some of the bends.	Brackenthwaite Lane is rural in nature. It is generally two-way working for cars, with a few exceptions where the carriageway.
Briscoe Ridge Lane	Between Shaw Lane and the B6161 Otley Road.	1.59km	Derestricted	Approximately 3.5-5.1m	• Mainly one-way working.	Briscoe Ridge Lane is a rural road, which mainly operates with one-way working with some passing places.

High Moor Road/Rigton Hill	Between Shaw Lane and	2.3km	20/30mph and derestricted	Approximately 5.3-6.0m wide.	• Several bends, • Localised narrowing, • One-way working (priority controlled), • On-street parking (Rigton Hill).	High Moor Road is rural in nature. It is subject to a derestricted speed limit. Apart from a few noticeable bends, it is very straight. Rigton Hill is generally slightly narrower than High Moor Road. It is more urban, and some on-street parking occurs.
Hall Green Lane	Between Rigton Hill and A658 Harrogate Road	0.94km	20/30mph and derestricted	Approximately 5.3-6.2m wide.	• Traffic calming (speed humps), • On-street parking.	The first circa 200m of Hall Green Lane (from Rigton Hill) is urban in nature and on-street parking occurs. After this point it becomes much more rural. Hall Green Lane is generally two-way working, but this can be restricted where on-street parking occurs.
Church Hill	Between Rigton Hill and A658 Harrogate Road	0.72km	20/30mph and derestricted	Approximately 5.1-5.6m wide.	• On-street parking.	The first circa 350m of Church Hill (from Rigton Hill) is urban in nature and on-street parking occurs. After this point it becomes more rural. It is generally two-way working for cars, but this can be restricted where on-street parking occurs at the northern end.
Shaw Lane	Between Brackenthwaite Lane and B6161 Otley Road	1.9km	Derestricted	Approximately 4.8-6.1m.	• Several sharp bends, • Change in vertical alignment that restricts forward visibility, • Localised narrowing.	Shaw Lane is a rural road that is subject to a derestricted speed limit. There are a number of sharp bends and localised narrowing, but the road is generally wide enough for two-way working.

APPENDIX D – COMMITTED DEVELOPMENT TRAFFIC DIAGRAMS

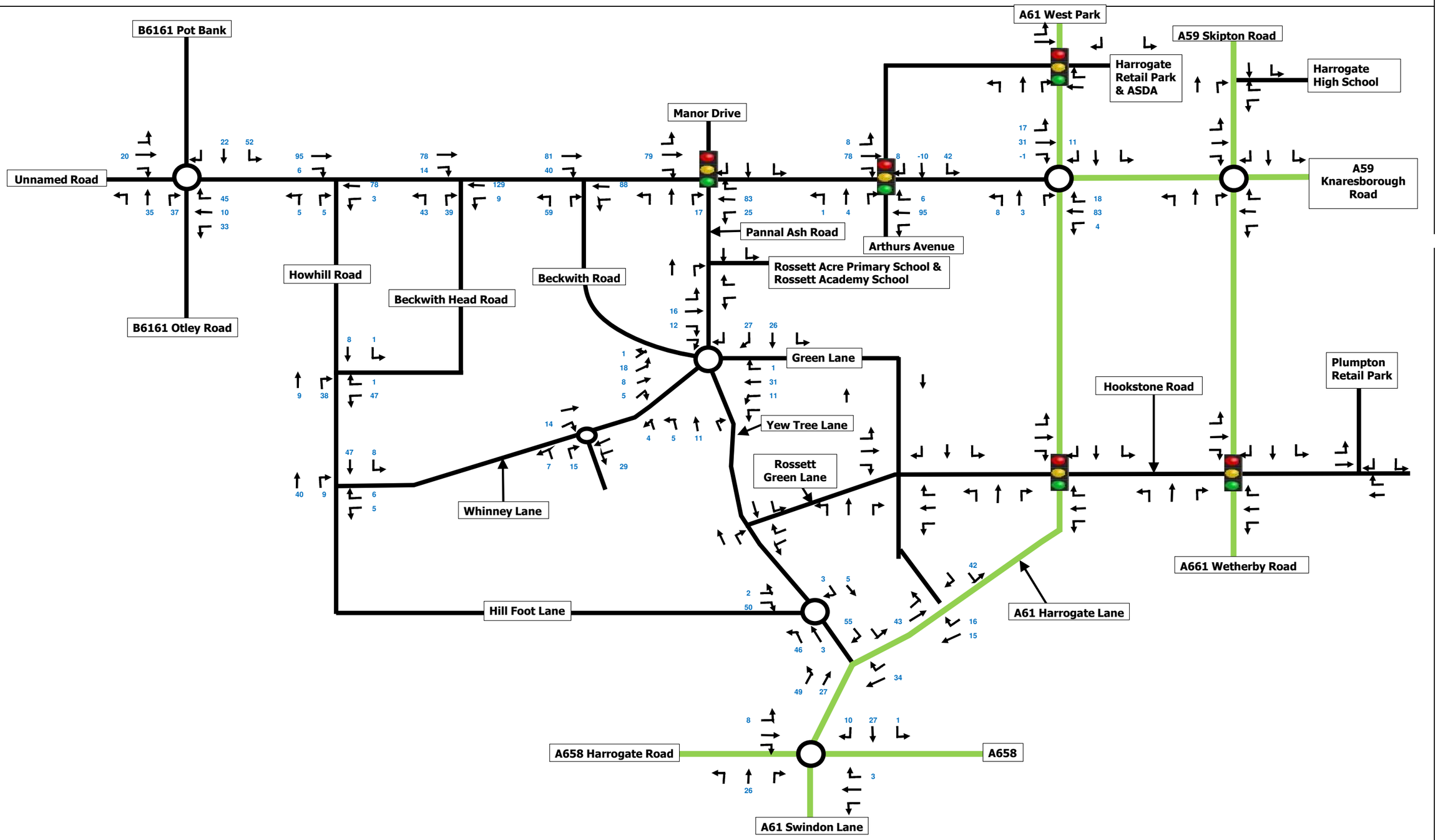


Castlehill West, Whinney Lane, Harrogate

AM Total Committed Development Flows

Appendix D.1

TETRA TECH



Castlehill West, Whinney Lane, Harrogate

PM Total Committed Development Flows

Appendix D.2

TETRA TECH

APPENDIX E – ACCIDENT DATA RECORDS

highways
NORTH YORKSHIRE

Selected Range of Accidents between dates 01/01/2017 and 29/02/2020
Selected using Manual Selection

SCALE	1 : 26060
DATE	06/04/2020
DRAWING No.	
DRAWN BY	

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170045739 14/03/2017 Time 1540 Vehicles 2 Casualties 1 Slight
E: 429378 N: 453282 First Road: U 309 Road Type: Single carriageway Speed limit: 30
Junction Detail: Pri Drive Give way or controlled Unclassified
Crossing Control Facilities School crossing patrol at None within Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 2	Possible
2nd:			
3rd:			
4th:			
5th:			
6th:			

V1 WAS PARKED ON THE STREET AND V2 REVERSED INTO REAR OF VEHICLE 1
Occurred on GREEN LANE AT ENTRANCE TO ROSSETT SCHOOL HARROGATE

Vehicle Reference 1 Car Parked
Vehicle movement from Parked to Parked No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 33 Female
Not hit and run Breath test Driver not contacted Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 10 Female Passenger Severity: Slight
Seatbelt: Worn and independently confirmed Front seat Cycle helmet: Not a cyclist

Vehicle Reference 2 Van or Goods 3.5 tonnes mgw and under Reversing
Vehicle movement from SE to NW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: 1 Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 58 Male
Not hit and run Breath test Driver not contacted Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170051913 28/03/2017 Time 0900 Vehicles 1 Casualties 1 Serious
E: 430284 N: 454657 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: Roundabout Give way or controlled A 61
Crossing Control Facilities Central reservation Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Possible
2nd:	Crossed road masked by stationary veh	Casualty 1	Possible
3rd:	Junction restart	Vehicle 1	Possible
4th:			
5th:			
6th:			

V1 STATIONARY WAITING TO TURN RIGHT AT ROUNDABOUT CONTROLLED JUNCTION. PEDESTRIAN CROSSES FROM NEARSIDE AND HIT BY V1 AS IT SETS OFF
Occurred on B6162 OTLEY ROAD AT JUNCTION WITH A61 LEEDS ROAD.

Vehicle Reference 1 Car Waiting to turn right
Vehicle movement from W to S No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Entering roundabout
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 50 Unknown
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 19 Female Pedestrian Severity: Serious
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere S bound
Driver's nearside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170099234 07/06/2017 Time 1436 Vehicles 2 Casualties 1 Serious
E: 430341 N: 454680 First Road: A 6040 Road Type: 1 Speed limit: 30
Junction Detail: Roundabout Give way or controlled A 61
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: Road works
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Illness or disability, mental or physical	Vehicle 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

VEHICLE 1 TRAEVLLING WEST LOOSES CONTROL AND COLLIDES WITH PARKED VEHICLE 2'S TGRAILER TRAVELS THROUFG A CONED OFF AREA AND INTO LARGE HOLE THERE DUE TO ROADWORKS
Occurred on A6040 YORK PLACE AT ROUNDABOUT WITH A61 LEEDS ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from E to W No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: 2 Location at impact Jct Approach
Hit object in road Parked Vehicle Hit off road: Road sign / ATS
Off road: O/S Age of Driver 47 Male
Not hit and run Breath test Not applicable Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 47 Male Driver/rider Severity: Serious
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Van or Goods 3.5 tonnes mgw and under Parked
Vehicle movement from Parked to Parked No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver Unknown
Not hit and run Breath test Driver not contacted Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170113587 29/06/2017 Time 0820 Vehicles 1 Casualties 1 Slight
E: 430339 N: 454671 First Road: A 6040 Road Type: 1 Speed limit: 30
Junction Detail: Roundabout Give way or controlled A 61
Crossing Control Facilities Central reservation Daylight Road surface Wet/Damp
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to judge vehicles path or speed	Casualty 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

PEDESTRIAN STEPS OUT ONTO PATH OF VEHICLE 1 CAUSING MINOR INJURIES
Occurred on A6040 YORK PLACE AT ROUNDABOUT WITH A61 HARROGATE

Vehicle Reference 1 Car Starting
Vehicle movement from E to W No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Leaving roundabout
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 59 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 69 Male Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere N bound
Driver's nearside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170124818 16/07/2017 Time 1239 Vehicles 3 Casualties 1 Slight
E: 430232 N: 454630 First Road: A 61 Road Type: Single carriageway Speed limit: 40
Junction Detail: Not within 20m of junction
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Distraction in vehicle	Vehicle 1	Possible
2nd:	Failed to look properly	Vehicle 1	Possible
3rd:			
4th:			
5th:			
6th:			

V3 AND V2 STOP DUE TO STATIONARY TRAFFIC AHEAD V1 HITS REAR OF V2 CAUSING V2 TO HIT REAR OF V3
Occurred on ALL 3 VEHICLES TRAVELLING TOWARDS RIPON ON THE A61

Vehicle Reference 1 Car Stopping
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: 2 Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 39 Female
Not hit and run Breath test Negative Left hand drive No

Vehicle Reference 2 Car Going ahead but held up
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: 3 Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 42 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 2 Age: 42 Female Passenger Severity: Slight
Seatbelt: Worn but not independently confirme Front seat Cycle helmet: Not a cyclist

Vehicle Reference 3 Car Going ahead but held up
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 49 Female
Not hit and run Breath test Negative Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170129630 19/07/2017 Time 1130 Vehicles 2 Casualties 1 Slight
E: 429943 N: 451328 First Road: C 258 Road Type: Single carriageway Speed limit: 30
Junction Detail: Not within 20m of junction
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:	Loss of control	Vehicle 2	Very Likely
2nd:	Careless/Reckless/In a hurry	Vehicle 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

V1 OVERTAKES V2 TOO CLOSE CAUSING V2 TO CLIP THE KERB
Occurred on BRCKENTHWAITE LANE HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from W to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Did not impact
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver Unknown
Non-stop, not hit Breath test Driver not contacted Left hand drive No

Vehicle Reference 2 Pedal Cycle Going ahead other
Vehicle movement from W to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Did not impact
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 15 Male
Not hit and run Breath test Driver not contacted Left hand drive No

Casualty Reference: 1 Vehicle: 2 Age: 15 Male Driver/rider Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Yes

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170131159 25/07/2017 Time 1650
E: 430217 N: 450558 First Road: A 61
Junction Detail: T & Stag Jct
Crossing Control Facilities None within 50m
Fine without high winds
Carriageway Hazards: None

Vehicles 2 Casualties 1
Road Type: Single carriageway
Give way or controlled
Daylight
Special Conditions at Site: None
Place accident reported: At scene

Slight
Speed limit: 30
C 258
Road surface Dry

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 2	Very Likely
2nd:	Poor turn or manoevre	Vehicle 2	Very Likely
3rd:	Impaired by alcohol	Vehicle 1	Very Likely
4th:	Nervous/Uncertain/Panic	Vehicle 1	Possible
5th:	Swerved	Vehicle 1	Possible
6th:	Fatigue	Vehicle 1	Very Likely

V1 TRAVELLING NORTHBOUND IN THE DIRECTION OF HARROGATE ON APPROACH TO JUNCTION WITH BURNBRIDGE LANE COLLIDES WITH V2. CAUSING FRONT END DAMAGE TO OFFSIDE OF V2
Occurred on A61 LEEDS ROAD AT JUNCTION WITH BURNBRIDGE LANE

Vehicle Reference 1
Vehicle movement from N to S
On main carriageway
Hit vehicle:
Hit object in road None
Off road: Did not leave carr
Not hit and run

Car
No tow / articulation
No skidding, jack-knifing or overturning
Location at impact Jct Approach
Hit off road: None
Age of Driver 53
Breath test Positive

Going ahead other
First impact Front
Female
Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 53 Female Driver/rider Severity: Slight
Seatbelt: Unknown Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2
Vehicle movement from NW to S
On main carriageway
Hit vehicle:
Hit object in road None
Off road: Did not leave carr
Not hit and run

Car
No tow / articulation
No skidding, jack-knifing or overturning
Location at impact Jct Approach
Hit off road: None
Age of Driver 23
Breath test Negative

Turning right
First impact Offside
Male
Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170208429 20/11/2017 Time 0840 Vehicles 1 Casualties 1 Slight
E: 429720 N: 454253 First Road: U 24 Road Type: Single carriageway Speed limit: 30
Junction Detail: T & Stag Jct Give way or controlled Unclassified 202
Crossing Control Facilities None within 50m Daylight Road surface Wet/Damp
Raining without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Possible
2nd:	Failed to judge vehicles path or speed	Casualty 1	Possible
3rd:	Rain, sleet, snow, or fog	Vehicle 1	Possible
4th:			
5th:			
6th:			

V1 TRAVELLING SE IN SLOW TRAFFIC DOWN ARTHURS AVENUE WHEN A PEDESTRIAN CROSSES IN FRONT OT V1 AND WAS CLIPPED AND FELL TO THE FLOOR
Occurred on ARTHURS AVENUE AT JUNCTION WITH CUNDALL WAY HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from NW to SE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 36 Female
Not hit and run Breath test Driver not contacted Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 11 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In cent carr SW bound
Driver's nearside masked

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12170213896 24/11/2017 Time 1250 Vehicles 2 Casualties 1 Slight
E: 429592 N: 454314 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: Not within 20m of junction
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

V1 AND V2 BOTH TRAVELLING IN THE SAME DIRECTION - V2 STOPS FOR TRAFFIC BUT V1 FAILS TO STOP AND HITS V2 REAR
Occurred on B6162 OTLEY ROAD 50 M N/E PANNAL ASH ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 67 Male
Not hit and run Breath test Driver not contacted Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 67 Male Driver/rider Severity: Slight
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Car Stopping
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 54 Male
Not hit and run Breath test Driver not contacted Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12180031077 22/02/2018 Time 1104 Vehicles 2 Casualties 1 Slight
E: 430323 N: 454621 First Road: A 61 Road Type: Single carriageway Speed limit: 30
Junction Detail: Roundabout Give way or controlled B 6162
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Careless/Reckless/In a hurry	Vehicle 2	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

V1 TRAVELLING NORTH TOWARDS HARROGATE APPROACHES ROUNDABOUT MOVES TO NEARSIDE LANE TO POSITION FOR ROUNDABOUT WHERE V2 IMPACTS ON THE FRONT OF V1
Occurred on A61 LEEDS ROAD SOUTH B6162 OTELY ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 34 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 34 Male Driver/rider Severity: Slight
Seatbelt: Worn and independently confirmed Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Car Going ahead other
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Nearside Age of Driver 45 Male
Hit and run Breath test Driver not contacted Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12180042417 12/03/2018 Time 0830 Vehicles 2 Casualties 1 Slight
E: 429536 N: 454282 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: Pri Drive Give way or controlled Unclassified 563
Crossing Control Facilities None within 50m Daylight Road surface Wet/Damp
Raining without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 1	Very Likely
2nd:	Rain, sleet, snow, or fog	Vehicle 1	Possible
3rd:			
4th:			
5th:			
6th:			

V1 TRAVELLING NE TOWARDS PRINCE OF WALES ROUNDABOUT V2 TRAVELLING SW DIRECTION - V1 TURNS RIGHT INTO PANAL ASH ROAD IN THE PATH OF V2
Occurred on B6162 OTLEY ROAD AT JUNCTION WITH PANAL ASH ROAD KINDERCARE LTD HARROGATE

Vehicle Reference 1 Car Turning right
Vehicle movement from SW to S No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 38 Female
Not hit and run Breath test Negative Left hand drive No

Vehicle Reference 2 Car Going ahead other
Vehicle movement from NE to SW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 26 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 2 Age: 26 Male Driver/rider Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12180055098 01/04/2018 Time 1220 Vehicles 1 Casualties 1 Serious
E: 429532 N: 454305 First Road: U 481 Road Type: 2 Speed limit: 30
Junction Detail: T & Stag Jct Give way or controlled B 6162
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 1	Very Likely
2nd:	Vehicle blind spot	Vehicle 1	Possible
3rd:			
4th:			
5th:			
6th:			

V1 STATIONARY PEDESTRIAN STARTS TO CROSS THE ROAD TO THE REAR OF VI JUST AS V1 STARTS TO REVERSE TOWARDS OTLEY ROAD AND COLLISION OCCURS
Occurred on MANOR DRIVE 13M N OF OTLEY ROAD HARROGATE

Vehicle Reference 1 Car Reversing
Vehicle movement from NE to SW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Back
Hit vehicle: Location at impact Cleared junction or waiting/parked at junc
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 31 Male
Hit and run Breath test Driver not contacted Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 82 Female Pedestrian Severity: Serious
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere NE bound
Driver's nearside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12180078208 05/05/2018 Time 2212 Vehicles 2 Casualties 3 Serious
E: 429666 N: 454351 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: T & Stag Jct Automatic traffic signal Unclassified 167
Crossing Control Facilities Ped. phase at traffic signal junction Darkness: street lights present and lit Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Emergency vehicle on call	Vehicle 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

V1 TRAVELLING OTLEY ROAD DIR OF A61 PRINCE OF WALES R/A UNDER BLUES RESP TO I GRADE - V2 TRAVELS FROM COLD BATH ROAD INTO JUNCTION TO TURN RIGHT AT OTLEY ROAD - TRAFFIC LIGHTS ON RED FOR V1 AND GREEN FOR V2 - V1 PROCEEDS THROUGH RED LIGHTS AND COLLID
ES WITH V2 CAUSING IT TO SPIN AND COMES TO REST ON A WALL
Occurred on B6162 OTLEY ROAD AT JUNCTION WITH COLD BATH ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: Road sign / ATS
Off road: O/S Age of Driver 35 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 35 Female Driver/rider Severity: Serious
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Car Turning right
Vehicle movement from W to S No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Mid Junction - on roundabout or main roa
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 79 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 2 Vehicle: 2 Age: 79 Female Driver/rider Severity: Serious
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Casualty Reference: 3 Vehicle: 2 Age: 79 Female Passenger Severity: Serious
Seatbelt: Worn but not independently confirme Front seat Cycle helmet: Not a cyclist

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

12180087561 19/05/2018 Time 0830
E: 429313 N: 453215 First Road: C 243
Junction Detail: T & Stag Jct
Crossing Control Facilities None within 50m
Fine without high winds
Carriageway Hazards: None

Vehicles 1 Casualties 2
Road Type: Single carriageway
Give way or controlled
Daylight
Special Conditions at Site: None
Place accident reported: At scene

Serious
Speed limit: 30
Unclassified 893
Road surface Dry

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 1	Very Likely
2nd:	Vehicle blind spot	Vehicle 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

C 1 AND C2 WALKING ALONG THE ROAD V1 DRIVES PAST THEM REALISES SHE HAS MISSED HER TURNING AND REVERSES KNOCKING DOWN C1 THEN C2
Occurred on YEW TREE LANE 5M S ASHVILLE COLLEGE SPORT HARROGATE

Vehicle Reference 1
Vehicle movement from S to N
On main carriageway
Hit vehicle:
Hit object in road None
Off road: Did not leave carr
Not hit and run

Car
No tow / articulation
No skidding, jack-knifing or overturning
Location at impact Jct Approach
Hit off road: None
Age of Driver 27
Breath test Negative

Reversing
First impact Back
Female
Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 66 Male Pedestrian Severity: Serious
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere E bound
Driver's offside

Casualty Reference: 2 Vehicle: 1 Age: 62 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere E bound
Driver's offside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800015 03/07/2018 Time 1230 Vehicles 1 Casualties 1 Slight
E: 430335 N: 454683 First Road: A 61 Road Type: 1 Speed limit: 30
Junction Detail: Roundabout Give way or controlled B 6162
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Very Likely
2nd:	Failed to judge vehicles path or speed	Casualty 1	Possible
3rd:	Failed to look properly	Vehicle 1	Very Likely
4th:			
5th:			
6th:			

VEHICLE APPROACHING PRICE OF WALES ROUNDABOUT STATIONARY WAITINF FOR A GAP IN THE TRAFFIC. A FEMALE WAITING TO CROSS THE LINE OF TRAFFIC FROM THE LEEDS ROAD SIDE STEPPED OUT. MINIMAL IMPACT TO THE VEHICLE HOWEVER, FEMALE FELL BACK ONTO THE ROAD CAUS
ING INJURY TO HER SHOULDER.
Occurred on A61 YORK PLACE PRINCE OF WALES HARROGATE

Vehicle Reference 1 Car Starting
Vehicle movement from E to S No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 69 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 65 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere N bound
Driver's nearside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800395 19/07/2018 Time 1530 Vehicles 2 Casualties 1 Slight
E: 429524 N: 453725 First Road: U Road Type: Single carriageway Speed limit: 20
Junction Detail: T & Stag Jct Give way or controlled Unclassified
Crossing Control Facilities None within 50m Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Travelling too fast for conditions	Vehicle 1	Possible
2nd:	Failed to judge other persons path or speed	Vehicle 1	Possible
3rd:	Failed to look properly	Vehicle 2	Possible
4th:			
5th:			
6th:			

QUEUE OF TRAFFIC ON PANNAL ASH ROAD HEADING NORTH V1 IS OVERTAKING QUEUE WHEN COLLIDES WITH V2 WHICH IS TURNING RIGHT ONTO RICHMOND AVENUE
Occurred on UNCLASSIFIED PANNAL ASH ROAD AT JUNCTION WITH UNCLASSIFIED RICHMOND AVENUE HARROGATE

Vehicle Reference 1 Motor Cycle over 50 cc and up to 125cc Overtaking moving vehicle O/S
Vehicle movement from S to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 19 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 19 Male Driver/rider Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Car Turning right
Vehicle movement from SW to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 31 Female
Not hit and run Breath test Negative Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800138 09/08/2018 Time 1240 Vehicles 2 Casualties 1 Slight
E: 429286 N: 453330 First Road: C Road Type: 1 Speed limit: 30
Junction Detail: Roundabout Give way or controlled C
Crossing Control Facilities None within 50m Daylight Road surface Wet/Damp
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Vehicle 1	Very Likely
2nd:	Failed to judge other persons path or speed	Vehicle 1	Possible
3rd:			
4th:			
5th:			
6th:			

THE HONDA CIVIC, LESLEY REYNOLDS WAS DRIVING DOWN PANNAL ASH ROAD TOWARDS THE ROUNDABOUT THIS CAR SLOWED DOWN TOWARDS THE JUNCTION BUT DIDN'T COME TO A STOP, THE DRIVER THEN EDGED FORWARD INTO THE ROUNDABOUT, A CYCLIST CAME FROM YEW TREE LANE, ROUND THE ROUNDABOUT TO LEAVE DOWN GREEN LAEN. THE CYCLIST COLLIDED WITH TE CAR HITTING THE FRONT OFFSIDE OF THE CAR, THE CYCLIST RECEIVED MINOR INJURIES OF A GRAZED ARM AMD BRUISING
Occurred on PANNAL ASH ROAD ROUNDABOUT AT JUNTION WITH GREEN RD HARROGATE

Vehicle Reference 1 Car Starting
Vehicle movement from N to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Entering roundabout
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 73 Female
Not hit and run Breath test Negative Left hand drive No

Vehicle Reference 2 Pedal Cycle Changing lane to left
Vehicle movement from S to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Leaving roundabout
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 70 Female
Hit and run Breath test Not applicable Left hand drive No

Casualty Reference: 2 Vehicle: 2 Age: 70 Female Driver/rider Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Yes

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800375 16/10/2018 Time 1145 Vehicles 2 Casualties 1 Slight
E: 429541 N: 454286 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: Crossroads Automatic traffic signal Unclassified
Crossing Control Facilities Ped. phase at traffic signal junction Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Disobeyed automatic traffic signal	Vehicle 1	Very Likely
2nd:	Failed to look properly	Vehicle 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

V1 TRAVELLING OTLEY ROAD FROM TOWN CENTRE. V2 TURNING RIGHT ONTO OTLEY ROAD TOWARDS TOWN CENTRE.
V1 ALLEDGEDLY CONTRAVENES RED TRAFFIC LIGHT. FRONT OF V1 COLLIDES WITH FRONT OFFSIDE OF V2.
Occurred on B6162 OTLEY ROAD

Vehicle Reference 1 Car Going ahead other
Vehicle movement from NE to SW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Mid Junction - on roundabout or main roa
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 74 Male
Not hit and run Breath test Negative Left hand drive No

Vehicle Reference 2 Car Turning right
Vehicle movement from S to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Entering main road
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 50 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 2 Age: 50 Female Driver/rider Severity: Slight
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800434 17/10/2018 Time 0845 Vehicles 2 Casualties 1 Slight
E: 430210 N: 454617 First Road: B 6162 Road Type: Single carriageway Speed limit: 30
Junction Detail: Not within 20m of junction Unclassified
Crossing Control Facilities Central reservation Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Very Likely
2nd:	Stationary or parked vehicle	Casualty 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

V2 QUEING IN HEAVY TRAFFIC LEFT HAND LANE (OF TWO) OTLEY ROAD TWDS PRINCE OF WALES ROUNDABOUT. V1 TRAVELLING RIGHT HAND LANE PASSING V2 ON ITS OFFSIDE. PEDESTRIAN CROSSSES FROM NEARSIDE WALKS IN FRONT OF V2 INTO PATH OF V1 .COLLISION OCCURS
Occurred on B6162 OTLEY ROAD

Vehicle Reference 1 Car Overtaking stat vehicle O/S
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 45 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 20 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere NW bound
Driver's nearside masked
Vehicle Reference 2 Car Going ahead but held up
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Did not impact
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 44 Female
Not hit and run Breath test Not requested Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1800608 22/11/2018 Time 1215 Vehicles 1 Casualties 1 Slight
E: 430181 N: 454592 First Road: B 6162 Road Type: Dual carriageway Speed limit: 30
Junction Detail: Not within 20m of junction
Crossing Control Facilities None within 50m Daylight Road surface Wet/Damp
Raining without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Very Likely
2nd:	Crossed road masked by stationary veh	Casualty 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

WALKING ACROSS OTLEY ROAD PEDESTRIAN. OTLEY ROAD PRIOR TO ROUNDABOUT PRINCE OF WALES IN DUAL LANE NEARSIDE VEHICLE STOPS TO LET PEDESTRIAN CROSS, PEDESTRIAN CROSSES FIRST LANE BUT WAS UNAWARE IT WAS DUAL LANE, STEPS OUT INTO SECOND LANE, VEHICLE RUNS
OVER HER FOOT.
Occurred on OTLEY ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Did not impact
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 29 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 27 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

On footpath / verge Standing still
Movement U/K

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1900653 14/01/2019 Time 1545 Vehicles 1 Casualties 1 Slight
E: 429670 N: 454351 First Road: U Road Type: Single carriageway Speed limit: 30
Junction Detail: T & Stag Jct Give way or controlled
Crossing Control Facilities Pelican, puffin, toucan etc. Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Possible
2nd:	Careless/Reckless/In a hurry	Casualty 1	Possible
3rd:			
4th:			
5th:			
6th:			

VEHICLE 1 WAS TRAVELLING DOWN COLD BATH ROAD TOWARDS TOWN, WHILST PASSING JUNCTION WITH HEYWOOD ROAD, INJURED PARTY HAS RUN OUT INTO THE ROAD FROM OFFSIDE, RUNNING INTO VEHICLE 1 OFFSIDE WING AND FALLING TO THE FLOOR.
Occurred on COLD BATH ROAD AT J/W HEYWOOD ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from W to E No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Mid Junction - on roundabout or main roa
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 22 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 13 Male Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

Within 50m ped crossing E bound
Driver's offside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

2000137 27/01/2019 Time 0447 Vehicles 2 Casualties 1 Slight
E: 430294 N: 454677 First Road: A 61 Road Type: 2 Speed limit: 30
Junction Detail: T & Stag Jct Give way or controlled Unclassified
Crossing Control Facilities None within 50m Darkness: street lights present and lit Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Other	Vehicle 1	Very Likely
2nd:	Failed to look properly	Vehicle 2	Possible
3rd:	Illegal turn or direction of travel	Vehicle 1	Very Likely
4th:			
5th:			
6th:			

V2 DRIVING DOWN RAGLAN STREET HE GOT TO THE JUNCTION WITH WEST PARK LOOKED LEFT AND PULLED OUT ONTO WEST PARK WHERE COLLISION HAPPENED WITH V1 WHICH WAS TRAVELLING ALONG WEST PARK THE WRONG WAY DOWN A ONE WAY STREET. DRIVER OF V1 CHECKED WITH DRIVER OF V2 THAT THEY WERE OK BEFORE LEAVING THE SCENE WITHOUT LEAVING ANY DETAILS
Occurred on UNCLASSIFIED RAGLAN STREET AT JUNCTION WITH A61 WEST PARK STREET HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from N to S No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 36 Male
Hit and run Breath test Driver not contacted Left hand drive No

Vehicle Reference 2 Taxi/Private hire car Turning right
Vehicle movement from E to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Mid Junction - on roundabout or main roa
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 43 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 2 Age: 43 Male Driver/rider Severity: Slight
Seatbelt: Unknown Not car passenger Cycle helmet: Not a cyclist

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1900743 08/02/2019 Time 1539
E: 429539 N: 454306 First Road: U
Junction Detail: Pri Drive
Crossing Control Facilities None within 50m
Fine without high winds
Carriageway Hazards: None

Vehicles 1 Casualties 1
Road Type: Single carriageway
Give way or controlled
Daylight
Special Conditions at Site: None
Place accident reported: At scene

Slight
Speed limit: 20
Unclassified
Road surface Dry

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Very Likely
2nd:			
3rd:			
4th:			
5th:			
6th:			

PEDESTRIAN HAS BEEN AT THE CO-OPERATIVE STORE ON OTLEY ROAD USING THE RECYCLING AND HAS STEPPED IN FRONT OF V1 AS IT HAS ENTERED THE CAR PARK
Occurred on B6162 OTLEY ROAD AT JUNCTION WITH MANOR DRIVE AT ENTRANCE TO CO-OP CAR PARK HARROGATE

Vehicle Reference 1
Vehicle movement from N to E
On main carriageway
Hit vehicle:
Hit object in road None
Off road: Did not leave carr
Not hit and run

Car
No tow / articulation
No skidding, jack-knifing or overturning
Location at impact Cleared junction or waiting/parked at junc
Hit off road: None
Age of Driver 69
Breath test Not requested

Stopping
First impact Front
Male
Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 54 Female Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

Location U/K S bound
Driver's offside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1901153 18/07/2019 Time 1530 Vehicles 1 Casualties 1 Slight
E: 429670 N: 454351 First Road: U Road Type: Single carriageway Speed limit: 30
Junction Detail: Not within 20m of junction
Crossing Control Facilities Pelican, puffin, toucan etc. Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Failed to look properly	Casualty 1	Very Likely
2nd:	Failed to judge vehicles path or speed	Casualty 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

V1 DRIVING TOWARDS TOWN CENTRE MALE WALKS OUT IN FRONT OF IT AND CLIPS THE WING MIRROR
Occurred on COLDBATH ROAD HARROGATE

Vehicle Reference 1 Car Going ahead other
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 56 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 17 Male Pedestrian Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Not a cyclist

In carr elsewhere N bound
Driver's nearside

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

1901190 05/08/2019 Time 1957 Vehicles 3 Casualties 1 Slight
E: 429674 N: 454361 First Road: U Road Type: Single carriageway Speed limit: 30
Junction Detail: Crossroads Automatic traffic signal Unclassified
Crossing Control Facilities Pelican, puffin, toucan etc. Daylight Road surface Dry
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:			
2nd:			
3rd:			
4th:			
5th:			
6th:			

V2 CROSSED PATH OF V1 CAUSING V1 TO SWERVE TO RIGHT AND SWERVE INTO STATIONARY V3.
Occurred on OTLEY ROAD/COLD BATH ROAD HARROAGTE

Vehicle Reference 1 Pedal Cycle Going ahead other
Vehicle movement from SW to NE No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 48 Male
Not hit and run Breath test Not applicable Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 48 Male Driver/rider Severity: Slight
Seatbelt: Not Applicable Not car passenger Cycle helmet: Yes

Vehicle Reference 2 Motorcycle 50cc and under Turning right
Vehicle movement from NE to NW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Front
Hit vehicle: Location at impact Jct Approach
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 26 Female
Not hit and run Breath test Driver not contacted Left hand drive No

Vehicle Reference 3 Van or Goods 3.5 tonnes mgw and under Turning right
Vehicle movement from NE to NW No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Did not impact
Hit vehicle: Location at impact Cleared junction or waiting/parked at junc
Hit object in road None Hit off road: None
Off road: Did not leave carr Age of Driver 55 Male
Non-stop, not hit Breath test Driver not contacted Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

2000098 05/11/2019 Time 1842 Vehicles 2 Casualties 1 Slight
E: 429670 N: 454351 First Road: U Road Type: Single carriageway Speed limit: 30
Junction Detail: Crossroads Automatic traffic signal Unclassified
Crossing Control Facilities None within 50m Darkness: street lights present and lit Road surface Wet/Damp
Raining without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: Elsewhere

	Causation Factor:	Participant:	Confidence:
1st:			
2nd:			
3rd:			
4th:			
5th:			
6th:			

V2 WAS STATIONARY AT LIGHTS V1 CAME AT SPEED AND COLLIDED WITH REAR OF V2
Occurred on COLD BATH ROAD 1M FROM OTLEY ROAD HARROGATE

Vehicle Reference 1	Car	Going ahead but held up
Vehicle movement from N to S	No tow / articulation	
On main carriageway	No skidding, jack-knifing or overturning	First impact Front
Hit vehicle:	Location at impact Jct Approach	
Hit object in road None	Hit off road: None	
Off road: Did not leave carr	Age of Driver 37	Male
Not hit and run	Breath test Driver not contacted	Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 37 Male Driver/rider Severity: Slight
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2	Car	Stopping
Vehicle movement from N to S	No tow / articulation	
On main carriageway	No skidding, jack-knifing or overturning	First impact Back
Hit vehicle:	Location at impact Jct Approach	
Hit object in road None	Hit off road: None	
Off road: Did not leave carr	Age of Driver 37	Female
Not hit and run	Breath test Driver not contacted	Left hand drive No

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

2000067 06/12/2019 Time 1109 Vehicles 2 Casualties 2 Slight
E: 430288 N: 454659 First Road: A 61 Road Type: Single carriageway Speed limit: 60
Junction Detail: Not within 20m of junction
Crossing Control Facilities None within 50m Daylight Road surface Wet/Damp
Fine without high winds Special Conditions at Site: None
Carriageway Hazards: None Place accident reported: At scene

	Causation Factor:	Participant:	Confidence:
1st:	Loss of control	Vehicle 1	Very Likely
2nd:	Illness or disability, mental or physical	Vehicle 1	Very Likely
3rd:			
4th:			
5th:			
6th:			

V1 TRAVELLING TOWARDS LEEDS ATTEMPTED TO OVERTAKE V2 AN ONCOMING VEHICLE IS IN SIGHT SO V1 HAS MOVED BACK OVER COLLIDING WITH V2 TAKING BOTH INTO FIELD
Occurred on A61 100M SOUTH SWINDON LANE HARROGATE

Vehicle Reference 1 Car Overtaking moving vehicle O/S
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Nearside
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: Entered ditch
Off road: Nearside Age of Driver 85 Male
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 1 Vehicle: 1 Age: 85 Male Driver/rider Severity: Slight
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Vehicle Reference 2 Car Going ahead other
Vehicle movement from S to N No tow / articulation
On main carriageway No skidding, jack-knifing or overturning First impact Offside
Hit vehicle: Location at impact Not at, or within 20M of Jct
Hit object in road None Hit off road: Entered ditch
Off road: Nearside Age of Driver 58 Female
Not hit and run Breath test Negative Left hand drive No

Casualty Reference: 2 Vehicle: 2 Age: 58 Female Driver/rider Severity: Slight
Seatbelt: Worn but not independently confirme Not car passenger Cycle helmet: Not a cyclist

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

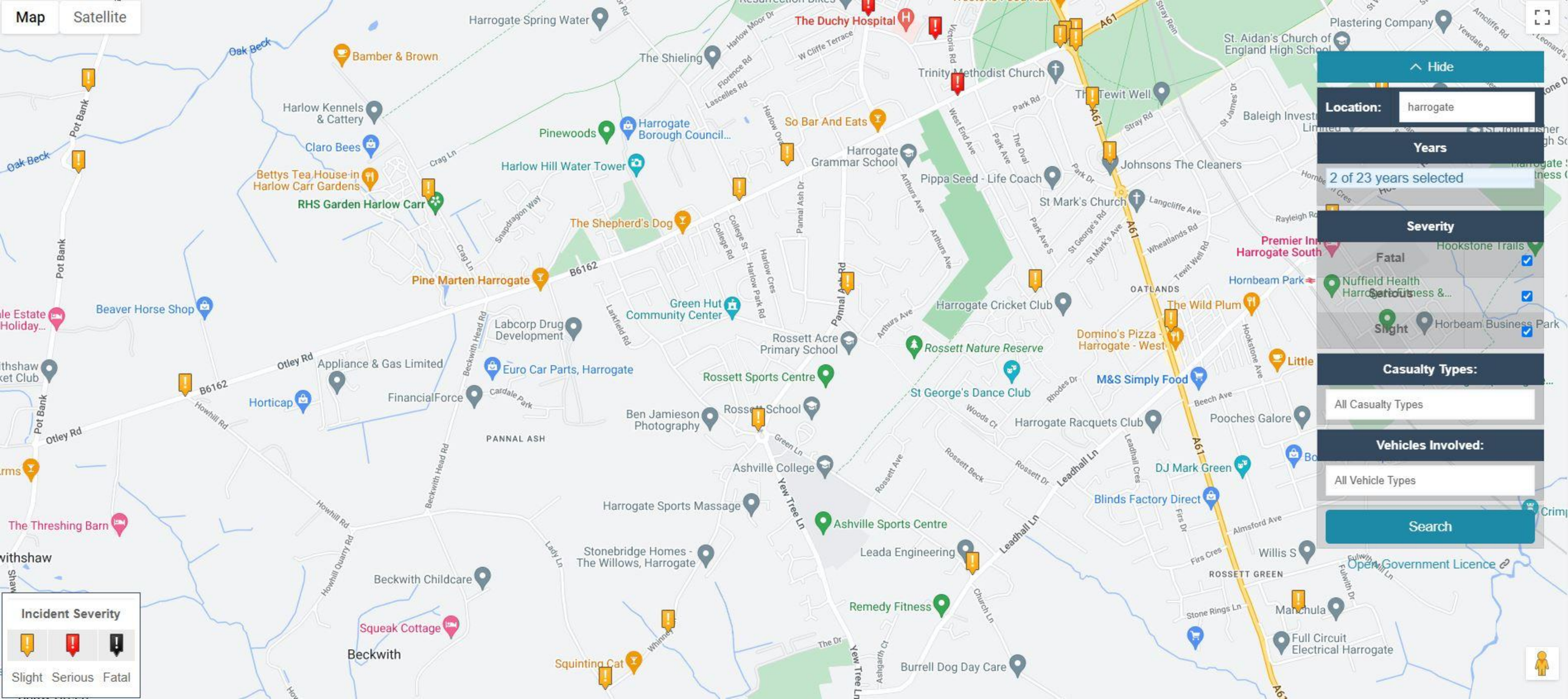
Accidents between dates **01/01/2017 and 29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

Police Ref.	Date	Cas.	Sev.	P2W	Cycs	Peds	Ch	OAPs	Vis.	Manv.	Road Cond.	Time	Location
12170045739	14/03/2017	1	Slight	0	0	0	1	0	Light	No turn	Dry	1540	GREEN LANE AT ENTRANCE TO ROSSETT SCHOOL HARROGATE
12170051913	28/03/2017	1	Serious	0	0	1	0	0	Light	Right	Dry	0900	B6162 OTLEY ROAD AT JUNCTION WITH A61 LEEDS ROAD.
12170099234	07/06/2017	1	Serious	0	0	0	0	0	Light	No turn	Dry	1436	A6040 YORK PLACE AT ROUNDABOUT WITH A61 LEEDS ROAD HARR
12170113587	29/06/2017	1	Slight	0	0	1	0	1	Light	No turn	Wet/Damp	0820	A6040 YORK PLACE AT ROUNDABOUT WITH A61 HARROGATE
12170124818	16/07/2017	1	Slight	0	0	0	0	0	Light	No turn	Dry	1239	ALL 3 VEHICLES TRAVELLING TOWARDS RIPON ON THE A61
12170129630	19/07/2017	1	Slight	0	1	0	1	0	Light	No turn	Dry	1130	BRCKENTHWAITE LANE HARROGATE
12170131159	25/07/2017	1	Slight	0	0	0	0	0	Light	Right	Dry	1650	A61 LEEDS ROAD AT JUNCTION WITH BURNBRIDGE LANE
12170208429	20/11/2017	1	Slight	0	0	1	1	0	Light	No turn	Wet/Damp	0840	ARTHURS AVENUE AT JUNCTION WITH CUNDALL WAY HARROGATE
12170213896	24/11/2017	1	Slight	0	0	0	0	1	Light	No turn	Dry	1250	B6162 OTLEY ROAD 50 M N/E PANNAL ASH ROAD HARROGATE
12180031077	22/02/2018	1	Slight	0	0	0	0	0	Light	No turn	Dry	1104	A61 LEEDS ROAD SOUTH B6162 OTELY ROAD HARROGATE
12180042417	12/03/2018	1	Slight	0	0	0	0	0	Light	Right	Wet/Damp	0830	B6162 OTLEY ROAD AT JUNCTION WITH PANAL ASH ROAD KINDER
12180055098	01/04/2018	1	Serious	0	0	1	0	1	Light	No turn	Dry	1220	MANOR DRIVE 13M N OF OTLEY ROAD HARROGATE
12180078208	05/05/2018	3	Serious	0	0	0	0	2	Dark	Right	Dry	2212	B6162 OTLEY ROAD AT JUNCTION WITH COLD BATH ROAD HARROG
12180087561	19/05/2018	2	Serious	0	0	2	0	2	Light	No turn	Dry	0830	YEW TREE LANE 5M S ASHVILLE COLLEGE SPORT HARROGATE
1800015	03/07/2018	1	Slight	0	0	1	0	1	Light	No turn	Dry	1230	A61 YORK PLACE PRINCE OF WALES HARROGATE
1800395	19/07/2018	1	Slight	1	0	0	0	0	Light	Right	Dry	1530	UNCLASSIFIED PANNAL ASH ROAD AT JUNCTION WITH UNCLASSIF
1800138	09/08/2018	1	Slight	0	1	0	0	1	Light	No turn	Wet/Damp	1240	PANNAL ASH ROAD ROUNDABOUT AT JUNTION WITH GREEN RD HA
1800375	16/10/2018	1	Slight	0	0	0	0	0	Light	Right	Dry	1145	B6162 OTLEY ROAD
1800434	17/10/2018	1	Slight	0	0	1	0	0	Light	No turn	Dry	0845	B6162 OTLEY ROAD
1800608	22/11/2018	1	Slight	0	0	1	0	0	Light	No turn	Wet/Damp	1215	OTLEY ROAD HARROGATE
1900653	14/01/2019	1	Slight	0	0	1	1	0	Light	No turn	Dry	1545	COLD BATH ROAD AT J/W HEYWOOD ROAD HARROGATE
2000137	27/01/2019	1	Slight	0	0	0	0	0	Dark	Right	Dry	0447	UNCLASSIFIED RAGLAN STREET AT JUNCTION WITH A61 WEST PAR
1900743	08/02/2019	1	Slight	0	0	1	0	0	Light	No turn	Dry	1539	B6162 OTLEY ROAD AT JUNCTION WITH MANOR DRIVE AT ENTRAN
1901153	18/07/2019	1	Slight	0	0	1	0	0	Light	No turn	Dry	1530	COLDBATH ROAD HARROGATE
1901190	05/08/2019	1	Slight	1	1	0	0	0	Light	Right	Dry	1957	OTLEY ROAD/COLD BATH ROAD HARROAGTE
2000098	05/11/2019	1	Slight	0	0	0	0	0	Dark	No turn	Wet/Damp	1842	COLD BATH ROAD 1M FROM OTLEY ROAD HARROGATE
2000067	06/12/2019	2	Slight	0	0	0	0	1	Light	No turn	Wet/Damp	1109	A61 100M SOUTH SWINDON LANE HARROGATE
Column Totals		31		2	3	12	4	10					
No. of Accidents				4	6	22	8	16					

Total number of accidents listed: 27

Accidents between dates **01/01/2017** **and** **29/02/2020** (38) months
Selection: **Notes:**
Selected using Manual Selection

Police Ref.	Date	Cas.	Sev.	P2W	Cycs	Peds	Ch	OAPs	Vis.	Manv.	Road Cond.	Time	Location


Map
Satellite
Harrogate Spring Water
The Duchy Hospital
Bamber & Brown
The Shieling
Trinity Methodist Church
Plastering Company
St. Aidan's Church of England High School
Oak Beck
Harlow Kennels & Cattery
Pinewoods
Harrogate Borough Council...
So Bar And Eats
Claro Bees
Harlow Hill Water Tower
Harrogate Grammar School
Johnsons The Cleaners
Bettys Tea House in Harlow Carr Gardens
RHS Garden Harlow Carr
Pippa Seed - Life Coach
St Mark's Church
The Shepherd's Dog
Pine Marten Harrogate
B6162
Premier Inn Harrogate South
Hookstone Trails
Fatal
Hornbeam Park
Nuffield Health Harrogate Business &...
Serious
Slight
Horbeam Business Park
Beaver Horse Shop
Green Hut Community Center
Labcorp Drug Development
Harrogate Cricket Club
The Wild Plum
OATLANDS
Rossett Acre Primary School
Rossett Nature Reserve
Domino's Pizza - Harrogate - West
Otley Rd
Appliance & Gas Limited
Euro Car Parts, Harrogate
Rossett Sports Centre
M&S Simply Food
Horticap
FinancialForce
St George's Dance Club
Ben Jamieson Photography
Rossett School
Harrogate Racquets Club
Pooches Galore
PANNAL ASH
Ashville College
DJ Mark Green
Blinds Factory Direct
Harrogate Sports Massage
Ashville Sports Centre
The Threshing Barn
Leada Engineering
Stonebridge Homes - The Willows, Harrogate
Willis S
Open Government Licence
ROSSETT GREEN
Beckwith Childcare
Remedy Fitness
Manchula
Squeak Cottage
Full Circuit Electrical Harrogate
Beckwith
Squinting Cat
Burrell Dog Day Care
Incident Severity
Slight
Serious
Fatal
Hide
Location:
harrogate
Years
2 of 23 years selected
Severity
Fatal
Serious
Slight
Casualty Types:
All Casualty Types
Vehicles Involved:
All Vehicle Types
Search

APPENDIX F – TECHNICAL NOTE 8D

TECHNICAL FILE NOTE 8D					
Project	West of Harrogate Sites			Project No	1586
Contact		Originator	BDJ	Date	21/2/2022

Trip Rate Adjustment

1.1 Introduction

1.1.1 This Technical File Note considers the trip generation rates requested by NYCC to be used to estimate the traffic generated by the residential developments in the West of Harrogate. This technical note has been prepared by AHA, after discussion and input from Tetra Tech, Vectos and WSP.

1.1.2 The current rates requested by NYCC are set out below:

	Arr	Dep	Two-way
AM	0.159	0.420	0.579
PM	0.391	0.191	0.582.

1.1.3 These trip rates were proposed prior to the Covid pandemic and also before the latest TRICS Guidance Note (February 2021) on the Decide & Provide approach. It is considered that these trip rates can be considered 'base trip rates', which are to be adjusted as part of the 'scenario planning' stage.

1.1.4 This Technical Note considers the trip generation rates in the context of existing local trip rates, changing travel patterns and the impact that new facilities on H49 and H51 will have on travel patterns.

1.2 Decide & Provide Approach

1.2.1 TRICS published a Guidance Note in February 2021 on the practical implementation of the Decide & Provide approach. Traditionally a Predict & Provide (P&P) approach has been taken by relying on historical trip rate data to predict the trip rates of future developments.

1.2.2 The TRICS publication states in paragraph 4.4 of the Guidance Note that:

''The risks associated with sticking with the P&P approach need to be recognised and acknowledged. If we continue to reproduce past transport solutions based on previous travel behaviours, it is inevitable that transport planning will continue to seek to provide infrastructure that meets previously predicted needs, rather than meeting, and indeed shaping, the transport needs of the future. It is important to recognise society's needs and changes in society, to avoid the over-provision of highway infrastructure and the perpetuation of car borne development. The possible consequences, unintended or otherwise, include:

- *The potential over-provision of highway capacity which, in turn, can induce motorised traffic (exacerbating efforts to reduce direct CO2 emissions from the transport sector);*
- *The potential under-provision of walking and cycling infrastructure or public transport services; and*
- *The risk of planning and developing underutilised or stranded assets.''*

1.2.3 With regard to the Decide & Provide approach, the TRICS Guidance Note states in paragraph 5.1:

''The D&P approach provides the opportunity for more positive and integrated transport and land use planning. It also provides the opportunity to meaningfully implement the modal hierarchy, giving greater centrality to the up-front consideration of walking and cycling, rather than a more cursory treatment as residual or less considered modes that has sometimes, historically, been the case.''

1.2.4 The Guidance Note also discusses the changing relationships between the economy, society and travel that have occurred over the last few decades. These include increased online shopping, working from home, reduced driving licence take up and use of technology for meetings.

1.2.5 It is clear from the guidance that simply relying on historic data to predict future demand risks designing road infrastructure on past trends and not what may be required in the future.

1.2.6 The TRICS guidance also stresses the importance of 'visioning' in the planning process and how this will influence the assumptions made on travel characteristics. Paragraph 6.5 states:

''Visioning is central to high quality place-making, creating better places to live, work and play. As such, there are three key questions that a plan or project needs to ask and meaningfully answer:
- *What sort of place are we creating?*
- *What kind of activities do we need or desire to travel for?*
- *How will we provide for mobility?''*

1.2.7 The West of Harrogate Sites will create high quality places to live and work, with good walk, cycle and public transport connections to the surrounding areas including the town centre. Significant pedestrian and cycle improvement works are already underway on Otley Road and these will be complemented by the walk and cycle facilities that will be provided as part of the developments. Improved bus accessibility will also be provided, which will benefit the new developments as well as existing residents in the vicinity. This provided the context for any assumptions regarding forecasting the travel characteristic of the West of Harrogate developments.

1.2.8 Scenario planning is an important part of the decide & provide approach. Paragraph 7.7 of the TRICS guidance states:

''In quantitative terms, a future scenario for a project or plan will involve consideration of the following parameters or assumptions:
- *The % change in trip rates.*
- *The % level of trip internalisation assumed.*
- *The % change in car driver mode share.*
- *The % change in active travel mode share.*
- *The % change in public transport and shared mobility shares.*
- *The level of accessibility and mobility assumptions that the site layout and the land uses in the proposed project support.''*

1.2.9 It is clear that any adjustments to the 'base trip rates' need to be considered in the context of the development proposals, including the potential for internalisation of trips and public transport improvements etc.

1.3 AHA Survey

1.3.1 AHA undertook traffic count surveys at the Snapdragon Way development, which is located off Crag Lane, Harrogate. The survey was undertaken on 18.01.22 and the following vehicle movements were recorded in the AM and PM peak hours (0800-0900 & 1700-1800).

	Arr	Dep	Two-way
AM	21	44	65
PM	40	33	73.

1.3.2 The Snapdragon Way development comprises 119 dwellings and these appear to be fully constructed and occupied at the time of the survey. Based on this survey, the following trip generation rates are derived:

	Arr	Dep	Two-way
AM	0.176	0.370	0.546
PM	0.336	0.277	0.613

1.3.3 Review of the above shows that the trip generation rates derived from the Snapdragon Way development are broadly similar to those requested by NYCC. The Snapdragon Way trip rates are slightly lower in the AM and slightly higher in the PM, but the differences are relatively small.

1.3.4 It is considered that the NYCC trip rates are a good starting point for the West of Harrogate Sites for 2022. However, some of these developments, unlike Snapdragon Way, will benefit from on-site facilities such as primary schools, local shops and employment (H51 only) and the cumulative assessment is for the year 2030. Therefore, it is necessary to consider the impact that the facilities will have on trip generation and the potential impact of future behavioural changes, such as increased home working and flexible working should also be considered.

1.4 Internalised Trips

1.4.2 TRICS has been interrogated for trip generation rates for larger sized residential developments with and without schools and community facilities. Sites greater than 250 dwellings were considered and a total of 10 Sites were identified. A copy of the TRICS outputs is included in Appendix A.

1.4.2 Three of the 10 Sites had primary schools within the scheme or in one case the primary school was very close (300m) and two of the three also had community facilities. The other seven Sites did not have any facilities or those facilities were not constructed at the time of the surveys.

1.4.3 A comparison of the average trip generation rates for this Sites without facilities and those with a primary school and shops (two of the three) are set out below:

	AM Two-way Trip Rate	PM Two-way Trip Rate
No Facilities	0.555	0.547
Facilities	0.359	0.425
Difference	-35%	-22%

1.4.4 Review of the above indicates that the presence of facilities within or very close to a housing development can have a significant impact on trip generation rates. Both the H49 and H51 sites will have primary schools and neighbourhood centres.

1.5 Working from Home and Flexible Working

1.5.1 The ONS report 'Coronavirus and homeworking in the UK labour market: 2019' (March 2020) indicates that the number of people who mainly work at home has generally increased over time. In the four-year period between 2015 and 2019, the % of people that mainly work in their own home increased by 0.8%.

1.5.2 However, the covid pandemic has accelerated this process. During the first national lockdown, around one in four adults worked from home (ONS Business and individual attitudes towards the future of homeworking, UK: April to May 2021). According to an ONS (Business and individual attitudes towards the future of homeworking, UK: April to May 2021) publication, around 27% of working adults did some work at home in 2019. As a result of the pandemic, this increased by around 10% in 2020.

1.5.3 It seems likely that home working or hybrid working, where employees work part of the time at home and the rest of the time at their workplace, will continue to some extent after the pandemic ends. There was an increasing trend of home working prior to the pandemic so there seems no reason to

suspect that this trend will not continue, with covid perhaps normalising and accelerating what would likely have happened anyway.

1.5.4 Flexible working is another feature of the work environment that has increased steadily over the last decade. According to Statista, the number of employees able to work flexibly increased by around 25% between 2013 and 2019. Again, this trend is likely to continue beyond the covid pandemic.

1.5.5 Increases in flexible working means that more people no longer start and finish their work at the tradition times (around 0900 and 1700). This can contribute to 'peak hour spreading', where the profile of traffic demand on a local highway network is spread over a longer period rather than concentrated in a shorter period. Flexible working is not the only cause of peak hour spreading, other factors such as congestion can also contribute to this trend, but it is likely that continued increases in flexible working will impact on traffic demand and hence trip generation rates in the traditional peak periods.

1.6 Increased Online Retail Shopping

1.6.1 Online retail shopping has steadily increased over the last two decades, with a significant increase during the covid pandemic when non-essential shops were forced to close for some periods. According to ONS statistics, internet sales accounted for 3.4% of all retail sales in the UK in 2007. Between 2011 and 2019, this percentage increased from 8.3% to 19.2%. In 2020 this figure increased dramatically to 28.1% and was 29.1% in 2021.

1.6.2 Whilst the pandemic has undoubtedly increased online retail sales in 2020 and 2021, the has been a steady increase in online retail sales as a portion of total retail sales. Online deliveries to homes and parcel lockers are also more likely to occur outside of the peak hours.

1.7 Trend in Person Trips

1.7.1 According to the National Travel Survey, the average person made 1074 trips by all modes in 2002. This had reduced by around 11% in 2019, with people making an average of 953 trips. NTS 2019 states:

''Understanding reasons for these trends is difficult. The averages presented here mask different trends for different types of people, modes and types of trip. Some of the many factors might include changing demographic patterns, changing patterns of trips, and the impact of new technologies influencing the demand for travel, for example the increase in online social networking, the capability for home working and online shopping.''

1.7.2 The average distance travelled has also decreased by around 10% between 2002 and 2019.

1.8 H51 Employment Double Counting

1.8.1 The H51 application includes a significant amount of employment land. It is likely that some of the residents of the new housing sites will work at this location. Therefore, there is a danger that there will be some double counting if reductions are not made to the residential/employment trips to take account of this.

1.8.2 Harrogate 020 already includes a significant area of employment within Cardale Business Park. The additional employment on H51 will further concentrate employment opportunities in this location and all of the West of Harrogate sites are located close proximity. This needs to be factored into the assessment.

1.9 Sustainable Transport Improvements

1.9.1 The West of Harrogate development will include significant improvements to walking, cycling and public transport infrastructure to encourage residents to use more sustainable modes of transport. The

existing infrastructure in the vicinity of the Sites will be significantly improved to promote walking and cycling to/from each scheme. Similarly, public transport improvements will also form part of the development.

1.9.2 The H49 and H51 developments will also include community facilities that will be within walking and cycling distances which will help further promote walking and cycling trips.

1.9.3 Each development will also benefit from a Travel Plan to help promote sustainable transport choices and will have targets that will be monitored for a period of time.

1.10 Current Trip Assumptions

1.10.1 The above provides the context for reviewing the current trip rates and trip assumptions. From the above, the following is noted:

- The NYCC trip generation rates seem a reasonable starting point for the year 2022 for a development in the local of the Sites that have no facilities such as a school and local shops,
- Review of TRICS suggests that developments that have primary schools and shops with the development (or very close) have lower trip rates than those that do not, which is intuitive.
- The latest TRICS guidance suggests that trends in travel behaviour should be considered when estimating development trip rates for future scenarios,
- Online retail shopping and working from home and flexible working has been increasing since before the covid pandemic and accelerated during it,
- The average number of person trips has declined by about 11% between 2002 and 2019,
- The employment allocation on H51 will increase jobs in Harrogate 020 and this should be factored into the assessment to prevent double counting.

1.10.2 In the AM peak hour, the cumulative assessment assumes that 67% of trips are work trips and 33% of the trips are educational trips, with 80% of the latter these being associated with primary school trips. This has been agreed with NYCC. The H49 and H51 primary school trips are considered internal and those associated with H36 and H45 are assumed to be to/from the school on H51 (ie the trips are kept to the local network). On this basis, the AM trip rate is effectively reduced by 26.4% (ie 0.33 x 0.8) or 73.6% of the original trip rate for H49 and H51.

1.10.3 In the PM peak hour, the cumulative assessment assumes that 67% of trips are work trips and 33% of the trips are other trips (leisure, retail etc). This is agreed with NYCC. In the case of H51 and H49, there is an assumption that 10% of the other trips are associated with the proposed community facilities, but this only equates to a 3.3% reduction in the total trip rate.

1.10.4 Based on the Harrogate 020 Census data, 8.8% of journey to work trips are to employment locations within Harrogate 020.

1.11 Proposed Changes

1.11.1 Modal Shift

1.11.1.1 The West of Harrogate development Sites include significant walking, cycling and public transport infrastructure improvements. These are in addition to the NYCC/HBC Otley Road cycle improvement scheme.

1.11.1.2 It is assumed that these sustainable travel improvements will result in a 3% shift from peak hour car trips to walk, cycle and public transport trips. This is not large modal shifts given the proposed improvements and facilities that will be provided on H49 and H51 and can be considered realistic. For example, a 15% increase in walking alone could deliver a modal shift of nearly 2%.

1.11.1.3 The current rates requested by NYCC are set out below:

	Arr	Dep	Two-way
AM	0.159	0.420	0.579
PM	0.391	0.191	0.582.

1.11.1.4 The 2011 Census data for Harrogate 020 and the District as a whole suggests the following trips by mode:

	Harrogate 020		Harrogate District	
Mode	**Trips**	**%**	**Trips**	**%**
Working From Home	437	9.1	6926	8.5
Metro/Tram	9	0.2	120	0.1
Train	175	3.6	2020	2.5
Bus	148	3.1	3122	3.8
Taxi	10	0.2	226	0.3
Motorcycle	20	0.4	446	0.5
Car Driver	3066	63.8	50350	61.9
Car Passenger	189	3.9	4057	5.0
Cycle	114	2.4	1770	2.2
Walk	609	12.7	11813	14.5
Other	26	0.5	552	0.7
Total	**4803**	**100**	**81402**	**100**

1.11.1.5 Based on the 2011 census for journey to work data, 68.3% of journeys to work are by private vehicle. The NYCC trip rates can be converted to all mode trip rates based on that figure (ie divide the trip rates by the proportion of private vehicle trips which is 0.683). On this basis, the all mode trip rates are:

	Arr	Dep	Two-way
AM	0.233	0.615	0.848
PM	0.572	0.280	0.852.

1.11.1.6 For the Harrogate district, walk, cycle and bus make up 20.5% of the journeys to work compared to 18.2 for Harrogate 020, a difference of 2.3%. Given the walk, cycle and public transport infrastructure improvements that is proposed as part of the West of Harrogate developments it seems reasonable to assume the level of walking, cycling and bus use is similar to and potentially higher than at the district level. If the sustainable travel improvements deliver a total modal shift of 3% (ie an additional 0.7% above the district level), then NYCC vehicle trip rates need to be reduced by the following:

	Arr	Dep	Two-way
AM	0.007	0.018	0.025
PM	0.017	0.008	0.025.

1.11.2 Homeworking and Hybrid/flexible Working

1.11.2.1 The ONS data suggested that in the four-year period leading up to the pandemic, the percentage of people mainly working in their own homes increased by 0.8% between 2015 and 2019 or an average of 0.2% year. The % of homeworking for Harrogate 020 was 9.1% in the 2011 census. Based on a 0.2% growth per year this might expect to have risen by 3.8% by 2030 based on pre-pandemic growth levels. However, the pandemic is likely to accelerated this growth as it became normal working practice for some people that previously had little experience in homeworking. A 10% increase in parttime homeworking was experienced in 2020 alone during the pandemic and this is likely to accelerate the move towards more people mainly working from home. On this basis, a 5% shift to mainly working from home does not seem unreasonable between now and 2030. This equates to an average increase yearly increase of just over 0.6%, which does not seem unrealistic and would represent an additional 3.4% above what might have been expected to have occurred anyway with the pre-pandemic growth.

1.11.2.2 Assuming a 5% shift towards homeworking, the reduction to the trips rates will be a further:

	Arr	Dep	Two-way
AM	0.011	0.031	0.042
PM	0.029	0.014	0.043.

1.11.2.3 It should also be recognised that an increase in hybrid and flexible working is also likely to occur in the future, which will also reduce vehicle trips in the peaks. However, no separate adjustment is proposed to account for this and it is assumed that it is included in the adjustment for homeworking.

1.11.3 Increase in Harrogate 020 Employment

1.11.3.1 The proposed employment on H51 along with the permitted employment developments to the west of H51 will significantly increase the amount of employment in Harrogate 020. Therefore, it seems logical that the % of work trips with both an origin and destination in Harrogate 020 will increase from the 2011 census levels (currently 8.8%). The existing employment land to the north of H51 is around 23.8 Ha. A total of 2.43 Ha of employment is proposed on H51 and there appears to be a further 4.8Ha of employment land permitted (some under construction) to the west of H51 (served from Beckwith Head Road). On this basis, the proposed and permitted employment represents a circa 30% increase.

1.11.3.2 It is therefore proposed **to increase the 8.8% of people working in Harrogate 020 to 11.4%** (ie 8.8 x 1.3) of the work trips. The distribution of the remaining traffic will be adjusted proportionally.

1.11.3.3 It is also assumed that the trips to/from the employment locations will be split in proportion to size as follows:

- Cardale Business Park: 70%
- Permitted employment to the west of H51: 20%
- New employment on H51: 10%.

1.11.4 Community Facilities

1.11.4.1 Community facilities are proposed on both H49 and H51 and these are likely to reduce external 'other' trips from these two Site. It is also likely to attract some trips from the other nearby developments. It is assumed that the other trips are predominantly retail or leisure trips in the PM peak hour. The National Travel Survey (NTS) data for 2019 (2020 data likely to have been impacted by covid) suggests that shopping and leisure make up the following percentage of trips between 1600-1800:

	Shopping	Leisure (visiting friends, entertainment etc)
1600-1700	15%	18%
1700-1800	12%	20%.

1.11.4.2 Proportionally, shopping represents 38-45% of the 'other trips' between 1600-1800, assuming these other trips are predominately either shopping or leisure trips.

1.11.4.3 The facilities on H49 and H51 will likely include local shops. It is therefore proposed to assume that **40% of Other trips** use the local facilities on H49 and H51 rather than the 10% currently assumed. The TRICS study suggests that the provision of facilities at developments might reduce trip rates by circa 22%. The proposed assumption reduces the overall PM trip rates by a total of 13.2% (ie 0.4 x 33%) for these Sites rather than the 3.3% previously assumed. It is considered that the new assumption is more consistent with the findings of the TRICS study. The trips of those developments with these facilities (ie H49 and H51) will be internalised and those without (ie H36, H45 etc) will become local trips to/from the facilities on H49 and H51. The remaining Other Trips will be distributed as follows:

- 35% Harrogate,
- 15% Plumpton Retail Park,
- 5% Oatlands Retail Park,
- 5% Hornbeam Park.

1.11.5 Trip Rate Adjustments

1.11.5.1 The current rates and the proposed reductions are set out in the table below, with the final adjusted trip rate shown in bold.

TRIP RATE	AM			PM		
	ARR	DEP	2-WAY	ARR	DEP	2-WAY
NYCC Vehicle Trip Rate	0.159	0.420	0.579	0.391	0.191	0.582
Reduction for 3% modal shift to sustainable travel modes	-0.007	-0.018	-0.025	-0.017	-0.008	-0.025
Reduction for 5% shift to homeworking	-0.011	-0.031	-0.042	-0.029	-0.014	-0.043
Adjusted NYCC vehicle trip rates	**0.141**	**0.371**	**0.512**	**0.345**	**0.169**	**0.514**

1.11.5.2 These trip rates will be applied to all of the West of Harrogate Sites. The above trip rates are circa **12%** lower than the original NYCC trip rates.

1.11.5.3 Additional internalisation will be applied to the H49 and H51 Sites to take account trips to the new primary school and the community facilities, as set out above.

1.12 Conclusions

1.12.1 It is considered that the above changes are reasonable assumptions. However, it is requested that NYCC/HBC review these assumptions and confirm that they are happy with this approach.

APPENDIX G – MODEL OUTPUTS

Junctions 9

ARCADY 9 - Roundabout Module

Filename: Proposed Site Access_Whinney Lane Roundabout 4-arm.j9
Path: \\newcastle13\Data3\Projects\A081501 - A082000\A081951-3 Castle Hill Farm, Whinney Lane, Harrogate\Analysis\Traffic Models\Proposed Site Access Junction\2022 Assessment
Report generation date: 22/11/2022 11:35:21

»2030 , AM Peak With Dev
»2030, PM Peak With Dev

Summary of junction performance

	AM Peak With Dev			PM Peak With Dev		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
	2030					
1 - Whinney Lane North	0.3	3.31	0.21	0.1	2.94	0.11
2 - Proposed Eastern Site Access	0.0	3.19	0.05	0.0	2.86	0.02
3 - Whinney Lane South	0.1	3.52	0.13	0.1	3.21	0.08
4 - Proposed Western Site Access	0.1	3.20	0.10	0.0	2.89	0.04

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.

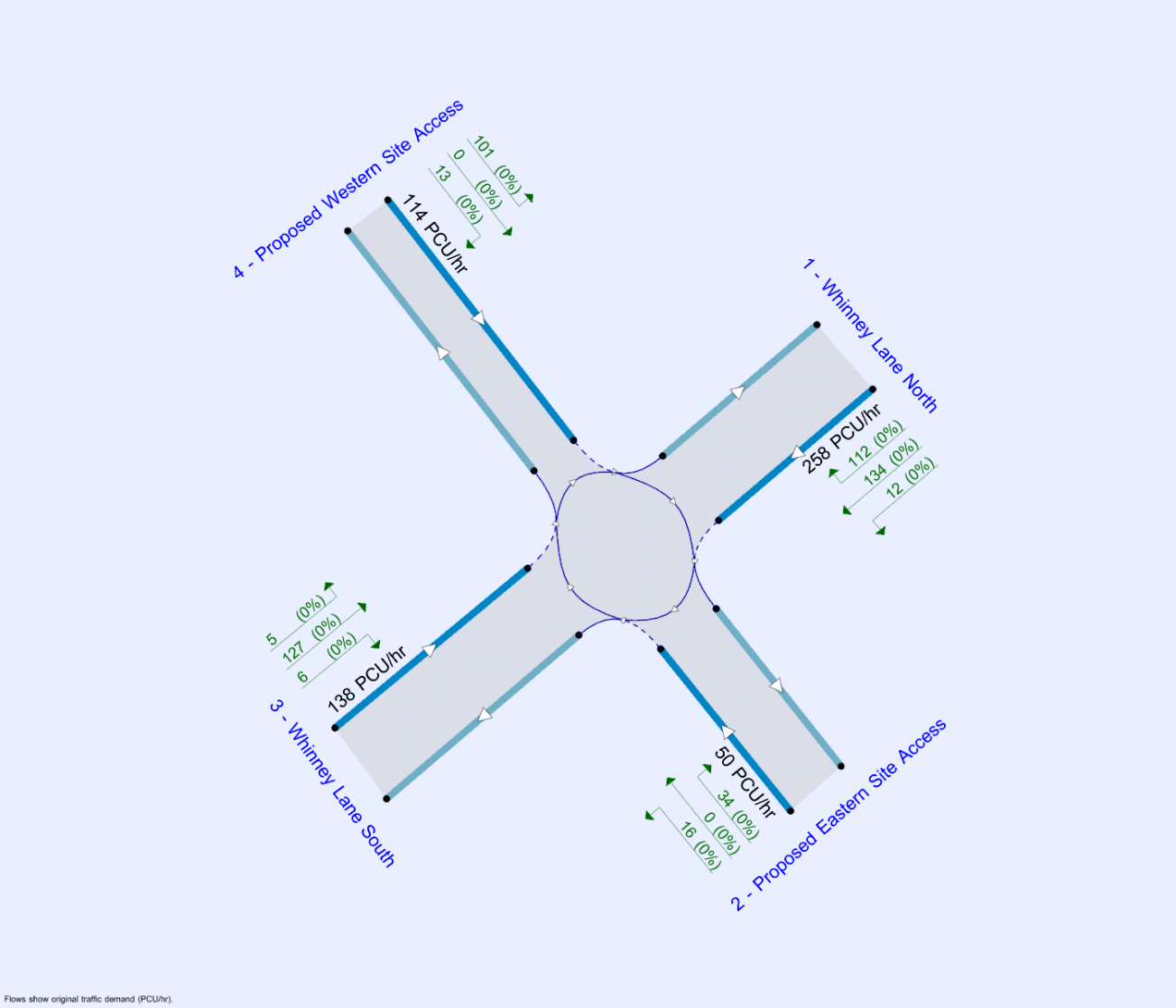
File summary

File Description

Title	(untitled)
Location	
Site number	
Date	22/09/2017
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	WYG\andrew.stubbs
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

Calculate Queue Percentiles	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
		0.85	36.00	20.00

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2030	AM Peak With Dev	ONE HOUR	07:45	09:15	15
D2	2030	PM Peak With Dev	ONE HOUR	16:45	18:15	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2030 , AM Peak With Dev

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	Proposed Site Access/ Whinney Lane Roundabout	Standard Roundabout		1, 2, 3, 4	3.33	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Whinney Lane North	
2	Proposed Eastern Site Access	
3	Whinney Lane South	
4	Proposed Western Site Access	

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)	Exit only
1 - Whinney Lane North	3.22	4.62	11.8	36.1	34.5	13.5	
2 - Proposed Eastern Site Access	3.32	4.52	8.1	34.2	34.5	11.5	
3 - Whinney Lane South	3.01	4.52	12.8	32.0	34.5	30.0	
4 - Proposed Western Site Access	3.25	4.54	9.9	30.4	34.5	11.5	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Whinney Lane North	0.613	1385
2 - Proposed Eastern Site Access	0.609	1358
3 - Whinney Lane South	0.570	1267
4 - Proposed Western Site Access	0.609	1363

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)
D1	2030	AM Peak With Dev	ONE HOUR	07:45	09:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinney Lane North		✓	258	100.000
2 - Proposed Eastern Site Access		✓	50	100.000
3 - Whinney Lane South		✓	138	100.000
4 - Proposed Western Site Access		✓	114	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Whinney Lane North	2 - Proposed Eastern Site Access	3 - Whinney Lane South	4 - Proposed Western Site Access
From	1 - Whinney Lane North	0	12	134	112
	2 - Proposed Eastern Site Access	34	0	16	0
	3 - Whinney Lane South	127	6	0	5
	4 - Proposed Western Site Access	101	0	13	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Whinney Lane North	2 - Proposed Eastern Site Access	3 - Whinney Lane South	4 - Proposed Western Site Access
From	1 - Whinney Lane North	0	0	0	0
	2 - Proposed Eastern Site Access	0	0	0	0
	3 - Whinney Lane South	0	0	0	0
	4 - Proposed Western Site Access	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Whinney Lane North	0.21	3.31	0.3	A
2 - Proposed Eastern Site Access	0.05	3.19	0.0	A
3 - Whinney Lane South	0.13	3.52	0.1	A
4 - Proposed Western Site Access	0.10	3.20	0.1	A

Main Results for each time segment

07:45 - 08:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	194	15	1376	0.141	193	0.2	3.043	A
2 - Proposed Eastern Site Access	38	194	1240	0.030	38	0.0	2.993	A
3 - Whinney Lane South	104	110	1204	0.086	104	0.1	3.270	A
4 - Proposed Western Site Access	86	125	1286	0.067	86	0.1	2.998	A

08:00 - 08:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	232	17	1374	0.169	232	0.2	3.151	A
2 - Proposed Eastern Site Access	45	233	1217	0.037	45	0.0	3.071	A
3 - Whinney Lane South	124	131	1192	0.104	124	0.1	3.370	A
4 - Proposed Western Site Access	103	150	1271	0.081	103	0.1	3.080	A

08:15 - 08:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	284	21	1371	0.207	284	0.3	3.308	A
2 - Proposed Eastern Site Access	55	285	1185	0.046	55	0.0	3.185	A
3 - Whinney Lane South	152	161	1175	0.129	152	0.1	3.517	A
4 - Proposed Western Site Access	126	184	1251	0.101	126	0.1	3.199	A

08:30 - 08:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	284	21	1371	0.207	284	0.3	3.309	A
2 - Proposed Eastern Site Access	55	285	1185	0.046	55	0.0	3.186	A
3 - Whinney Lane South	152	161	1175	0.129	152	0.1	3.517	A
4 - Proposed Western Site Access	126	184	1251	0.101	126	0.1	3.200	A

08:45 - 09:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	232	18	1374	0.169	232	0.2	3.152	A
2 - Proposed Eastern Site Access	45	233	1216	0.037	45	0.0	3.074	A
3 - Whinney Lane South	124	132	1192	0.104	124	0.1	3.371	A
4 - Proposed Western Site Access	103	150	1271	0.081	103	0.1	3.083	A

09:00 - 09:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	194	15	1376	0.141	194	0.2	3.046	A
2 - Proposed Eastern Site Access	38	195	1240	0.030	38	0.0	2.994	A
3 - Whinney Lane South	104	110	1204	0.086	104	0.1	3.274	A
4 - Proposed Western Site Access	86	126	1286	0.067	86	0.1	3.000	A

2030, PM Peak With Dev

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	Proposed Site Access/ Whinney Lane Roundabout	Standard Roundabout		1, 2, 3, 4	3.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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)
D2	2030	PM Peak With Dev	ONE HOUR	16:45	18:15	15

Vehicle mix source	PCU Factor for a HV (PCU)
HV Percentages	2.00

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
1 - Whinney Lane North		✓	134	100.000
2 - Proposed Eastern Site Access		✓	22	100.000
3 - Whinney Lane South		✓	83	100.000
4 - Proposed Western Site Access		✓	53	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - Whinney Lane North	2 - Proposed Eastern Site Access	3 - Whinney Lane South	4 - Proposed Western Site Access
From	1 - Whinney Lane North	0	29	32	73
	2 - Proposed Eastern Site Access	15	0	7	0
	3 - Whinney Lane South	56	14	0	13
	4 - Proposed Western Site Access	47	0	6	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - Whinney Lane North	2 - Proposed Eastern Site Access	3 - Whinney Lane South	4 - Proposed Western Site Access
From	1 - Whinney Lane North	0	0	0	0
	2 - Proposed Eastern Site Access	0	0	0	0
	3 - Whinney Lane South	0	0	0	0
	4 - Proposed Western Site Access	0	0	0	0

Results

Results Summary for whole modelled period

Arm	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
1 - Whinney Lane North	0.11	2.94	0.1	A
2 - Proposed Eastern Site Access	0.02	2.86	0.0	A
3 - Whinney Lane South	0.08	3.21	0.1	A
4 - Proposed Western Site Access	0.04	2.89	0.0	A

Main Results for each time segment

16:45 - 17:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	101	15	1375	0.073	101	0.1	2.824	A
2 - Proposed Eastern Site Access	17	83	1308	0.013	17	0.0	2.787	A
3 - Whinney Lane South	62	66	1229	0.051	62	0.1	3.084	A
4 - Proposed Western Site Access	40	64	1324	0.030	40	0.0	2.803	A

17:00 - 17:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	120	18	1374	0.088	120	0.1	2.872	A
2 - Proposed Eastern Site Access	20	100	1298	0.015	20	0.0	2.816	A
3 - Whinney Lane South	75	79	1222	0.061	75	0.1	3.137	A
4 - Proposed Western Site Access	48	76	1316	0.036	48	0.0	2.837	A

17:15 - 17:30

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	148	22	1371	0.108	147	0.1	2.941	A
2 - Proposed Eastern Site Access	24	122	1284	0.019	24	0.0	2.856	A
3 - Whinney Lane South	91	97	1212	0.075	91	0.1	3.212	A
4 - Proposed Western Site Access	58	94	1306	0.045	58	0.0	2.885	A

17:30 - 17:45

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	148	22	1371	0.108	148	0.1	2.941	A
2 - Proposed Eastern Site Access	24	122	1284	0.019	24	0.0	2.856	A
3 - Whinney Lane South	91	97	1212	0.075	91	0.1	3.212	A
4 - Proposed Western Site Access	58	94	1306	0.045	58	0.0	2.885	A

17:45 - 18:00

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	120	18	1374	0.088	121	0.1	2.874	A
2 - Proposed Eastern Site Access	20	100	1298	0.015	20	0.0	2.816	A
3 - Whinney Lane South	75	79	1222	0.061	75	0.1	3.137	A
4 - Proposed Western Site Access	48	76	1316	0.036	48	0.0	2.837	A

18:00 - 18:15

Arm	Total Demand (PCU/hr)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Whinney Lane North	101	15	1375	0.073	101	0.1	2.824	A
2 - Proposed Eastern Site Access	17	84	1308	0.013	17	0.0	2.788	A
3 - Whinney Lane South	62	66	1229	0.051	63	0.1	3.085	A
4 - Proposed Western Site Access	40	64	1324	0.030	40	0.0	2.806	A

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

Filename: Pannal Ash Roundabout 2030 Without and With Dev Assessment.j9
Path: \\newcastle13\data3\Projects\A081501 - A082000\A081951-3 Castle Hill Farm, Whinney Lane, Harrogate\Analysis\Traffic Models\Pannal Ash RD_Whinney Ln Roundabout\2022 Assessment
Report generation date: 08/12/2022 09:49:55

»Existing Layout - 2020, AM Peak
»Existing Layout - 2020 , PM Peak
»Existing Layout - 2030 NO Dev, AM Peak
»Existing Layout - 2030 NO Dev, PM Peak
»Existing Layout - 2030 With Dev , AM Peak
»Existing Layout - 2030 With Dev, PM Peak

Summary of junction performance

	AM Peak				PM Peak			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
	Existing Layout - 2020							
1 - Pannal Ash Road	D3	2.0	14.98	0.65	D4	0.9	9.02	0.45
2 - Green Lane		0.8	5.67	0.41		0.5	4.77	0.33
3 - Yew Tree Lane		2.1	14.33	0.66		0.6	7.30	0.36
4 - Whinney Lane		0.4	9.47	0.26		0.2	6.85	0.15
5 - Beckwith Road		0.5	5.60	0.32		0.4	4.80	0.27
	Existing Layout - 2030 NO Dev							
1 - Pannal Ash Road	D5	2.4	17.07	0.69	D6	1.1	9.96	0.50
2 - Green Lane		0.8	5.91	0.43		0.6	5.01	0.35
3 - Yew Tree Lane		2.3	15.74	0.68		0.7	7.75	0.38
4 - Whinney Lane		0.6	11.02	0.35		0.3	7.30	0.20
5 - Beckwith Road		0.6	5.96	0.34		0.4	4.96	0.28
	Existing Layout - 2030 With Dev							
1 - Pannal Ash Road	D7	2.8	19.91	0.73	D8	1.3	11.22	0.55
2 - Green Lane		0.9	6.19	0.44		0.7	5.28	0.38
3 - Yew Tree Lane		3.3	20.81	0.76		0.8	8.43	0.41
4 - Whinney Lane		1.0	14.12	0.48		0.4	7.79	0.25
5 - Beckwith Road		0.6	6.47	0.37		0.4	5.09	0.29

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

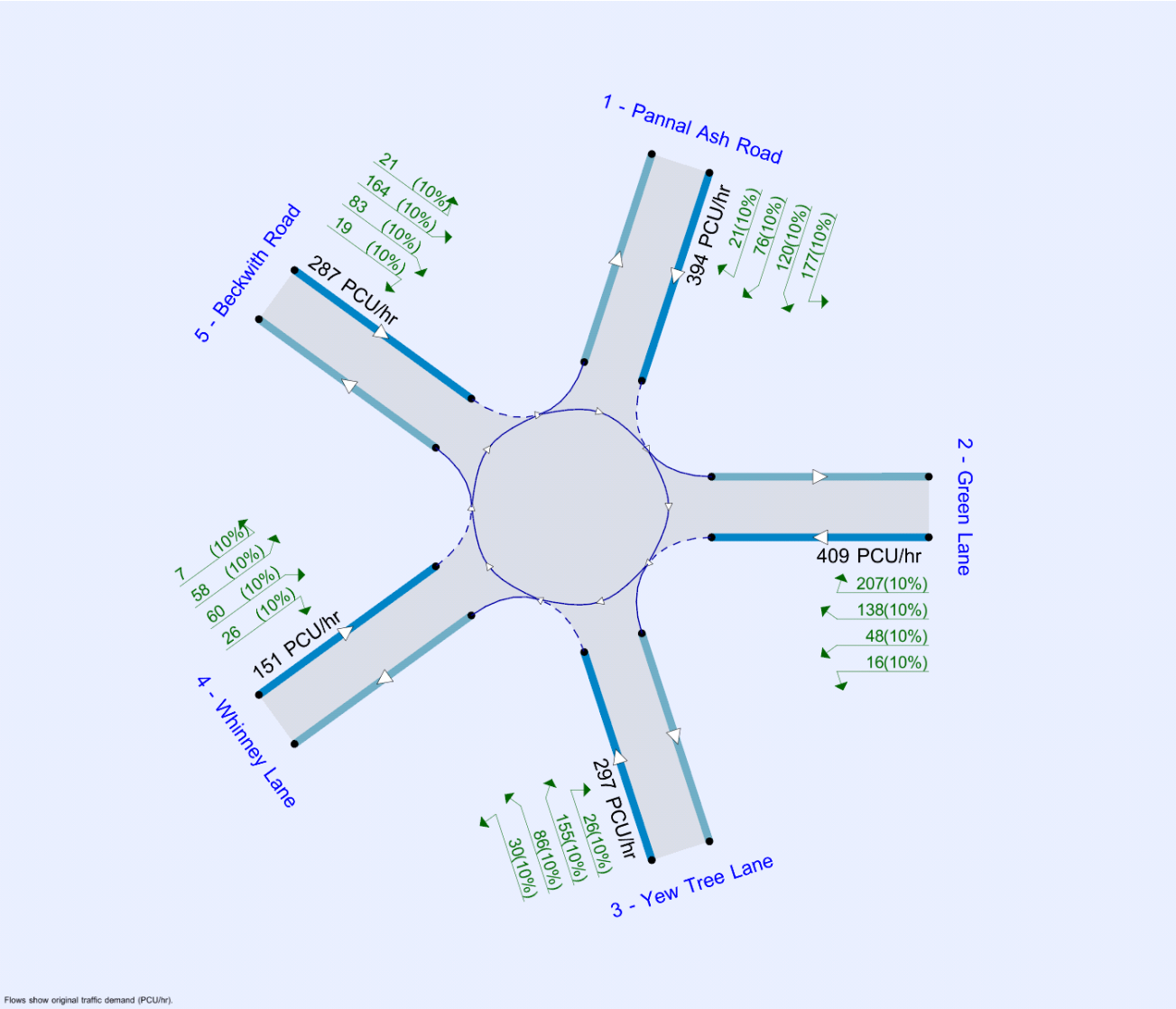
File summary

File Description

Title	Pannal Ash Roundabout
Location	Whinney Lane
Site number	
Date	08/12/2022
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	784-A081951-3
Enumerator	TT/ANGUS.ATKIN
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	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

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
D3	2020	AM Peak	ONE HOUR	08:00	09:30	15	✓
D4	2020	PM Peak	ONE HOUR	17:00	18:30	15	✓
D5	2030 NO Dev	AM Peak	ONE HOUR	08:00	09:30	15	✓
D6	2030 NO Dev	PM Peak	ONE HOUR	17:00	18:30	15	✓
D7	2030 With Dev	AM Peak	ONE HOUR	08:00	09:30	15	✓
D8	2030 With Dev	PM Peak	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Existing Layout - 2020, AM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	10.55	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description
1	Pannal Ash Road	
2	Green Lane	
3	Yew Tree Lane	
4	Whinney Lane	
5	Beckwith Road	

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)	Exit only
1 - Pannal Ash Road	3.12	5.15	1.5	35.0	45.0	58.0	
2 - Green Lane	3.68	5.98	5.3	375.0	45.0	41.0	
3 - Yew Tree Lane	3.10	7.09	2.5	23.0	45.0	49.0	
4 - Whinney Lane	2.94	6.85	2.3	28.0	45.0	53.0	
5 - Beckwith Road	3.61	6.00	3.9	96.0	45.0	18.0	

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - Pannal Ash Road	0.465	980
2 - Green Lane	0.575	1418
3 - Yew Tree Lane	0.487	1070
4 - Whinney Lane	0.472	1004
5 - Beckwith Road	0.602	1446

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
D3	2020	AM Peak	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 - Pannal Ash Road		ONE HOUR	✓	447	100.000
2 - Green Lane		ONE HOUR	✓	437	100.000
3 - Yew Tree Lane		ONE HOUR	✓	481	100.000
4 - Whinney Lane		ONE HOUR	✓	133	100.000
5 - Beckwith Road		ONE HOUR	✓	309	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	2	209	161	41	34
	2 - Green Lane	190	2	33	48	164
	3 - Yew Tree Lane	206	72	3	29	171
	4 - Whinney Lane	42	61	24	0	6
	5 - Beckwith Road	33	164	100	11	1

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.47	0.36	0.09	0.0
	2 - Green Lane	0.43	0.00	0.08	0.11	0.3
	3 - Yew Tree Lane	0.43	0.15	0.01	0.06	0.3
	4 - Whinney Lane	0.32	0.46	0.18	0.00	0.0
	5 - Beckwith Road	0.11	0.53	0.32	0.04	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - Pannal Ash Road	337	337
	2 - Green Lane	329	329
	3 - Yew Tree Lane	362	362
	4 - Whinney Lane	100	100
	5 - Beckwith Road	233	233
08:15-08:30	1 - Pannal Ash Road	402	402
	2 - Green Lane	393	393
	3 - Yew Tree Lane	432	432
	4 - Whinney Lane	120	120
	5 - Beckwith Road	278	278
08:30-08:45	1 - Pannal Ash Road	492	492
	2 - Green Lane	481	481
	3 - Yew Tree Lane	530	530
	4 - Whinney Lane	146	146
	5 - Beckwith Road	340	340
08:45-09:00	1 - Pannal Ash Road	492	492
	2 - Green Lane	481	481
	3 - Yew Tree Lane	530	530
	4 - Whinney Lane	146	146
	5 - Beckwith Road	340	340
09:00-09:15	1 - Pannal Ash Road	402	402
	2 - Green Lane	393	393
	3 - Yew Tree Lane	432	432
	4 - Whinney Lane	120	120
	5 - Beckwith Road	278	278
09:15-09:30	1 - Pannal Ash Road	337	337
	2 - Green Lane	329	329
	3 - Yew Tree Lane	362	362
	4 - Whinney Lane	100	100
	5 - Beckwith Road	233	233

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 - Pannal Ash Road	0.65	14.98	2.0	B	410	615
2 - Green Lane	0.41	5.67	0.8	A	401	601
3 - Yew Tree Lane	0.66	14.33	2.1	B	441	662
4 - Whinney Lane	0.26	9.47	0.4	A	122	183
5 - Beckwith Road	0.32	5.60	0.5	A	284	425

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 - Pannal Ash Road	337	84	328	828	0.407	334	354	0.0	0.7	7.969	A
2 - Green Lane	329	82	282	1256	0.262	327	380	0.0	0.4	4.257	A
3 - Yew Tree Lane	362	91	369	890	0.407	359	240	0.0	0.7	7.422	A
4 - Whinney Lane	100	25	632	706	0.142	99	96	0.0	0.2	6.523	A
5 - Beckwith Road	233	58	450	1175	0.198	232	281	0.0	0.3	4.193	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 - Pannal Ash Road	402	100	393	797	0.504	400	424	0.7	1.1	9.943	A
2 - Green Lane	393	98	338	1224	0.321	392	455	0.4	0.5	4.759	A
3 - Yew Tree Lane	432	108	442	854	0.506	431	288	0.7	1.1	9.328	A
4 - Whinney Lane	120	30	758	646	0.185	119	116	0.2	0.2	7.514	A
5 - Beckwith Road	278	69	540	1121	0.248	277	337	0.3	0.4	4.692	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 - Pannal Ash Road	492	123	481	757	0.651	489	519	1.1	2.0	14.594	B
2 - Green Lane	481	120	413	1181	0.408	480	557	0.5	0.7	5.646	A
3 - Yew Tree Lane	530	132	541	806	0.657	526	352	1.1	2.0	13.963	B
4 - Whinney Lane	146	37	926	567	0.258	146	141	0.2	0.4	9.402	A
5 - Beckwith Road	340	85	660	1049	0.324	340	412	0.4	0.5	5.579	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 - Pannal Ash Road	492	123	482	756	0.651	492	521	2.0	2.0	14.977	B
2 - Green Lane	481	120	415	1180	0.408	481	559	0.7	0.8	5.669	A
3 - Yew Tree Lane	530	132	543	805	0.658	529	353	2.0	2.1	14.335	B
4 - Whinney Lane	146	37	930	565	0.259	146	142	0.4	0.4	9.469	A
5 - Beckwith Road	340	85	663	1047	0.325	340	414	0.5	0.5	5.602	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 - Pannal Ash Road	402	100	395	796	0.505	405	427	2.0	1.1	10.216	B
2 - Green Lane	393	98	341	1222	0.321	394	459	0.8	0.5	4.787	A
3 - Yew Tree Lane	432	108	445	853	0.507	436	290	2.1	1.2	9.581	A
4 - Whinney Lane	120	30	764	643	0.186	120	117	0.4	0.3	7.578	A
5 - Beckwith Road	278	69	544	1118	0.248	278	340	0.5	0.4	4.719	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 - Pannal Ash Road	337	84	330	826	0.407	338	357	1.1	0.8	8.134	A
2 - Green Lane	329	82	285	1254	0.262	330	384	0.5	0.4	4.283	A
3 - Yew Tree Lane	362	91	372	888	0.408	364	242	1.2	0.8	7.571	A
4 - Whinney Lane	100	25	638	703	0.143	100	97	0.3	0.2	6.581	A
5 - Beckwith Road	233	58	455	1172	0.198	233	284	0.4	0.3	4.219	A

Existing Layout - 2020 , PM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	6.46	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2020	PM Peak	ONE HOUR	17:00	18:30	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 - Pannal Ash Road		ONE HOUR	✓	330	100.000
2 - Green Lane		ONE HOUR	✓	377	100.000
3 - Yew Tree Lane		ONE HOUR	✓	275	100.000
4 - Whinney Lane		ONE HOUR	✓	94	100.000
5 - Beckwith Road		ONE HOUR	✓	282	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	0	173	118	18	21
	2 - Green Lane	203	0	16	23	135
	3 - Yew Tree Lane	152	25	0	14	84
	4 - Whinney Lane	27	45	16	0	6
	5 - Beckwith Road	21	161	81	19	0

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.52	0.36	0.05	0.0
	2 - Green Lane	0.54	0.00	0.04	0.06	0.3
	3 - Yew Tree Lane	0.55	0.09	0.00	0.05	0.3
	4 - Whinney Lane	0.29	0.48	0.17	0.00	0.0
	5 - Beckwith Road	0.07	0.57	0.29	0.07	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - Pannal Ash Road	248	248
	2 - Green Lane	284	284
	3 - Yew Tree Lane	207	207
	4 - Whinney Lane	71	71
	5 - Beckwith Road	212	212
17:15-17:30	1 - Pannal Ash Road	297	297
	2 - Green Lane	339	339
	3 - Yew Tree Lane	247	247
	4 - Whinney Lane	85	85
	5 - Beckwith Road	254	254
17:30-17:45	1 - Pannal Ash Road	363	363
	2 - Green Lane	415	415
	3 - Yew Tree Lane	303	303
	4 - Whinney Lane	103	103
	5 - Beckwith Road	310	310
17:45-18:00	1 - Pannal Ash Road	363	363
	2 - Green Lane	415	415
	3 - Yew Tree Lane	303	303
	4 - Whinney Lane	103	103
	5 - Beckwith Road	310	310
18:00-18:15	1 - Pannal Ash Road	297	297
	2 - Green Lane	339	339
	3 - Yew Tree Lane	247	247
	4 - Whinney Lane	85	85
	5 - Beckwith Road	254	254
18:15-18:30	1 - Pannal Ash Road	248	248
	2 - Green Lane	284	284
	3 - Yew Tree Lane	207	207
	4 - Whinney Lane	71	71
	5 - Beckwith Road	212	212

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 - Pannal Ash Road	0.45	9.02	0.9	A	303	454
2 - Green Lane	0.33	4.77	0.5	A	346	519
3 - Yew Tree Lane	0.36	7.30	0.6	A	252	379
4 - Whinney Lane	0.15	6.85	0.2	A	86	129
5 - Beckwith Road	0.27	4.80	0.4	A	259	388

Main Results for each time segment

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 - Pannal Ash Road	248	62	260	859	0.289	247	302	0.0	0.4	6.448	A
2 - Green Lane	284	71	204	1301	0.218	283	302	0.0	0.3	3.884	A
3 - Yew Tree Lane	207	52	314	917	0.226	206	173	0.0	0.3	5.560	A
4 - Whinney Lane	71	18	464	785	0.090	70	55	0.0	0.1	5.540	A
5 - Beckwith Road	212	53	350	1235	0.172	211	184	0.0	0.2	3.865	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 - Pannal Ash Road	297	74	312	835	0.355	296	362	0.4	0.6	7.334	A
2 - Green Lane	339	85	245	1277	0.265	339	363	0.3	0.4	4.218	A
3 - Yew Tree Lane	247	62	376	886	0.279	247	207	0.3	0.4	6.188	A
4 - Whinney Lane	85	21	557	741	0.114	84	66	0.1	0.1	6.028	A
5 - Beckwith Road	254	63	420	1193	0.213	253	221	0.2	0.3	4.212	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 - Pannal Ash Road	363	91	381	803	0.453	362	443	0.6	0.9	8.965	A
2 - Green Lane	415	104	300	1246	0.333	414	444	0.4	0.5	4.761	A
3 - Yew Tree Lane	303	76	461	845	0.358	302	254	0.4	0.6	7.279	A
4 - Whinney Lane	103	26	681	682	0.152	103	81	0.1	0.2	6.839	A
5 - Beckwith Road	310	78	514	1136	0.273	310	270	0.3	0.4	4.790	A

17:45 - 18:00

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 - Pannal Ash Road	363	91	382	802	0.453	363	444	0.9	0.9	9.017	A
2 - Green Lane	415	104	301	1245	0.333	415	445	0.5	0.5	4.769	A
3 - Yew Tree Lane	303	76	461	845	0.358	303	254	0.6	0.6	7.304	A
4 - Whinney Lane	103	26	683	682	0.152	103	81	0.2	0.2	6.849	A
5 - Beckwith Road	310	78	515	1136	0.273	310	271	0.4	0.4	4.797	A

18:00 - 18:15

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 - Pannal Ash Road	297	74	313	835	0.355	298	363	0.9	0.6	7.394	A
2 - Green Lane	339	85	246	1277	0.265	340	364	0.5	0.4	4.229	A
3 - Yew Tree Lane	247	62	377	886	0.279	248	208	0.6	0.4	6.217	A
4 - Whinney Lane	85	21	559	740	0.114	85	67	0.2	0.1	6.045	A
5 - Beckwith Road	254	63	422	1192	0.213	254	222	0.4	0.3	4.224	A

18:15 - 18:30

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 - Pannal Ash Road	248	62	262	858	0.289	249	304	0.6	0.5	6.508	A
2 - Green Lane	284	71	206	1300	0.218	284	305	0.4	0.3	3.901	A
3 - Yew Tree Lane	207	52	316	916	0.226	207	174	0.4	0.3	5.596	A
4 - Whinney Lane	71	18	468	783	0.090	71	56	0.1	0.1	5.562	A
5 - Beckwith Road	212	53	353	1233	0.172	213	186	0.3	0.2	3.881	A

Existing Layout - 2030 NO Dev, AM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	11.68	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D5	2030 NO Dev	AM Peak	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 - Pannal Ash Road		ONE HOUR	✓	467	100.000
2 - Green Lane		ONE HOUR	✓	451	100.000
3 - Yew Tree Lane		ONE HOUR	✓	491	100.000
4 - Whinney Lane		ONE HOUR	✓	179	100.000
5 - Beckwith Road		ONE HOUR	✓	315	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	2	213	164	53	35
	2 - Green Lane	194	2	34	54	167
	3 - Yew Tree Lane	210	73	3	31	174
	4 - Whinney Lane	72	73	27	0	7
	5 - Beckwith Road	34	167	102	11	1

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.46	0.35	0.11	0.0
	2 - Green Lane	0.43	0.00	0.08	0.12	0.3
	3 - Yew Tree Lane	0.43	0.15	0.01	0.06	0.3
	4 - Whinney Lane	0.40	0.41	0.15	0.00	0.0
	5 - Beckwith Road	0.11	0.53	0.32	0.03	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - Pannal Ash Road	352	352
	2 - Green Lane	340	340
	3 - Yew Tree Lane	370	370
	4 - Whinney Lane	135	135
	5 - Beckwith Road	237	237
08:15-08:30	1 - Pannal Ash Road	420	420
	2 - Green Lane	405	405
	3 - Yew Tree Lane	441	441
	4 - Whinney Lane	161	161
	5 - Beckwith Road	283	283
08:30-08:45	1 - Pannal Ash Road	514	514
	2 - Green Lane	497	497
	3 - Yew Tree Lane	541	541
	4 - Whinney Lane	197	197
	5 - Beckwith Road	347	347
08:45-09:00	1 - Pannal Ash Road	514	514
	2 - Green Lane	497	497
	3 - Yew Tree Lane	541	541
	4 - Whinney Lane	197	197
	5 - Beckwith Road	347	347
09:00-09:15	1 - Pannal Ash Road	420	420
	2 - Green Lane	405	405
	3 - Yew Tree Lane	441	441
	4 - Whinney Lane	161	161
	5 - Beckwith Road	283	283
09:15-09:30	1 - Pannal Ash Road	352	352
	2 - Green Lane	340	340
	3 - Yew Tree Lane	370	370
	4 - Whinney Lane	135	135
	5 - Beckwith Road	237	237

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 - Pannal Ash Road	0.69	17.07	2.4	C	429	643
2 - Green Lane	0.43	5.91	0.8	A	414	621
3 - Yew Tree Lane	0.68	15.74	2.3	C	451	676
4 - Whinney Lane	0.35	11.02	0.6	B	164	246
5 - Beckwith Road	0.34	5.96	0.6	A	289	434

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 - Pannal Ash Road	352	88	343	820	0.429	348	383	0.0	0.8	8.335	A
2 - Green Lane	340	85	297	1247	0.272	338	395	0.0	0.4	4.347	A
3 - Yew Tree Lane	370	92	389	880	0.420	367	247	0.0	0.8	7.662	A
4 - Whinney Lane	135	34	644	700	0.193	134	111	0.0	0.3	6.981	A
5 - Beckwith Road	237	59	490	1151	0.206	236	287	0.0	0.3	4.323	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 - Pannal Ash Road	420	105	412	789	0.532	418	459	0.8	1.2	10.642	B
2 - Green Lane	405	101	357	1213	0.334	405	473	0.4	0.5	4.897	A
3 - Yew Tree Lane	441	110	466	843	0.524	440	296	0.8	1.2	9.788	A
4 - Whinney Lane	161	40	772	639	0.252	160	134	0.3	0.4	8.262	A
5 - Beckwith Road	283	71	588	1092	0.259	283	344	0.3	0.4	4.892	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 - Pannal Ash Road	514	129	504	746	0.689	510	561	1.2	2.3	16.467	C
2 - Green Lane	497	124	435	1168	0.425	496	578	0.5	0.8	5.883	A
3 - Yew Tree Lane	541	135	570	792	0.683	536	361	1.2	2.2	15.229	C
4 - Whinney Lane	197	49	943	559	0.353	196	163	0.4	0.6	10.899	B
5 - Beckwith Road	347	87	718	1013	0.342	346	421	0.4	0.6	5.928	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 - Pannal Ash Road	514	129	505	745	0.690	514	564	2.3	2.4	17.074	C
2 - Green Lane	497	124	438	1166	0.426	497	581	0.8	0.8	5.912	A
3 - Yew Tree Lane	541	135	571	791	0.683	540	363	2.2	2.3	15.744	C
4 - Whinney Lane	197	49	948	556	0.354	197	164	0.6	0.6	11.021	B
5 - Beckwith Road	347	87	722	1011	0.343	347	423	0.6	0.6	5.959	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 - Pannal Ash Road	420	105	414	787	0.533	424	463	2.4	1.3	11.032	B
2 - Green Lane	405	101	361	1211	0.335	406	478	0.8	0.6	4.930	A
3 - Yew Tree Lane	441	110	468	841	0.525	446	299	2.3	1.2	10.110	B
4 - Whinney Lane	161	40	779	636	0.253	162	135	0.6	0.4	8.369	A
5 - Beckwith Road	283	71	594	1089	0.260	284	347	0.6	0.4	4.926	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 - Pannal Ash Road	352	88	346	819	0.429	353	387	1.3	0.8	8.537	A
2 - Green Lane	340	85	301	1245	0.273	340	399	0.6	0.4	4.377	A
3 - Yew Tree Lane	370	92	392	879	0.421	371	249	1.2	0.8	7.830	A
4 - Whinney Lane	135	34	650	697	0.193	135	113	0.4	0.3	7.059	A
5 - Beckwith Road	237	59	496	1148	0.207	238	290	0.4	0.3	4.352	A

Existing Layout - 2030 NO Dev, PM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	6.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D6	2030 NO Dev	PM Peak	ONE HOUR	17:00	18:30	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 - Pannal Ash Road		ONE HOUR	✓	360	100.000
2 - Green Lane		ONE HOUR	✓	395	100.000
3 - Yew Tree Lane		ONE HOUR	✓	283	100.000
4 - Whinney Lane		ONE HOUR	✓	120	100.000
5 - Beckwith Road		ONE HOUR	✓	287	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	0	177	120	42	21
	2 - Green Lane	207	0	16	34	138
	3 - Yew Tree Lane	155	26	0	16	86
	4 - Whinney Lane	41	53	19	0	7
	5 - Beckwith Road	21	164	83	19	0

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.49	0.33	0.12	0.0
	2 - Green Lane	0.52	0.00	0.04	0.09	0.3
	3 - Yew Tree Lane	0.55	0.09	0.00	0.06	0.3
	4 - Whinney Lane	0.34	0.44	0.16	0.00	0.0
	5 - Beckwith Road	0.07	0.57	0.29	0.07	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - Pannal Ash Road	271	271
	2 - Green Lane	297	297
	3 - Yew Tree Lane	213	213
	4 - Whinney Lane	90	90
	5 - Beckwith Road	216	216
17:15-17:30	1 - Pannal Ash Road	324	324
	2 - Green Lane	355	355
	3 - Yew Tree Lane	254	254
	4 - Whinney Lane	108	108
	5 - Beckwith Road	258	258
17:30-17:45	1 - Pannal Ash Road	396	396
	2 - Green Lane	435	435
	3 - Yew Tree Lane	312	312
	4 - Whinney Lane	132	132
	5 - Beckwith Road	316	316
17:45-18:00	1 - Pannal Ash Road	396	396
	2 - Green Lane	435	435
	3 - Yew Tree Lane	312	312
	4 - Whinney Lane	132	132
	5 - Beckwith Road	316	316
18:00-18:15	1 - Pannal Ash Road	324	324
	2 - Green Lane	355	355
	3 - Yew Tree Lane	254	254
	4 - Whinney Lane	108	108
	5 - Beckwith Road	258	258
18:15-18:30	1 - Pannal Ash Road	271	271
	2 - Green Lane	297	297
	3 - Yew Tree Lane	213	213
	4 - Whinney Lane	90	90
	5 - Beckwith Road	216	216

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 - Pannal Ash Road	0.50	9.96	1.1	A	330	496
2 - Green Lane	0.35	5.01	0.6	A	362	544
3 - Yew Tree Lane	0.38	7.75	0.7	A	260	390
4 - Whinney Lane	0.20	7.30	0.3	A	110	165
5 - Beckwith Road	0.28	4.96	0.4	A	263	395

Main Results for each time segment

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 - Pannal Ash Road	271	68	273	853	0.318	269	318	0.0	0.5	6.756	A
2 - Green Lane	297	74	227	1287	0.231	296	314	0.0	0.3	3.990	A
3 - Yew Tree Lane	213	53	345	901	0.236	212	178	0.0	0.3	5.732	A
4 - Whinney Lane	90	23	474	780	0.116	90	83	0.0	0.1	5.731	A
5 - Beckwith Road	216	54	375	1220	0.177	215	189	0.0	0.2	3.937	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 - Pannal Ash Road	324	81	327	828	0.391	323	381	0.5	0.7	7.827	A
2 - Green Lane	355	89	273	1261	0.282	355	377	0.3	0.4	4.366	A
3 - Yew Tree Lane	254	64	414	868	0.293	254	214	0.3	0.5	6.446	A
4 - Whinney Lane	108	27	568	736	0.147	108	100	0.1	0.2	6.305	A
5 - Beckwith Road	258	65	450	1175	0.220	258	226	0.2	0.3	4.315	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 - Pannal Ash Road	396	99	400	794	0.499	395	466	0.7	1.1	9.881	A
2 - Green Lane	435	109	334	1226	0.355	434	461	0.4	0.6	4.995	A
3 - Yew Tree Lane	312	78	507	823	0.379	311	261	0.5	0.7	7.720	A
4 - Whinney Lane	132	33	695	675	0.196	132	122	0.2	0.3	7.281	A
5 - Beckwith Road	316	79	550	1115	0.284	315	277	0.3	0.4	4.952	A

17:45 - 18:00

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 - Pannal Ash Road	396	99	401	794	0.499	396	467	1.1	1.1	9.962	A
2 - Green Lane	435	109	335	1226	0.355	435	462	0.6	0.6	5.007	A
3 - Yew Tree Lane	312	78	508	822	0.379	312	262	0.7	0.7	7.753	A
4 - Whinney Lane	132	33	697	675	0.196	132	122	0.3	0.3	7.296	A
5 - Beckwith Road	316	79	552	1114	0.284	316	277	0.4	0.4	4.962	A

18:00 - 18:15

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 - Pannal Ash Road	324	81	328	828	0.391	325	382	1.1	0.7	7.904	A
2 - Green Lane	355	89	274	1260	0.282	356	379	0.6	0.4	4.380	A
3 - Yew Tree Lane	254	64	415	867	0.293	255	215	0.7	0.5	6.481	A
4 - Whinney Lane	108	27	571	735	0.147	108	100	0.3	0.2	6.327	A
5 - Beckwith Road	258	65	452	1174	0.220	258	227	0.4	0.3	4.328	A

18:15 - 18:30

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 - Pannal Ash Road	271	68	274	852	0.318	272	320	0.7	0.5	6.829	A
2 - Green Lane	297	74	229	1286	0.231	298	317	0.4	0.3	4.007	A
3 - Yew Tree Lane	213	53	348	900	0.237	214	180	0.5	0.3	5.770	A
4 - Whinney Lane	90	23	477	778	0.116	91	84	0.2	0.1	5.757	A
5 - Beckwith Road	216	54	378	1218	0.177	216	190	0.3	0.2	3.954	A

Existing Layout - 2030 With Dev , AM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	14.22	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D7	2030 With Dev	AM Peak	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 - Pannal Ash Road		ONE HOUR	✓	478	100.000
2 - Green Lane		ONE HOUR	✓	455	100.000
3 - Yew Tree Lane		ONE HOUR	✓	533	100.000
4 - Whinney Lane		ONE HOUR	✓	234	100.000
5 - Beckwith Road		ONE HOUR	✓	330	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	2	213	164	64	35
	2 - Green Lane	194	2	34	58	167
	3 - Yew Tree Lane	210	73	3	37	210
	4 - Whinney Lane	100	85	42	0	7
	5 - Beckwith Road	34	167	102	26	1

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.45	0.34	0.13	0.0
	2 - Green Lane	0.43	0.00	0.07	0.13	0.3
	3 - Yew Tree Lane	0.39	0.14	0.01	0.07	0.3
	4 - Whinney Lane	0.43	0.36	0.18	0.00	0.0
	5 - Beckwith Road	0.10	0.51	0.31	0.08	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - Pannal Ash Road	360	360
	2 - Green Lane	343	343
	3 - Yew Tree Lane	401	401
	4 - Whinney Lane	176	176
	5 - Beckwith Road	248	248
08:15-08:30	1 - Pannal Ash Road	430	430
	2 - Green Lane	409	409
	3 - Yew Tree Lane	479	479
	4 - Whinney Lane	210	210
	5 - Beckwith Road	297	297
08:30-08:45	1 - Pannal Ash Road	526	526
	2 - Green Lane	501	501
	3 - Yew Tree Lane	587	587
	4 - Whinney Lane	258	258
	5 - Beckwith Road	363	363
08:45-09:00	1 - Pannal Ash Road	526	526
	2 - Green Lane	501	501
	3 - Yew Tree Lane	587	587
	4 - Whinney Lane	258	258
	5 - Beckwith Road	363	363
09:00-09:15	1 - Pannal Ash Road	430	430
	2 - Green Lane	409	409
	3 - Yew Tree Lane	479	479
	4 - Whinney Lane	210	210
	5 - Beckwith Road	297	297
09:15-09:30	1 - Pannal Ash Road	360	360
	2 - Green Lane	343	343
	3 - Yew Tree Lane	401	401
	4 - Whinney Lane	176	176
	5 - Beckwith Road	248	248

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 - Pannal Ash Road	0.73	19.91	2.8	C	439	658
2 - Green Lane	0.44	6.19	0.9	A	418	626
3 - Yew Tree Lane	0.76	20.81	3.3	C	489	734
4 - Whinney Lane	0.48	14.12	1.0	B	215	322
5 - Beckwith Road	0.37	6.47	0.6	A	303	454

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 - Pannal Ash Road	360	90	375	806	0.447	356	404	0.0	0.9	8.746	A
2 - Green Lane	343	86	328	1230	0.279	341	403	0.0	0.4	4.447	A
3 - Yew Tree Lane	401	100	411	869	0.462	398	258	0.0	0.9	8.330	A
4 - Whinney Lane	176	44	670	687	0.256	175	138	0.0	0.4	7.702	A
5 - Beckwith Road	248	62	531	1126	0.221	247	314	0.0	0.3	4.498	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 - Pannal Ash Road	430	107	449	771	0.557	428	484	0.9	1.3	11.468	B
2 - Green Lane	409	102	393	1192	0.343	408	484	0.4	0.6	5.051	A
3 - Yew Tree Lane	479	120	493	830	0.578	477	309	0.9	1.5	11.161	B
4 - Whinney Lane	210	53	804	624	0.337	210	166	0.4	0.6	9.534	A
5 - Beckwith Road	297	74	637	1062	0.279	296	376	0.3	0.4	5.164	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 - Pannal Ash Road	526	132	549	725	0.726	521	591	1.3	2.7	18.909	C
2 - Green Lane	501	125	480	1142	0.439	500	590	0.6	0.8	6.154	A
3 - Yew Tree Lane	587	147	602	776	0.756	580	377	1.5	3.1	19.543	C
4 - Whinney Lane	258	64	980	541	0.476	256	202	0.6	1.0	13.809	B
5 - Beckwith Road	363	91	777	978	0.371	362	459	0.4	0.6	6.422	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 - Pannal Ash Road	526	132	551	724	0.727	526	594	2.7	2.8	19.911	C
2 - Green Lane	501	125	483	1140	0.439	501	594	0.8	0.9	6.192	A
3 - Yew Tree Lane	587	147	604	775	0.757	586	380	3.1	3.3	20.813	C
4 - Whinney Lane	258	64	987	538	0.479	258	204	1.0	1.0	14.124	B
5 - Beckwith Road	363	91	782	975	0.373	363	462	0.6	0.6	6.474	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 - Pannal Ash Road	430	107	453	769	0.559	435	489	2.8	1.4	12.038	B
2 - Green Lane	409	102	398	1189	0.344	410	490	0.9	0.6	5.092	A
3 - Yew Tree Lane	479	120	496	828	0.579	486	313	3.3	1.6	11.801	B
4 - Whinney Lane	210	53	814	619	0.340	212	168	1.0	0.6	9.759	A
5 - Beckwith Road	297	74	645	1058	0.280	298	381	0.6	0.4	5.215	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 - Pannal Ash Road	360	90	378	804	0.448	362	408	1.4	0.9	8.997	A
2 - Green Lane	343	86	332	1227	0.279	343	408	0.6	0.4	4.481	A
3 - Yew Tree Lane	401	100	414	868	0.462	404	261	1.6	1.0	8.575	A
4 - Whinney Lane	176	44	678	684	0.258	177	140	0.6	0.4	7.826	A
5 - Beckwith Road	248	62	538	1122	0.221	249	318	0.4	0.3	4.537	A

Existing Layout - 2030 With Dev, PM Peak

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Pannal Ash Rd/Beckworth Rd/ Whinney Ln/ Green Ln/Yew Tree Ln Roundabout	Standard Roundabout		1, 2, 3, 4, 5	7.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D8	2030 With Dev	PM Peak	ONE HOUR	17:00	18:30	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 - Pannal Ash Road		ONE HOUR	✓	394	100.000
2 - Green Lane		ONE HOUR	✓	409	100.000
3 - Yew Tree Lane		ONE HOUR	✓	297	100.000
4 - Whinney Lane		ONE HOUR	✓	151	100.000
5 - Beckwith Road		ONE HOUR	✓	287	100.000

Origin-Destination Data

Demand (PCU/hr)

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	0	177	120	76	21
	2 - Green Lane	207	0	16	48	138
	3 - Yew Tree Lane	155	26	0	30	86
	4 - Whinney Lane	58	60	26	0	7
	5 - Beckwith Road	21	164	83	19	0

Proportions

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	0.00	0.45	0.30	0.19	0.0
	2 - Green Lane	0.51	0.00	0.04	0.12	0.3
	3 - Yew Tree Lane	0.52	0.09	0.00	0.10	0.2
	4 - Whinney Lane	0.38	0.40	0.17	0.00	0.0
	5 - Beckwith Road	0.07	0.57	0.29	0.07	0.0

Vehicle Mix

Heavy Vehicle Percentages

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beckwith Road
From	1 - Pannal Ash Road	10	10	10	10	10
	2 - Green Lane	10	10	10	10	10
	3 - Yew Tree Lane	10	10	10	10	10
	4 - Whinney Lane	10	10	10	10	10
	5 - Beckwith Road	10	10	10	10	10

Average PCU Per Veh

		To				
		1 - Pannal Ash Road	2 - Green Lane	3 - Yew Tree Lane	4 - Whinney Lane	5 - Beck Roa
From	1 - Pannal Ash Road	1.100	1.100	1.100	1.100	1.10
	2 - Green Lane	1.100	1.100	1.100	1.100	1.10
	3 - Yew Tree Lane	1.100	1.100	1.100	1.100	1.10
	4 - Whinney Lane	1.100	1.100	1.100	1.100	1.10
	5 - Beckwith Road	1.100	1.100	1.100	1.100	1.10

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - Pannal Ash Road	297	297
	2 - Green Lane	308	308
	3 - Yew Tree Lane	224	224
	4 - Whinney Lane	114	114
	5 - Beckwith Road	216	216
17:15-17:30	1 - Pannal Ash Road	354	354
	2 - Green Lane	368	368
	3 - Yew Tree Lane	267	267
	4 - Whinney Lane	136	136
	5 - Beckwith Road	258	258
17:30-17:45	1 - Pannal Ash Road	434	434
	2 - Green Lane	450	450
	3 - Yew Tree Lane	327	327
	4 - Whinney Lane	166	166
	5 - Beckwith Road	316	316
17:45-18:00	1 - Pannal Ash Road	434	434
	2 - Green Lane	450	450
	3 - Yew Tree Lane	327	327
	4 - Whinney Lane	166	166
	5 - Beckwith Road	316	316
18:00-18:15	1 - Pannal Ash Road	354	354
	2 - Green Lane	368	368
	3 - Yew Tree Lane	267	267
	4 - Whinney Lane	136	136
	5 - Beckwith Road	258	258
18:15-18:30	1 - Pannal Ash Road	297	297
	2 - Green Lane	308	308
	3 - Yew Tree Lane	224	224
	4 - Whinney Lane	114	114
	5 - Beckwith Road	216	216

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 - Pannal Ash Road	0.55	11.22	1.3	B	362	542
2 - Green Lane	0.38	5.28	0.7	A	375	563
3 - Yew Tree Lane	0.41	8.43	0.8	A	273	409
4 - Whinney Lane	0.25	7.79	0.4	A	139	208
5 - Beckwith Road	0.29	5.09	0.4	A	263	395

Main Results for each time segment

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 - Pannal Ash Road	297	74	283	848	0.350	294	330	0.0	0.6	7.117	A
2 - Green Lane	308	77	258	1270	0.242	307	319	0.0	0.4	4.105	A
3 - Yew Tree Lane	224	56	381	884	0.253	222	183	0.0	0.4	5.971	A
4 - Whinney Lane	114	28	474	780	0.146	113	129	0.0	0.2	5.929	A
5 - Beckwith Road	216	54	398	1206	0.179	215	189	0.0	0.2	3.992	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 - Pannal Ash Road	354	89	339	822	0.431	353	396	0.6	0.8	8.427	A
2 - Green Lane	368	92	309	1240	0.296	367	383	0.4	0.5	4.534	A
3 - Yew Tree Lane	267	67	457	847	0.315	266	220	0.4	0.5	6.816	A
4 - Whinney Lane	136	34	568	736	0.185	136	155	0.2	0.2	6.595	A
5 - Beckwith Road	258	65	477	1159	0.223	258	226	0.2	0.3	4.395	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 - Pannal Ash Road	434	108	415	787	0.551	432	484	0.8	1.3	11.089	B
2 - Green Lane	450	113	378	1201	0.375	450	469	0.5	0.7	5.267	A
3 - Yew Tree Lane	327	82	559	797	0.410	326	269	0.5	0.8	8.385	A
4 - Whinney Lane	166	42	695	676	0.246	166	190	0.2	0.4	7.763	A
5 - Beckwith Road	316	79	584	1094	0.289	315	277	0.3	0.4	5.082	A

17:45 - 18:00

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 - Pannal Ash Road	434	108	416	787	0.552	434	486	1.3	1.3	11.222	B
2 - Green Lane	450	113	380	1200	0.375	450	470	0.7	0.7	5.283	A
3 - Yew Tree Lane	327	82	560	797	0.411	327	270	0.8	0.8	8.431	A
4 - Whinney Lane	166	42	697	675	0.246	166	190	0.4	0.4	7.786	A
5 - Beckwith Road	316	79	586	1093	0.289	316	277	0.4	0.4	5.093	A

18:00 - 18:15

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 - Pannal Ash Road	354	89	341	822	0.431	356	398	1.3	0.8	8.542	A
2 - Green Lane	368	92	311	1239	0.297	368	385	0.7	0.5	4.553	A
3 - Yew Tree Lane	267	67	459	846	0.316	268	221	0.8	0.5	6.864	A
4 - Whinney Lane	136	34	571	734	0.185	136	156	0.4	0.3	6.623	A
5 - Beckwith Road	258	65	480	1157	0.223	259	227	0.4	0.3	4.410	A

18:15 - 18:30

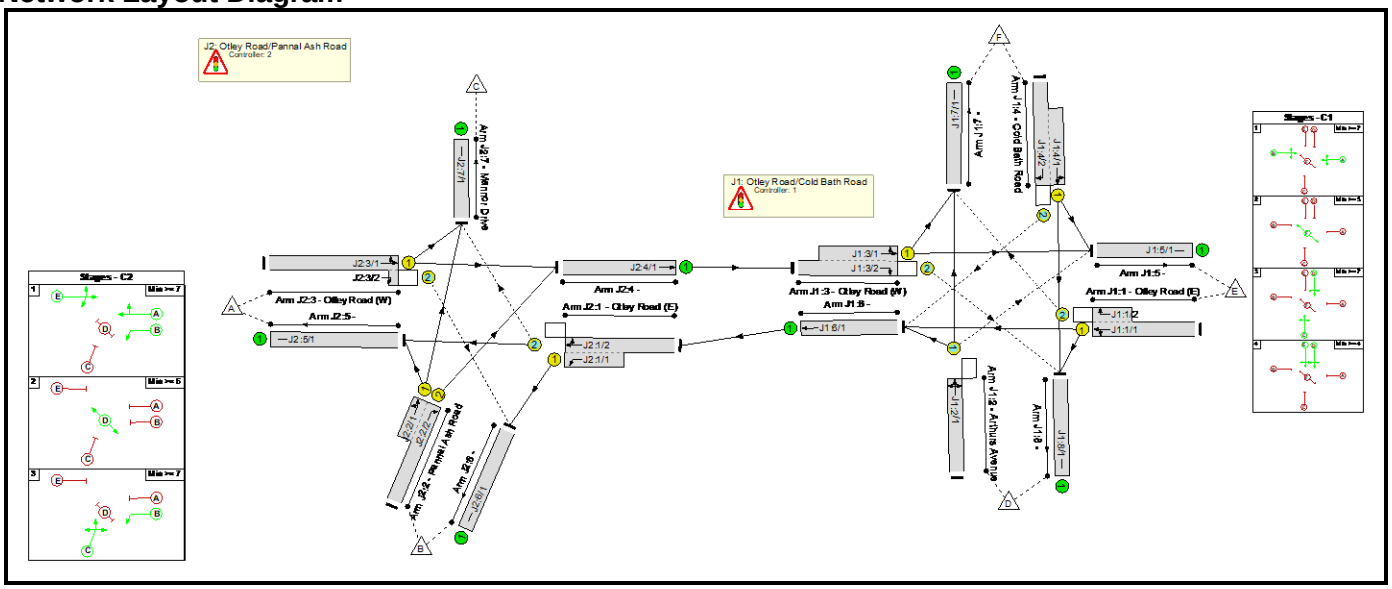
Arm	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Circulating flow (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Throughput (exit side) (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
1 - Pannal Ash Road	297	74	285	847	0.350	298	333	0.8	0.6	7.216	A
2 - Green Lane	308	77	260	1268	0.243	308	322	0.5	0.4	4.126	A
3 - Yew Tree Lane	224	56	384	883	0.253	224	185	0.5	0.4	6.021	A
4 - Whinney Lane	114	28	477	778	0.146	114	131	0.3	0.2	5.960	A
5 - Beckwith Road	216	54	401	1204	0.179	216	190	0.3	0.2	4.010	A

Full Input Data And Results

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	SJ16&17 model.lsg3x
Author:	
Company:	
Address:	

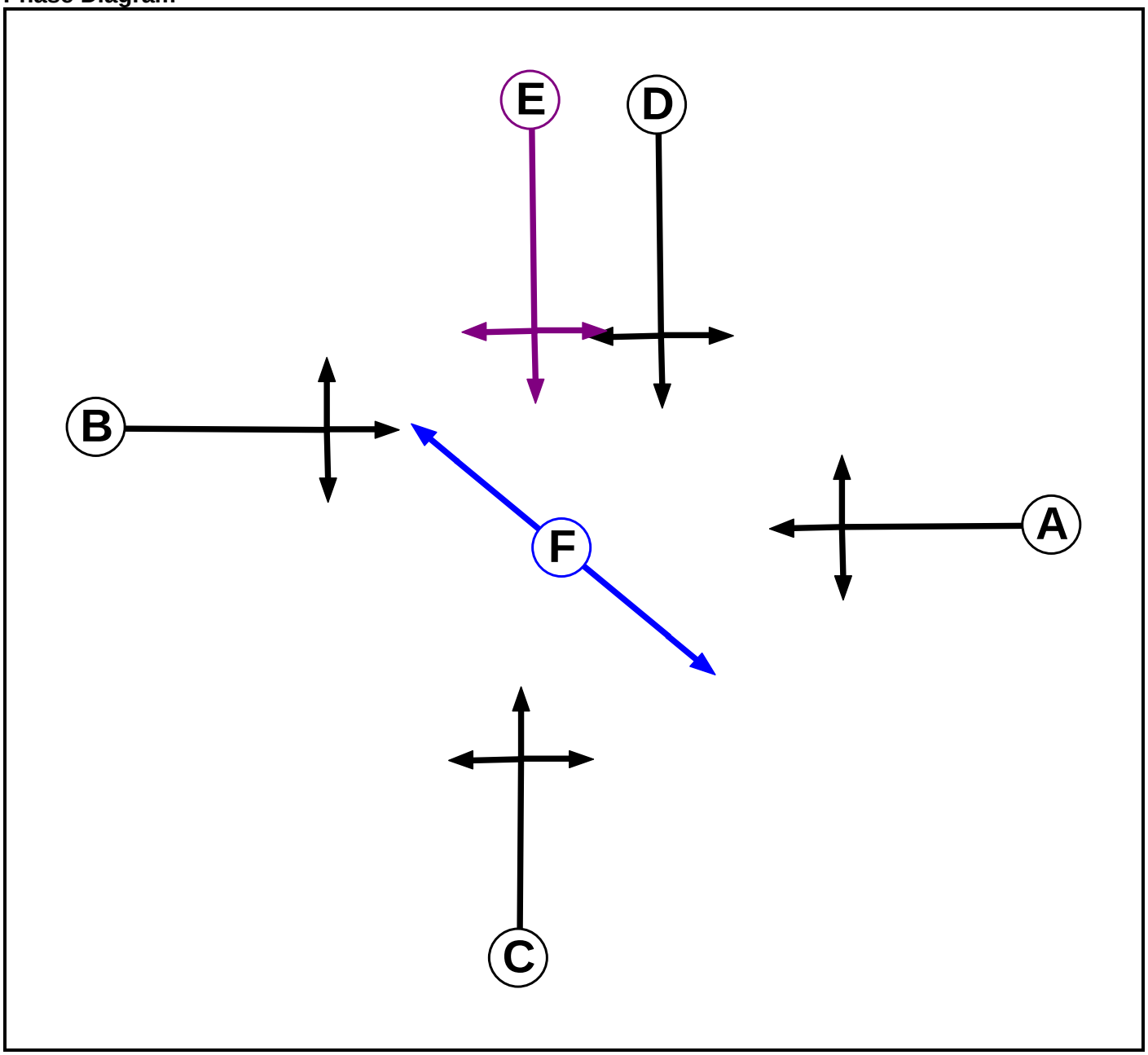
Network Layout Diagram



Full Input Data And Results

C1

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Traffic		7	7
E	Ind. Arrow	D	4	4
F	Pedestrian		5	5

Full Input Data And Results

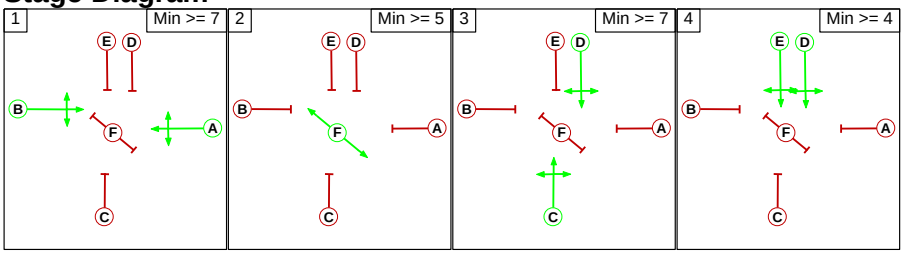
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
	A	B	C	D	E	F
A		-	5	5	5	9
B	-		5	5	5	9
C	5	-		-	5	9
D	5	-	-		-	-
E	5	6	6	-		9
F	5	5	5	5	5	

Phases in Stage

Stage No.	Phases in Stage
1	A B
2	F
3	C D
4	D E

Stage Diagram



Phase Delays

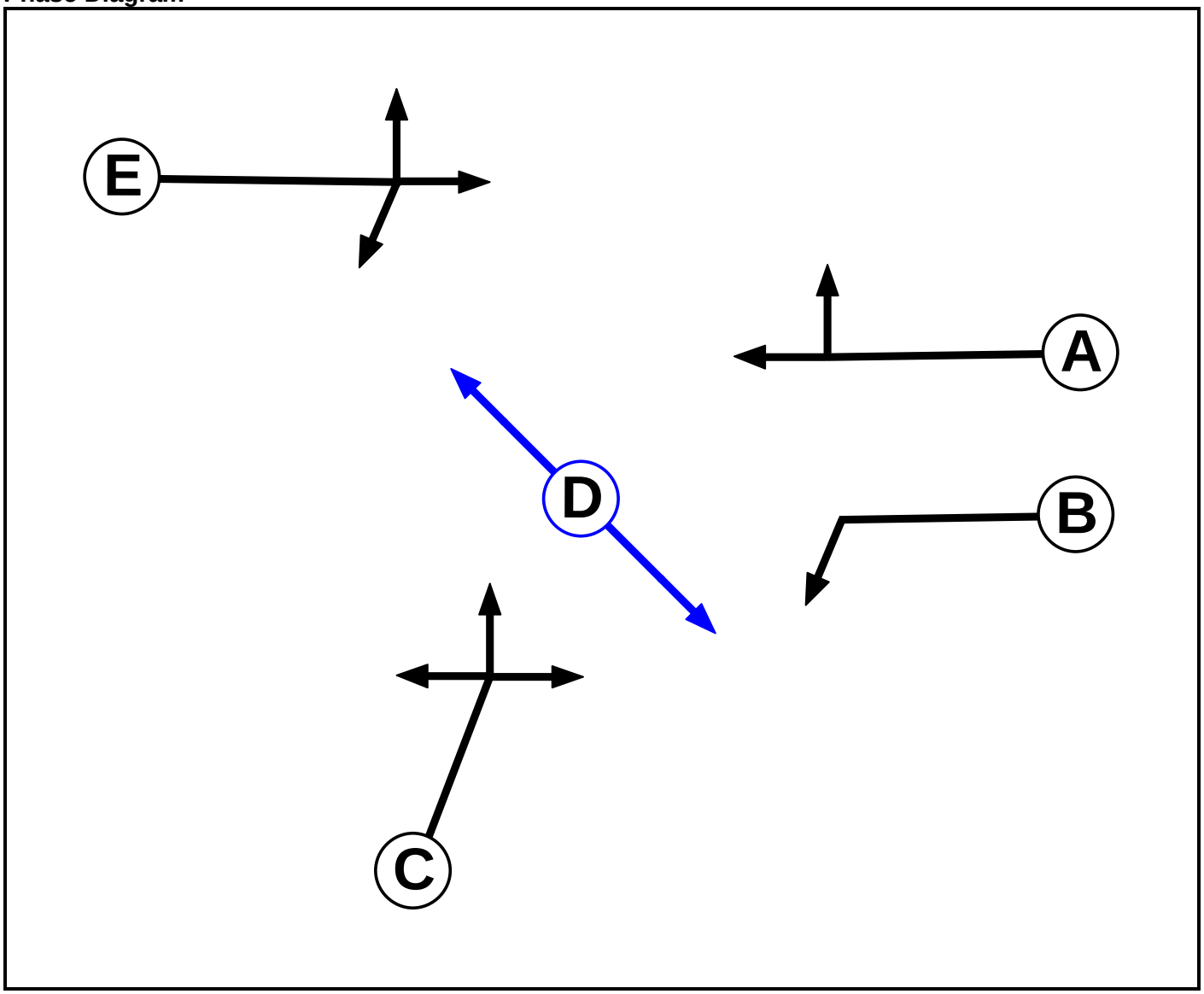
Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
1			9	5	5
2	5		5	5	
3	5	9		5	
4	6	9	6		

C2

Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		7	7
B	Traffic		7	7
C	Traffic		7	7
D	Pedestrian		5	5
E	Traffic		7	7

Full Input Data And Results

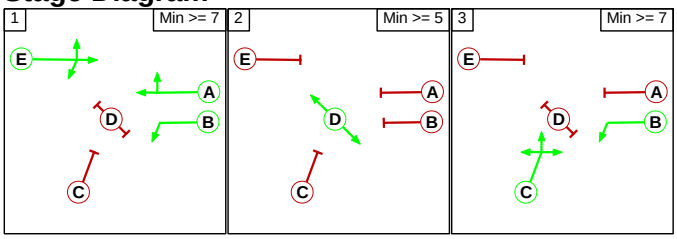
Phase Intergreens Matrix

Terminating Phase	Starting Phase					
		A	B	C	D	E
	A		-	6	7	-
	B	-		-	7	-
	C	6	-		7	6
	D	5	5	5		5
	E	-	-	6	7	

Phases in Stage

Stage No.	Phases in Stage
1	A B E
2	D
3	B C

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
There are no Phase Delays defined					

Prohibited Stage Change

From Stage	To Stage			
		1	2	3
	1		7	6
	2	5		5
	3	6	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: J1: Otley Road/Cold Bath Road											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J1:1/2 (Otley Road (E))	J1:7/1 (Right)	1439	0	J1:3/2	1.09	All	2.00	-	0.50	2	2.00
J1:2/1 (Arthurs Avenue)	J1:5/1 (Right)	1439	0	J1:4/1	1.09	All	2.00	2.00	0.50	2	2.00
J1:3/2 (Otley Road (W))	J1:8/1 (Right)	1439	0	J1:1/1	1.09	All	2.00	-	0.50	2	2.00
J1:4/2 (Cold Bath Road)	J1:6/1 (Right)	1439	0	J1:2/1	1.09	To J1:6/1 (Left) To J1:7/1 (Ahead)	2.00	-	0.50	2	2.00

Junction: J2: Otley Road/Pannal Ash Road											
Lane	**Movement**	**Max Flow when Giving Way (PCU/Hr)**	**Min Flow when Giving Way (PCU/Hr)**	**Opposing Lane**	**Opp. Lane Coeff.**	**Opp. Mvmnts.**	**Right Turn Storage (PCU)**	**Non-Blocking Storage (PCU)**	**RTF**	**Right Turn Move up (s)**	**Max Turns in Intergreen (PCU)**
J2:1/2 (Otley Road (E))	J2:7/1 (Right)	1439	0	J2:3/1	1.09	All	2.00	2.00	0.50	2	2.00
J2:3/2 (Otley Road (W))	J2:6/1 (Right)	1439	0	J2:1/2	1.09	To J2:5/1 (Ahead)	2.00	-	0.50	2	2.00
				J2:1/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: J1: Otley Road/Cold Bath Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J1:1/1 (Otley Road (E))	U	A	2	3	60.0	User	1704	-	-	-	-	-
J1:1/2 (Otley Road (E))	O	A	2	3	4.0	User	1546	-	-	-	-	-
J1:2/1 (Arthurs Avenue)	O	C	2	3	60.0	User	1665	-	-	-	-	-
J1:3/1 (Otley Road (W))	U	B	2	3	19.1	User	1806	-	-	-	-	-
J1:3/2 (Otley Road (W))	O	B	2	3	9.8	User	1598	-	-	-	-	-
J1:4/1 (Cold Bath Road)	U	D E	2	3	7.8	User	1574	-	-	-	-	-
J1:4/2 (Cold Bath Road)	O	D E	2	3	60.0	User	1501	-	-	-	-	-
J1:5/1	U		2	3	8.7	Inf	-	-	-	-	-	-
J1:6/1	U		2	3	6.6	Inf	-	-	-	-	-	-
J1:7/1	U		2	3	8.7	Inf	-	-	-	-	-	-
J1:8/1	U		2	3	8.7	Inf	-	-	-	-	-	-

Full Input Data And Results

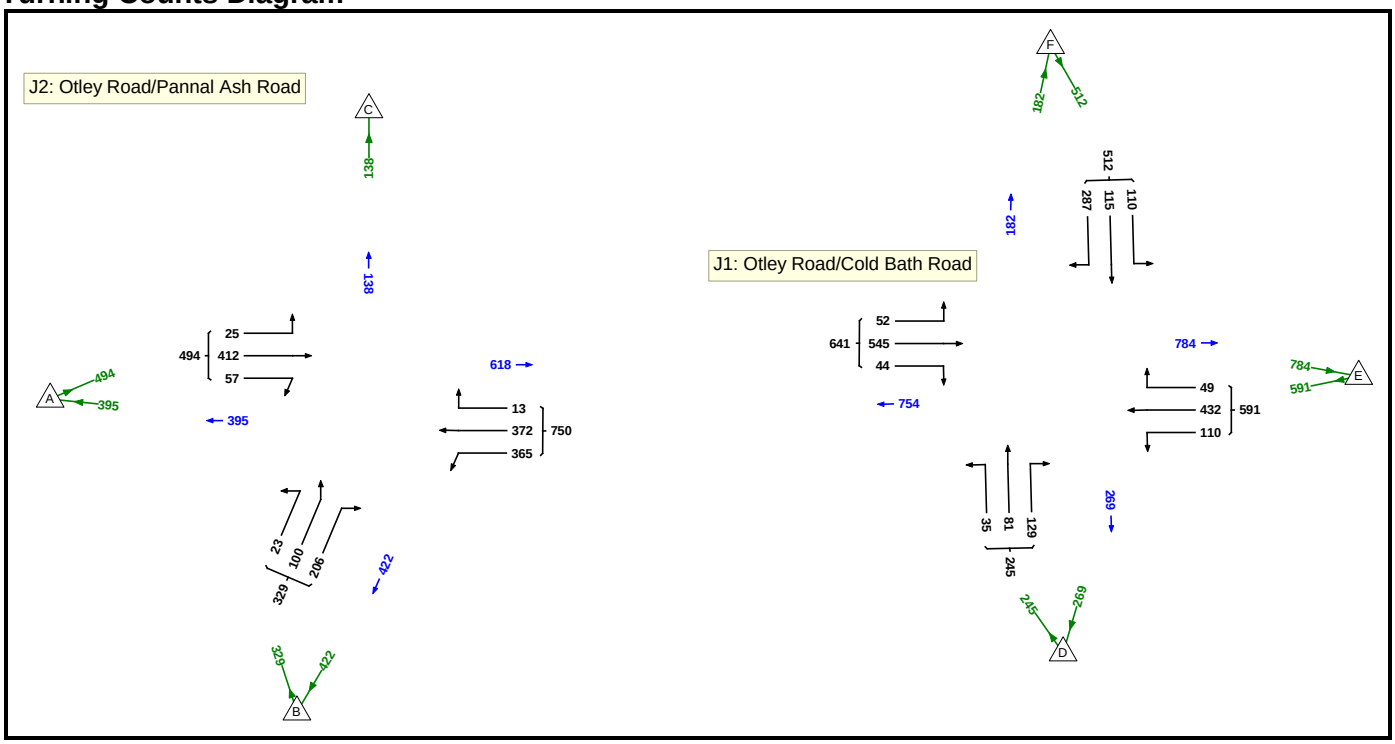
Junction: J2: Otley Road/Pannal Ash Road												
Lane	**Lane Type**	**Phases**	**Start Disp.**	**End Disp.**	**Physical Length (PCU)**	**Sat Flow Type**	**Def User Saturation Flow (PCU/Hr)**	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Turns**	**Turning Radius (m)**
J2:1/1 (Otley Road (E))	U	B	2	3	6.0	User	1554	-	-	-	-	-
J2:1/2 (Otley Road (E))	O	A	2	3	19.1	User	1736	-	-	-	-	-
J2:2/1 (Pannal Ash Road)	U	C	2	3	4.3	User	1803	-	-	-	-	-
J2:2/2 (Pannal Ash Road)	U	C	2	3	60.0	User	1563	-	-	-	-	-
J2:3/1 (Otley Road (W))	U	E	2	3	61.9	User	1727	-	-	-	-	-
J2:3/2 (Otley Road (W))	O	E	2	3	1.0	User	1645	-	-	-	-	-
J2:4/1	U		2	3	4.9	Geom	-	4.80	0.00	Y	Arm J1:3 Ahead	Inf
J2:5/1	U		2	3	4.9	Inf	-	-	-	-	-	-
J2:6/1	U		2	3	8.7	Inf	-	-	-	-	-	-
J2:7/1 (Mannor Drive)	U		2	3	8.7	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2020 AM Peak'	08:00	09:00	01:00	
2: '2020 PM Peak'	17:00	18:00	01:00	
3: '2030 Base: AM Peak'	08:00	09:00	01:00	
4: '2030 Base: PM Peak'	17:00	18:00	01:00	
5: '2030 Base + Development: AM Peak'	08:00	09:00	01:00	
6: '2030 Base + Development: PM Peak'	17:00	18:00	01:00	

Scenario 1: '2020 AM Peak' (FG1: '2020 AM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Lane Saturation Flows

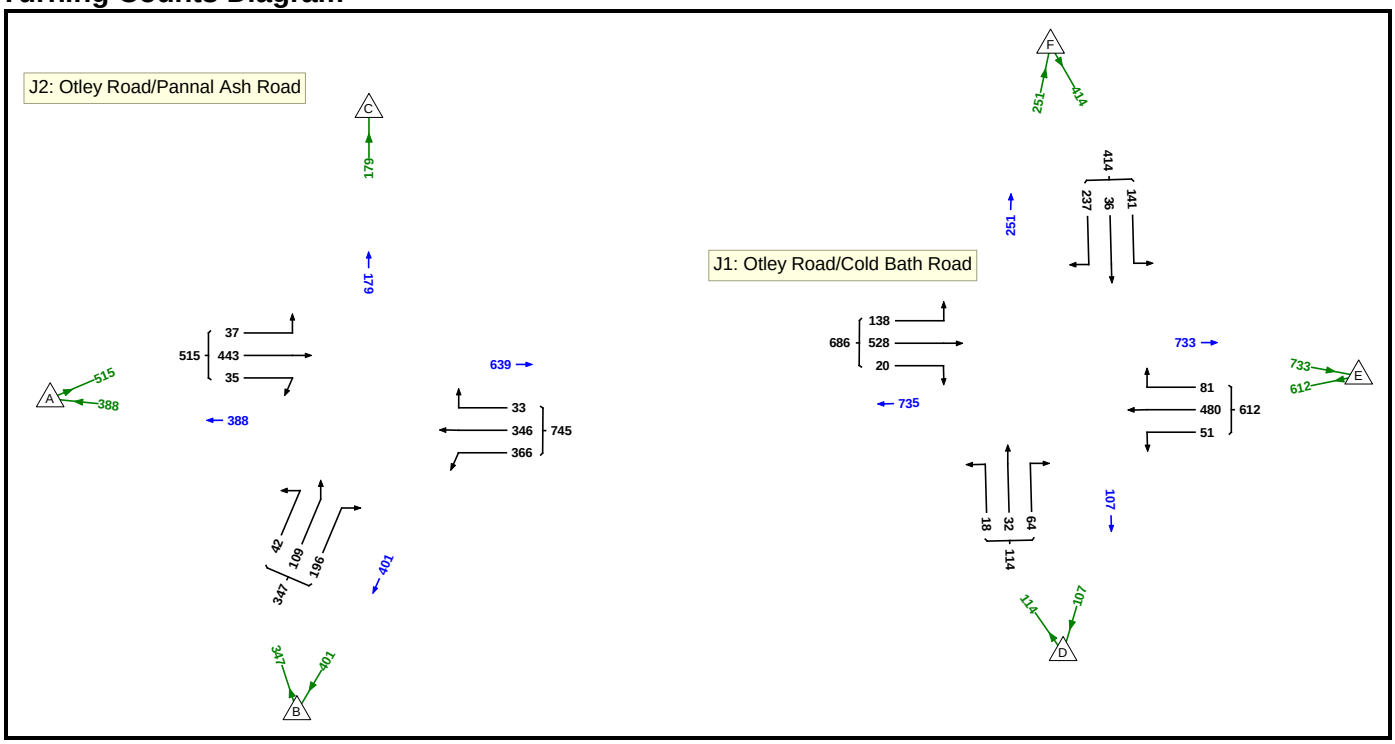
Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2020 PM Peak' (FG2: '2020 PM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Full Input Data And Results

Lane Saturation Flows

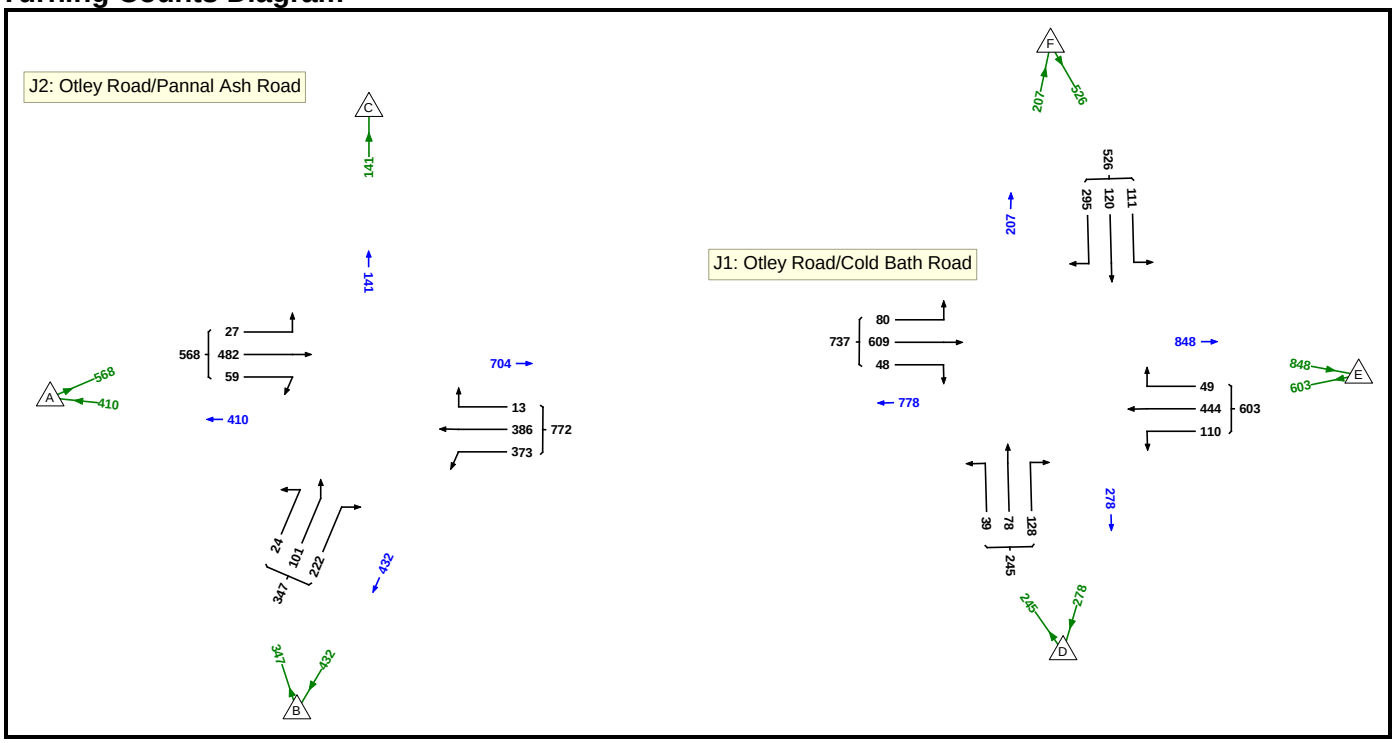
Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: '2030 Base: AM Peak' (FG3: '2030 Base: AM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Lane Saturation Flows

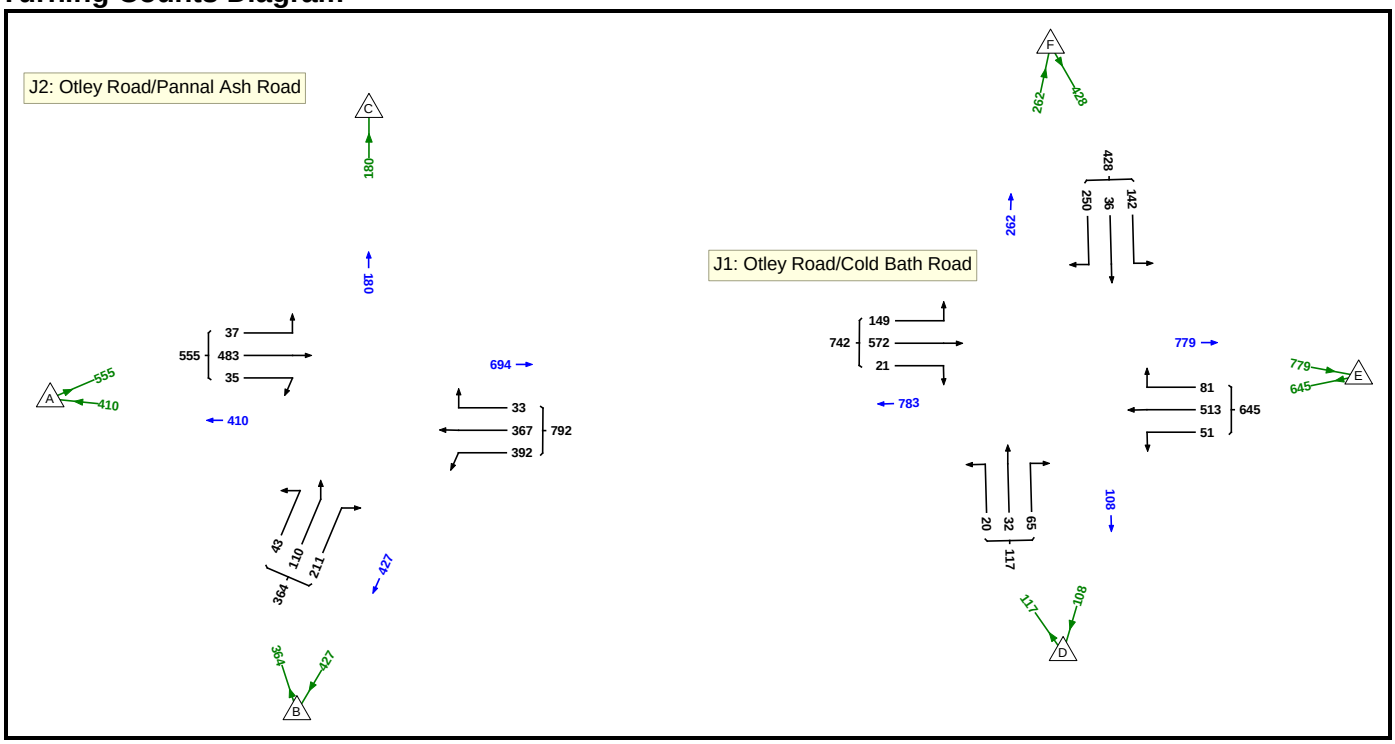
Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2030 Base: PM Peak' (FG4: '2030 Base: PM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Full Input Data And Results

Lane Saturation Flows

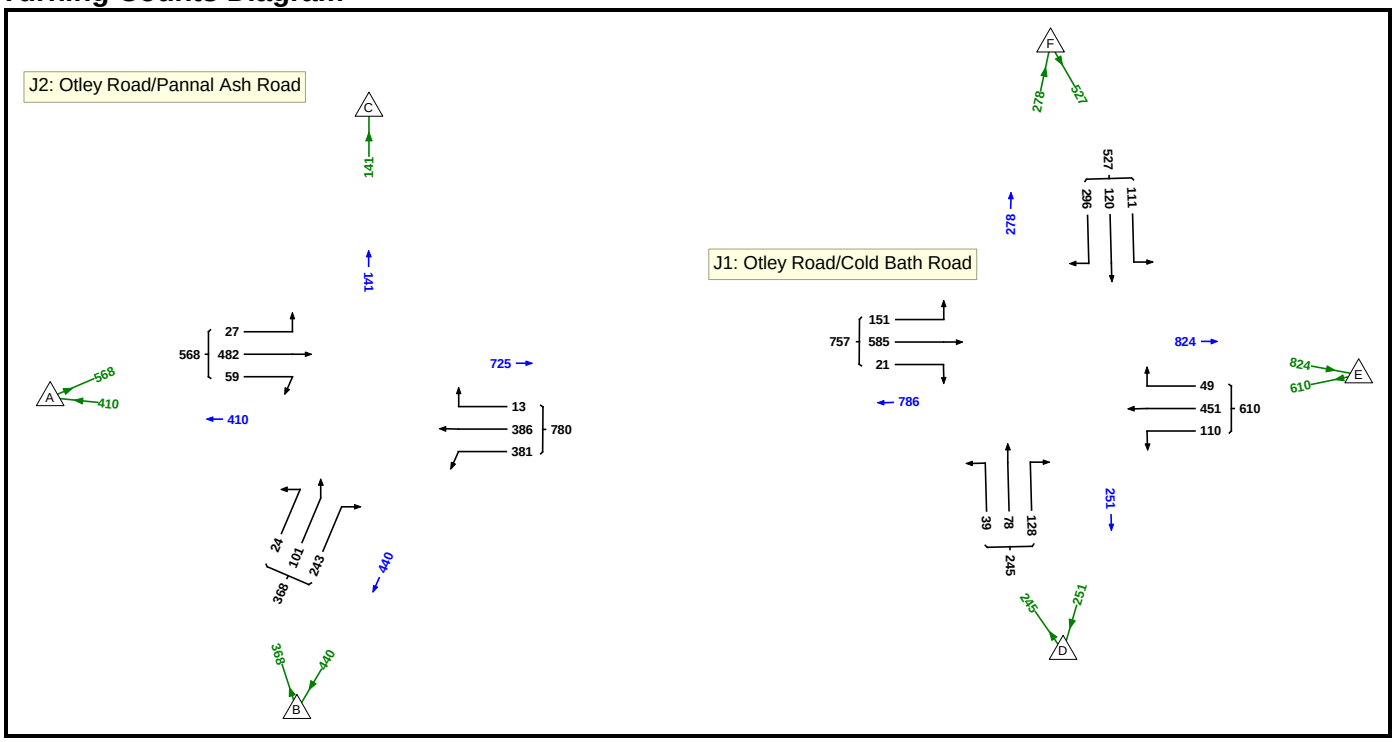
Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: '2030 Base + Development: AM Peak' (FG5: '2030 Base + Development: AM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Lane Saturation Flows

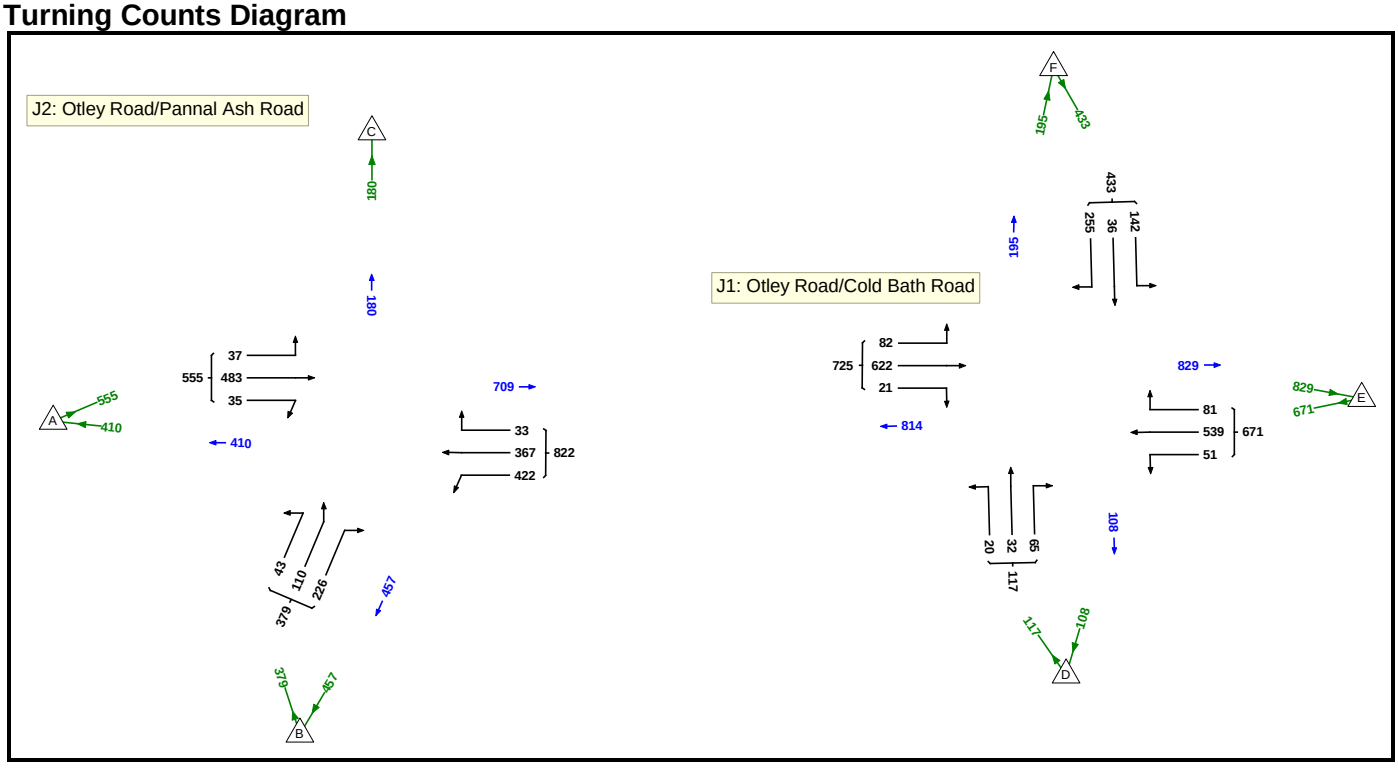
Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2030 Base + Development: PM Peak' (FG6: '2030 Base + Development: PM Peak', Plan 1: 'Network Control Plan 1')

Turning Counts Diagram



Full Input Data And Results

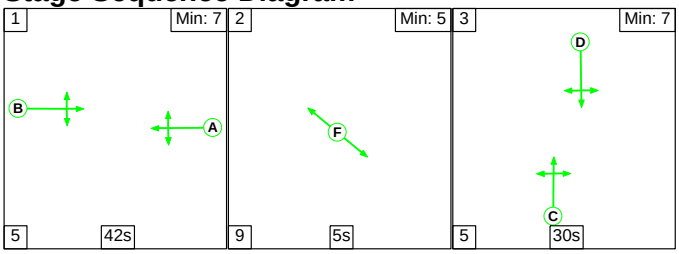
Lane Saturation Flows

Junction: J1: Otley Road/Cold Bath Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J1:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1704	1704
J1:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1546	1546
J1:2/1 (Arthurs Avenue Lane 1)	This lane uses a directly entered Saturation Flow						1665	1665
J1:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1806	1806
J1:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1598	1598
J1:4/1 (Cold Bath Road Lane 1)	This lane uses a directly entered Saturation Flow						1574	1574
J1:4/2 (Cold Bath Road Lane 2)	This lane uses a directly entered Saturation Flow						1501	1501
J1:5/1	Infinite Saturation Flow						Inf	Inf
J1:6/1	Infinite Saturation Flow						Inf	Inf
J1:7/1	Infinite Saturation Flow						Inf	Inf
J1:8/1	Infinite Saturation Flow						Inf	Inf

Junction: J2: Otley Road/Pannal Ash Road								
Lane	**Lane Width (m)**	**Gradient**	**Nearside Lane**	**Allowed Turns**	**Turning Radius (m)**	**Turning Prop.**	**Sat Flow (PCU/Hr)**	**Flared Sat Flow (PCU/Hr)**
J2:1/1 (Otley Road (E) Lane 1)	This lane uses a directly entered Saturation Flow						1554	1554
J2:1/2 (Otley Road (E) Lane 2)	This lane uses a directly entered Saturation Flow						1736	1736
J2:2/1 (Pannal Ash Road Lane 1)	This lane uses a directly entered Saturation Flow						1803	1803
J2:2/2 (Pannal Ash Road Lane 2)	This lane uses a directly entered Saturation Flow						1563	1563
J2:3/1 (Otley Road (W) Lane 1)	This lane uses a directly entered Saturation Flow						1727	1727
J2:3/2 (Otley Road (W) Lane 2)	This lane uses a directly entered Saturation Flow						1645	1645
J2:4/1	4.80	0.00	Y	Arm J1:3 Ahead	Inf	100.0 %	2095	2095
J2:5/1	Infinite Saturation Flow						Inf	Inf
J2:6/1	Infinite Saturation Flow						Inf	Inf
J2:7/1 (Mannor Drive Lane 1)	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

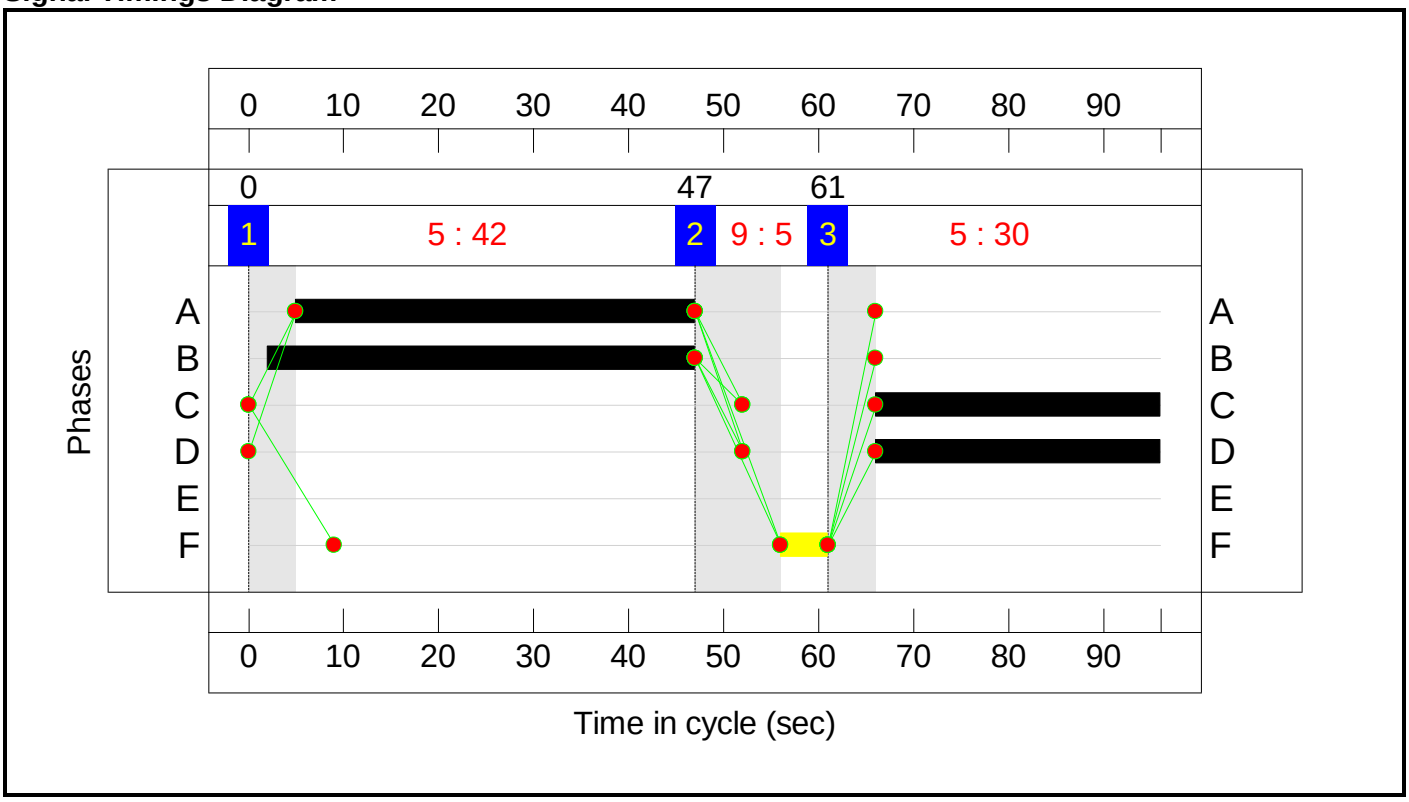
Scenario 1: '2020 AM Peak' (FG1: '2020 AM Peak', Plan 1: 'Network Control Plan 1')
C1
Stage Sequence Diagram



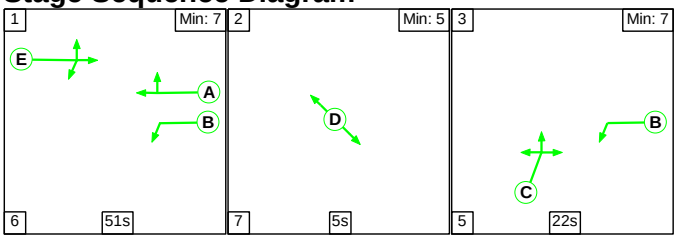
Stage Timings

Stage	1	2	3
Duration	42	5	30
Change Point	0	47	61

Signal Timings Diagram



C2
Stage Sequence Diagram

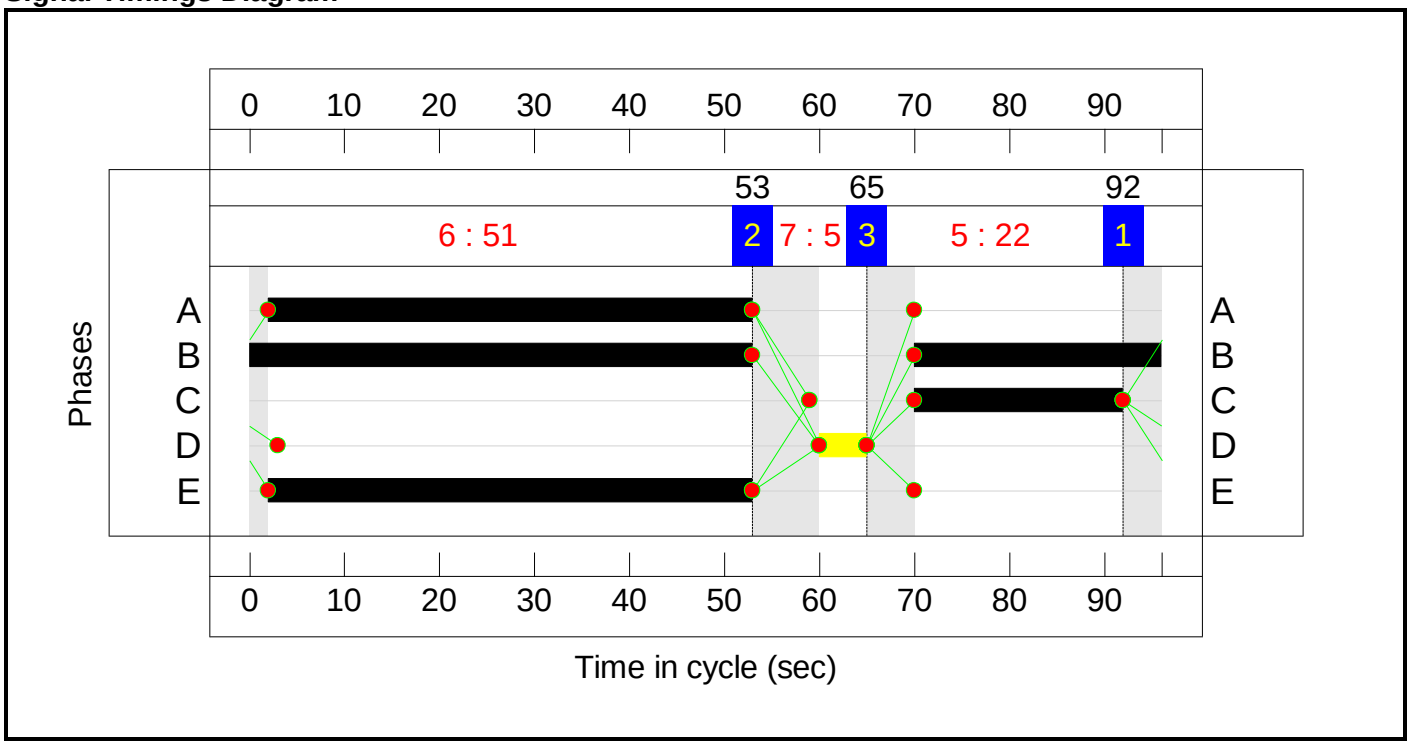


Full Input Data And Results

Stage Timings

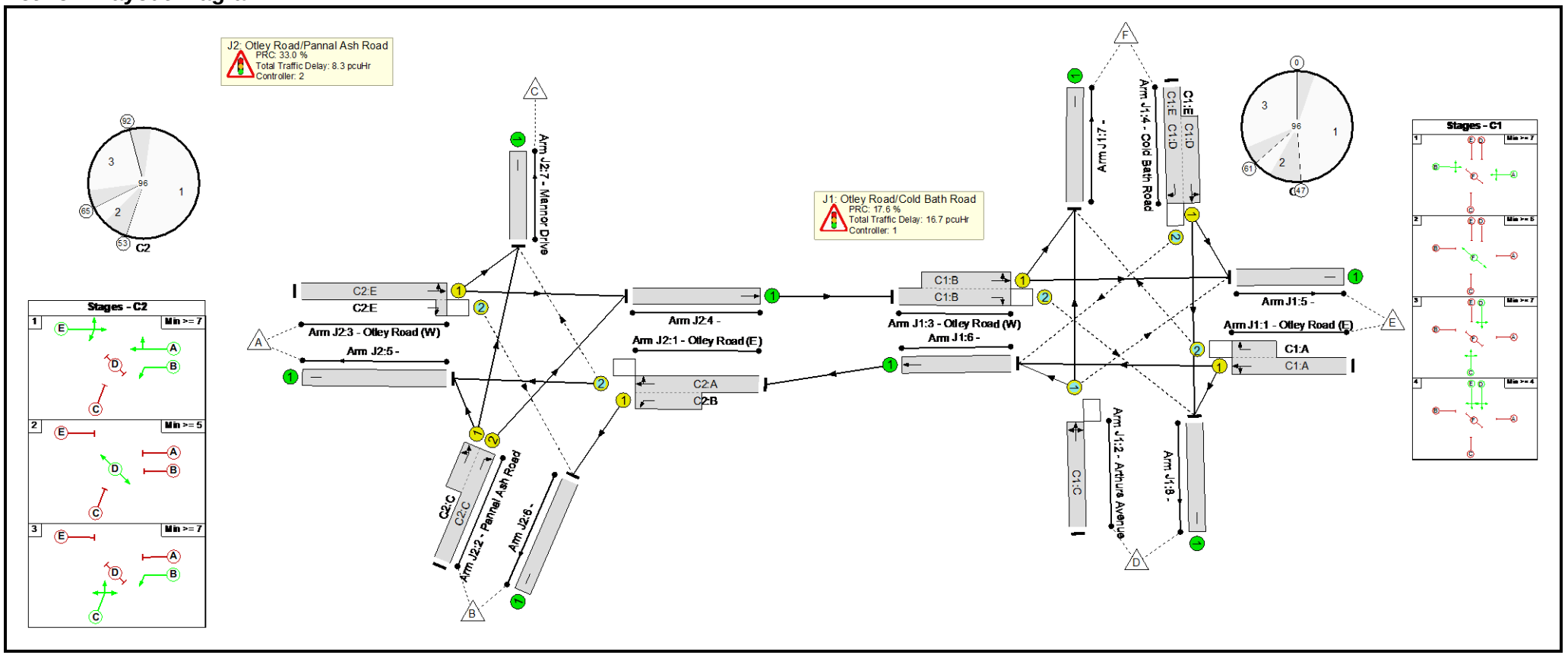
Stage	1	2	3
Duration	51	5	22
Change Point	92	53	65

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
J1: Otley Road/Cold Bath Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**76.5%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	42	-	597	1704:1546	713+67	76.5 : 76.5%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	30	-	247	1665	418	59.1%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	45	-	629	1598:1806	61+854	68.7 : 68.7%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	30	0:0	517	1501:1574	387+313	73.9 : 73.9%
5/1		U	N/A	N/A	-		-	-	-	784	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	754	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	182	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.6%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	51:79	-	754	1736:1554	576+546	67.2 : 67.2%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	22	-	332	1563:1803	310+180	67.6 : 67.6%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	51	-	499	1727:1645	833+103	53.3 : 53.3%
4/1	Ahead	U	N/A	N/A	-		-	-	-	629	2095	2095	30.0%
5/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	422	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	139	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**567**	**13**	**0**	**16.7**	**7.6**	**0.7**	**25.0**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**498**	**13**	**0**	**11.3**	**4.8**	**0.6**	**16.7**	**-**	**-**	**-**	**-**
1/1+1/2	597	597	51	0	0	3.6	1.6	0.0	5.2	31.4	12.7	1.6	14.3
2/1	247	247	132	0	0	1.9	0.7	0.2	2.9	41.6	5.8	0.7	6.5
3/2+3/1	629	629	29	13	0	1.9	1.1	0.1	3.1	17.5	8.3	1.1	9.3
4/2+4/1	517	517	286	0	0	3.9	1.4	0.3	5.6	39.0	6.8	1.4	8.2
5/1	784	784	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	754	754	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	182	182	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	270	270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**69**	**0**	**0**	**5.4**	**2.8**	**0.1**	**8.3**	**-**	**-**	**-**	**-**
1/2+1/1	754	754	14	0	0	0.6	1.0	0.0	1.6	7.8	4.1	1.0	5.1
2/2+2/1	332	332	-	-	-	2.9	1.0	-	3.9	42.5	5.2	1.0	6.3
3/1+3/2	499	499	55	0	0	1.9	0.6	0.0	2.6	18.4	8.3	0.6	8.9
4/1	629	629	-	-	-	0.0	0.2	-	0.2	1.2	0.0	0.2	0.2
5/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	422	422	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	139	139	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

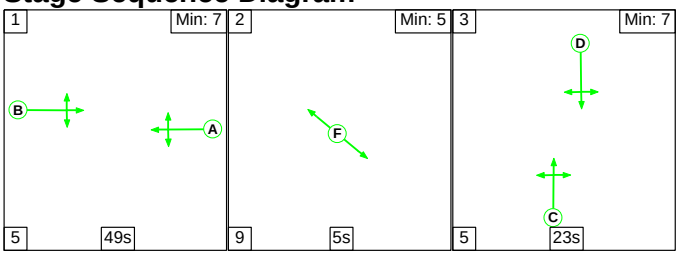
C1	PRC for Signalled Lanes (%):	17.6	Total Delay for Signalled Lanes (pcuHr):	16.71	Cycle Time (s): 96
C2	PRC for Signalled Lanes (%):	33.0	Total Delay for Signalled Lanes (pcuHr):	8.11	Cycle Time (s): 96
	PRC Over All Lanes (%):	17.6	Total Delay Over All Lanes(pcuHr):	25.03	

Full Input Data And Results

Scenario 2: '2020 PM Peak' (FG2: '2020 PM Peak', Plan 1: 'Network Control Plan 1')

C1

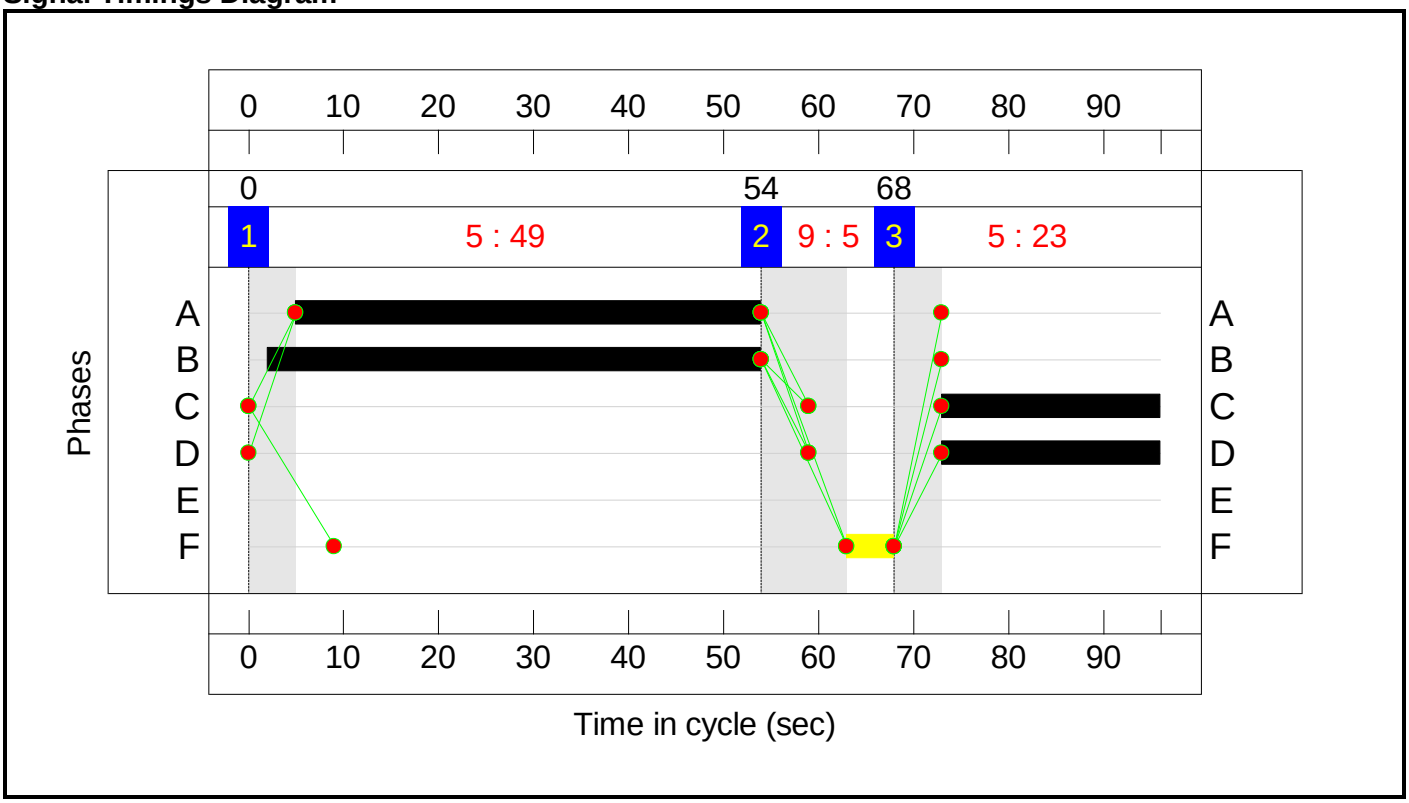
Stage Sequence Diagram



Stage Timings

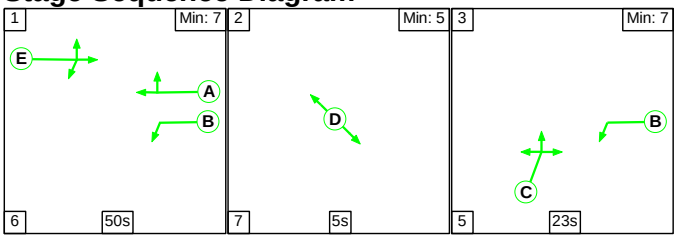
Stage	1	2	3
Duration	49	5	23
Change Point	0	54	68

Signal Timings Diagram



C2

Stage Sequence Diagram

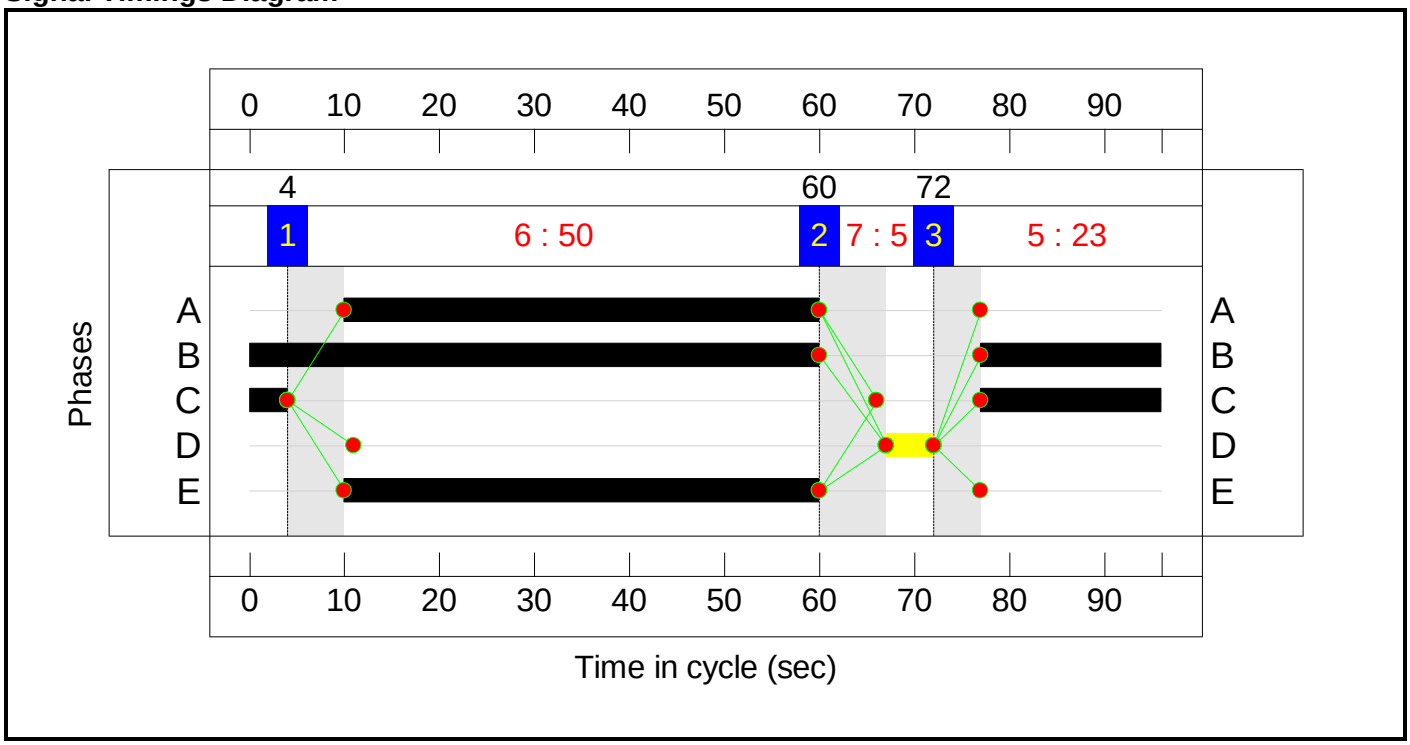


Full Input Data And Results

Stage Timings

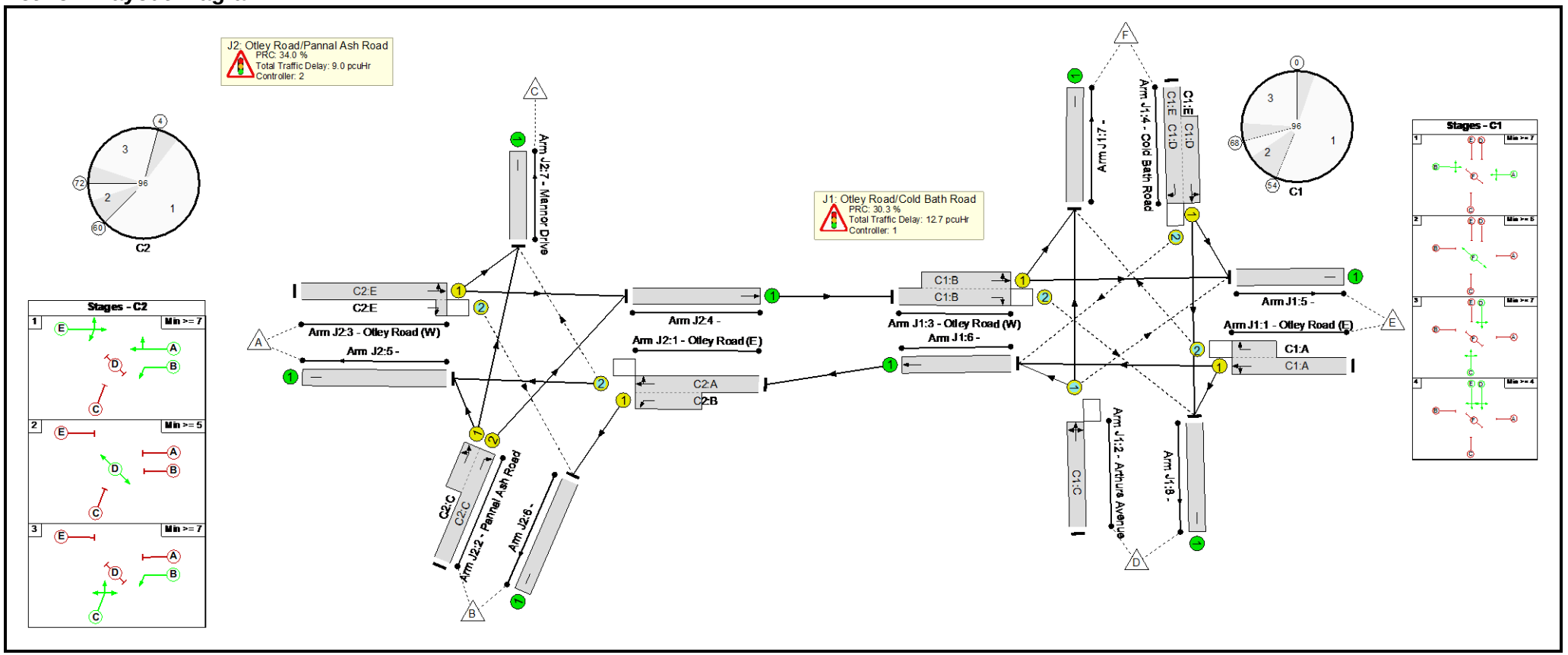
Stage	1	2	3
Duration	50	5	23
Change Point	4	60	72

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.1%**
J1: Otley Road/Cold Bath Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**69.1%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	49	-	628	1704:1546	785+124	69.1 : 69.1%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	23	-	117	1665	322	36.4%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	52	-	666	1598:1806	27+988	65.6 : 65.6%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	23	0:0	425	1501:1574	349+274	68.2 : 68.2%
5/1		U	N/A	N/A	-		-	-	-	734	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	745	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	251	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	106	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**67.2%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	50:79	-	745	1736:1554	564+545	67.2 : 67.2%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	23	-	357	1563:1803	309+224	67.0 : 67.0%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	50	-	529	1727:1645	860+59	57.6 : 57.6%
4/1	Ahead	U	N/A	N/A	-		-	-	-	666	2095	2095	31.8%
5/1		U	N/A	N/A	-		-	-	-	387	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	400	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	178	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**471**	**5**	**0**	**15.0**	**6.3**	**0.5**	**21.7**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**404**	**5**	**0**	**9.0**	**3.4**	**0.3**	**12.7**	**-**	**-**	**-**	**-**
1/1+1/2	628	628	86	0	0	2.9	1.1	0.0	4.0	22.8	11.6	1.1	12.7
2/1	117	117	67	0	0	0.9	0.3	0.1	1.4	42.3	2.5	0.3	2.8
3/2+3/1	666	666	13	5	0	1.5	0.9	0.0	2.4	13.2	8.3	0.9	9.3
4/2+4/1	425	425	238	0	0	3.7	1.1	0.2	5.0	42.1	5.7	1.1	6.7
5/1	734	734	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	745	745	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	251	251	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	106	106	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**67**	**0**	**0**	**5.9**	**2.9**	**0.1**	**9.0**	**-**	**-**	**-**	**-**
1/2+1/1	745	745	33	0	0	0.7	1.0	0.1	1.8	8.7	4.0	1.0	5.0
2/2+2/1	357	357	-	-	-	3.0	1.0	-	4.0	40.6	5.0	1.0	6.0
3/1+3/2	529	529	34	0	0	2.2	0.7	0.1	2.9	20.0	9.3	0.7	10.0
4/1	666	666	-	-	-	0.0	0.2	-	0.2	1.3	0.0	0.2	0.2
5/1	387	387	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	400	400	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	178	178	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

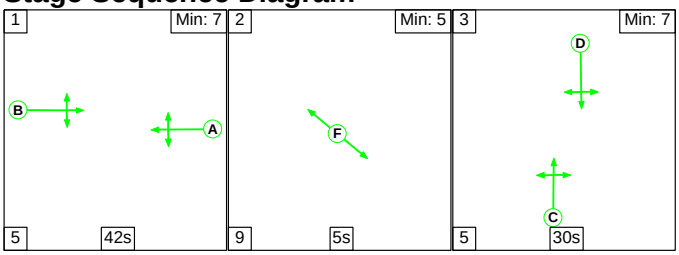
C1	PRC for Signalled Lanes (%):	30.3	Total Delay for Signalled Lanes (pcuHr):	12.75	Cycle Time (s): 96
C2	PRC for Signalled Lanes (%):	34.0	Total Delay for Signalled Lanes (pcuHr):	8.76	Cycle Time (s): 96
	PRC Over All Lanes (%):	30.3	Total Delay Over All Lanes(pcuHr):	21.74	

Full Input Data And Results

Scenario 3: '2030 Base: AM Peak' (FG3: '2030 Base: AM Peak', Plan 1: 'Network Control Plan 1')

C1

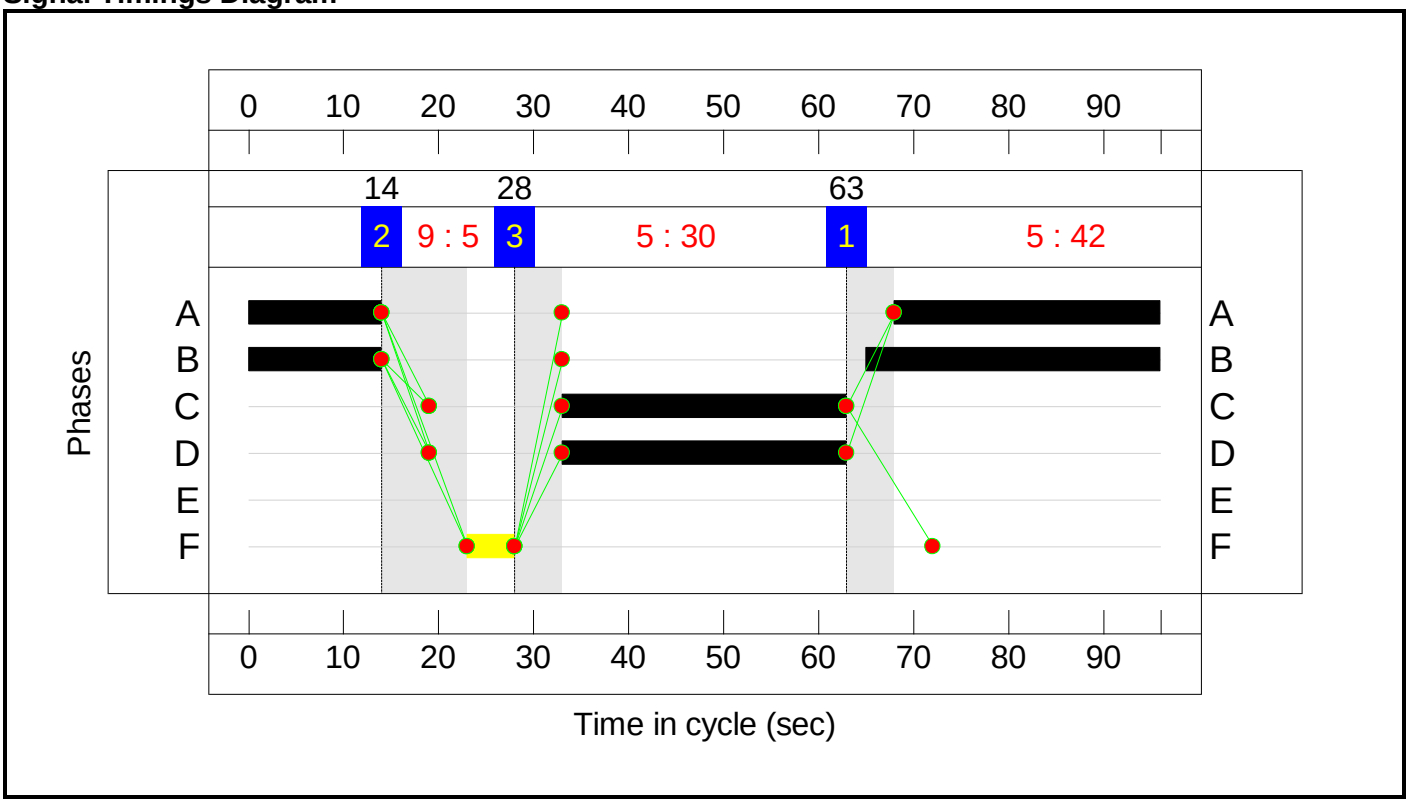
Stage Sequence Diagram



Stage Timings

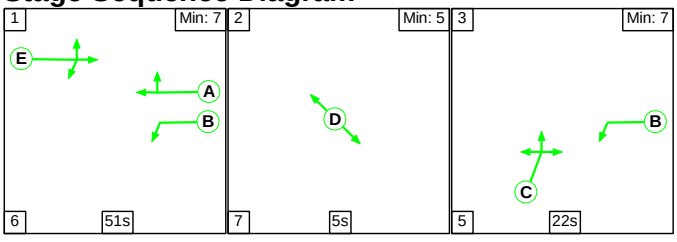
Stage	1	2	3
Duration	42	5	30
Change Point	63	14	28

Signal Timings Diagram



C2

Stage Sequence Diagram

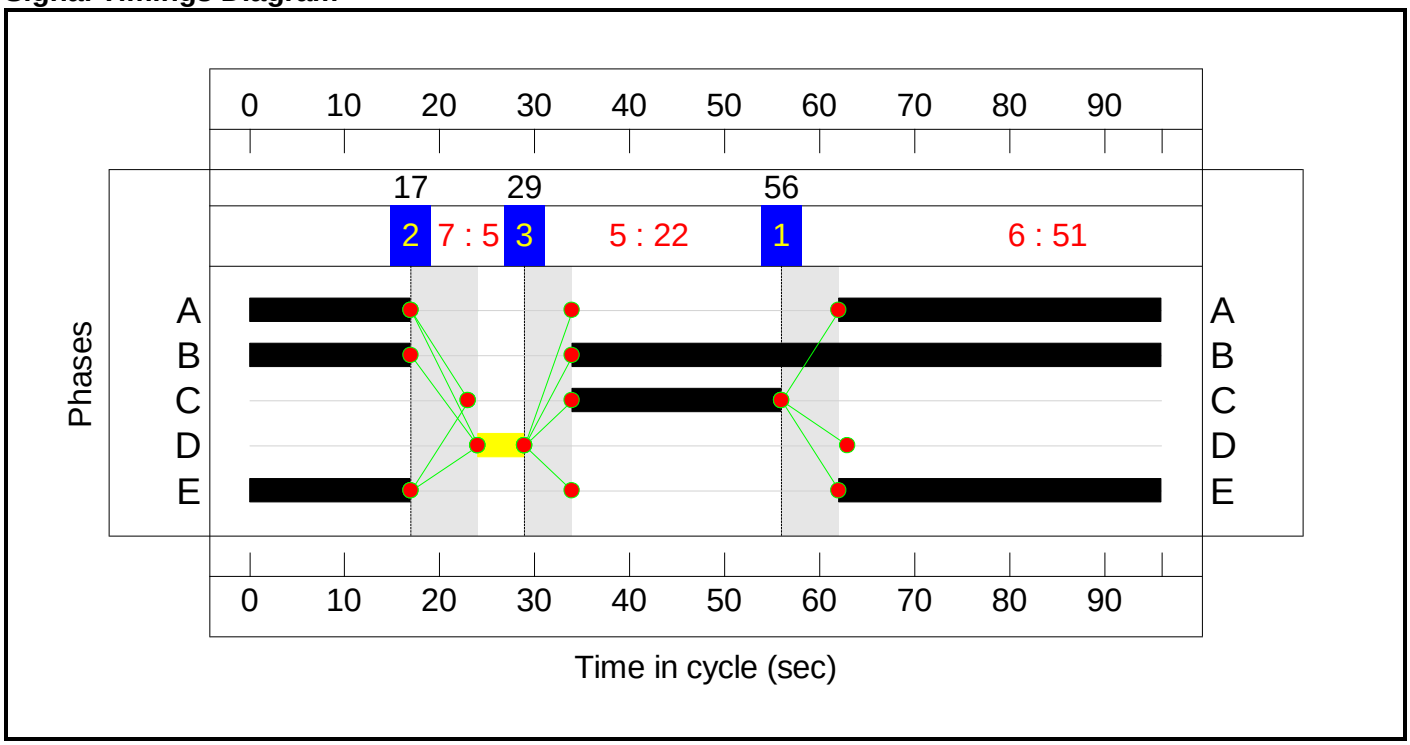


Full Input Data And Results

Stage Timings

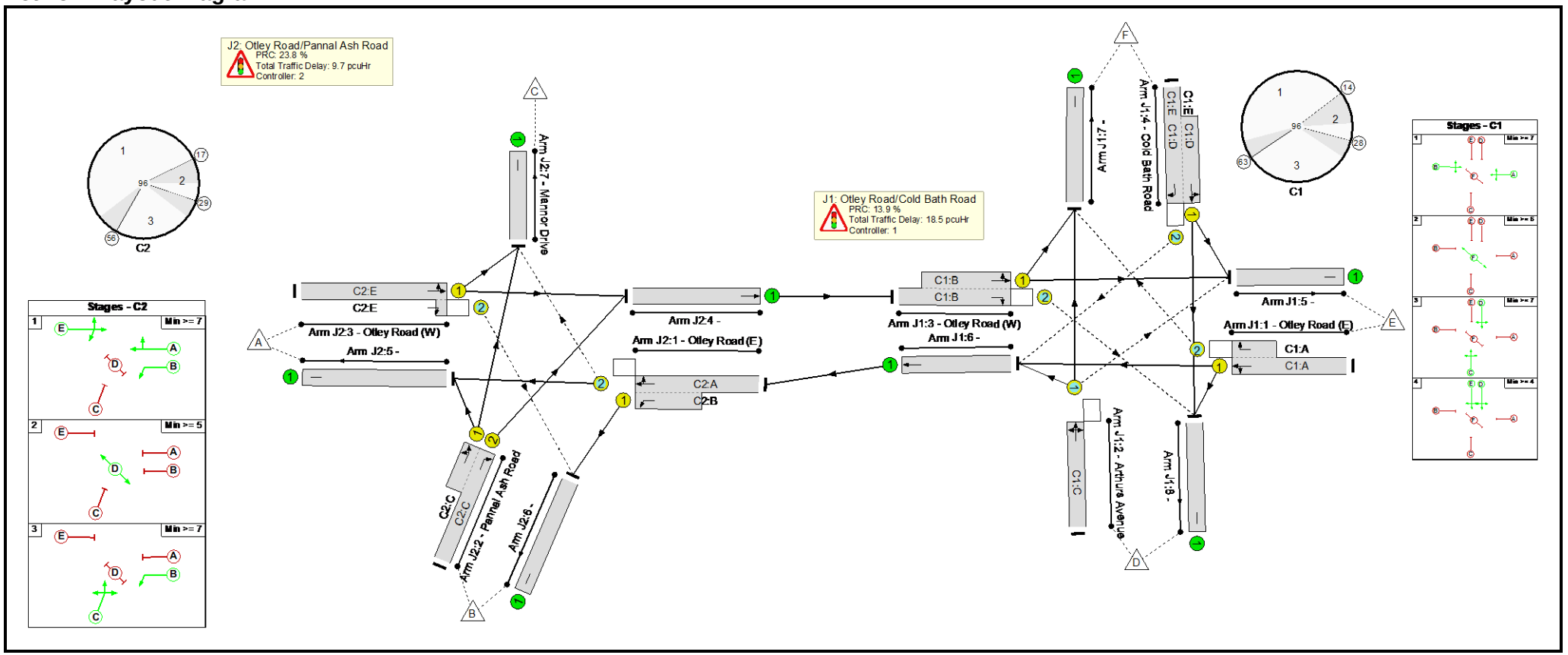
Stage	1	2	3
Duration	51	5	22
Change Point	56	17	29

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.0%**
J1: Otley Road/Cold Bath Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**79.0%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	42	-	610	1704:1546	713+66	78.2 : 78.2%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	30	-	248	1665	418	59.3%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	45	-	720	1598:1806	57+855	79.0 : 79.0%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	30	0:0	533	1501:1574	386+316	75.9 : 75.9%
5/1		U	N/A	N/A	-		-	-	-	849	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	776	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	208	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	278	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.7%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	51:79	-	776	1736:1554	579+541	69.3 : 69.3%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	22	-	352	1563:1803	314+171	72.7 : 72.7%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	51	-	576	1727:1645	844+93	61.5 : 61.5%
4/1	Ahead	U	N/A	N/A	-		-	-	-	720	2095	2095	34.4%
5/1		U	N/A	N/A	-		-	-	-	410	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	432	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	142	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**578**	**15**	**0**	**18.1**	**9.4**	**0.7**	**28.2**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**507**	**15**	**0**	**12.0**	**5.9**	**0.6**	**18.5**	**-**	**-**	**-**	**-**
1/1+1/2	610	610	52	0	0	3.7	1.8	0.0	5.5	32.4	13.2	1.8	14.9
2/1	248	248	132	0	0	1.9	0.7	0.3	2.9	41.9	5.8	0.7	6.5
3/2+3/1	720	720	30	15	0	2.3	1.8	0.1	4.2	20.9	8.9	1.8	10.8
4/2+4/1	533	533	293	0	0	4.1	1.5	0.3	5.9	40.0	7.1	1.5	8.6
5/1	849	849	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	776	776	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	208	208	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	278	278	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**71**	**0**	**0**	**6.1**	**3.5**	**0.1**	**9.7**	**-**	**-**	**-**	**-**
1/2+1/1	776	776	14	0	0	0.6	1.1	0.0	1.8	8.2	3.7	1.1	4.8
2/2+2/1	352	352	-	-	-	3.1	1.3	-	4.4	45.2	6.1	1.3	7.4
3/1+3/2	576	576	57	0	0	2.4	0.8	0.1	3.3	20.3	10.3	0.8	11.1
4/1	720	720	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3
5/1	410	410	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	432	432	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	142	142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	13.9	Total Delay for Signalled Lanes (pcuHr):	18.47
C2	PRC for Signalled Lanes (%):	23.8	Total Delay for Signalled Lanes (pcuHr):	9.43
	PRC Over All Lanes (%):	13.9	Total Delay Over All Lanes(pcuHr):	28.17

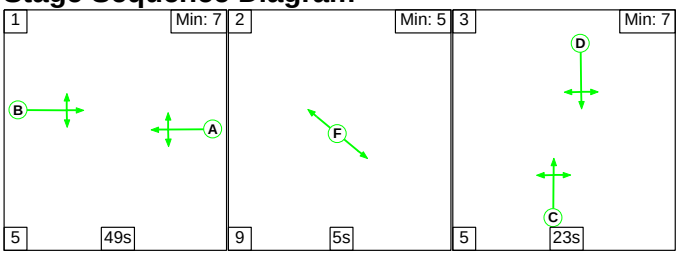
Cycle Time (s): 96
Cycle Time (s): 96

Full Input Data And Results

Scenario 4: '2030 Base: PM Peak' (FG4: '2030 Base: PM Peak', Plan 1: 'Network Control Plan 1')

C1

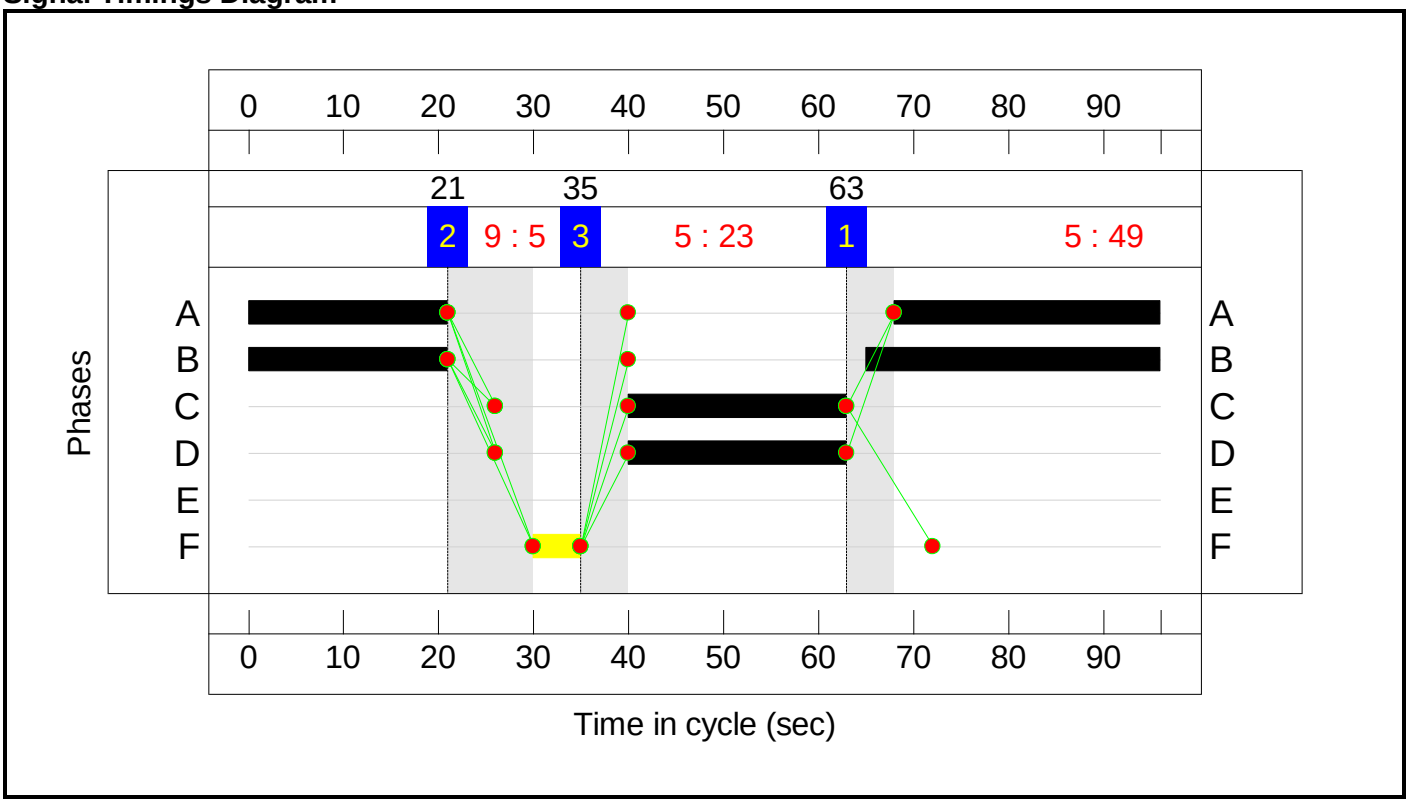
Stage Sequence Diagram



Stage Timings

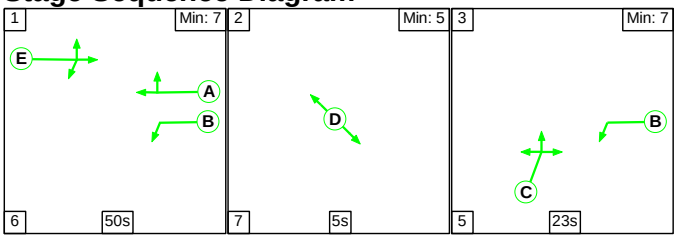
Stage	1	2	3
Duration	49	5	23
Change Point	63	21	35

Signal Timings Diagram



C2

Stage Sequence Diagram

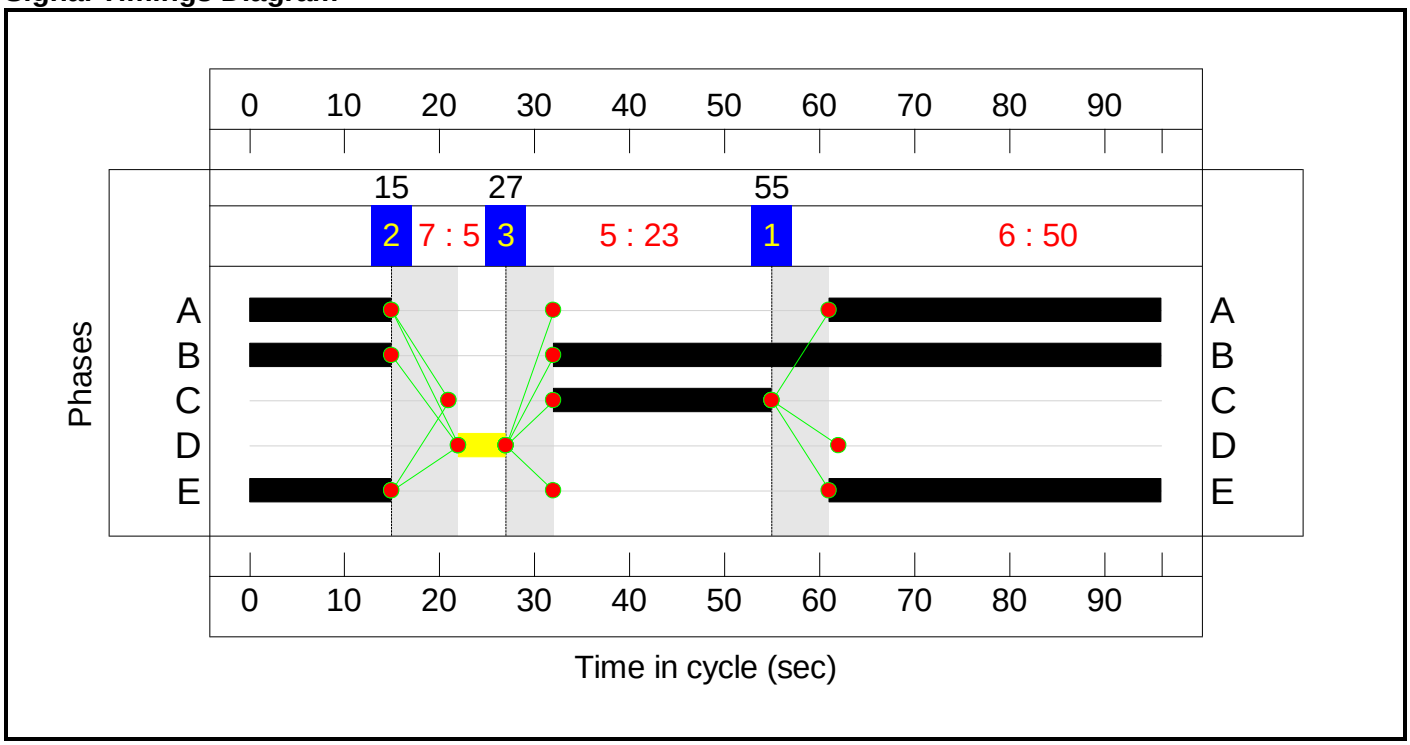


Full Input Data And Results

Stage Timings

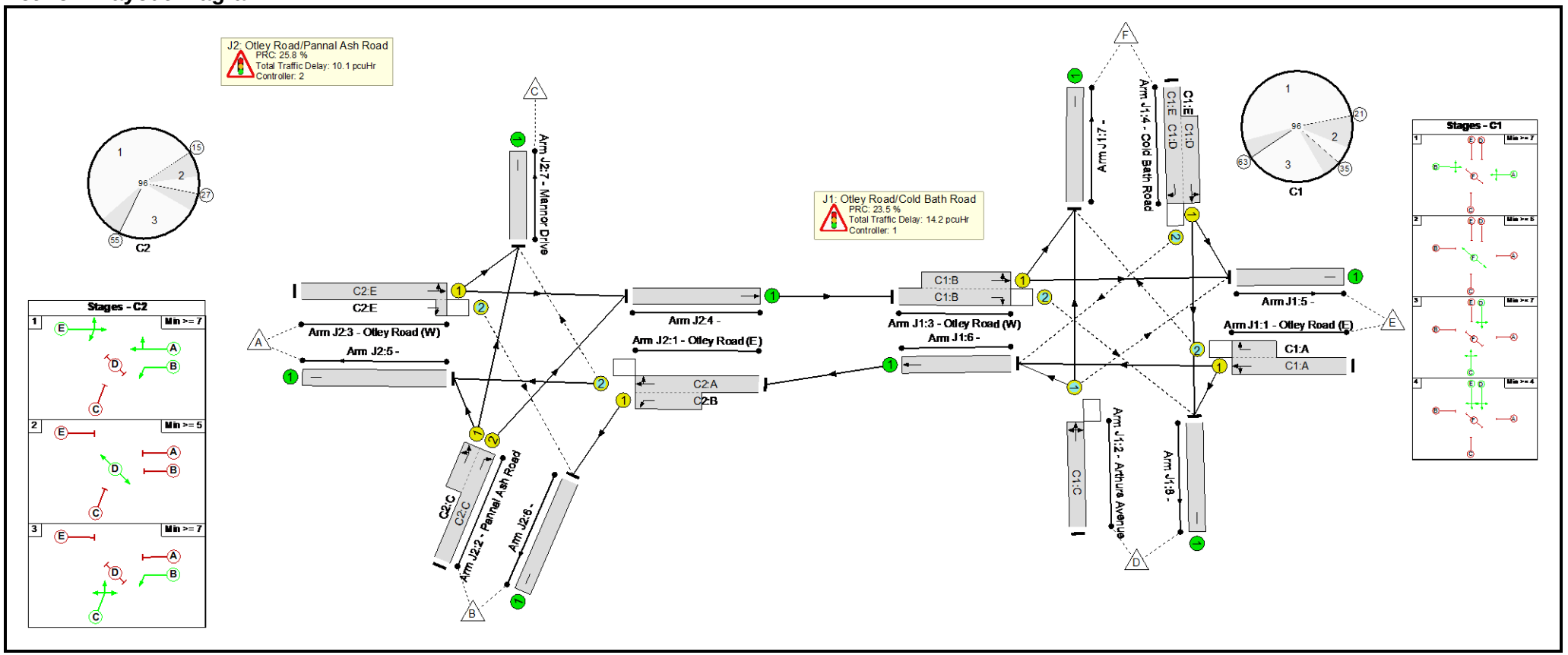
Stage	1	2	3
Duration	50	5	23
Change Point	55	15	27

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.9%**
J1: Otley Road/Cold Bath Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**72.9%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	49	-	662	1704:1546	790+118	72.9 : 72.9%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	23	-	120	1665	323	37.1%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	52	-	722	1598:1806	27+988	71.1 : 71.1%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	23	0:0	440	1501:1574	349+261	72.2 : 72.2%
5/1		U	N/A	N/A	-		-	-	-	780	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	795	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	262	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	107	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**71.5%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	50:79	-	795	1736:1554	562+550	71.5 : 71.5%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	23	-	374	1563:1803	312+214	71.1 : 71.1%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	50	-	570	1727:1645	864+55	62.0 : 62.0%
4/1	Ahead	U	N/A	N/A	-		-	-	-	722	2095	2095	34.5%
5/1		U	N/A	N/A	-		-	-	-	410	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	427	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	180	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**488**	**5**	**0**	**16.1**	**7.7**	**0.5**	**24.3**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**420**	**5**	**0**	**9.7**	**4.1**	**0.4**	**14.2**	**-**	**-**	**-**	**-**
1/1+1/2	662	662	86	0	0	3.1	1.3	0.0	4.5	24.2	12.6	1.3	14.0
2/1	120	120	68	0	0	1.0	0.3	0.1	1.4	42.4	2.6	0.3	2.9
3/2+3/1	722	722	14	5	0	1.7	1.2	0.0	2.9	14.6	7.9	1.2	9.1
4/2+4/1	440	440	252	0	0	3.9	1.3	0.2	5.4	43.9	6.1	1.3	7.4
5/1	780	780	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	795	795	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	262	262	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	107	107	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**68**	**0**	**0**	**6.5**	**3.5**	**0.1**	**10.1**	**-**	**-**	**-**	**-**
1/2+1/1	795	795	34	0	0	0.8	1.2	0.1	2.1	9.5	3.1	1.2	4.4
2/2+2/1	374	374	-	-	-	3.2	1.2	-	4.4	42.5	5.8	1.2	7.0
3/1+3/2	570	570	34	0	0	2.5	0.8	0.1	3.3	21.1	10.4	0.8	11.2
4/1	722	722	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3
5/1	410	410	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	427	427	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	180	180	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

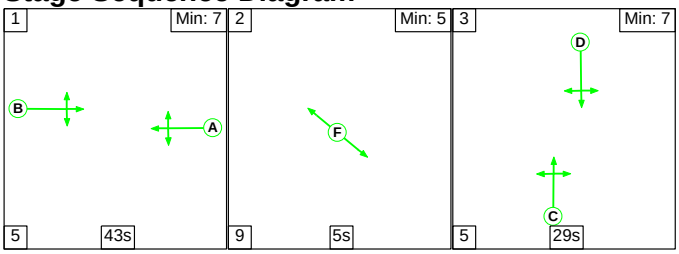
C1	PRC for Signalled Lanes (%):	23.5	Total Delay for Signalled Lanes (pcuHr):	14.16	Cycle Time (s): 96
C2	PRC for Signalled Lanes (%):	25.8	Total Delay for Signalled Lanes (pcuHr):	9.86	Cycle Time (s): 96
	PRC Over All Lanes (%):	23.5	Total Delay Over All Lanes(pcuHr):	24.29	

Full Input Data And Results

Scenario 5: '2030 Base + Development: AM Peak' (FG5: '2030 Base + Development: AM Peak', Plan 1: 'Network Control Plan 1')

C1

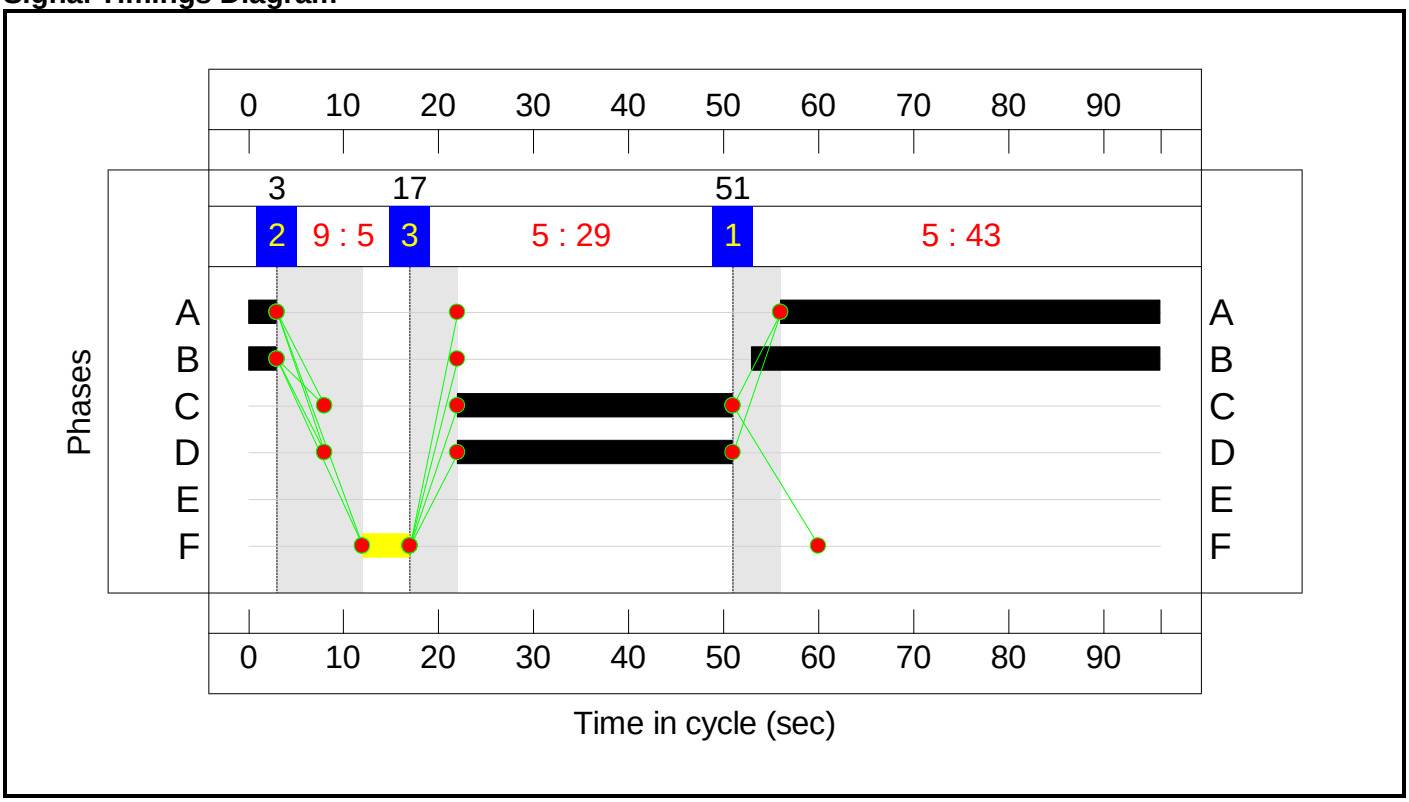
Stage Sequence Diagram



Stage Timings

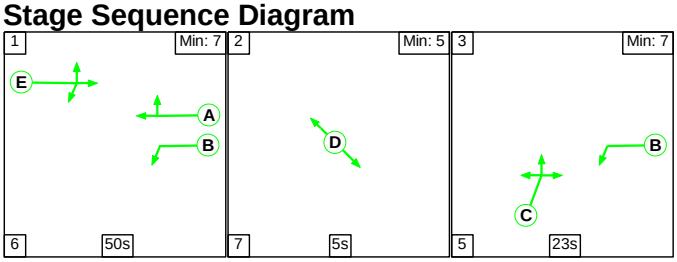
Stage	1	2	3
Duration	43	5	29
Change Point	51	3	17

Signal Timings Diagram



C2

Stage Sequence Diagram

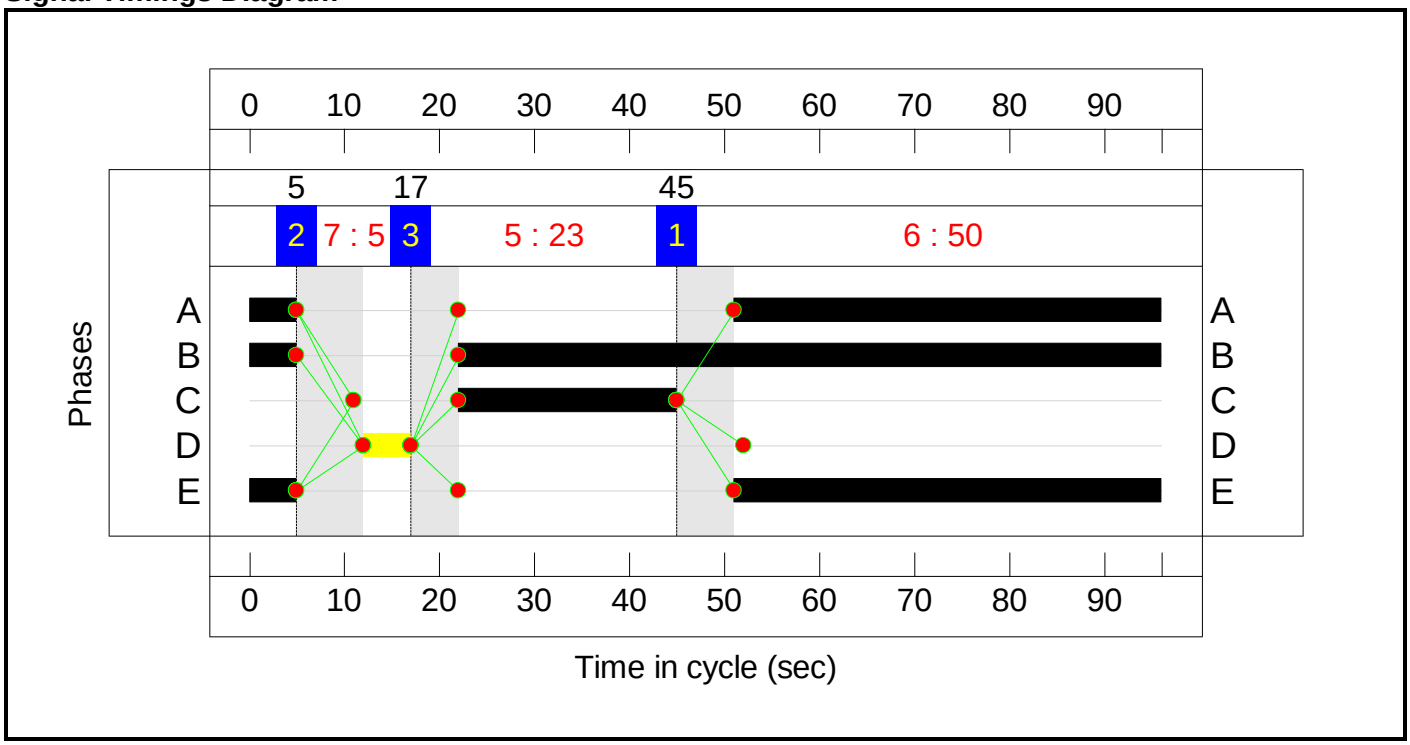


Full Input Data And Results

Stage Timings

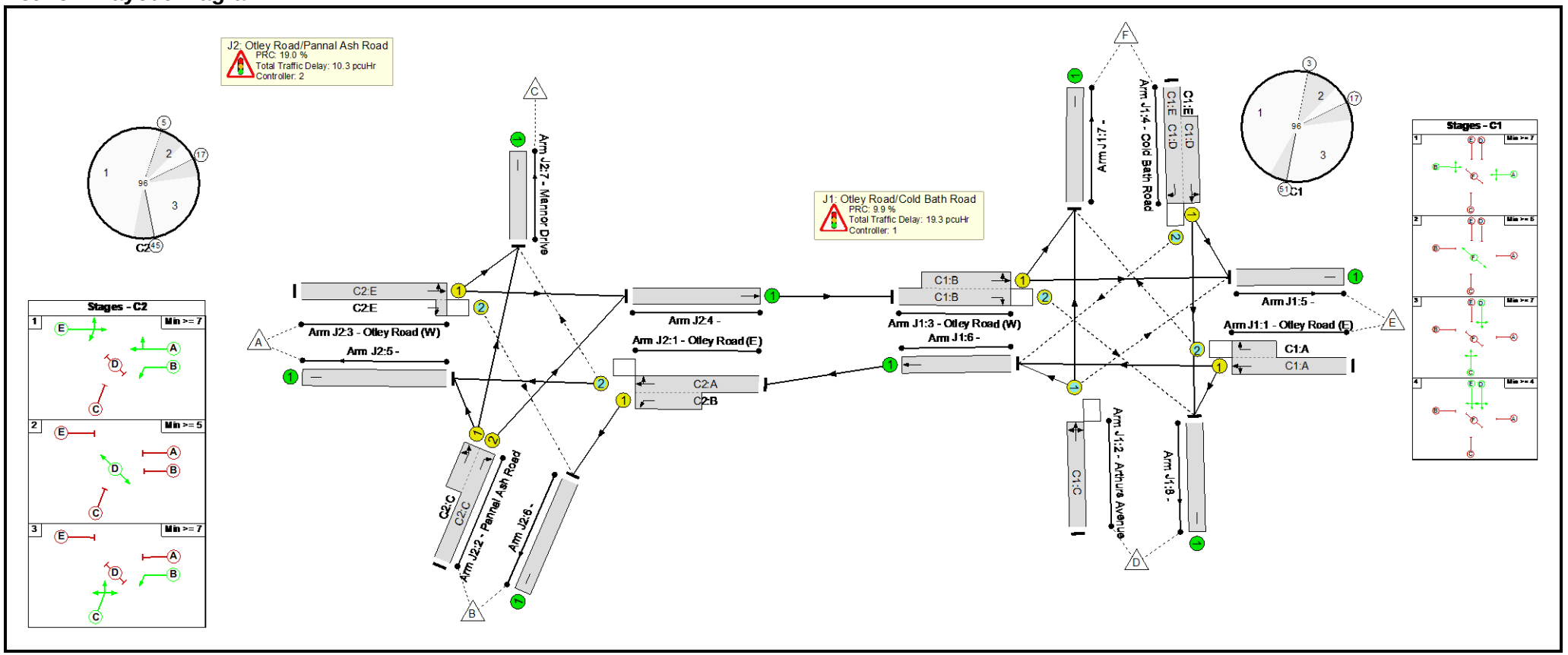
Stage	1	2	3
Duration	50	5	23
Change Point	45	5	17

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**81.9%**
J1: Otley Road/Cold Bath Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**81.9%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	43	-	616	1704:1546	730+67	77.3 : 77.3%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	29	-	247	1665	384	64.3%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	46	-	739	1598:1806	23+879	81.9 : 81.9%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	29	0:0	533	1501:1574	371+301	79.3 : 79.3%
5/1		U	N/A	N/A	-		-	-	-	824	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	784	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	250	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	-	-	**N/A**	-	-		-	-	-	-	-	-	**75.6%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	50:79	-	784	1736:1554	566+541	70.8 : 70.8%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	23	-	373	1563:1803	329+164	75.6 : 75.6%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	50	-	574	1727:1645	828+91	62.5 : 62.5%
4/1	Ahead	U	N/A	N/A	-		-	-	-	739	2095	2095	35.3%
5/1		U	N/A	N/A	-		-	-	-	410	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	440	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	142	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**561**	**6**	**0**	**18.5**	**10.4**	**0.7**	**29.7**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**490**	**6**	**0**	**12.1**	**6.6**	**0.6**	**19.3**	**-**	**-**	**-**	**-**
1/1+1/2	616	616	52	0	0	3.6	1.7	0.0	5.3	31.0	13.1	1.7	14.8
2/1	247	247	131	0	0	2.0	0.9	0.2	3.1	45.4	5.9	0.9	6.8
3/2+3/1	739	739	13	6	0	2.3	2.2	0.0	4.5	22.1	9.6	2.2	11.8
4/2+4/1	533	533	294	0	0	4.2	1.9	0.3	6.4	43.0	7.2	1.9	9.0
5/1	824	824	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	784	784	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	250	250	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**71**	**0**	**0**	**6.4**	**3.8**	**0.1**	**10.3**	**-**	**-**	**-**	**-**
1/2+1/1	784	784	14	0	0	0.7	1.2	0.0	1.9	8.7	3.9	1.2	5.1
2/2+2/1	373	373	-	-	-	3.3	1.5	-	4.8	46.1	6.8	1.5	8.3
3/1+3/2	574	574	57	0	0	2.5	0.8	0.1	3.4	21.3	10.6	0.8	11.4
4/1	739	739	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3
5/1	410	410	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	440	440	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	142	142	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

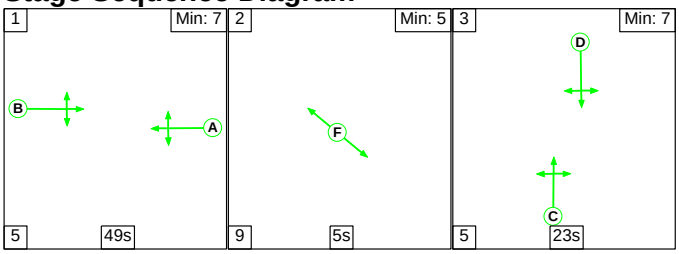
C1	PRC for Signalled Lanes (%):	9.9	Total Delay for Signalled Lanes (pcuHr):	19.32	Cycle Time (s): 96
C2	PRC for Signalled Lanes (%):	19.0	Total Delay for Signalled Lanes (pcuHr):	10.06	Cycle Time (s): 96
	PRC Over All Lanes (%):	9.9	Total Delay Over All Lanes(pcuHr):	29.65	

Full Input Data And Results

Scenario 6: '2030 Base + Development: PM Peak' (FG6: '2030 Base + Development: PM Peak', Plan 1: 'Network Control Plan 1')

C1

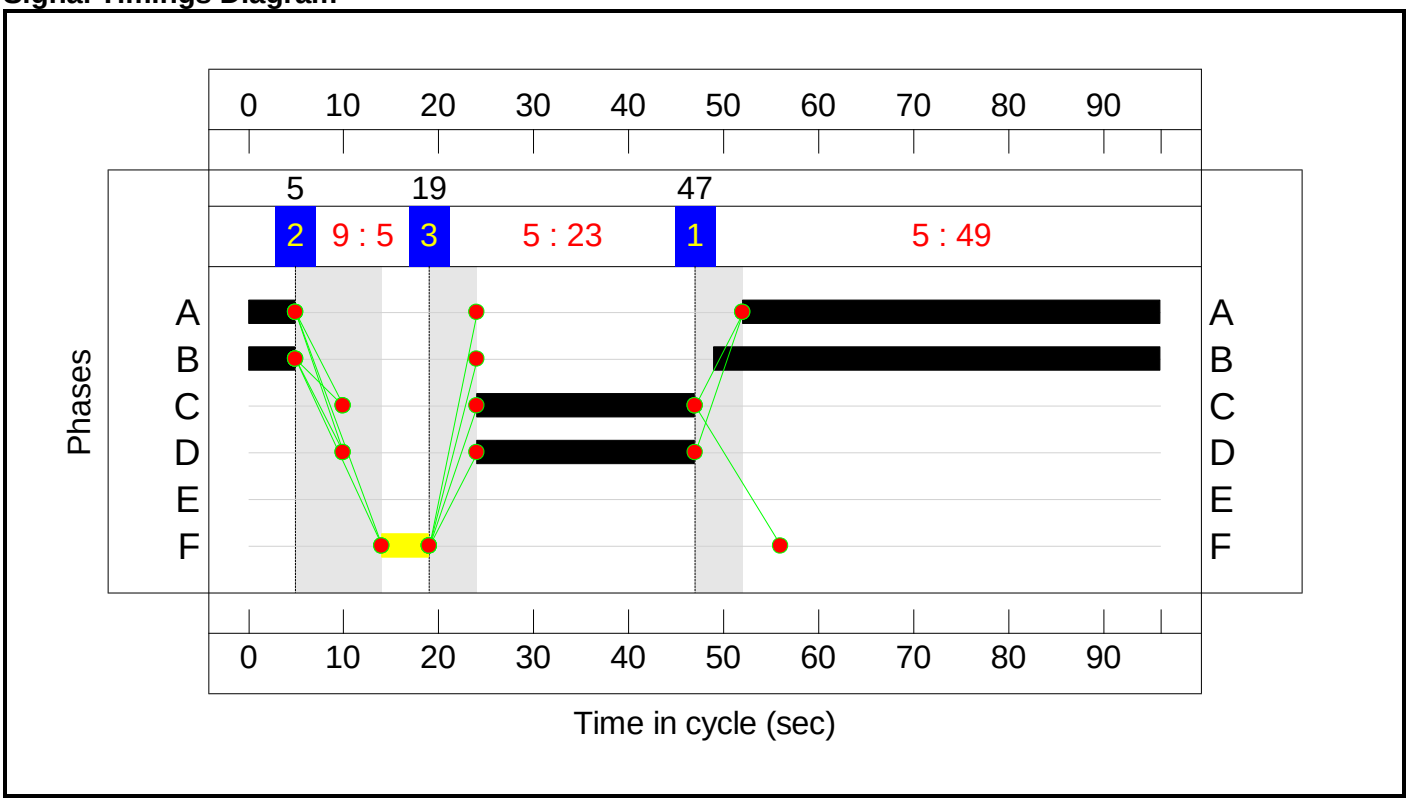
Stage Sequence Diagram



Stage Timings

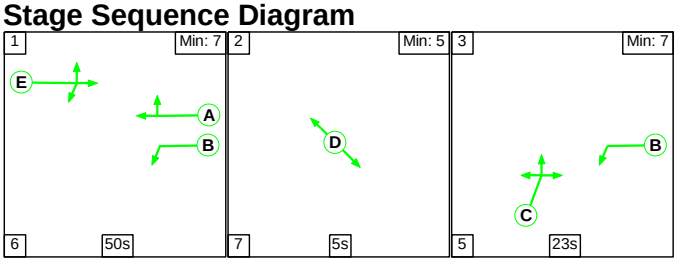
Stage	1	2	3
Duration	49	5	23
Change Point	47	5	19

Signal Timings Diagram



C2

Stage Sequence Diagram

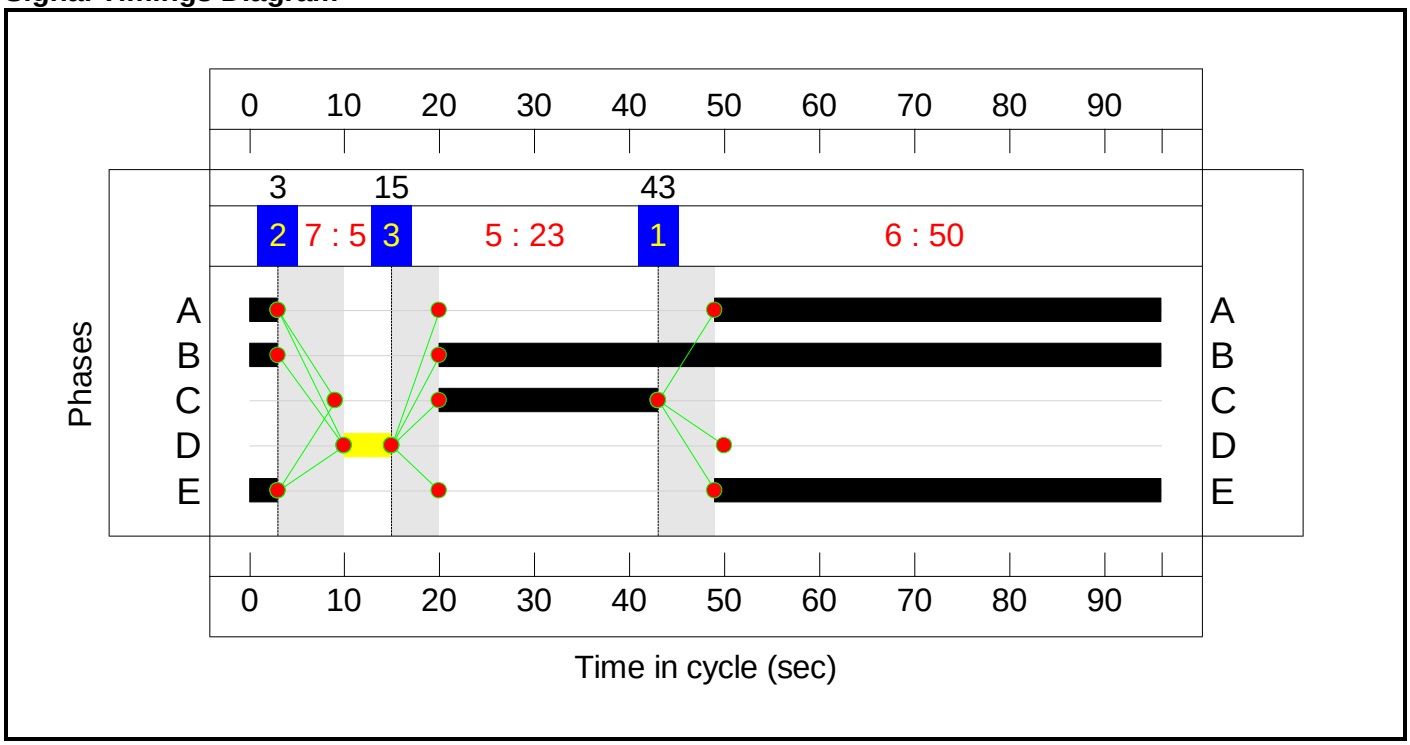


Full Input Data And Results

Stage Timings

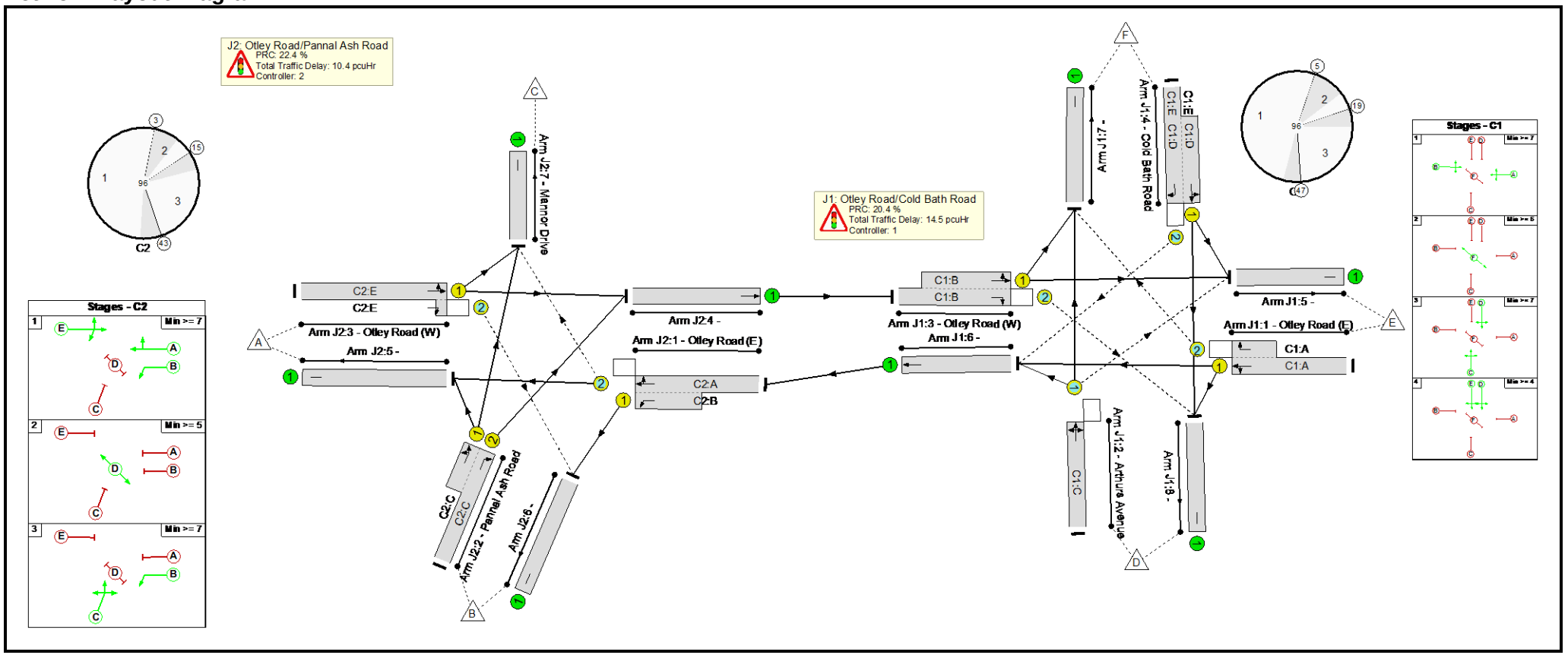
Stage	1	2	3
Duration	50	5	23
Change Point	43	3	15

Signal Timings Diagram



Full Input Data And Results

Network Layout Diagram



Full Input Data And Results

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.7%**
J1: Otley Road/Cold Bath Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**74.7%**
1/1+1/2	Otley Road (E) Ahead Right Left	U+O	N/A	N/A	C1:A		1	49	-	678	1704:1546	797+110	74.7 : 74.7%
2/1	Arthurs Avenue Right Left Ahead	O	N/A	N/A	C1:C		1	23	-	118	1665	325	36.3%
3/2+3/1	Otley Road (W) Ahead Left Right	O+U	N/A	N/A	C1:B		1	52	-	721	1598:1806	30+987	70.9 : 70.9%
4/2+4/1	Cold Bath Road Left Right Ahead	O+U	N/A	N/A	C1:D	C1:E	1	23	0:0	438	1501:1574	349+246	73.6 : 73.6%
5/1		U	N/A	N/A	-		-	-	-	830	Inf	Inf	0.0%
6/1	Ahead	U	N/A	N/A	-		-	-	-	822	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	195	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	108	Inf	Inf	0.0%
J2: Otley Road/Pannal Ash Road	**-**	**-**	**N/A**	**-**	**-**		**-**	**-**	**-**	**-**	**-**	**-**	**73.5%**
1/2+1/1	Otley Road (E) Ahead Left Right	O+U	N/A	N/A	C2:A C2:B		1	50:79	-	822	1736:1554	548+581	72.8 : 72.8%
2/2+2/1	Pannal Ash Road Right Left Ahead	U	N/A	N/A	C2:C		1	23	-	384	1563:1803	314+208	73.5 : 73.5%
3/1+3/2	Otley Road (W) Ahead Right Left	U+O	N/A	N/A	C2:E		1	50	-	562	1727:1645	862+57	61.2 : 61.2%
4/1	Ahead	U	N/A	N/A	-		-	-	-	721	2095	2095	34.4%
5/1		U	N/A	N/A	-		-	-	-	410	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	458	Inf	Inf	0.0%

Full Input Data And Results

7/1	Mannor Drive	U	N/A	N/A	-		-	-	-	179	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**488**	**5**	**0**	**16.3**	**8.1**	**0.5**	**24.8**	**-**	**-**	**-**	**-**
J1: Otley Road/Cold Bath Road	**-**	**-**	**421**	**5**	**0**	**9.8**	**4.3**	**0.4**	**14.5**	**-**	**-**	**-**	**-**
1/1+1/2	678	678	82	0	0	3.3	1.5	0.0	4.7	25.1	13.4	1.5	14.8
2/1	118	118	66	0	0	1.0	0.3	0.1	1.4	41.9	2.5	0.3	2.8
3/2+3/1	721	721	16	5	0	1.7	1.2	0.0	2.9	14.5	8.6	1.2	9.8
4/2+4/1	438	438	257	0	0	3.9	1.4	0.2	5.5	44.8	6.3	1.4	7.7
5/1	830	830	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	822	822	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	195	195	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	108	108	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
J2: Otley Road/Pannal Ash Road	**-**	**-**	**67**	**0**	**0**	**6.5**	**3.7**	**0.1**	**10.4**	**-**	**-**	**-**	**-**
1/2+1/1	822	822	32	0	0	0.8	1.3	0.1	2.1	9.4	3.7	1.3	5.0
2/2+2/1	384	384	-	-	-	3.3	1.4	-	4.7	43.9	6.2	1.4	7.6
3/1+3/2	562	562	35	0	0	2.4	0.8	0.1	3.3	20.9	10.2	0.8	11.0
4/1	721	721	-	-	-	0.0	0.3	-	0.3	1.3	0.0	0.3	0.3
5/1	410	410	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	458	458	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	179	179	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1	PRC for Signalled Lanes (%):	20.4	Total Delay for Signalled Lanes (pcuHr):	14.46	Cycle Time (s): 96
C2	PRC for Signalled Lanes (%):	22.4	Total Delay for Signalled Lanes (pcuHr):	10.09	Cycle Time (s): 96
	PRC Over All Lanes (%):	20.4	Total Delay Over All Lanes(pcuHr):	24.81	

Junctions 9

ARCADY 9 - Roundabout Module

Version: 9.5.1.7462

For sales and distribution information, program advice and maintenance, contact TRL:
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Filename: PoW Rnd.j9
Path: \\newcastle13\data3\Projects\A081501 - A082000\A081951-3 Castle Hill Farm, Whinney Lane, Harrogate\Analysis\Traffic Models\Prince of Wales Rbt\2022 Assessment
Report generation date: 06/12/2022 15:27:24

»Existing Layout - 2020, AM
»Existing Layout - 2020, PM
»Existing Layout - 2030 No Dev, AM
»Existing Layout - 2030 No Dev, PM
»Existing Layout - 2030 With Dev, AM
»Existing Layout - 2030 With Dev, PM

Summary of junction performance

	AM				PM			
	Set ID	Queue (PCU)	Delay (s)	RFC	Set ID	Queue (PCU)	Delay (s)	RFC
	Existing Layout - 2020							
1 - A61 York Place	D3	3.4	7.82	0.77	D4	3.0	6.73	0.75
2 - A61 Leeds Rd		1.7	6.95	0.62		3.1	10.82	0.76
3 - B6162 Otley Road		5.3	20.96	0.85		5.2	24.66	0.85
	Existing Layout - 2030 No Dev							
1 - A61 York Place	D5	4.1	9.12	0.80	D6	3.5	7.64	0.78
2 - A61 Leeds Rd		2.1	8.26	0.67		3.7	12.79	0.79
3 - B6162 Otley Road		14.4	52.26	0.96		12.2	53.66	0.95
	Existing Layout - 2030 With Dev							
1 - A61 York Place	D7	4.2	9.26	0.80	D8	3.8	8.11	0.79
2 - A61 Leeds Rd		2.1	8.35	0.67		4.0	13.68	0.80
3 - B6162 Otley Road		17.7	62.07	0.98		14.0	59.72	0.97

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	Castle Hill Farm
Location	Whinney Lane
Site number	784-A081951-3
Date	06/12/22
Version	

Status	(new file)
Identifier	Angus Atkin
Client	
Jobnumber	
Enumerator	TT/ANGUS.ATKIN
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

Analysis Options

Vehicle length (m)	Calculate Queue Percentiles	Calculate detailed queueing delay	Calculate residual capacity	RFC Threshold	Average Delay threshold (s)	Queue threshold (PCU)
5.75				0.85	36.00	20.00

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
D3	2020	AM	ONE HOUR	08:00	09:30	15	✓
D4	2020	PM	ONE HOUR	17:00	18:30	15	✓
D5	2030 No Dev	AM	ONE HOUR	08:00	09:30	15	✓
D6	2030 No Dev	PM	ONE HOUR	17:00	18:30	15	✓
D7	2030 With Dev	AM	ONE HOUR	08:00	09:30	15	✓
D8	2030 With Dev	PM	ONE HOUR	17:00	18:30	15	✓

Analysis Set Details

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

Existing Layout - 2020, AM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	11.27	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description

1	A61 York Place	
2	A61 Leeds Rd	
3	B6162 Otley Road	
4	A 61 W Park	

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)	Exit only
1 - A61 York Place	6.30	7.30	10.0	40.0	53.0	10.0	
2 - A61 Leeds Rd	6.00	6.80	7.0	25.0	53.0	23.0	
3 - B6162 Otley Road	4.80	7.10	7.0	40.0	53.0	17.0	
4 - A 61 W Park							✓

Slope / Intercept / Capacity

Roundabout Slope and Intercept used in model

Arm	Final slope	Final intercept (PCU/hr)
1 - A61 York Place	0.739	2339
2 - A61 Leeds Rd	0.671	2063
3 - B6162 Otley Road	0.655	1919
4 - A 61 W Park		

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
D3	2020	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 - A61 York Place		ONE HOUR	✓	1439	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	800	100.000
3 - B6162 Otley Road		ONE HOUR	✓	869	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	571	544	324
	2 - A61 Leeds Rd	153	0	30	617
	3 - B6162 Otley Road	349	342	0	178
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0.00	0.40	0.38	0.23
	2 - A61 Leeds Rd	0.19	0.00	0.04	0.77
	3 - B6162 Otley Road	0.40	0.39	0.00	0.20
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	5	3	3
	2 - A61 Leeds Rd	4	0	0	5
	3 - B6162 Otley Road	7	3	0	0
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	1.000	1.050	1.030	1.030
	2 - A61 Leeds Rd	1.040	1.000	1.000	1.050
	3 - B6162 Otley Road	1.070	1.030	1.000	1.000
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - A61 York Place	1083	1083
	2 - A61 Leeds Rd	602	602
	3 - B6162 Otley Road	654	654
	4 - A 61 W Park	0	0
08:15-08:30	1 - A61 York Place	1294	1294
	2 - A61 Leeds Rd	719	719
	3 - B6162 Otley Road	781	781
	4 - A 61 W Park	0	0
08:30-08:45	1 - A61 York Place	1584	1584
	2 - A61 Leeds Rd	881	881
	3 - B6162 Otley Road	957	957
	4 - A 61 W Park	0	0
08:45-09:00	1 - A61 York Place	1584	1584
	2 - A61 Leeds Rd	881	881
	3 - B6162 Otley Road	957	957
	4 - A 61 W Park	0	0
09:00-09:15	1 - A61 York Place	1294	1294

	2 - A61 Leeds Rd	719	719
	3 - B6162 Otley Road	781	781
	4 - A 61 W Park	0	0
09:15-09:30	1 - A61 York Place	1083	1083
	2 - A61 Leeds Rd	602	602
	3 - B6162 Otley Road	654	654
	4 - A 61 W Park	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 - A61 York Place	0.77	7.82	3.4	A	1320	1981
2 - A61 Leeds Rd	0.62	6.95	1.7	A	734	1101
3 - B6162 Otley Road	0.85	20.96	5.3	C	797	1196
4 - A 61 W Park						

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 - A61 York Place	1083	271	256	2150	0.504	1079	376	0.0	1.0	3.477	A
2 - A61 Leeds Rd	602	151	651	1626	0.370	600	684	0.0	0.6	3.658	A
3 - B6162 Otley Road	654	164	820	1382	0.473	651	430	0.0	0.9	5.089	A
4 - A 61 W Park			632				839				

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 - A61 York Place	1294	323	306	2113	0.612	1291	450	1.0	1.6	4.536	A
2 - A61 Leeds Rd	719	180	779	1541	0.467	718	819	0.6	0.9	4.571	A
3 - B6162 Otley Road	781	195	982	1276	0.612	778	515	0.9	1.6	7.472	A
4 - A 61 W Park			756				1004				

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 - A61 York Place	1584	396	371	2065	0.767	1578	547	1.6	3.3	7.565	A

2 - A61 Leeds Rd	881	220	952	1425	0.618	878	997	0.9	1.7	6.848	A
3 - B6162 Otley Road	957	239	1200	1133	0.844	943	629	1.6	5.0	18.510	C
4 - A 61 W Park			918				1225				

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 - A61 York Place	1584	396	376	2061	0.769	1584	552	3.3	3.4	7.817	A
2 - A61 Leeds Rd	881	220	956	1422	0.619	881	1005	1.7	1.7	6.954	A
3 - B6162 Otley Road	957	239	1204	1131	0.846	955	632	5.0	5.3	20.961	C
4 - A 61 W Park			928				1232				

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 - A61 York Place	1294	323	313	2108	0.614	1300	458	3.4	1.7	4.666	A
2 - A61 Leeds Rd	719	180	784	1537	0.468	722	829	1.7	0.9	4.639	A
3 - B6162 Otley Road	781	195	988	1272	0.614	796	519	5.3	1.7	8.077	A
4 - A 61 W Park			771				1013				

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 - A61 York Place	1083	271	259	2148	0.504	1086	379	1.7	1.1	3.524	A
2 - A61 Leeds Rd	602	151	655	1624	0.371	604	689	0.9	0.6	3.697	A
3 - B6162 Otley Road	654	164	825	1379	0.475	657	433	1.7	0.9	5.205	A
4 - A 61 W Park			638				845				

Existing Layout - 2020, PM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	12.08	B

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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	2020	PM	ONE HOUR	17:00	18:30	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 - A61 York Place		ONE HOUR	✓	1480	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	960	100.000
3 - B6162 Otley Road		ONE HOUR	✓	727	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	580	483	417
	2 - A61 Leeds Rd	190	0	21	749
	3 - B6162 Otley Road	360	205	0	162
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0.00	0.39	0.33	0.28
	2 - A61 Leeds Rd	0.20	0.00	0.02	0.78
	3 - B6162 Otley Road	0.50	0.28	0.00	0.22
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	2	1	2
	2 - A61 Leeds Rd	3	0	0	3
	3 - B6162 Otley Road	1	0	0	1
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	1.000	1.020	1.010	1.020
	2 - A61 Leeds Rd	1.030	1.000	1.000	1.030
	3 - B6162 Otley Road	1.010	1.000	1.000	1.010
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - A61 York Place	1114	1114
	2 - A61 Leeds Rd	723	723
	3 - B6162 Otley Road	547	547
	4 - A 61 W Park	0	0
17:15-17:30	1 - A61 York Place	1330	1330
	2 - A61 Leeds Rd	863	863
	3 - B6162 Otley Road	654	654
	4 - A 61 W Park	0	0
17:30-17:45	1 - A61 York Place	1630	1630
	2 - A61 Leeds Rd	1057	1057
	3 - B6162 Otley Road	800	800
	4 - A 61 W Park	0	0
17:45-18:00	1 - A61 York Place	1630	1630
	2 - A61 Leeds Rd	1057	1057
	3 - B6162 Otley Road	800	800
	4 - A 61 W Park	0	0
18:00-18:15	1 - A61 York Place	1330	1330
	2 - A61 Leeds Rd	863	863
	3 - B6162 Otley Road	654	654
	4 - A 61 W Park	0	0
18:15-18:30	1 - A61 York Place	1114	1114
	2 - A61 Leeds Rd	723	723
	3 - B6162 Otley Road	547	547
	4 - A 61 W Park	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 - A61 York Place	0.75	6.73	3.0	A	1358	2037
2 - A61 Leeds Rd	0.76	10.82	3.1	B	881	1321
3 - B6162 Otley Road	0.85	24.66	5.2	C	667	1001
4 - A 61 W Park						

Main Results for each time segment

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 - A61 York Place	1114	279	153	2226	0.501	1110	412	0.0	1.0	3.269	A
2 - A61 Leeds Rd	723	181	675	1610	0.449	719	589	0.0	0.8	4.145	A

3 - B6162 Otley Road	547	137	1016	1254	0.437	544	378	0.0	0.8	5.091	A
4 - A 61 W Park			565				995				

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 - A61 York Place	1330	333	184	2203	0.604	1328	493	1.0	1.5	4.172	A
2 - A61 Leeds Rd	863	216	808	1521	0.567	861	704	0.8	1.3	5.596	A
3 - B6162 Otley Road	654	163	1216	1123	0.582	651	452	0.8	1.4	7.649	A
4 - A 61 W Park			676				1191				

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 - A61 York Place	1630	407	222	2175	0.749	1624	598	1.5	3.0	6.570	A
2 - A61 Leeds Rd	1057	264	987	1401	0.755	1050	858	1.3	3.0	10.378	B
3 - B6162 Otley Road	800	200	1485	947	0.845	787	553	1.4	4.8	21.079	C
4 - A 61 W Park			819				1452				

17:45 - 18:00

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 - A61 York Place	1630	407	225	2173	0.750	1629	605	3.0	3.0	6.729	A
2 - A61 Leeds Rd	1057	264	991	1398	0.756	1057	864	3.0	3.1	10.817	B
3 - B6162 Otley Road	800	200	1493	942	0.850	799	555	4.8	5.2	24.661	C
4 - A 61 W Park			830				1461				

18:00 - 18:15

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 - A61 York Place	1330	333	189	2200	0.605	1336	503	3.0	1.6	4.267	A
2 - A61 Leeds Rd	863	216	813	1518	0.569	870	712	3.1	1.4	5.776	A
3 - B6162 Otley Road	654	163	1227	1116	0.586	669	455	5.2	1.5	8.370	A
4 - A 61 W Park			692				1204				

18:15 - 18:30

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 - A61 York Place	1114	279	155	2225	0.501	1116	416	1.6	1.0	3.308	A
2 - A61 Leeds Rd	723	181	679	1608	0.450	725	593	1.4	0.8	4.208	A
3 - B6162 Otley Road	547	137	1024	1249	0.438	550	380	1.5	0.8	5.205	A
4 - A 61 W Park			571				1003				

Existing Layout - 2030 No Dev, AM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	21.29	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D5	2030 No Dev	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 - A61 York Place		ONE HOUR	✓	1497	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	849	100.000
3 - B6162 Otley Road		ONE HOUR	✓	946	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	586	581	330
	2 - A61 Leeds Rd	172	0	22	655
	3 - B6162 Otley Road	380	352	0	214
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0.00	0.39	0.39	0.22
	2 - A61 Leeds Rd	0.20	0.00	0.03	0.77
	3 - B6162 Otley Road	0.40	0.37	0.00	0.23
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	5	3	3
	2 - A61 Leeds Rd	4	0	0	5
	3 - B6162 Otley Road	7	3	0	0
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	1.000	1.050	1.030	1.030
	2 - A61 Leeds Rd	1.040	1.000	1.000	1.050
	3 - B6162 Otley Road	1.070	1.030	1.000	1.000
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - A61 York Place	1127	1127
	2 - A61 Leeds Rd	639	639
	3 - B6162 Otley Road	712	712
	4 - A 61 W Park	0	0
08:15-08:30	1 - A61 York Place	1346	1346
	2 - A61 Leeds Rd	763	763
	3 - B6162 Otley Road	850	850
	4 - A 61 W Park	0	0
08:30-08:45	1 - A61 York Place	1648	1648
	2 - A61 Leeds Rd	935	935
	3 - B6162 Otley Road	1042	1042
	4 - A 61 W Park	0	0
08:45-09:00	1 - A61 York Place	1648	1648
	2 - A61 Leeds Rd	935	935
	3 - B6162 Otley Road	1042	1042
	4 - A 61 W Park	0	0
09:00-09:15	1 - A61 York Place	1346	1346

	2 - A61 Leeds Rd	763	763
	3 - B6162 Otley Road	850	850
	4 - A 61 W Park	0	0
09:15-09:30	1 - A61 York Place	1127	1127
	2 - A61 Leeds Rd	639	639
	3 - B6162 Otley Road	712	712
	4 - A 61 W Park	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 - A61 York Place	0.80	9.12	4.1	A	1374	2061
2 - A61 Leeds Rd	0.67	8.26	2.1	A	779	1169
3 - B6162 Otley Road	0.96	52.26	14.4	F	868	1302
4 - A 61 W Park						

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 - A61 York Place	1127	282	263	2145	0.526	1122	413	0.0	1.1	3.639	A
2 - A61 Leeds Rd	639	160	683	1605	0.398	636	703	0.0	0.7	3.879	A
3 - B6162 Otley Road	712	178	867	1351	0.527	708	452	0.0	1.1	5.770	A
4 - A 61 W Park			676				899				

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 - A61 York Place	1346	336	315	2106	0.639	1343	494	1.1	1.8	4.876	A
2 - A61 Leeds Rd	763	191	817	1515	0.504	762	841	0.7	1.1	4.995	A
3 - B6162 Otley Road	850	213	1038	1239	0.686	846	541	1.1	2.2	9.405	A
4 - A 61 W Park			809				1075				

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 - A61 York Place	1648	412	374	2063	0.799	1640	592	1.8	3.9	8.659	A

2 - A61 Leeds Rd	935	234	998	1394	0.671	931	1016	1.1	2.1	8.067	A
3 - B6162 Otley Road	1042	260	1268	1089	0.956	1005	661	2.2	11.3	35.106	E
4 - A 61 W Park			966				1307				

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 - A61 York Place	1648	412	383	2056	0.802	1648	603	3.9	4.1	9.120	A
2 - A61 Leeds Rd	935	234	1003	1390	0.672	935	1028	2.1	2.1	8.258	A
3 - B6162 Otley Road	1042	260	1274	1085	0.960	1029	664	11.3	14.4	52.261	F
4 - A 61 W Park			986				1317				

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 - A61 York Place	1346	336	334	2092	0.643	1354	516	4.1	1.9	5.124	A
2 - A61 Leeds Rd	763	191	824	1510	0.505	767	864	2.1	1.1	5.101	A
3 - B6162 Otley Road	850	213	1046	1234	0.689	898	546	14.4	2.4	12.660	B
4 - A 61 W Park			851				1094				

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 - A61 York Place	1127	282	267	2142	0.526	1130	418	1.9	1.2	3.701	A
2 - A61 Leeds Rd	639	160	688	1602	0.399	641	709	1.1	0.7	3.925	A
3 - B6162 Otley Road	712	178	873	1347	0.529	717	455	2.4	1.2	5.977	A
4 - A 61 W Park			685				906				

Existing Layout - 2030 No Dev, PM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	20.14	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D6	2030 No Dev	PM	ONE HOUR	17:00	18:30	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 - A61 York Place		ONE HOUR	✓	1541	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	981	100.000
3 - B6162 Otley Road		ONE HOUR	✓	790	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

	To				
From		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
	1 - A61 York Place	0	600	511	430
	2 - A61 Leeds Rd	199	0	15	767
	3 - B6162 Otley Road	407	205	0	178
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

	To				
From		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
	1 - A61 York Place	0.00	0.39	0.33	0.28
	2 - A61 Leeds Rd	0.20	0.00	0.02	0.78
	3 - B6162 Otley Road	0.52	0.26	0.00	0.23
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

	To				
From		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
	1 - A61 York Place	0	2	1	2
	2 - A61 Leeds Rd	3	0	0	3
	3 - B6162 Otley Road	1	0	0	1
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

	To				
From		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
	1 - A61 York Place	1.000	1.020	1.010	1.020
	2 - A61 Leeds Rd	1.030	1.000	1.000	1.030
	3 - B6162 Otley Road	1.010	1.000	1.000	1.010
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - A61 York Place	1160	1160
	2 - A61 Leeds Rd	739	739
	3 - B6162 Otley Road	595	595
	4 - A 61 W Park	0	0
17:15-17:30	1 - A61 York Place	1385	1385
	2 - A61 Leeds Rd	882	882
	3 - B6162 Otley Road	710	710
	4 - A 61 W Park	0	0
17:30-17:45	1 - A61 York Place	1697	1697
	2 - A61 Leeds Rd	1080	1080
	3 - B6162 Otley Road	870	870
	4 - A 61 W Park	0	0
17:45-18:00	1 - A61 York Place	1697	1697
	2 - A61 Leeds Rd	1080	1080
	3 - B6162 Otley Road	870	870
	4 - A 61 W Park	0	0
18:00-18:15	1 - A61 York Place	1385	1385
	2 - A61 Leeds Rd	882	882
	3 - B6162 Otley Road	710	710
	4 - A 61 W Park	0	0
18:15-18:30	1 - A61 York Place	1160	1160
	2 - A61 Leeds Rd	739	739
	3 - B6162 Otley Road	595	595
	4 - A 61 W Park	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 - A61 York Place	0.78	7.64	3.5	A	1414	2121
2 - A61 Leeds Rd	0.79	12.79	3.7	B	900	1350
3 - B6162 Otley Road	0.95	53.66	12.2	F	725	1087
4 - A 61 W Park						

Main Results for each time segment

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 - A61 York Place	1160	290	153	2226	0.521	1156	454	0.0	1.1	3.406	A
2 - A61 Leeds Rd	739	185	706	1590	0.465	735	603	0.0	0.9	4.320	A

3 - B6162 Otley Road	595	149	1046	1234	0.482	591	394	0.0	0.9	5.609	A
4 - A 61 W Park			607				1030				

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 - A61 York Place	1385	346	183	2204	0.629	1383	543	1.1	1.7	4.446	A
2 - A61 Leeds Rd	882	220	844	1497	0.589	880	722	0.9	1.5	5.986	A
3 - B6162 Otley Road	710	178	1252	1099	0.646	707	472	0.9	1.8	9.154	A
4 - A 61 W Park			726				1233				

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 - A61 York Place	1697	424	218	2178	0.779	1690	649	1.7	3.5	7.384	A
2 - A61 Leeds Rd	1080	270	1032	1371	0.788	1072	875	1.5	3.6	12.049	B
3 - B6162 Otley Road	870	217	1527	920	0.946	839	577	1.8	9.6	35.914	E
4 - A 61 W Park			867				1498				

17:45 - 18:00

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 - A61 York Place	1697	424	223	2174	0.780	1696	662	3.5	3.5	7.642	A
2 - A61 Leeds Rd	1080	270	1036	1368	0.789	1080	883	3.6	3.7	12.787	B
3 - B6162 Otley Road	870	217	1536	913	0.952	859	579	9.6	12.2	53.657	F
4 - A 61 W Park			885				1511				

18:00 - 18:15

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 - A61 York Place	1385	346	195	2195	0.631	1392	568	3.5	1.8	4.600	A
2 - A61 Leeds Rd	882	220	850	1493	0.591	891	737	3.7	1.5	6.244	A
3 - B6162 Otley Road	710	178	1266	1091	0.651	751	475	12.2	1.9	11.955	B
4 - A 61 W Park			763				1254				

18:15 - 18:30

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 - A61 York Place	1160	290	155	2224	0.522	1163	459	1.8	1.1	3.457	A
2 - A61 Leeds Rd	739	185	710	1587	0.465	741	608	1.5	0.9	4.395	A
3 - B6162 Otley Road	595	149	1054	1229	0.484	599	397	1.9	1.0	5.790	A
4 - A 61 W Park			614				1039				

Existing Layout - 2030 With Dev, AM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	24.38	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D7	2030 With Dev	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 - A61 York Place		ONE HOUR	✓	1504	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	849	100.000
3 - B6162 Otley Road		ONE HOUR	✓	964	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	586	588	330
	2 - A61 Leeds Rd	172	0	22	655
	3 - B6162 Otley Road	395	352	0	217
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0.00	0.39	0.39	0.22
	2 - A61 Leeds Rd	0.20	0.00	0.03	0.77
	3 - B6162 Otley Road	0.41	0.37	0.00	0.23
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	5	3	3
	2 - A61 Leeds Rd	4	0	0	5
	3 - B6162 Otley Road	7	3	0	0
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	1.000	1.050	1.030	1.030
	2 - A61 Leeds Rd	1.040	1.000	1.000	1.050
	3 - B6162 Otley Road	1.070	1.030	1.000	1.000
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
08:00-08:15	1 - A61 York Place	1132	1132
	2 - A61 Leeds Rd	639	639
	3 - B6162 Otley Road	726	726
	4 - A 61 W Park	0	0
08:15-08:30	1 - A61 York Place	1352	1352
	2 - A61 Leeds Rd	763	763
	3 - B6162 Otley Road	867	867
	4 - A 61 W Park	0	0
08:30-08:45	1 - A61 York Place	1656	1656
	2 - A61 Leeds Rd	935	935
	3 - B6162 Otley Road	1061	1061
	4 - A 61 W Park	0	0
08:45-09:00	1 - A61 York Place	1656	1656
	2 - A61 Leeds Rd	935	935
	3 - B6162 Otley Road	1061	1061
	4 - A 61 W Park	0	0
09:00-09:15	1 - A61 York Place	1352	1352

	2 - A61 Leeds Rd	763	763
	3 - B6162 Otley Road	867	867
	4 - A 61 W Park	0	0
09:15-09:30	1 - A61 York Place	1132	1132
	2 - A61 Leeds Rd	639	639
	3 - B6162 Otley Road	726	726
	4 - A 61 W Park	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 - A61 York Place	0.80	9.26	4.2	A	1380	2070
2 - A61 Leeds Rd	0.67	8.35	2.1	A	779	1169
3 - B6162 Otley Road	0.98	62.07	17.7	F	885	1327
4 - A 61 W Park						

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 - A61 York Place	1132	283	263	2145	0.528	1128	424	0.0	1.2	3.657	A
2 - A61 Leeds Rd	639	160	688	1601	0.399	636	703	0.0	0.7	3.893	A
3 - B6162 Otley Road	726	181	867	1351	0.537	721	457	0.0	1.2	5.892	A
4 - A 61 W Park			688				901				

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 - A61 York Place	1352	338	315	2107	0.642	1349	508	1.2	1.8	4.916	A
2 - A61 Leeds Rd	763	191	824	1511	0.505	762	841	0.7	1.1	5.021	A
3 - B6162 Otley Road	867	217	1038	1239	0.699	862	547	1.2	2.3	9.791	A
4 - A 61 W Park			822				1078				

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 - A61 York Place	1656	414	372	2065	0.802	1647	606	1.8	4.0	8.773	A

2 - A61 Leeds Rd	935	234	1005	1389	0.673	931	1013	1.1	2.1	8.153	A
3 - B6162 Otley Road	1061	265	1268	1089	0.975	1018	668	2.3	13.3	39.163	E
4 - A 61 W Park			977				1308				

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 - A61 York Place	1656	414	381	2058	0.805	1655	617	4.0	4.2	9.257	A
2 - A61 Leeds Rd	935	234	1010	1385	0.675	935	1026	2.1	2.1	8.354	A
3 - B6162 Otley Road	1061	265	1274	1085	0.978	1043	671	13.3	17.7	62.074	F
4 - A 61 W Park			998				1319				

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 - A61 York Place	1352	338	339	2089	0.647	1361	535	4.2	1.9	5.194	A
2 - A61 Leeds Rd	763	191	831	1506	0.507	767	869	2.1	1.1	5.132	A
3 - B6162 Otley Road	867	217	1046	1234	0.702	927	552	17.7	2.6	14.540	B
4 - A 61 W Park			874				1099				

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 - A61 York Place	1132	283	267	2142	0.529	1135	429	1.9	1.2	3.724	A
2 - A61 Leeds Rd	639	160	693	1598	0.400	641	709	1.1	0.7	3.942	A
3 - B6162 Otley Road	726	181	873	1347	0.539	731	460	2.6	1.2	6.118	A
4 - A 61 W Park			696				908				

Existing Layout - 2030 With Dev, PM

Junction Network

Junctions

Junction	Name	Junction type	Use circulating lanes	Arm order	Junction Delay (s)	Junction LOS
1	Prince of Wales Rbt	Standard Roundabout		1, 2, 3, 4	22.09	C

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

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
D8	2030 With Dev	PM	ONE HOUR	17:00	18:30	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 - A61 York Place		ONE HOUR	✓	1567	100.000
2 - A61 Leeds Rd		ONE HOUR	✓	981	100.000
3 - B6162 Otley Road		ONE HOUR	✓	801	100.000
4 - A 61 W Park					

Origin-Destination Data

Demand (PCU/hr)

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	600	537	430
	2 - A61 Leeds Rd	199	0	15	767
	3 - B6162 Otley Road	412	205	0	184
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Proportions

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0.00	0.38	0.34	0.27
	2 - A61 Leeds Rd	0.20	0.00	0.02	0.78
	3 - B6162 Otley Road	0.51	0.26	0.00	0.23
	4 - A 61 W Park	0.25	0.25	0.25	0.25

Vehicle Mix

Heavy Vehicle Percentages

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	0	2	1	2
	2 - A61 Leeds Rd	3	0	0	3
	3 - B6162 Otley Road	1	0	0	1
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Average PCU Per Veh

		To			
		1 - A61 York Place	2 - A61 Leeds Rd	3 - B6162 Otley Road	4 - A 61 W Park
From	1 - A61 York Place	1.000	1.020	1.010	1.020
	2 - A61 Leeds Rd	1.030	1.000	1.000	1.030
	3 - B6162 Otley Road	1.010	1.000	1.000	1.010
	4 - A 61 W Park	Exit-only	Exit-only	Exit-only	Exit-only

Detailed Demand Data

Demand for each time segment

Time Segment	Arm	Demand (PCU/hr)	Demand in PCU (PCU/hr)
17:00-17:15	1 - A61 York Place	1180	1180
	2 - A61 Leeds Rd	739	739
	3 - B6162 Otley Road	603	603
	4 - A 61 W Park	0	0
17:15-17:30	1 - A61 York Place	1409	1409
	2 - A61 Leeds Rd	882	882
	3 - B6162 Otley Road	720	720
	4 - A 61 W Park	0	0
17:30-17:45	1 - A61 York Place	1725	1725
	2 - A61 Leeds Rd	1080	1080
	3 - B6162 Otley Road	882	882
	4 - A 61 W Park	0	0
17:45-18:00	1 - A61 York Place	1725	1725
	2 - A61 Leeds Rd	1080	1080
	3 - B6162 Otley Road	882	882
	4 - A 61 W Park	0	0
18:00-18:15	1 - A61 York Place	1409	1409
	2 - A61 Leeds Rd	882	882
	3 - B6162 Otley Road	720	720
	4 - A 61 W Park	0	0
18:15-18:30	1 - A61 York Place	1180	1180
	2 - A61 Leeds Rd	739	739
	3 - B6162 Otley Road	603	603
	4 - A 61 W Park	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 - A61 York Place	0.79	8.11	3.8	A	1438	2157
2 - A61 Leeds Rd	0.80	13.68	4.0	B	900	1350
3 - B6162 Otley Road	0.97	59.72	14.0	F	735	1103
4 - A 61 W Park						

Main Results for each time segment

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 - A61 York Place	1180	295	153	2226	0.530	1175	457	0.0	1.1	3.470	A
2 - A61 Leeds Rd	739	185	725	1577	0.468	735	603	0.0	0.9	4.385	A

3 - B6162 Otley Road	603	151	1046	1234	0.489	599	414	0.0	1.0	5.678	A
4 - A 61 W Park			611				1035				

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 - A61 York Place	1409	352	183	2204	0.639	1406	547	1.1	1.8	4.574	A
2 - A61 Leeds Rd	882	220	868	1481	0.595	880	722	0.9	1.5	6.137	A
3 - B6162 Otley Road	720	180	1252	1100	0.655	716	495	1.0	1.9	9.349	A
4 - A 61 W Park			730				1238				

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 - A61 York Place	1725	431	217	2179	0.792	1718	653	1.8	3.7	7.801	A
2 - A61 Leeds Rd	1080	270	1060	1352	0.799	1071	874	1.5	3.8	12.777	B
3 - B6162 Otley Road	882	220	1526	920	0.958	847	605	1.9	10.6	38.492	E
4 - A 61 W Park			870				1503				

17:45 - 18:00

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 - A61 York Place	1725	431	222	2175	0.793	1725	666	3.7	3.8	8.115	A
2 - A61 Leeds Rd	1080	270	1064	1349	0.801	1079	883	3.8	4.0	13.675	B
3 - B6162 Otley Road	882	220	1536	913	0.966	868	608	10.6	14.0	59.721	F
4 - A 61 W Park			888				1517				

18:00 - 18:15

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 - A61 York Place	1409	352	197	2194	0.642	1417	576	3.8	1.8	4.754	A
2 - A61 Leeds Rd	882	220	874	1477	0.597	892	739	4.0	1.6	6.438	A
3 - B6162 Otley Road	720	180	1267	1090	0.661	768	499	14.0	2.0	12.916	B
4 - A 61 W Park			773				1262				

18:15 - 18:30

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 - A61 York Place	1180	295	155	2224	0.530	1182	463	1.8	1.2	3.523	A
2 - A61 Leeds Rd	739	185	730	1574	0.469	741	608	1.6	0.9	4.464	A
3 - B6162 Otley Road	603	151	1054	1229	0.491	607	417	2.0	1.0	5.873	A
4 - A 61 W Park			618				1043				