



TRANSPORT ASSESSMENT

ADDENDUM

KIRKBY VALLEY GOLF CLUB AND COURSE,
INGOE LANE, KIRKBY

Client: Green Circle



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1 INTRODUCTION

1.1 Background

1.1.1 Green Circle (formerly L32 Trading Ltd) is seeking full planning permission for a redevelopment of Kirkby Valley Golf Club and Course off Ingoe Lane, Knowsley. A planning application was submitted to Knowsley Council (KC) which was validated in September 2021. It was assigned the planning application reference 21/00744/FUL.

1.1.2 A description of the development is as follows:

Large scale development of golf course including; erection of new two storey clubhouse. Change of use of existing club house to golf related grounds maintenance training academy with overnight accommodation for golf professionals with extension to building, and alterations. New centrally located greenkeepers compound with associated portal frame building housing welfare facilities, office space, training space and equipment storage and maintenance and security fencing. Adventure golf course and practicing putting green. Golf driving range with two storey building including bar/lounge, pro golf shop, training and practice , lighting and netting. 6no. synthetic 5 a side football pitches with associated lighting. 5no. Synthetic out-door tennis courts with associated lighting. 1no. Bowling green with pavilion building and associated lighting. Drainage works including 2no. Irrigation lakes and the erection of a footbridge over the river alt. Creation of 2no new accesses onto valley road, the formation of new gated access via Aintree Lane for construction traffic and course management maintenance and car, motorcycle and cycle parking spaces to serve the above facilities.

1.1.3 Prime Transport Planning (Prime) prepared a Transport Assessment (TA) and Travel Plan (TP) to accompany the application, with both documents dated September 2021.

1.1.4 KC Highways, as local highway authority (LHA), and National Highways (NH) as motorway and trunk road authority were both consulted as part of the application.

1.1.5 KC Highways' consultation response was dated 21st January 2022. The LHA stated that it was not in a position to support the application without the submission of additional information. NH's response was dated 24th January 2022 and also required additional information.

1.1.6 The above responses, the responses from other statutory consultees and further discussions with the planners at KC has led to the applicant revising the development proposals. This Transport Assessment Addendum (TAA) addresses the comments raised by the two highway authorities in their initial consultation responses along with the revised proposed site access arrangements and traffic impact assessment given the reduction in scale of the development proposals.

- 1.1.7 The TP was deemed to be acceptable to KC, however it has been updated to reflect the changes to the scheme.

1.2 Scope of Report

- 1.2.1 Following this introduction, the remainder of this report is structured as follows:

- Section 2 presents the revised scheme and compares the main differences with the originally submitted scheme;
- Section 3 details an updated traffic forecasting methodology;
- Section 4 presents the results of the updated traffic impact assessment; and
- Section 5 provides a summary and conclusion.

2 DEVELOPMENT PROPOSALS

2.1 Revised Scheme

2.1.1 Following feedback from statutory consultees, the proposed development has been revised to consist of the following:

- A new revised golf club house design with changing facilities, pro shop, restaurant, bar and large private hire function suite.
- The new golf driving range and double deck leisure building design has been revised, within which will be a bar, restaurant and hospitality served to each of the driving tee booths. This building will also have the very latest golf simulators for teaching and improving personal golf, which shall also form part of the Golf Academy facility.
- Adventure Golf, a family oriented 18 hole novelty course.
- These new facilities will be served from a redesigned visitor and players car park for 257 spaces, set within an informal landscaped setting, all accessed off a new road junction and main entrance approach.
- The refurbishment of the existing course club house will be to facilitate the teaching and education curriculum of the Golf Academy.
- Overnight accommodation will be provided for golf professionals and teaching staff.
- Alterations and remodelling will be made to the 18 hole existing course, plus a new 9 hole practice course, both designed by renowned International Golf Group which will include new bridges over the River Alt and new water features.
- Creation of new and retention of existing tree belts, new tees and greens with integrated irrigation systems.
- Formation of water features and two new bridges over the existing River Alt.
- The retention of existing security fence, but with improved security and new entrance gates.
- New and expanded course maintenance compound and building.
- Reconfigured expansion of car park with landscape to screen the rows of anticipated cars.

2.2 Differences to Previously Submitted Scheme

2.2.1 The main differences to the previous scheme from a traffic generation perspective are as follows:

- Removal of proposed five-a-side football pitches;
- Removal of proposed tennis courts;
- Removal of proposed bowling green; and
- Removal of infrastructure associated with above including parking spaces.

2.3 Revised Access Arrangement

- 2.3.1 The site can be considered in two halves. The eastern side, east of the River Alt, comprising the existing club house which will be converted to the Golf Academy and a number of the holes of the 18 hole course, and the western side, west of the River Alt, which will comprise the proposed club house, driving range, adventure golf, 9 hole practice course and a number of the holes of the 18 hole course.
- 2.3.2 The revised proposed access arrangement is illustrated in Drawing P22068-001 in Appendix 1.
- 2.3.3 Vehicular access to the eastern half will remain off the existing Ingoe Lane access. This will only provide access to the Golf Academy and its car park which can be used for overspill parking. The anticipated trip generation of the eastern half will be relatively low, and is likely to be lower than the existing trip generation with it being the only car park for the existing facilities. Further details of the trip generation will be provided in Section 3. The reduction in trips using the Ingoe Lane access should offer a safety benefit to the Ingoe Lane junction with Valley Road which KC Highways expressed as a concern in its initial consultation response.
- 2.3.4 A new vehicular access to the western half will be formed by providing a fourth arm off the A506 Valley Road/Field Lane signalised junction. Whilst the concept for this new access was proposed as part of the previous submission, the scale of the access has been reduced in line with the reduction of proposed uses on the western half of the site i.e. no football pitches, tennis courts or bowling green. The revised proposed access arrangement for the western half of the site is illustrated in Drawing P22068-002 with the associated swept path analysis for a 16.5m long articulated vehicle in Drawing P22068-003, both of which are provided in Appendix 1.
- 2.3.5 The revised western access will now have a single lane on entry and on exit. Toucan crossings will be provided over the proposed site access with the segregated foot and cycleway continued east, reflecting the existing provision to the west of the access with this provision continuing east over Alder's Bridge to the Ingoe Lane access. The eastern central island will also be remodelled to better accommodate movements to and from the proposed site access. Whilst a dedicated right turn lane is not required for capacity reasons, it will offer benefit in terms of providing greater opportunity for deceleration for right turning traffic and mirrors the right turn lane to Field Lane. Section 3 will provide further details of the operation and capacity of the junction.
- 2.3.6 In line with KC Highways' request, the previously proposed left-in only access between Field Lane and Aintree Lane has been removed from the proposals as has the service access off Aintree Lane.
- 2.3.7 In its consultation response, KC Highways appear to have interpreted connection to Moor Lane and Alder's Bridge (bridge west of the existing Ingoe Lane access) as facilitating motor vehicle use, however this is not the case; the bridge will only be for pedestrian and cyclist use with bollards provided to prevent motor vehicle use. New foot and golf buggy bridges over the River Alt will be provided within the site to aid golfer movements around the 18 hole course.

2.4 Internal Layout

- 2.4.1 The existing car park on the eastern half of the site will remain largely as it is with the exception of some minor improvements.
- 2.4.2 The internal road layout for the western half of the site has been designed to encourage slow vehicle speeds and provide a safe environment for pedestrians. This will be achieved by the provision of mini-roundabouts, bends in the horizontal alignment and zebra crossings with clear walking and cycling routes defined.
- 2.4.3 There are two main parking areas west and east of the vehicular access. The smaller car park to the west will be most convenient for users of the 9 hole golf course and the driving range, while the larger car park to the east will be most convenient for users of the 18 hole golf course, the proposed club house and the adventure golf. Drop-off areas will be provided outside of the club house and the driving range.
- 2.4.4 Drawing P22068-004 in Appendix 1 presents a swept path analysis demonstrating that a 16.5m long articulated lorry can safely access the service yards to the side of the club house and driving range. Servicing by such vehicles will be rare, with smaller vehicles with less onerous swept paths more regularly used. The use of standard parking bay dimensions and aisle widths will make the parking spaces easily accessible.

2.5 Parking Provision

Car Parking

- 2.5.1 The proposed site layout has been designed by Brock Carmichael Architects. It shows the retention and improvement of the existing 118 space car park on the eastern half of the site, along with provision of 257 car parking spaces on the western half of the site. All standard parking spaces will be 2.5m x 5.0m in accordance with KC's standards.
- 2.5.2 As detailed in the TA, KC does not have parking standards for golf courses. In order to guide the proposed provision, the parking standards of other authorities in England were referenced. These standards are provided in Appendix 2 for reference as requested by KC. A summary of the application of these standards to the development proposals is provided in Table 2.1.

Table 2.1: Car Parking Estimates

Use	KC Standards/ TRICS/ Assumptions	Assumptions	Total
Eastern Part of Site			
Clubhouse change of use	KC 1 space per 2 staff + 1 space per 15 students for education or 1 per bed + staff provision for hotel	1 per bedroom (8 bed) + staff (assuming 5 staff)	13
Western Part of Site			
18-hole golf course	Other LPA standards average = 100	LPA 100 standards	100
9-hole golf course	Other LPA standards average = 50	LPA 50 standards	50
Adventure Golf Course	Assumed same as 9-hole given similar course completion time	Equivalent to 9-hole	50
Golf Driving Range	LPA standards average = 1.5 per tee	LPA for 32 tees	48
New clubhouse	Parking provision included in course provision	-	-
Maintenance Yard	Parking provision included in course provision	-	-
Total West			248
Combined Total			261

2.5.3 The above suggests that a total of 261 spaces are required to serve the development with 248 spaces required for the western half and 13 spaces for the eastern half. 257 spaces are proposed on the western half to ensure adequate provision with the surplus of 105 spaces on the eastern side providing ample overspill for any occasional events. Moor Lane, which will be traffic-free, will link the eastern and western car parks for pedestrians.

2.5.4 17 disabled spaces are proposed, equating to slightly greater than 6% of spaces on the western half of the site in line with KC's standards. 25 electric vehicle (EV) spaces with charging facilities will be provided, 4 of which are disabled spaces. The EV spaces are equivalent to 10% of the spaces on the western half of the site which we understand meets KC's aspirations for EV provision at new developments.

Cycle & Motorcycle Parking

2.5.5 Similar to car parking, KC does not have cycle or motorcycle parking standards for all of the proposed uses. Therefore we have adopted the same approach to calculate this as the car parking. The indicative car parking requirement and our assumptions/sources are included in Table 2.2. The standards of other LPAs are provided in Appendix 2.

Table 2.2: Cycle and Motorcycle Parking Estimates

Use	LPA Standards/ Assumptions	Assumptions	Total
CYCLE PARKING			
Clubhouse change of use	KC 1 space per 5 staff + 1 space per 3 students for hotel or 1 space per 10 beds for hotel	8 bedrooms	2
18-hole golf course	Other LPA standards average = 10 x cycle provision	-	10
9-hole golf course	Other LPA standards average = 5 x cycle provision	-	5
Adventure Golf Course	Assumed same as 9-hole given similar course time	Equivalent to 9-hole	5
Golf Driving Range	Other LPA standards average 5 short term spaces per 20/30 tees	Other LPA worst case 5 spaces per 20 tees applied to 32 tees	8
New clubhouse	Parking provision included in course provision	-	-
Maintenance Yard	Parking provision included in course provision	-	-
General Staff provision	Other LPA standards = 1 space per 8 staff	5 spaces seems reasonable	5
Total			35
MOTORCYCLE PARKING			
Clubhouse change of use	KC 1 space per 12 staff + 1 space per 10 students for hotel or 1 space per 25 beds for hotel	8	1
Rest of development	Other LPA standards = 1 space + 1 per 20 car spaces (for 1st 100 car spaces), then 1 space per 30 car spaces (over 100 car spaces).	11 for west side	11

- 2.5.6 The above suggests that a figure of 35 cycle parking and 12 motorcycle parking spaces will be appropriate. The masterplan currently proposes a total of 38 cycle parking spaces inclusive of 10 longer stay cycle lockers for staff within the golf buggy store.
- 2.5.7 14 motorcycle parking spaces are proposed for the western half of the site. The existing clubhouse car park should easily be able accommodate motorcycles within the unused car parking spaces.
- 2.5.8 It can therefore be concluded that adequate cycle and motorcycle parking will be provided as part of the development proposals.

2.6 Bus Stops

- 2.6.1 The applicant had proposed to upgrade a pair of bus stops on Valley Road east of Ingoe Lane as part of the original proposals, however given the reduction in the scale of the scheme and the proximity to the main site access of the existing bus stops on Valley Road west of Field Lane, which benefit from shelters, seating and timetable information, these existing bus stops should sufficiently serve the development and no further upgrades should be necessary.

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3 TRAFFIC FORECASTING

3.1 New Traffic Surveys

3.1.1 In its consultation response, KC Highways stated specific time periods that the peak hours used in the assessment should be calculated for as follows:

- Weekday AM Peak: 0700-1000;
- Weekday PM Peak: 1500-1800; and
- Weekend Peak: 0900-1800 Saturday or Sunday.

3.1.2 With the above in mind and given the passage of time since the surveys used in the TA were undertaken, this being Thursday 5th March 2020 and Saturday 7th March 2020, automatic traffic counters (ATC) were installed by 360TSL, a specialist traffic survey company, on A506 Valley Road and Ingoe Lane in the vicinity of the site for 7-days commencing Monday 26th September 2022 in order to identify the weekday and weekend peak periods. The raw survey data is included in Appendix 3 with Charts 3.1 and 3.2 summarising the traffic flow profiles on the A506 Valley Road for the weekdays and weekend respectively. The flows are two-way and the hours listed are hour beginning.

Chart 3.1: ATC Summary – A506 Weekday

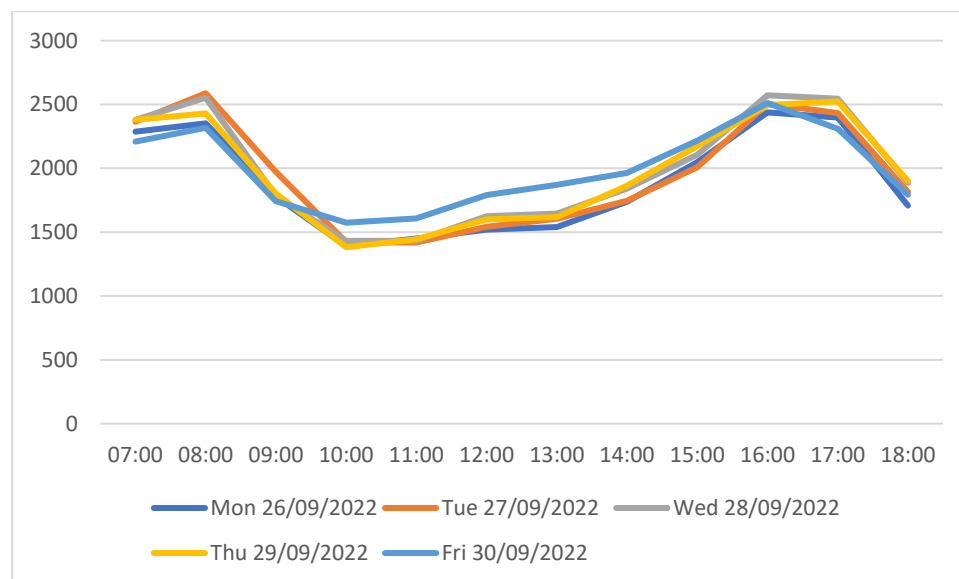
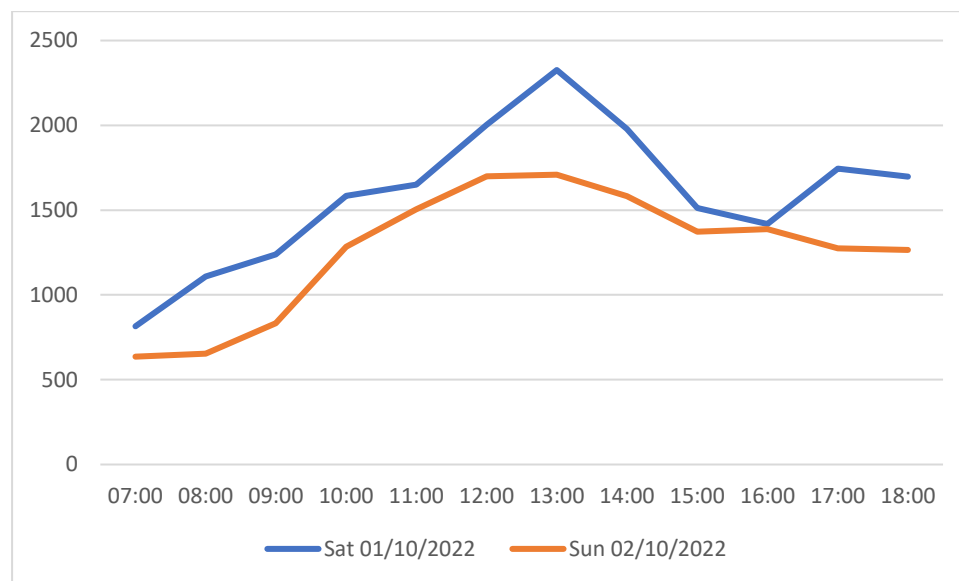


Chart 3.12 ATC Summary – A506 Weekend

3.1.3 The weekday results show very little daily variation in the traffic flows on Valley Road and a clear AM peak hour of 0800-0900 with the PM peak flows being very similar between 1600-1800. The weekend results show that Saturday was busier than Sunday across the 12-hour period with a clear peak hour at 1300-1400.

3.1.4 A summary of the flow profile on Ingoe Lane is shown in Charts 3.3 and 3.4 for the weekday and weekend respectively. It should be remembered that the main trip generator off Ingoe Lane is the existing golf club, though there are also seven residential properties that take access from it.

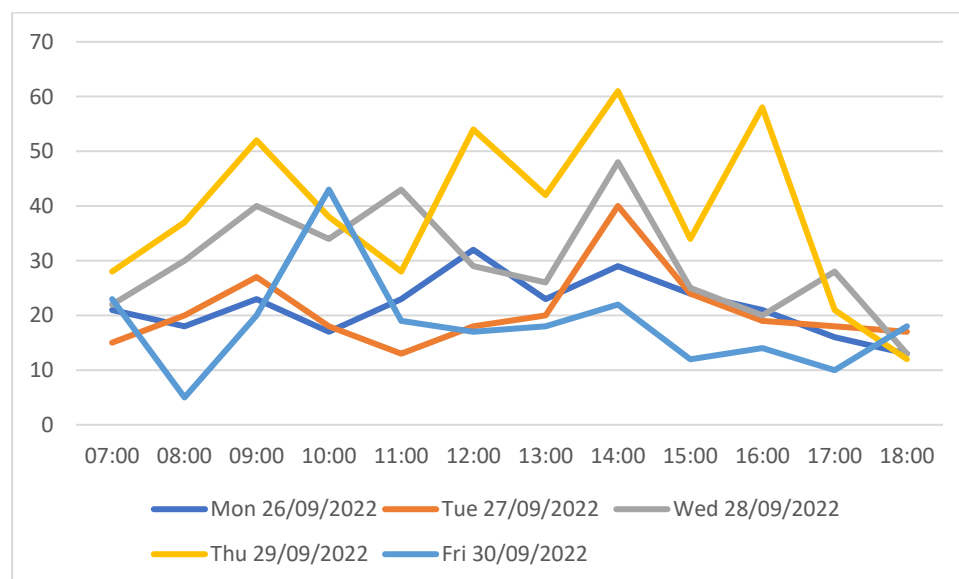
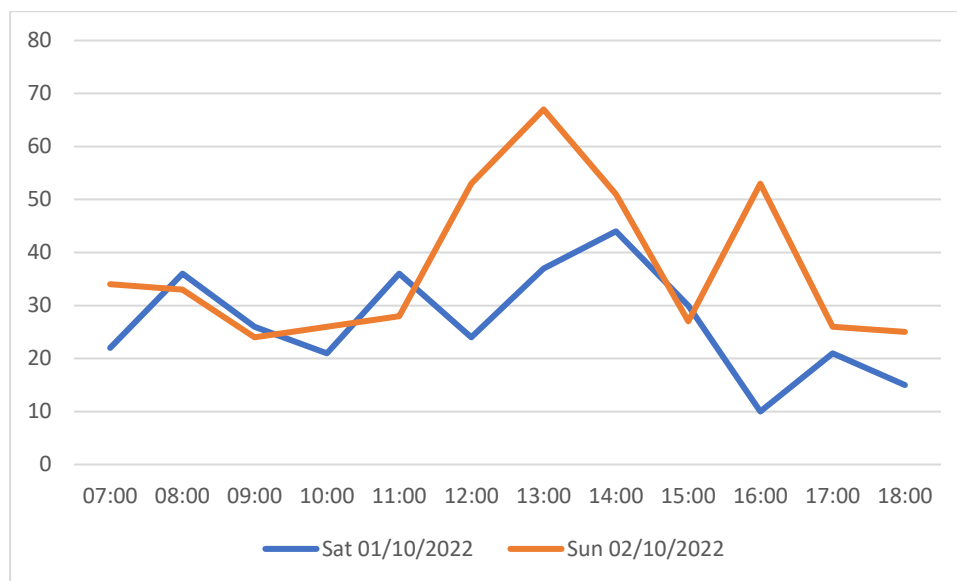
Chart 3.3: ATC Summary – Ingoe Lane Weekday

Chart 3.4: ATC Summary – Ingoe Lane Weekend

- 3.1.5 The weekday results show that Thursday is clearly the busiest day on Ingoe Lane. The AM peak tends to occur at 0900-1000 and a series of peaks occur from 1200 with a typical peak being at 1400-1500 but a later peak occurring at 1600-1700 on the Thursday. The weekend results show that Sunday is typically the busiest day with a peak at 1300-1400.
- 3.1.6 In order to provide more detailed information for traffic impact assessment purposes, 360TSL was instructed to undertake turning counts at the A506 Valley Road/Field Lane junction on a Thursday between 0700-1000 and 1500-1800 and on a Saturday between 1100-1400. Whilst the ATC results suggest that Ingoe Lane is busier on Sundays than Saturdays, the opposite is true of Valley Road and its safe and efficient operation carries greater strategic importance than Ingoe Lane, as such Saturday was chosen for the weekend assessment. These surveys were undertaken on Thursday 1st December 2022 and Saturday 3rd December 2022.
- 3.1.7 We recognise that these surveys were undertaken in December, which can be considered to be a non-neutral month, however it was during the last week of November and there is no reason why traffic flows would be notably different to a week earlier. Local schools were in term time, there were no major events taking place and Liverpool and Everton football clubs were not playing due to the World Cup taking place. No England games took place on the survey days.
- 3.1.8 Surveys at the other junctions assessed in the TA were not repeated due to the reduced scale of the scheme from a traffic generation perspective, and as the proposed access arrangement at the Valley Road/Field Lane junction will involve a reconfiguration of the junction so it is important to obtain recent traffic data to guide the junction redesign. Further details of the traffic impact at the other junctions is however considered in Section 4.

- 3.1.9 The turning count data at the Valley Road/Field Lane junction was interrogated to identify the local peak hours which were found to be:
- Weekday AM peak: 0730-0830;
 - Weekday PM peak: 1630-1730; and
 - Weekend peak: 1200-1300.
- 3.1.10 The weekday peaks match those of the March 2020 surveys while the weekend peak occurs two hours later than the 2020 equivalent which was also on a Saturday. It was our intention to record average queues at the junction, however this was being undertaken with the assistance of cameras which were unfortunately stolen, therefore spot maximum queue length counts have been provided by the survey company.
- 3.1.11 The Traffic Flow Diagrams which contain the traffic flows used in the assessment have been updated and are included in Appendix 4. The 2020 Observed flows are provided in Traffic Flow Diagrams 1-3 for reference and model calibration purposes, while the 2022 Observed flows are provided in Traffic Flow Diagrams 4-6.
- 3.1.12 Local growth factors have been calculated by comparing the 2022 to the 2020 flows at the Valley Road/Field Lane junction and have been applied to the other three junctions in the study area. These factors are as follows:
- AM = 1.17;
 - PM = 1.02; and
 - Saturday = 1.27.
- 3.1.13 The factors for the AM and Saturday peaks are greater than what would typically be expected (circa 1% per year). There are several factors why this may be the case such as seasonal variation, daily variation, completion of committed developments and as the 2020 survey may have been affected by the early stages of the Covid-19 pandemic. The factored flows are referred to as the 2022 Base flows and are shown in Traffic Flow Diagrams 7-10

3.2 Committed Developments & Traffic Growth

- 3.2.1 The following committed developments were included in the original assessment at the request of KC:
- 17/00559/FUL: Mixed-use redevelopment in Kirkby town centre; and
 - 20/00193/FUL: 266 dwellings off Whitefield Drive.
- 3.2.2 We are however aware that the Kirkby town centre redevelopment was open during the December 2022 traffic surveys and its associated traffic flows should have been included in the survey meaning that it does not need to be explicitly included as a committed development. Similarly, the Whitefield

Drive residential development was over 50% built-out and occupied, however to be robust we have reduced by the traffic flows taken from the associated TA by just 50%. We have also not adjusted TEMPro to remove the built-out element which adds to the level of robustness.

- 3.2.3 Full TEMPro growth has therefore been applied to the light vehicles user class and Road Traffic Projections (RTP – formerly RTF) derived growth has been applied to the heavy user class with the associated calculation provided in Appendix 5. The latest versions of each data source have been used, these being TEMPro V8 and RTP December 2022 which supersede those used in the original assessment. The TEMPro factors have been derived for the same four local mid layer super output areas used in the TA while the RTP factors are for the North West as a region. The same forecast years of 2026 and 2031 as the TA have been derived. A summary of the growth factors is provided in Table 3.1.

Table 3.1: Traffic Growth Factors

Source	Lights (TEMPro)			HGVs (RTP)
Forecast	AM	PM	Sat	Both
2026	1.051	1.049	1.046	1.010
2031	1.088	1.080	1.085	1.015

- 3.2.4 The above factors have been applied to the 2022 Base flows and are shown in Traffic Flow Diagrams 10-15 while the committed development flows are shown in Traffic Flow Diagrams 16-18. The Base flows and committed development flows have been combined to form the Without Development flows as shown in Traffic Flow Diagrams 19-24, all of the diagrams are provided in Appendix 4.

3.3 Trip Distribution

- 3.3.1 Both KC Highways and NH expressed concerns with the trip distribution used in the TA which was a mixture of observed turning proportions and a gravity model. For this TAA, the applicant has provided Prime with the postcodes of the existing golf club members.
- 3.3.2 A total of 298 postcode records were provided and are included in Appendix 6. They were then assigned a route to/from the study area using web based route planning software (Google Maps). Six routes were identified with the number and proportion of trips assigned to each detailed in Table 3.2. Appendix 6 shows the location of these postcodes and the six routes respectively.

Table 3.2: Existing Member Distribution

Ref	Route	Count	%
1	M57 North	53	17.8%
2	A506 East (Kirkby)	57	19.1%
3	M57 South	33	11.1%
4	Copplehouse Lane	67	22.5%
5	A506 West (Liverpool)	58	19.5%
6	Aintree Lane	30	10.1%
Total		298	100.0%

3.3.3 The above table shows a combined 28.9% of members using the M57 (north and south) with 19.1% from the Kirkby direction and the remainder via the local roads west of the site. The existing distribution is logical, as despite the site being in a convenient location for access from the M57, it is a local golf club primarily visited by people in Kirkby, north-east Liverpool and south-east Sefton, with local roads offering more direct routes. It would therefore seem logical to apply the same distribution to the proposed development.

3.3.4 At the moment it is unknown where the Golf Academy students and staff will be based. It is anticipated that it will be a mixture of local, regional and potentially national students, with the overnight accommodation limiting the number of daily trips, particularly for those living further afield. Many staff, particularly cleaners, caterers and maintenance staff will likely be locally based. As such, it would seem reasonable to apply the golf member based distribution which utilises both the local and strategic road networks to the education element.

3.3.5 The distribution is shown in Traffic Flow Diagram 25 in Appendix 4.

3.4 Trip Generation

Golf Trips

3.4.1 The TRICS database has been used to forecast the likely number of development trips as per the TA. TRICS has been reviewed since the original assessment and it has been found that no additional golf club sites have been included in the database for the golf based uses, therefore the same trips rates used in the TA have been used in this TAA, although the TRICS peak hours have been aligned with the network peak hours as per KC's request. The trip rates for the golf element are shown in Tables 6.2 and 6.3 of the TA.

Education Trips

3.4.2 As detailed in the TA, whilst the Golf Academy will be a bespoke facility, planning permission is sought for educational use, therefore trip rates associated with colleges have been applied to this element. The trip rate sample from TRICS presented in the TA has been updated with more recent surveys with

the trip rates and resultant trip generation associated with the revised floor area of 1,010m² shown in Table 3.3 and the associated TRICS outputs presented in Appendix 7.

Table 3.3: Education Trip Generation – Weekday

Hr Beginning	Weekday					
	Trip Rates			Trip Generation		
	Arrivals	Departures	Total	Arrivals	Departures	Total
07:00	0.221	0.045	0.266	2	0	2
08:00	1.288	0.416	1.704	13	4	17
09:00	0.431	0.239	0.670	4	2	6
10:00	0.232	0.175	0.407	2	2	4
11:00	0.219	0.235	0.454	2	2	4
12:00	0.281	0.331	0.612	3	3	6
13:00	0.278	0.271	0.549	3	3	6
14:00	0.200	0.317	0.517	2	3	5
15:00	0.270	0.514	0.784	3	5	8
16:00	0.202	0.560	0.762	2	6	8
17:00	0.283	0.450	0.733	3	5	8
18:00	0.240	0.174	0.414	2	2	4
12-hour	4.145	3.727	7.872	41	37	78
AM Peak	0.755	0.231	0.985	13	4	17
PM Peak	0.243	0.505	0.748	2	6	8

- 3.4.3 As TRICS does not contain weekend trip rates for colleges, a hybrid trip generation has been devised using the weekday AM arrivals (13) and the weekday PM departures (6).
- 3.4.4 The above trip rates are likely to be notably higher than what the proposed Golf Academy will actually generate as students travelling from outside of the local area will be able to make use of the overnight accommodation so they are likely to only generate single arrival and departure trips at the start and end of their course, rather than on a daily basis. It should also be noted that the current days when the Golf Academy will be open are unknown and there is a chance that it may operate Monday to Friday only so it may therefore not generate trips during the weekend. Use of the hybrid trip generation is therefore particularly robust.
- 3.4.5 The golf based development trips shown in Traffic Flow Diagrams 26-28 and the education trips in Traffic Flow Diagrams 29-31. The total new development flows are shown in Traffic Flow Diagrams 32-34, all of which are in Appendix 4.

Existing Golf Club Trips

- 3.4.6 It is important to consider the existing golf club trips which will be removed in order to remove double counting from the assessment. The methodology presented in the TA has been updated, with revised TRICS residential trip rates (Appendix 7) applied to the existing 7 houses off Ingoe Lane and Oxtan Close and removed from the surveyed trips. These figures are shown in Traffic Flow Diagrams 35-37 in Appendix 4 and summarised in Table 3.4.

Table 3.4: Existing Golf Club Trip Removal

Peak	Existing Ingoe Ln Trips: Total		
	Arrivals	Departures	Totals
AM	25	4	29
PM	11	28	39
Weekend	16	17	33
Peak	Existing Ingoe Ln Trips: Resi		
	Arrivals	Departures	Totals
AM	1	3	4
PM	2	1	3
Weekend	1	1	2
Peak	Existing Ingoe Ln Trips: Golf		
	Arrivals	Departures	Totals
AM	24	1	25
PM	9	27	36
Weekend	15	16	31

Net Development Trips

- 3.4.7 The net development trips, which are the proposed new trips minus the existing golf club trips are shown in Table 3.5.

Table 3.5: Net Development Trips

Hr Beginning	Trip Generation		
	Arrivals	Departures	Total
AM Peak	17	7	24
PM Peak	18	16	34
Weekend Peak	50	47	97

- 3.4.8 The above net figures suggest that the development will generate an additional 24 trips in the AM peak hour, equivalent to less than 1 new trip every 2-minutes; 34 trips in the PM peak hour, equivalent to around 1 new trip every 2-minutes; and 97 trips in the Saturday peak hour, equivalent to less than 2 new trips per minute. These figures are a substantial reduction compared to those considered in the original TA, particularly in the weekday PM and weekend peaks.
- 3.4.9 The development trips have been added to the Without Development flows (minus the existing golf club trips) to form the With Development flows shown in Traffic Flow Diagrams 38-43 in Appendix 4.
- 3.4.10 An updated traffic impact assessment using the revised forecasting methodology is provided in Section 4.

4 TRAFFIC IMPACT ASSESSMENT

4.1 Absolute and Percentage Impact

4.1.1 Table 4.1 below provides a comparison of flows in the forecast year for the Without and With Development scenarios summarising the difference in absolute and percentage terms. This exercise has been carried out for all four junctions in the study area.

Table 4.1: Comparison of Traffic Flows through Study Junctions Without and With Development

Junction	2026 AM Peak				2026 PM Peak				2026 Saturday Peak			
	Without Dev	With Dev	Abs Diff	% Diff	Without Dev	With Dev	Abs Diff	% Diff	Without Dev	With Dev	Abs Diff	% Diff
A506/ Aintree Ln/ Copplehouse Ln	3656	3666	10	0.3%	3471	3493	22	0.6%	2916	2971	55	1.9%
A506/ Field Ln	3259	3287	28	0.9%	2948	2999	51	1.7%	2316	2424	108	4.7%
A506/ Ingoe Ln	3179	3185	6	0.2%	2848	2850	2	0.1%	2221	2259	38	1.7%
M57 J6 Western Controller	5398	5411	13	0.2%	5403	5416	13	0.2%	3944	3987	43	1.1%
Junction	2031 AM Peak				2031 PM Peak				2031 Saturday Peak			
	Without Dev	With Dev	Abs Diff	% Diff	Without Dev	With Dev	Abs Diff	% Diff	Without Dev	With Dev	Abs Diff	% Diff
A506/ Aintree Ln/ Copplehouse Ln	3781	3791	10	0.3%	3570	3592	22	0.6%	3021	3076	55	1.8%
A506/ Field Ln	3369	3397	28	0.8%	3030	3081	51	1.7%	2400	2508	108	4.5%
A506/ Ingoe Ln	3286	3292	6	0.2%	2931	2933	2	0.1%	2301	2339	38	1.7%
M57 J6 Western Controller	5578	5591	13	0.2%	5553	5566	13	0.2%	4085	4128	43	1.1%

4.1.2 As would be expected, the greatest impact in both absolute and percentage terms will be at the A506/Field Lane junction as this will serve as the main site access. Following this, the A506/ Aintree Lane/Copplehouse Lane junction will experience an increase of 10, 22 and 55 trips in the respective AM, PM and weekend peak hours, which at 2026 ranges from a 0.3% to 1.9% increase. The impact at the two junctions to the east of the site will be similar, ranging from 2 to 43 trips, equivalent to 0.1% to 1.7% increases.

4.2 M57 Slip Road Impact

4.2.1 In its consultation response, NH requested confirmation of the proposed development trip numbers on the slip roads at M57 junction 6. These trips are presented in Table 4.2 and on Traffic Flow Diagrams 32 to 37 in Appendix 4.

Table 4.2: M57 Junction 6 Slip Road Impact

Route	Slip	New Trips			Existing Trips			Net Trips		
		AM	PM	Weekend	AM	PM	Weekend	AM	PM	Weekend
M57 North	SB off	7	5	12	3	1	2	4	4	10
	NB on	1	8	11	0	6	5	1	2	6
M57 South	NB off	4	3	7	2	1	1	2	2	6
	SB on	1	5	7	0	4	3	1	1	4

- 4.2.2 The net impact on the slip roads is between 1 and 4 trips in the weekday peak hours and between 4 and 10 trips during the weekend peak. Such a level of impact is negligible and its likely to be imperceptible to road users.

4.3 Junction Capacity Assessment

- 4.3.1 With the exception of the A506/Field Lane junction which will form the main site access, the number of new trips forecast at the other three junctions in the study area during the weekday peak hours is less than the traditional 30 two-way trip threshold for junction capacity assessment suggested by the Department for Transport, therefore no such assessments will be undertaken. Whilst the threshold is slightly exceeded at the junctions on the weekend peak, the baseline traffic flows are much lower than the weekday baseline suggesting that the relatively small increase of less than 1 trip per minute at the weekend will not result in any capacity issues.
- 4.3.2 The A506/Field Lane LinSig model used the TA inclusive of the proposed site access has been revisited. The model was an advancement of the model of the existing junction (without the proposed site access) which was provided by KC and calibrated by Prime to 2019 conditions with the modelled queues providing a reasonable comparison with observed queues.
- 4.3.3 The HDM officer appears to have misinterpreted or misunderstood the model calibration process with their consultation response stating:

'KMBC signal timing data will need to be utilised. The Transport Assessment states that these have been provided by KMBC, however no record of such correspondence exists. Averaging cycle times is not accepted as the base model will not reflect existing conditions accurately. To be properly validated the base models will need to use existing KMBC signal timing data for the relevant time periods. It is noted that traffic queues were surveyed at an interval of every 5 minutes. The average queue length over the peak hour has been used. This is not accepted and the maximum queue length within the peak hour should be used instead. If this is not available then Highways will take a view on the base models validation based on local knowledge.'

- 4.3.4 As explained in the TA, traffic signal controller specifications and an existing LinSig model were acquired from KC Highways. Whilst it should not be the responsibility of a consultant to share

correspondence between colleagues of an authority, a copy of the correspondence confirming the supply of this information, as requested by the Highways Development Management (HDM) officer, is provided in Appendix 8.

- 4.3.5 The model was checked and updated where appropriate. Aside from the controller specification, a key input to the calibration process was the review of video footage to derive actual cycletimes and demand dependent stage frequencies. This allows the model to closely reflect the 'on the ground' signal controller operation. This correct and robust method has helped to achieve a good level of calibration which has been further adjusted following the assessment presented in the TA.
- 4.3.6 It was hoped to repeat the calibration process using the 2022 observed traffic data, however the theft of the cameras being used to record cycletimes has meant that we have re-used the 2019 observed flows for calibration purposes. We have however applied the observed PM cycletime (79 seconds) to the AM peak from 2022 onwards as it provides a better level of calibration with the spot maximum queues mentioned above. The observed weekend cycletime in 2019 was 62 seconds, however to enable the use of the bonus green function to model the demand dependent stages, we have used the 69 second minimum cycletime required to run the full staging arrangement.

A506/Field Lane Existing

- 4.3.7 The results for the existing junction is summarised in Table 4.3 with the full report output provided in Appendix 9.

Table 4.3: Capacity Assessment Results – A506/ Field Ln Existing

Item	AM Peak	PM Peak	Weekend Peak
2020 Observed			
PRC (%)	16.3	37.7	92.3
Delay (pcuHr)	13.22	10.40	5.77
2022 Base			
PRC (%)	3.2	44.0	64.2
Delay (pcuHr)	18.73	10.37	7.65
2026 Without Development			
PRC (%)	-2.0	36.7	55.9
Delay (pcuHr)	23.31	11.33	8.31
2031 Without Development			
PRC (%)	-5.2	33.2	50.8
Delay (pcuHr)	28.20	11.88	8.82

- 4.3.8 The results suggest that the junction is currently operating close to the practical capacity threshold (PRC = 0.0%) in the AM peak but with plenty of spare capacity in the other two peaks. The threshold is forecast to be exceeded in both forecast years with the additional of the committed development and traffic growth in the AM peak, but it will technically still be operating below the theoretical capacity threshold (PRC = -10%).

A506/Field Lane Proposed

- 4.3.9 The same model has been updated further to assess the junction's operation with the additional fourth arm which will serve as the main site access. Given the relatively low flows on Field Lane and on the proposed site access, we have modelled both arms running in the same stage which minimises any impact on the existing signal operation and capacity. A summary of the results is provided in Table 4.4 with the full report output provided in Appendix 9.

Table 4.4: Capacity Assessment Results – A506/ Field Ln Proposed (Site Access)

Item	AM Peak	PM Peak	Weekend Peak
2026 With Development			
PRC (%)	-3.0	36.1	52.6
Delay (pcuHr)	24.49	11.72	8.88
2031 With Development			
PRC (%)	-6.2	32.7	47.7
Delay (pcuHr)	30.13	12.27	9.39

- 4.3.10 The same cyletimes as the assessment of the existing junction have been utilised for comparison purposes. The results show that the addition of the fourth arm to serve as the main site access at 2031 reduces the PRC by just 1% in the AM peak, 0.5% in the PM peak and 3.1% in the weekend peak, a level of impact best described as negligible. The AM peak will still operate below the theoretical capacity threshold while the PM and weekend peaks will still operate well below the practical capacity threshold.
- 4.3.11 The ability of the traffic signal controller to dynamic assign greentime and vary cyletimes in real time will mean that cyletimes will likely increase slightly as traffic flows increase, with the maximum observed cyletime in 2019 being 141 seconds. The cyletime optimisation feature within LinSig has been utilised to consider how a longer cyletime could be used in the AM peak to enhance performance. It has been discovered that an 85 second average cyletime should see the junction operate below the practical capacity threshold, achieving a PRC of 0.1%.
- 4.3.12 The proposed access arrangement is therefore appropriate in capacity terms.

5 SUMMARY AND CONCLUSION

5.1 Summary

5.1.1 This Transport Assessment Addendum has been prepared to present the highways related elements of the revised scheme for the redevelopment of Kirkby Valley Golf Club and Course. The applicant has considered the views of statutory consultees since the planning application was submitted and made notable changes to the proposed development.

5.1.2 From a highways perspective, the main changes compared to the originally proposed scheme are:

- Removal of proposed five-a-side football pitches;
- Removal of proposed tennis courts;
- Removal of proposed bowling green; and
- Removal of infrastructure associated with above including parking spaces.

5.1.3 The proposed access arrangement has also been revised, with a left-in access off Valley Road east of Aintree Lane now removed as has a service access off Aintree Lane. The Ingoe Lane access will be retained and primarily used to serve the proposed Golf Academy. The main access via a fourth arm from the A506 Valley Road/Field Lane arm will be reduced in scale to reflect the reduction in the scale of the proposed development.

5.1.4 The parking arrangements have been revised but are in line with the standards of other planning authorities.

5.1.5 The traffic impact assessment has been undertaken to address comments raised by KC and NH and to reflect the revised scheme. ATC surveys were undertaken on Valley Road and Ingoe Lane to help determine the most suitable days and time periods to base the assessment on. Updated traffic turning count surveys were undertaken at the A506 Valley Road/Field Lane junction given the importance of this junction to the scheme, with the proposed development to take access from it.

5.1.6 It has been demonstrated that the impact of the revised scheme will be much less than that of the originally proposed scheme. The impact on the local highway network and M57 junction 6 will be negligible. It has been demonstrated that the proposed changes to the A506 Valley Road/Field Lane junction will have a minimal impact on junction operation with the junction predicted to operate with spare capacity in the forecast year of 2031 with the development in place.

5.2 Conclusion

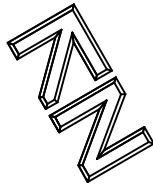
5.2.1 It is concluded that the proposed development would not result in an '*unacceptable impact on highway safety*' nor have a '*severe*' impact on the operation of the highway network in terms of capacity. The impact is best described as negligible.

- 5.2.2 As the proposal complies with local and national planning policy and guidance with respect to sustainable accessibility, safety and impact on the highway network, there are no highways or transportation related reasons why planning permission should not be granted. Should either highway authority have any concerns, we are happy to consult further with them.

APPENDIX 1

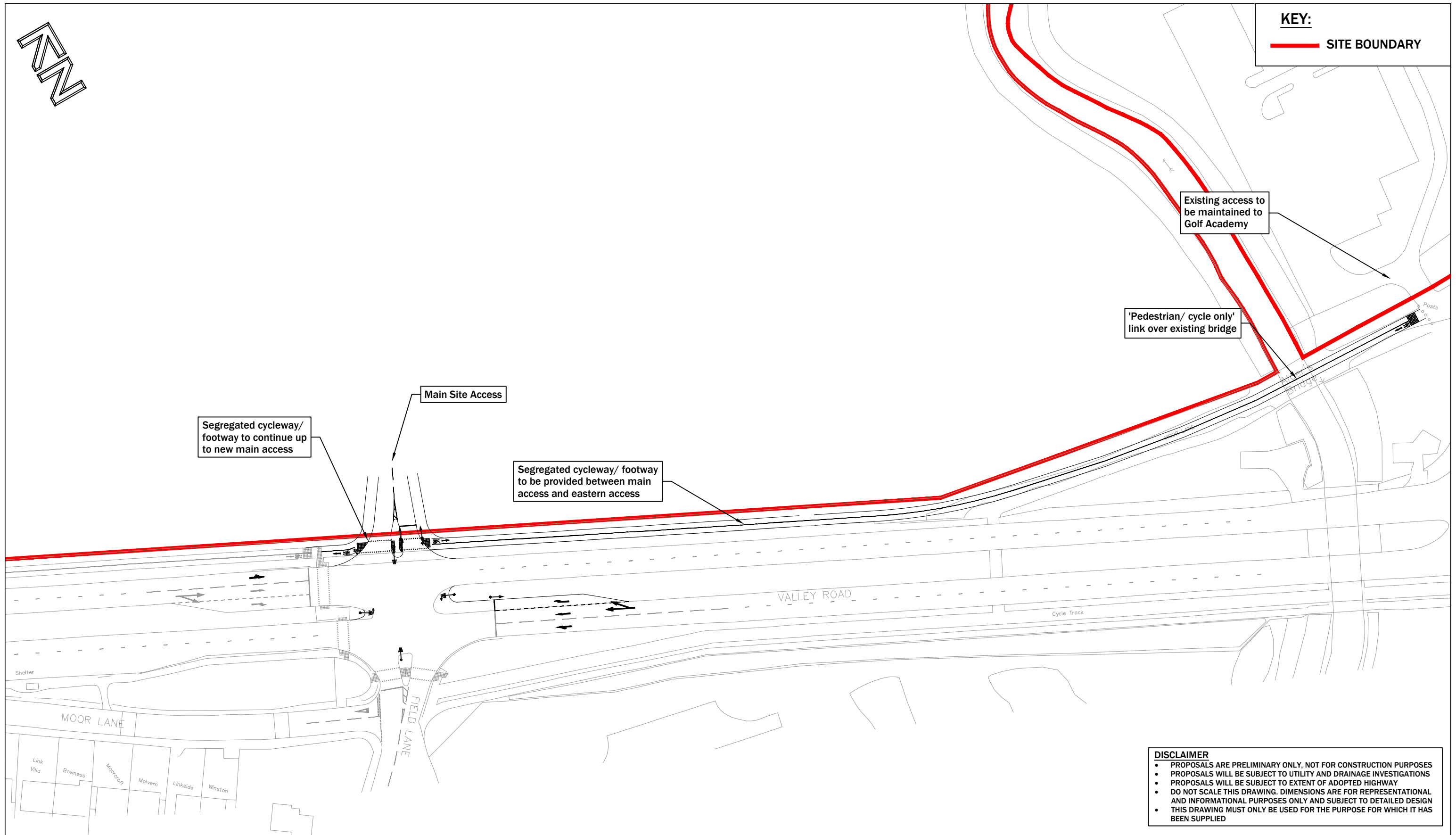
TECHNICAL DRAWINGS

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KEY:

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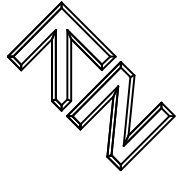
9 Hurricane Court
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Rev	Date	By	Revision notes
Status			
FINAL			

Project	KIRKBY VALLEY GOLF CLUB, KNOWSLEY
Title	PROPOSED ACCESS STRATEGY

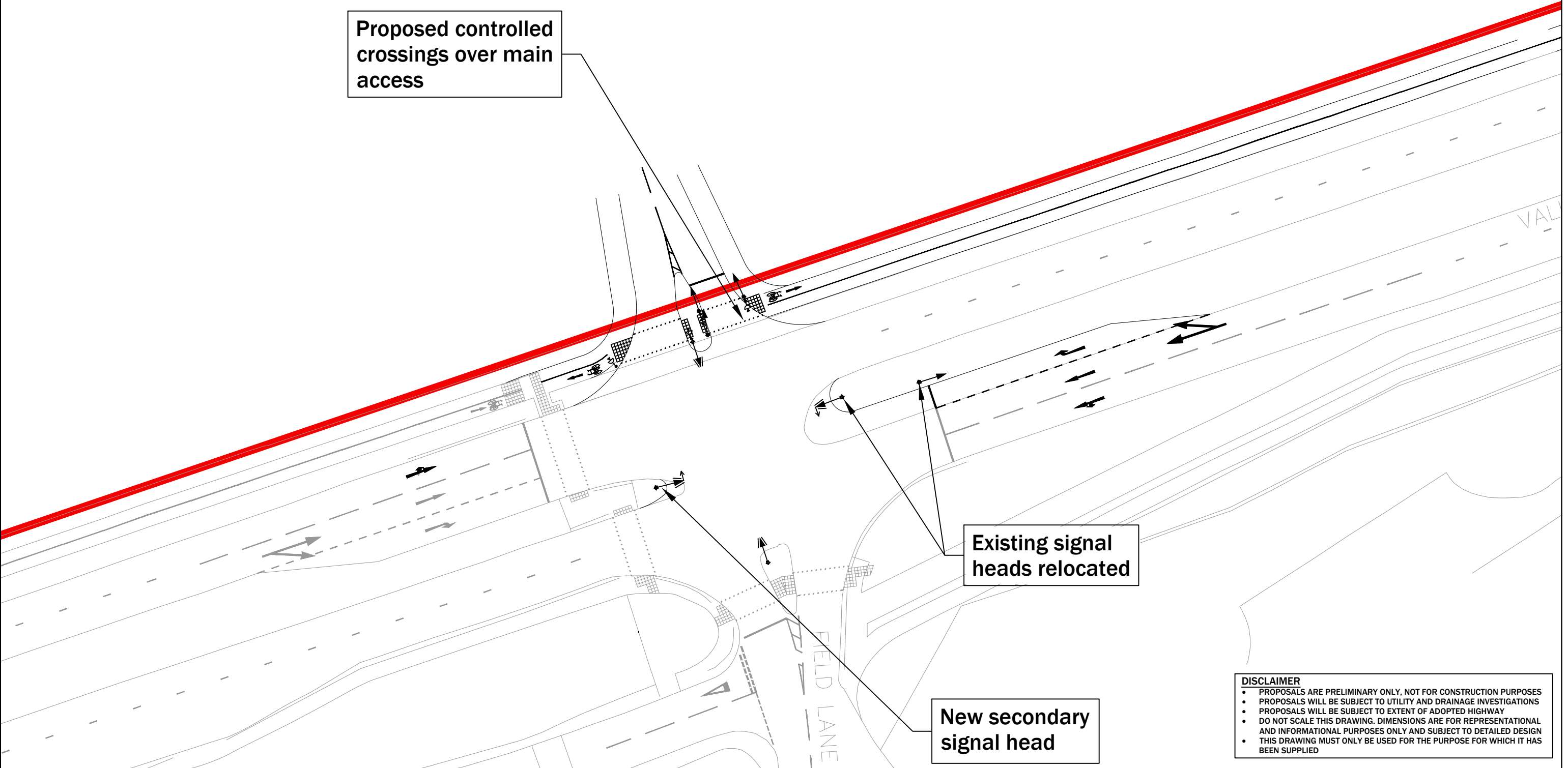
Drawn by JJ	Issue date 27 MARCH 2023
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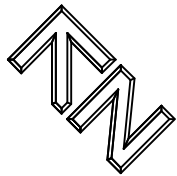
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Rev	Date	By	Revision notes
Status			
FINAL			

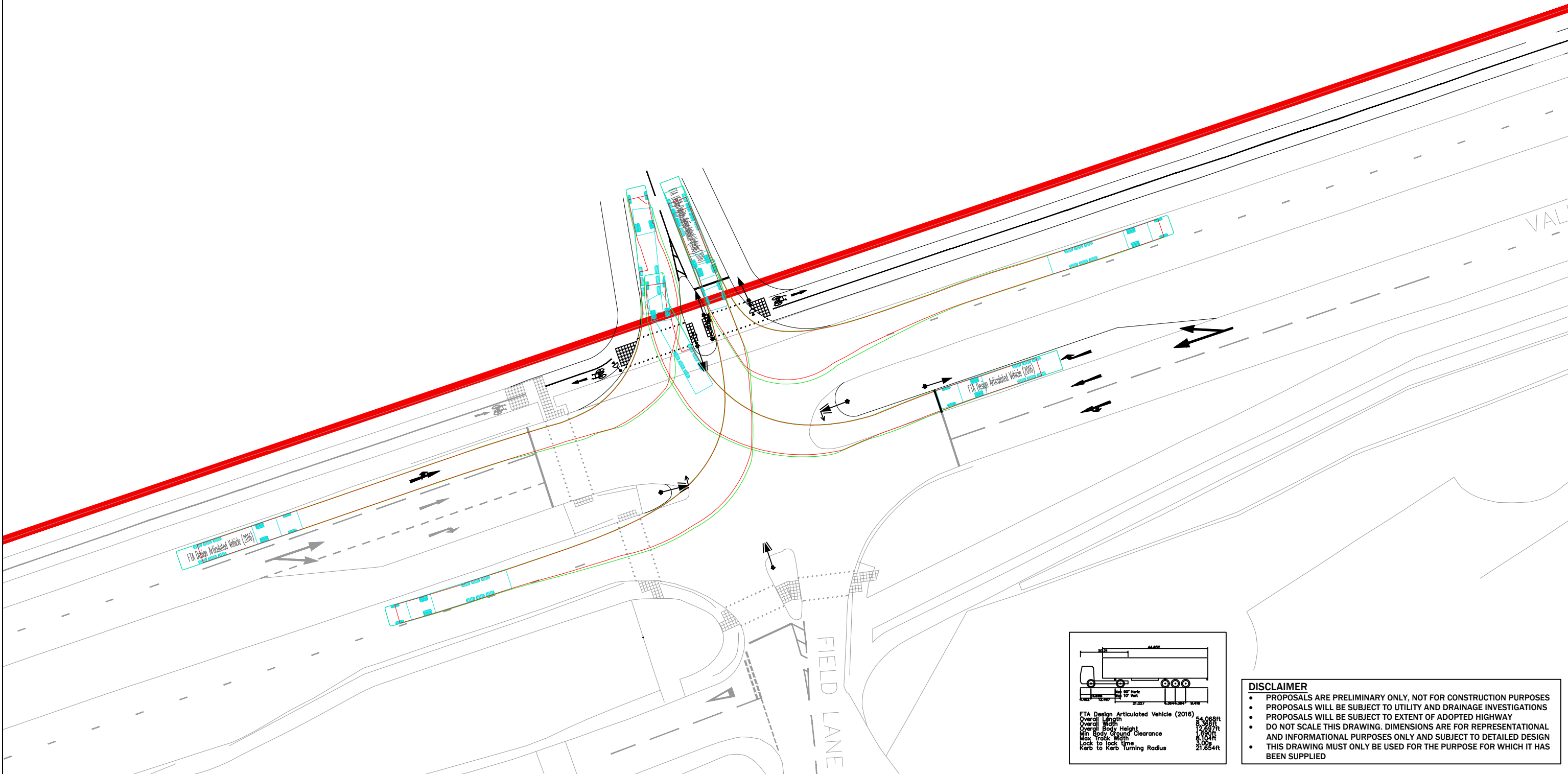
Project	KIRKBY VALLEY GOLF CLUB, KNOWSLEY
Title	PROPOSED ACCESS AT VALLEY ROAD / FIELD LANE JUNCTION

Drawn by JJ	Issue date 27 MARCH 2023
Scale(s) 1:500 @ A3	
Drawing No P22068-002	

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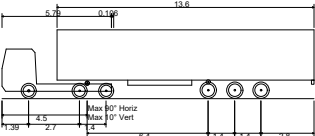
Rev	Date	By	Revision notes
Status			
FINAL			

Project	KIRKBY VALLEY GOLF CLUB, KNOWSLEY
Title	SWEPT PATH ANALYSIS PROPOSED VALLEY ROAD / FIELD LANE JUNCTION AMENDMENT

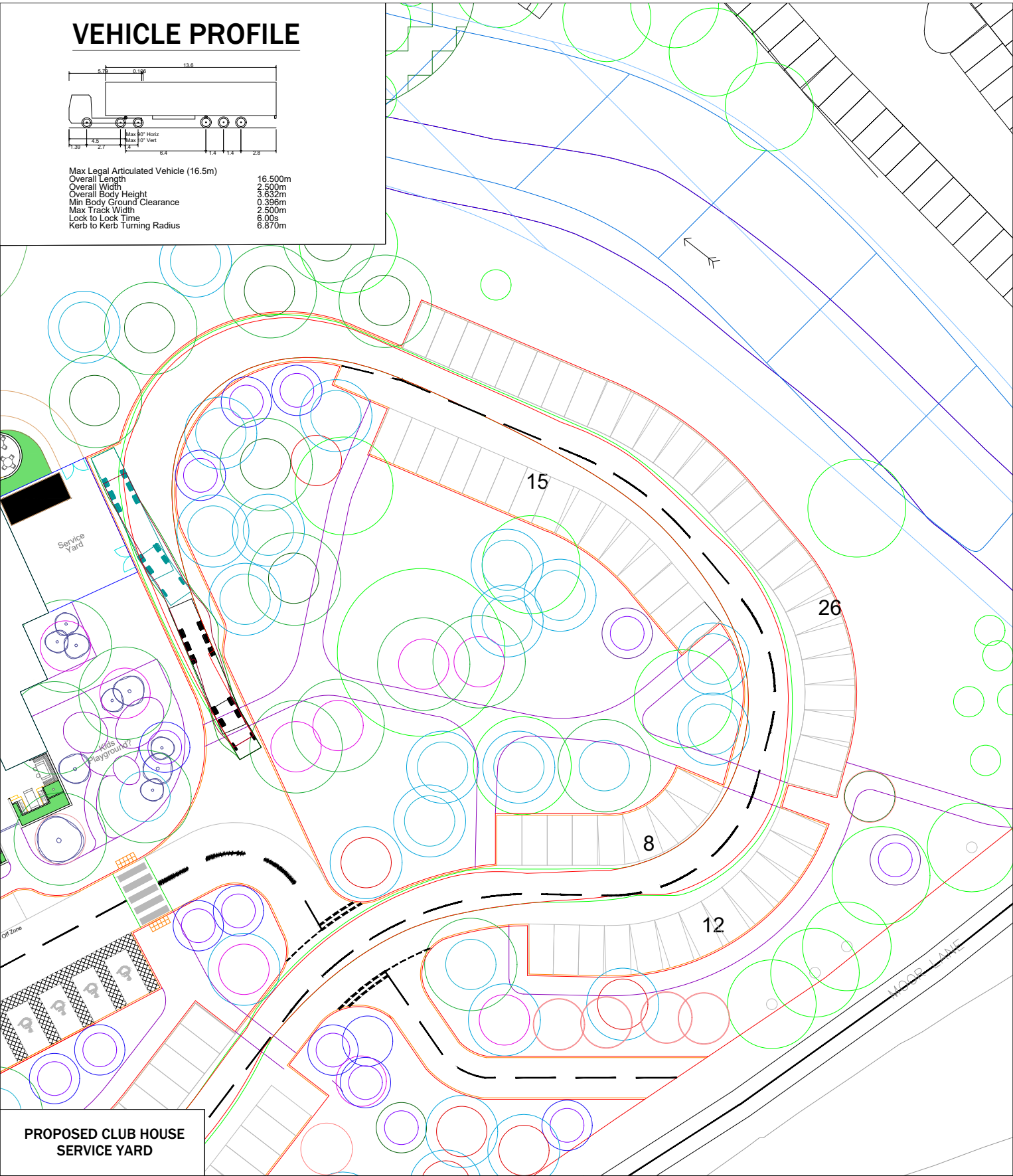
Drawn by JJ	Issue date 27 MARCH 2023
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Drawing No	P22068-003

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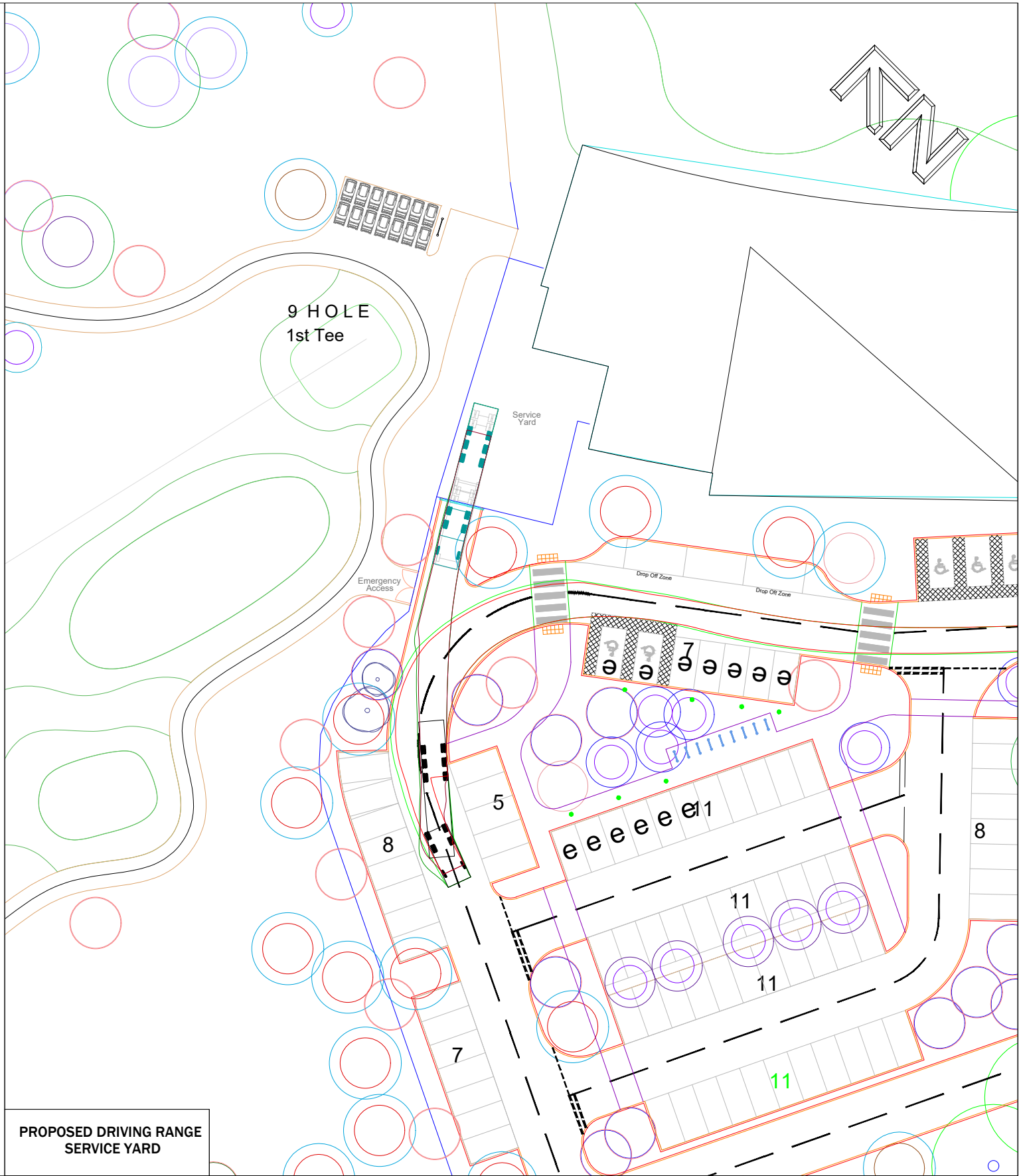
VEHICLE PROFILE



Max Legal Articulated Vehicle (16.5m)
Overall Length 16.500m
Overall Width 2.500m
Overall Body Height 3.632m
Min Body Ground Clearance 0.396m
Max Track Width 2.500m
Lock to Lock Time 6.00s
Kerb to Kerb Turning Radius 6.870m



PROPOSED CLUB HOUSE
SERVICE YARD



PROPOSED DRIVING RANGE
SERVICE YARD



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*	*	*	*
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Project	KIRBY VALLEY GOLF CLUB, KNOWSLEY			Drawn by CM	Issue date 05 JUN 2023
Title	SWEPT PATH ANALYSIS - PROPOSED SERVICE YARDS			Scale(s)	1:500 @ A3
				Drawing No	P22068-004
				Status	INFORMATION

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APPENDIX 2

PARKING STANDARDS FROM OTHER LPAS

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Use Class	Description	Maximum car parking standards	Cycle parking standards
D2 Assembly & leisure (continued)	d) Swimming pools	1 space per 15 m ² gfa	1 s/t space per 25 m ² gfa plus 1 l/t space per 10 f/t staff
	e) Tennis/badminton	4 spaces per court	
	f) Squash courts	3 spaces per court	
	g) Ice rinks	1 space per 12 m ² gfa of rink	
	h) Fitness centres/ sports clubs	1 space per 15 m ² gfa	
	i) Ten pin bowling	4 spaces per lane	1 s/t space per 3 lanes or rink plus 1 s/t space per 25 spectator seats plus 1 l/t space per 10 f/t staff
	j) Indoor bowls	4 spaces per rink	
	k) Outdoor sports grounds		1 s/t space per 10 players/participants at busiest period
	i) with football pitches	20 spaces per pitch	
	ii) without football pitches	50 spaces per hectare	
	l) Golf		
	i) 18 hole golf course	100 spaces	10 l/t spaces per 18 holes
	ii) 9 hole golf course	60 spaces	5 l/t spaces per 9 holes
	iii) golf driving range	1.5 spaces per tee	5 s/t spaces per 20/30 tee driving range
	iv) golf courses larger than 18 holes &/or for more than local use	to be decided in each case on individual merits	pro rata to above

D2 Assembly and Leisure	(d)Swimming pools.	1 space per 22sqm (1,000sqm threshold)
	(e)Tennis/badminton	4 space per court not to exceed 1 space per 22sqm (1,000sqm threshold)
	(f)Squash courts	3 space per court not to exceed 1 space per 22sqm (1,000sqm threshold)
	(g)Ice rinks	1 space per 12sqm gross floor area of rink not to exceed 1 space per 22sqm (1,000sqm threshold)
	(h)Fitness centres/sports clubs	1 space per 22sqm (1,000sqm threshold)
D2 Assembly and Leisure	(i) Ten pin bowling	4 spaces per lane not to exceed 1 space per 22sqm (1,000sqm threshold)
	(j) Indoor bowls	4 spaces per rink not to exceed 1 space per 22sqm (1,000sqm threshold)
D2 Assembly and Leisure	(k) Outdoor sports grounds	
	(i) with football pitches (ii) without football pitches	20 spaces per pitch 50 spaces per hectare
D2 Assembly and Leisure	(l) Golf	
	(i)18 hole golf course	100 spaces
D2 Assembly and Leisure	(ii) 9 hole golf course	60 spaces
D2 Assembly and Leisure	(iii) golf driving range	1.5 spaces per tee
D2 Assembly and Leisure	(iv) golf courses larger than 18 holes and/or for more than local use	To be decided in each case on individual merits.
Motor trade related	(a) Showroom car sales	3 spaces per 4 employees plus 1 space per 10 cars displayed.
	(b) Vehicle storage	3 spaces per 4 employees plus 2 spaces per showroom space or provision at rate of 10% annual turnover.
	(c) Hire cars	3 spaces per 4 employees plus 1 space per 2 hire cars based at site.

Parking Guidance for Use Class D2:
Assembly and Leisure

Cinemas, Music and Concert halls, Bingo and Dance Halls (but not Nightclubs), Swimming Baths, Skating Rinks, Gymnasiums or Sports Arenas (except Motor Sports, or where firearms are used).

Standard:

Use	Vehicle	Cycle	PTW	Disabled
	Requirement	Minimum	Minimum	Minimum
Cinema	1 space per 5 seats	20 spaces plus 1 space per 10 vehicle space	1 space + 1 per 20 car spaces (for 1 st 100 car spaces), then 1 space per 30 car spaces (over 100 car spaces).	200 bays or less = 3 bays or 6% of total capacity, whichever is greater, Over 200 bays = 4 bays plus 4% of total Capacity
D2 – other uses	1 space per 20 sqm	20 spaces plus 1 space per 10 vehicle space		
Team sports (outdoor sports pitches)	20 spaces per pitch plus 1 space per 10 spectator seats	20 spaces plus 1 space per 10 vehicle space		
Swimming Pools, Gyms, Sports Halls	1 space per 10 sqm of public area	20 spaces plus 1 space per 10 vehicle space		
Golf Clubs	3 spaces per hole	20 spaces		
Other Sports facilities	Individual merit	Individual merit		

Informative notes:

Destination car parking guidance is identified as advised figures i.e. the amount that the Highway Authority would expect. Any Highway Authority approval of a reduction or increase would be subject to site conditions. A lower provision of vehicle parking may be appropriate in urban areas (including town centre locations) where there is good access to alternative forms of transport and existing car parking facilities.

pitches (minimum provision to be made for one coach). Thus the following examples may be used:-

1 cricket pitch - 22 players + 2 umpires =
12 car spaces + 1 coach.

Tennis/Squash courts - 2 car spaces per court.

Rugby club with 3 pitches - 36 players, coaches, referees, substitutes, etc, per pitch, therefore 54 car spaces plus two coach spaces.

2 soccer pitches - 30 players, coaches, referees, substitutes, etc, per pitch, therefore 30 car spaces plus one coach space.

Golf Courses

100 spaces per 18 hole course.

Other sizes of course will be considered on their merits, not pro-rata to the above.

Note:-Licensed club facilities within sports grounds (including golf clubhouses) will require additional parking spaces in accordance with the standards given in Section 4.

13. SIZE OF PARKING SPACES

The minimum acceptable dimensions for a car parking space will be:-

length	5.0 metres
width	2.4 metres
headroom	2.0 metres

Lorry parking spaces shall be a minimum of 18m by 5m.

Where 50 or more car parking spaces are to be provided, a reduction in length to 4 m may be permitted in up to 10% of parking bays which will then be for the use of small cars only.

Where parking spaces are laid out at right angles to the access aisles a minimum aisle width of 6m will be required. Non rectilinear layouts will be assessed individually.

Car parking areas will be laid out so that no vehicle has to be reversed for a distance exceeding 25m.

14. PARKING FOR DISABLED PEOPLE

For many disabled people and others with limited mobility, the private car is their only means of travel. It is very important therefore that adequate provision is made both in terms of the type and position of parking spaces. Any parking provision should be made within 50m of the destination. Spaces should be 3.6m wide or have a transfer area of 1.2m to one side of a standard size space. 3.2m wide spaces may be acceptable where space is limited. Parking spaces should be clearly marked with the British Standard "Disabled" symbol in accordance with B.S. 3262 Part 1 and any parking fee concessions should be stated clearly at the parking space.

APPENDIX 3

RAW TRAFFIC SURVEY DATA

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Kirkby ATC, A506 Valley Road

Direction: Southwestbound

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Ave.	7-Day Ave.
00:00	60	69	49	57	65	93	184	60	82
01:00	36	32	37	34	40	104	124	36	58
02:00	28	28	24	34	47	61	73	32	42
03:00	39	36	24	29	43	74	68	34	45
04:00	60	61	56	50	68	70	70	59	62
05:00	147	173	184	203	162	127	88	174	155
06:00	485	513	481	497	475	235	170	490	408
07:00	1276	1343	1343	1327	1254	442	365	1309	1050
08:00	1368	1529	1478	1399	1346	593	331	1424	1149
09:00	979	1173	997	992	930	643	426	1014	877
10:00	732	734	745	677	828	840	657	743	745
11:00	731	715	728	772	795	865	773	748	768
12:00	799	787	842	793	933	1086	855	831	871
13:00	806	823	846	846	978	1467	887	860	950
14:00	864	880	960	977	964	1127	785	929	937
15:00	1054	1018	1065	1085	1158	729	649	1076	965
16:00	1247	1302	1350	1283	1282	729	682	1293	1125
17:00	1235	1222	1328	1347	1090	727	640	1244	1084
18:00	866	875	927	967	907	662	654	908	837
19:00	615	707	713	743	684	653	556	692	667
20:00	409	440	463	503	448	439	364	453	438
21:00	227	291	294	296	298	297	205	281	273
22:00	152	185	178	175	265	232	136	191	189
23:00	101	97	100	114	161	184	73	115	119
Total 12H(7-19) 16H(6-22) 18H(6-24) 24H(0-24)	11957 13693 13946 14316	12401 14352 14634 15033	12609 14560 14838 15212	12465 14504 14793 15200	12465 14370 14796 15221	9910 11534 11950 12479	7704 8999 9208 9815	12379 14296 14601 14996	11359 13145 13452 13897
AM Peak	08:00 1368	08:00 1529	08:00 1478	08:00 1399	08:00 1346	11:00 865	11:00 773	08:00 1424	08:00 1149
PM Peak	16:00 1247	16:00 1302	16:00 1350	17:00 1347	16:00 1282	13:00 1467	13:00 887	16:00 1293	17:00 1125

360 TSL Ltd

Direction: Northeastbound

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Ave.	7-Day Ave.
00:00	66	71	67	59	90	127	205	71	98
01:00	39	38	39	37	52	112	133	41	64
02:00	37	42	28	32	45	75	85	37	49
03:00	55	46	32	46	62	82	91	48	59
04:00	79	69	70	72	79	56	80	74	72
05:00	287	272	281	258	254	142	112	270	229
06:00	532	566	570	509	521	218	162	540	440
07:00	1012	1021	1037	1052	955	373	271	1015	817
08:00	985	1059	1075	1031	971	515	323	1024	851
09:00	802	801	788	811	813	596	406	803	717
10:00	658	687	688	705	746	745	627	697	694
11:00	719	703	704	672	813	786	732	722	733
12:00	720	755	782	807	857	918	845	784	812
13:00	733	781	799	772	892	859	822	795	808
14:00	874	866	881	886	1000	851	798	901	879
15:00	996	990	1041	1088	1059	784	723	1035	954
16:00	1191	1203	1222	1211	1229	689	706	1211	1064
17:00	1163	1211	1217	1177	1219	1017	635	1197	1091
18:00	842	941	960	935	886	1036	611	913	887
19:00	687	696	775	746	695	658	547	720	686
20:00	511	537	529	560	526	547	454	533	523
21:00	289	349	336	375	395	359	270	349	339
22:00	178	208	216	208	281	305	185	218	226
23:00	108	104	120	154	192	260	117	136	151
Total 12H(7-19) 16H(6-22) 18H(6-24) 24H(0-24)	10695 12714 13000 13563	11018 13166 13478 14016	11194 13404 13740 14257	11147 13337 13699 14203	11440 13577 14050 14632	9169 10951 11516 12110	7499 8932 9234 9940	11099 13240 13593 14134	10309 12297 12674 13246
AM Peak	07:00 1012	08:00 1059	08:00 1075	07:00 1052	08:00 971	11:00 786	11:00 732	08:00 1024	08:00 851
PM Peak	16:00 1191	17:00 1211	16:00 1222	16:00 1211	16:00 1229	18:00 1096	12:00 845	16:00 1211	17:00 1091

360 TSL Ltd

Direction: Total Flow

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Ave.	7-Day Ave.
00:00	126	140	116	116	155	220	389	131	180
01:00	75	70	76	71	92	216	257	77	122
02:00	65	70	52	66	92	136	158	69	91
03:00	94	82	56	75	105	156	159	82	104
04:00	139	130	126	122	147	126	150	133	134
05:00	434	445	465	461	416	269	200	444	384
06:00	1017	1079	1051	1006	996	453	332	1030	848
07:00	2288	2364	2380	2379	2209	815	636	2324	1867
08:00	2353	2588	2553	2430	2317	1108	654	2448	2000
09:00	1781	1974	1785	1803	1743	1239	832	1817	1594
10:00	1390	1421	1433	1382	1574	1585	1284	1440	1438
11:00	1450	1418	1432	1444	1608	1651	1505	1470	1501
12:00	1519	1542	1624	1600	1790	2004	1700	1615	1683
13:00	1539	1604	1645	1618	1870	2326	1709	1655	1759
14:00	1738	1746	1841	1863	1964	1978	1583	1830	1816
15:00	2050	2008	2106	2173	2217	1513	1372	2111	1920
16:00	2438	2505	2572	2494	2511	1418	1388	2504	2189
17:00	2398	2433	2545	2524	2309	1744	1275	2442	2175
18:00	1708	1816	1887	1902	1793	1698	1265	1821	1724
19:00	1302	1403	1488	1489	1379	1311	1103	1412	1354
20:00	920	977	992	1063	974	986	818	985	961
21:00	516	640	630	671	693	656	475	630	612
22:00	330	393	394	383	546	537	321	409	415
23:00	209	201	220	268	353	444	190	250	269
Total 12H(7-19) 16H(6-22) 18H(6-24) 24H(0-24)	22652 26407 26946 27879	23419 27518 28112 29049	23803 27964 28578 29469	23612 27841 28492 29403	23905 27947 28846 29853	19079 22485 23466 24589	15203 17931 18442 19755	23478 27535 28195 29131	21668 25442 26126 27142
AM Peak	08:00 2353	08:00 2588	08:00 2553	08:00 2430	08:00 2317	11:00 1651	11:00 1505	08:00 2448	08:00 2000
PM Peak	16:00 2438	16:00 2505	16:00 2572	17:00 2524	16:00 2511	13:00 2326	13:00 1709	16:00 2504	16:00 2189

360 TSL Ltd



Kirkby ATC, Ingoe Lane

Direction: Northbound

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Avg.	7-Day Avg.
00:00	0	0	0	0	0	0	1	0	0
01:00	0	0	1	0	0	0	2	0	0
02:00	1	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	4	0	0	0	0	0	1	1
05:00	1	1	1	2	2	1	0	1	1
06:00	12	14	20	18	18	16	22	16	17
07:00	15	8	16	24	16	19	30	16	18
08:00	9	14	24	31	4	31	31	16	21
09:00	16	16	29	41	10	18	16	22	21
10:00	9	13	23	21	17	10	20	17	16
11:00	9	6	17	17	10	15	17	12	13
12:00	14	6	11	26	7	11	30	13	15
13:00	14	4	6	15	8	18	22	9	12
14:00	10	23	16	20	4	13	25	15	16
15:00	12	10	8	16	6	10	6	10	10
16:00	8	7	6	16	8	1	14	9	9
17:00	5	6	13	6	4	9	5	7	7
18:00	5	10	9	4	8	7	2	7	6
19:00	3	7	6	5	3	1	6	5	4
20:00	1	1	1	0	4	1	0	1	1
21:00	1	3	3	1	2	0	0	2	1
22:00	0	1	3	2	0	1	3	1	1
23:00	0	0	0	2	1	3	0	1	1
Total									
12H(7-19)	126	123	178	237	102	162	218	153	164
16H(6-22)	143	148	208	261	129	180	246	178	188
18H(6-24)	143	149	211	265	130	184	249	180	190
24H(0-24)	145	154	213	267	132	185	252	182	193
AM Peak	09:00	09:00	09:00	09:00	06:00	08:00	08:00	09:00	09:00
	16	16	29	41	18	31	31	22	21
PM Peak	12:00	14:00	14:00	12:00	13:00	13:00	12:00	14:00	14:00
	14	23	16	26	8	18	30	15	16

360 TSL Ltd

Direction: Southbound

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Avg.	7-Day Avg.
00:00	0	0	0	0	0	0	2	0	0
01:00	0	0	1	0	0	0	2	0	0
02:00	1	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	1	0	0	0	0	0	0	0
05:00	0	2	2	0	0	0	0	1	1
06:00	7	5	5	6	4	5	1	5	5
07:00	6	7	6	4	7	3	4	6	5
08:00	9	6	6	6	1	5	2	6	5
09:00	7	11	11	11	10	8	8	10	9
10:00	8	5	11	17	26	11	6	13	12
11:00	14	7	26	11	9	21	11	13	14
12:00	18	12	18	28	10	13	23	17	17
13:00	9	16	20	27	10	19	45	16	21
14:00	19	17	32	41	18	31	26	25	26
15:00	12	14	17	18	6	20	21	13	15
16:00	13	12	14	42	6	9	39	17	19
17:00	11	12	15	15	6	12	21	12	13
18:00	8	7	4	8	10	8	23	7	10
19:00	0	10	15	11	3	7	9	8	8
20:00	1	0	1	0	3	1	0	1	1
21:00	1	2	4	2	1	0	1	2	2
22:00	0	1	2	1	0	1	4	1	1
23:00	0	0	1	1	0	1	0	0	0
Total									
12H(7-19)	134	126	180	228	119	160	229	157	168
16H(6-22)	143	143	205	247	130	173	240	174	183
18H(6-24)	143	144	208	249	130	175	244	175	185
24H(0-24)	144	147	211	249	130	175	248	176	186
AM Peak	11:00	09:00	11:00	10:00	10:00	11:00	11:00	10:00	11:00
	14	11	26	17	26	21	11	13	14
PM Peak	14:00	14:00	14:00	16:00	14:00	14:00	13:00	14:00	14:00
	19	17	32	42	18	31	45	25	26

360 TSL Ltd

Direction: Total Flow

Hour Beginning	Mon 26/09/2022	Tue 27/09/2022	Wed 28/09/2022	Thu 29/09/2022	Fri 30/09/2022	Sat 01/10/2022	Sun 02/10/2022	5-Day Avg.	7-Day Avg.
00:00	0	0	0	0	0	0	3	0	0
01:00	0	0	2	0	0	0	4	0	1
02:00	2	0	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0	0	0
04:00	0	5	0	0	0	0	0	1	1
05:00	1	3	3	2	2	1	0	2	2
06:00	19	19	25	24	22	21	23	22	22
07:00	21	15	22	28	23	22	34	22	24
08:00	18	20	30	37	5	36	33	22	26
09:00	23	27	40	52	20	26	24	32	30
10:00	17	18	34	38	43	21	26	30	28
11:00	23	13	43	28	19	36	28	25	27
12:00	32	18	29	54	17	24	53	30	32
13:00	23	20	26	42	18	37	67	26	33
14:00	29	40	48	61	22	44	51	40	42
15:00	24	24	25	34	12	30	27	24	25
16:00	21	19	20	58	14	10	53	26	28
17:00	16	18	28	21	10	21	26	19	20
18:00	13	17	13	12	18	15	25	15	16
19:00	3	17	21	16	6	8	15	13	12
20:00	2	1	2	0	7	2	0	2	2
21:00	2	5	7	3	3	0	1	4	3
22:00	0	2	5	3	0	2	7	2	3
23:00	0	0	1	3	1	4	0	1	1
Total									
12H(7-19)	260	249	358	465	221	322	447	311	332
16H(6-22)	286	291	413	508	259	353	486	351	371
18H(6-24)	286	293	419	514	260	359	493	354	375
24H(0-24)	289	301	424	516	262	360	500	358	379
AM Peak	09:00	09:00	11:00	09:00	10:00	08:00	07:00	09:00	09:00
	23	27	43	52	43	36	34	32	30
PM Peak	12:00	14:00	14:00	14:00	14:00	14:00	13:00	14:00	14:00
	32	40	48	61	22	44	67	40	42

360 TSL Ltd



Knowsley, Thursday 1st December 2022

Junction: 1

Approach: A506 Valley Road East



TIME	Left to Field Lane					Ahead to A506 Valley Road (West)				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
07:00 - 07:15	37	1	0	38	39.3	159	9	3	171	185.7
07:15 - 07:30	40	0	0	40	40.0	319	5	3	327	336.5
07:30 - 07:45	43	0	1	44	45.0	364	3	5	372	380.9
07:45 - 08:00	85	3	1	89	93.9	381	14	3	398	419.2
Hourly Total	205	4	2	211	218.2	1223	31	14	1268	1322.3
08:00 - 08:15	104	7	3	114	126.1	335	6	3	344	354.8
08:15 - 08:30	105	3	1	109	113.9	345	10	7	362	382.0
08:30 - 08:45	65	1	0	66	67.3	286	8	1	295	306.4
08:45 - 09:00	67	1	1	69	71.3	279	7	2	288	299.1
Hourly Total	341	12	5	358	378.6	1245	31	13	1289	1342.3
09:00 - 09:15	51	1	0	52	53.3	244	4	4	252	261.2
09:15 - 09:30	108	1	1	110	112.3	188	8	5	201	216.4
09:30 - 09:45	46	0	0	46	46.0	178	4	3	185	193.2
09:45 - 10:00	43	1	0	44	45.3	165	10	4	179	196.0
Hourly Total	248	3	1	252	256.9	775	26	16	817	866.8

TOTAL	794	19	8	821	853.7	3243	88	43	3374	3531.4
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15:00 - 15:15	47	1	0	48	49.3	181	2	4	187	193.6
15:15 - 15:30	63	3	0	66	69.9	180	5	2	187	195.5
15:30 - 15:45	83	2	3	88	93.6	204	2	4	210	216.6
15:45 - 16:00	65	4	1	70	76.2	238	3	1	242	246.9
Hourly Total	258	10	4	272	289.0	803	12	11	826	852.6
16:00 - 16:15	70	3	0	73	76.9	244	6	3	253	263.8
16:15 - 16:30	64	1	0	65	66.3	256	3	2	261	266.9
16:30 - 16:45	77	1	0	78	79.3	251	4	2	257	264.2
16:45 - 17:00	63	4	0	67	72.2	279	0	5	284	289.0
Hourly Total	274	9	0	283	294.7	1030	13	12	1055	1083.9
17:00 - 17:15	62	4	0	66	71.2	240	3	4	247	254.9
17:15 - 17:30	76	1	0	77	78.3	254	7	2	263	274.1
17:30 - 17:45	64	1	0	65	66.3	218	1	4	223	228.3
17:45 - 18:00	62	5	0	67	73.5	205	0	1	206	207.0
Hourly Total	264	11	0	275	289.3	917	11	11	939	964.3

TOTAL	796	30	4	830	873.0	2750	36	34	2820	2900.8
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PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

Knowsley, Thursday 1st December 2022

Junction: 1
Approach: Field Lane



TIME	Left to A506 Valley Road (West)					Right to A506 Valley Road (East)				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
07:00 - 07:15	6	0	0	6	6.0	14	0	0	14	14.0
07:15 - 07:30	7	0	0	7	7.0	24	0	0	24	24.0
07:30 - 07:45	12	0	0	12	12.0	32	0	0	32	32.0
07:45 - 08:00	11	3	0	14	17.9	33	0	0	33	33.0
Hourly Total	36	3	0	39	42.9	103	0	0	103	103.0
08:00 - 08:15	18	0	0	18	18.0	20	0	0	20	20.0
08:15 - 08:30	6	0	0	6	6.0	35	2	0	37	39.6
08:30 - 08:45	18	0	0	18	18.0	31	1	0	32	33.3
08:45 - 09:00	15	0	0	15	15.0	8	1	0	9	10.3
Hourly Total	57	0	0	57	57.0	94	4	0	98	103.2
09:00 - 09:15	9	0	0	9	9.0	15	0	0	15	15.0
09:15 - 09:30	11	0	0	11	11.0	13	0	0	13	13.0
09:30 - 09:45	15	0	0	15	15.0	15	0	0	15	15.0
09:45 - 10:00	9	0	0	9	9.0	6	1	0	7	8.3
Hourly Total	44	0	0	44	44.0	49	1	0	50	51.3

TOTAL	137	3	0	140	143.9	246	5	0	251	257.5
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15:00 - 15:15	10	1	0	11	12.3	13	1	0	14	15.3
15:15 - 15:30	10	0	0	10	10.0	24	0	0	24	24.0
15:30 - 15:45	9	0	0	9	9.0	13	2	0	15	17.6
15:45 - 16:00	14	1	0	15	16.3	16	0	0	16	16.0
Hourly Total	43	2	0	45	47.6	66	3	0	69	72.9
16:00 - 16:15	9	0	0	9	9.0	26	0	0	26	26.0
16:15 - 16:30	15	0	0	15	15.0	16	2	0	18	20.6
16:30 - 16:45	10	0	0	10	10.0	19	0	0	19	19.0
16:45 - 17:00	10	0	0	10	10.0	31	0	0	31	31.0
Hourly Total	44	0	0	44	44.0	92	2	0	94	96.6
17:00 - 17:15	11	0	0	11	11.0	29	0	0	29	29.0
17:15 - 17:30	9	0	0	9	9.0	25	0	0	25	25.0
17:30 - 17:45	11	0	0	11	11.0	27	0	0	27	27.0
17:45 - 18:00	15	0	0	15	15.0	22	0	0	22	22.0
Hourly Total	46	0	0	46	46.0	103	0	0	103	103.0

TOTAL	133	2	0	135	137.6	261	5	0	266	272.5
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PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

Knowsley, Thursday 1st December 2022

Junction: 1

Approach: A506 Valley Road West



TIME	Ahead to A506 Valley Road (East)					Right to Field Lane				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
07:00 - 07:15	97	1	0	98	99.3	7	0	0	7	7.0
07:15 - 07:30	147	1	5	153	159.3	9	0	0	9	9.0
07:30 - 07:45	217	4	3	224	232.2	5	0	0	5	5.0
07:45 - 08:00	271	4	5	280	290.2	8	1	0	9	10.3
Hourly Total	732	10	13	755	781.0	29	1	0	30	31.3
08:00 - 08:15	235	4	4	243	252.2	5	0	0	5	5.0
08:15 - 08:30	283	10	2	295	310.0	9	1	1	11	13.3
08:30 - 08:45	270	11	3	284	301.3	9	0	0	9	9.0
08:45 - 09:00	220	13	2	235	253.9	9	0	0	9	9.0
Hourly Total	1008	38	11	1057	1117.4	32	1	1	34	36.3
09:00 - 09:15	199	8	2	209	221.4	16	0	0	16	16.0
09:15 - 09:30	193	9	3	205	219.7	6	0	1	7	8.0
09:30 - 09:45	167	12	2	181	198.6	5	0	1	6	7.0
09:45 - 10:00	184	12	3	199	217.6	6	0	0	6	6.0
Hourly Total	743	41	10	794	857.3	33	0	2	35	37.0

PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

TOTAL	2483	89	34	2606	2755.7	94	2	3	99	104.6
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15:00 - 15:15	258	7	2	267	278.1	16	0	0	16	16.0
15:15 - 15:30	287	7	3	297	309.1	17	2	1	20	23.6
15:30 - 15:45	270	6	2	278	287.8	30	0	1	31	32.0
15:45 - 16:00	234	5	6	245	257.5	13	0	0	13	13.0
Hourly Total	1049	25	13	1087	1132.5	76	2	2	80	84.6
16:00 - 16:15	290	6	1	297	305.8	11	0	2	13	15.0
16:15 - 16:30	267	3	6	276	285.9	23	0	0	23	23.0
16:30 - 16:45	339	6	4	349	360.8	12	0	0	12	12.0
16:45 - 17:00	261	5	7	273	286.5	20	0	2	22	24.0
Hourly Total	1157	20	18	1195	1239.0	66	0	4	70	74.0
17:00 - 17:15	317	4	1	322	328.2	27	0	0	27	27.0
17:15 - 17:30	282	6	4	292	303.8	14	0	1	15	16.0
17:30 - 17:45	282	7	6	295	310.1	10	0	0	10	10.0
17:45 - 18:00	233	6	2	241	250.8	7	1	0	8	9.3
Hourly Total	1114	23	13	1150	1192.9	58	1	1	60	62.3

TOTAL	3320	68	44	3432	3564.4	200	3	7	210	220.9
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Knowsley, Saturday 3rd December 2022

Junction: 1
Approach: A506 Valley Road East



TIME	Left to Field Lane					Ahead to A506 Valley Road (West)				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
11:00 - 11:15	41	1	0	42	43.3	182	2	3	187	192.6
11:15 - 11:30	42	0	0	42	42.0	171	1	3	175	179.3
11:30 - 11:45	52	0	0	52	52.0	176	3	2	181	186.9
11:45 - 12:00	48	0	0	48	48.0	191	1	2	194	197.3
Hourly Total	183	1	0	184	185.3	720	7	10	737	756.1
12:00 - 12:15	50	0	0	50	50.0	197	1	2	200	203.3
12:15 - 12:30	50	0	0	50	50.0	196	1	3	200	204.3
12:30 - 12:45	51	0	0	51	51.0	182	0	2	184	186.0
12:45 - 13:00	58	0	0	58	58.0	186	0	2	188	190.0
Hourly Total	209	0	0	209	209.0	761	2	9	772	783.6
13:00 - 13:15	57	0	0	57	57.0	197	1	3	201	205.3
13:15 - 13:30	47	0	0	47	47.0	213	4	1	218	224.2
13:30 - 13:45	52	0	0	52	52.0	195	0	3	198	201.0
13:45 - 14:00	72	0	0	72	72.0	192	0	3	195	198.0
Hourly Total	228	0	0	228	228.0	797	5	10	812	828.5
TOTAL	620	1	0	621	622.3	2278	14	29	2321	2368.2

PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

Knowsley, Saturday 3rd December 2022

Junction: 1
Approach: Field Lane



TIME	Left to A506 Valley Road (West)					Right to A506 Valley Road (East)				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
11:00 - 11:15	12	0	0	12	12.0	18	0	0	18	18.0
11:15 - 11:30	7	0	0	7	7.0	13	0	0	13	13.0
11:30 - 11:45	20	0	0	20	20.0	19	0	0	19	19.0
11:45 - 12:00	14	0	0	14	14.0	15	0	0	15	15.0
Hourly Total	53	0	0	53	53.0	65	0	0	65	65.0
12:00 - 12:15	13	0	0	13	13.0	18	0	0	18	18.0
12:15 - 12:30	11	0	0	11	11.0	18	0	0	18	18.0
12:30 - 12:45	11	0	0	11	11.0	17	0	0	17	17.0
12:45 - 13:00	9	0	0	9	9.0	18	1	0	19	20.3
Hourly Total	44	0	0	44	44.0	71	1	0	72	73.3
13:00 - 13:15	14	0	0	14	14.0	16	0	0	16	16.0
13:15 - 13:30	12	0	0	12	12.0	24	0	0	24	24.0
13:30 - 13:45	7	0	0	7	7.0	18	0	0	18	18.0
13:45 - 14:00	9	0	0	9	9.0	24	0	0	24	24.0
Hourly Total	42	0	0	42	42.0	82	0	0	82	82.0
TOTAL	139	0	0	139	139.0	218	1	0	219	220.3

PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

Knowsley, Saturday 3rd December 2022

Junction: 1
Approach: A506 Valley Road West



TIME	Ahead to A506 Valley Road (East)					Right to Field Lane				
	LIGHT	HEAVY	BUS	TOTAL	PCUs	LIGHT	HEAVY	BUS	TOTAL	PCUs
11:00 - 11:15	213	1	2	216	219.3	10	0	1	11	12.0
11:15 - 11:30	230	5	4	239	249.5	11	1	0	12	13.3
11:30 - 11:45	225	0	2	227	229.0	19	0	1	20	21.0
11:45 - 12:00	202	1	2	205	208.3	13	0	0	13	13.0
Hourly Total	870	7	10	887	906.1	53	1	2	56	59.3
12:00 - 12:15	235	0	2	237	239.0	12	0	0	12	12.0
12:15 - 12:30	228	3	2	233	238.9	18	0	1	19	20.0
12:30 - 12:45	239	1	4	244	249.3	19	0	1	20	21.0
12:45 - 13:00	218	2	0	220	222.6	12	0	0	12	12.0
Hourly Total	920	6	8	934	949.8	61	0	2	63	65.0
13:00 - 13:15	260	1	3	264	268.3	21	0	0	21	21.0
13:15 - 13:30	221	0	2	223	225.0	11	0	1	12	13.0
13:30 - 13:45	236	1	2	239	242.3	17	0	1	18	19.0
13:45 - 14:00	234	3	3	240	246.9	19	0	0	19	19.0
Hourly Total	951	5	10	966	982.5	68	0	2	70	72.0
TOTAL	2741	18	28	2787	2838.4	182	1	6	189	196.3

PCU Factors:	
LIGHT	1.0
HEAVY	2.3
BUS	2.0

Knowsley, Thursday 1st December 2022

Junction: 1

Queues are stationary vehicles each 5 minutes



TIME	A506 (East)	Field Lane	A506 (West)
07:00	2	0	2
07:05	3	0	3
07:10	0	1	0
07:15	0	1	0
07:20	0	2	0
07:25	16	0	1
07:30	13	1	5
07:35	3	0	2
07:40	0	7	0
07:45	0	5	0
07:50	0	2	0
07:55	0	2	0
08:00	0	6	0
08:05	10	4	1
08:10	20+	5	0
08:15	20+	0	0
08:20	7	3	0
08:25	0	6	1
08:30	0	4	1
08:35	0	2	0
08:40	0	5	2
08:45	1	6	0
08:50	5	0	4
08:55	3	0	3
09:00	1	1	0
09:05	0	1	0
09:10	0	1	1
09:15	1	0	1
09:20	0	0	0
09:25	4	0	3
09:30	0	0	0
09:35	0	0	0
09:40	3	0	1
09:45	2	0	0
09:50	0	0	0
09:55	0	0	0
10:00	0	1	1

15:00	0	0	0
15:05	5	0	0
15:10	0	0	1
15:15	4	0	0
15:20	4	0	20+
15:25	0	0	0
15:30	0	0	0
15:35	0	1	0
15:40	4	4	20+
15:45	0	0	0
15:50	1	2	0
15:55	0	0	1
16:00	5	0	2
16:05	0	2	2
16:10	0	1	0
16:15	0	3	3
16:20	0	5	0
16:25	0	4	0
16:30	2	0	10
16:35	0	4	3
16:40	0	1	0
16:45	0	4	1
16:50	5	0	0
16:55	0	0	0
17:00	0	2	0
17:05	0	2	1
17:10	0	4	0
17:15	0	4	0
17:20	0	8	1
17:25	5	0	0
17:30	0	0	0
17:35	13	0	20+
17:40	0	3	0
17:45	2	3	0
17:50	0	2	1
17:55	0	2	1
18:00	0	3	0

Knowsley, Saturday 3rd December 2022

Junction: 1

Queues are stationary vehicles each 5 minutes



TIME	A506 (East)	Field Lane	A506 (West)
11:00	0	0	1
11:05	3	0	4
11:10	0	0	0
11:15	0	2	14
11:20	4	1	3
11:25	12	0	0
11:30	0	0	1
11:35	0	0	0
11:40	3	0	5
11:45	15	0	0
11:50	0	4	0
11:55	0	1	0
12:00	0	5	0
12:05	0	4	0
12:10	0	1	0
12:15	0	0	1
12:20	0	1	1
12:25	0	0	1
12:30	0	0	0
12:35	0	0	1
12:40	2	0	0
12:45	0	0	1
12:50	1	1	0
12:55	0	2	0
13:00	2	0	0
13:05	0	4	0
13:10	0	0	0
13:15	0	0	3
13:20	0	1	1
13:25	0	0	0
13:30	0	2	2
13:35	0	2	0
13:40	0	0	0
13:45	0	1	3
13:50	15	1	3
13:55	0	0	3
14:00	16	0	0

APPENDIX 4

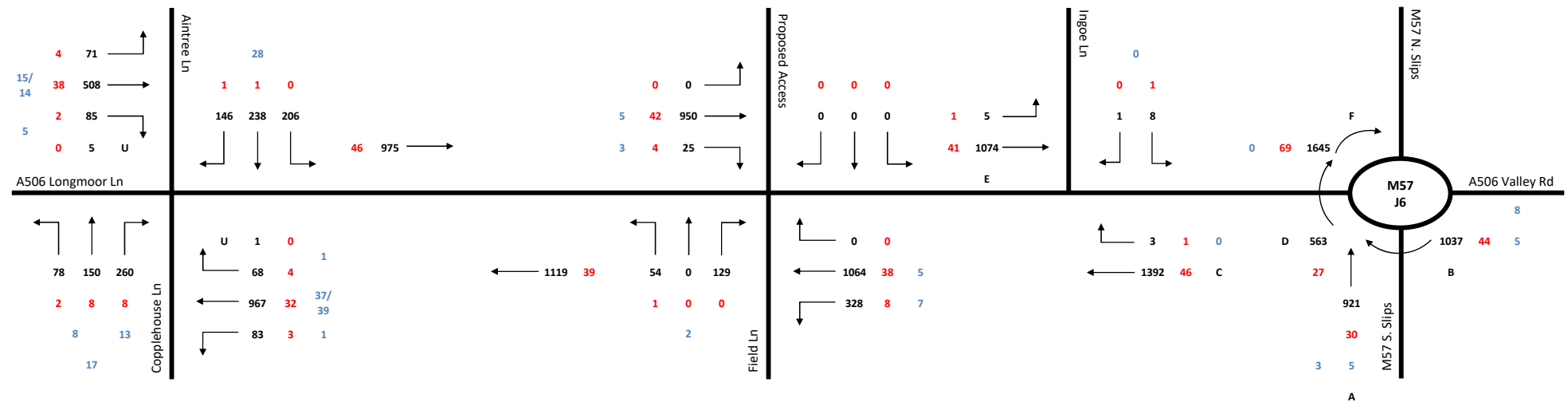
TRAFFIC FLOW DIAGRAMS

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Traffic Flow Diagrams			
Reference	Scenario	Peak	Derivation
1	Traffic Flow Diagram 1 - 2020 Observed Flows	Weekday AM (0730-0830)	Survey Data
2	Traffic Flow Diagram 2 - 2020 Observed Flows	Weekday PM (1630-1730)	Survey Data
3	Traffic Flow Diagram 3 - 2020 Observed Flows	Saturday (1000-1100)	Survey Data
4	Traffic Flow Diagram 4 - 2022 Observed Flows	Weekday AM (0745-0845)	Survey Data
5	Traffic Flow Diagram 5 - 2022 Observed Flows	Weekday PM (1630-1730)	Survey Data
6	Traffic Flow Diagram 6 - 2022 Observed Flows	Saturday (1300-1400)	Survey Data
7	Traffic Flow Diagram 7 - 2022 Base Flows	Weekday AM (0745-0845)	Survey Data
8	Traffic Flow Diagram 8 - 2022 Base Flows	Weekday PM (1630-1730)	Survey Data
9	Traffic Flow Diagram 9 - 2022 Base Flows	Saturday (1300-1400)	Survey Data
10	Traffic Flow Diagram 10 - 2026 Base Flows	Weekday AM (0745-0845)	7*TEMPro
11	Traffic Flow Diagram 11 - 2026 Base Flows	Weekday PM (1630-1730)	8*TEMPro
12	Traffic Flow Diagram 12 - 2026 Base Flows	Saturday (1300-1400)	9*TEMPro
13	Traffic Flow Diagram 13 - 2031 Base Flows	Weekday AM (0745-0845)	7*TEMPro
14	Traffic Flow Diagram 14 - 2031 Base Flows	Weekday PM (1630-1730)	8*TEMPro
15	Traffic Flow Diagram 15 - 2031 Base Flows	Saturday (1300-1400)	9*TEMPro
16	Traffic Flow Diagram 16 - Committed Development Flows: Whitefield Dr 20/00193/FUL	Weekday AM (0745-0845)	20/00193/FUL
17	Traffic Flow Diagram 17 - Committed Development Flows: Whitefield Dr 20/00193/FUL	Weekday PM (1630-1730)	20/00193/FUL
18	Traffic Flow Diagram 18 - Committed Development Flows: Whitefield Dr 20/00193/FUL	Saturday (1000-1100)	20/00193/FUL
19	Traffic Flow Diagram 19 - 2026 Without Development	Weekday AM (0745-0845)	7+13+16
20	Traffic Flow Diagram 20 - 2026 Without Development	Weekday PM (1630-1730)	8+14+17
21	Traffic Flow Diagram 21 - 2026 Without Development	Saturday (1300-1400)	9+15+18
22	Traffic Flow Diagram 22 - 2031 Without Development	Weekday AM (0745-0845)	10+13+16
23	Traffic Flow Diagram 23 - 2031 Without Development	Weekday PM (1630-1730)	11+14+17
24	Traffic Flow Diagram 24 - 2031 Without Development	Saturday (1300-1400)	12+15+18
25	Traffic Flow Diagram 25 - Distribution	All	Existing Members
26	Traffic Flow Diagram 26 - Development Trips: Golf	Weekday AM (0745-0845)	TRICS * 25
27	Traffic Flow Diagram 27 - Development Trips: Golf	Weekday PM (1630-1730)	TRICS * 25
28	Traffic Flow Diagram 28 - Development Trips: Golf	Saturday (1300-1400)	TRICS * 25
29	Traffic Flow Diagram 29 - Development Trips: Education	Weekday AM (0745-0845)	TRICS * 25
30	Traffic Flow Diagram 30 - Development Trips: Education	Weekday PM (1630-1730)	TRICS * 25
31	Traffic Flow Diagram 31 - Development Trips: Education	Saturday (1300-1400)	29 & 30
32	Traffic Flow Diagram 32 - Total Development Trips	Weekday AM (0745-0845)	26+29
33	Traffic Flow Diagram 33 - Total Development Trips	Weekday PM (1630-1730)	27+30
34	Traffic Flow Diagram 34 - Total Development Trips	Saturday (1300-1400)	28+31
35	Traffic Flow Diagram 35 - Existing Golf Club Trips to Remove	Weekday AM (0745-0845)	4
36	Traffic Flow Diagram 36 - Existing Golf Club Trips to Remove	Weekday PM (1630-1730)	5
37	Traffic Flow Diagram 37 - Existing Golf Club Trips to Remove	Saturday (1300-1400)	6
38	Traffic Flow Diagram 38 - 2026 With Development	Weekday AM (0745-0845)	19+32+35
39	Traffic Flow Diagram 39 - 2026 With Development	Weekday PM (1630-1730)	20+33+36
40	Traffic Flow Diagram 40 - 2026 With Development	Saturday (1300-1400)	21+34+37
41	Traffic Flow Diagram 41 - 2031 With Development	Weekday AM (0745-0845)	22+32+35
42	Traffic Flow Diagram 42 - 2031 With Development	Weekday PM (1630-1730)	23+33+36
43	Traffic Flow Diagram 43 - 2031 With Development	Saturday (1300-1400)	24+34+37

Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 1 - 2020 Observed Flows
Peak: Weekday AM (0730-0830)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red
 Average queues in blue



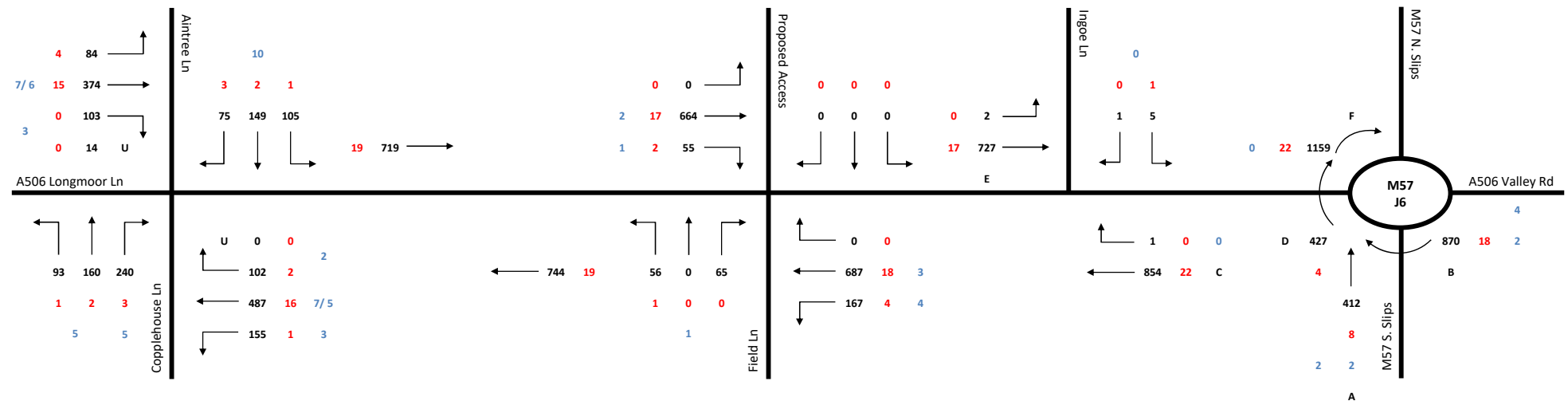
Notes:

- All flows are in vehicles
- Light vehicles in black
- Heavy vehicles in red
- Average queues in blue



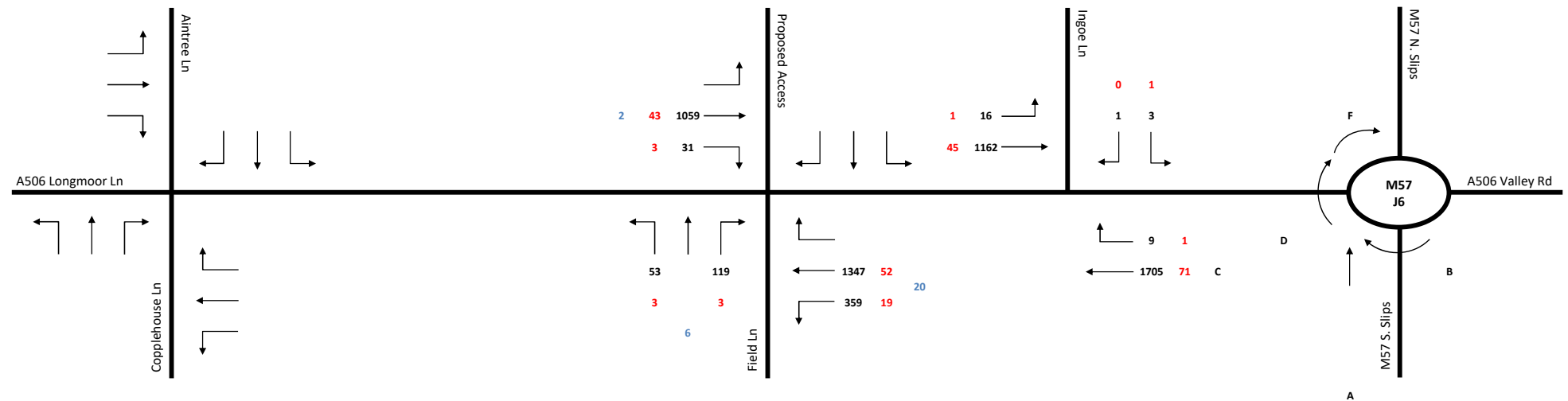
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 3 - 2020 Observed Flows
Peak: Saturday (1000-1100)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red
 Average queues in blue



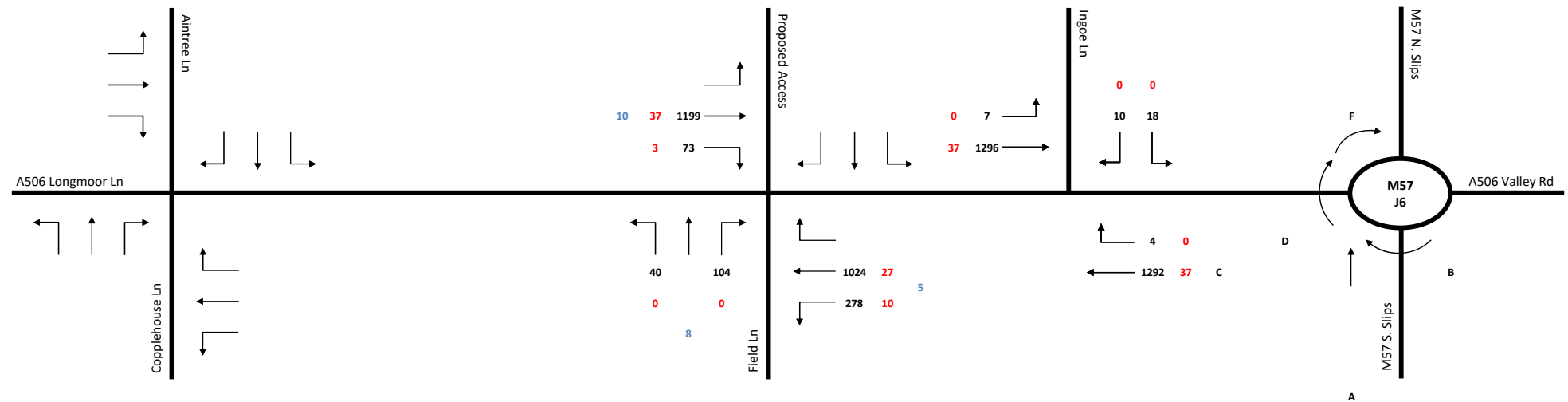
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 4 - 2022 Observed Flows
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red
 Max queues in blue

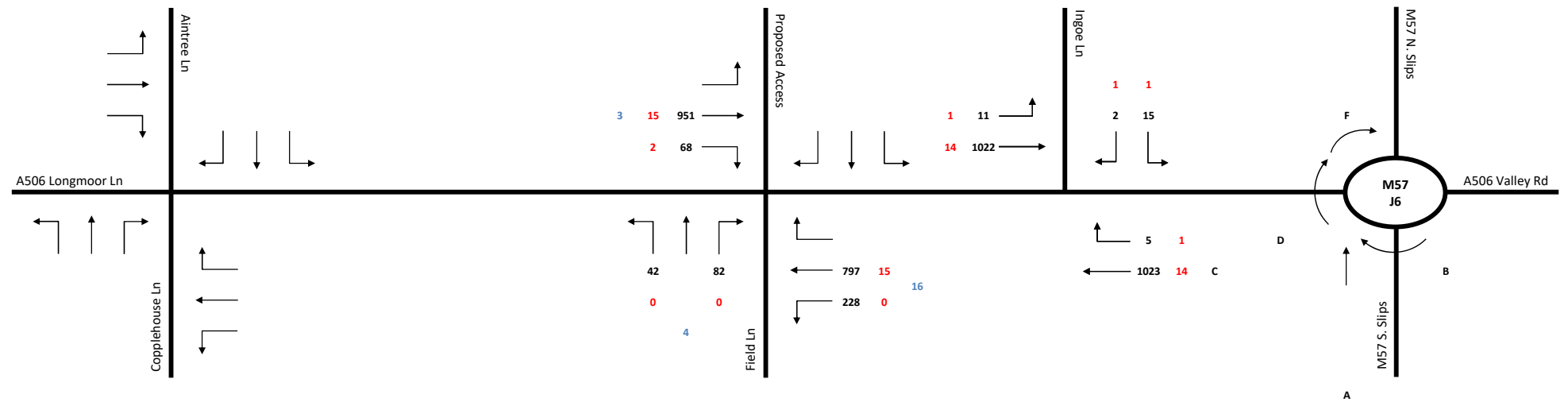


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 5 - 2022 Observed Flows
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red
 Max queues in blue



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 6 - 2022 Observed Flows
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red
 Max queues in blue



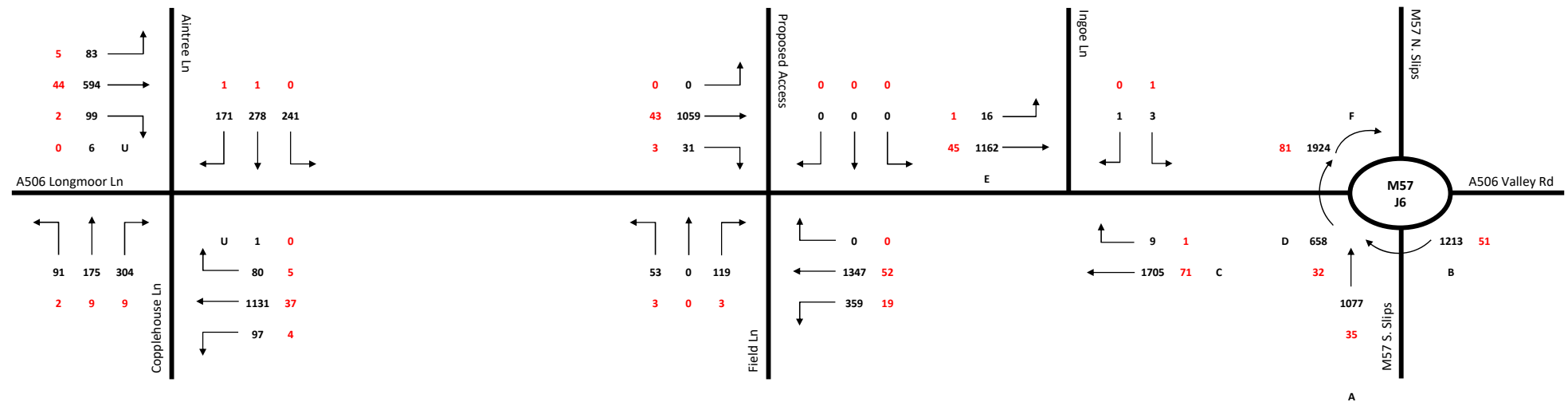
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 7 - 2022 Base Flows
Peak: Weekday AM (0745-0845)

Notes: Growth factors derived from total A506/Field Lane 2022 junction flows compared to lower 2020 flows and applied to Aintree Ln & M57 junctions

All flows are in vehicles

Light vehicles in black

Heavy vehicles in red



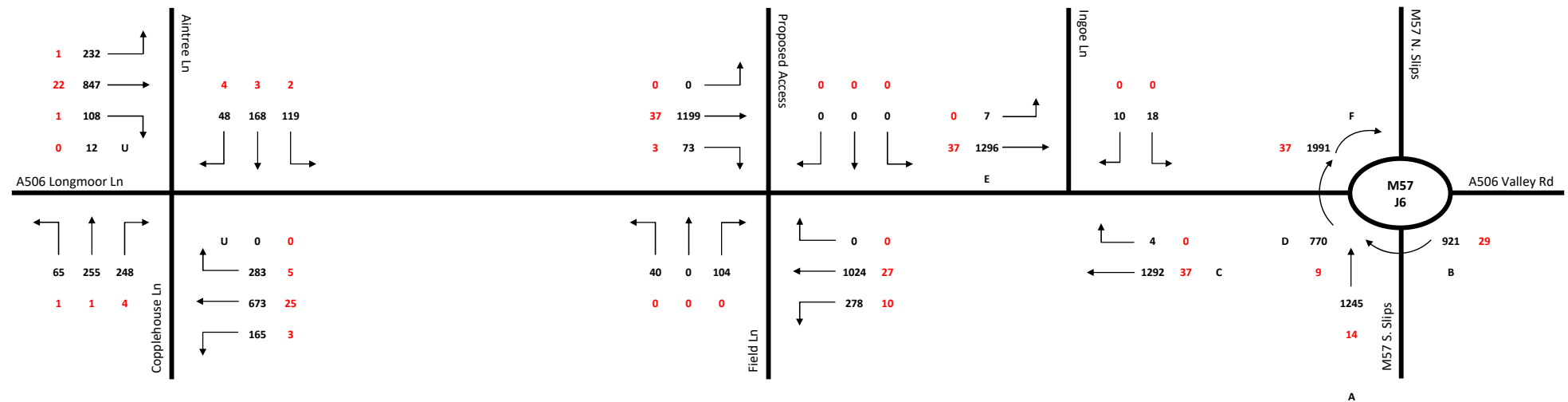
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 8 - 2022 Base Flows
Peak: Weekday PM (1630-1730)

Notes: Growth factors derived from total A506/Field Lane 2022 junction flows compared to lower 2020 flows and applied to Aintree Ln & M57 junctions

All flows are in vehicles

Light vehicles in black

Heavy vehicles in red



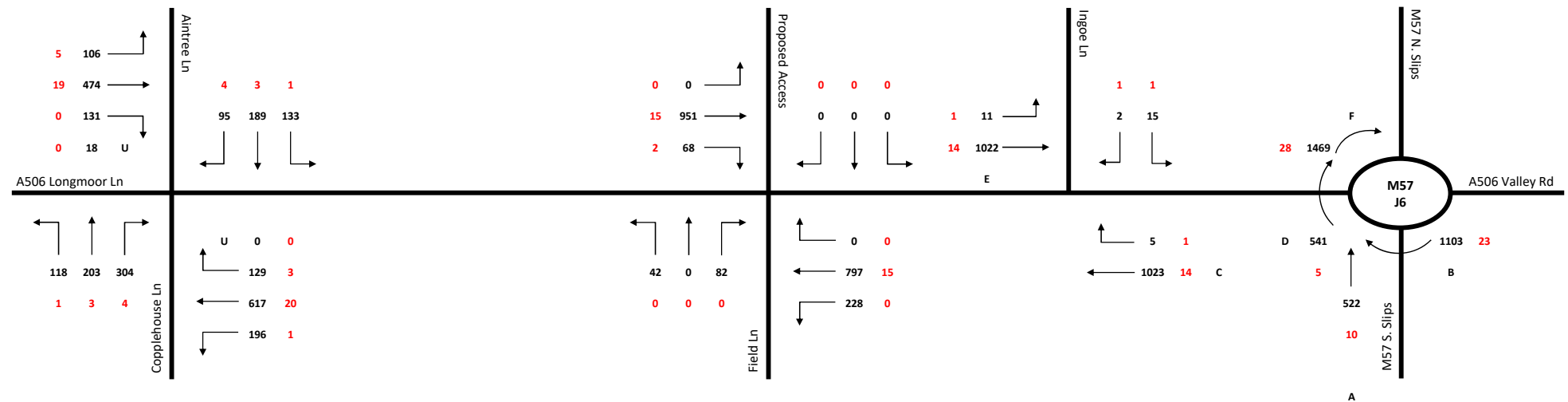
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 9 - 2022 Base Flows
Peak: Saturday (1300-1400)

Notes: Growth factors derived from total A506/Field Lane 2022 junction flows compared to lower 2020 flows and applied to Aintree Ln & M57 junctions

All flows are in vehicles

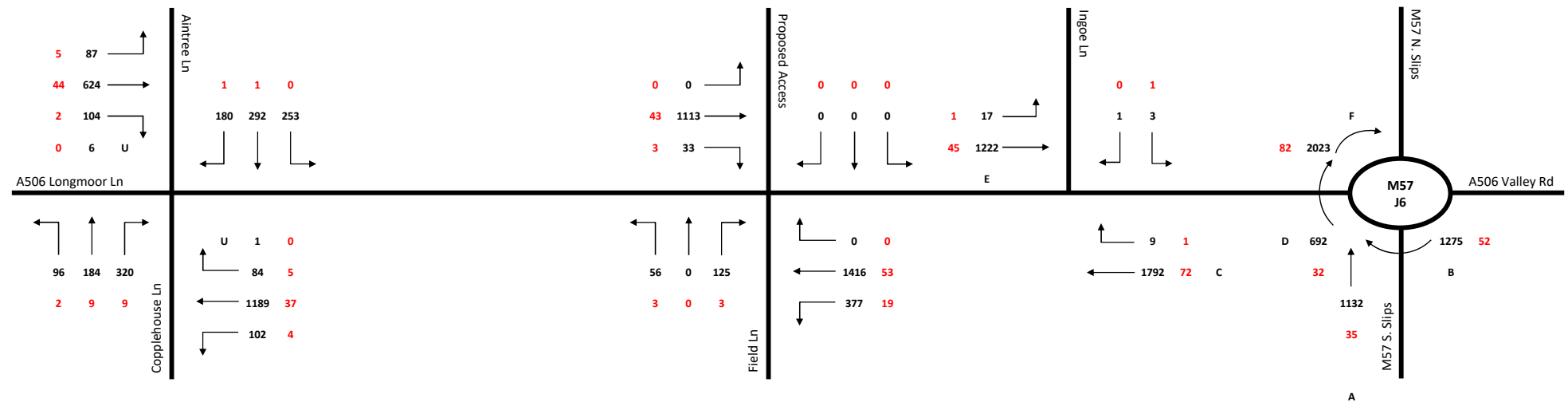
Light vehicles in black

Heavy vehicles in red



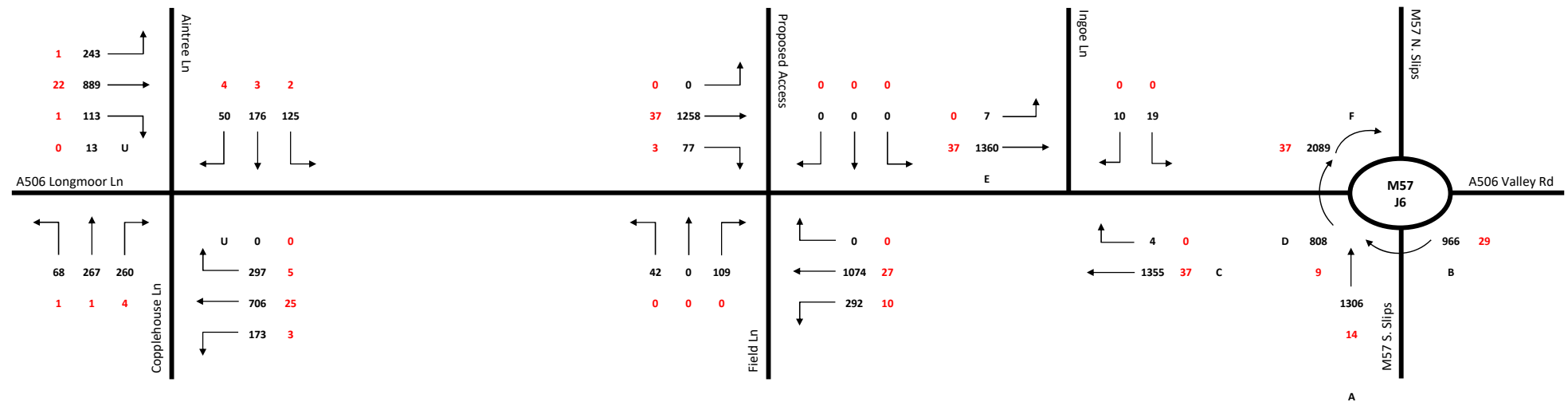
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 10 - 2026 Base Flows
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



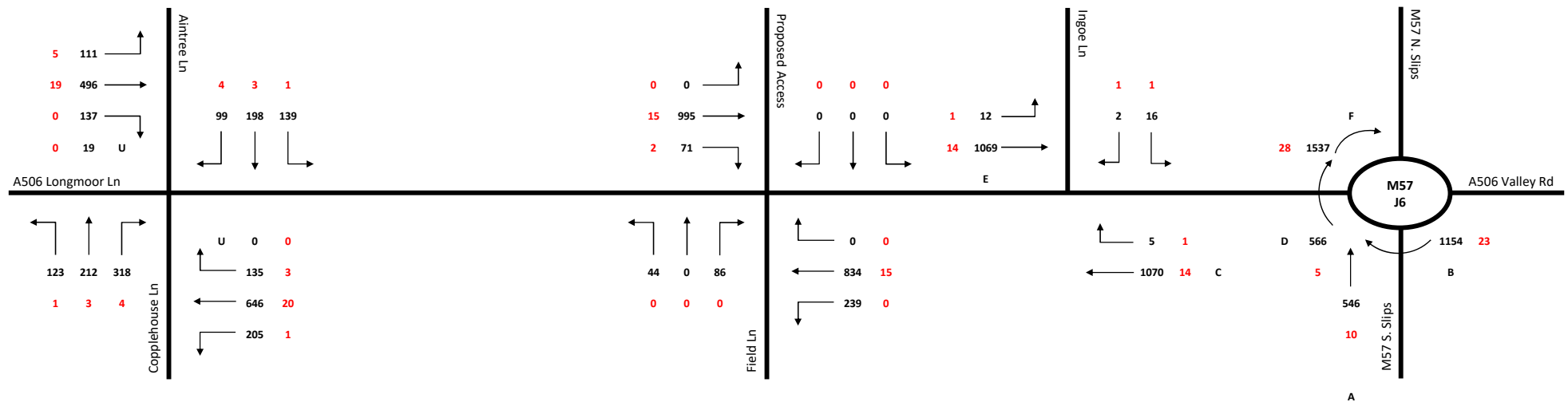
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 11 - 2026 Base Flows
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



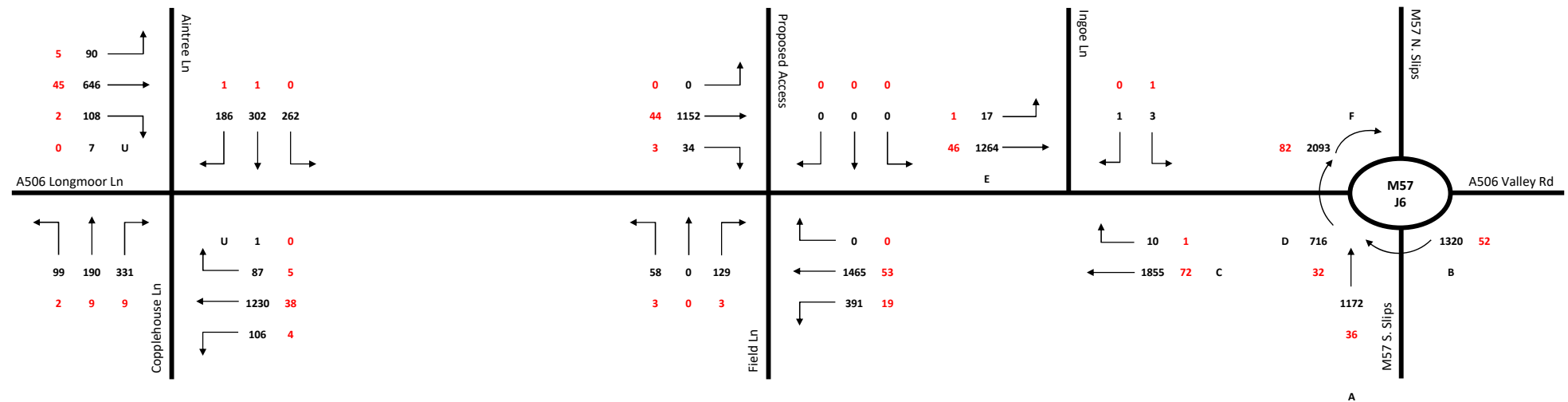
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 12 - 2026 Base Flows
Peak: Saturday (1300-1400)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



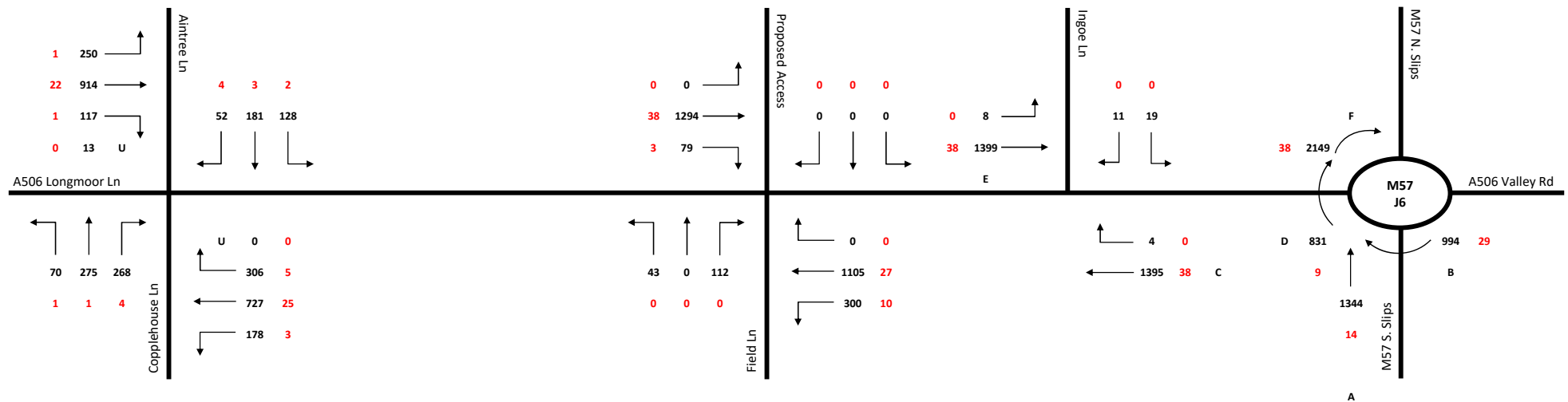
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 13 - 2031 Base Flows
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



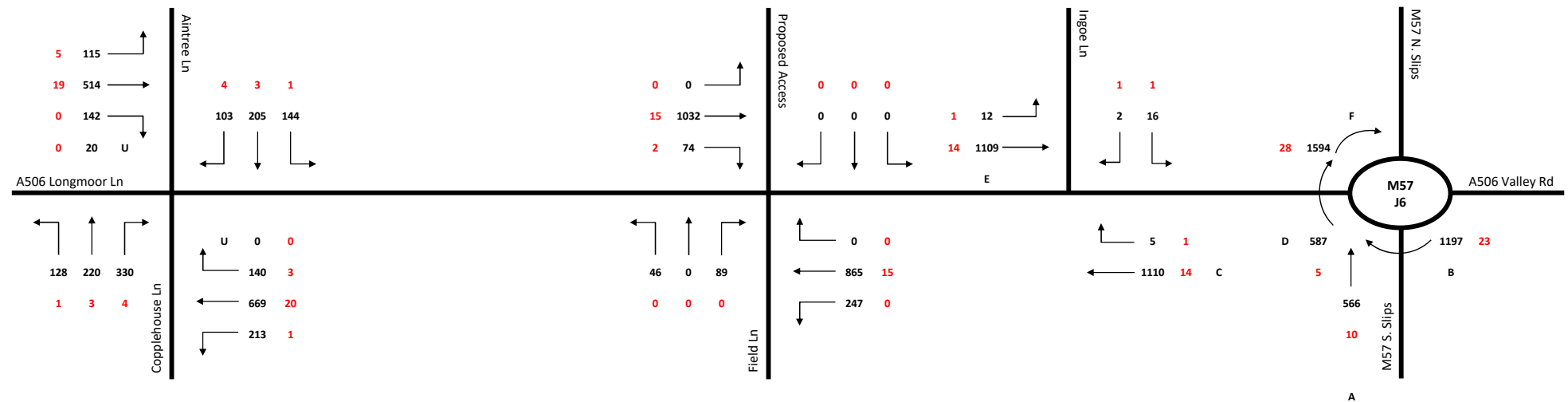
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 14 - 2031 Base Flows
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red

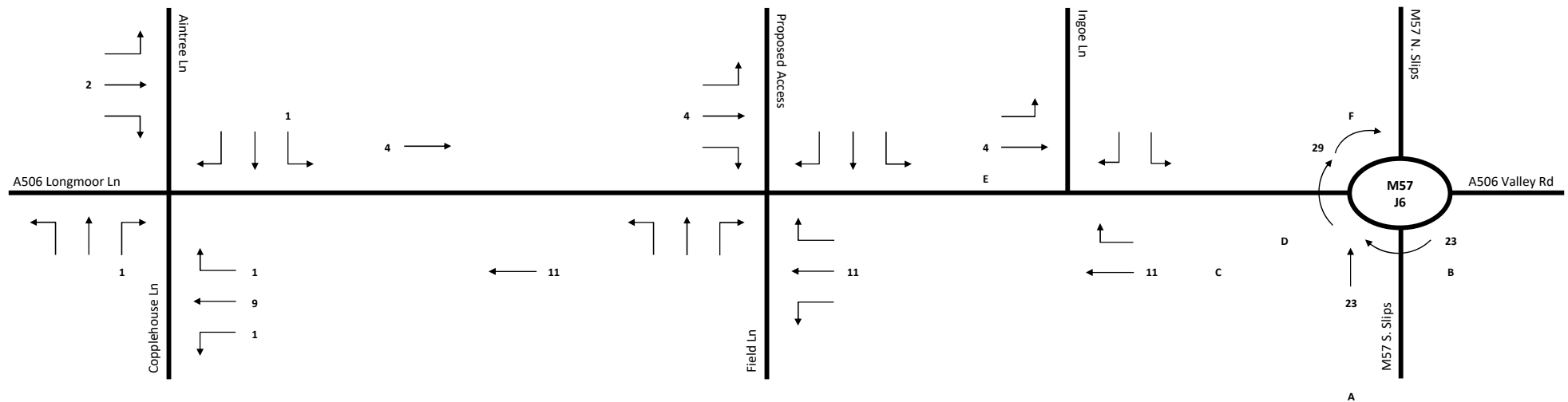


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 15 - 2031 Base Flows
Peak: Saturday (1300-1400)

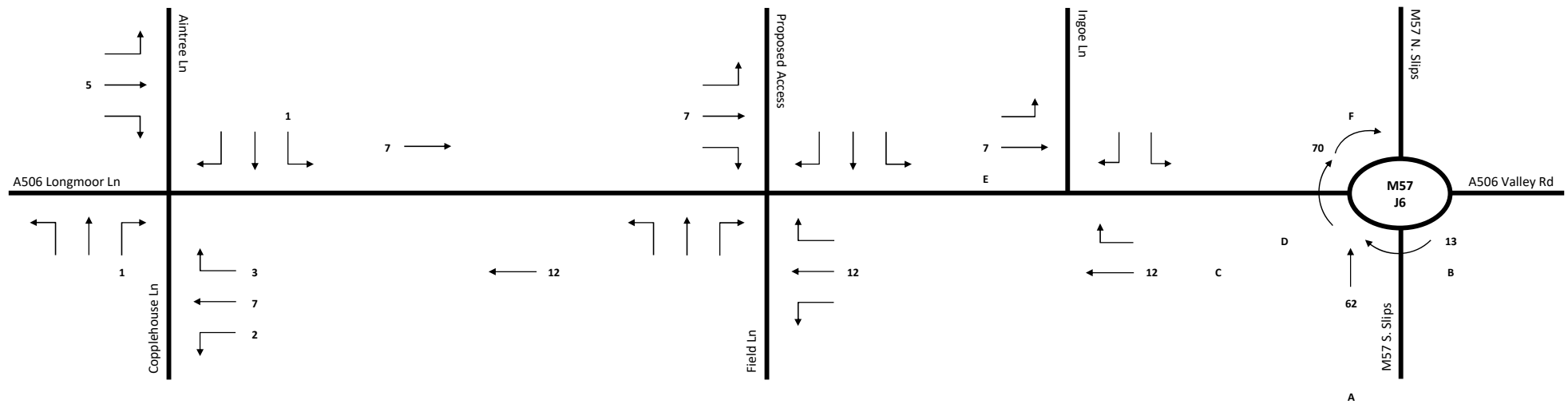
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 16 - Committed Development Flows: Whitefield Dr 20/00193/FUL
Peak: Weekday AM (0745-0845)
Notes: All flows are in vehicles
Taken from 20/00193/FUL TA Figure 12
Development over 50% occupied during surveys - 50% reduction factor applied



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 17 - Committed Development Flows: Whitefield Dr 20/00193/FUL
Peak: Weekday PM (1630-1730)
Notes: All flows are in vehicles
Taken from 20/00193/FUL TA Figure 13
Development over 50% occupied during surveys - 50% reduction factor applied



Project: Kirkby Valley Golf Club Redevelopment

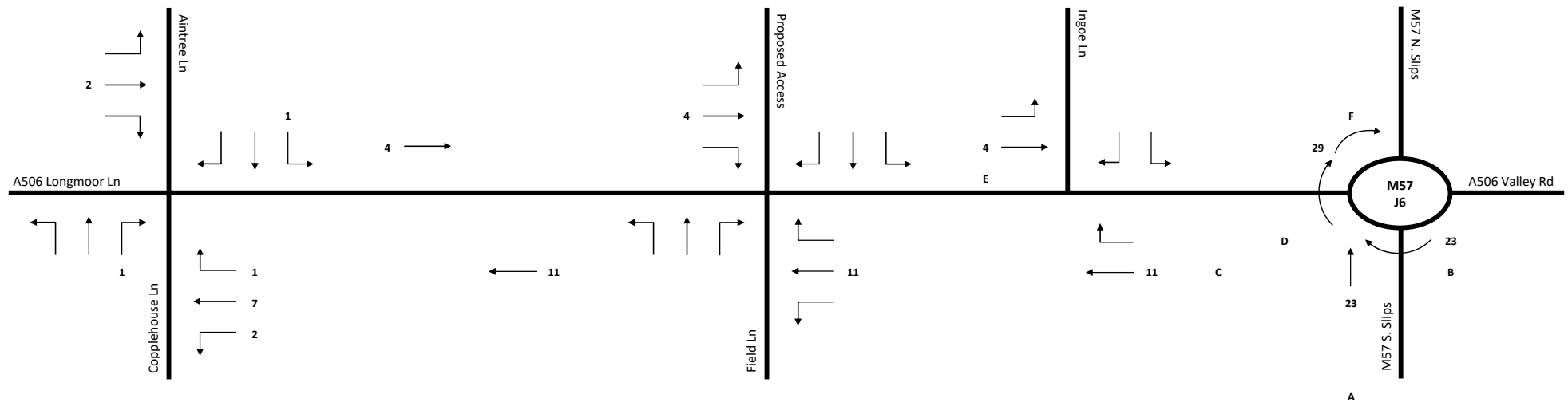
Scenario: Traffic Flow Diagram 18 - Committed Development Flows: Whitefield Dr 20/00193/FUL

Peak: Saturday (1000-1100)

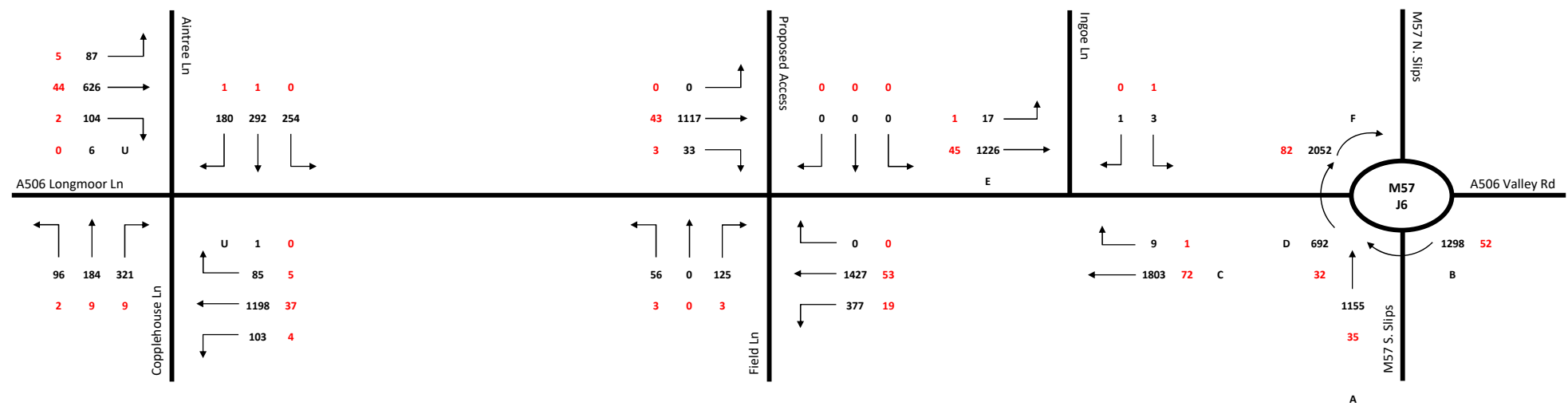
Notes: All flows are in vehicles

Whitefield Drive AM trip gen used as proxy in absence of Saturday assessment in 20/00193/FUL TA. Saturday observed distribution applied

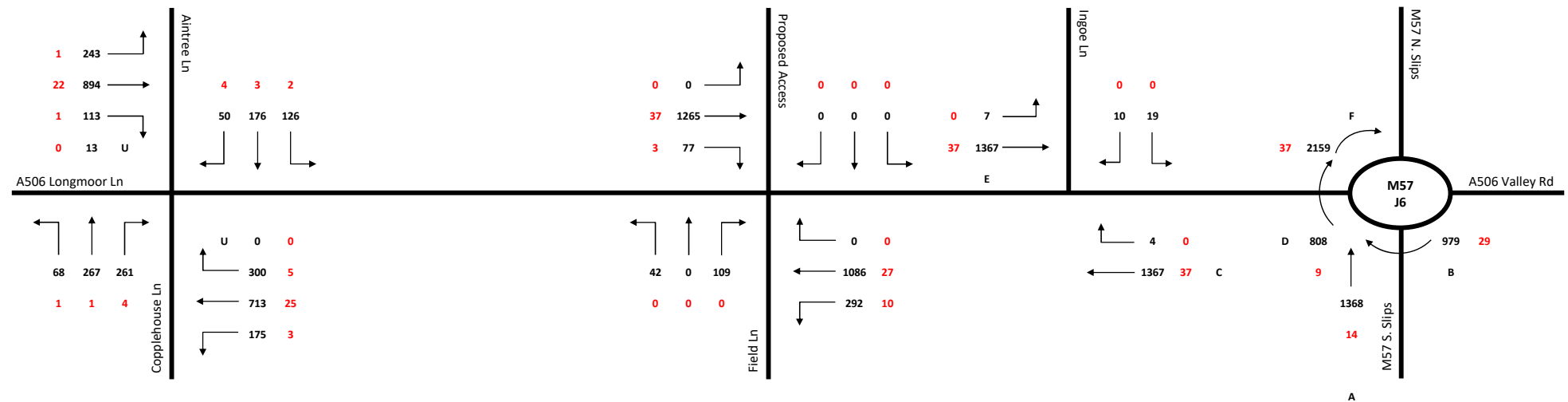
Development over 50% occupied during surveys - 50% reduction factor applied



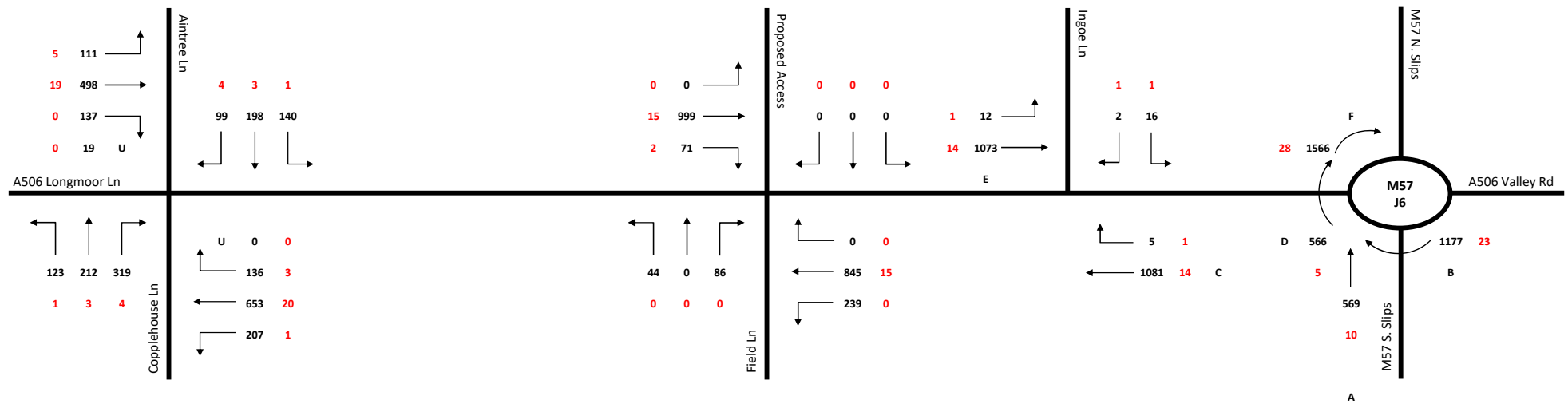
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 19 - 2026 Without Development
Peak: Weekday AM (0745-0845)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



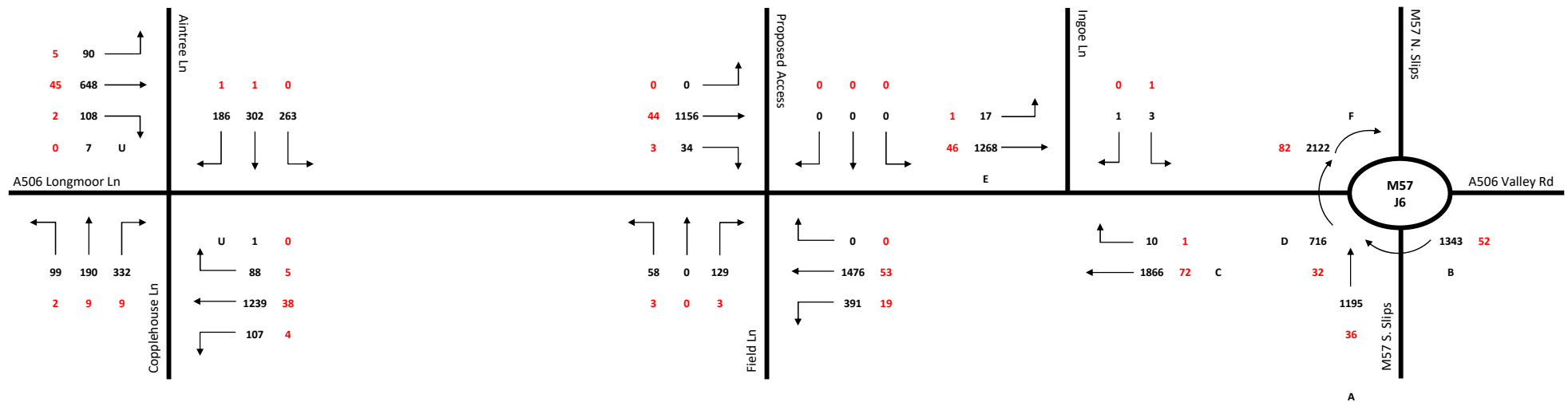
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 20 - 2026 Without Development
Peak: Weekday PM (1630-1730)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



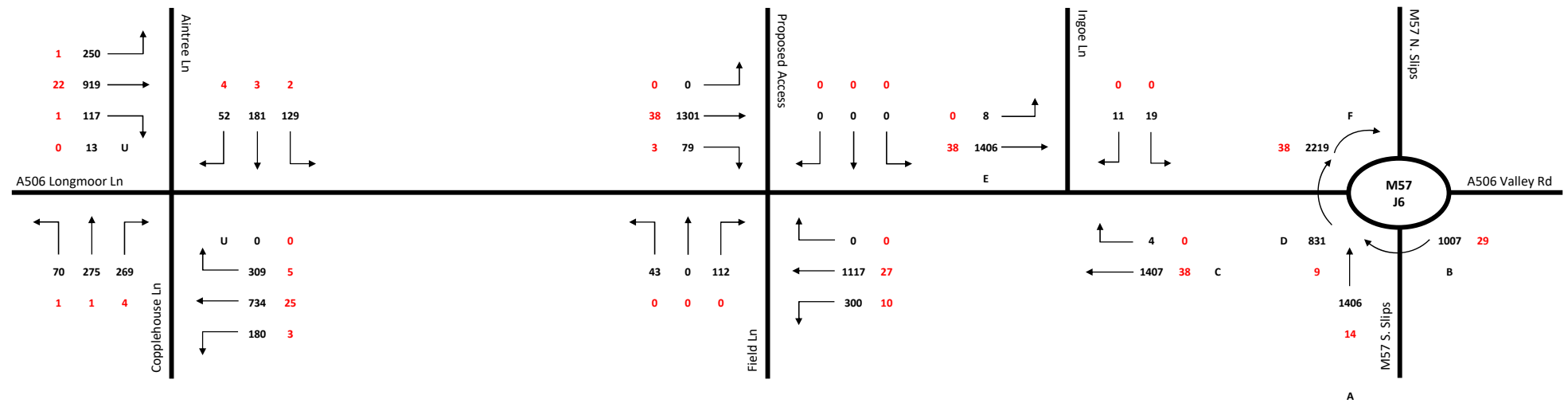
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 21 - 2026 Without Development
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



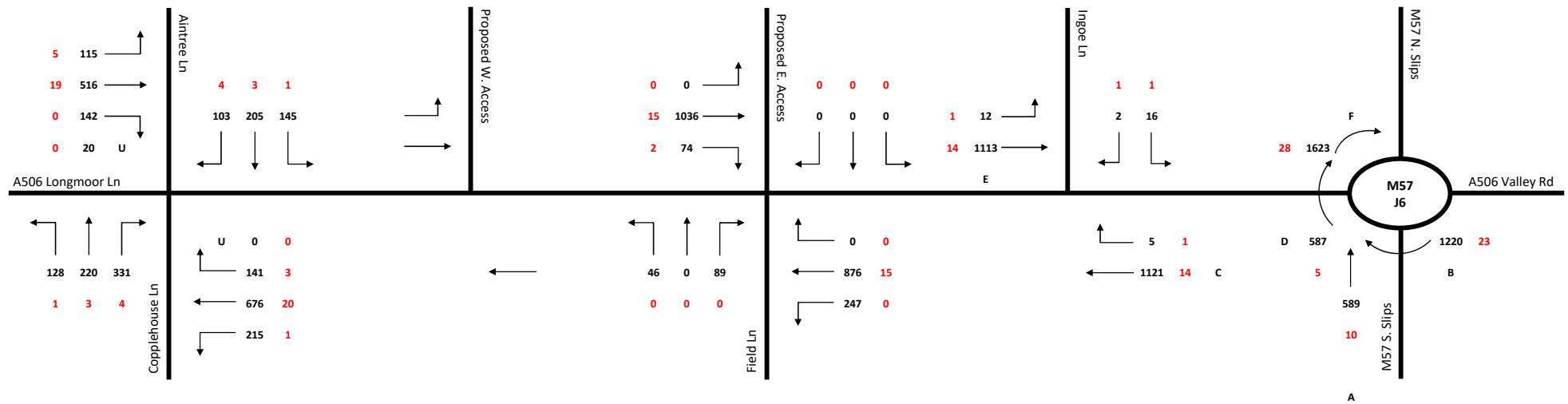
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 22 - 2031 Without Development
Peak: Weekday AM (0745-0845)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 23 - 2031 Without Development
Peak: Weekday PM (1630-1730)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 24 - 2031 Without Development
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



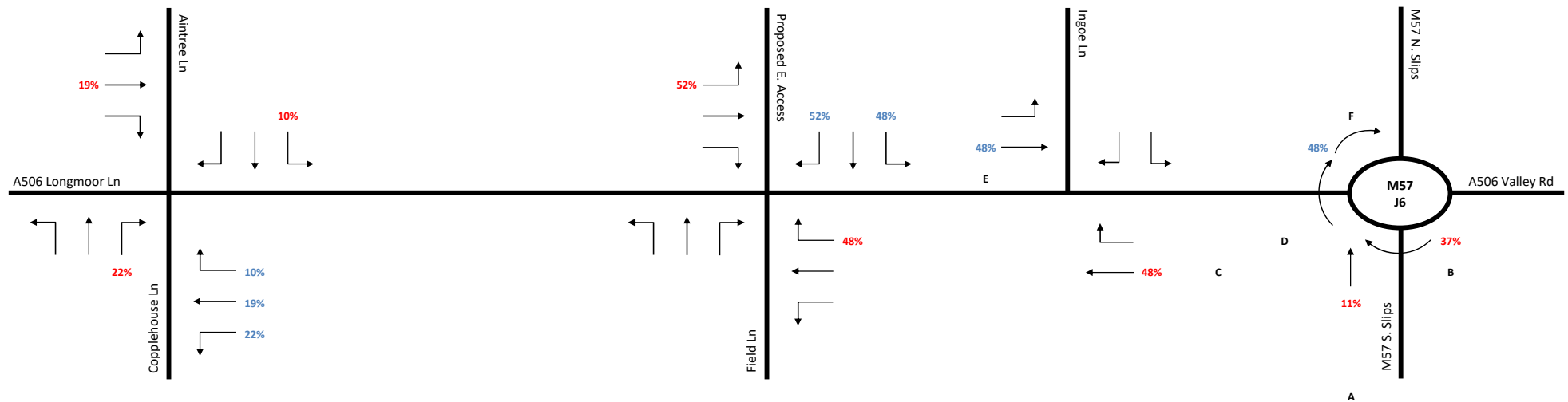
Project: Kirkby Valley Golf Club Redevelopment

Scenario: Traffic Flow Diagram 25 - Distribution

Peak: All

Notes: Arrivals in red
Departures in blue

Based on postcodes of existing members

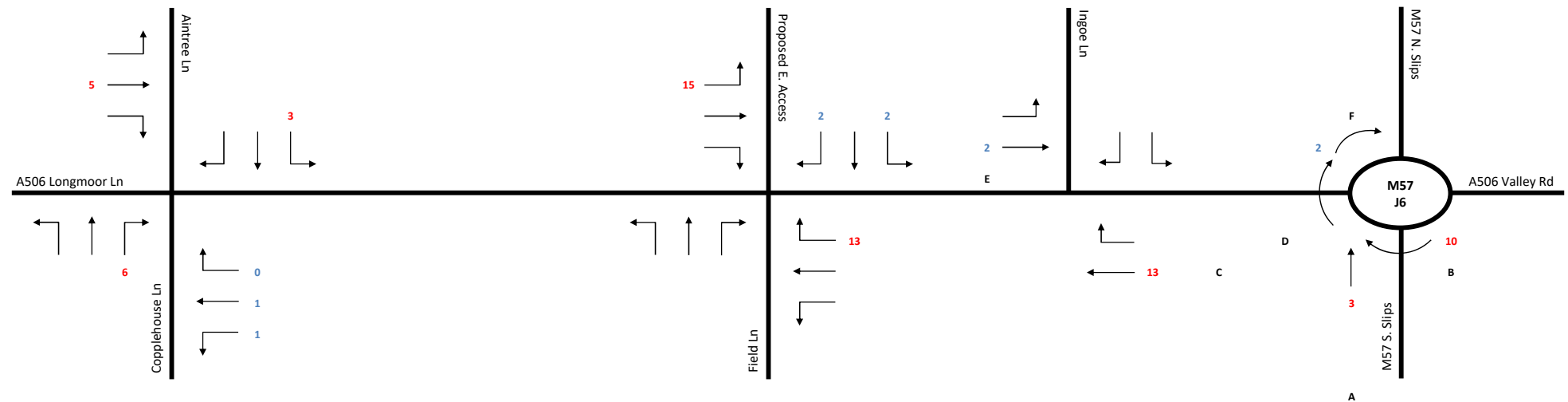


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 26 - Development Trips: Golf
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles

LV
 Arrivals = 28
 Departures = 4

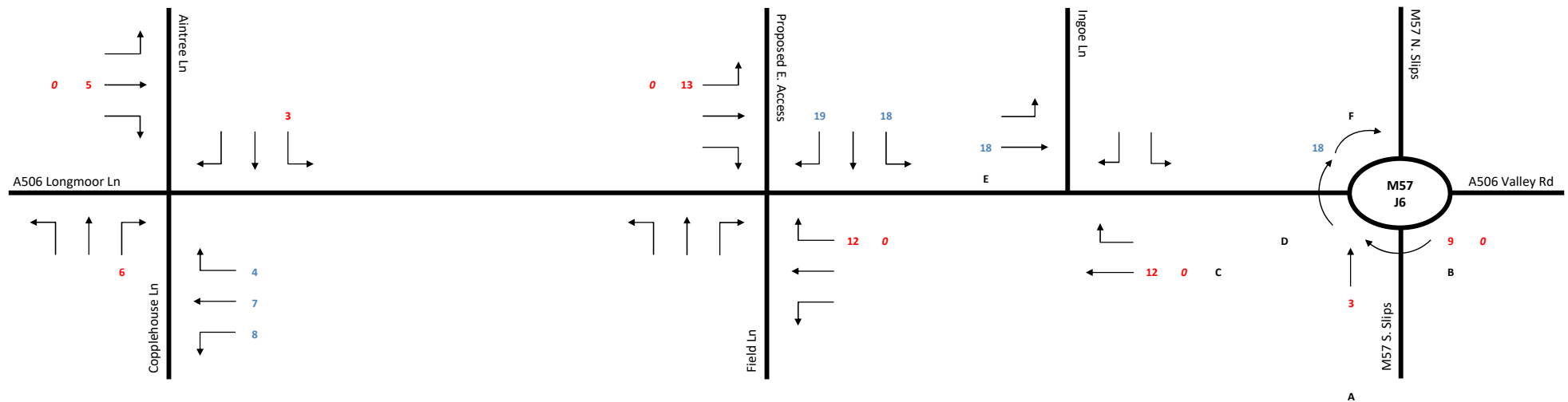
TRICS 0800-0900 used



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 27 - Development Trips: Golf
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles

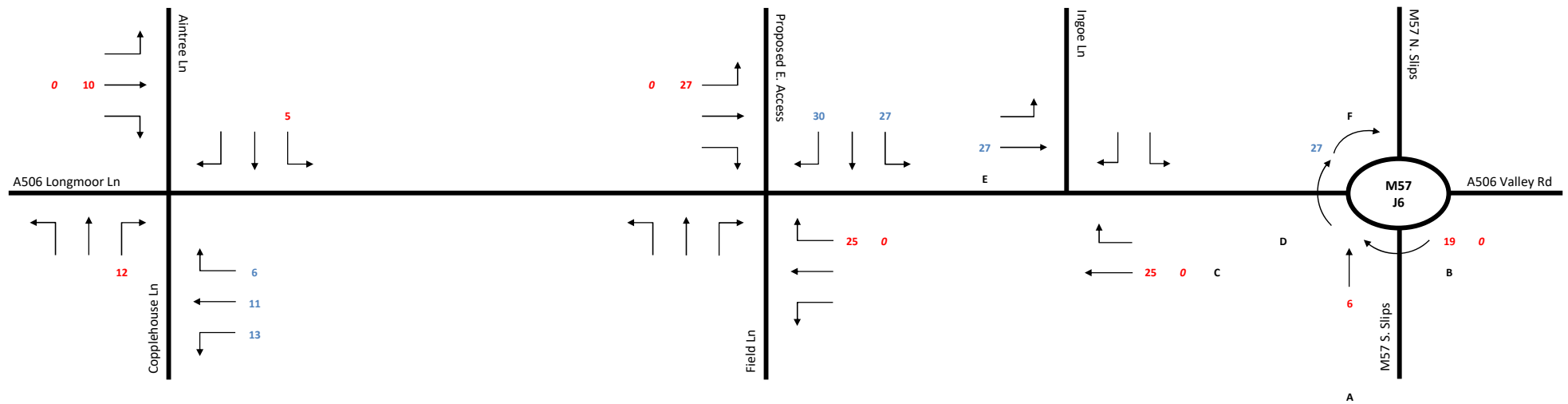
LV
 Arrivals = 25
 Departures = 37
 TRICS 1600-1700 used



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 28 - Development Trips: Golf
Peak: Saturday (1300-1400)

Notes: All flows are in vehicles

LV
 Arrivals = 52
 Departures = 57
 TRICS 1200-1300 used



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 29 - Development Trips: Education
Peak: Weekday AM (0745-0845)

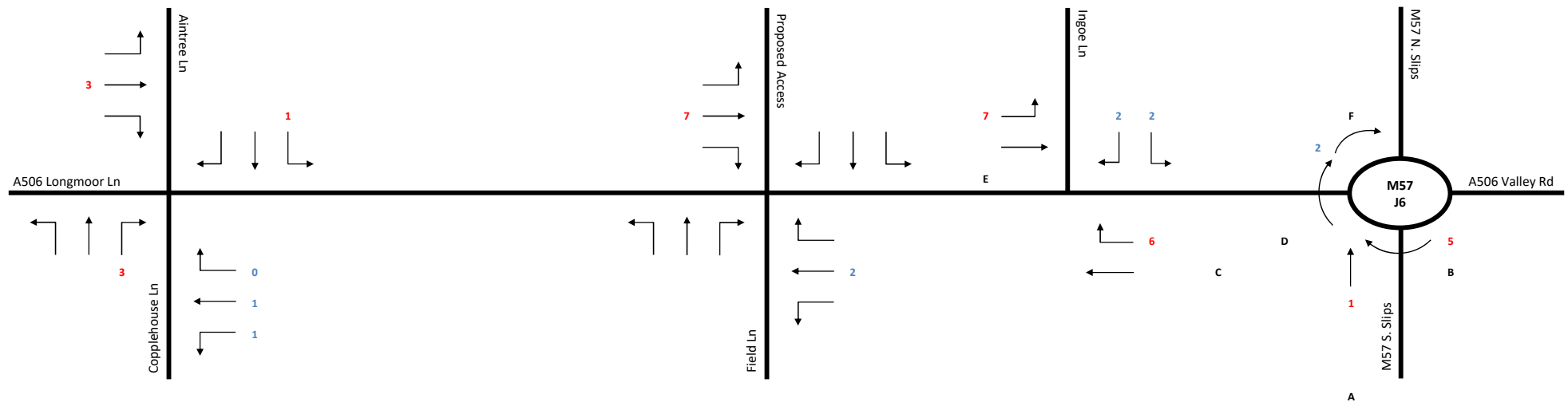
Notes: All flows are in vehicles

LV

Arrivals = 13

Departures = 4

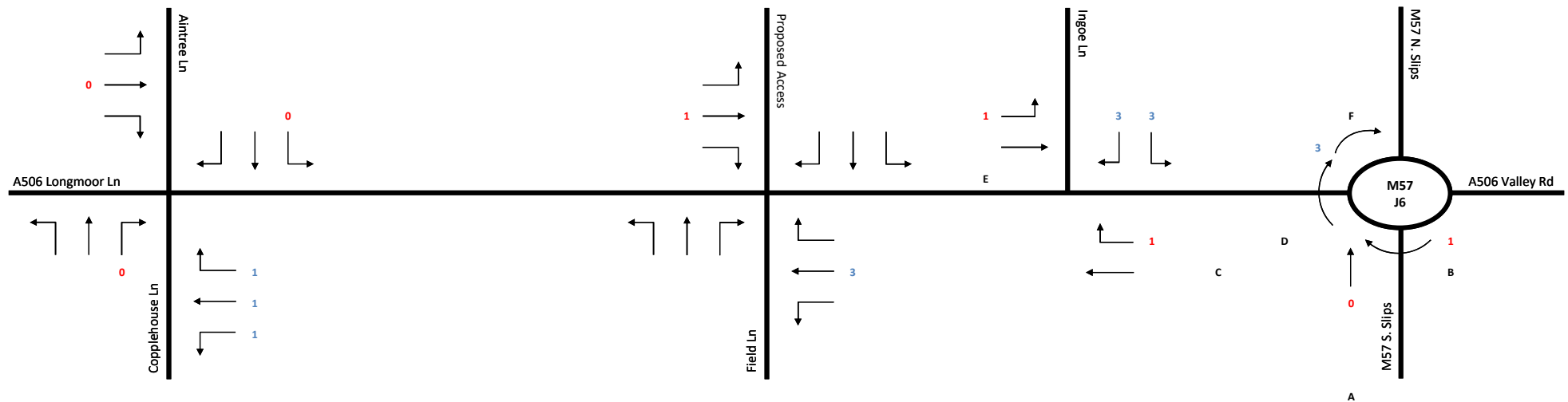
TRICS 0800-0900 used



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 30 - Development Trips: Education
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles

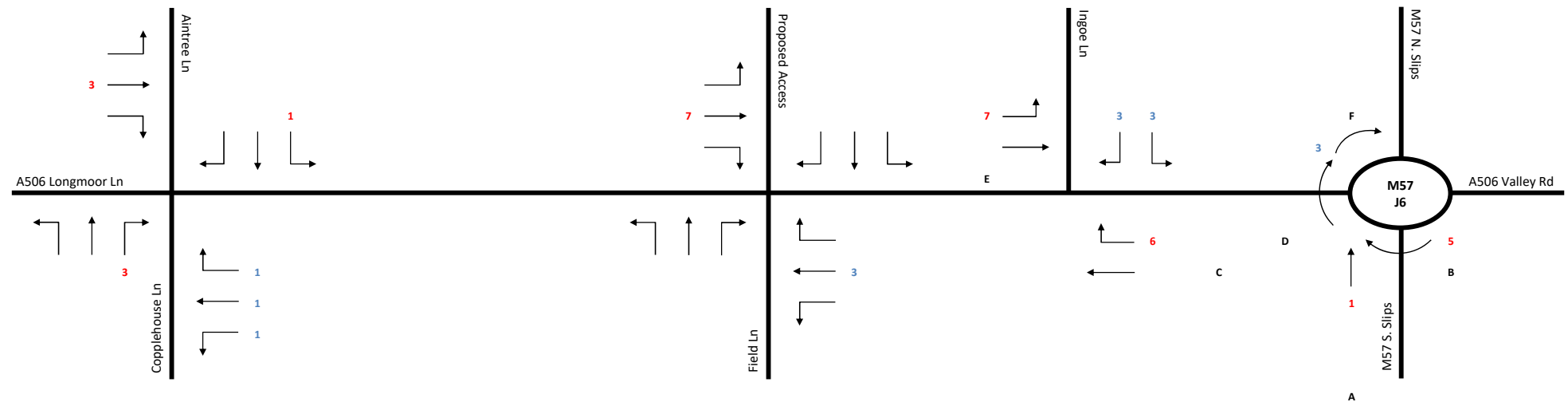
LV
 Arrivals = 2
 Departures = 6
 TRICS 1600-1700 used



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 31 - Development Trips: Education
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles

LV
Arrivals = 13
Departures = 6

Weekday AM arrivals and PM departures used



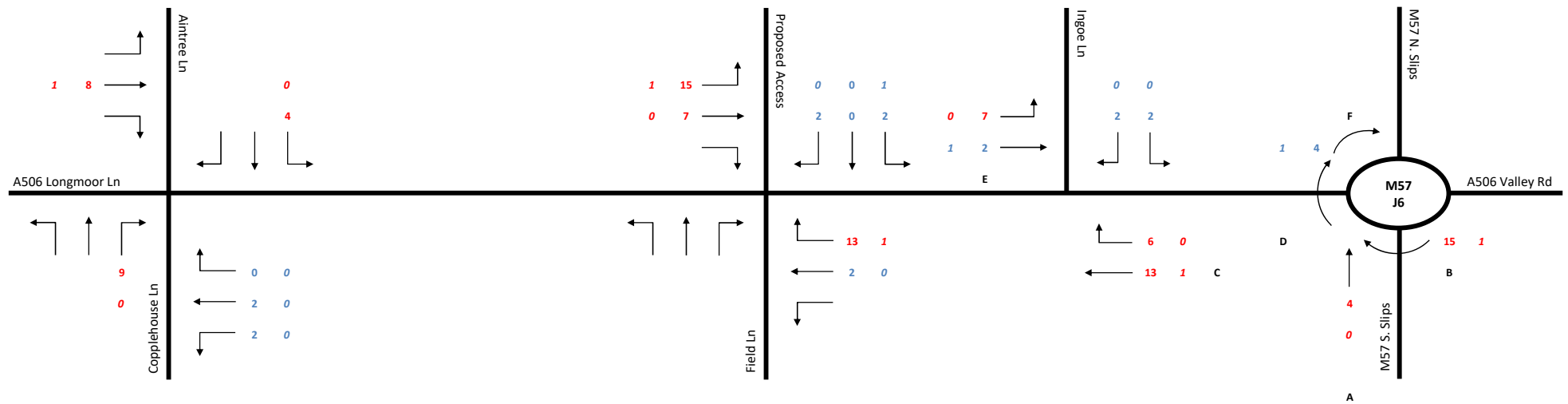
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 32 - Total Development Trips
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles

Arrivals = 41 2

Departures = 8 1

Heavies in italics are reassigned observed trips



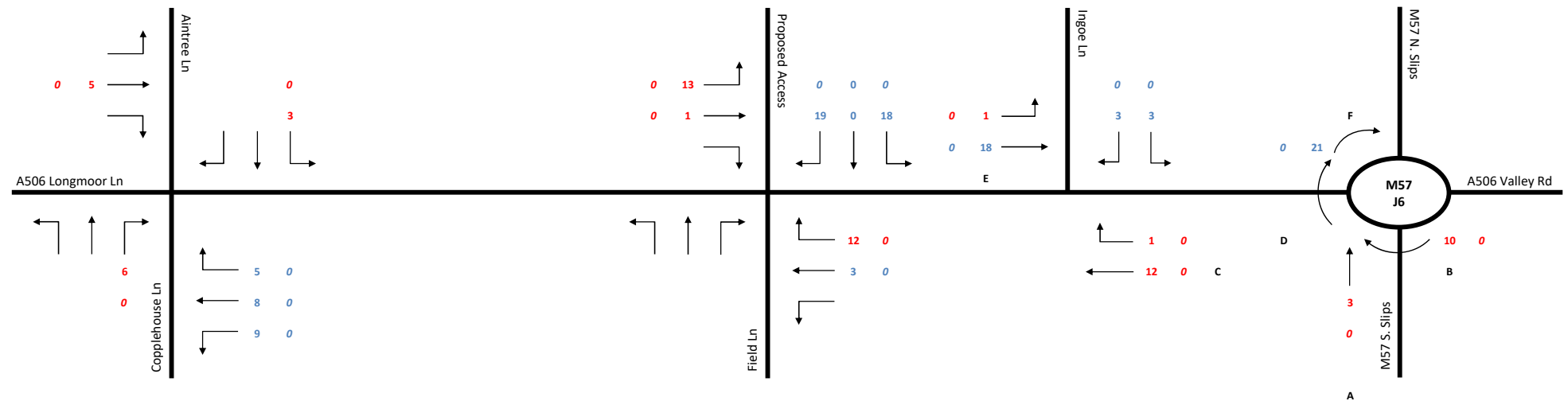
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 33 - Total Development Trips
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles

Arrivals = 27 0

Departures = 43 0

Heavies in italics are reassigned observed trips



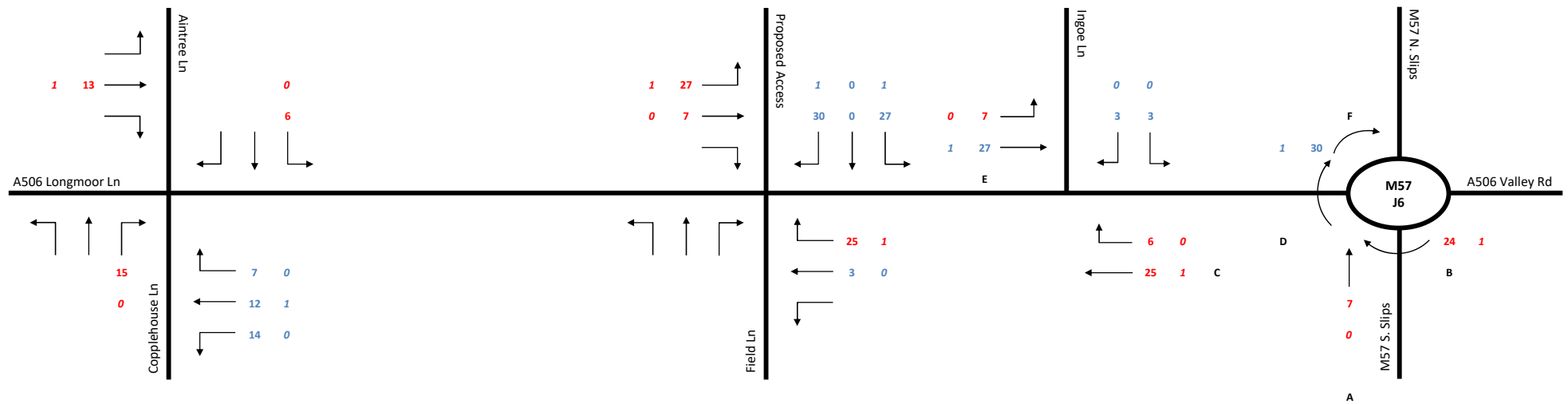
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 34 - Total Development Trips
Peak: Saturday (1300-1400)

Notes: All flows are in vehicles

Arrivals = 65 2

Departures = 63 2

Heavies in italics are reassigned observed trips



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 35 - Existing Golf Club Trips to Remove
Peak: Weekday AM (0745-0845)

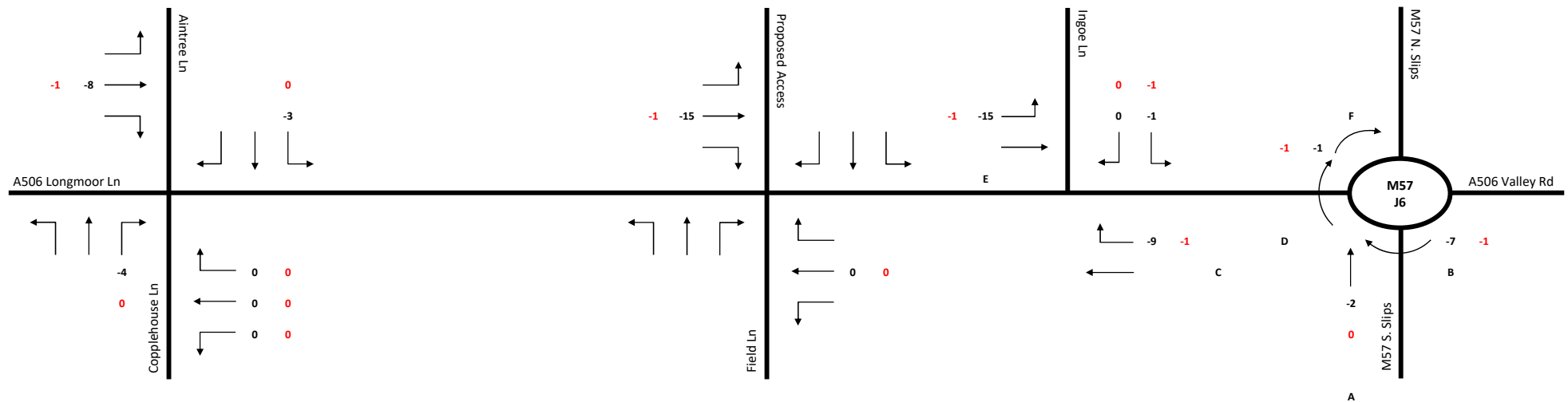
Notes: All flows are in vehicles

Light vehicles in black

Heavy vehicles in red

Arrivals = 24

Departures = 1



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 36 - Existing Golf Club Trips to Remove
Peak: Weekday PM (1630-1730)

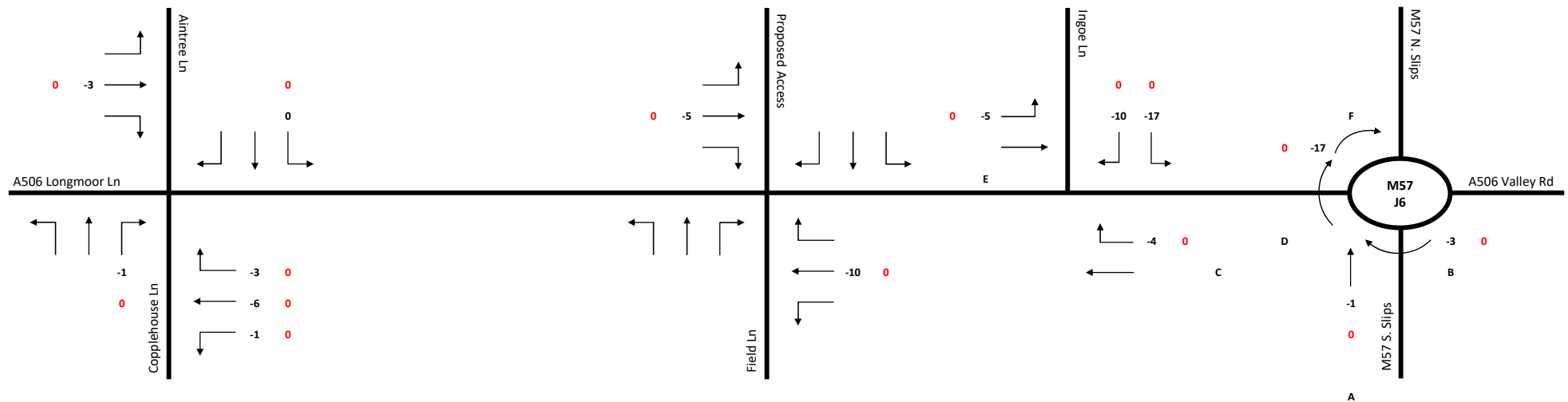
Notes: All flows are in vehicles

Light vehicles in black

Heavy vehicles in red

Arrivals = 9

Departures = 27



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 37 - Existing Golf Club Trips to Remove
Peak: Saturday (1300-1400)

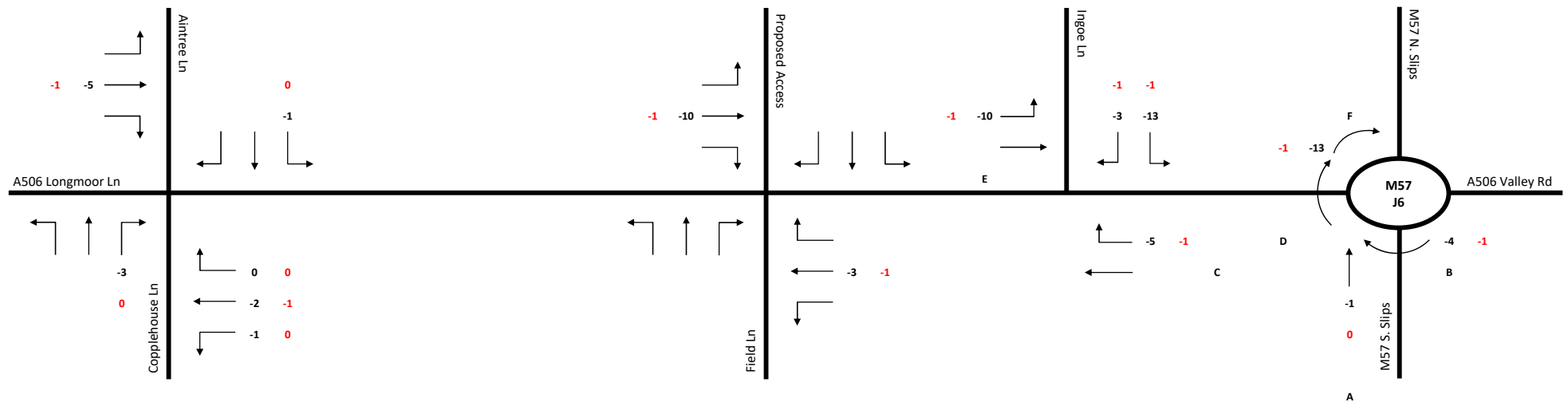
Notes: All flows are in vehicles

Light vehicles in black

Heavy vehicles in red

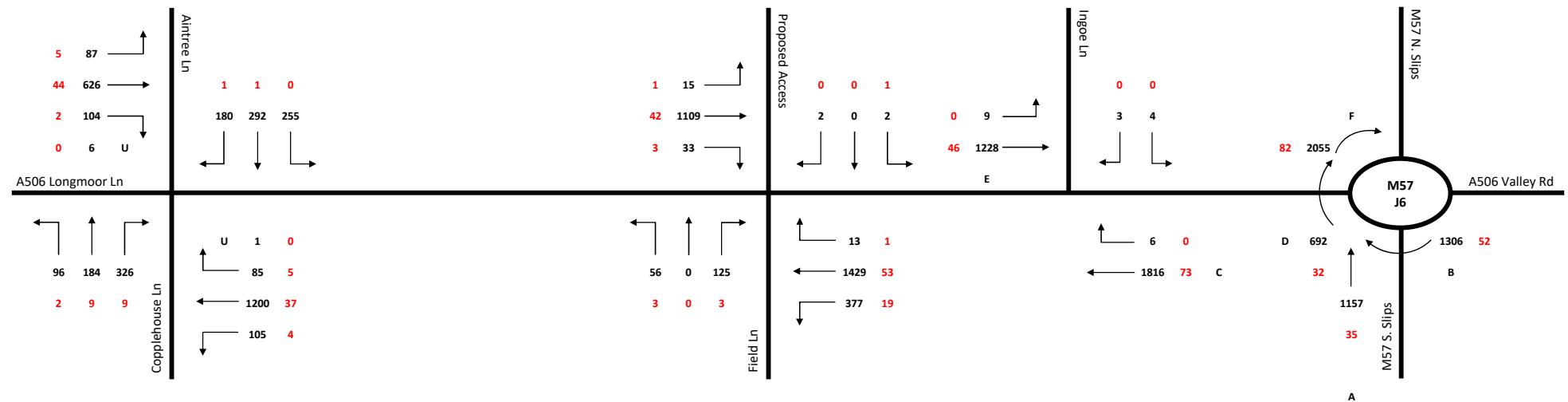
Arrivals = 15

Departures = 16



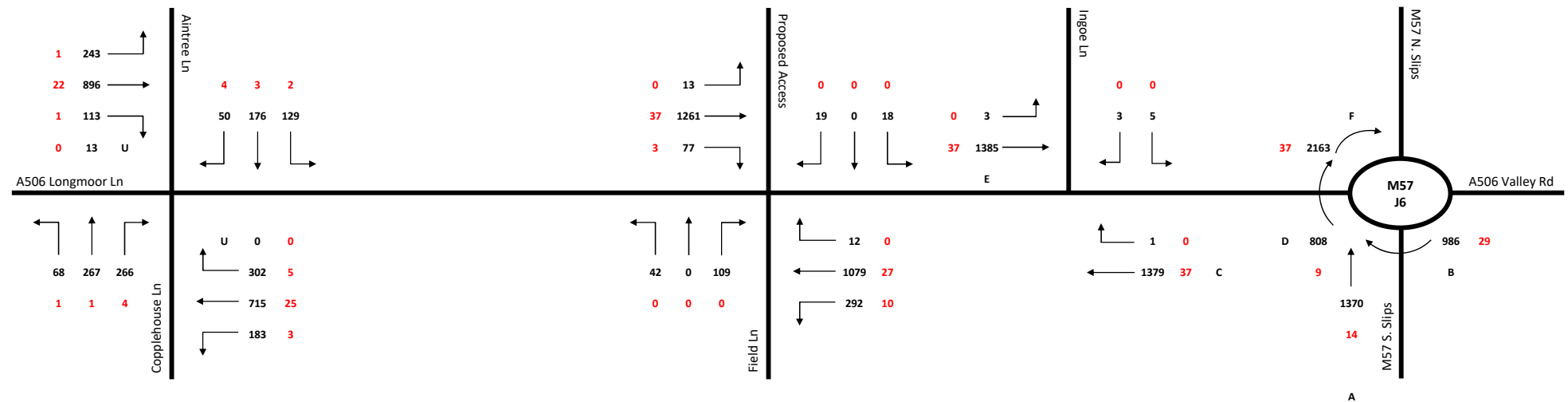
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 38 - 2026 With Development
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red

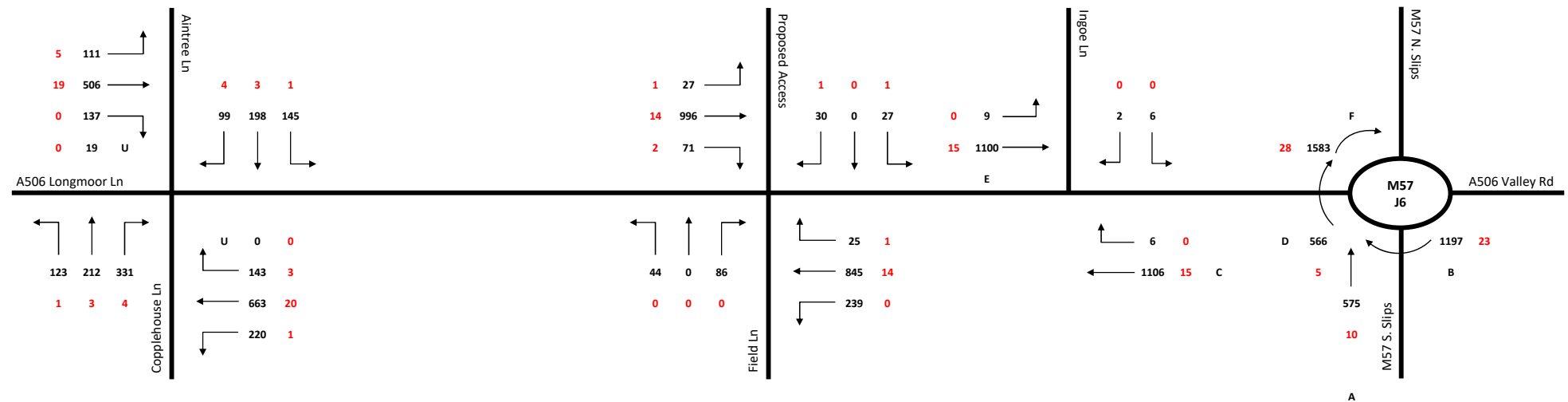


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 39 - 2026 With Development
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red

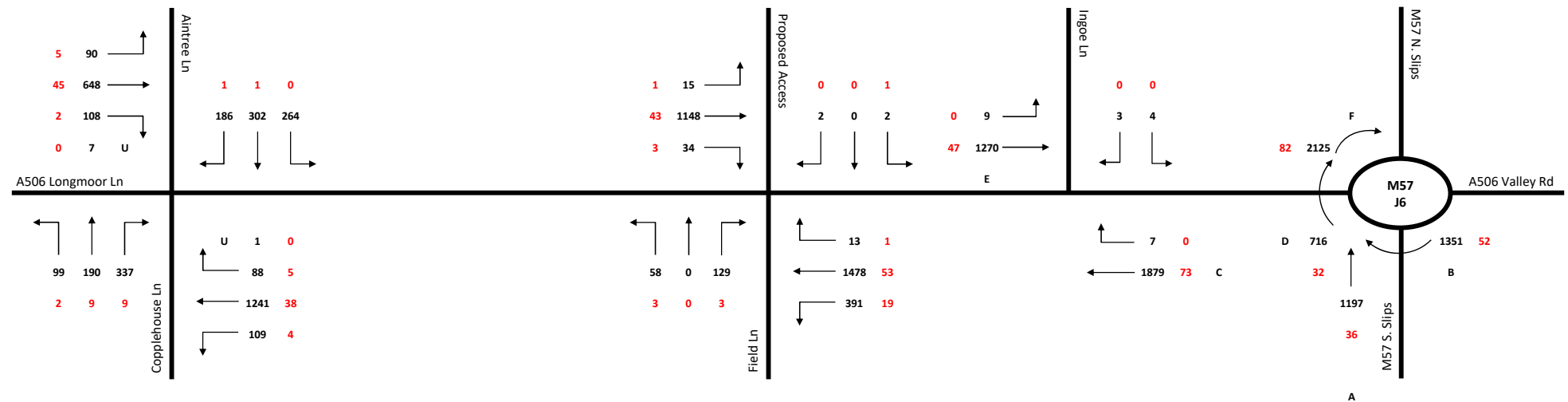


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 40 - 2026 With Development
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



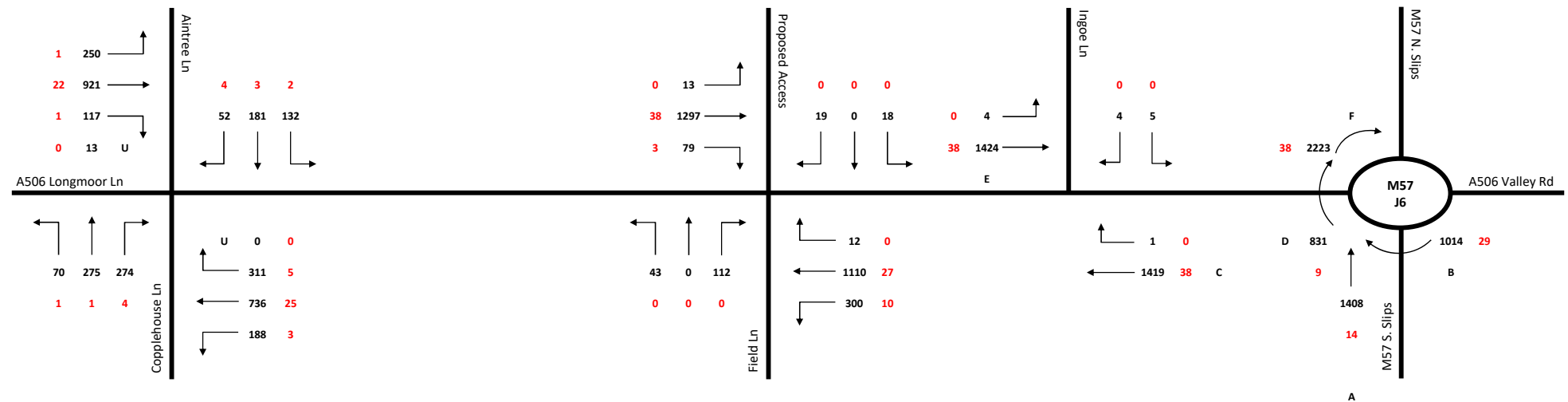
Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 41 - 2031 With Development
Peak: Weekday AM (0745-0845)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red

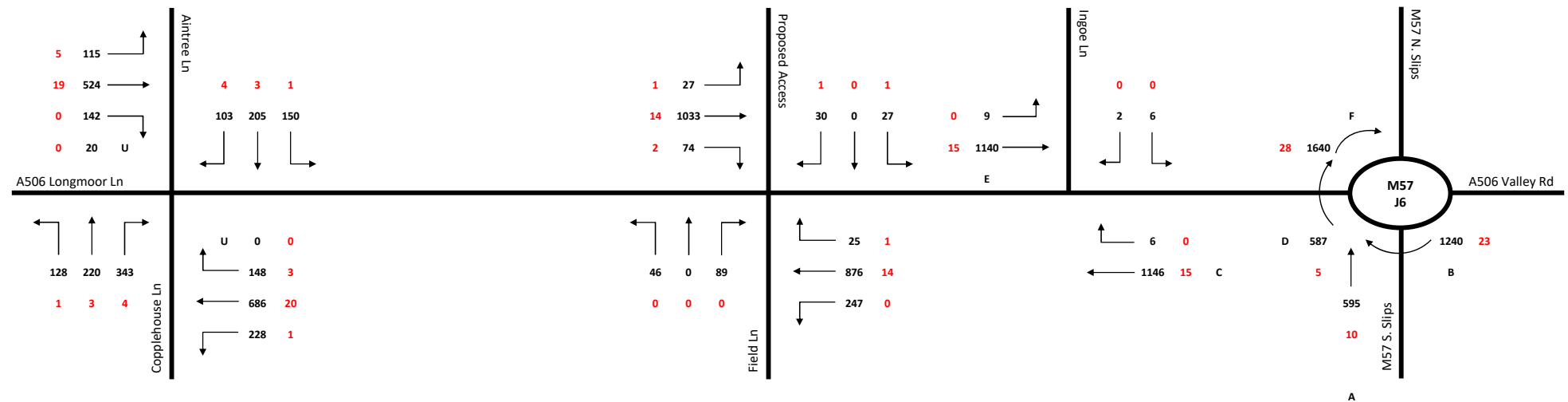


Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 42 - 2031 With Development
Peak: Weekday PM (1630-1730)

Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



Project: Kirkby Valley Golf Club Redevelopment
Scenario: Traffic Flow Diagram 43 - 2031 With Development
Peak: Saturday (1300-1400)
Notes: All flows are in vehicles
 Light vehicles in black
 Heavy vehicles in red



APPENDIX 5

ROAD TRAFFIC PROJECTIONS

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Table 2a: Road traffic projections (billion vehicle miles, bvm) from 2015 to 2060

Vehicle Type	Road Type	Country	Region	Traffic - Billion Vehicle miles (bvm)								
				2015	2020	2025	2030	2035	2040	2045	2050	2055
HGV	A road	England	North West	0.3850		0.3961	0.3990	0.3979	0.4013	0.4032	0.4072	0.4101
HGV												
				Year	5 Year Value	5 Year Diff	Linear Diff	Increment	1 Year Value	Check	Factor	
				2015	0.3850	0.0111	0.0011		0.3850			
				2016				1	0.3861			
				2017				2	0.3872			
				2018				3	0.3883			
				2019				4	0.3894			
				2020	0.0000			5	0.3905			
				2021				6	0.3916		20-22	
				2022				7	0.3928		1.0057	
				2023				8	0.3939			
				2024				9	0.3950			
				2025	0.3961	0.0029	0.0006	10	0.3961	0.0000	22-26	
				2026				1	0.3967		1.0100	
				2027				2	0.3973			
				2028				3	0.3978			
				2029				4	0.3984			
				2030	0.3990	-0.0012	-0.0002	5	0.3990	0.0000	22-31	
				2031				1	0.3988		1.0153	
				2032				2	0.3985			
				2033				3	0.3983			
				2034				4	0.3981			
				2035	0.3979	0.0034	0.0007	5	0.3979	0.0000		
				2036				1	0.3985			
				2037				2	0.3992			
				2038				3	0.3999			
				2039				4	0.4006			
				2040	0.4013	0.0019	0.0004	5	0.4013	0.0000		
				2041				1	0.4016			
				2042				2	0.4020			
				2043				3	0.4024			
				2044				4	0.4028			
				2045	0.4032	0.0040	0.0008	5	0.4032	0.0000		
				2046				1	0.4040			
				2047				2	0.4048			
				2048				3	0.4056			
				2049				4	0.4064			
				2050	0.4072	0.0029	0.0006	5	0.4072	0.0000		

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APPENDIX 6

MEMBER POSTCODE INFORMATION AND PLAN

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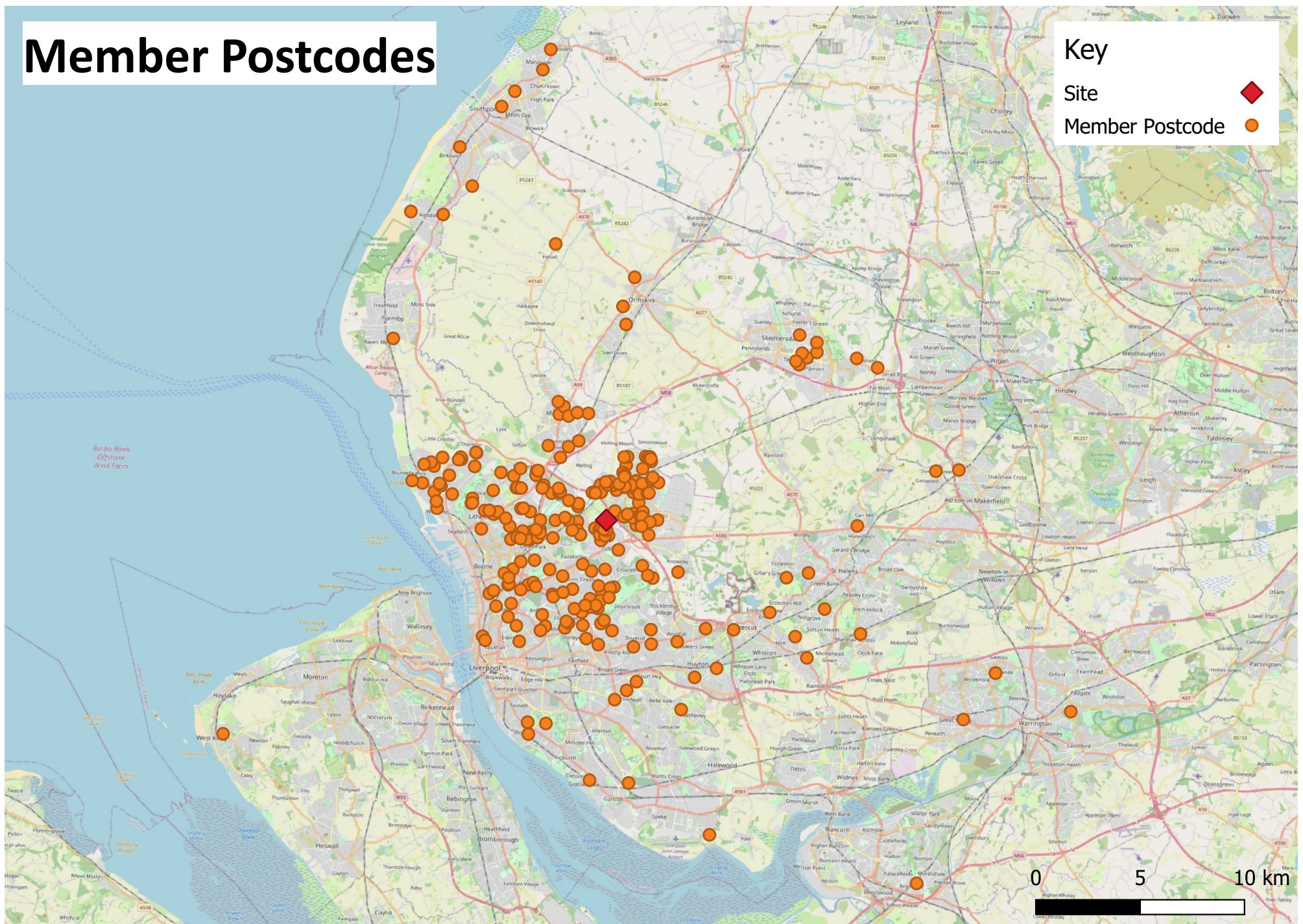
Postcode	Route	Postcode	Route	Postcode	Route	Postcode	Route	Postcode	Route	Postcode	Route
CH48 5DZ	5	L10 0AE	4	L13 8AZ	4	L23 8UU	1	L32 1TL	2	L34 0HG	3
CH64 15Q	5	L10 0AE	4	L13 8BS	4	L23 9TK	1	L32 1TP	2	L35 4NP	3
L3 6LL	5	L10 0AG	6	L13 8BY	4	L23 9UF	1	L32 2AJ	2	L35 4QZ	3
L3 6LB	5	L10 1LN	5	L13 0AJ	4	L24 7RJ	3	L32 2AL	2	L36 1AB	3
L4 1RD	4	L10 2JN	6	L13 0AY	4	L30 0PH	1	L32 2AS	2	L36 3RX	3
L4 2UY	4	L10 2LD	6	L14 0NX	4	L30 1BB	5	L32 2AW	2	L36 6AT	3
L4 4BY	4	L10 3JF	6	L14 9QD	4	L30 1PP	5	L32 3XB	2	L36 8HA	3
L4 4ND	4	L10 3JY	6	L14 7PE	4	L30 1RH	5	L32 4SS	2	L36 5SX	3
L4 5UL	4	L10 4US	6	L16 3NW	4	L30 2NZ	5	L32 4TD	2	L37 6DZ	1
L4 5XB	4	L10 4UT	6	L16 5EE	4	L30 3TA	5	L32 6SH	2	L37 1LO	1
L4 6SG	4	L10 4XR	6	L16 7QN	4	L30 5QX	5	L32 8SL	2	L39 1LQ	2
L4 6TY	4	L10 4XW	6	L17 3AA	4	L30 5RA	6	L32 9PF	2	L39 4SQ	2
L4 8SN	4	L10 4YB	6	L19 5NW	3	L30 5RB	6	L32 9PU	2	L39 8SR	2
L4 8SX	4	L10 4YJ	6	L19 0NS	3	L30 5RB	6	L32 9QH	2	L39 3NN	2
L4 8UE	4	L10 4YU	6	L20 0DT	5	L30 6YF	6	L32 9QU	2	PR8 2EN	1
L5 0SZ	5	L10 8JQ	6	L20 2AT	4	L30 7PU	1	L32 9QX	2	PR8 2RW	1
L5 0RE	5	L10 8JU	6	L20 2JA	4	L30 7QF	1	L32 9RB	2	PR8 3DR	1
L6 0AL	4	L10 9LJ	5	L20 9ET	5	L30 7QN	1	L32 9RT	2	PR8 3NJ	1
L6 5AY	4	L10 9LY	5	L20 9JR	5	L30 7QQ	1	L32 9SH	2	PR9 8PA	1
L6 5AY	4	L10 9LY	5	L20 9NJ	4	L30 7QQ	1	L32 9SN	2	PR9 9BA	1
L6 2WL	4	L10 4YE	6	L20 9NP	5	L30 8RD	6	L32 0SG	2	PR9 9LS	1
L8 9SA	4	L10 8JE	6	L20 9NP	5	L30 8RF	6	L32 2BE	2	PR9 9UU	1
L8 4AB	4	L11 0DE	4	L20 9NT	4	L30 8RF	6	L32 6RG	2	WA1 3RJ	3
L8 4AB	4	L11 1AP	4	L20 6EG	5	L30 9TB	5	L32 7SD	2	WA5 1RY	3
L9 0HD	5	L11 1DQ	4	L21 7LL	5	L31 0AH	1	L32 7SE	2	WA5 9RF	3
L9 0LS	5	L11 1EH	4	L21 7LN	5	L31 0DA	1	L33 0YQ	2	WA5 9RF	3
L9 0NU	5	L11 2TQ	4	L21 7QG	5	L31 1BJ	6	L33 1RH	2	WA7 6AX	3
L9 1AS	5	L11 3AL	4	L21 7QR	5	L31 1BP	6	L33 1SY	2	WA9 4TS	3
L9 1JG	4	L11 7DJ	4	L21 8LR	5	L31 1BW	6	L33 1UG	2	WA9 4TS	3
L9 2BQ	5	L11 3DS	4	L21 9LE	5	L31 1GB	6	L33 1WZ	2	WA9 5EJ	3
L9 4RB	5	L11 9DG	4	L21 9LP	5	L31 1JS	6	L33 2DD	2	WA10 4PG	3
L9 6ES	4	L12 8QX	4	L21 9LQ	5	L31 1JS	6	L33 2DG	2	WA10 5NQ	3
L9 6ET	4	L12 0HG	4	L21 7QG	5	L31 1JY	6	L33 2DU	2	WA11 7EF	3
L9 7LU	5	L12 0PN	4	L22 2AN	5	L31 1LN	1	L33 4YS	2	WA11 9DX	3
L9 8BS	5	L12 0QD	4	L22 5NW	5	L31 3DP	1	L33 4YY	2	WN4 0AY	3
L9 8DG	5	L12 1LW	4	L22 9QY	5	L31 5LP	1	L33 4YY	2	WN4 0QP	3
L9 8DG	5	L12 1LW	4	L23 0SH	1	L31 7BE	1	L33 4YZ	2	WN5 8RA	1
L9 8DT	5	L12 1LY	4	L23 0SZ	1	L31 2NX	1	L33 6UQ	2	WN8 0EP	1
L9 8EP	5	L12 5EE	4	L23 1TB	1	L31 5JU	1	L33 8XS	2	WN8 6AL	1
L9 9AH	5	L12 5JB	4	L23 1TD	1	L31 9AZ	1	L33 8XU	2	WN8 6BP	1
L9 9ER	5	L12 5JN	4	L23 2SY	1	L31 9DE	1	L33 8YQ	2	WN8 6BP	1
L9 9HL	5	L12 0HH	4	L23 2SZ	1	L31 9DU	1	L33 9TD	2	WN8 6DW	1
L9 9HL	5	L12 5JG	4	L23 2TA	1	L32 0SB	2	L33 9UF	2	WN8 6EE	1
L9 9HL	5	L12 5JP	4	L23 2UD	1	L32 0SE	2	L33 9UN	2	WN8 6QY	1
L9 0HH	5	L12 5LB	4	L23 3DD	1	L32 0SG	2	L33 1ED	2	WN8 9JW	1
L9 4SE	5	L12 0DF	4	L23 3DF	1	L32 1AB	2	L34 1NG	3	WN8 9JW	3
L9 7AD	5	L13 0AZ	4	L23 6ST	1	L32 1BE	2	L34 2QB	3	WN8 9JY	3
L9 8BG	5	L13 0BN	4	L23 6TA	1	L32 1TE	2	L34 0HG	3	WN8 6XW	3
L9 8BS	5	L13 3HT	4	L23 7XE	1	L32 1TH	2	L34 1NG	3		
L9 9HZ	5	L13 6RT	4	L23 7YJ	1	L32 1TH	2	L34 2QB	3		

Member Postcodes

Key

Site

Member Postcode



Routes

1: M57 North

2: A506 East (Kirkby)

Site Location

6: Aintree Ln

3: M57 South

5: A506 West
(Liverpool)

4: Coplehouse Ln

© OpenStreetMap contributors



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APPENDIX 7

TRICS REPORT OUTPUTS

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Calculation Reference: AUDIT-753001-230320-0310

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 04 - EDUCATION
 Category : C - COLLEGE/UNIVERSITY
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	ES EAST SUSSEX	1 days
	EX ESSEX	1 days
	KC KENT	1 days
03	SOUTH WEST	
	GS GLOUCESTERSHIRE	1 days
	SD SWINDON	1 days
04	EAST ANGLIA	
	PB PETERBOROUGH	1 days
08	NORTH WEST	
	LC LANCASHIRE	1 days
10	WALES	
	SW SWANSEA	1 days

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

Primary Filtering selection:

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

Parameter: Gross floor area
 Actual Range: 3900 to 55000 (units: sqm)
 Range Selected by User: 2435 to 162000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 07/04/12 to 06/04/22

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

Selected survey days:

Monday	1 days
Tuesday	3 days
Wednesday	1 days
Thursday	2 days
Friday	1 days

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

Selected survey types:

Manual count	8 days
Directional ATC Count	0 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	7
Edge of Town	1

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

Selected Location Sub Categories:

Residential Zone	7
Built-Up Zone	1

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

Secondary Filtering selection:

Use Class:

F1(a) 8 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000	2 days
20,001 to 25,000	3 days
25,001 to 50,000	3 days

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

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	1 days
75,001 to 100,000	1 days
125,001 to 250,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	3 days
1.1 to 1.5	5 days

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

Travel Plan:

No 8 days

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

PTAL Rating:

No PTAL Present 8 days

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

LIST OF SITES relevant to selection parameters

1	ES-04-C-07 PARKER ROAD HASTINGS ORE Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 8402 sqm Survey date: WEDNESDAY 30/05/12	COLLEGE	EAST SUSSEX	Survey Type: MANUAL
2	EX-04-C-02 PRINCES ROAD CHELMSFORD Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 11000 sqm Survey date: TUESDAY 15/10/13	COLLEGE	ESSEX	Survey Type: MANUAL
3	GS-04-C-02 HORTON ROAD GLOUCESTER Suburban Area (PPS6 Out of Centre) Built-Up Zone Total Gross floor area: 13204 sqm Survey date: THURSDAY 28/11/13	COLLEGE	GLOUCESTERSHIRE	Survey Type: MANUAL
4	KC-04-C-02 BELLEVUE ROAD WHITSTABLE Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 12735 sqm Survey date: TUESDAY 26/09/17	COLLEGE	KENT	Survey Type: MANUAL
5	LC-04-C-05 LANGDALE ROAD LEYLAND Edge of Town Residential Zone Total Gross floor area: 31000 sqm Survey date: FRIDAY 17/11/17	COLLEGE	LANCASHIRE	Survey Type: MANUAL
6	PB-04-C-03 PARK CRESCENT PETERBOROUGH Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 55000 sqm Survey date: TUESDAY 18/10/16	COLLEGE	PETERBOROUGH	Survey Type: MANUAL
7	SD-04-C-01 NEW COLLEGE DRIVE SWINDON WALCOT Suburban Area (PPS6 Out of Centre) Residential Zone Total Gross floor area: 16600 sqm Survey date: THURSDAY 22/09/16	COLLEGE	SWINDON	Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

8 SW-04-C-02 COLLEGE SWANSEA
WALTER ROAD
SWANSEA

Suburban Area (PPS6 Out of Centre)
Residential Zone
Total Gross floor area: 3900 sqm
Survey date: MONDAY 21/10/13 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
CW-04-C-04	University

PRIME Transport Planning ' Hurricane Court Liverpool

Licence No: 753001

TRIP RATE for Land Use 04 - EDUCATION/C - COLLEGE/UNIVERSITY

TOTAL VEHICLES

Calculation factor: 100 sqm

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	8	18980	0.221	8	18980	0.045	8	18980	0.266
08:00 - 09:00	8	18980	1.288	8	18980	0.416	8	18980	1.704
09:00 - 10:00	8	18980	0.431	8	18980	0.239	8	18980	0.670
10:00 - 11:00	8	18980	0.232	8	18980	0.175	8	18980	0.407
11:00 - 12:00	8	18980	0.219	8	18980	0.235	8	18980	0.454
12:00 - 13:00	8	18980	0.281	8	18980	0.331	8	18980	0.612
13:00 - 14:00	8	18980	0.278	8	18980	0.271	8	18980	0.549
14:00 - 15:00	8	18980	0.200	8	18980	0.317	8	18980	0.517
15:00 - 16:00	8	18980	0.270	8	18980	0.514	8	18980	0.784
16:00 - 17:00	8	18980	0.202	8	18980	0.560	8	18980	0.762
17:00 - 18:00	8	18980	0.283	8	18980	0.450	8	18980	0.733
18:00 - 19:00	7	20491	0.240	7	20491	0.174	7	20491	0.414
19:00 - 20:00	7	20491	0.120	7	20491	0.227	7	20491	0.347
20:00 - 21:00	6	21706	0.088	6	21706	0.322	6	21706	0.410
21:00 - 22:00	6	21706	0.012	6	21706	0.128	6	21706	0.140
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.365			4.404			8.769

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

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

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Parameter summary

Trip rate parameter range selected:	3900 - 55000 (units: sqm)
Survey date range:	07/04/12 - 06/04/22
Number of weekdays (Monday-Friday):	8
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	0
Surveys manually removed from selection:	1

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

Calculation Reference: AUDIT-753001-230320-0344

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
 TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST	
	MW MEDWAY	1 days
03	SOUTH WEST	
	BC BOURNEMOUTH CHRISTCHURCH & POOLE	1 days
	SD SWINDON	1 days
04	EAST ANGLIA	
	NF NORFOLK	3 days
	PB PETERBOROUGH	1 days
	SF SUFFOLK	2 days
05	EAST MIDLANDS	
	LN LINCOLNSHIRE	1 days
06	WEST MIDLANDS	
	SH SHROPSHIRE	1 days
	ST STAFFORDSHIRE	1 days
	WK WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE	
	NY NORTH YORKSHIRE	3 days
08	NORTH WEST	
	AC CHESHIRE WEST & CHESTER	1 days
	EC CHESHIRE EAST	1 days
	MS MERSEYSIDE	1 days
09	NORTH	
	TW TYNE & WEAR	1 days
10	WALES	
	PS POWYS	1 days
	VG VALE OF GLAMORGAN	1 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
 Actual Range: 7 to 28 (units:)
 Range Selected by User: 5 to 30 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 07/06/12 to 06/06/22

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

Selected survey days:

Monday	8 days
Tuesday	3 days
Wednesday	7 days
Thursday	4 days
Friday	1 days

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

Selected survey types:

Manual count	22 days
Directional ATC Count	1 days

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

Selected Locations:

Suburban Area (PPS6 Out of Centre)	12
Edge of Town	11

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

Selected Location Sub Categories:

Residential Zone	23
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This data displays the number of surveys per location sub-category within the selected set. The location sub-categories consist of Commercial Zone, Industrial Zone, Development Zone, Residential Zone, Retail Zone, Built-Up Zone, Village, Out of Town, High Street and No Sub Category.

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included	2 days - Selected
Servicing vehicles Excluded	24 days - Selected

Secondary Filtering selection:

Use Class:

C3	23 days
----	---------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	7 days
15,001 to 20,000	2 days
20,001 to 25,000	3 days
25,001 to 50,000	3 days

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

Population within 5 miles:

5,001 to 25,000	3 days
25,001 to 50,000	1 days
50,001 to 75,000	4 days
75,001 to 100,000	5 days
125,001 to 250,000	5 days
250,001 to 500,000	5 days

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

Car ownership within 5 miles:

0.6 to 1.0	11 days
1.1 to 1.5	12 days

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

Travel Plan:

Yes	2 days
No	21 days

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

PTAL Rating:

No PTAL Present	23 days
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This data displays the number of selected surveys with PTAL Ratings.

LIST OF SITES relevant to selection parameters

1	AC-03-A-04	TOWN HOUSES		CHESHIRE WEST & CHESTER
	LONDON ROAD			
	NORTHWICH			
	LEFTWICH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	24		
	Survey date: THURSDAY	06/06/19	Survey Type: MANUAL	
2	BC-03-A-02	BUNGALOWS		BOURNEMOUTH CHRISTCHURCH & POOLE
	HURSTDENE ROAD			
	BOURNEMOUTH			
	CASTLE LANE WEST			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	28		
	Survey date: MONDAY	24/03/14	Survey Type: MANUAL	
3	EC-03-A-06	TERRACED HOUSES		CHESHIRE EAST
	GREYSTOKE ROAD			
	MACCLESFIELD			
	HURDSFIELD			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	24		
	Survey date: MONDAY	24/11/14	Survey Type: MANUAL	
4	LN-03-A-03	SEMI DETACHED		LINCOLNSHIRE
	ROOKERY LANE			
	LINCOLN			
	BOULTHAM			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	22		
	Survey date: TUESDAY	18/09/12	Survey Type: MANUAL	
5	MS-03-A-03	DETACHED		MERSEYSIDE
	BEMPTON ROAD			
	LIVERPOOL			
	OTTERSPOOL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	15		
	Survey date: FRIDAY	21/06/13	Survey Type: MANUAL	
6	MW-03-A-02	MIXED HOUSES		MEDWAY
	OTTERHAM QUAY LANE			
	RAINHAM			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	19		
	Survey date: MONDAY	06/06/22	Survey Type: MANUAL	
7	NF-03-A-01	SEMI DET. & BUNGALOWS		NORFOLK
	YARMOUTH ROAD			
	CAISTER-ON-SEA			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	27		
	Survey date: TUESDAY	16/10/12	Survey Type: MANUAL	
8	NF-03-A-03	DETACHED HOUSES		NORFOLK
	HALING WAY			
	THETFORD			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	10		
	Survey date: WEDNESDAY	16/09/15	Survey Type: MANUAL	
9	NF-03-A-10	MIXED HOUSES & FLATS		NORFOLK
	HUNSTANTON ROAD			
	HUNSTANTON			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	17		
	Survey date: WEDNESDAY	12/09/18	Survey Type: DIRECTIONAL ATC COUNT	

PRIME Transport Planning ' Hurricane Court Liverpool

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LIST OF SITES relevant to selection parameters (Cont.)

10	NY-03-A-08	TERRACED HOUSES		NORTH YORKSHIRE
	NICHOLAS STREET			
	YORK			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	21		
	Survey date: MONDAY	16/09/13	Survey Type: MANUAL	
11	NY-03-A-11	PRIVATE HOUSING		NORTH YORKSHIRE
	HORSEFAIR			
	BOROUGHBRIDGE			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	23		
	Survey date: WEDNESDAY	18/09/13	Survey Type: MANUAL	
12	NY-03-A-13	TERRACED HOUSES		NORTH YORKSHIRE
	CATTERICK ROAD			
	CATTERICK GARRISON			
	OLD HOSPITAL COMPOUND			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	10		
	Survey date: WEDNESDAY	10/05/17	Survey Type: MANUAL	
13	PB-03-A-04	DETACHED HOUSES		PETERBOROUGH
	EASTFIELD ROAD			
	PETERBOROUGH			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	28		
	Survey date: MONDAY	17/10/16	Survey Type: MANUAL	
14	PS-03-A-02	DETACHED / SEMI-DETACHED		POWYS
	GUNROG ROAD			
	WELSHPOOL			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	28		
	Survey date: MONDAY	11/05/15	Survey Type: MANUAL	
15	SD-03-A-01	SEMI DETACHED		SWINDON
	HEADLANDS GROVE			
	SWINDON			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	27		
	Survey date: THURSDAY	22/09/16	Survey Type: MANUAL	
16	SF-03-A-04	DETACHED & BUNGALOWS		SUFFOLK
	NORMANSTON DRIVE			
	LOWESTOFT			
	Suburban Area (PPS6 Out of Centre)			
	Residential Zone			
	Total No of Dwellings:	7		
	Survey date: TUESDAY	23/10/12	Survey Type: MANUAL	
17	SF-03-A-05	DETACHED HOUSES		SUFFOLK
	VALE LANE			
	BURY ST EDMUNDS			
	Edge of Town			
	Residential Zone			
	Total No of Dwellings:	18		
	Survey date: WEDNESDAY	09/09/15	Survey Type: MANUAL	

LIST OF SITES relevant to selection parameters (Cont.)

18	SH-03-A-06 ELLESMERE ROAD SHREWSBURY	BUNGALOWS		SHROPSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		16	
	Survey date: THURSDAY		22/05/14	Survey Type: MANUAL
19	ST-03-A-08 SILKMORE CRESCENT STAFFORD MEADOWCROFT PARK	DETACHED HOUSES		STAFFORDSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		26	
	Survey date: WEDNESDAY		22/11/17	Survey Type: MANUAL
20	TW-03-A-02 WEST PARK ROAD GATESHEAD	SEMI-DETACHED		TYNE & WEAR
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:		16	
	Survey date: MONDAY		07/10/13	Survey Type: MANUAL
21	VG-03-A-01 ARTHUR STREET BARRY	SEMI-DETACHED & TERRACED		VALE OF GLAMORGAN
	Edge of Town Residential Zone Total No of Dwellings:		12	
	Survey date: MONDAY		08/05/17	Survey Type: MANUAL
22	WK-03-A-02 NARBERTH WAY COVENTRY POTTERS GREEN	BUNGALOWS		WARWICKSHIRE
	Edge of Town Residential Zone Total No of Dwellings:		17	
	Survey date: THURSDAY		17/10/13	Survey Type: MANUAL
23	WK-03-A-03 BRESE AVENUE WARWICK GUYS CLIFFE	DETACHED HOUSES		WARWICKSHIRE
	Suburban Area (PPS6 Out of Centre) Residential Zone Total No of Dwellings:		23	
	Survey date: WEDNESDAY		25/09/19	Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
BO-03-A-01	Covid survey
HF-03-A-04	Covid survey
KC-03-A-09	Covid survey

PRIME Transport Planning ' Hurricane Court Liverpool

Licence No: 753001

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	23	20	0.083	23	20	0.251	23	20	0.334
08:00 - 09:00	23	20	0.190	23	20	0.380	23	20	0.570
09:00 - 10:00	23	20	0.135	23	20	0.192	23	20	0.327
10:00 - 11:00	23	20	0.168	23	20	0.162	23	20	0.330
11:00 - 12:00	23	20	0.181	23	20	0.192	23	20	0.373
12:00 - 13:00	23	20	0.227	23	20	0.214	23	20	0.441
13:00 - 14:00	23	20	0.192	23	20	0.183	23	20	0.375
14:00 - 15:00	23	20	0.199	23	20	0.227	23	20	0.426
15:00 - 16:00	23	20	0.306	23	20	0.260	23	20	0.566
16:00 - 17:00	23	20	0.288	23	20	0.201	23	20	0.489
17:00 - 18:00	23	20	0.295	23	20	0.164	23	20	0.459
18:00 - 19:00	23	20	0.249	23	20	0.166	23	20	0.415
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			2.513			2.592			5.105

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

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

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Parameter summary

Trip rate parameter range selected: 7 - 28 (units:)
 Survey date range: 07/06/12 - 06/06/22
 Number of weekdays (Monday-Friday): 23
 Number of Saturdays: 0
 Number of Sundays: 0
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 3

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

Calculation Reference: AUDIT-753001-230320-0349

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 03 - RESIDENTIAL
 Category : A - HOUSES PRIVATELY OWNED
TOTAL VEHICLES

Selected regions and areas:

04 EAST ANGLIA
 NF NORFOLK 3 days

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

Primary Filtering selection:

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

Parameter: No of Dwellings
 Actual Range: 181 to 300 (units:)
 Range Selected by User: 5 to 4334 (units:)

Parking Spaces Range: All Surveys Included

Parking Spaces per Dwelling Range: All Surveys Included

Bedrooms per Dwelling Range: All Surveys Included

Percentage of dwellings privately owned: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 15/10/12 to 14/10/22

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

Selected survey days:

Sunday 3 days

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

Selected survey types:

Manual count 0 days
 Directional ATC Count 3 days

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

Selected Locations:

Edge of Town 3

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

Selected Location Sub Categories:

Residential Zone 2
 Out of Town 1

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

Inclusion of Servicing Vehicles Counts:

Servicing vehicles Included X days - Selected
 Servicing vehicles Excluded 6 days - Selected

Secondary Filtering selection:

Use Class:

C3 3 days

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order (England) 2020 has been used for this purpose, which can be found within the Library module of TRICS®.

Population within 500m Range:

All Surveys Included

Population within 1 mile:

5,001 to 10,000 3 days

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

Population within 5 miles:

5,001 to 25,000 2 days

25,001 to 50,000 1 days

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

Car ownership within 5 miles:

1.1 to 1.5 3 days

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

Travel Plan:

Yes 3 days

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

PTAL Rating:

No PTAL Present 3 days

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

LIST OF SITES relevant to selection parameters

1	NF-03-A-07 SILFIELD ROAD WYMONDHAM	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Out of Town Total No of Dwellings:	297	
	Survey date: SUNDAY	22/09/19	Survey Type: DIRECTIONAL ATC COUNT
2	NF-03-A-45 BURGH ROAD AYLSHAM	MIXED HOUSES & FLATS	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:	300	
	Survey date: SUNDAY	29/09/19	Survey Type: DIRECTIONAL ATC COUNT
3	NF-03-A-48 BRANDON ROAD SWAFFHAM	MIXED HOUSES	NORFOLK
	Edge of Town Residential Zone Total No of Dwellings:	181	
	Survey date: SUNDAY	15/09/19	Survey Type: DIRECTIONAL ATC COUNT

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

PRIME Transport Planning ' Hurricane Court Liverpool

Licence No: 753001

TRIP RATE for Land Use 03 - RESIDENTIAL/A - HOUSES PRIVATELY OWNED

TOTAL VEHICLES

Calculation factor: 1 DWELLS

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate	No. Days	Ave. DWELLS	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00									
06:00 - 07:00									
07:00 - 08:00	3	259	0.021	3	259	0.048	3	259	0.069
08:00 - 09:00	3	259	0.039	3	259	0.109	3	259	0.148
09:00 - 10:00	3	259	0.055	3	259	0.147	3	259	0.202
10:00 - 11:00	3	259	0.129	3	259	0.179	3	259	0.308
11:00 - 12:00	3	259	0.149	3	259	0.181	3	259	0.330
12:00 - 13:00	3	259	0.150	3	259	0.156	3	259	0.306
13:00 - 14:00	3	259	0.157	3	259	0.165	3	259	0.322
14:00 - 15:00	3	259	0.183	3	259	0.154	3	259	0.337
15:00 - 16:00	3	259	0.193	3	259	0.129	3	259	0.322
16:00 - 17:00	3	259	0.184	3	259	0.109	3	259	0.293
17:00 - 18:00	3	259	0.161	3	259	0.111	3	259	0.272
18:00 - 19:00	3	259	0.131	3	259	0.099	3	259	0.230
19:00 - 20:00									
20:00 - 21:00									
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			1.552			1.587			3.139

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

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

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Parameter summary

Trip rate parameter range selected: 181 - 300 (units:)
 Survey date range: 15/10/12 - 14/10/22
 Number of weekdays (Monday-Friday): 0
 Number of Saturdays: 3
 Number of Sundays: 3
 Surveys automatically removed from selection: 0
 Surveys manually removed from selection: 0

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

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APPENDIX 8

TRAFFIC SIGNAL DATA CORRESPONDENCE

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From: [Cunningham, Peter](#)
To: [David Stoddart](#)
Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby (Site 1212)
Date: 09 March 2020 10:18:22
Attachments: [image001.png](#)
[image002.png](#)
[image005.png](#)
[image006.png](#)
[Controller Spec 1212.doc](#)
[Site Drawing 1212.dwg](#)
[VALLEY-FIELD Linsig 1212.LSG](#)

Hi David

Please find attached a copy of the traffic signal information for
Site 1212 - Valley Road / Field Lane

Thanks

Peter Cunningham
Technical Assistant - Traffic and Travel Analysis
Directorate of Regeneration, Economy and Skills
Knowsley Metropolitan Borough Council
Ground Floor, Yorkon Building
Tel: 0151-443-2294

Email: peter.cunningham@knowsley.gov.uk

Please consider the environment; do you need to print this email?

From: David Stoddart <D.Stoddart@primetp.co.uk>

Sent: 09 March 2020 09:48

To: Cunningham, Peter <Peter.Cunningham@knowsley.gov.uk>

Cc: Grey, Michele <michele.grey@knowsley.gov.uk>

Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby

Hi Peter,

I can't see any attachments. Our email security doesn't allow zip files. If they were zipped, please
can you try re-sending unzipped. The file size shouldn't be a problem.

Any word on the stage timing capture?

Kind regards

Dave

David Stoddart

Associate Director

Prime Transport Planning

DD: +44 (0)151 728 1864 M: +44(0) 7944 446528

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From: Cunningham, Peter <Peter.Cunningham@knowsley.gov.uk>

Sent: 09 March 2020 09:37

To: David Stoddart <D.Stoddart@primetp.co.uk>

Cc: Grey, Michele <michele.grey@knowsley.gov.uk>

Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby

Hi David

Please find attached a copy of the traffic signal information

Thanks

Peter Cunningham
Technical Assistant - Traffic and Travel Analysis
Directorate of Regeneration, Economy and Skills
Knowsley Metropolitan Borough Council
Ground Floor, Yorkon Building

Tel: 0151-443-2294

Email: peter.cunningham@knowsley.gov.uk

Please consider the environment; do you need to print this email?

From: David Stoddart <D.Stoddart@primetp.co.uk>

Sent: 06 March 2020 14:24

To: Cunningham, Peter <Peter.Cunningham@knowsley.gov.uk>; Grey, Michele <michele.grey@knowsley.gov.uk>

Cc: Traffic Signals <Traffic.Signals@knowsley.gov.uk>; Jonathan Parry <J.Parry@primetp.co.uk>

Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby

Hi Peter,

Thanks for the below. All of the information will be of good use to us, particularly the LinSig and DWG files. If you could confirm the availability of the live stage data that would be really useful to us, particularly if we can time it with our survey day (Tue/Wed or Thurs next week).

Please find attached the Work Acceptance form. We don't use POs but if you would like to include the reference P18122/001 on the invoice, that would be helpful.

Kind regards

Dave

David Stoddart

Associate Director

Prime Transport Planning

DD: +44 (0)151 728 1864 M: +44(0) 7944 446528

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From: Cunningham, Peter <Peter.Cunningham@knowsley.gov.uk>

Sent: 06 March 2020 12:07

To: Grey, Michele <michele.grey@knowsley.gov.uk>; David Stoddart <D.Stoddart@primetp.co.uk>

Cc: Traffic Signals <Traffic.Signals@knowsley.gov.uk>; Jonathan Parry <J.Parry@primetp.co.uk>

Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby

Hi Everyone

Please find below list of the traffic signal information I have received from the councils

Traffic signals Maintenance Provider.

I will try to find out if it is possible to provide the signal stage timings at each junction on a particular day / time period

but I think the only information available will be the timings in the controller specification documents. I don't think the controllers

capture the live stage data but I will check with the Maintenance Provider

[Traffic Signal Data](#)

- **[1212] Kirkby: Valley Road / Field Lane**

- Controller Spec 1212.doc

- Site Drawing 1212.dwg

- VALLEY-FIELD Linsig 1212.LSG

- **[1001] Kirkby: Longmoor Lane / Copplehouse Lane / Aintree Lane / Valley Road**

- Config 1001.pdf

- DRAWING.DualCgwy.Xroads.6stage.2003 Aintree Lane 1001>Doc

- LONGMOOR-COPPLEHOUSE new RT lanes2 1001.LSG

- Site Drawing 1001.dwg

- **[1025] Knowsley: M57 J6 / Valley Road East Side**

857304644_TR2500_001_ISS1.pdf
E82258.Pdf
E82258-01.pdf
E82258-02.pdf
M57 J6 MOVA Link Diagram Issue 3 1025.pdf
Randles Island C04 Rev A 1025.dwg
• **[1026] Knowsley: M57 J6 / Valley Road West Side**
857304644_TR2500_002_ISS1.pdf
E82259.pdf
E82259-01.pdf
M57 J6 MOVA Link Diagram Issue 3 1026.pdf
M57 J6 Valley Rd West 1026.pdf
Randles Island C04 Rev A 1026.dwg

Thanks

Peter Cunningham

Technical Assistant - Traffic and Travel Analysis

Directorate of Regeneration, Economy and Skills

Knowsley Metropolitan Borough Council

Ground Floor, Yorkon Building

Tel: 0151-443-2294

Email: peter.cunningham@knowsley.gov.uk

Please consider the environment; do you need to print this email?

From: Grey, Michele <michele.grey@knowsley.gov.uk>

Sent: 06 March 2020 10:37

To: 'D.Stoddart@primetp.co.uk' <D.Stoddart@primetp.co.uk>

Cc: Cunningham, Peter <Peter.Cunningham@knowsley.gov.uk>; Traffic Signals
<Traffic.Signals@knowsley.gov.uk>; 'J.Parry@primetp.co.uk' <J.Parry@primetp.co.uk>

Subject: RE: Controller Specs & Data Capture - Valley Road, Kirkby

Good morning Dave,

Are you aware that there is a charge for providing this information?

The fee is per the Council website, detailed below:

Traffic Signal Information - recharges other Agencies	£175.00 (excl. VAT)
---	---------------------

Could you please provide a purchase order to my colleague,
peter.cunningham@knowsley.gov.uk or complete (sign and scan/return) the
attached Confirmation of Works Form

On this occasion, there will be one overall fee charged (£175 + VAT), however the
Council reserves the right to charge for each site's information for future requests.

Kind regards

Michéle

Michéle Grey

Street Lighting Contract Manager

Tel: (0151)-443 2238 Email: michele.grey@knowsley.gov.uk

Knowsley Council | Highways Contracts | Stretton Way | Huyton | L36 6JF

Save a tree . . . please do not print this e-mail unless you really need to.

From: David Stoddart <D.Stoddart@primetp.co.uk>

Sent: 26 February 2020 10:09

To: Traffic Signals <Traffic.Signals@knowsley.gov.uk>

Cc: Jonathan Parry <J.Parry@primetp.co.uk>

Subject: Controller Specs & Data Capture - Valley Road, Kirkby

Hi,

My company has been commissioned to undertake a Transport Assessment in support of a redevelopment of Kirkby Valley Golf Club. As such, we'll be undertaking capacity assessments at the following signal controlled junctions:

- J1 - Field Lane/Valley Road A506
- J2 - Copplehouse Lane/Aintree Lane/ Valley Road A506
- J3 - M57 Junction 6

Please can you confirm the following:

- Do you have any traffic models (LinSig, TRANSYT etc) that we could utilise?
- Please can you provide the controller specs and scale plans
- Please can you confirm the method of control (MOVA, SCOOT etc)
- Do you have any recent turning count data at the junctions?
- We plan to survey (turning counts and queue lengths) a weekday next week and Saturday 7th March, would it be possible to arrange a live data capture from the respective controllers for the above, or obtain this data retrospectively to aid model calibration?

I look forward to hearing from you.

Kind regards

Dave

David Stoddart
Associate Director

D: +44 (0)151 728 1864

M: +44 (0)7944 446 528

9 Hurricane Court, Liverpool International Business Park
Estuary Boulevard, Liverpool, L24 8RL



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APPENDIX 9

LINSIG REPORT OUTPUTS

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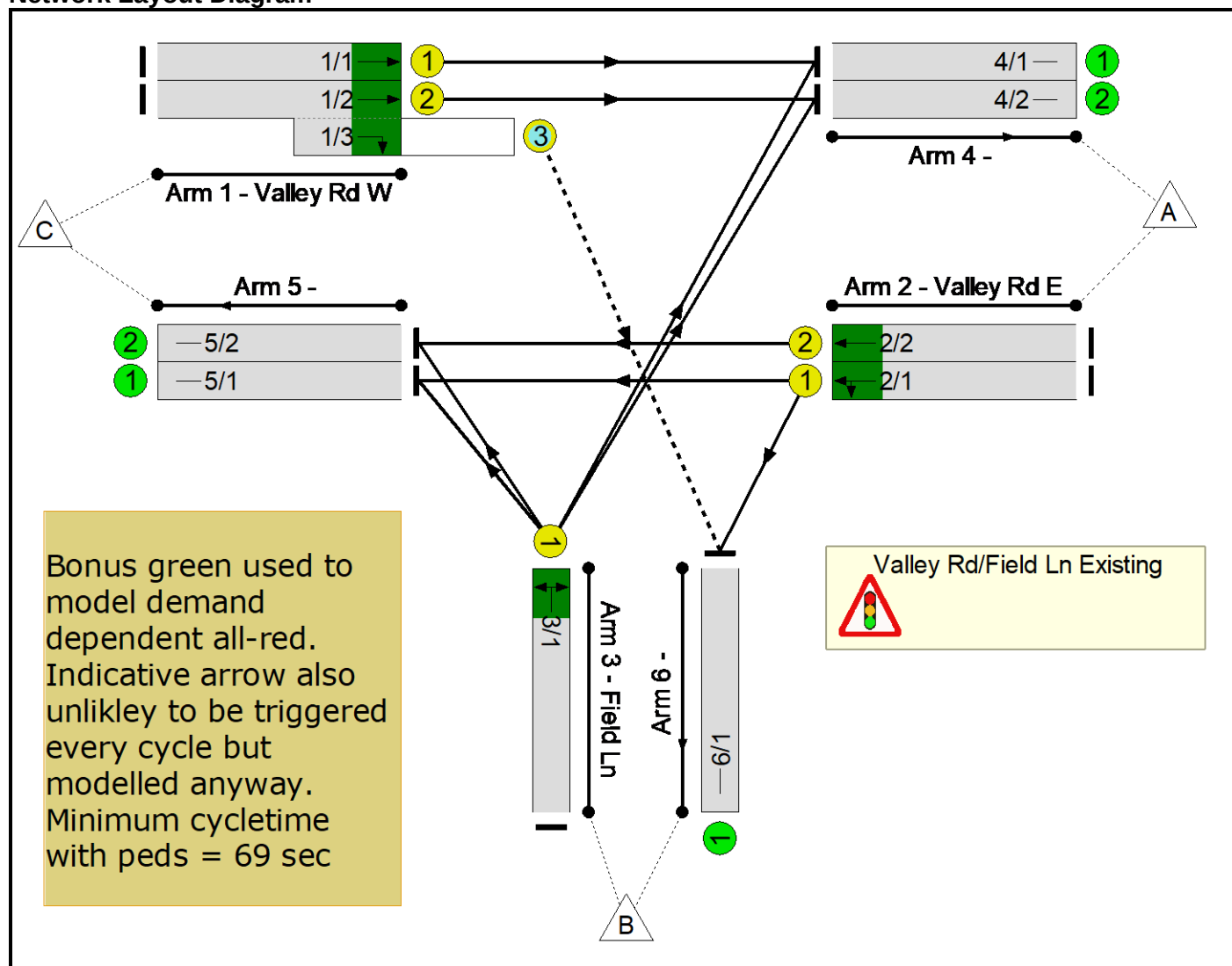
Full Input Data And Results

Full Input Data And Results

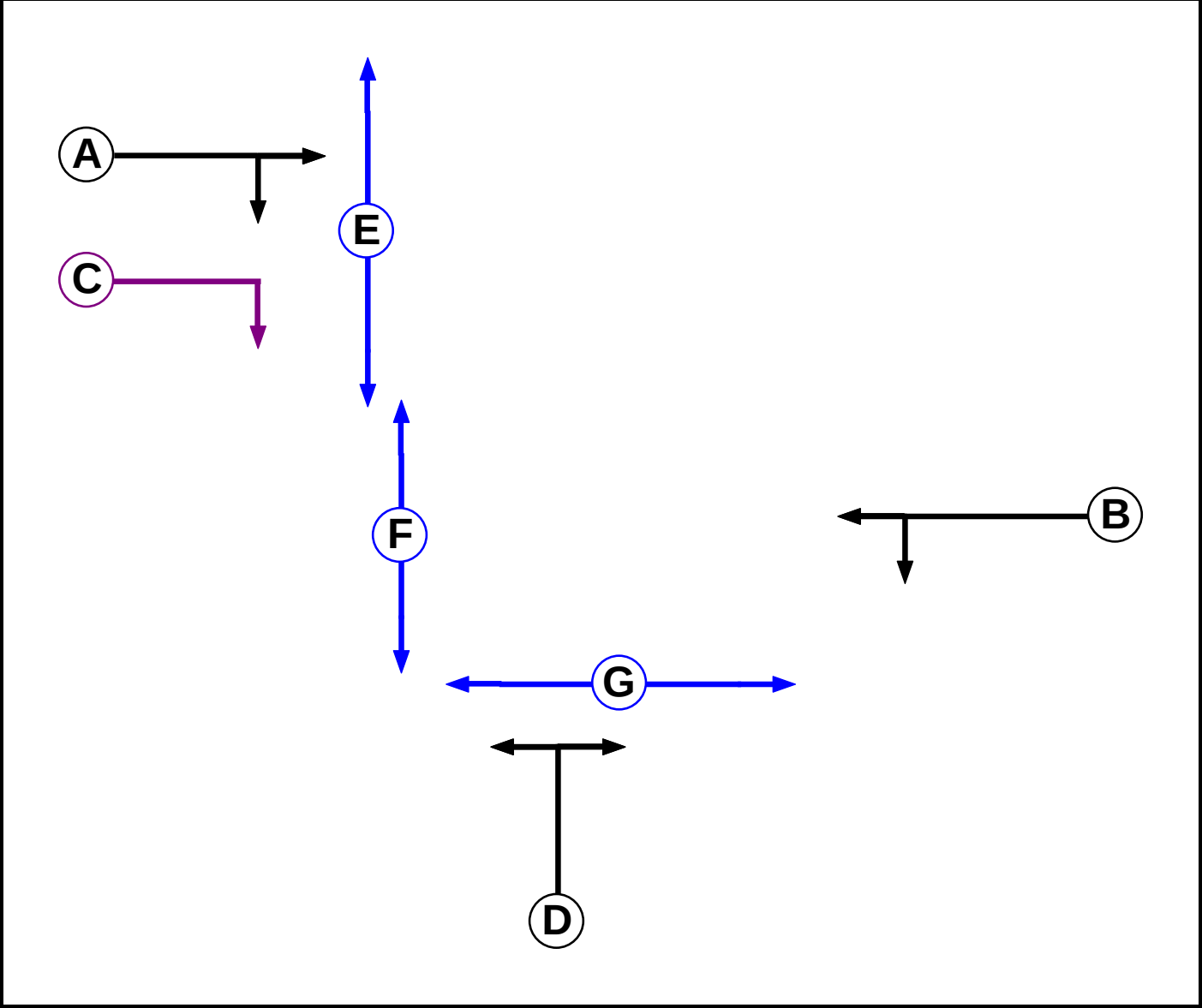
User and Project Details

Project:	Kirkby Valley Golf Club
Title:	Valley Rd/Field Ln Existing
Location:	Kirkby
Additional detail:	Original LinSig V1 model file provided by KMBC
File name:	Field Ln_Valley Rd Existing.lsg3x
Author:	D. Stoddart
Company:	Prime TP
Address:	Liverpool

Network Layout Diagram



Phase Diagram



Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		-9999	7
B	Traffic		-9999	7
C	Ind. Arrow	A	-9999	4
D	Traffic		-9999	7
E	Pedestrian		-9999	11
F	Pedestrian		-9999	8
G	Pedestrian		-9999	13

Full Input Data And Results

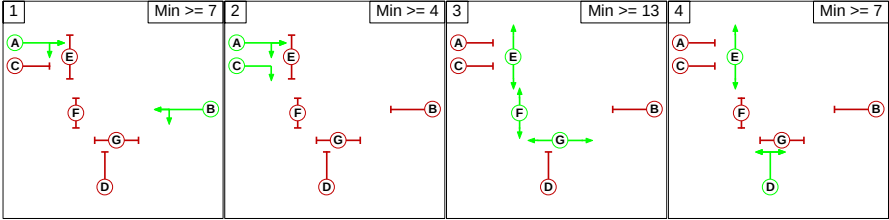
Phase Intergreens Matrix

Terminating Phase	Starting Phase							
		A	B	C	D	E	F	G
	A		-	-	8	8	12	13
	B	-		8	10	-	13	11
	C	-	6		6	5	9	10
	D	6	6	6		-	7	7
	E	9	-	9	-		-	-
	F	8	8	8	8	-		-
	G	6	6	6	6	-	-	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
3	1	F	Losing	1	1
3	1	G	Losing	3	3
3	2	F	Losing	1	1
3	2	G	Losing	3	3
3	4	G	Losing	2	2
4	1	B	Gaining absolute	9	7

Prohibited Stage Change

From Stage	To Stage				
		1	2	3	4
	1		8	13	10
	2	6		13	8
	3	9	9		8
	4	9	9	7	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Valley Rd/Field Ln Existing											
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)
1/3 (Valley Rd W)	6/1 (Right)	1439	0	2/2	1.09	All	4.50	-	0.50	5	4.50
				2/1	1.09	All					

Full Input Data And Results

Lane Input Data

Junction: Valley Rd/Field Ln Existing												
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)
1/1 (Valley Rd W)	U	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 4 Ahead	Inf
1/2 (Valley Rd W)	U	A	2	3	60.0	Geom	-	3.70	0.00	N	Arm 4 Ahead	Inf
1/3 (Valley Rd W)	O	A C	2	3	4.3	Geom	-	3.50	0.00	Y	Arm 6 Right	15.00
2/1 (Valley Rd E)	U	B	2	3	60.0	Geom	-	3.85	0.00	Y	Arm 5 Ahead	Inf
											Arm 6 Left	35.00
2/2 (Valley Rd E)	U	B	2	3	60.0	Geom	-	3.85	0.00	N	Arm 5 Ahead	Inf
3/1 (Field Ln)	U	D	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 4 Right	25.00
											Arm 5 Left	20.00
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM Obs 2020'	07:30	08:30	01:00	
2: 'PM Obs 2020'	16:30	17:30	01:00	
3: 'Sat Obs 2020'	10:00	11:00	01:00	
4: 'AM Obs 2022'	07:45	08:45	01:00	
5: 'PM Obs 2022'	16:30	17:30	01:00	
6: 'Sat Obs 2022'	13:00	14:00	01:00	
7: 'AM Without Dev 2026'	07:45	08:45	01:00	
8: 'PM Without Dev 2026'	16:30	17:30	01:00	
9: 'Sat Without Dev 2026'	13:00	14:00	01:00	
10: 'AM Without Dev 2031'	07:45	08:45	01:00	
11: 'PM Without Dev 2031'	16:30	17:30	01:00	
12: 'Sat Without Dev 2031'	13:00	14:00	01:00	

Full Input Data And Results

Scenario 1: 'AM Obs 2020' (FG1: 'AM Obs 2020', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	344	1140	1484
	B	129	0	56	185
	C	1034	33	0	1067
	Tot.	1163	377	1196	2736

Traffic Lane Flows

Lane	Scenario 1: AM Obs 2020
Junction: Valley Rd/Field Ln Existing	
1/1	496
1/2 (with short)	571(In) 538(Out)
1/3 (short)	33
2/1	702
2/2	782
3/1	185
4/1	560
4/2	603
5/1	386
5/2	810
6/1	377

Full Input Data And Results

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	51.0 % 49.0 %	1959	1959
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	69.7 % 30.3 %	1916	1916
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: 'PM Obs 2020' (FG2: 'PM Obs 2020', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	312	1119	1431
	B	84	0	39	123
	C	1161	83	0	1244
	Tot.	1245	395	1158	2798

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 2: PM Obs 2020
Junction: Valley Rd/Field Ln Existing	
1/1	569
1/2 (with short)	675(In) 592(Out)
1/3 (short)	83
2/1	675
2/2	756
3/1	123
4/1	611
4/2	634
5/1	383
5/2	775
6/1	395

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	53.8 %	1961	1961
				Arm 6 Left	35.00	46.2 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	68.3 %	1916	1916
				Arm 5 Left	20.00	31.7 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 3: 'Sat Obs 2020' (FG3: 'Sat Obs 2020', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	175	723	898
	B	65	0	58	123
	C	698	59	0	757
	Tot.	763	234	781	1778

Traffic Lane Flows

Lane	Scenario 3: Sat Obs 2020
Junction: Valley Rd/Field Ln Existing	
1/1	335
1/2 (with short)	422(In) 363(Out)
1/3 (short)	59
2/1	419
2/2	479
3/1	123
4/1	367
4/2	396
5/1	273
5/2	508
6/1	234

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	58.2 % 41.8 %	1965	1965
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	52.8 % 47.2 %	1912	1912
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: 'AM Base 2022' (FG4: 'AM Obs 2022', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin	A	B	C	Tot.	
	A	0	397	1451	1848
	B	125	0	59	184
	C	1145	37	0	1182
	Tot.	1270	434	1510	3214

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 4: AM Base 2022
Junction: Valley Rd/Field Ln Existing	
1/1	552
1/2 (with short)	630(In) 593(Out)
1/3 (short)	37
2/1	879
2/2	969
3/1	184
4/1	614
4/2	656
5/1	512
5/2	998
6/1	434

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.8 %	1962	1962
				Arm 6 Left	35.00	45.2 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	67.9 %	1916	1916
				Arm 5 Left	20.00	32.1 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 5: 'PM Base 2022' (FG5: 'PM Obs 2022', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	298	1078	1376
	B	104	0	40	144
	C	1273	79	0	1352
	Tot.	1377	377	1118	2872

Traffic Lane Flows

Lane	Scenario 5: PM Base 2022
Junction: Valley Rd/Field Ln Existing	
1/1	625
1/2 (with short)	727(In) 648(Out)
1/3 (short)	79
2/1	648
2/2	728
3/1	144
4/1	677
4/2	700
5/1	370
5/2	748
6/1	377

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	54.0 % 46.0 %	1961	1961
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	72.2 % 27.8 %	1917	1917
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: 'Sat Base 2022' (FG6: 'Sat Obs 2022', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	228	827	1055
	B	82	0	42	124
	C	981	72	0	1053
	Tot.	1063	300	869	2232

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 6: Sat Base 2022
Junction: Valley Rd/Field Ln Existing	
1/1	477
1/2 (with short)	576(In) 504(Out)
1/3 (short)	72
2/1	494
2/2	561
3/1	124
4/1	518
4/2	545
5/1	287
5/2	582
6/1	300

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	53.8 %	1961	1961
				Arm 6 Left	35.00	46.2 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	66.1 %	1915	1915
				Arm 5 Left	20.00	33.9 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 7: 'AM Without Dev 2026' (FG7: 'AM Without Dev 2026', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	415	1533	1948
	B	131	0	62	193
	C	1203	39	0	1242
	Tot.	1334	454	1595	3383

Traffic Lane Flows

Lane	Scenario 7: AM Without Dev 2026
Junction: Valley Rd/Field Ln Existing	
1/1	581
1/2 (with short)	661(In) 622(Out)
1/3 (short)	39
2/1	928
2/2	1020
3/1	193
4/1	646
4/2	688
5/1	544
5/2	1051
6/1	454

Full Input Data And Results

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	55.3 % 44.7 %	1962	1962
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	67.9 % 32.1 %	1916	1916
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 8: 'PM Without Dev 2026' (FG8: 'PM Without Dev 2026', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	312	1140	1452
	B	109	0	42	151
	C	1339	83	0	1422
	Tot.	1448	395	1182	3025

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 8: PM Without Dev 2026
Junction: Valley Rd/Field Ln Existing	
1/1	659
1/2 (with short)	763(In) 680(Out)
1/3 (short)	83
2/1	685
2/2	767
3/1	151
4/1	713
4/2	735
5/1	394
5/2	788
6/1	395

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.5 %	1962	1962
				Arm 6 Left	35.00	45.5 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	72.2 %	1917	1917
				Arm 5 Left	20.00	27.8 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 9: 'Sat Without Dev 2026' (FG9: 'Sat Without Dev 2026', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	239	875	1114
	B	86	0	44	130
	C	1029	75	0	1104
	Tot.	1115	314	919	2348

Traffic Lane Flows

Lane	Scenario 9: Sat Without Dev 2026
Junction: Valley Rd/Field Ln Existing	
1/1	501
1/2 (with short)	603(In) 528(Out)
1/3 (short)	75
2/1	523
2/2	591
3/1	130
4/1	544
4/2	571
5/1	306
5/2	613
6/1	314

Full Input Data And Results

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	54.3 % 45.7 %	1962	1962
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	66.2 % 33.8 %	1915	1915
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 10: 'AM Without Dev 2031' (FG10: 'AM Without Dev 2031', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	429	1582	2011
	B	135	0	64	199
	C	1244	40	0	1284
	Tot.	1379	469	1646	3494

Full Input Data And Results

Traffic Lane Flows

Lane	Scenario 10: AM Without Dev 2031
Junction: Valley Rd/Field Ln Existing	
1/1	601
1/2 (with short)	683(In) 643(Out)
1/3 (short)	40
2/1	959
2/2	1052
3/1	199
4/1	668
4/2	711
5/1	562
5/2	1084
6/1	469

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	55.3 %	1962	1962
				Arm 6 Left	35.00	44.7 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	67.8 %	1916	1916
				Arm 5 Left	20.00	32.2 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 11: 'PM Without Dev 2031' (FG11: 'PM Without Dev 2031', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
Origin		A	B	C	Tot.
	A	0	320	1171	1491
	B	112	0	43	155
	C	1377	85	0	1462
	Tot.	1489	405	1214	3108

Traffic Lane Flows

Lane	Scenario 11: PM Without Dev 2031
Junction: Valley Rd/Field Ln Existing	
1/1	679
1/2 (with short)	783(In) 698(Out)
1/3 (short)	85
2/1	704
2/2	787
3/1	155
4/1	735
4/2	754
5/1	406
5/2	808
6/1	405

Full Input Data And Results

Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead Arm 6 Left	Inf 35.00	54.5 % 45.5 %	1962	1962
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right Arm 5 Left	25.00 20.00	72.3 % 27.7 %	1917	1917
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Scenario 12: 'Sat Without Dev 2031' (FG12: 'Sat Without Dev 2031', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination				
	A	B	C	Tot.	
Origin	A	0	247	906	1153
	B	89	0	46	135
	C	1066	78	0	1144
	Tot.	1155	325	952	2432

Traffic Lane Flows

Lane	Scenario 12: Sat Without Dev 2031
Junction: Valley Rd/Field Ln Existing	
1/1	520
1/2 (with short)	624(In) 546(Out)
1/3 (short)	78
2/1	542
2/2	611
3/1	135
4/1	564
4/2	591
5/1	318
5/2	634
6/1	325

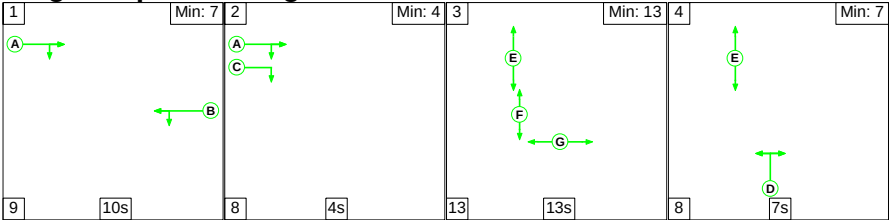
Lane Saturation Flows

Junction: Valley Rd/Field Ln Existing								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	100.0 %	1990	1990
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.4 %	1962	1962
				Arm 6 Left	35.00	45.6 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	65.9 %	1915	1915
				Arm 5 Left	20.00	34.1 %		
4/1	Infinite Saturation Flow						Inf	Inf
4/2	Infinite Saturation Flow						Inf	Inf
5/1	Infinite Saturation Flow						Inf	Inf
5/2	Infinite Saturation Flow						Inf	Inf
6/1	Infinite Saturation Flow						Inf	Inf

Full Input Data And Results

Scenario 1: 'AM Obs 2020' (FG1: 'AM Obs 2020', Plan 1: 'Full Cycle')

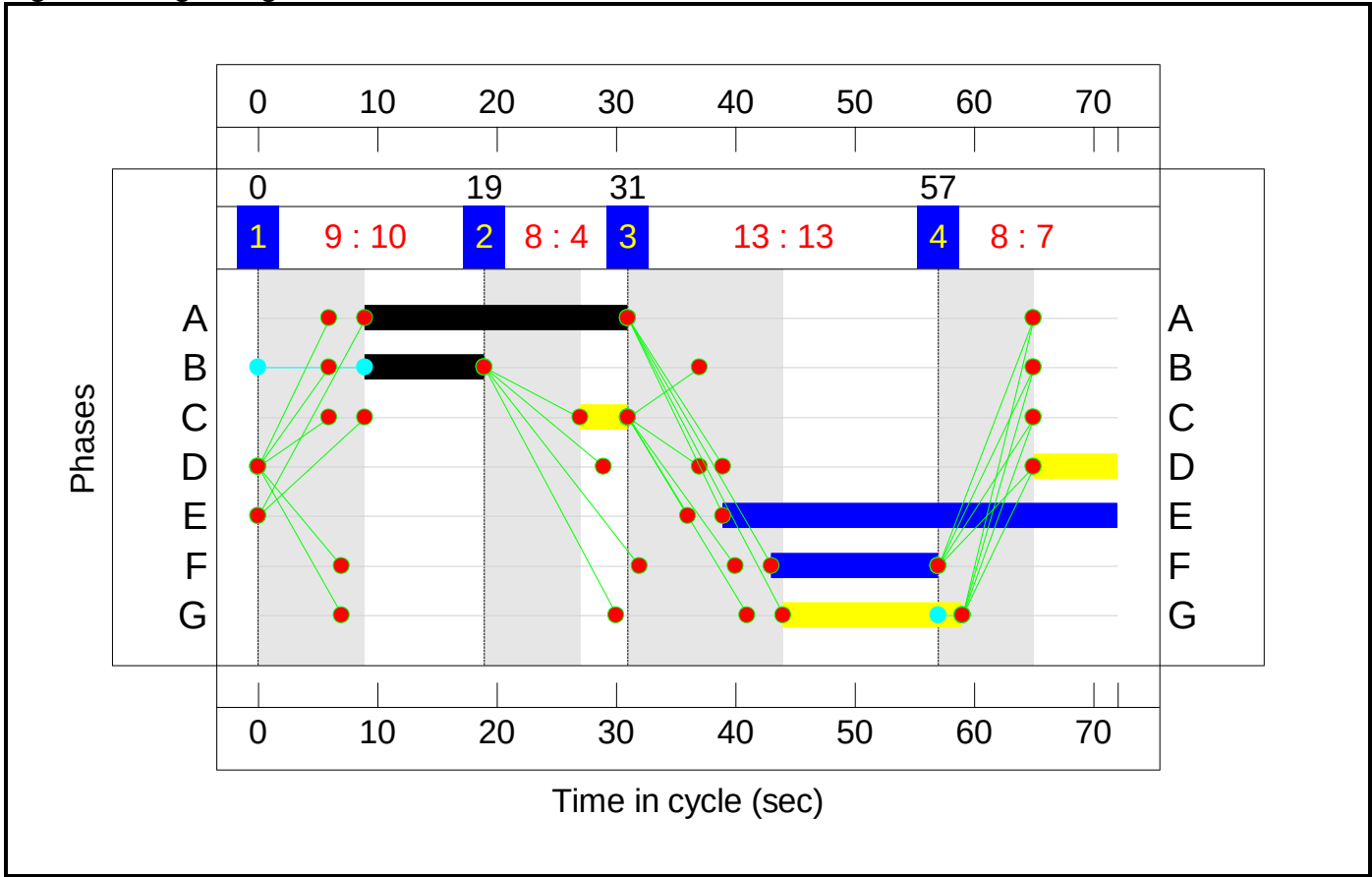
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	10	4	13	7
Change Point	0	19	31	57

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	77.4%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	77.4%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	22	-	496	1990	1271	39.0%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	22	4	571	2125:1786	1280+79	42.0 : 42.0%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	10	-	702	1959	925	75.9%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	10	-	782	2140	1011	77.4%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	185	1916	825	22.4%
4/1		U	N/A	N/A	-		-	-	-	560	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	603	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	386	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	810	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%

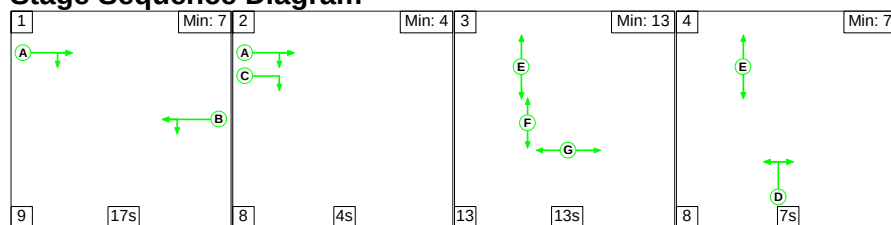
Full Input Data And Results

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Full Input Data And Results

Scenario 2: 'PM Obs 2020' (FG2: 'PM Obs 2020', Plan 1: 'Full Cycle')

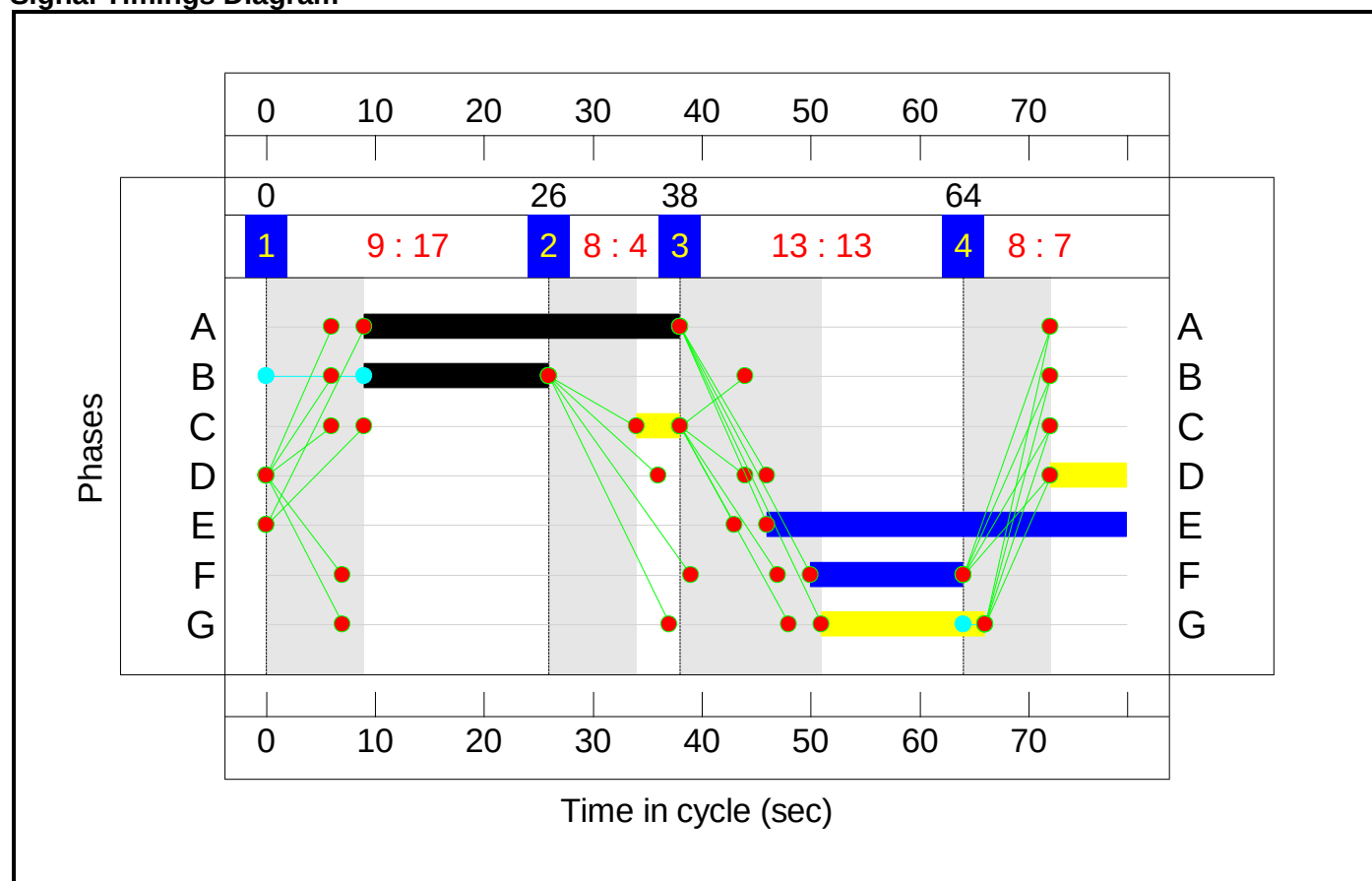
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	64.9%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	64.9%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	569	1990	1385	41.1%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	675	2125:1786	1296+182	45.7 : 45.7%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	675	1961	1067	63.2%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	756	2140	1165	64.9%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	123	1916	800	15.4%
4/1		U	N/A	N/A	-		-	-	-	611	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	634	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	383	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	775	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%

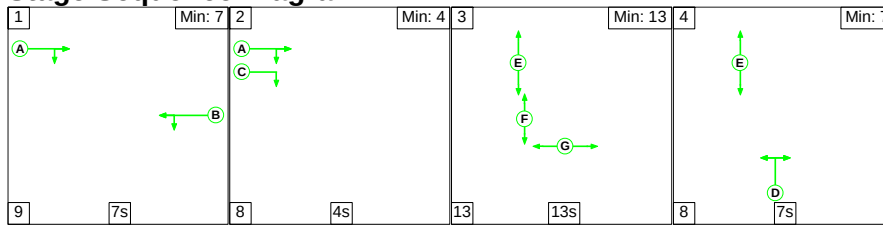
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	78	5	7.2	2.6	0.5	10.4	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	78	5	7.2	2.6	0.5	10.4	-	-	-	-
1/1	569	569	-	-	-	0.8	0.3	-	1.2	7.3	5.2	0.3	5.6
1/2+1/3	675	675	0	78	5	0.9	0.4	0.5	1.9	10.0	5.6	0.4	6.0
2/1	675	675	-	-	-	2.3	0.9	-	3.2	17.1	10.1	0.9	11.0
2/2	756	756	-	-	-	2.7	0.9	-	3.6	17.1	11.6	0.9	12.5
3/1	123	123	-	-	-	0.5	0.1	-	0.6	17.0	1.7	0.1	1.8
4/1	611	611	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	634	634	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	383	383	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	775	775	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 38.7 Total Delay for Signalled Lanes (pcuHr): 10.40 Cycle Time (s): 79 PRC Over All Lanes (%): 38.7 Total Delay Over All Lanes(pcuHr): 10.40													

Full Input Data And Results

Scenario 3: 'Sat Obs 2020' (FG3: 'Sat Obs 2020', Plan 1: 'Full Cycle')

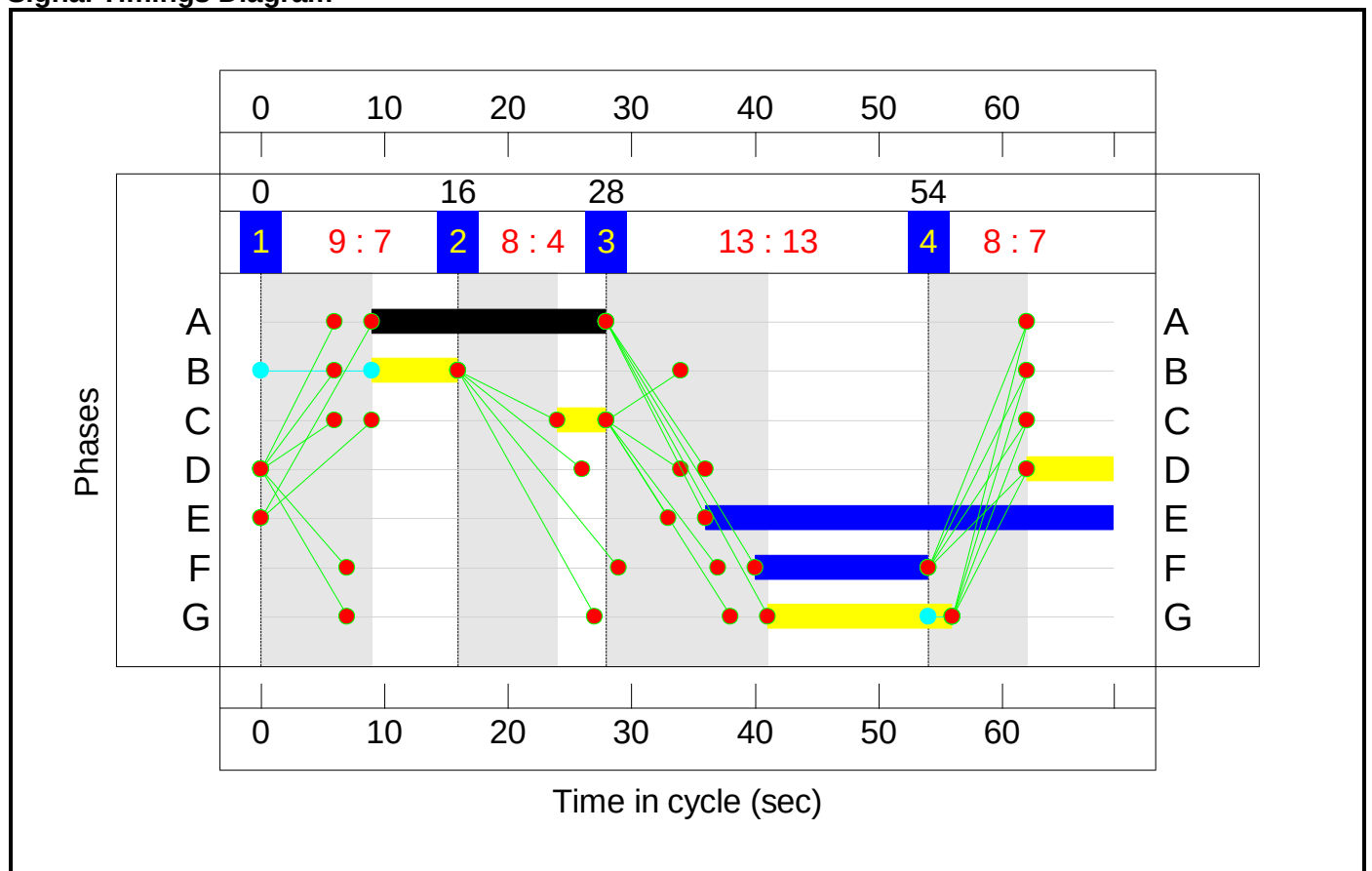
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	46.8%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	46.8%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	19	-	335	1990	1298	25.8%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	422	2125:1786	1198+195	30.3 : 30.3%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	419	1965	940	44.6%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	7	-	479	2140	1023	46.8%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	123	1912	914	13.5%
4/1		U	N/A	N/A	-		-	-	-	367	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	396	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	273	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	508	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	234	Inf	Inf	0.0%

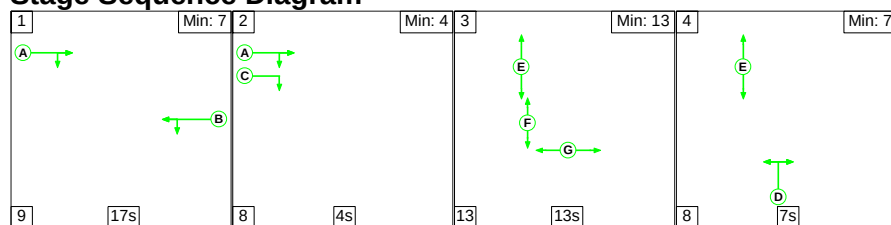
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	46	9	4	4.4	1.3	0.1	5.8	-	-	-	-
Valley Rd/Field Ln Existing	-	-	46	9	4	4.4	1.3	0.1	5.8	-	-	-	-
1/1	335	335	-	-	-	0.5	0.2	-	0.6	6.9	2.6	0.2	2.8
1/2+1/3	422	422	46	9	4	0.6	0.2	0.1	0.9	7.4	2.8	0.2	3.0
2/1	419	419	-	-	-	1.4	0.4	-	1.8	15.4	5.2	0.4	5.6
2/2	479	479	-	-	-	1.6	0.4	-	2.0	15.4	6.1	0.4	6.6
3/1	123	123	-	-	-	0.3	0.1	-	0.4	12.3	1.3	0.1	1.4
4/1	367	367	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	396	396	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	273	273	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	508	508	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	234	234	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 92.3 Total Delay for Signalled Lanes (pcuHr): 5.77 Cycle Time (s): 69 PRC Over All Lanes (%): 92.3 Total Delay Over All Lanes(pcuHr): 5.77													

Full Input Data And Results

Scenario 4: 'AM Base 2022' (FG4: 'AM Obs 2022', Plan 1: 'Full Cycle')

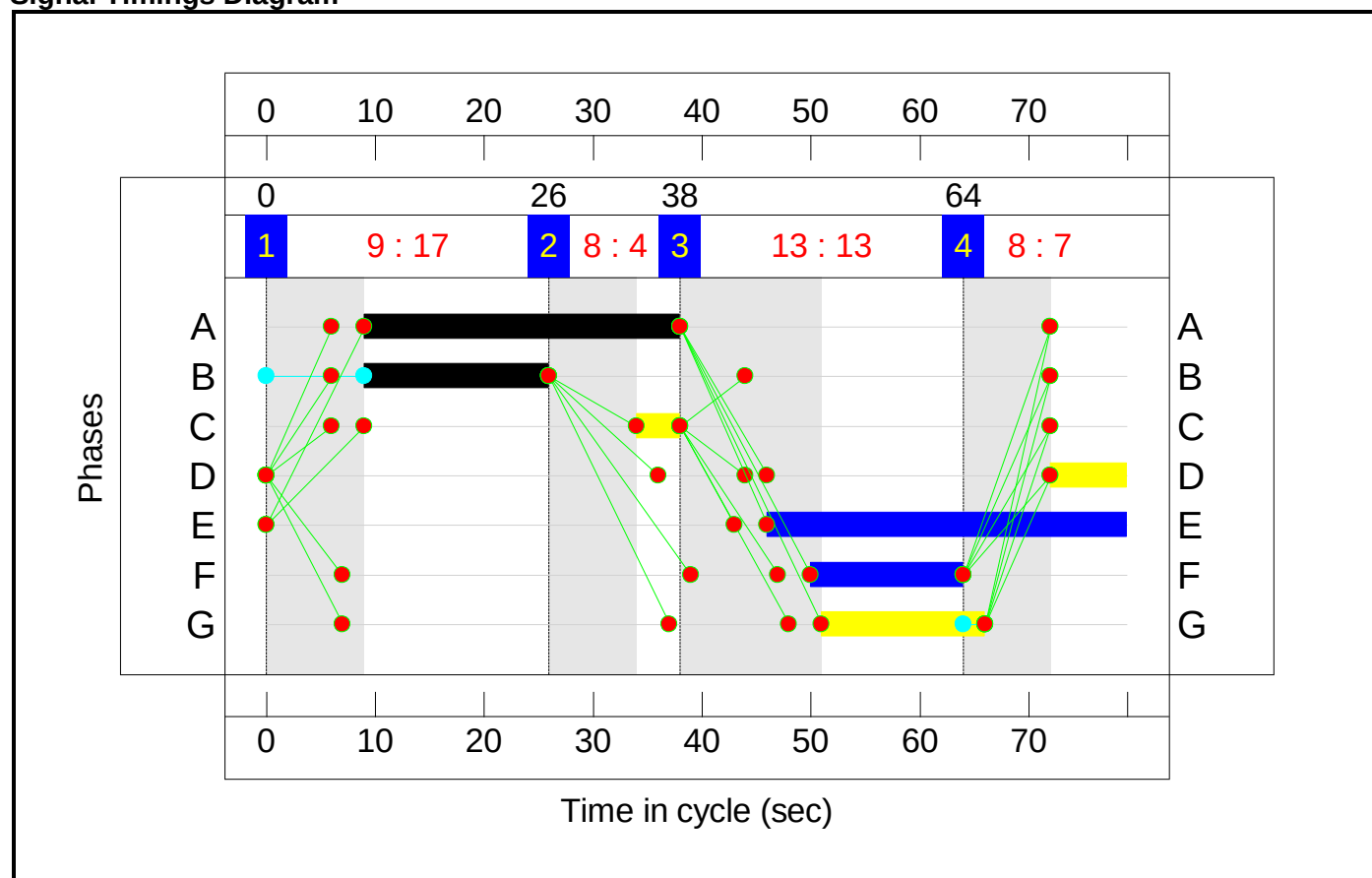
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	87.2%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	87.2%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	552	1990	1335	41.3%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	630	2125:1786	1341+84	44.2 : 44.2%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	879	1962	1018	86.3%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	969	2140	1111	87.2%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	184	1916	752	24.5%
4/1		U	N/A	N/A	-		-	-	-	614	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	656	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	512	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	998	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	434	Inf	Inf	0.0%

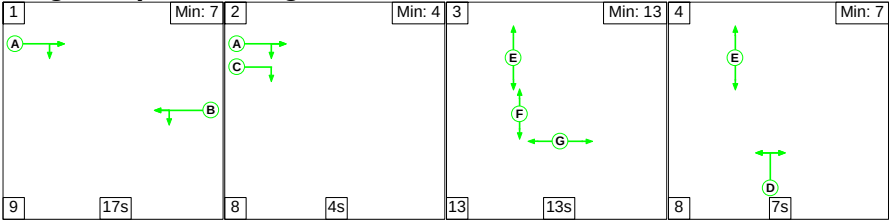
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	35	2	11.3	7.2	0.2	18.7	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	35	2	11.3	7.2	0.2	18.7	-	-	-	-
1/1	552	552	-	-	-	0.9	0.4	-	1.3	8.2	5.4	0.4	5.7
1/2+1/3	630	630	0	35	2	1.0	0.4	0.2	1.6	9.4	6.0	0.4	6.4
2/1	879	879	-	-	-	4.0	3.0	-	7.1	28.9	16.6	3.0	19.6
2/2	969	969	-	-	-	4.5	3.3	-	7.8	28.9	18.6	3.3	21.8
3/1	184	184	-	-	-	0.8	0.2	-	1.0	19.3	2.7	0.2	2.9
4/1	614	614	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	656	656	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	512	512	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	998	998	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	434	434	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 3.2 Total Delay for Signalled Lanes (pcuHr): 18.73 Cycle Time (s): 79 PRC Over All Lanes (%): 3.2 Total Delay Over All Lanes(pcuHr): 18.73													

Full Input Data And Results

Scenario 5: 'PM Base 2022' (FG5: 'PM Obs 2022', Plan 1: 'Full Cycle')

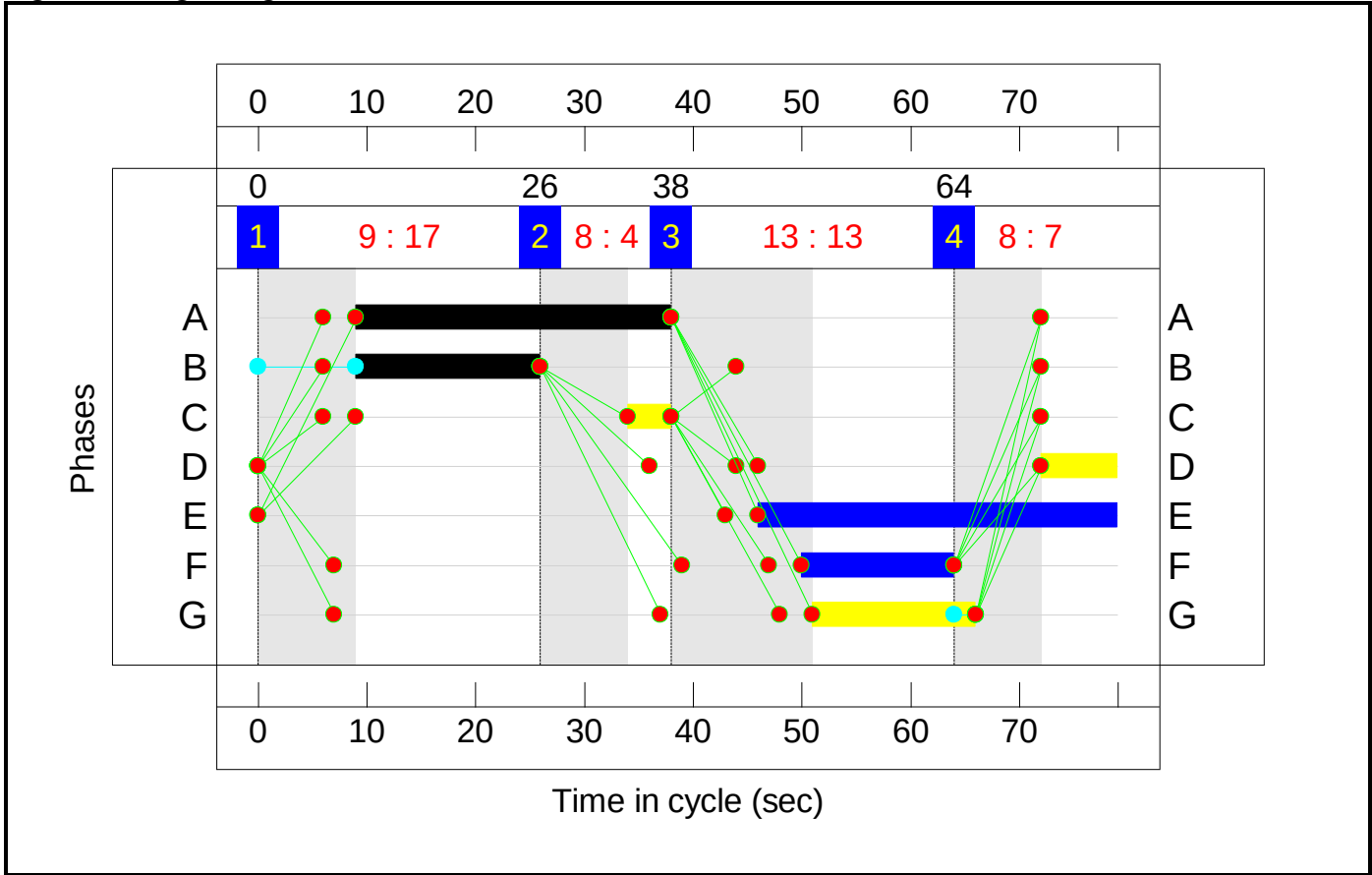
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	62.5%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	62.5%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	625	1990	1385	45.1%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	727	2125:1786	1317+161	49.2 : 49.2%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	648	1961	1067	60.7%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	728	2140	1165	62.5%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	144	1917	801	18.0%
4/1		U	N/A	N/A	-		-	-	-	677	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	700	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	370	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	748	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%

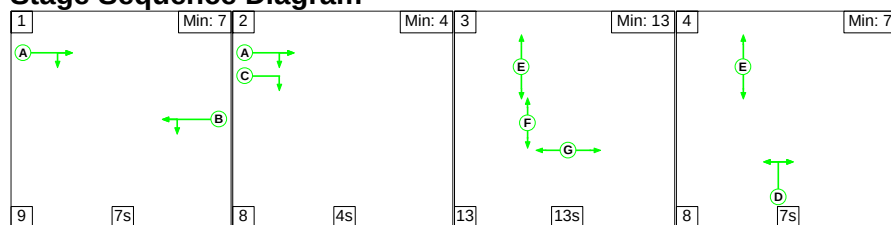
Full Input Data And Results

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Full Input Data And Results

Scenario 6: 'Sat Base 2022' (FG6: 'Sat Obs 2022', Plan 1: 'Full Cycle')

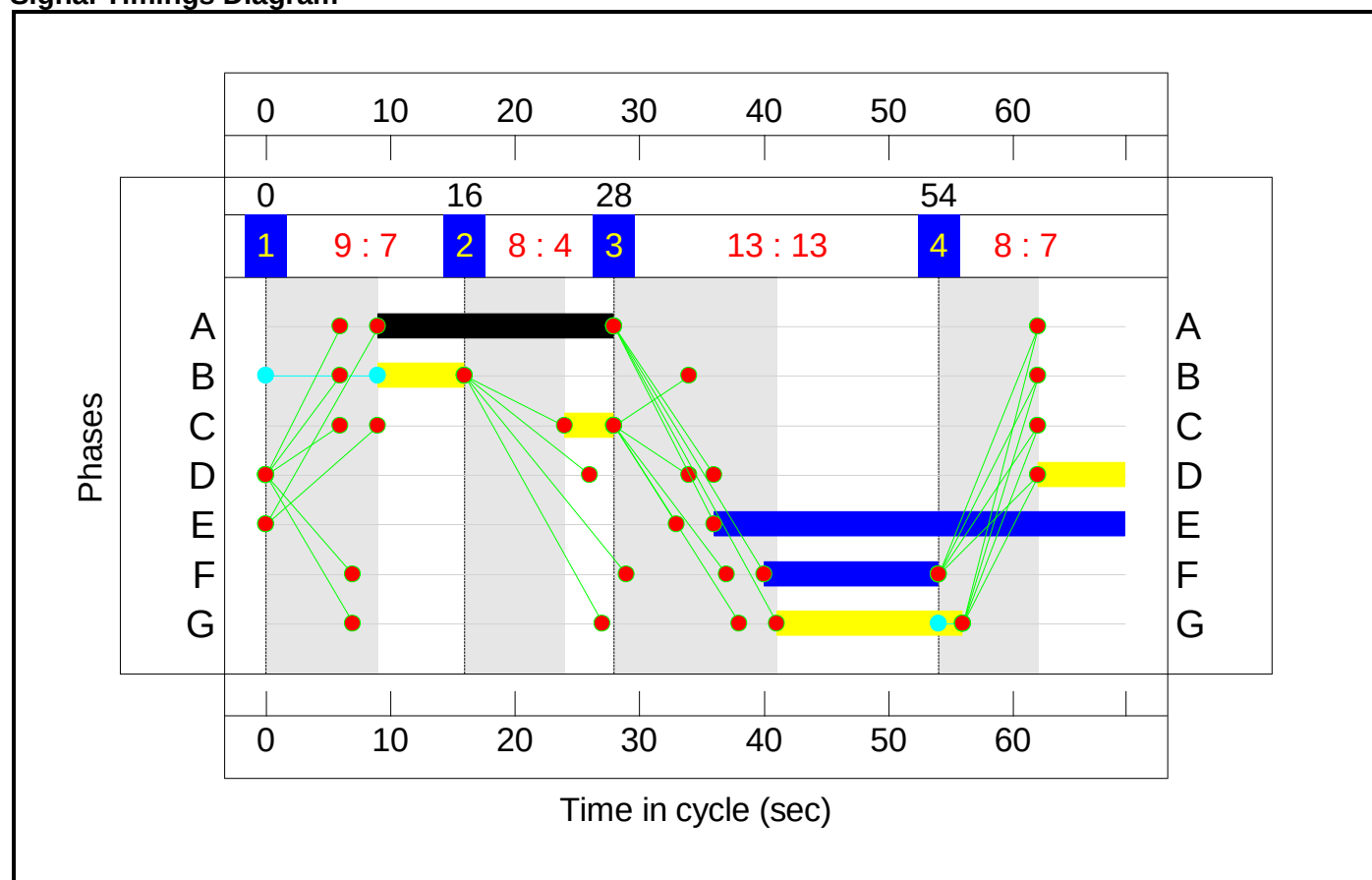
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	54.8%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	54.8%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	19	-	477	1990	1298	36.8%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	576	2125:1786	1218+174	41.4 : 41.4%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	494	1961	938	52.7%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	7	-	561	2140	1023	54.8%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	124	1915	916	13.5%
4/1		U	N/A	N/A	-		-	-	-	518	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	545	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	287	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	582	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	300	Inf	Inf	0.0%

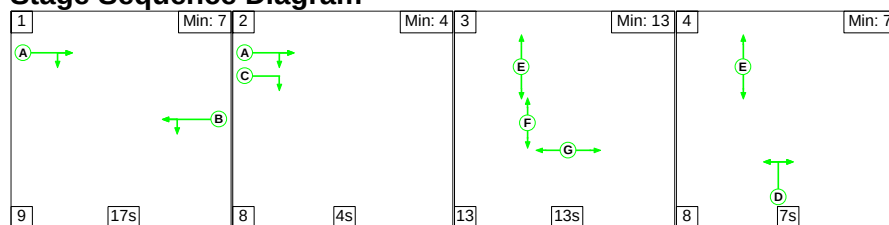
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	56	10	5	5.6	1.9	0.1	7.7	-	-	-	-
Valley Rd/Field Ln Existing	-	-	56	10	5	5.6	1.9	0.1	7.7	-	-	-	-
1/1	477	477	-	-	-	0.7	0.3	-	1.0	7.7	4.1	0.3	4.4
1/2+1/3	576	576	56	10	5	0.9	0.4	0.1	1.3	8.4	4.5	0.4	4.8
2/1	494	494	-	-	-	1.7	0.6	-	2.3	16.6	6.6	0.6	7.1
2/2	561	561	-	-	-	2.0	0.6	-	2.6	16.6	7.5	0.6	8.1
3/1	124	124	-	-	-	0.3	0.1	-	0.4	12.3	1.3	0.1	1.4
4/1	518	518	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	545	545	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	287	287	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	582	582	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	300	300	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 64.2 Total Delay for Signalled Lanes (pcuHr): 7.65 Cycle Time (s): 69 PRC Over All Lanes (%): 64.2 Total Delay Over All Lanes(pcuHr): 7.65													

Full Input Data And Results

Scenario 7: 'AM Without Dev 2026' (FG7: 'AM Without Dev 2026', Plan 1: 'Full Cycle')

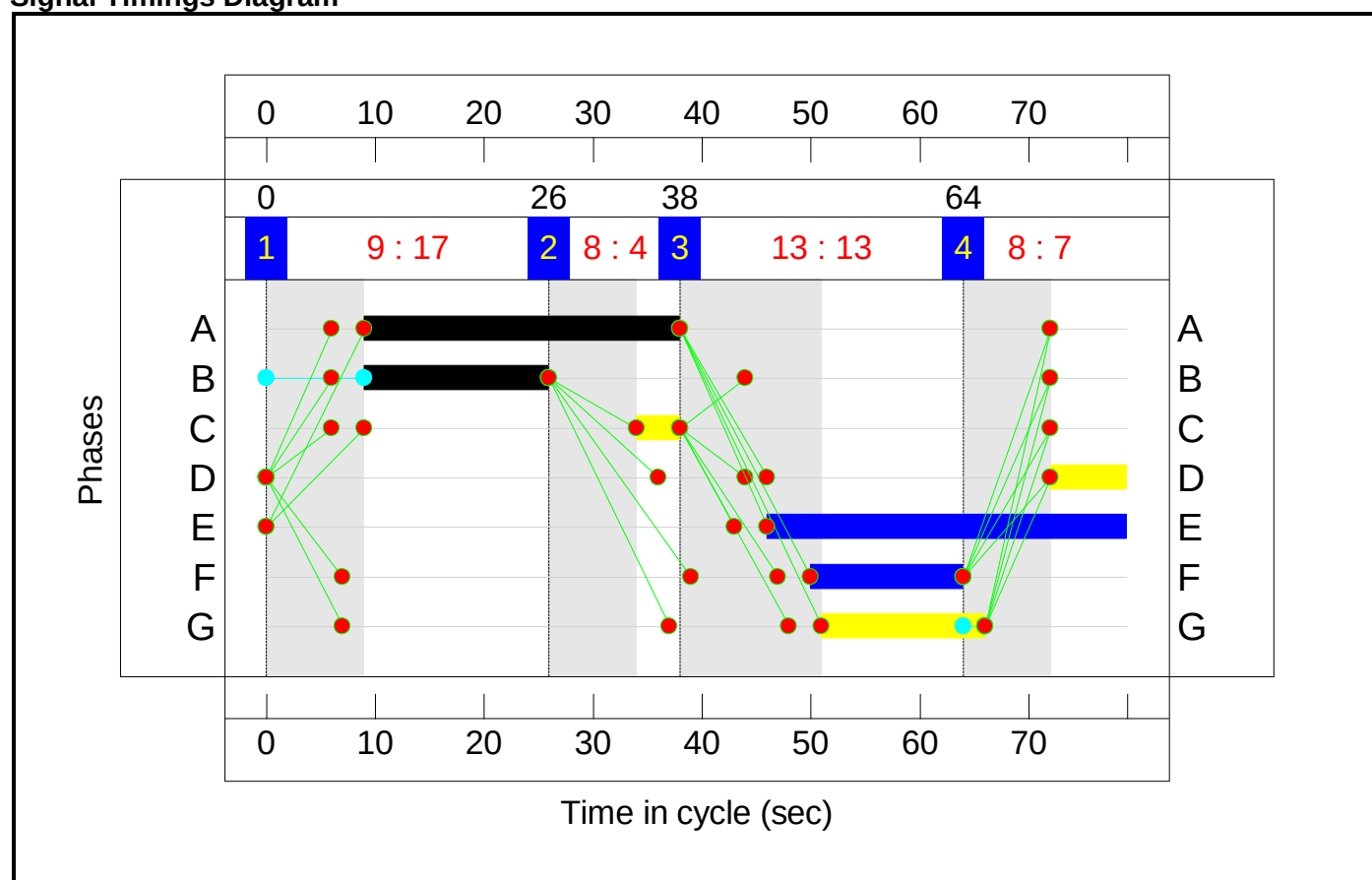
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings Diagram



Full Input Data And Results

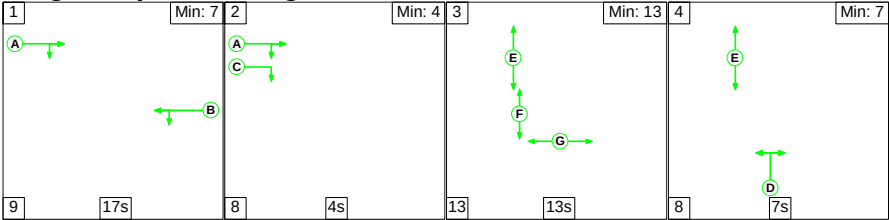
Network Results

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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	91.8%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	91.8%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	581	1990	1335	43.5%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	661	2125:1786	1340+84	46.4 : 46.4%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	928	1962	1018	91.1%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	1020	2140	1111	91.8%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	193	1916	752	25.7%
4/1		U	N/A	N/A	-		-	-	-	646	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	688	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	544	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	1051	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%

Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	37	2	12.4	10.7	0.2	23.3	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	37	2	12.4	10.7	0.2	23.3	-	-	-	-
1/1	581	581	-	-	-	1.0	0.4	-	1.4	8.4	5.8	0.4	6.2
1/2+1/3	661	661	0	37	2	1.1	0.4	0.2	1.8	9.6	6.5	0.4	7.0
2/1	928	928	-	-	-	4.5	4.7	-	9.1	35.4	18.6	4.7	23.2
2/2	1020	1020	-	-	-	4.9	5.1	-	10.0	35.3	20.4	5.1	25.5
3/1	193	193	-	-	-	0.9	0.2	-	1.0	19.4	2.8	0.2	3.0
4/1	646	646	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	688	688	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	544	544	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	1051	1051	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	454	454	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -2.0 Total Delay for Signalled Lanes (pcuHr): 23.31 Cycle Time (s): 79 PRC Over All Lanes (%): -2.0 Total Delay Over All Lanes(pcuHr): 23.31													

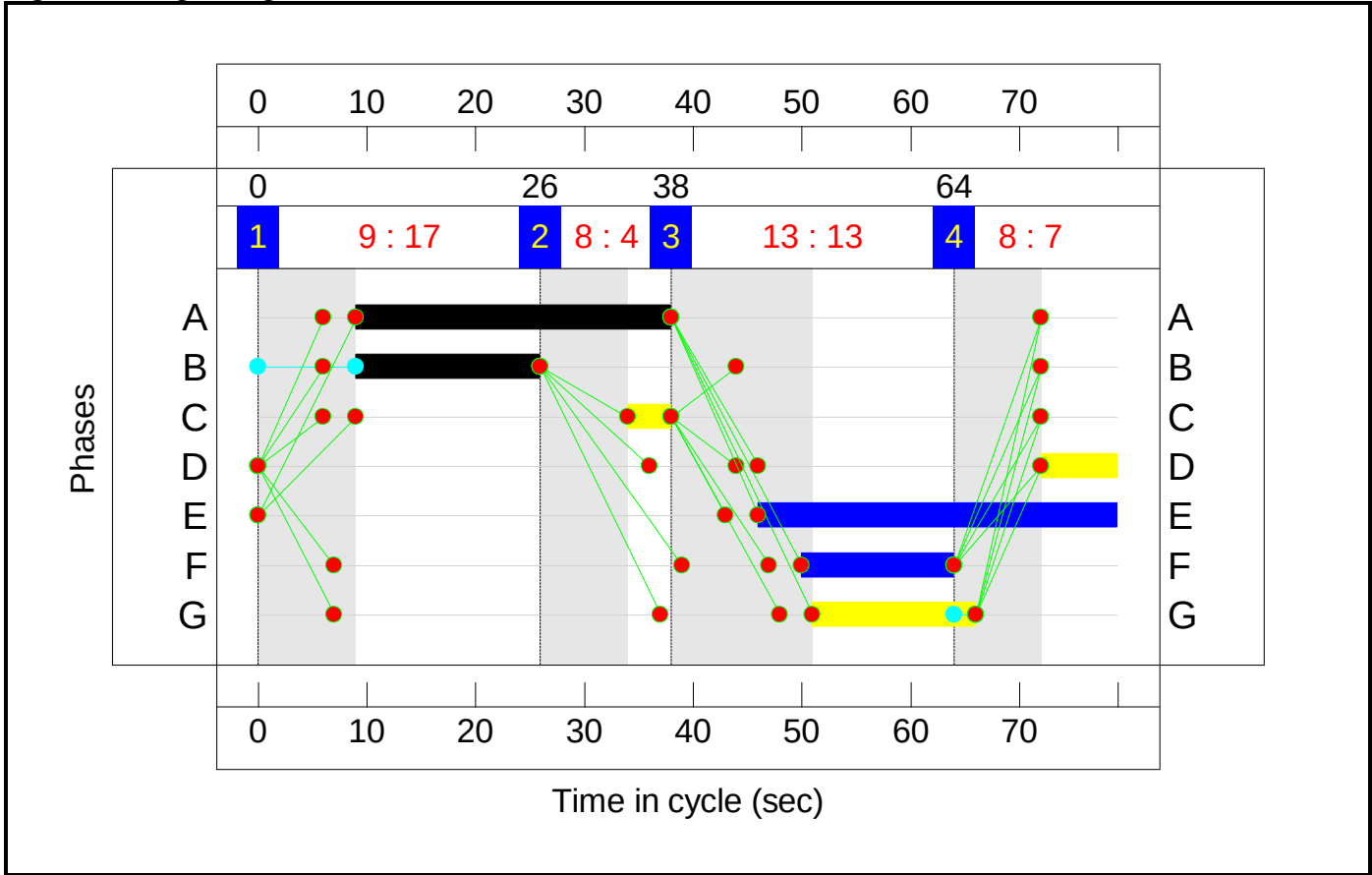
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	65.8%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	65.8%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	659	1990	1385	47.6%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	763	2125:1786	1317+161	51.6 : 51.6%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	685	1962	1068	64.1%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	767	2140	1165	65.8%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	151	1917	801	18.9%
4/1		U	N/A	N/A	-		-	-	-	713	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	735	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	394	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	788	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%

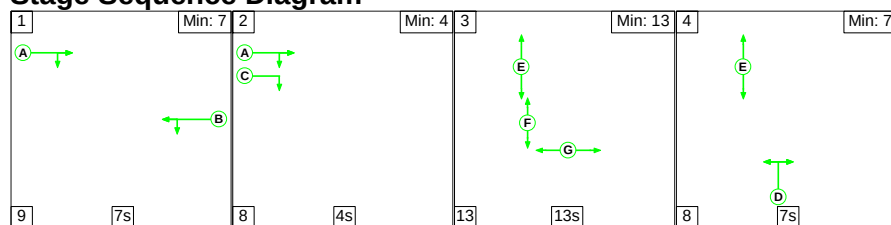
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	78	5	7.9	3.0	0.5	11.3	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	78	5	7.9	3.0	0.5	11.3	-	-	-	-
1/1	659	659	-	-	-	1.0	0.5	-	1.5	7.9	6.4	0.5	6.9
1/2+1/3	763	763	0	78	5	1.1	0.5	0.5	2.2	10.3	7.1	0.5	7.6
2/1	685	685	-	-	-	2.4	0.9	-	3.3	17.3	10.5	0.9	11.4
2/2	767	767	-	-	-	2.7	1.0	-	3.7	17.3	11.9	1.0	12.9
3/1	151	151	-	-	-	0.6	0.1	-	0.7	17.3	2.1	0.1	2.2
4/1	713	713	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	735	735	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	394	394	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	788	788	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 36.7 Total Delay for Signalled Lanes (pcuHr): 11.33 Cycle Time (s): 79 PRC Over All Lanes (%): 36.7 Total Delay Over All Lanes(pcuHr): 11.33													

Full Input Data And Results

Scenario 9: 'Sat Without Dev 2026' (FG9: 'Sat Without Dev 2026', Plan 1: 'Full Cycle')

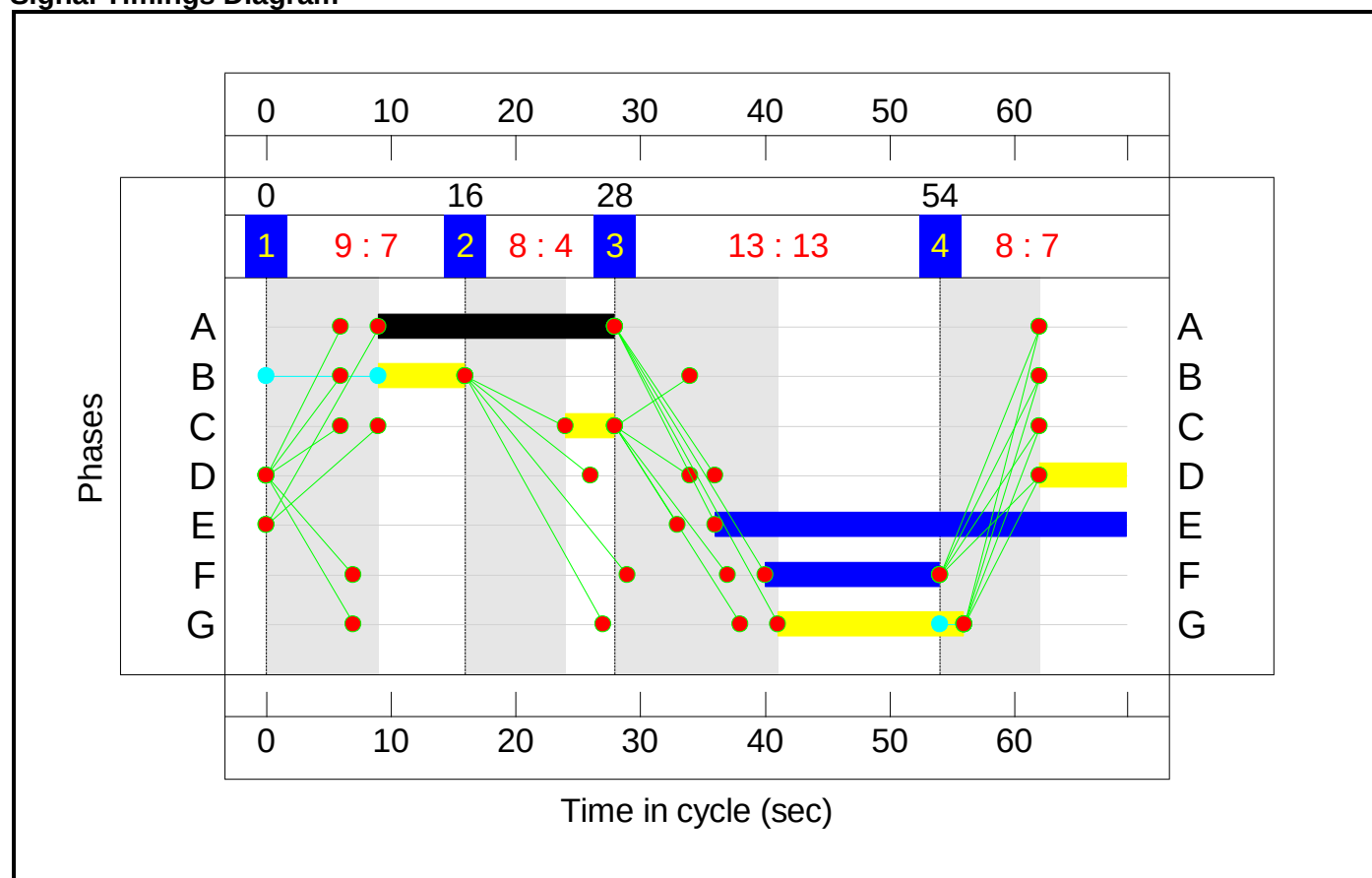
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings Diagram



Full Input Data And Results

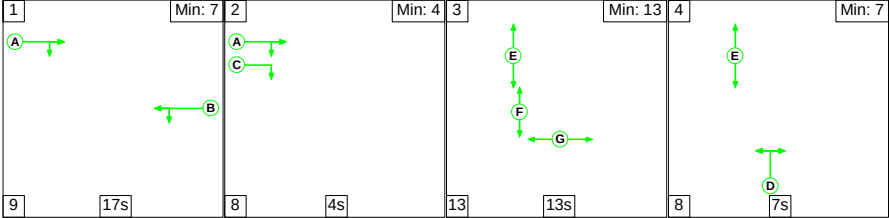
Network Results

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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	57.7%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	57.7%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	19	-	501	1990	1298	38.6%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	603	2125:1786	1218+173	43.3 : 43.3%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	523	1962	938	55.7%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	7	-	591	2140	1023	57.7%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	130	1915	916	14.2%
4/1		U	N/A	N/A	-		-	-	-	544	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	571	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	306	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	613	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%

Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	59	11	5	6.0	2.1	0.2	8.3	-	-	-	-
Valley Rd/Field Ln Existing	-	-	59	11	5	6.0	2.1	0.2	8.3	-	-	-	-
1/1	501	501	-	-	-	0.8	0.3	-	1.1	7.8	4.5	0.3	4.8
1/2+1/3	603	603	59	11	5	0.9	0.4	0.2	1.5	8.8	4.8	0.4	5.2
2/1	523	523	-	-	-	1.9	0.6	-	2.5	17.1	7.1	0.6	7.7
2/2	591	591	-	-	-	2.1	0.7	-	2.8	17.1	8.0	0.7	8.7
3/1	130	130	-	-	-	0.4	0.1	-	0.4	12.4	1.4	0.1	1.5
4/1	544	544	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	571	571	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	306	306	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	613	613	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	314	314	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 55.9 Total Delay for Signalled Lanes (pcuHr): 8.31 Cycle Time (s): 69 PRC Over All Lanes (%): 55.9 Total Delay Over All Lanes(pcuHr): 8.31													

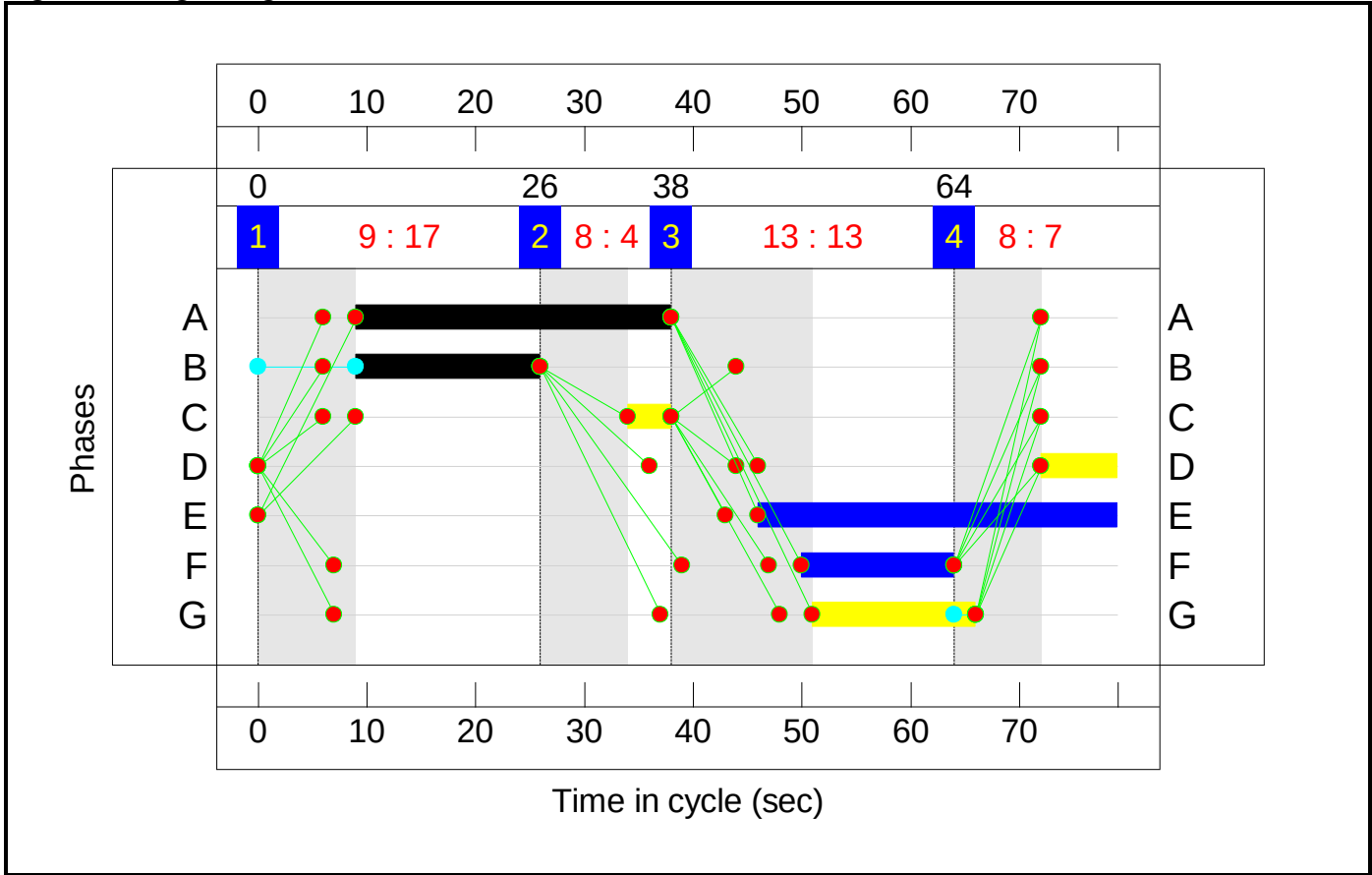
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	94.7%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	94.7%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	601	1990	1335	45.0%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	683	2125:1786	1341+83	48.0 : 48.0%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	959	1962	1018	94.2%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	1052	2140	1111	94.7%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	199	1916	752	26.5%
4/1		U	N/A	N/A	-		-	-	-	668	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	711	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	562	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	1084	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%

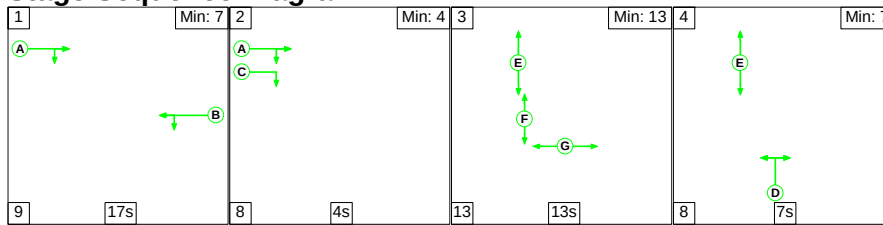
Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	37	3	13.1	14.9	0.2	28.2	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	37	3	13.1	14.9	0.2	28.2	-	-	-	-
1/1	601	601	-	-	-	1.0	0.4	-	1.4	8.6	6.2	0.4	6.6
1/2+1/3	683	683	0	37	3	1.2	0.5	0.2	1.9	9.8	6.8	0.5	7.2
2/1	959	959	-	-	-	4.8	6.6	-	11.4	42.7	19.7	6.6	26.3
2/2	1052	1052	-	-	-	5.3	7.2	-	12.5	42.6	21.6	7.2	28.8
3/1	199	199	-	-	-	0.9	0.2	-	1.1	19.5	2.9	0.2	3.1
4/1	668	668	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	711	711	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	562	562	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	1084	1084	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	469	469	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): -5.2 Total Delay for Signalled Lanes (pcuHr): 28.20 Cycle Time (s): 79 PRC Over All Lanes (%): -5.2 Total Delay Over All Lanes(pcuHr): 28.20													

Full Input Data And Results

Scenario 11: 'PM Without Dev 2031' (FG11: 'PM Without Dev 2031', Plan 1: 'Full Cycle')

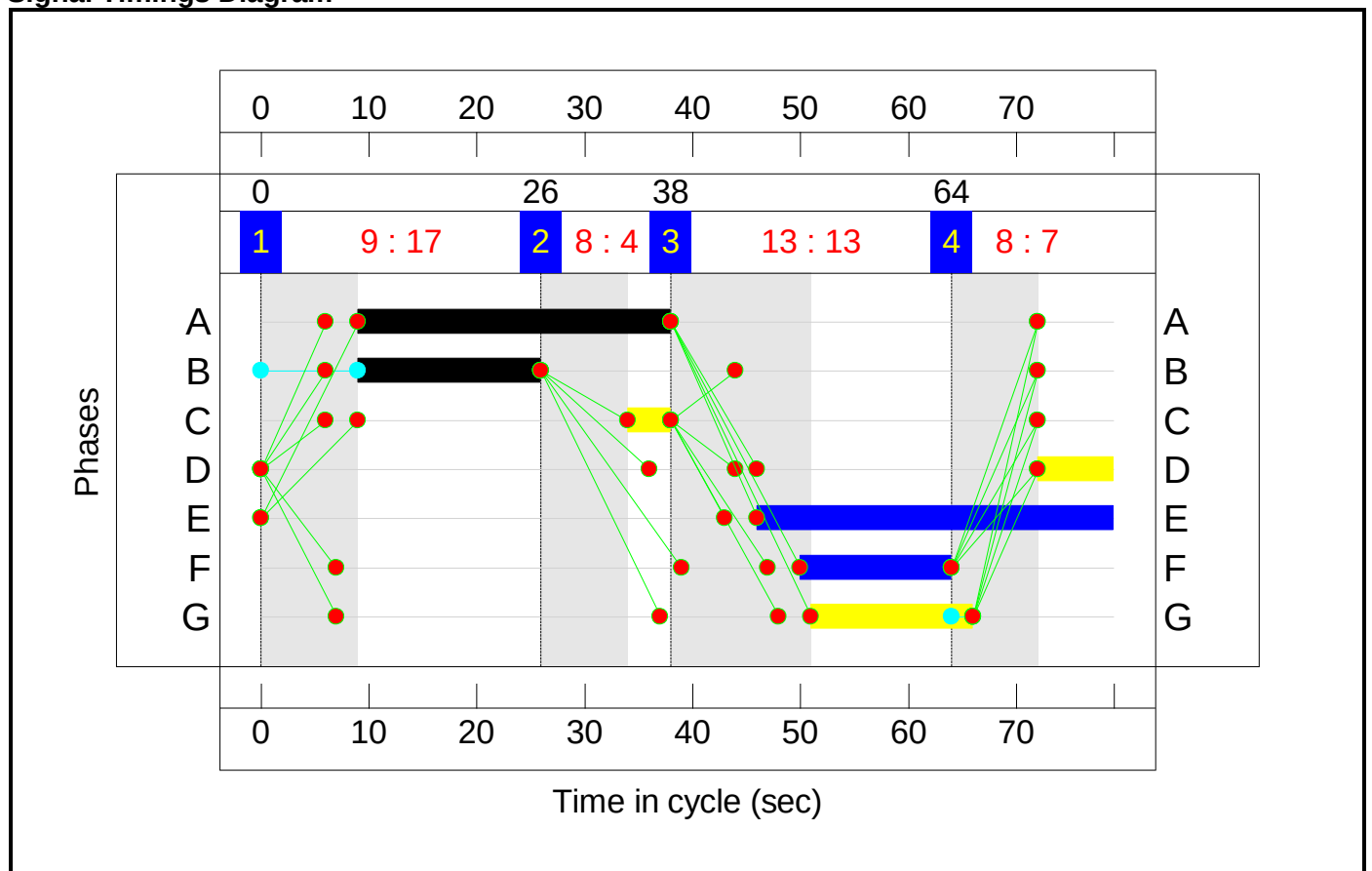
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings Diagram



Full Input Data And Results

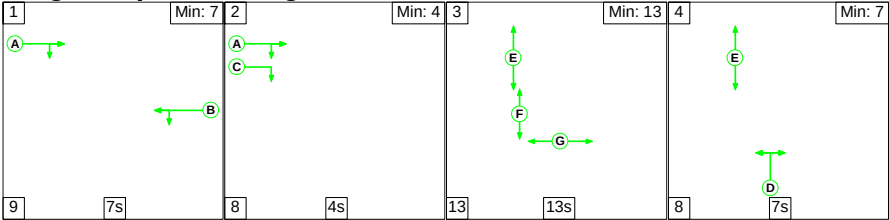
Network Results

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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	67.6%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	67.6%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	29	-	679	1990	1385	49.0%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	783	2125:1786	1317+160	53.0 : 53.0%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	704	1962	1068	65.9%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	17	-	787	2140	1165	67.6%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	155	1917	801	19.4%
4/1		U	N/A	N/A	-		-	-	-	735	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	754	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	406	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	808	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%

Full Input Data And Results

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: Valley Rd/Field Ln Existing	-	-	0	80	5	8.2	3.2	0.5	11.9	-	-	-	-
Valley Rd/Field Ln Existing	-	-	0	80	5	8.2	3.2	0.5	11.9	-	-	-	-
1/1	679	679	-	-	-	1.0	0.5	-	1.5	8.1	6.8	0.5	7.3
1/2+1/3	783	783	0	80	5	1.2	0.6	0.5	2.3	10.4	7.3	0.6	7.9
2/1	704	704	-	-	-	2.5	1.0	-	3.5	17.7	11.0	1.0	11.9
2/2	787	787	-	-	-	2.8	1.0	-	3.9	17.7	12.2	1.0	13.3
3/1	155	155	-	-	-	0.6	0.1	-	0.7	17.4	2.2	0.1	2.3
4/1	735	735	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	754	754	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	406	406	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	808	808	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 33.2 Total Delay for Signalled Lanes (pcuHr): 11.88 Cycle Time (s): 79 PRC Over All Lanes (%): 33.2 Total Delay Over All Lanes(pcuHr): 11.88													

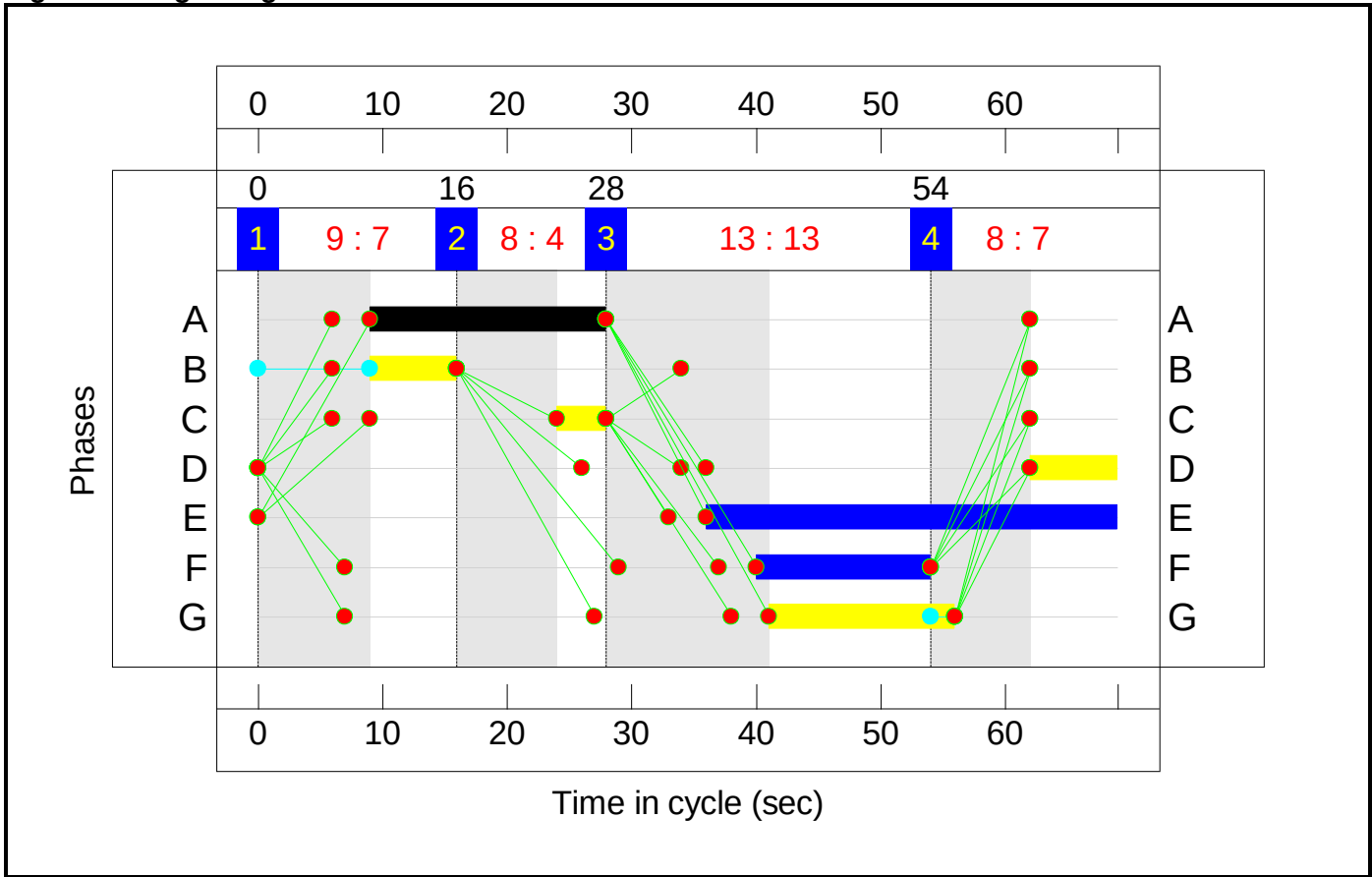
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings 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: Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	59.7%
Valley Rd/Field Ln Existing	-	-	N/A	-	-		-	-	-	-	-	-	59.7%
1/1	Valley Rd W Ahead	U	N/A	N/A	A		1	19	-	520	1990	1298	40.1%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	624	2125:1786	1218+174	44.8 : 44.8%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	542	1962	938	57.8%
2/2	Valley Rd E Ahead	U	N/A	N/A	B		1	7	-	611	2140	1023	59.7%
3/1	Field Ln Right Left	U	N/A	N/A	D		1	7	-	135	1915	916	14.7%
4/1		U	N/A	N/A	-		-	-	-	564	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	591	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	318	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	634	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	325	Inf	Inf	0.0%

Full Input Data And Results

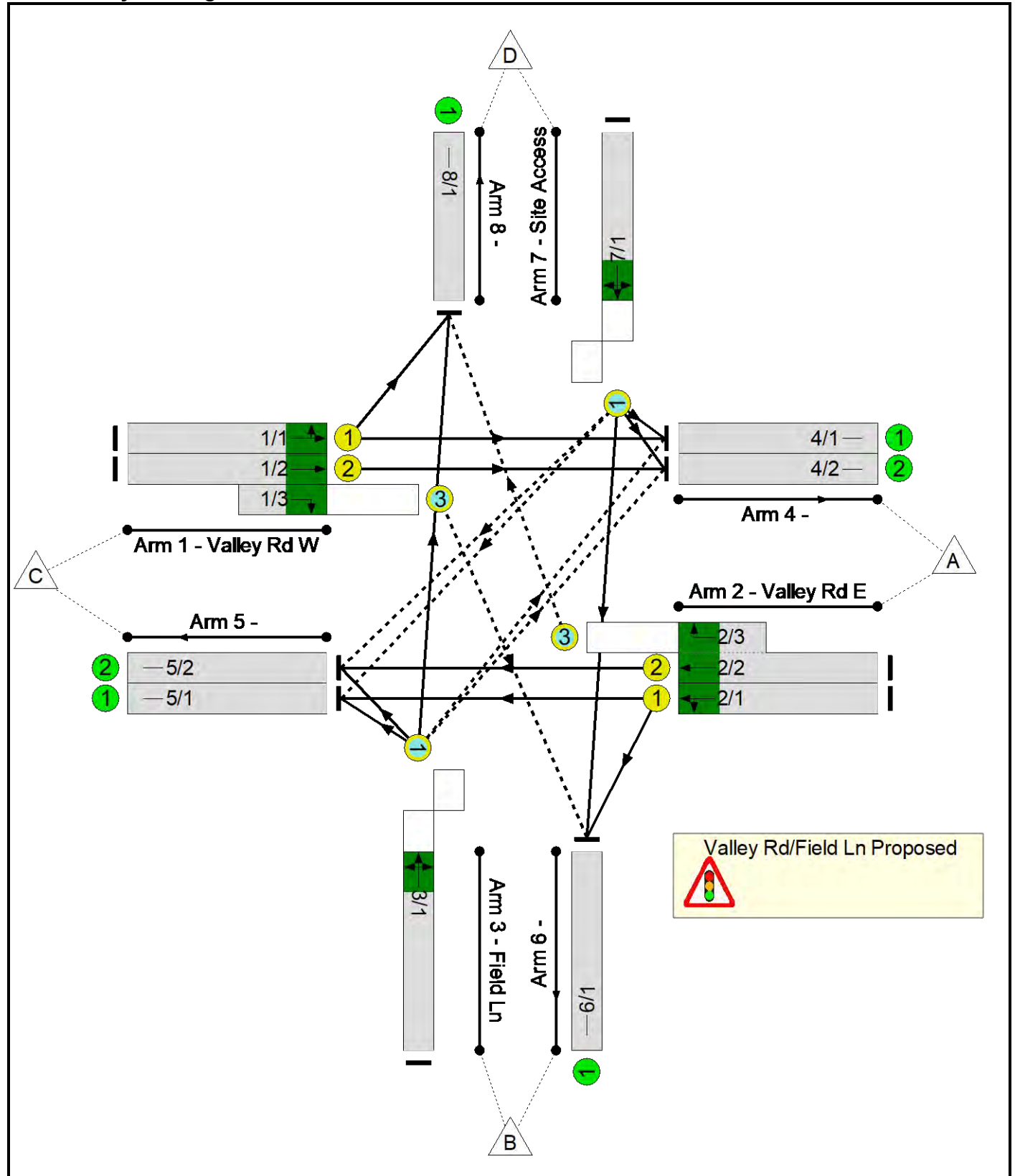
Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network: Valley Rd/Field Ln Existing	-	-	48	25	6	6.3	2.2	0.2	8.8	-	-	-	-
Valley Rd/Field Ln Existing	-	-	48	25	6	6.3	2.2	0.2	8.8	-	-	-	-
1/1	520	520	-	-	-	0.8	0.3	-	1.2	8.0	4.6	0.3	5.0
1/2+1/3	624	624	48	25	6	1.0	0.4	0.2	1.6	9.2	5.0	0.4	5.4
2/1	542	542	-	-	-	2.0	0.7	-	2.6	17.5	7.4	0.7	8.1
2/2	611	611	-	-	-	2.2	0.7	-	3.0	17.5	8.5	0.7	9.2
3/1	135	135	-	-	-	0.4	0.1	-	0.5	12.4	1.4	0.1	1.5
4/1	564	564	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	591	591	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	318	318	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	634	634	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	325	325	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 50.8 Total Delay for Signalled Lanes (pcuHr): 8.82 Cycle Time (s): 69 PRC Over All Lanes (%): 50.8 Total Delay Over All Lanes(pcuHr): 8.82													

Full Input Data And Results

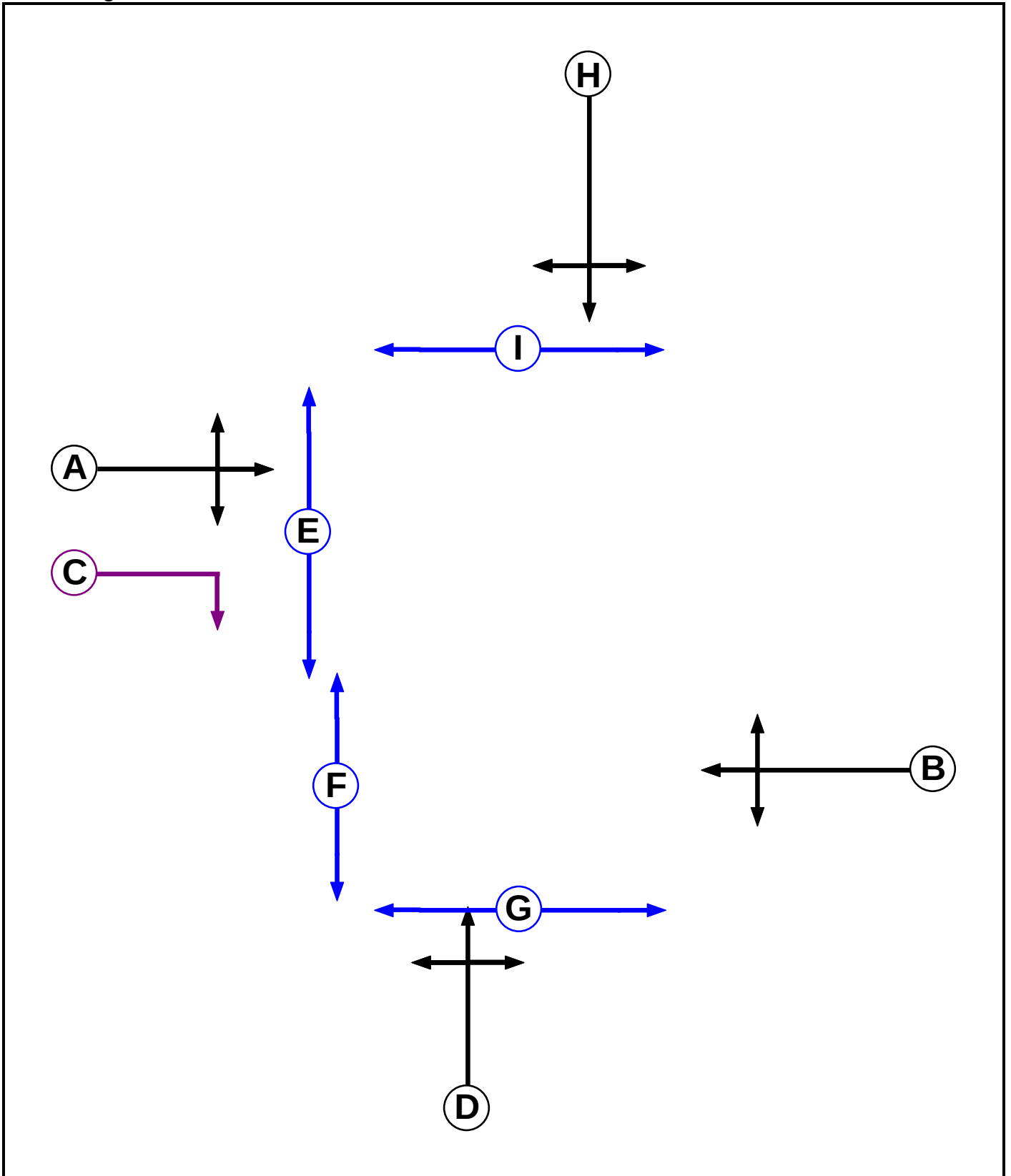
User and Project Details

Project:	Kirkby Valley Golf Club
Title:	Valley Rd/Field Ln Proposed
Location:	Kirkby
Additional detail:	Original LinSig V1 model file provided by KMBC
File name:	Field Ln_Valley Rd Proposed 2023.lsg3x
Author:	D. Stoddart
Company:	Prime TP
Address:	Liverpool

Network Layout Diagram



Phase Diagram



Full Input Data And Results

Phase Input Data

Phase Name	Phase Type	Assoc. Phase	Street Min	Cont Min
A	Traffic		-9999	7
B	Traffic		-9999	7
C	Ind. Arrow	A	-9999	4
D	Traffic		-9999	7
E	Pedestrian		-9999	11
F	Pedestrian		-9999	8
G	Pedestrian		-9999	13
H	Traffic		-9999	7
I	Pedestrian		-9999	7

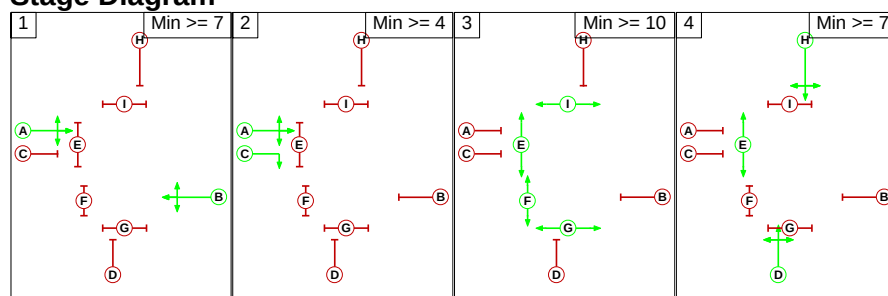
Phase Intergreens Matrix

Terminating Phase	Starting Phase									
		A	B	C	D	E	F	G	H	I
	A		-	-	8	8	12	13	7	10
	B	-		8	10	-	13	11	7	11
	C	-	6		6	5	9	10	5	-
	D	6	6	6		-	7	7	-	9
	E	9	-	9	-		-	-	-	-
	F	8	8	8	8	-		-	8	-
	G	6	6	6	6	-	-		6	-
	H	7	7	7	-	-	12	9		7
	I	8	8	-	8	-	-	-	8	

Phases in Stage

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

Stage Diagram



Phase Delays

Term. Stage	Start Stage	Phase	Type	Value	Cont value
3	1	F	Losing	1	1
3	1	G	Losing	3	3
3	2	F	Losing	1	1
3	2	G	Losing	3	3
3	4	G	Losing	2	2
4	1	B	Gaining absolute	9	7

Prohibited Stage Change

From Stage	To Stage				
	1	2	3	4	
	1		8	13	10
	2	6		13	8
	3	9	9		8
	4	9	9	12	

Full Input Data And Results

Give-Way Lane Input Data

Junction: Valley Rd/Field Ln Proposed											
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)
1/3 (Valley Rd W)	6/1 (Right)	1439	0	2/2	1.09	To 5/2 (Ahead)	4.50	-	0.50	5	4.50
				2/1	1.09	All					
2/3 (Valley Rd E)	8/1 (Right)	1439	0	1/1	1.09	All	4.50	-	0.50	5	4.50
				1/2	1.09	All					
3/1 (Field Ln)	4/1 (Right)	1439	0	7/1	1.09	To 4/1 (Left) To 4/2 (Left) To 6/1 (Ahead)	4.00	2.00	0.50	4	4.00
	4/2 (Right)	1439	0	7/1	1.09	To 4/1 (Left) To 4/2 (Left) To 6/1 (Ahead)					
7/1 (Site Access)	5/1 (Right)	1439	0	3/1	1.09	To 5/1 (Left) To 5/2 (Left) To 8/1 (Ahead)	4.00	2.00	0.50	4	4.00
	5/2 (Right)	1439	0	3/1	1.09	To 5/1 (Left) To 5/2 (Left) To 8/1 (Ahead)					

Full Input Data And Results

Lane Input Data

Junction: Valley Rd/Field Ln Proposed												
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)
1/1 (Valley Rd W)	U	A	2	3	60.0	Geom	-	3.75	0.00	Y	Arm 4 Ahead	Inf
1/2 (Valley Rd W)	U	A	2	3	60.0	Geom	-	3.70	0.00	N	Arm 8 Left	Inf
1/3 (Valley Rd W)	O	A C	2	3	4.3	Geom	-	3.50	0.00	Y	Arm 4 Ahead	Inf
2/1 (Valley Rd E)	U	B	2	3	60.0	Geom	-	3.85	0.00	Y	Arm 6 Right	15.00
2/2 (Valley Rd E)	U	B	2	3	60.0	Geom	-	3.85	0.00	N	Arm 5 Ahead	Inf
2/3 (Valley Rd E)	O	B	2	3	4.3	Geom	-	3.25	0.00	Y	Arm 8 Right	20.00
3/1 (Field Ln)	O	D	2	3	60.0	Geom	-	4.25	0.00	Y	Arm 4 Right	25.00
											Arm 5 Left	20.00
											Arm 8 Ahead	Inf
4/1	U		2	3	60.0	Inf	-	-	-	-	-	-
4/2	U		2	3	60.0	Inf	-	-	-	-	-	-
5/1	U		2	3	60.0	Inf	-	-	-	-	-	-
5/2	U		2	3	60.0	Inf	-	-	-	-	-	-
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1 (Site Access)	O	H	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 4 Left	20.00
											Arm 5 Right	15.00
											Arm 6 Ahead	Inf
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: 'AM With Dev 2026'	07:45	08:45	01:00	
2: 'PM With Dev 2026'	16:30	17:30	01:00	
3: 'Sat With Dev 2026'	10:00	11:00	01:00	
4: 'AM With Dev 2031'	07:45	08:45	01:00	
5: 'PM With Dev 2031'	16:30	17:30	01:00	
6: 'Sat With Dev 2031'	10:00	11:00	01:00	

Scenario 1: 'AM With Dev 2026' (FG1: 'AM With Dev 2026', Plan 1: 'Full Cycle')

Traffic Flows, Desired

Desired Flow :

	Destination					
Origin		A	B	C	D	Tot.
	A	0	415	1535	15	1965
	B	131	0	62	0	193
	C	1193	39	0	17	1249
	D	4	0	2	0	6
	Tot.	1328	454	1599	32	3413

Traffic Lane Flows

Lane	Scenario 1: AM With Dev 2026
Junction: Valley Rd/Field Ln Proposed	
1/1	584
1/2 (with short)	665(In) 626(Out)
1/3 (short)	39
2/1	937
2/2 (with short)	1028(In) 1013(Out)
2/3 (short)	15
3/1	193
4/1	634
4/2	694
5/1	554
5/2	1045
6/1	454
7/1	6
8/1	32

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	97.1 %	1990	1990
				Arm 8 Left	Inf	2.9 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	55.7 %	1963	1963
				Arm 6 Left	35.00	44.3 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	67.9 %	1916	1916
				Arm 5 Left	20.00	32.1 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	66.7 %	1791	1791
				Arm 5 Right	15.00	33.3 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 2: 'PM With Dev 2026' (FG2: 'PM With Dev 2026', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	312	1133	12	1457
	B	109	0	42	0	151
	C	1335	83	0	13	1431
	D	18	0	19	0	37
	Tot.	1462	395	1194	25	3076

Traffic Lane Flows

Lane	Scenario 2: PM With Dev 2026
Junction: Valley Rd/Field Ln Proposed	
1/1	664
1/2 (with short)	767(In) 684(Out)
1/3 (short)	83
2/1	687
2/2 (with short)	770(In) 758(Out)
2/3 (short)	12
3/1	151
4/1	714
4/2	748
5/1	406
5/2	788
6/1	395
7/1	37
8/1	25

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	98.0 %	1990	1990
				Arm 8 Left	Inf	2.0 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.6 %	1962	1962
				Arm 6 Left	35.00	45.4 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	72.2 %	1917	1917
				Arm 5 Left	20.00	27.8 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	48.6 %	1783	1783
				Arm 5 Right	15.00	51.4 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 3: 'Sat With Dev 2026' (FG3: 'Sat With Dev 2026', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	239	873	27	1139
	B	86	0	44	0	130
	C	1024	75	0	29	1128
	D	29	0	32	0	61
	Tot.	1139	314	949	56	2458

Traffic Lane Flows

Lane	Scenario 3: Sat With Dev 2026
Junction: Valley Rd/Field Ln Proposed	
1/1	513
1/2 (with short)	615(In) 540(Out)
1/3 (short)	75
2/1	530
2/2 (with short)	609(In) 582(Out)
2/3 (short)	27
3/1	130
4/1	541
4/2	598
5/1	329
5/2	620
6/1	314
7/1	61
8/1	56

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	94.3 %	1990	1990
				Arm 8 Left	Inf	5.7 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.9 %	1962	1962
				Arm 6 Left	35.00	45.1 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	66.2 %	1915	1915
				Arm 5 Left	20.00	33.8 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	47.5 %	1783	1783
				Arm 5 Right	15.00	52.5 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 4: 'AM With Dev 2031' (FG4: 'AM With Dev 2031', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	429	1584	15	2028
	B	135	0	64	0	199
	C	1234	40	0	17	1291
	D	4	0	2	0	6
	Tot.	1373	469	1650	32	3524

Traffic Lane Flows

Lane	Scenario 4: AM With Dev 2031
Junction: Valley Rd/Field Ln Proposed	
1/1	605
1/2 (with short)	686(In) 646(Out)
1/3 (short)	40
2/1	969
2/2 (with short)	1059(In) 1044(Out)
2/3 (short)	15
3/1	199
4/1	657
4/2	716
5/1	573
5/2	1077
6/1	469
7/1	6
8/1	32

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	97.2 %	1990	1990
				Arm 8 Left	Inf	2.8 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	55.7 %	1963	1963
				Arm 6 Left	35.00	44.3 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	67.8 %	1916	1916
				Arm 5 Left	20.00	32.2 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	66.7 %	1791	1791
				Arm 5 Right	15.00	33.3 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 5: 'PM With Dev 2031' (FG5: 'PM With Dev 2031', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
Origin		A	B	C	D	Tot.
	A	0	320	1164	12	1496
	B	112	0	43	0	155
	C	1373	85	0	13	1471
	D	18	0	19	0	37
	Tot.	1503	405	1226	25	3159

Traffic Lane Flows

Lane	Scenario 5: PM With Dev 2031
Junction: Valley Rd/Field Ln Proposed	
1/1	683
1/2 (with short)	788(In) 703(Out)
1/3 (short)	85
2/1	706
2/2 (with short)	790(In) 778(Out)
2/3 (short)	12
3/1	155
4/1	735
4/2	768
5/1	418
5/2	808
6/1	405
7/1	37
8/1	25

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	98.1 %	1990	1990
				Arm 8 Left	Inf	1.9 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	54.7 %	1962	1962
				Arm 6 Left	35.00	45.3 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	72.3 %	1917	1917
				Arm 5 Left	20.00	27.7 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	48.6 %	1783	1783
				Arm 5 Right	15.00	51.4 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 6: 'Sat With Dev 2031' (FG6: 'Sat With Dev 2031', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	247	904	27	1178
	B	89	0	46	0	135
	C	1061	78	0	29	1168
	D	29	0	32	0	61
	Tot.	1179	325	982	56	2542

Traffic Lane Flows

Lane	Scenario 6: Sat With Dev 2031
Junction: Valley Rd/Field Ln Proposed	
1/1	532
1/2 (with short)	636(In) 558(Out)
1/3 (short)	78
2/1	550
2/2 (with short)	628(In) 601(Out)
2/3 (short)	27
3/1	135
4/1	561
4/2	618
5/1	342
5/2	640
6/1	325
7/1	61
8/1	56

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	94.5 %	1990	1990
				Arm 8 Left	Inf	5.5 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	55.1 %	1962	1962
				Arm 6 Left	35.00	44.9 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	65.9 %	1915	1915
				Arm 5 Left	20.00	34.1 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1				Infinite Saturation Flow			Inf	Inf
4/2				Infinite Saturation Flow			Inf	Inf
5/1				Infinite Saturation Flow			Inf	Inf
5/2				Infinite Saturation Flow			Inf	Inf
6/1				Infinite Saturation Flow			Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	47.5 %	1783	1783
				Arm 5 Right	15.00	52.5 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1				Infinite Saturation Flow			Inf	Inf

Scenario 7: 'AM With Dev 2031 CyOp' (FG4: 'AM With Dev 2031', Plan 1: 'Full Cycle')**Traffic Flows, Desired****Desired Flow :**

	Destination					
		A	B	C	D	Tot.
Origin	A	0	429	1584	15	2028
	B	135	0	64	0	199
	C	1234	40	0	17	1291
	D	4	0	2	0	6
	Tot.	1373	469	1650	32	3524

Traffic Lane Flows

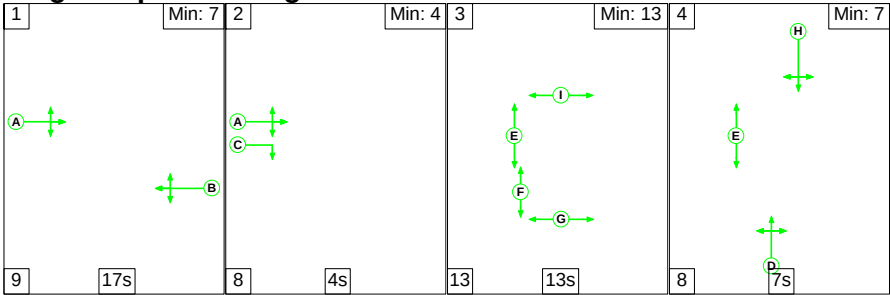
Lane	Scenario 7: AM With Dev 2031 CyOp
Junction: Valley Rd/Field Ln Proposed	
1/1	605
1/2 (with short)	686(In) 646(Out)
1/3 (short)	40
2/1	966
2/2 (with short)	1062(In) 1047(Out)
2/3 (short)	15
3/1	199
4/1	657
4/2	716
5/1	570
5/2	1080
6/1	469
7/1	6
8/1	32

Lane Saturation Flows

Junction: Valley Rd/Field Ln Proposed								
Lane	Lane Width (m)	Gradient	Nearside Lane	Allowed Turns	Turning Radius (m)	Turning Prop.	Sat Flow (PCU/Hr)	Flared Sat Flow (PCU/Hr)
1/1 (Valley Rd W)	3.75	0.00	Y	Arm 4 Ahead	Inf	97.2 %	1990	1990
				Arm 8 Left	Inf	2.8 %		
1/2 (Valley Rd W)	3.70	0.00	N	Arm 4 Ahead	Inf	100.0 %	2125	2125
1/3 (Valley Rd W)	3.50	0.00	Y	Arm 6 Right	15.00	100.0 %	1786	1786
2/1 (Valley Rd E)	3.85	0.00	Y	Arm 5 Ahead	Inf	55.6 %	1963	1963
				Arm 6 Left	35.00	44.4 %		
2/2 (Valley Rd E)	3.85	0.00	N	Arm 5 Ahead	Inf	100.0 %	2140	2140
2/3 (Valley Rd E)	3.25	0.00	Y	Arm 8 Right	20.00	100.0 %	1805	1805
3/1 (Field Ln)	4.25	0.00	Y	Arm 4 Right	25.00	67.8 %	1916	1916
				Arm 5 Left	20.00	32.2 %		
				Arm 8 Ahead	Inf	0.0 %		
4/1			Infinite Saturation Flow				Inf	Inf
4/2			Infinite Saturation Flow				Inf	Inf
5/1			Infinite Saturation Flow				Inf	Inf
5/2			Infinite Saturation Flow				Inf	Inf
6/1			Infinite Saturation Flow				Inf	Inf
7/1 (Site Access)	3.25	0.00	Y	Arm 4 Left	20.00	66.7 %	1791	1791
				Arm 5 Right	15.00	33.3 %		
				Arm 6 Ahead	Inf	0.0 %		
8/1			Infinite Saturation Flow				Inf	Inf

Scenario 1: 'AM With Dev 2026' (FG1: 'AM With Dev 2026', Plan 1: 'Full Cycle')

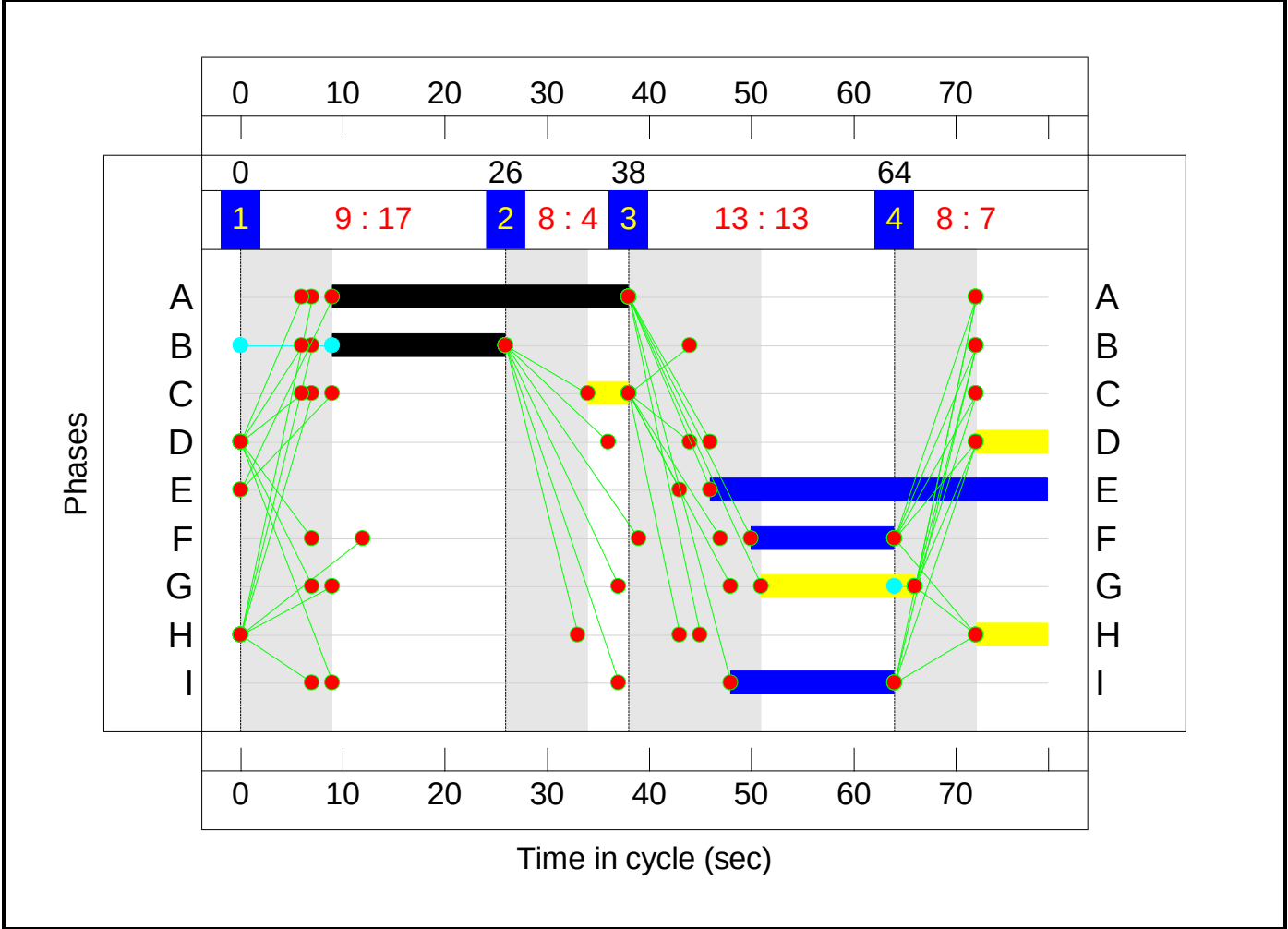
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	92.7%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	92.7%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	29	-	584	1990	1335	43.7%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	665	2125:1786	1341+84	46.7 : 46.7%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	937	1963	1019	92.0%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	17	-	1028	2140:1805	1093+16	92.7 : 92.7%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	193	1916	752	25.7%
4/1		U	N/A	N/A	-		-	-	-	634	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	694	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	554	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	1045	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	454	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	6	1791	703	0.9%
8/1		U	N/A	N/A	-		-	-	-	32	Inf	Inf	0.0%

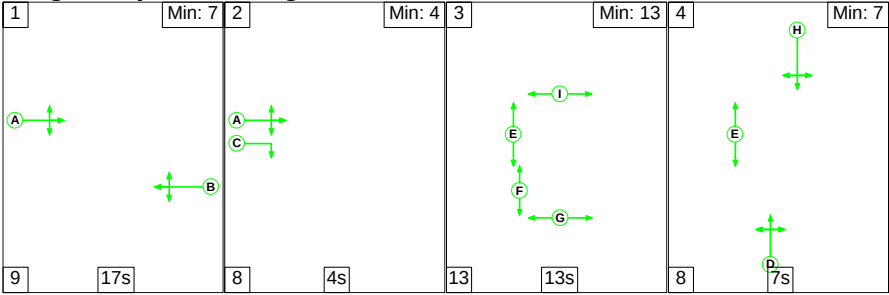
Full Input Data And Results

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Full Input Data And Results

Scenario 2: 'PM With Dev 2026' (FG2: 'PM With Dev 2026', Plan 1: 'Full Cycle')

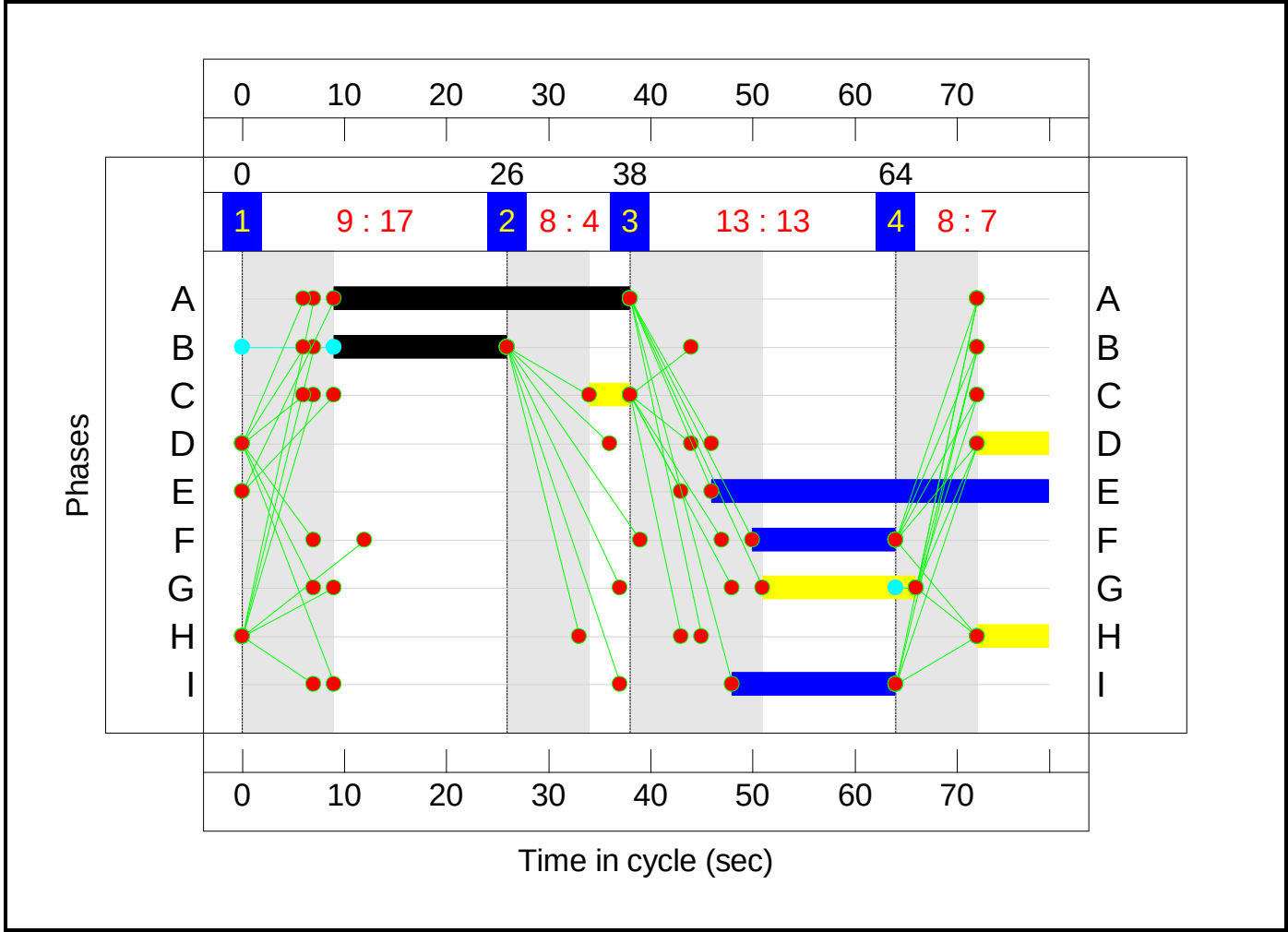
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	66.2%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	66.2%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	29	-	664	1990	1385	47.9%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	767	2125:1786	1318+160	51.9 : 51.9%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	687	1962	1068	64.3%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	17	-	770	2140:1805	1145+18	66.2 : 66.2%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	151	1917	801	18.9%
4/1		U	N/A	N/A	-		-	-	-	714	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	748	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	406	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	788	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	395	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	37	1783	745	5.0%
8/1		U	N/A	N/A	-		-	-	-	25	Inf	Inf	0.0%

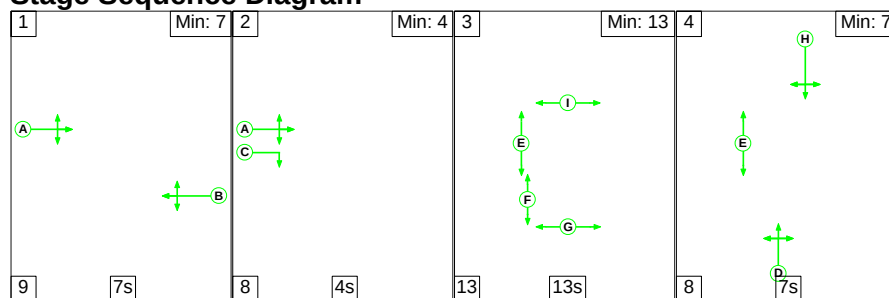
Full Input Data And Results

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: Valley Rd/Field Ln Proposed	-	-	125	78	20	8.0	3.0	0.7	11.7	-	-	-	-
Valley Rd/Field Ln Proposed	-	-	125	78	20	8.0	3.0	0.7	11.7	-	-	-	-
1/1	664	664	-	-	-	1.0	0.5	-	1.5	8.0	6.6	0.5	7.1
1/2+1/3	767	767	0	78	5	1.1	0.5	0.5	2.2	10.3	7.1	0.5	7.7
2/1	687	687	-	-	-	2.4	0.9	-	3.3	17.3	10.5	0.9	11.4
2/2+2/3	770	770	0	0	12	2.7	1.0	0.1	3.8	17.9	11.9	1.0	12.9
3/1	151	151	106	0	3	0.6	0.1	0.0	0.7	17.6	2.1	0.1	2.2
4/1	714	714	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	748	748	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	406	406	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	788	788	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	395	395	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	37	37	19	0	0	0.1	0.0	0.0	0.2	16.3	0.5	0.0	0.5
8/1	25	25	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 36.0 Total Delay for Signalled Lanes (pcuHr): 11.71 Cycle Time (s): 79 PRC Over All Lanes (%): 36.0 Total Delay Over All Lanes(pcuHr): 11.71													

Full Input Data And Results

Scenario 3: 'Sat With Dev 2026' (FG3: 'Sat With Dev 2026', Plan 1: 'Full Cycle')

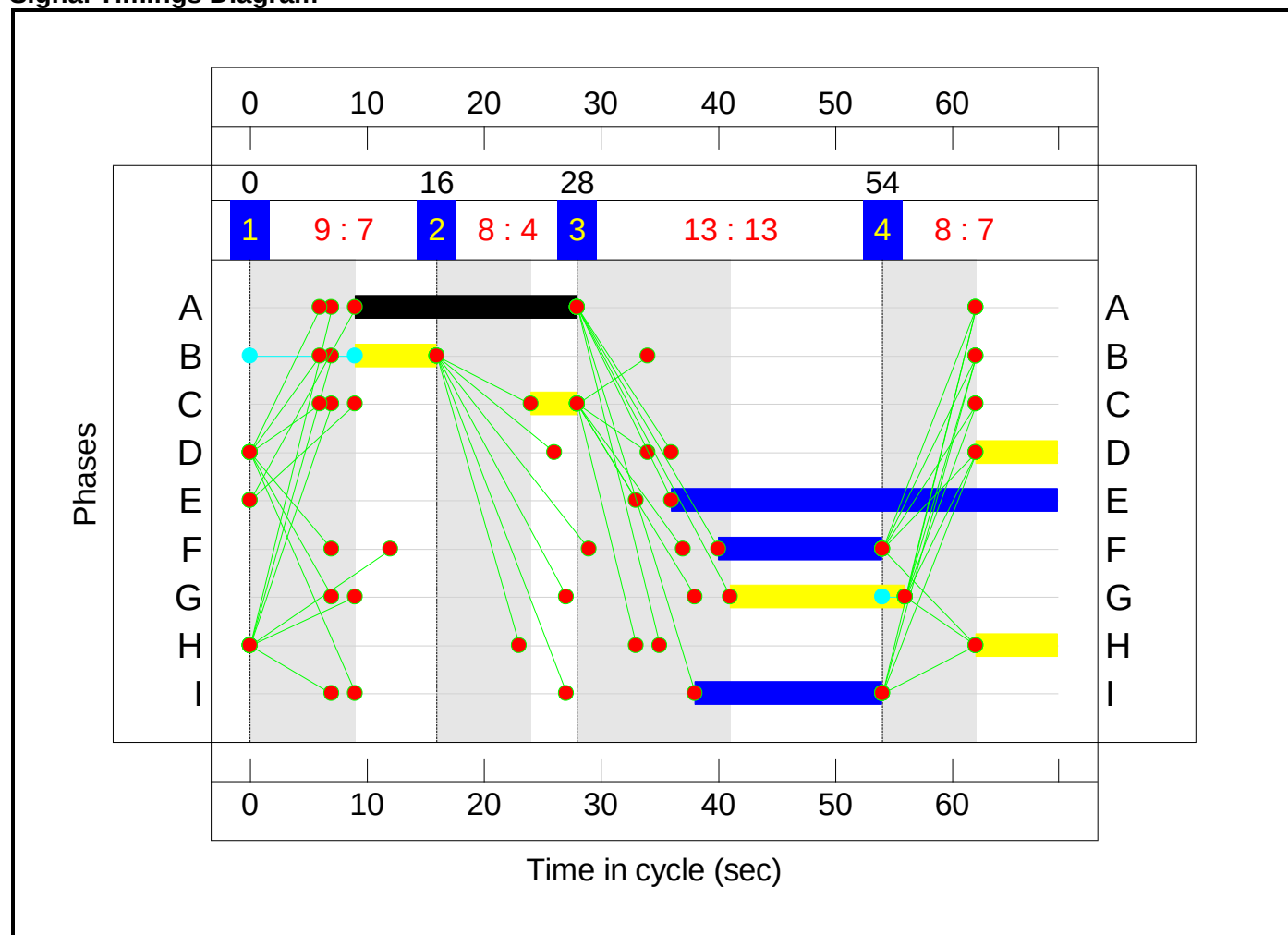
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	59.4%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	59.4%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	19	-	513	1990	1298	39.5%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	615	2125:1786	1222+170	44.2 : 44.2%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	530	1962	938	56.5%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	7	-	609	2140:1805	980+45	59.4 : 59.4%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	130	1915	916	14.2%
4/1		U	N/A	N/A	-		-	-	-	541	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	598	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	329	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	620	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	314	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	61	1783	853	7.2%
8/1		U	N/A	N/A	-		-	-	-	56	Inf	Inf	0.0%

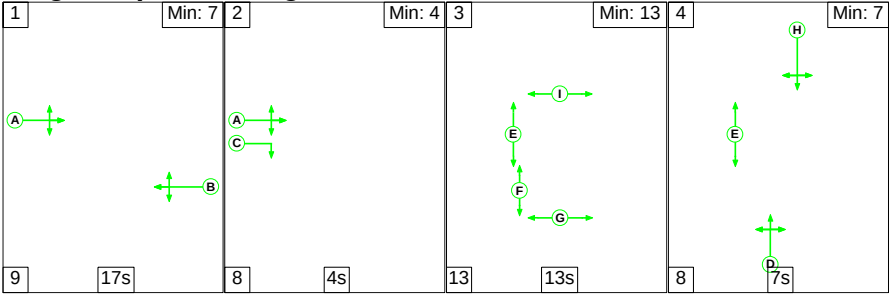
Full Input Data And Results

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Full Input Data And Results

Scenario 4: 'AM With Dev 2031' (FG4: 'AM With Dev 2031', Plan 1: 'Full Cycle')

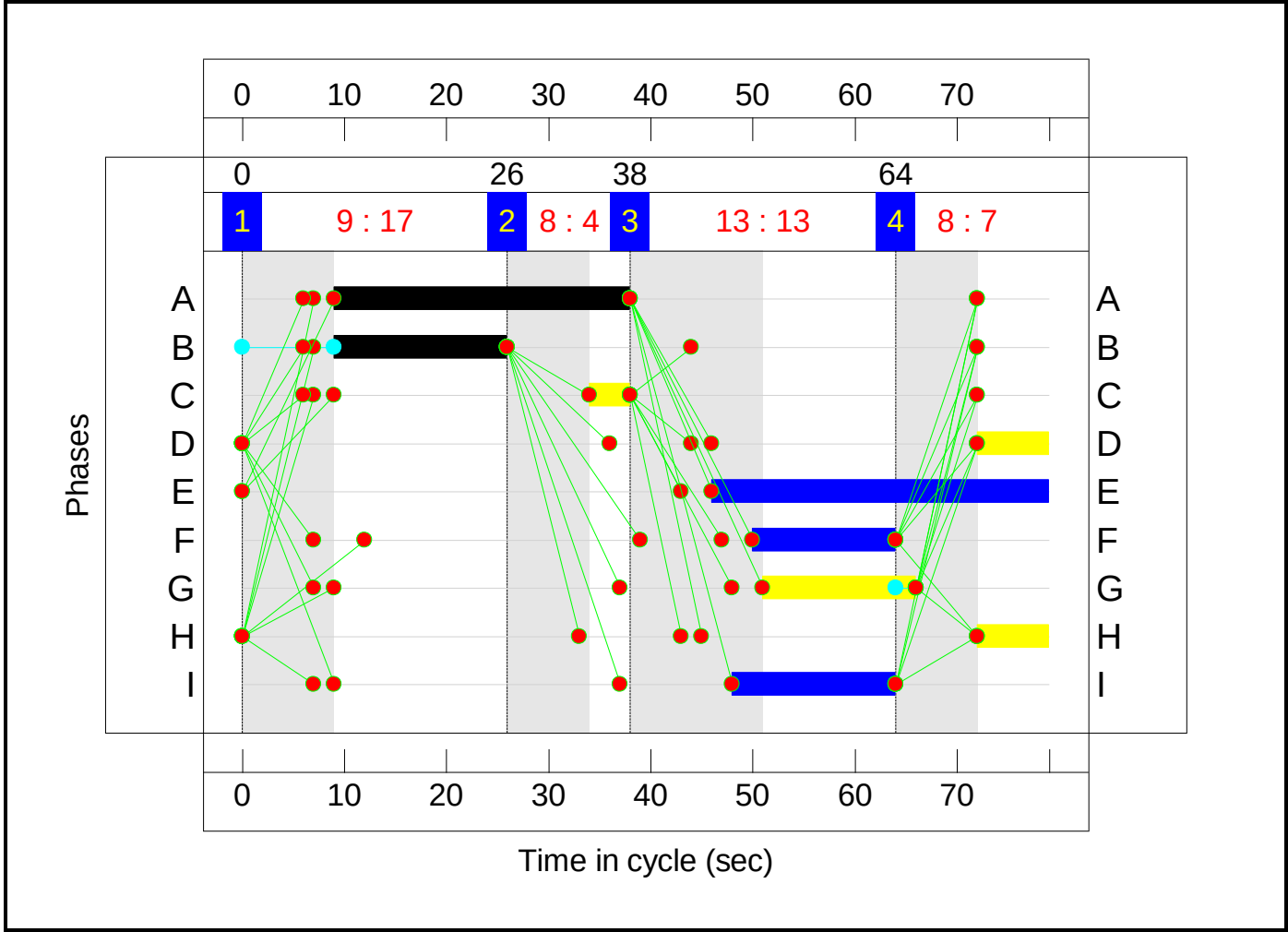
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	95.5%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	95.5%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	29	-	605	1990	1335	45.3%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	686	2125:1786	1341+83	48.2 : 48.2%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	969	1963	1019	95.1%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	17	-	1059	2140:1805	1094+16	95.5 : 95.5%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	199	1916	752	26.5%
4/1		U	N/A	N/A	-		-	-	-	657	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	716	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	573	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	1077	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	6	1791	703	0.9%
8/1		U	N/A	N/A	-		-	-	-	32	Inf	Inf	0.0%

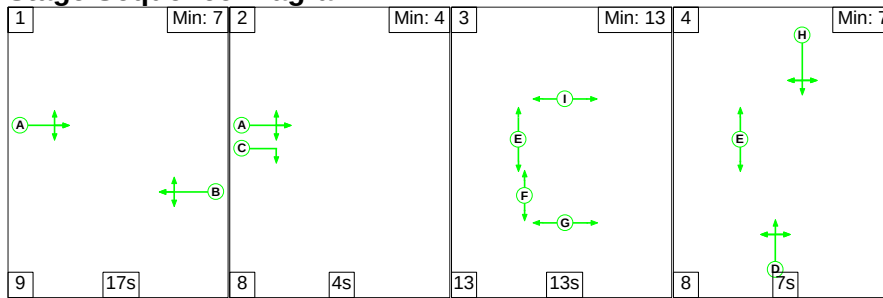
Full Input Data And Results

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Full Input Data And Results

Scenario 5: 'PM With Dev 2031' (FG5: 'PM With Dev 2031', Plan 1: 'Full Cycle')

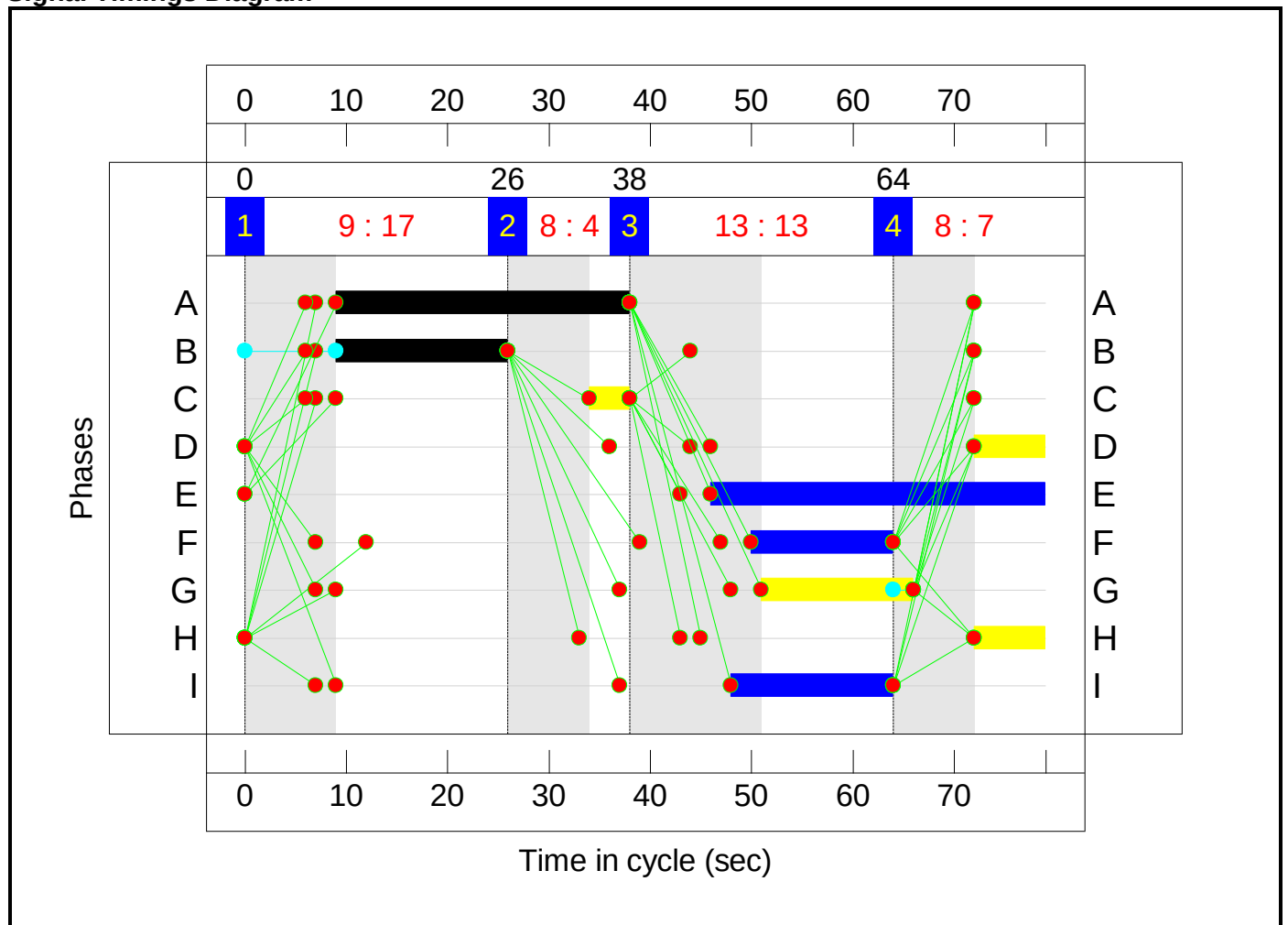
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	17	4	13	7
Change Point	0	26	38	64

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	67.9%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	67.9%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	29	-	683	1990	1385	49.3%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	29	4	788	2125:1786	1318+159	53.3 : 53.3%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	17	-	706	1962	1068	66.1%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	17	-	790	2140:1805	1146+18	67.9 : 67.9%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	155	1917	801	19.4%
4/1		U	N/A	N/A	-		-	-	-	735	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	768	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	418	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	808	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	405	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	37	1783	745	5.0%
8/1		U	N/A	N/A	-		-	-	-	25	Inf	Inf	0.0%

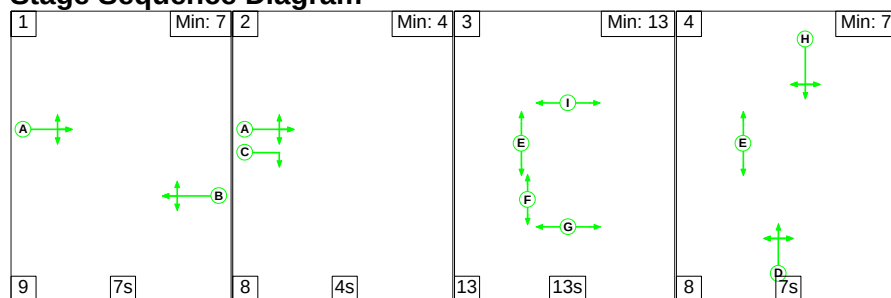
Full Input Data And Results

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: Valley Rd/Field Ln Proposed	-	-	128	80	21	8.4	3.2	0.7	12.3	-	-	-	-
Valley Rd/Field Ln Proposed	-	-	128	80	21	8.4	3.2	0.7	12.3	-	-	-	-
1/1	683	683	-	-	-	1.1	0.5	-	1.5	8.1	6.8	0.5	7.3
1/2+1/3	788	788	0	80	5	1.2	0.6	0.5	2.3	10.5	7.4	0.6	7.9
2/1	706	706	-	-	-	2.5	1.0	-	3.5	17.8	11.0	1.0	12.0
2/2+2/3	790	790	0	0	12	2.8	1.1	0.1	4.0	18.3	12.4	1.1	13.5
3/1	155	155	109	0	3	0.6	0.1	0.0	0.8	17.7	2.2	0.1	2.3
4/1	735	735	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	768	768	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	418	418	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	808	808	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	405	405	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	37	37	19	0	0	0.1	0.0	0.0	0.2	16.3	0.5	0.0	0.5
8/1	25	25	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 32.5 Total Delay for Signalled Lanes (pcuHr): 12.26 Cycle Time (s): 79 PRC Over All Lanes (%): 32.5 Total Delay Over All Lanes(pcuHr): 12.26													

Full Input Data And Results

Scenario 6: 'Sat With Dev 2031' (FG6: 'Sat With Dev 2031', Plan 1: 'Full Cycle')

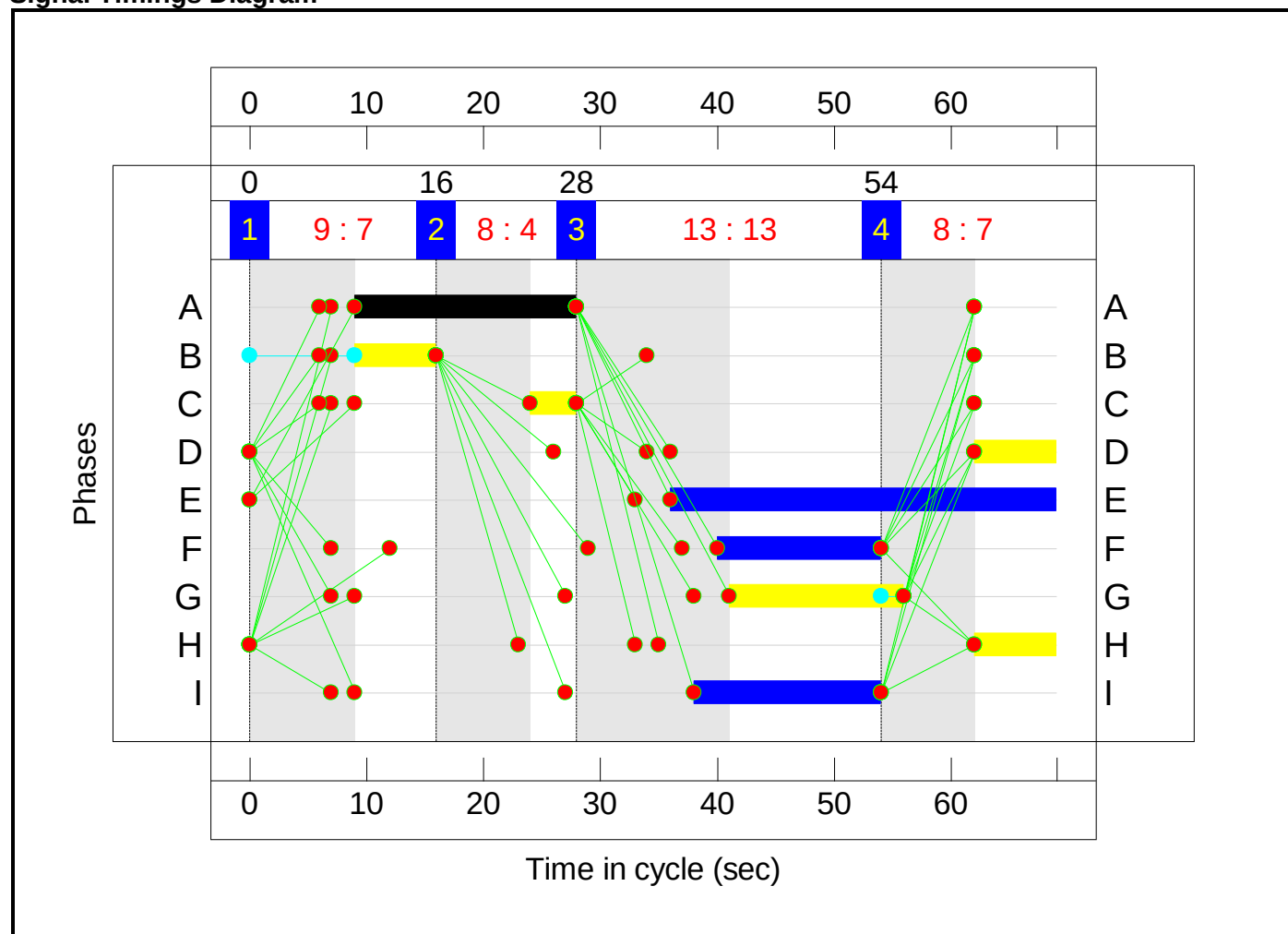
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	7	4	13	7
Change Point	0	16	28	54

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	61.2%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	61.2%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	19	-	532	1990	1298	41.0%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	19	4	636	2125:1786	1221+171	45.7 : 45.7%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	7	-	550	1962	938	58.6%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	7	-	628	2140:1805	981+44	61.2 : 61.2%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	135	1915	916	14.7%
4/1		U	N/A	N/A	-		-	-	-	561	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	618	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	342	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	640	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	325	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	61	1783	853	7.2%
8/1		U	N/A	N/A	-		-	-	-	56	Inf	Inf	0.0%

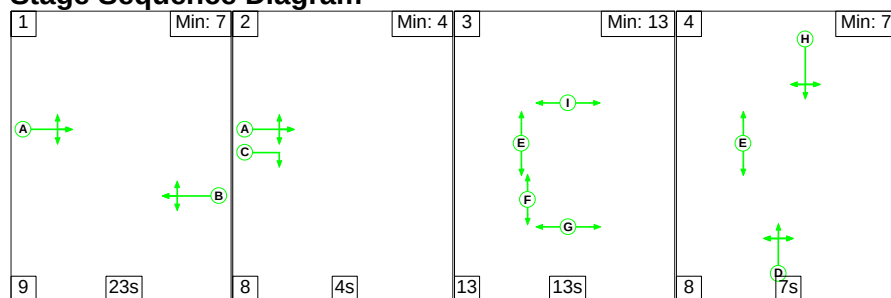
Full Input Data And Results

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: Valley Rd/Field Ln Proposed	-	-	193	24	9	6.6	2.4	0.3	9.3	-	-	-	-
Valley Rd/Field Ln Proposed	-	-	193	24	9	6.6	2.4	0.3	9.3	-	-	-	-
1/1	532	532	-	-	-	0.8	0.3	-	1.2	8.0	4.7	0.3	5.1
1/2+1/3	636	636	48	24	6	1.0	0.4	0.2	1.6	9.3	5.2	0.4	5.6
2/1	550	550	-	-	-	2.0	0.7	-	2.7	17.7	7.6	0.7	8.3
2/2+2/3	628	628	27	0	0	2.3	0.8	0.0	3.1	17.7	8.5	0.8	9.3
3/1	135	135	86	0	3	0.4	0.1	0.0	0.5	12.7	1.4	0.1	1.5
4/1	561	561	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
4/2	618	618	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/1	342	342	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
5/2	640	640	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
6/1	325	325	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	61	61	31	0	1	0.2	0.0	0.0	0.2	12.1	0.6	0.0	0.7
8/1	56	56	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
C1 PRC for Signalled Lanes (%): 47.0 Total Delay for Signalled Lanes (pcuHr): 9.30 Cycle Time (s): 69 PRC Over All Lanes (%): 47.0 Total Delay Over All Lanes(pcuHr): 9.30													

Full Input Data And Results

Scenario 7: 'AM With Dev 2031 CyOp' (FG4: 'AM With Dev 2031', Plan 1: 'Full Cycle')

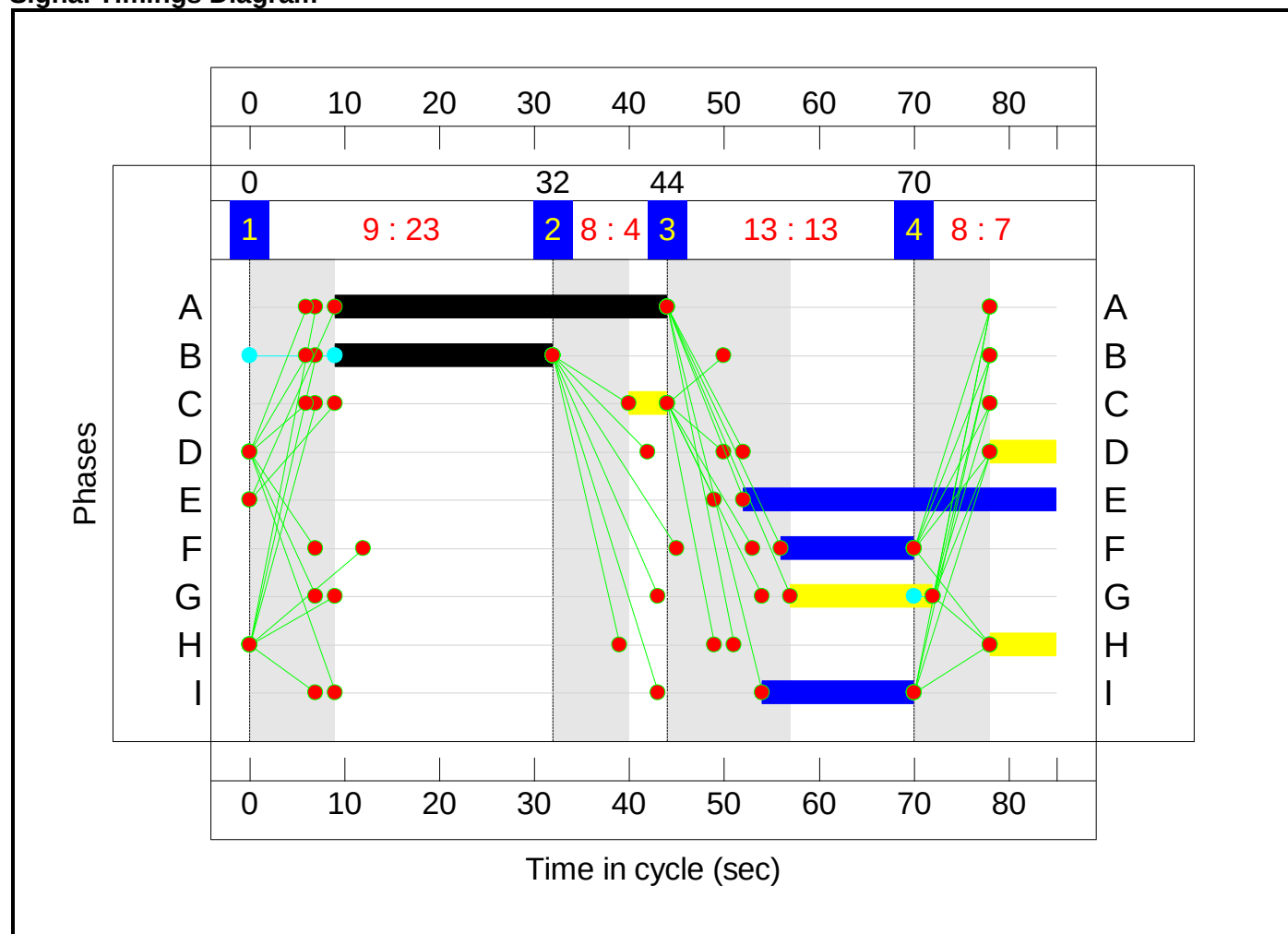
Stage Sequence Diagram



Stage Timings

Stage	1	2	3	4
Duration	23	4	13	7
Change Point	0	32	44	70

Signal Timings 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: Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	89.9%
Valley Rd/Field Ln Proposed	-	-	N/A	-	-		-	-	-	-	-	-	89.9%
1/1	Valley Rd W Ahead Left	U	N/A	N/A	A		1	35	-	605	1990	1381	43.8%
1/2+1/3	Valley Rd W Ahead Right	U+O	N/A	N/A	A	C	1	35	4	686	2125:1786	1386+86	46.6 : 46.6%
2/1	Valley Rd E Ahead Left	U	N/A	N/A	B		1	23	-	966	1963	1085	89.0%
2/2+2/3	Valley Rd E Ahead Right	U+O	N/A	N/A	B		1	23	-	1062	2140:1805	1165+17	89.9 : 89.9%
3/1	Field Ln Right Left Ahead	O	N/A	N/A	D		1	7	-	199	1916	699	28.5%
4/1		U	N/A	N/A	-		-	-	-	657	Inf	Inf	0.0%
4/2		U	N/A	N/A	-		-	-	-	716	Inf	Inf	0.0%
5/1		U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%
5/2		U	N/A	N/A	-		-	-	-	1080	Inf	Inf	0.0%
6/1		U	N/A	N/A	-		-	-	-	469	Inf	Inf	0.0%
7/1	Site Access Left Right Ahead	O	N/A	N/A	H		1	7	-	6	1791	653	0.9%
8/1		U	N/A	N/A	-		-	-	-	32	Inf	Inf	0.0%

Full Input Data And Results

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