TECHNICAL NOTE

Davy Way, Llay

TN01 – Response to Wrexham County Borough Council Highways

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Client:	RA & CE Platt		
Date:	25 July 2025	Job No	327829
Prepared by:	LJ	Approved by:	ME

1. Introduction

1.1 Preamble

1.1.1 This note (TN01) has been prepared by Mode Transport Planning ('Mode') on behalf of RA & CE Platt (the 'Applicant') to provide a response to comments from Wrexham County Borough Council (WCBC) Highways for a proposed employment scheme on Davy Way in Llay, Wrexham.

1.1.2 In response to the planning application (Ref: P/2024/1675), WCBC Highways provided comments in a memorandum dated 14th May 2025 (attached in Appendix A).

1.1.3 This Technical Note (TN01) has been prepared to provide a response to WCBC's comments.

2. Development Proposals

2.1 Gross Internal Floor Area

2.1.1 The proposed floor area quoted within the Transport Assessment (TA) dated 29th October 2024 of 10,157sqm are Gross Internal Area (GIA) and the figure quoted in the description of development of 11,613 is Gross External Area (GEA). In line with the TRICS Good Practice Guide 2024 (Paragraph 7.2), GIA's are used to derive trip generation figures. As such, Mode will continue to use the 10,157sqm GIA figure for the updated trip generation assessment presented in this TN.

2.2 Extant Permission

2.2.1 The site is vacant and is not subject to an extant permission. No adjustments to the assessment have therefore been considered.

2.3 Site Access

2.3.1 In response to comments received from WCBC, a pedestrian refuge island has been provided at both site access options presented in the TA and below. It should also be noted that at the request of WCBC Highways, 2.4m x 43m visibility splays have been shown on the drawings, in line with Manual for Streets (MfS) guidance for 30mph roads, despite the current speed limit of 20mph along Davy Way.

Access Option A

2.3.2 Access Option A, to the west, features a new priority junction from Davy Way comprising a 7.3m wide carriageway and 15m kerb radii with a pedestrian refuge island.

2.3.3 Visibility splays of 2.4m x 43m can be achieved in both directions along Davy Way within the adopted highway from the access junction.

2.3.4 Figure 2.1 shows the proposed site access with achievable visibility splays, with the full drawing (**Drawing No. J32-7829-PS-001**) attached in Appendix B.

2.3.5 Figure 2.1 also provides swept path analysis at the access for a 16.5m articulated HGV, as requested.

Figure 2.1 : Proposed Site Access Junction – Access Option A



Access Option B

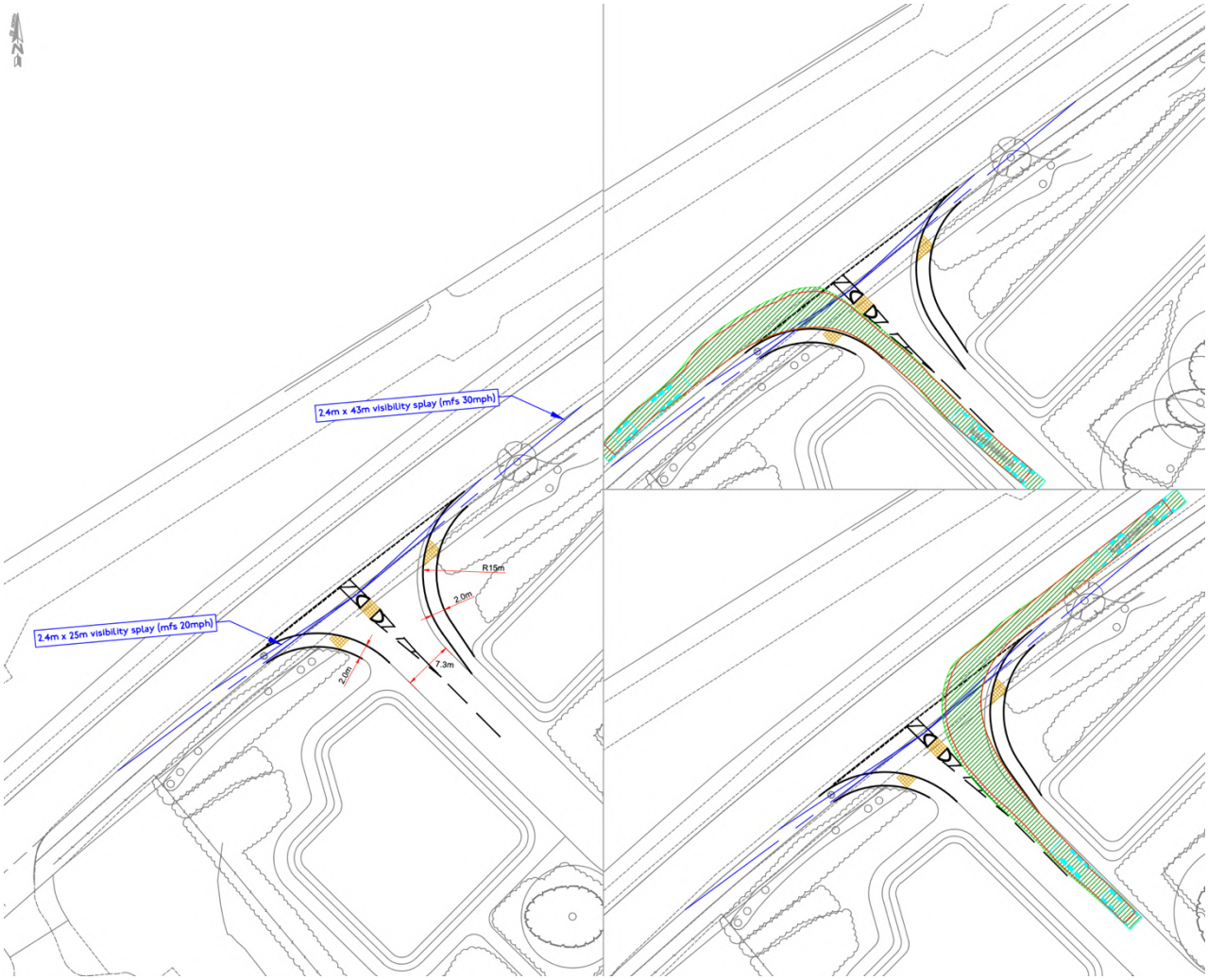
2.3.6 Access Option B, to the east, features a new priority junction from Davy Way comprising a 7.3m wide carriageway and 15m kerb radii with a pedestrian refuge island.

2.3.7 Visibility splays of 2.4m x 43m can be achieved in both directions along Davy Way within the adopted highway from the access junction.

2.3.8 Figure 2.2 shows the proposed site access with achievable visibility splays, with the full drawing (**Drawing No. J32-7829-PS-002**) attached in Appendix B.

2.3.9 Figure 2.2 also provides swept path analysis at the access for a 16.5m articulated HGV, as requested.

Figure 2.2 : Proposed Site Access Junction – Access Option B



3. Road Safety

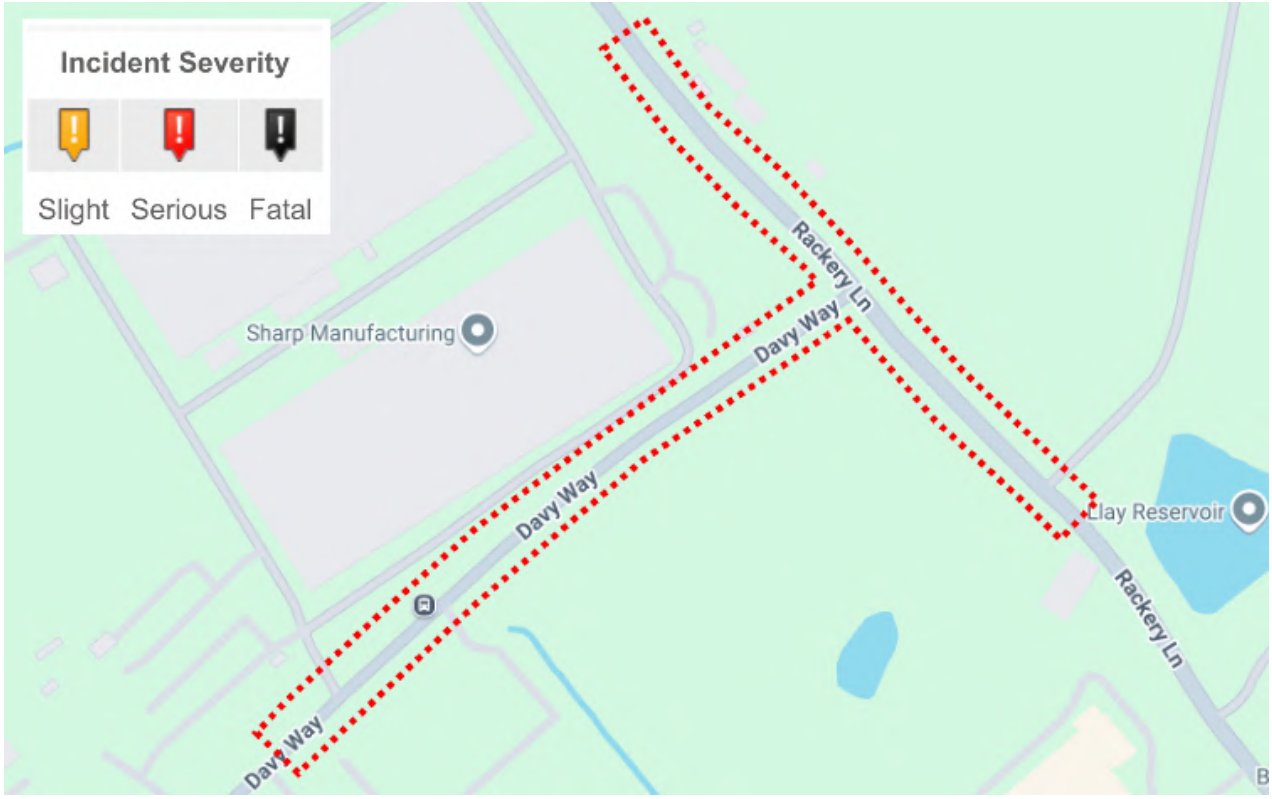
3.1.1 WCBC Highways have requested that the most up to date Personal Injury Collision (PIC) data is provided.

3.1.2 PIC data in vicinity of the development site has been obtained from the CrashMap database (crashmap.co.uk) for the most recently available five-year period between 2019 and 2023. Figure 3.1 shows the extent of the study area.

3.1.3 Based on the absence of recorded PICs, there is no evidence to suggest that the highway layout, design or condition are significant factors in PIC records on the local highway network.

3.1.4 There is also no evidence to suggest that the proposed development would increase risks of PICs in the surrounding area or have a detrimental impact on highway safety.

Figure 3.1 : Personal Injury Collision Locations (source : CrashMap)



4. Sustainable Transport and Active Travel

4.1 Introduction

4.1.1 WCBC request a review of the pedestrian routes to local public transport connections.

4.1.2 As stated in the TA, there are several bus stops on the local highway network which have been considered. No rail stations were identified within the walking catchment.

4.2 Local Bus Services

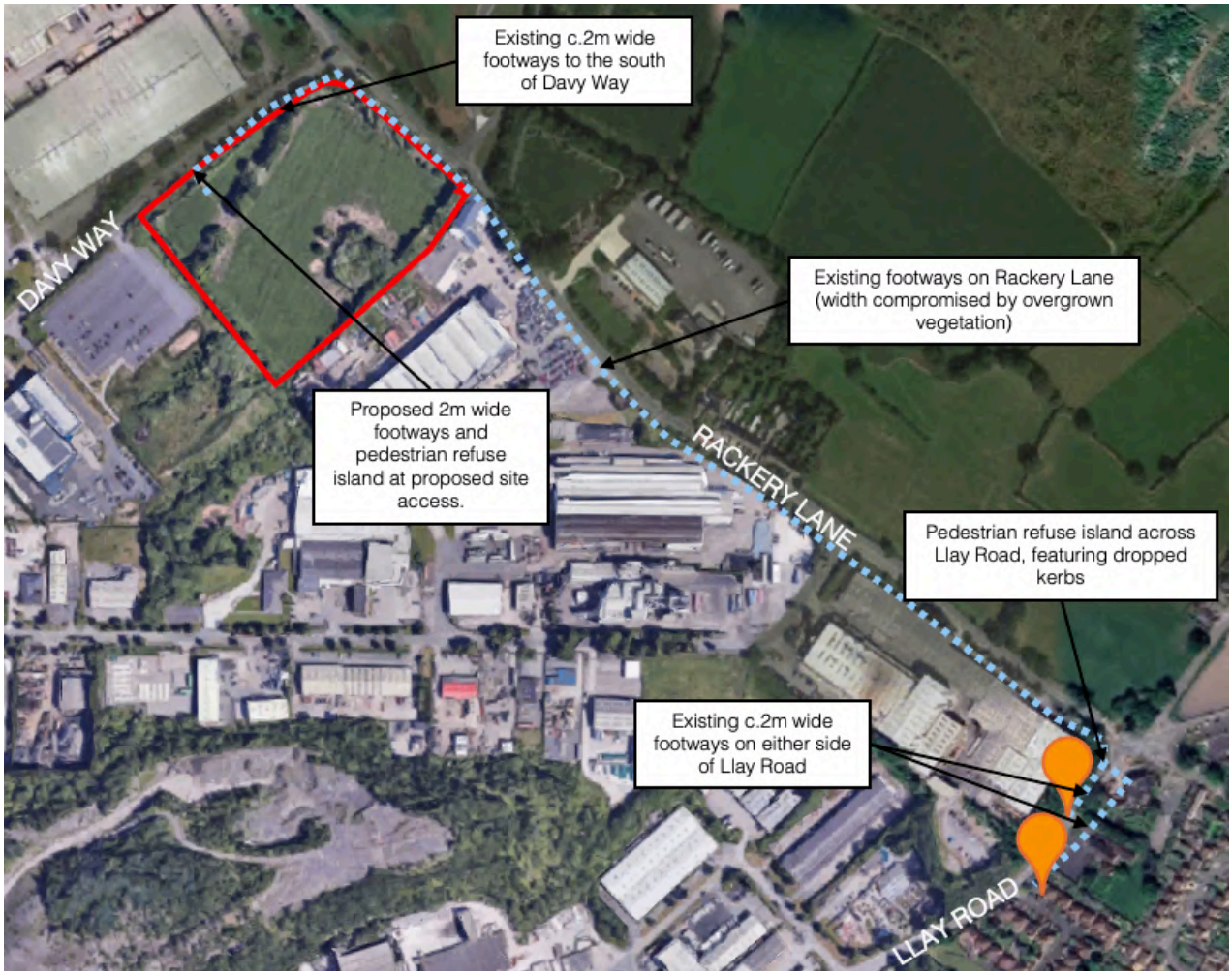
4.2.1 As stated within the TA, the closest bus stops to the site are located on Davy Way within c.150m (2-minute walk).

4.2.2 These bus stops are available directly to the west of the site, via the proposed development's internal 2m wide footways, which connect with c.2m wide footways on Davy Way.

4.2.3 Additional services are also available from bus stops on Llay Road (B5102) towards Llay Village Centre within c.1.0km (12-minute walk). Figure 4.1 provides a pedestrian route map to the bus stops on Llay Road, with commentary.

4.2.4 As shown in Figure 4.1, a pedestrian route, which consists of footways and a pedestrian refuge island, is available to bus stops on Llay Road. It should be noted that it is understood that areas of the footway on Rackery Lane, all within the adopted highway, that do not currently provide a usable 2m footway. It appears that the width of the footway is compromised by overgrown vegetation. However, once the vegetation is trimmed back, the footway widths will be sufficient.

Figure 4.1 : Pedestrian Routes to Llay Road Bus Stops



5. Trip Generation

5.1 TRICS Trip Rates

5.1.1 WCBC request a review of the TRICS trip rates presented within the TA submitted as part of the planning application. WCBC comments on the TRICS data are summarised below:

- Remove sites over 8 years old
- Remove sites in Ireland
- Present worst case trip rates for assessment based on a review of Employment land use sub categories in TRICS for individual land uses.

5.1.2 Each of these matters have been addressed in the subsequent sub-sections.

Updated TRICS Trip Rates

5.1.3 To quantify the traffic impact of the development on the local highway network, an updated trip generation exercise has been undertaken for the proposed development. Vehicle trip rates have been derived from the latest TRICS database (v7.11.4) using the '*Employment – Industrial Estate*' land use category.

5.1.4 TRICS surveys conducted during the COVID-19 pandemic were removed due to the impact of the pandemic on travel behaviour.

5.1.5 At the request of WCBC Highways sites in Greater London, Ireland and Northern Ireland have been removed.

5.1.6 In line with TRICS' published land use sub-category definitions, for flexible Use Class multi-unit schemes, as proposed, TRICS advises the use of the Industrial Estate land use sub category (02/D) :

"A number of industrial buildings at the same site. If predominantly warehousing, then include as 02/E or 02/F. If predominantly office then include as 02/B. If the estate contains significant retail generators then include as 16/B."

5.1.7 The *Industrial Estate* sub-category in TRICS captures:

- Sites with multiple units of varying sizes,
- a mix of light industrial, general industrial, and storage/distribution uses; and
- flexibility in unit occupation and turnover.

5.1.8 This aligns well with modern employment developments marketed with a flexible use class (often E(g)(iii)/B2/B8), where end users and exact usage proportions are not known at the planning stage.

5.1.9 This category reflects the typical operational and occupancy characteristics of such schemes, including a range of unit sizes, mixed-use patterns, and variable tenancy. It offers a balanced and robust basis for assessment where the specific end-user profile is not fixed at the application stage and is consistent with accepted industry practice and guidance.

5.1.10 It should be noted that the *'Industrial Unit* and *Warehousing (Commercial)'* sub-category within TRICS typically generates lower trip rates than the *'Industrial Estate'* land use category. This is because the *'Industrial Unit'* sites often represent larger, single-occupier B2 or B8 units, which are predominantly used for manufacturing or warehousing, and generally operate with lower employment densities and limited ancillary office or research functions.

5.1.11 In contrast, the 'Industrial Estate' category more accurately reflects multi-occupancy sites comprising a mix of small to medium units with a broader range of uses, including light industry, general industrial, research and development, and ancillary office space. These uses tend to generate higher staff numbers and visitor movements, particularly during the AM and PM peak periods, resulting in higher trip rates compared to the more mono-functional Industrial Unit or Warehousing categories.

5.1.12 Given that an option for the proposed development is a multi-unit employment scheme with a flexible use class (B2/B8/E(g)) and no fixed end users, in accordance with TRICS guidance, the 'Industrial Estate' category is considered the most appropriate and robust basis for trip generation assessment. It provides a realistic, evidence-based representation of the likely operational characteristics of the site and ensures that the potential traffic impact is not underestimated.

5.1.13 In the site selection section of TRICS for the '*Industrial Estate'* sub-category, percentages of the land uses (office, research and development, light industrial, general industrial, storage and distribution) at each site are presented. Whilst there are fewer sites with proportions of B8 above 50%, in order to represent a mixed scheme, no sites were deselected based on proportions of land use.

5.1.14 The updated TRICS trip rates and resulting trips are presented in Table 5.1 (TRICS outputs attached in Appendix C). The TRICS trip rates presented in Table 5.1 are considered to represent a fully flexible employment scheme.

Table 5.1 : TRICS Trip Rates – Proposed Development Multi Unit with Flexible Use Class (Vehicles)

Land Use	AM Peak Hour (08:00 - 09:00)			PM Peak Hour (16:00 - 17:00)		
	Arrivals	Depart.	Total	Arrivals	Depart.	Total
All Vehicles						
'Employment – Industrial Estate' (per 100sqm)	0.579	0.255	**0.834**	0.325	0.504	**0.829**
Proposed Development (10,157sqm)	59	26	**85**	33	51	**84**
Cars / LGV						
'Employment – Industrial Estate' (per 100sqm)	0.548	0.234	**0.782**	0.305	0.486	**0.791**
Proposed Development (10,157sqm)	56	24	**80**	31	49	**80**
HGVs						
'Employment – Industrial Estate' (per 100sqm)	0.031	0.021	**0.052**	0.02	0.018	**0.038**
Proposed Development (10,157sqm)	3	2	**5**	2	2	**4**
PCUs						
Proposed Development (10,157sqm)	63	29	**92**	36	54	**90**

100% E(g) (iii) Land Use

5.1.15 Even though the use of the *Industrial Unit* sub category could be used to assess a 100% B2 land uses, Mode considers this to be inappropriate for multi-unit schemes as it is likely to under-represent the number of trips generated during the peak hours.

5.1.16 Instead, Mode has undertaken a review of the sites selected for the TRICS trip rates presented in Table 5.1 (TRICS outputs attached in Appendix C) and de-selected any sites where the proportion of Storage and Distribution land use exceeded 50%. Note that this remains a robust approach as it still includes sites with higher proportions of office, research and development and light industrial uses.

5.1.17 The updated TRICS trip rates and resulting trips are presented in Table 5.2 (TRICS outputs attached in Appendix D).

Table 5.2 : TRICS Trip Rates – Proposed Development with Higher B1C / B2 Uses (Vehicles)

Land Use	AM Peak Hour (08:00 - 09:00)			PM Peak Hour (16:00 - 17:00)		
	Arrivals	Depart.	Total	Arrivals	Depart.	Total
All Vehicles						
'Employment – Industrial Estate' (per 100sqm)	0.607	0.267	**0.874**	0.339	0.516	**0.855**
Proposed Development (10,157sqm)	62	27	**89**	34	52	**87**
Cars / LGV						
'Employment – Industrial Estate' (per 100sqm)	0.575	0.244	**0.819**	0.319	0.500	**0.819**
Proposed Development (10,157sqm)	58	25	**83**	32	51	**83**
HGVs						
'Employment – Industrial Estate' (per 100sqm)	0.032	0.023	**0.055**	0.020	0.016	**0.036**
Proposed Development (10,157sqm)	3	2	**5**	2	2	**4**
PCUs						
Proposed Development (10,157sqm)	66	30	**96**	37	55	**92**

5.1.18 As shown in Table 5.2, when sites with over 50% B8 uses were de-selected, the impact on the TRICS trip rates was negligible. The adjustment resulted in 4no. additional two-way PCU trips during the AM peak and 2no. additional two-way PCU trips during the PM peak. On the basis that there is no notable difference, no further assessment of this scenario has been undertaken.

100% B8 Warehousing Land Use

5.1.19 It should be noted that under the '*Industrial Estate'* land use category, there are very few sites where the proportion of B8 floor space exceeds 50%. Therefore, it was not possible obtain a representative sample of sites. Furthermore, as advised by TRICS in their land use sub-category definitions for sites that are "*predominantly warehousing, then include as 02/E or 02/F.*

5.1.20 Despite the reasons set out above as to why assessing multi-unit flexible schemes might not be appropriate, at the request of WCBC, an updated TRICS assessment using the *Warehousing (Commercial)* land use sub-category.

5.1.21 Whilst the number of HGV trips associated with these land uses is typically higher than with predominantly light or general industrial schemes, this use usually generate fewer car movements. As such, the trips will be converted to PCUs and compared against the *Industrial Estate* sub category to determine the worst-case trip generation to be carried forward into the traffic impact assessment.

5.1.22 The TRICS trip rates and resulting trips are presented in Table 5.3 (TRICS outputs attached in Appendix E) for a warehousing development.

Table 5.3 : TRICS Trip Rates – Proposed Development Warehousing (Vehicles)

Land Use	AM Peak Hour (08:00 - 09:00)			PM Peak Hour (16:00 - 17:00)		
	Arrivals	Depart.	Total	Arrivals	Depart.	Total
All Vehicles						
'Employment – Industrial Estate' (per 100sqm)	0.186	0.101	**0.287**	0.095	0.162	**0.257**
Proposed Development (10,157sqm)	19	10	**29**	10	16	**26**
Cars / LGV						
'Employment – Industrial Estate' (per 100sqm)	0.147	0.048	**0.195**	0.047	0.129	**0.176**
Proposed Development (10,157sqm)	15	5	**20**	5	13	**18**
HGVs						
'Employment – Industrial Estate' (per 100sqm)	0.039	0.053	**0.092**	0.048	0.033	**0.081**
Proposed Development (10,157sqm)	4	5	**9**	5	3	**8**
PCUs						
Proposed Development (10,157sqm)	24	17	**41**	16	21	**37**

5.1.23 Despite the number of HGV movements during the peak hour being increased when using the Warehousing (Commercial) land-use sub-category, the total number of trips in both vehicle movements and PCU's is considerably lower in a 100% B8 scenario.

5.2 Summary

5.2.1 It is deemed appropriate to use the updated *Employment - Industrial Estate* trip rates presented in Table 5.1 for the updated traffic impact assessment.

6. Multi Modal Trip Generation

6.1.1 At the request of WCBC Highways, multi-modal trip rates have been derived for the proposed development to ascertain the people trips associated with the site.

6.1.2 The same methodology applied to the vehicle TRICS trip rates have been used.

6.1.3 The multi-modal TRICS trip rates and resulting people trips are presented in Table 6.1 and are attached in Appendix F.

Table 6.1 : Multimodal TRICS Trip Rates – People Trips

Land Use	AM Peak Hour (08:00 - 09:00)			PM Peak Hour (16:00 - 17:00)		
	Arrivals	Depart.	Total	Arrivals	Depart.	Total
Total People Trips						
'Employment – Industrial Estate' (per 100sqm)	0.826	0.33	**1.156**	0.502	0.709	**1.211**
Proposed Development (10,157sqm)	84	34	**117**	51	72	**123**
Pedestrian Trips						
'Employment – Industrial Estate' (per 100sqm)	0.033	0.027	**0.06**	0.02	0.027	**0.047**
Proposed Development (10,157sqm)	3	3	**6**	2	3	**5**
Cyclist Trips						
'Employment – Industrial Estate' (per 100sqm)	0.031	0.021	**0.052**	0.02	0.018	**0.038**
Proposed Development (10,157sqm)	3	2	**5**	2	2	**4**
Public Transport User Trips						
'Employment – Industrial Estate' (per 100sqm)	0.019	0.002	**0.021**	0.005	0.009	**0.014**
Proposed Development (10,157sqm)	2	0	**2**	1	1	**1**

6.1.4 As shown in Table 6.1, the proposed development is expected to generate:

- 6 pedestrian trips, 5 cyclist trips and 2 public transport user trips during the AM peak hour; and

- 5 pedestrian trips, 4 cyclist trips and 1 public transport user trips during the PM peak hour.

7. Trip Distribution

7.1 HGV Distribution

7.1.1 No changes to the HGV trip distribution are proposed on the basis that the HGV flows amount to 5no. two-way PCU movements during the AM peak and 4no. two-way HGV movements during the PM peak. Any changes to the distribution are unlikely to have any notable impact on the modelling results.

7.1.2 The distribution of both car/LGV and HGV trips are presented on the network diagrams attached in Appendix G.

8. Traffic Impact Assessment

8.1 Assessment Scenarios

8.1.1 Individual AM and PM network peak hours derived for each junction from the traffic survey data and the development peak hour traffic flows were added to these. Therefore, assessing the worst case impact with the network peak + development peak.

8.1.2 Junction capacity assessments have been undertaken for the following scenarios during the weekday AM and PM peak hours:

- 2023 Base
- 2029 Base
- 2029 Base + Development

8.1.3 The 2029 future year scenario is intended to replicate traffic conditions on the local highway network 5-years post application planning submission.

8.1.4 It is considered that the request to undertake an additional future year assessment beyond this application year + 5 years is not necessary.

8.1.5 In this case, the development is not considered to have a significant long-term strategic impact that would necessitate extended horizon testing. The five-year assessment provides a proportionate and robust analysis of the expected traffic impacts within the timeframe during which the development is most likely to be delivered and occupied.

8.2 Future Year Traffic Growth

8.2.1 To robustly represent future traffic conditions on the local highway network, TEMPRO v.8.1 calibrated with the Road Traffic Forecasts (RTF) 2018 dataset has been used to generate traffic growth factors based on the site's MSOA, 'Wrexham 020', for the weekday AM and PM peak periods.

8.2.2 Future year growth factors were applied to the 2023 base flows to generate future baseline flows for 2029.

8.2.3 A summary of the AM and PM peak period TEMPRO growth factors is shown in Table 8.1.

Table 8.1 : TEMPRO Growth Factors ('Wrexham 020' MSOA)

Day / Time Period	2023 - 2029
Weekday AM Period	1.0401
Weekday PM Period	1.0402

8.2.4 Traffic flow network diagrams for the 2023 base year and 2029 future year are attached in Appendix G.

8.3 Committed Development

8.3.1 A review has been undertaken of any appropriate committed development within the vicinity of the site for inclusion within the assessments.

8.3.2 Whilst a review was undertaken, no committed developments have been identified.

8.4 Capacity Assessment Tools

8.4.1 The industry standard traffic software package Junctions 9 (PICADY) has been used to model the site access junction. It should be noted that Junctions 9 was used. While newer versions of the PICADY software (such as those integrated into Junctions 10) offer updated features and refinements, Junctions 9 PICADY remains fully valid and acceptable for use in most traffic assessment contexts. The underlying traffic modelling principles, including gap acceptance theory and geometry-based capacity calculations, have not fundamentally changed between versions.

8.4.2 The industry standard traffic software package LinSig (v3) has been used to model signalised junctions across the study area during the AM and PM peak periods.

8.5 LinSig Assessment

8.5.1 The LinSig assessment undertaken as part of the TA have been updated to reflect the changes to the trip generation and comments received from WCBC. The signal specifications for this junction are attached in Appendix H.

8.5.2 The Chapel Lane approach has been modelled using bonus greens to represent the additional green time available to the lanes that run in stages that proceed and precede the demand dependent phase controlling Chapel Lane.

Pedestrian Phase

8.5.3 A dedicated pedestrian phase across Rackery Lane is not considered necessary or proportionate in the context of this development. There is already an existing unsignalised pedestrian route across the junction that provides access to local bus stops and nearby amenities, which continues to serve the area. Furthermore, the proposed development is situated on Davy Way, approximately 850 metres from the junction with Rackery Lane.

8.5.4 Infrastructure improvements should be directly related to the development and fairly and reasonably related in scale and kind. Given that the scheme is forecast to generate only around 6 pedestrian movements during each peak hour, the requirement for a signalised pedestrian phase would be disproportionate to its actual impact and has not been considered.

8.6 Proposed Site Access / Davy Way Junction

8.6.1 A summary of the junction capacity results at the proposed Site Access / Davy Way junction are presented in Table 8.2, with the full PICADY outputs attached in Appendix I.

Table 8.2 : Site Access / Davy Way – Capacity Modelling Results

Arm	Weekday AM Peak			Weekday PM Peak		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
2029 Base + Development						
Site Access	0.2	9.91	0.19	0.1	8.70	0.12
Davy Way	0.0	0.00	0.00	0.0	0.00	0.00

8.6.2 The analysis in Table 8.2 shows that the proposed site access is expected to operate within capacity and with low levels of queuing and delay in the 2029 Base + Development scenario.

8.7 Rackery Lane / Chapel Lane / B5102 / Gresford Road – Signal Junction

8.7.1 A summary of the junction capacity results at the Rackery Lane / Chapel Lane / B5102 / Gresford Road signal junction are presented in Table 8.3 to Table 8.5, with the full LinSig outputs included in Appendix J.

Table 8.3 : 2023 Base - Rackery Lane / Chapel Lane / B5102 / Gresford Road – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCUHr)	Queue (PCU)	DoS (%)	Delay (PCUHr)	Queue (PCU)
Rackery Lane Ahead Right Left Left	90.0	12.0	15.1	84.9	10.7	13.2
Gresford Road Left Ahead Right Right	89.3	6.6	10.9	85.1	6.2	11.2
Chapel Lane Left Ahead Right U-turn	26.7	0.4	0.6	14.1%	0.2	0.3
Straight Mile Left Ahead Right U-turn	88.8	8.2	12.1	80.4	5.9	7.1
Llay Road Right Left Ahead Ahead	89.6	9.4	19.0	85.0	7.8	16.5
Total Delay (PCU/Hr)		36.74			30.71	
PRC%		0.0			5.8	

Table 8.4 : 2029 Base - Rackery Lane / Chapel Lane / B5102 / Gresford Road – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCUHr)	Queue (PCU)	DoS (%)	Delay (PCUHr)	Queue (PCU)
Rackery Lane Ahead Right Left Left	93.7	14.3	17.5	88.2	11.9	14.5
Gresford Road Left Ahead Right Right	92.8	7.8	12.3	88.5	7.0	12.4
Chapel Lane Left Ahead Right U-turn	26.7	0.4	0.6	14.1	0.2	0.3
Straight Mile Left Ahead Right U-turn	92.4	9.7	13.8	83.5	6.2	7.5
Llay Road Right Left Ahead Ahead	93.0	11.1	21.3	88.6	8.9	18.0
Total Delay (PCU/Hr)		43.30			34.21	
PRC%		-4.1			1.6	

Table 8.5 : 2029 Base + Development - Rackery Lane / Chapel Lane / B5102 / Gresford Road – LinSig Results

Arm	AM Peak			PM Peak		
	DoS (%)	Delay (PCUHr)	Queue (PCU)	DoS (%)	Delay (PCUHr)	Queue (PCU)
Rackery Lane Ahead Right Left Left	97.5	18.0	21.3	92.2	13.9	16.7
Gresford Road Left Ahead Right Right	94.1	8.4	12.9	91.8	8.0	13.3
Chapel Lane Left Ahead Right U-turn	9.8	0.2	0.5	5.2	0.1	0.2
Straight Mile Left Ahead Right U-turn	97.5	13.0	17.4	92.3	6.8	8.2
Llay Road Right Left Ahead Ahead	96.9	14.2	24.9	92.4	10.4	19.8
Total Delay (PCU/Hr)		53.81			39.17	
PRC%		-8.4			-2.7	

8.7.2 The modelling results show that in the 2029 base scenario, all approaches, with the exception of Chapel Lane, are expected to operate with a DoS above 90% in the AM, and a DoS approaching 90% in the PM.

8.7.3 Although the results show that in 2029 AM and PM Base + Development scenarios the network is forecast to operate with a PRC of -8.4% and -2.7% respectively, the modelling also shows that the junction is forecast to operate with a PRC of –4.1% in the 2029 AM Base (without development) and a PRC of 1.6% in the 2029 PM Base (without development) scenario.

8.7.4 The impact of the proposed development is -less than 5% on overall PRC with only minor increases expected in queueing and delay. Furthermore, all arms are forecast to operate with a DoS below 100% and as such are operating below their theoretical capacity.

8.7.5 It should also be noted that the LinSig models do not take into account the benefit of MOVA which is in operation at this location. LinSig can only run in fixed cycle times and stage sequences and MOVA control can vary the cycle time and green times allocated to stages to match local conditions and this can improve overall capacity levels and reduce queuing.

8.7.6 It has therefore been demonstrated that the overall impact of the proposed development on the operation of this junction is low.

8.8 Summary

8.8.1 The junction capacity analysis shows that the proposed development is expected to have a low impact on capacity across the local highway network.

8.8.2 Overall, the analysis shows that the proposed development will not have a *"severe"* impact on the local highway network.

9. Travel Plan

9.1.1 It is noted that WCBC Highways have some comments regarding the Travel Plan (TP). The TP submitted as part of the planning application documentation was a Framework Travel Plan (FTP); Its purpose is to form the reference point for a future full TP once the development is occupied.

9.1.2 A full TP which will include specific incentives and local actions, can be secured through a suitable planning condition to ensure it is specific to the future occupier, their staff and their needs.

10. Summary

10.1.1 In summary, the evidence and analysis presented in this note addresses the most recent comments received from WCBC. In addition, it further demonstrates that the proposed development would not have a detrimental or severe impact on the operation of the local highway network.

APPENDIX A WCBC Highways Consultation Response

MEMORANDUM

From:	Chief Officer, Environment & Technical	**To:**	Chief Officer Economy & Planning
		FAO::	Dafydd Thomas
Our Ref:	ET/DC/MZ/P/2024/1675	**Your Ref:**	P/2024/1675
Date:	14/05/2025		

TOWN AND COUNTRY PLANNING ACT 1990

CAIS AMLINELLOL AM DDATBLYGIAD DIWYDIANNOL - O OFOD LLAWR DOSBARTH B1(C), B2 A/NEU B8 GAN GYNNWYS GOFOD SWYDDFA ATEGOL A SEILWAITH A GWAITH CYSYLLTIEDIG (POB MATER WEDI EU CADW YN ÔL) / OUTLINE APPLICATION FOR INDUSTRIAL DEVELOPMENT - CLASS B1(C) - LIGHT INDUSTRIAL, B2 - GENERAL INDUSTRIAL AND/OR B8 - STORAGE OR DISTRIBUTION INCLUDING ANCILLARY OFFICE ACCOMMODATION AND ASSOCIATED INFRASTRUCTURE AND WORKS (ALL MATTERS RESERVED)

LAND SOUTH OF DAVY WAY AND WEST OF, RACKERY LANE, LLAY, WREXHAM, LL12 0PB

I refer to your consultation / email dated 02/01/2025 in respect of the above.

It is the LHA's understanding that the proposals are for the provision of an outline application for upto 11,613 sq m of class B1C, B2 and or B8 employment floorspace including ancillary office accommodation together with associated infrastructure and works (including estate roads, yards, parking, footpaths, internal hard and soft landscaping and drainage works).

The submitted information included a travel plan, a Transportation Assessment, a site layout plan, a planning statement and some other documents. As the proposals are for outline permission for all matters, it is considered that the arrangements shown on the site layout plan could change at reserve matters stage.

Transportation Assessment

There seems to be some conflict over the proposed size of the site with 10,157 sq m quoted within the application form and 11,613 sq m quoted within the description of the submission which will have an impact on the data gleaned as the trip rates are calculated per 100 sq m of floorspace.

It is also noted that in the TA there is reference to an extant use, the submitted application form details agricultural use and the LHA would request further clarification on this as the site does not currently appear to be in use. Any deductions from the trip rate calculations should only be based on agreed extant use.

It is understood that all the matters of detail including the exact split of floorspace between B1C, B2 and B8 are still to be determined. On this basis the LHA would recommend a worst case scenario assessment, that reviews the highest level of trip data based on assessments for the three potential uses, and also considers the level of space required for the turning and servicing of HGV's within the site.

Data

The submitted information refers to the 2020 TRICS Good Practice guide but was only submitted in 2024, when there is now a 2024 TRICS Good Practice guide in place. Some of the information included is a bit out of date, the collision investigation data for instance.

The TRICS data includes site surveys that are over eight years old which does not comply with the TRICS Good Practice guide and the two sites in Ireland should be removed as they are not comparable.

The sites selected seem to be free standing or edge of town which appear relatively appropriate, however, the area of the sites selected being upto 40,000 seems quite extensive for the proposed size of the site, however it is accepted that there is a need for a representative sample of sites to be input into the system to glean robust outcomes.

The data seems to focus on peak times of 8-9am and 4-5pm which is not the pm peak, the TRICS Good Practice Guide 2024 which states that 'when presenting TRICS data it is considered good practice to provide trip calculation results covering peak hours of activity alongside the generally accepted 'road peak hours' i.e. 0800-0900 weekday mornings and 1700-1800 weekday evenings)'. It is accepted that the site peak hours for arrivals and departures may not necessarily correspond with the road peaks, however, as this is a speculative outline application there is no detail provided in relation to the likely hours of operation or shift work that may take place at the site. In cases where they do not correspond, trip rates for both road peaks and site peaks should be supplied.

There are also concerns about the methods used to extrapolate HGV trip numbers, for a site of this nature the numbers quoted appear very low and the two indicative plans indicate very different site layouts, one could support the operation of a variety of different businesses.

From a trip generation perspective the LHA would expect a higher number of HGV's and servicing movements for B8 use and for B1C there would be much higher car use. Using B2 or general industrial in TRICS could potentially downplay the level of trips for either of these use classes and therefore a worst case scenario should be assessed and modelled.

It is noted that surveys undertaken during the COVID-19 pandemic have been removed from the data which is acceptable.

Modelling

Traffic Surveys

It is accepted that the traffic surveys gleaned were undertaken in a neutral month during 2023.

Trip Generation & Distribution

The methodology employed for the trip generation and distribution has been based on a rather standard method of using travel to work census data from the 2011 Census which it seen as the most robust survey due to Covid-19.

Super output area (MSOA 020) has been used which covers the local area and the splits relating to trip distribution look reasonable, with 8% within MSOA 020, 70% within wider Wrexham and

the remainder to Flintshire, Shropshire, Cheshire West and Chester. The origin-destination seems reasonable for employees and visitors of the site. The HGV distribution seems rather speculative with 30% proposed to travel to Llay Road, 35% to the A483 travelling north and 35% to the A483 travelling south which could impact the modelling outcomes.

Methodology

The vehicle trip generation has been gleaned from TRICS for vehicle trips. The issues raised in regards to the TRICS sites used and the peak periods means that the trip generation requires updating, therefore the LHA feels there is little point at this stage providing extensive comments on the modelling supplied as the data updates will influence the modelling outputs.

The methodology does appear to be based on a base year of 2023, followed by a 2029 year with the base traffic levels and a 2029 year with base traffic levels + development traffic, there doesn't appear to be a future assessment undertaken, which the modelling would benefit from.

The latest version of TEMPRO traffic growth assumptions have been employed to the data on both the 2029 base traffic data and the 2029 base traffic data + development traffic.

The modelling undertaken does flag up some concerns with the operation of the Rackery Lane / Chapel Lane / Gresford Road / B5102 junction that is located in close proximity to the Aldi. The traffic signal controlled junction at this location was installed in the last few years and does incorporate MOVA. Whilst the applicants transport consultant argues that the impact of the development traffic is negligible, with the growth factor applied and the proposed traffic generation from the development currently proposed, the modelling indicates that the junction would exceed its Practical Reserve Capacity. It is understood and accepted that the Linsig model doesn't take account of the demand dependent phase on the Chapel Lane approach which may not be triggered on each cycle of the lights, when not triggered this green time is reallocated to the other arms and therefore the modelling provided could be seen to represent a worst case scenario.

At present there is no pedestrian phase across the Rackery Lane arm of the signals and it is considered that such a provision would be beneficial to aid staff from the site and from the wider Industrial estate to cross the junction to access the Aldi on foot. Such a facility would potentially require an all red phase within the signals which would potentially impact the capacity of the junction. Therefore further analysis and assessment on this junction and its operation is deemed necessary as part of the proposals.

It is unclear if the modelling indicated has used the same pm peak hour set out in the TRICS data of 4-5pm or whether it has used the network pm peak of 5-6pm, clarification is required and it is considered that the 5-6pm pm peak period should be utilised moving forward.

The TA made no mention of committed developments within the vicinity of the site, the applicant should review and make reference to this within the modelling assessments to ensure that all committed development trips are incorporated into the modelling assessments undertaken.

No detail has been undertaken in relation to person trips / multi-modal approach to assess non-car mode trips, which could also use Census data from 2011 and National Travel Survey data to find likely levels of trips for different modes of transport.

The modelling undertaken has utilised the Junctions 9 software, which has since been upgraded to Junctions 11 which indicates that the modelling may require updating.

Access arrangements

Whilst the proposals are indicated as outline, two indicative access points have been indicated within the submission. Both are located along Davy Way which is currently a 20mph road. With some double yellow lines installed along it for a stretch of junction protection measures from its

junction with Rackery Lane. There is a footway located along the frontage and a grass verge. There are no pedestrian crossing facilities within the vicinity of the site.

Visibility Splays

It is noted that the submitted drawings indicate visibility splays for accesses onto Davy Way for 20mph roads of 2.4m x 25m to the nearside kerbline which complies with the required visibility for a 20mph road, however in light of the recent change in stance of the Welsh Government the LHA would raise that it may be appropriate for the provision of visibility splays for a 30mph road, of 2.4m x 43m for the proposed vehicular access point.

Swept Paths

Whilst swept paths for 16.5 articulated HGV's have been shown for both of the indicative site access points, they seem tight and it is the LHA's view that a proposed access of this width would require a pedestrian refuge island In the centre and appropriate dropped kerbs and tactile paving to ensure pedestrian safety is not compromised at the site access. Swept paths for internal routes will also be required at reserved matters stage when further detail is supplied. LPGN 16 states that an area for HGV's to load / unload and turn within the site will normally be required for B2 and B8 uses.

Active Travel

Whilst the submitted TA details the local bus services and train stations closest to the site, there has been no audit on the quality of the pedestrian routes to these, whether dropped kerbs and tactile paving are in place or appropriate crossing facilities. This is required in order to determine if further mitigation measures are required within the vicinity of the site.

Footways of width 2m will be required within the site and also cycle parking and facilities suitable for long stay use, further details are supplied within LPGN16 but the LHA would also recommend the provision of showers, lockers, changing rooms and a drying room to enable cyclists to travel to the site in all weathers. Safe routes within the site to Davy Way that do not conflict with HGV movements should also be detailed within the reserved matters submission to ensure safety is not compromised.

Mitigation Measures

Any mitigation measures that affect the Councils adopted highway will require the submission of swept paths and Stage 1-3 Safety Audits and will need to be secured through a Section 278 Agreement.

Parking

Car

The requirements for car parking are set out within LPGN16. It is noted that the applicants transport consultant has referred to the parking figures for B2 use as robust, the LHA would raise that the parking requirements for B1C are higher than B2 and therefore this should be considered moving forwards to ensure the parking proposed for the development is fit for purpose.

10% of the parking spaces provided should be accessible as set out in LPGN16. The design and dimensions of the spaces required are also detailed within the document.

Cycle

The requirements for cycle parking are set out within LPGN16 and the applicant should ensure that long stay cycle parking is provided, secure and covered in a well overlooked location to comply with the requirements set out within the document. The Design & Access statement submitted has detailed a covered cycle parking store which appears to include Sheffield stands, whilst this design

appears acceptable in principle it should be located in a secure lockable compound to ensure it is appropriate for long stay purposes.

HGV

Should the development feature substantial levels of B8 floorspace there would be a requirement for the applicant to demonstrate that adequate parking spaces is available for HGV's within the site.

The LHA would recommend the provision of motorcycle parking spaces with secure lockable points and the provision of electric vehicle charging points for cars and bicycles would be welcome additions to the proposals.

Waste Management

The LHA would request clarification relating to the proposed waste management arrangements at the site. Whilst some details of the proposed waste management storage are indicated within the Design & Access Statement there is insufficient detail provided within the proposals at this stage and this will require further detail at the reserved matters stage.

Travel Plan

The LHA has reviewed the submitted travel plan but it appears to be a rather standard document that doesn't provide much in the way of specific smart targets or incentives to encourage active travel. A target of 10% mode shift from single occupancy vehicle trips is outlined but without specific measures over the proposed 5 years, the LHA is unsure whether that target would be achievable. The LHA would recommend incentives are outlined and local facilities set up to support staff, such as a car share scheme with a guaranteed lift home in times of sickness, a free months bus pass for new starters, cycle loan scheme etc. More specific local actions such as these are likely to have greater impact.

Summary

Whilst there are no objections in principle to the proposals, the traffic assessment, trip generation and traffic modelling work provided does not provide a clear picture of the impacts of the proposed development on the local highway network. Further work is required to this end to ensure a robust assessment of the proposals has been undertaken.

Further detail is required in regards to active travel to ensure that any required mitigation measures are detailed and agreed as appropriate at outline stage.

Further clarification is required in relation to the proposed floorspace of the development and also the extant permission that may be in place for the site that could affect the trip generation.

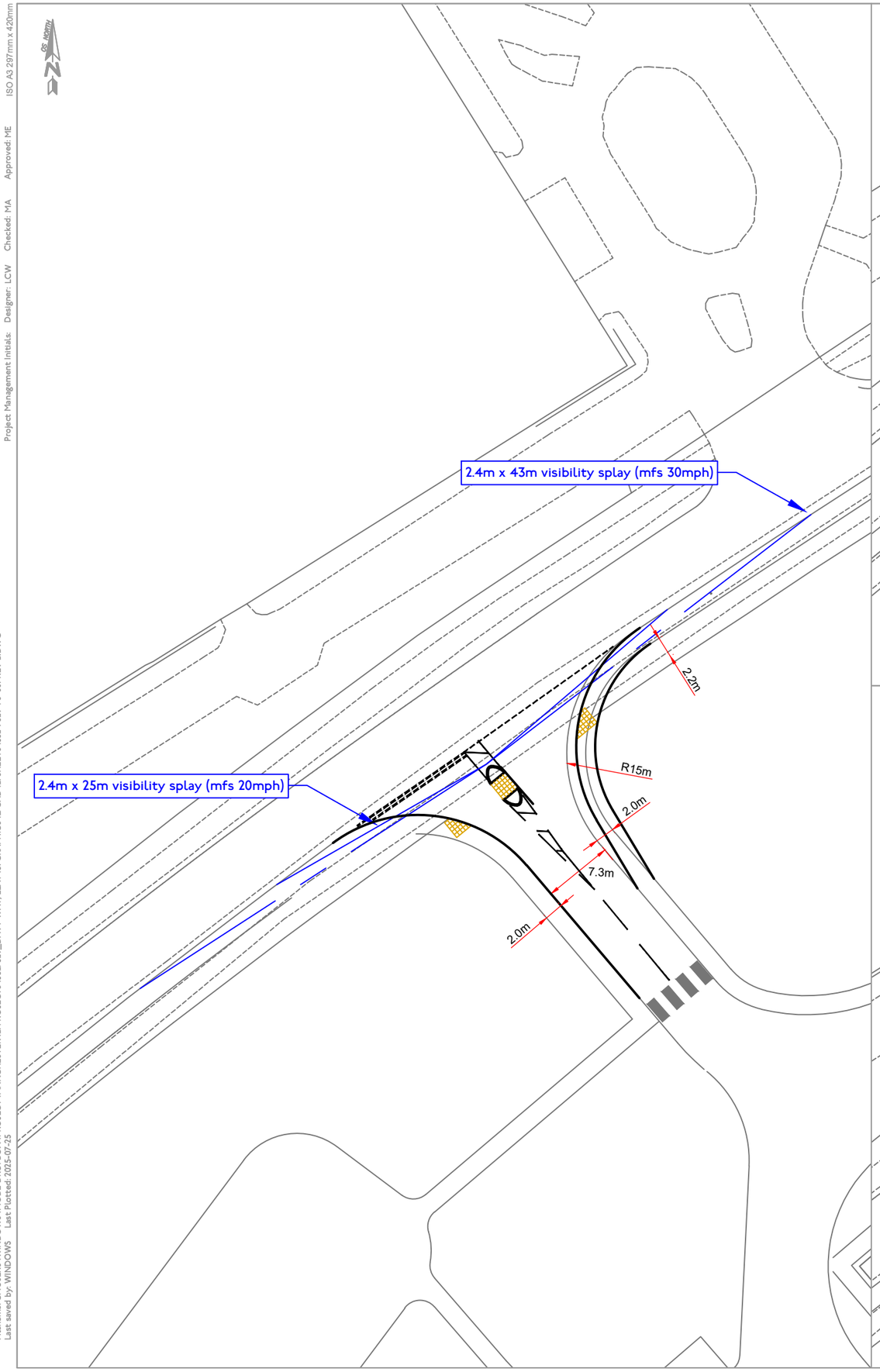
Amendments are also required to the sites surveyed in the TRICS assessment, the type of use surveyed and also the pm peak hour utilised.

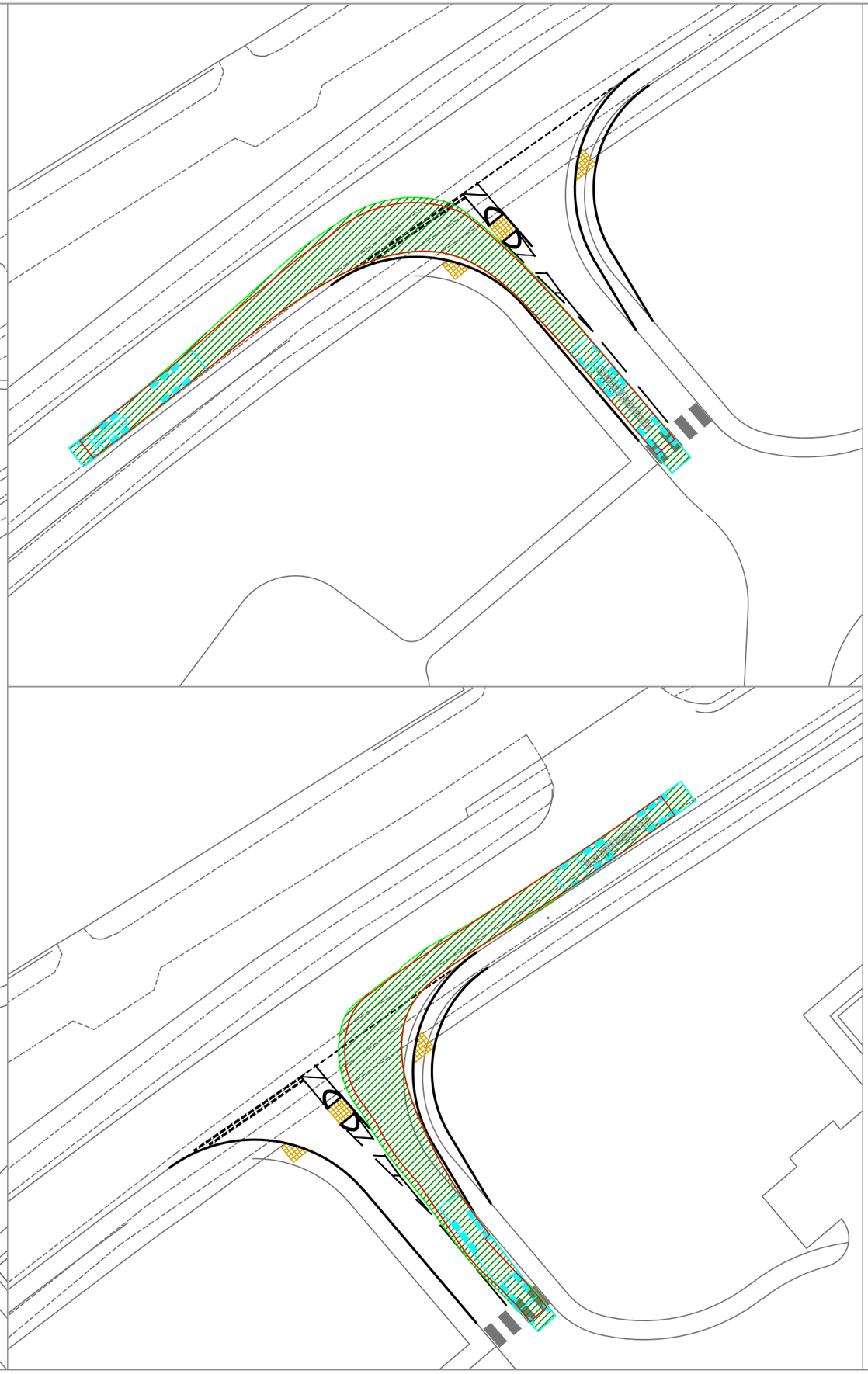


On behalf of Chief Officer, Environment & Technical

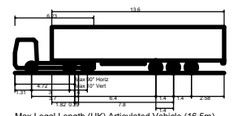
APPENDIX B Site Access

ISO A3 297mm x 420mm
Approved: ME
Checked: MA
Designer: LCW
Project Management Initials:
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Last saved by: WINDOWS
Last Plotted: 2025-07-25





mode
transport planning
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w www.modetransport.co.uk



Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
Overall Width	2.550m
Overall Body Height	3.832m
Min Body Ground Cd Clearance	0.396m
Max Track Width	2.500m
Lock to lock time	6.00s
Kerb to Kerb Turning Radius	6.870m

notes:

1. this drawing is to be read in conjunction with all other relevant drawings, any discrepancies, errors or omissions to be brought to the attention of overseeing organisation.
2. all dimensions to be checked before commencement of work on site.
3. all dimensions in metres unless otherwise stated.
4. the design is subject to approval of wrexham borough council.
5. drawing based on topographical survey.

issue/revision

i/r	date	description
B	08/07/2025	issued
A	10/06/2024	issued
-	02/05/2024	issued

client:ra & ce platt ltd

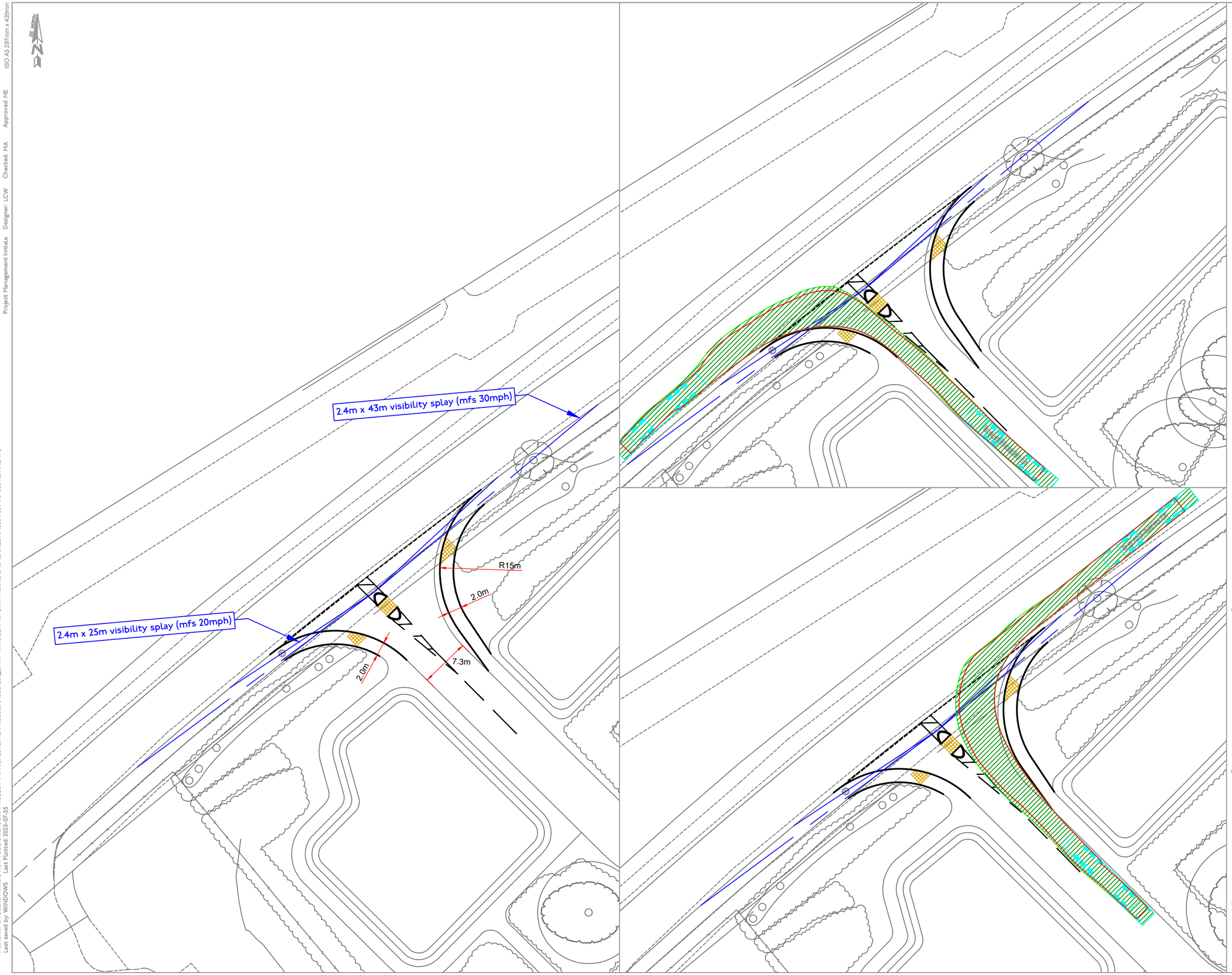
project: davy way, llay

project number: J327829

scale: 1:500@A3

drawing title:
site access & swept path analysis

drawing number:
J32-7829-PS-001



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transport planning

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w www.modetransport.co.uk

Max Legal Length (UK) Articulated Vehicle (16.5m)

Overall Length	16.500m
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issue/revision

i/r	date	description
A	25/07/2025	issued
-	02/05/2024	issued

client:ra & ce platt ltd

project: davy way, llay

project number: J327829

scale: 1:500@A3

drawing title:
site access 2 & swept path analysis

drawing number:
J32-7829-PS-002

Filename: C:\USERS\WINDOWS\MODE DROPBOX\PROJECT\MANCHESTER\2. PROJECTS\J327829_DAVY WAY, LLAY\5. GRAPHICS\2 CAD\3. SHEETS\J32-7829-PS-002 REV A.DWG
Last saved by: WINDOWS Last Plotted: 2025-07-25
Project Management initials: Designer: LCW Checked: MA Approved: ME ISO A3 297mm x 420mm

APPENDIX C TRICS Outputs B2/B8

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

Calculation Reference: AUDIT-754101-250704-0737

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	BU	BUCKINGHAMSHIRE	1 days
	EX	ESSEX	3 days
03	SOUTH WEST		
	DV	DEVON	1 days
	NS	NORTH SOMERSET	1 days
	SM	SOMERSET	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	5 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	AK	WAKEFIELD	3 days
	AL	CALDERDALE	1 days
	KS	KIRKLEES	1 days
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	LC	LANCASHIRE	2 days
09	NORTH		
	TW	TYNE & WEAR	2 days
10	WALES		
	SW	SWANSEA	2 days
	VG	VALE OF GLAMORGAN	1 days
11	SCOTLAND		
	HI	HIGHLAND	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:	1470 to 37130 (units: sqm)
Range Selected by User:	1000 to 40000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 30/04/24

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	7 days
Tuesday	4 days
Wednesday	6 days
Thursday	7 days
Friday	7 days

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

Selected survey types:

Manual count	31 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	30
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Industrial Zone	17
Development Zone	1
Residential Zone	3
Out of Town	2
No Sub Category	8

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	8 days - Selected
Servicing vehicles Excluded	25 days - Selected

Secondary Filtering selection:

Use Class:

n/a	1 days
Not Known	30 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®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	2 days
5,001 to 10,000	6 days
10,001 to 15,000	9 days
15,001 to 20,000	7 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	5 days
25,001 to 50,000	1 days
50,001 to 75,000	3 days
75,001 to 100,000	1 days
100,001 to 125,000	3 days
125,001 to 250,000	15 days
250,001 to 500,000	3 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	18 days
1.1 to 1.5	12 days
1.6 to 2.0	1 days

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

Travel Plan:

No	31 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	31 days

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

LIST OF SITES relevant to selection parameters

1 AK-02-D-01 INDUSTRIAL ESTATE WAKEFIELD
CARR WOOD ROAD
CASTLEFORD

Edge of Town
Development Zone
Total Gross floor area: 1776 sqm
Survey date: MONDAY *22/05/17* *Survey Type: MANUAL*

2 AK-02-D-02 INDUSTRIAL ESTATE (PART) WAKEFIELD
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 4328 sqm
Survey date: TUESDAY *23/05/17* *Survey Type: MANUAL*

3 AK-02-D-03 INDUSTRIAL ESTATE WAKEFIELD
THUNDERHEAD RIDGE RD
CASTLEFORD
GLASSHOUGHTON
Edge of Town
No Sub Category
Total Gross floor area: 3191 sqm
Survey date: MONDAY *15/05/17* *Survey Type: MANUAL*

4 AL-02-D-01 INDUSTRIAL ESTATE CALDERDALE
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY *17/10/18* *Survey Type: MANUAL*

5 BU-02-D-01 INDUSTRIAL ESTATE BUCKINGHAMSHIRE
BEECH ROAD
HIGH WYCOMBE

Edge of Town
Residential Zone
Total Gross floor area: 6460 sqm
Survey date: MONDAY *06/11/23* *Survey Type: MANUAL*

6 DV-02-D-07 INDUSTRIAL ESTATE DEVON
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY *03/07/17* *Survey Type: MANUAL*

7 EX-02-D-03 INDUSTRIAL ESTATE ESSEX
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 EX-02-D-04 INDUSTRIAL ESTATE ESSEX
PASTURE ROAD
WITHAM

Edge of Town
Industrial Zone
Total Gross floor area: 37130 sqm
Survey date: THURSDAY *10/05/18* *Survey Type: MANUAL*

9 EX-02-D-05 INDUSTRIAL ESTATE ESSEX
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

10 HI-02-D-04 INDUSTRIAL ESTATE HIGHLAND
FORRES ROAD
NAIRN

Edge of Town
No Sub Category
Total Gross floor area: 17000 sqm
Survey date: TUESDAY *18/04/23* *Survey Type: MANUAL*

11 KS-02-D-02 INDUSTRIAL ESTATE KIRKLEES
LAW STREET
CLECKHEATON

Edge of Town
Industrial Zone
Total Gross floor area: 23226 sqm
Survey date: THURSDAY *15/09/16* *Survey Type: MANUAL*

12 LC-02-D-07 INDUSTRIAL ESTATE LANCASHIRE
CHAIN CAUL WAY
PRESTON
ASHTON-ON-RIBBLE
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY *17/11/17* *Survey Type: MANUAL*

13 LC-02-D-08 INDUSTRIAL ESTATE LANCASHIRE
NOOK LANE
BAMBER BRIDGE

Edge of Town
Industrial Zone
Total Gross floor area: 4000 sqm
Survey date: TUESDAY *06/11/18* *Survey Type: MANUAL*

14 LN-02-D-03 INDUSTRIAL ESTATE LINCOLNSHIRE
DEACON ROAD
LINCOLN

Edge of Town
Industrial Zone
Total Gross floor area: 11265 sqm
Survey date: FRIDAY *28/06/19* *Survey Type: MANUAL*

15 LN-02-D-04 INDUSTRIAL ESTATE LINCOLNSHIRE
TATTERSHALL WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1506 sqm
Survey date: MONDAY *22/04/24* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

16 LN-02-D-05 INDUSTRIAL ESTATE LINCOLNSHIRE
BELVOIR WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 2176 sqm
Survey date: THURSDAY *18/04/24* *Survey Type: MANUAL*

17 LN-02-D-06 INDUSTRIAL ESTATE LINCOLNSHIRE
RICHMOND ROAD
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1470 sqm
Survey date: TUESDAY *30/04/24* *Survey Type: MANUAL*

18 LN-02-D-07 INDUSTRIAL ESTATE LINCOLNSHIRE
TRENT ROAD
GRANTHAM

Edge of Town
Residential Zone
Total Gross floor area: 10438 sqm
Survey date: FRIDAY *26/04/24* *Survey Type: MANUAL*

19 NF-02-D-04 INDUSTRIAL ESTATE NORFOLK
DRAYTON HIGH ROAD
NORWICH

Edge of Town
No Sub Category
Total Gross floor area: 10673 sqm
Survey date: WEDNESDAY *14/09/22* *Survey Type: MANUAL*

20 NS-02-D-01 INDUSTRIAL ESTATE NORTH SOMERSET
WINTERSTOKE ROAD
WESTON-SUPER-MARE
OLDMIXON
Edge of Town
Industrial Zone
Total Gross floor area: 27000 sqm
Survey date: THURSDAY *15/09/22* *Survey Type: MANUAL*

21 NY-02-D-03 INDUSTRIAL ESTATE NORTH YORKSHIRE
RACECOURSE ROAD
RICHMOND

Edge of Town
Out of Town
Total Gross floor area: 35183 sqm
Survey date: THURSDAY *05/05/22* *Survey Type: MANUAL*

22 NY-02-D-04 INDUSTRIAL ESTATE NORTH YORKSHIRE
GRIMBALD CRAG CLOSE
KNARESBOROUGH

Edge of Town
Industrial Zone
Total Gross floor area: 1660 sqm
Survey date: FRIDAY *30/06/23* *Survey Type: MANUAL*

23 SM-02-D-01 INDUSTRIAL ESTATE SOMERSET
A359
YEOVIL
SPARKFORD
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 12000 sqm
Survey date: WEDNESDAY *03/04/19* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

24 SW-02-D-01 INDUSTRIAL ESTATE SWANSEA
UPPER FOREST WAY
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 6822 sqm
Survey date: WEDNESDAY 09/10/19 Survey Type: MANUAL

25 SW-02-D-02 INDUSTRIAL ESTATE SWANSEA
CLARION COURT
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 5280 sqm
Survey date: THURSDAY 10/10/19 Survey Type: MANUAL

26 TW-02-D-09 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 6200 sqm
Survey date: WEDNESDAY 18/05/22 Survey Type: MANUAL

27 TW-02-D-10 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 21500 sqm
Survey date: WEDNESDAY 18/05/22 Survey Type: MANUAL

28 VG-02-D-01 INDUSTRIAL ESTATE VALE OF GLAMORGAN
ARTHUR STREET
BARRY

Edge of Town
No Sub Category
Total Gross floor area: 13091 sqm
Survey date: MONDAY 08/05/17 Survey Type: MANUAL

29 WK-02-D-03 INDUSTRIAL ESTATE WARWICKSHIRE
EASTBORO WAY
NUNEATON

Edge of Town
Industrial Zone
Total Gross floor area: 20860 sqm
Survey date: THURSDAY 26/09/19 Survey Type: MANUAL

30 WK-02-D-04 INDUSTRIAL ESTATE WARWICKSHIRE
ABELES WAY
ATHERSTONE

Edge of Town
No Sub Category
Total Gross floor area: 17500 sqm
Survey date: FRIDAY 27/09/19 Survey Type: MANUAL

31 WO-02-D-02 INDUSTRIAL ESTATE WORCESTERSHIRE
WEIR LANE
WORCESTER

Edge of Town
Residential Zone
Total Gross floor area: 9500 sqm
Survey date: MONDAY 14/11/16 Survey Type: MANUAL

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
NM-02-D-01	COVID19

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	16	11983	0.069	16	11983	0.022	16	11983	0.091
06:00 - 07:00	17	11941	0.139	17	11941	0.056	17	11941	0.195
07:00 - 08:00	31	11064	0.406	31	11064	0.124	31	11064	0.530
08:00 - 09:00	31	11064	0.579	31	11064	0.255	31	11064	0.834
09:00 - 10:00	31	11064	0.442	31	11064	0.328	31	11064	0.770
10:00 - 11:00	31	11064	0.385	31	11064	0.345	31	11064	0.730
11:00 - 12:00	31	11064	0.377	31	11064	0.383	31	11064	0.760
12:00 - 13:00	31	11064	0.374	31	11064	0.427	31	11064	0.801
13:00 - 14:00	31	11064	0.392	31	11064	0.397	31	11064	0.789
14:00 - 15:00	31	11064	0.338	31	11064	0.402	31	11064	0.740
15:00 - 16:00	31	11064	0.297	31	11064	0.345	31	11064	0.642
16:00 - 17:00	31	11064	0.325	31	11064	0.504	31	11064	0.829
17:00 - 18:00	31	11064	0.199	31	11064	0.512	31	11064	0.711
18:00 - 19:00	31	11064	0.099	31	11064	0.215	31	11064	0.314
19:00 - 20:00	17	11941	0.079	17	11941	0.130	17	11941	0.209
20:00 - 21:00	17	11941	0.028	17	11941	0.066	17	11941	0.094
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.528			4.511			9.039

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:	1470 - 37130 (units: sqm)
Survey date date range:	01/01/16 - 30/04/24
Number of weekdays (Monday-Friday):	31
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	16	11983	0.005	16	11983	0.005	16	11983	0.010
06:00 - 07:00	17	11941	0.007	17	11941	0.011	17	11941	0.018
07:00 - 08:00	31	11064	0.011	31	11064	0.010	31	11064	0.021
08:00 - 09:00	31	11064	0.031	31	11064	0.021	31	11064	0.052
09:00 - 10:00	31	11064	0.031	31	11064	0.029	31	11064	0.060
10:00 - 11:00	31	11064	0.032	31	11064	0.030	31	11064	0.062
11:00 - 12:00	31	11064	0.032	31	11064	0.029	31	11064	0.061
12:00 - 13:00	31	11064	0.027	31	11064	0.028	31	11064	0.055
13:00 - 14:00	31	11064	0.028	31	11064	0.027	31	11064	0.055
14:00 - 15:00	31	11064	0.027	31	11064	0.027	31	11064	0.054
15:00 - 16:00	31	11064	0.022	31	11064	0.025	31	11064	0.047
16:00 - 17:00	31	11064	0.020	31	11064	0.018	31	11064	0.038
17:00 - 18:00	31	11064	0.006	31	11064	0.009	31	11064	0.015
18:00 - 19:00	31	11064	0.003	31	11064	0.005	31	11064	0.008
19:00 - 20:00	17	11941	0.003	17	11941	0.002	17	11941	0.005
20:00 - 21:00	17	11941	0.002	17	11941	0.001	17	11941	0.003
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.287			0.277			0.564

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

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

APPENDIX D TRICS Outputs 100% B2

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

Calculation Reference: AUDIT-754101-250704-0702

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	3 days
03	SOUTH WEST		
	DV	DEVON	1 days
	NS	NORTH SOMERSET	1 days
	SM	SOMERSET	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	4 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
	WO	WORCESTERSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	AK	WAKEFIELD	2 days
	AL	CALDERDALE	1 days
	KS	KIRKLEES	1 days
	NY	NORTH YORKSHIRE	2 days
08	NORTH WEST		
	LC	LANCASHIRE	2 days
09	NORTH		
	TW	TYNE & WEAR	2 days
10	WALES		
	VG	VALE OF GLAMORGAN	1 days
11	SCOTLAND		
	HI	HIGHLAND	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:	1470 to 37130 (units: sqm)
Range Selected by User:	1000 to 40000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 30/04/24

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	5 days
Tuesday	4 days
Wednesday	4 days
Thursday	6 days
Friday	6 days

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

Selected survey types:

Manual count	25 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	24
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Industrial Zone	15
Development Zone	1
Residential Zone	1
Out of Town	2
No Sub Category	6

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	8 days - Selected
Servicing vehicles Excluded	25 days - Selected

Secondary Filtering selection:

Use Class:

n/a	1 days
Not Known	24 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®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

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

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

Population within 5 miles:

5,001 to 25,000	5 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
100,001 to 125,000	3 days
125,001 to 250,000	10 days
250,001 to 500,000	3 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	12 days
1.1 to 1.5	12 days
1.6 to 2.0	1 days

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

Travel Plan:

No	25 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	25 days

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

LIST OF SITES relevant to selection parameters

1 AK-02-D-01 INDUSTRIAL ESTATE WAKEFIELD
CARR WOOD ROAD
CASTLEFORD

Edge of Town
Development Zone
Total Gross floor area: 1776 sqm
Survey date: MONDAY *22/05/17* *Survey Type: MANUAL*

2 AK-02-D-02 INDUSTRIAL ESTATE (PART) WAKEFIELD
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 4328 sqm
Survey date: TUESDAY *23/05/17* *Survey Type: MANUAL*

3 AL-02-D-01 INDUSTRIAL ESTATE CALDERDALE
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY *17/10/18* *Survey Type: MANUAL*

4 DV-02-D-07 INDUSTRIAL ESTATE DEVON
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY *03/07/17* *Survey Type: MANUAL*

5 EX-02-D-03 INDUSTRIAL ESTATE ESSEX
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

6 EX-02-D-04 INDUSTRIAL ESTATE ESSEX
PASTURE ROAD
WITHAM

Edge of Town
Industrial Zone
Total Gross floor area: 37130 sqm
Survey date: THURSDAY *10/05/18* *Survey Type: MANUAL*

7 EX-02-D-05 INDUSTRIAL ESTATE ESSEX
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 HI-02-D-04 INDUSTRIAL ESTATE HIGHLAND
FORRES ROAD
NAIRN

Edge of Town
No Sub Category
Total Gross floor area: 17000 sqm
Survey date: TUESDAY 18/04/23 Survey Type: MANUAL

9 KS-02-D-02 INDUSTRIAL ESTATE KIRKLEES
LAW STREET
CLECKHEATON

Edge of Town
Industrial Zone
Total Gross floor area: 23226 sqm
Survey date: THURSDAY 15/09/16 Survey Type: MANUAL

10 LC-02-D-07 INDUSTRIAL ESTATE LANCASHIRE
CHAIN CAUL WAY
PRESTON
ASHTON-ON-RIBBLE
Edge of Town
Industrial Zone
Total Gross floor area: 4700 sqm
Survey date: FRIDAY 17/11/17 Survey Type: MANUAL

11 LC-02-D-08 INDUSTRIAL ESTATE LANCASHIRE
NOOK LANE
BAMBER BRIDGE

Edge of Town
Industrial Zone
Total Gross floor area: 4000 sqm
Survey date: TUESDAY 06/11/18 Survey Type: MANUAL

12 LN-02-D-03 INDUSTRIAL ESTATE LINCOLNSHIRE
DEACON ROAD
LINCOLN

Edge of Town
Industrial Zone
Total Gross floor area: 11265 sqm
Survey date: FRIDAY 28/06/19 Survey Type: MANUAL

13 LN-02-D-04 INDUSTRIAL ESTATE LINCOLNSHIRE
TATTERSHALL WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1506 sqm
Survey date: MONDAY 22/04/24 Survey Type: MANUAL

14 LN-02-D-05 INDUSTRIAL ESTATE LINCOLNSHIRE
BELVOIR WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 2176 sqm
Survey date: THURSDAY 18/04/24 Survey Type: MANUAL

15 LN-02-D-06 INDUSTRIAL ESTATE LINCOLNSHIRE
RICHMOND ROAD
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1470 sqm
Survey date: TUESDAY 30/04/24 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

16 NS-02-D-01 INDUSTRIAL ESTATE NORTH SOMERSET
WINTERSTOKE ROAD
WESTON-SUPER-MARE
OLDMIXON
Edge of Town
Industrial Zone
Total Gross floor area: 27000 sqm
Survey date: THURSDAY 15/09/22 *Survey Type: MANUAL*

17 NY-02-D-03 INDUSTRIAL ESTATE NORTH YORKSHIRE
RACECOURSE ROAD
RICHMOND

Edge of Town
Out of Town
Total Gross floor area: 35183 sqm
Survey date: THURSDAY 05/05/22 *Survey Type: MANUAL*

18 NY-02-D-04 INDUSTRIAL ESTATE NORTH YORKSHIRE
GRIMBALD CRAG CLOSE
KNARESBOROUGH

Edge of Town
Industrial Zone
Total Gross floor area: 1660 sqm
Survey date: FRIDAY 30/06/23 *Survey Type: MANUAL*

19 SM-02-D-01 INDUSTRIAL ESTATE SOMERSET
A359
YEOVIL
SPARKFORD
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 12000 sqm
Survey date: WEDNESDAY 03/04/19 *Survey Type: MANUAL*

20 TW-02-D-09 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 6200 sqm
Survey date: WEDNESDAY 18/05/22 *Survey Type: MANUAL*

21 TW-02-D-10 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 21500 sqm
Survey date: WEDNESDAY 18/05/22 *Survey Type: MANUAL*

22 VG-02-D-01 INDUSTRIAL ESTATE VALE OF GLAMORGAN
ARTHUR STREET
BARRY

Edge of Town
No Sub Category
Total Gross floor area: 13091 sqm
Survey date: MONDAY 08/05/17 *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

23 WK-02-D-03 INDUSTRIAL ESTATE WARWICKSHIRE
EASTBORO WAY
NUNEATON

Edge of Town
Industrial Zone
Total Gross floor area: 20860 sqm
Survey date: THURSDAY *26/09/19* *Survey Type: MANUAL*

24 WK-02-D-04 INDUSTRIAL ESTATE WARWICKSHIRE
ABELES WAY
ATHERSTONE

Edge of Town
No Sub Category
Total Gross floor area: 17500 sqm
Survey date: FRIDAY *27/09/19* *Survey Type: MANUAL*

25 WO-02-D-02 INDUSTRIAL ESTATE WORCESTERSHIRE
WEIR LANE
WORCESTER

Edge of Town
Residential Zone
Total Gross floor area: 9500 sqm
Survey date: MONDAY *14/11/16* *Survey Type: MANUAL*

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

MANUALLY DESELECTED SITES

Site Ref	Reason for Deselection
AK-02-D-03	B8>50%
BU-02-D-01	B8>50%
LN-02-D-07	B8>50%
NF-02-D-04	B8>50%
NM-02-D-01	COVID19
SW-02-D-01	B8>50%
SW-02-D-02	B8>50%

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	11	13823	0.072	11	13823	0.027	11	13823	0.099
06:00 - 07:00	12	13610	0.150	12	13610	0.064	12	13610	0.214
07:00 - 08:00	25	12005	0.420	25	12005	0.128	25	12005	0.548
08:00 - 09:00	25	12005	0.607	25	12005	0.267	25	12005	0.874
09:00 - 10:00	25	12005	0.460	25	12005	0.342	25	12005	0.802
10:00 - 11:00	25	12005	0.384	25	12005	0.352	25	12005	0.736
11:00 - 12:00	25	12005	0.378	25	12005	0.392	25	12005	0.770
12:00 - 13:00	25	12005	0.380	25	12005	0.440	25	12005	0.820
13:00 - 14:00	25	12005	0.397	25	12005	0.409	25	12005	0.806
14:00 - 15:00	25	12005	0.340	25	12005	0.411	25	12005	0.751
15:00 - 16:00	25	12005	0.299	25	12005	0.349	25	12005	0.648
16:00 - 17:00	25	12005	0.339	25	12005	0.516	25	12005	0.855
17:00 - 18:00	25	12005	0.211	25	12005	0.543	25	12005	0.754
18:00 - 19:00	25	12005	0.108	25	12005	0.218	25	12005	0.326
19:00 - 20:00	12	13610	0.096	12	13610	0.118	12	13610	0.214
20:00 - 21:00	12	13610	0.034	12	13610	0.061	12	13610	0.095
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			4.675			4.637			9.312

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:	1470 - 37130 (units: sqm)
Survey date date range:	01/01/16 - 30/04/24
Number of weekdays (Monday-Friday):	25
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	7

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	11	13823	0.006	11	13823	0.007	11	13823	0.013
06:00 - 07:00	12	13610	0.008	12	13610	0.013	12	13610	0.021
07:00 - 08:00	25	12005	0.011	25	12005	0.011	25	12005	0.022
08:00 - 09:00	25	12005	0.032	25	12005	0.023	25	12005	0.055
09:00 - 10:00	25	12005	0.032	25	12005	0.030	25	12005	0.062
10:00 - 11:00	25	12005	0.032	25	12005	0.031	25	12005	0.063
11:00 - 12:00	25	12005	0.031	25	12005	0.029	25	12005	0.060
12:00 - 13:00	25	12005	0.026	25	12005	0.028	25	12005	0.054
13:00 - 14:00	25	12005	0.025	25	12005	0.026	25	12005	0.051
14:00 - 15:00	25	12005	0.027	25	12005	0.025	25	12005	0.052
15:00 - 16:00	25	12005	0.021	25	12005	0.024	25	12005	0.045
16:00 - 17:00	25	12005	0.020	25	12005	0.016	25	12005	0.036
17:00 - 18:00	25	12005	0.006	25	12005	0.006	25	12005	0.012
18:00 - 19:00	25	12005	0.004	25	12005	0.005	25	12005	0.009
19:00 - 20:00	12	13610	0.004	12	13610	0.002	12	13610	0.006
20:00 - 21:00	12	13610	0.002	12	13610	0.002	12	13610	0.004
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.287			0.278			0.565

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

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

APPENDIX E TRICS Outputs 100% B8

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

Calculation Reference: AUDIT-754101-250704-0751

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES

Selected regions and areas:

02	SOUTH EAST		
	EX	ESSEX	1 days
	HC	HAMPSHIRE	1 days
	MW	MEDWAY	1 days
03	SOUTH WEST		
	DV	DEVON	1 days
	GS	GLOUCESTERSHIRE	1 days
05	EAST MIDLANDS		
	DS	DERBYSHIRE	1 days
	NN	NORTH NORTHAMPTONSHIRE	1 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	BD	BRADFORD	1 days
09	NORTH		
	CU	CUMBERLAND	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:	3665 to 49081 (units: sqm)
Range Selected by User:	2000 to 50000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 19/06/24

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

Selected survey days:

Monday	2 days
Wednesday	3 days
Thursday	2 days
Friday	2 days

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

Selected survey types:

Manual count	9 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	8
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Industrial Zone	7
Commercial Zone	1
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	3 days - Selected
Servicing vehicles Excluded	9 days - Selected

Secondary Filtering selection:

Use Class:

n/a	1 days
B8	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®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,001 to 5,000	3 days
10,001 to 15,000	4 days
15,001 to 20,000	2 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
50,001 to 75,000	1 days
100,001 to 125,000	1 days
125,001 to 250,000	4 days
250,001 to 500,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	2 days
1.1 to 1.5	7 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	9 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	9 days

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

LIST OF SITES relevant to selection parameters

1 BD-02-F-01 DISTRIBUTION COMPANY BRADFORD
STAITHGATE LANE
BRADFORD
NEWHALL
Edge of Town
Industrial Zone
Total Gross floor area: 10446 sqm
Survey date: THURSDAY 14/03/19 Survey Type: MANUAL

2 CU-02-F-01 WAREHOUSING & DISTRIBUTION CUMBERLAND
CARLISLE ROAD
BRAMPTON

Edge of Town
Industrial Zone
Total Gross floor area: 4007 sqm
Survey date: WEDNESDAY 19/06/24 Survey Type: MANUAL

3 DS-02-F-01 LOGISTICS DEPOT DERBYSHIRE
PARK ROAD
HOLMEWOOD

Edge of Town
Industrial Zone
Total Gross floor area: 7000 sqm
Survey date: WEDNESDAY 04/10/23 Survey Type: MANUAL

4 DV-02-F-03 LIDL DISTRIBUTION CENTRE DEVON
CHILLPARK BRAKE
NEAR EXETER
CLYST HONITON
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 49081 sqm
Survey date: MONDAY 22/11/21 Survey Type: MANUAL

5 EX-02-F-01 SPORTS SUPPLEMENTS ESSEX
BRUNEL WAY
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 6560 sqm
Survey date: FRIDAY 18/05/18 Survey Type: MANUAL

6 GS-02-F-01 LOGISTICS WAREHOUSE GLOUCESTERSHIRE
GOLF CLUB LANE
NEAR GLOUCESTER
BROCKWORTH
Edge of Town
Commercial Zone
Total Gross floor area: 24500 sqm
Survey date: WEDNESDAY 03/05/23 Survey Type: MANUAL

7 HC-02-F-03 PPE DISTRIBUTION HAMPSHIRE
WARSASH ROAD
PARK GATE

Edge of Town
Industrial Zone
Total Gross floor area: 3665 sqm
Survey date: MONDAY 27/09/21 Survey Type: MANUAL

8 MW-02-F-02 COMMERCIAL WAREHOUSING MEDWAY
MILLS ROAD
AYLESFORD
QUARRY WOOD
Edge of Town
Industrial Zone
Total Gross floor area: 11200 sqm
Survey date: FRIDAY 22/09/17 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

9 NN-02-F-01 WAREHOUSING & DISTRIBUTION CENTRE NORTH NORTHAMPTONSHIRE
HALLEY ROAD
CORBY

Edge of Town
Industrial Zone
Total Gross floor area: 18790 sqm
Survey date: THURSDAY *19/10/23* *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-02-F-01	COVID 19
LO-02-F-01	COVID 19
NW-02-F-02	COVID 19

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
TOTAL VEHICLES
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	6	18971	0.145	6	18971	0.068	6	18971	0.213
06:00 - 07:00	6	18971	0.129	6	18971	0.083	6	18971	0.212
07:00 - 08:00	9	15028	0.195	9	15028	0.106	9	15028	0.301
08:00 - 09:00	9	15028	0.186	9	15028	0.101	9	15028	0.287
09:00 - 10:00	9	15028	0.126	9	15028	0.096	9	15028	0.222
10:00 - 11:00	9	15028	0.087	9	15028	0.075	9	15028	0.162
11:00 - 12:00	9	15028	0.078	9	15028	0.087	9	15028	0.165
12:00 - 13:00	9	15028	0.103	9	15028	0.100	9	15028	0.203
13:00 - 14:00	9	15028	0.120	9	15028	0.118	9	15028	0.238
14:00 - 15:00	9	15028	0.088	9	15028	0.158	9	15028	0.246
15:00 - 16:00	9	15028	0.085	9	15028	0.135	9	15028	0.220
16:00 - 17:00	9	15028	0.095	9	15028	0.162	9	15028	0.257
17:00 - 18:00	9	15028	0.095	9	15028	0.161	9	15028	0.256
18:00 - 19:00	8	16031	0.044	8	16031	0.097	8	16031	0.141
19:00 - 20:00	5	21365	0.045	5	21365	0.060	5	21365	0.105
20:00 - 21:00	5	21365	0.040	5	21365	0.040	5	21365	0.080
21:00 - 22:00	1	18790	0.016	1	18790	0.059	1	18790	0.075
22:00 - 23:00	1	18790	0.005	1	18790	0.043	1	18790	0.048
23:00 - 24:00	1	18790	0.005	1	18790	0.005	1	18790	0.010
Total Rates:			1.687			1.754			3.441

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:	3665 - 49081 (units: sqm)
Survey date date range:	01/01/16 - 19/06/24
Number of weekdays (Monday-Friday):	9
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 show. Finally, the number of survey days that have been manually removed from the selected set outside of the standard filtering procedure are displayed.

TRIP RATE for Land Use 02 - EMPLOYMENT/F - WAREHOUSING (COMMERCIAL)
OGVS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	6	18971	0.025	6	18971	0.029	6	18971	0.054
06:00 - 07:00	6	18971	0.037	6	18971	0.043	6	18971	0.080
07:00 - 08:00	9	15028	0.041	9	15028	0.058	9	15028	0.099
08:00 - 09:00	9	15028	0.039	9	15028	0.053	9	15028	0.092
09:00 - 10:00	9	15028	0.046	9	15028	0.050	9	15028	0.096
10:00 - 11:00	9	15028	0.039	9	15028	0.034	9	15028	0.073
11:00 - 12:00	9	15028	0.030	9	15028	0.037	9	15028	0.067
12:00 - 13:00	9	15028	0.037	9	15028	0.036	9	15028	0.073
13:00 - 14:00	9	15028	0.023	9	15028	0.038	9	15028	0.061
14:00 - 15:00	9	15028	0.034	9	15028	0.034	9	15028	0.068
15:00 - 16:00	9	15028	0.038	9	15028	0.030	9	15028	0.068
16:00 - 17:00	9	15028	0.048	9	15028	0.033	9	15028	0.081
17:00 - 18:00	9	15028	0.055	9	15028	0.024	9	15028	0.079
18:00 - 19:00	8	16031	0.026	8	16031	0.018	8	16031	0.044
19:00 - 20:00	5	21365	0.013	5	21365	0.017	5	21365	0.030
20:00 - 21:00	5	21365	0.009	5	21365	0.009	5	21365	0.018
21:00 - 22:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
22:00 - 23:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
23:00 - 24:00	1	18790	0.000	1	18790	0.000	1	18790	0.000
Total Rates:			0.540			0.543			1.083

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

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

APPENDIX F Multi-Modal Trip Rates

mode transport limited Lombard House, 145 Great Charles Street Birmimgham, B3 3LP Licence No: 754101

Calculation Reference: AUDIT-754101-250725-0711

TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
Category : D - INDUSTRIAL ESTATE
MULTI-MODAL CYCLISTS

Selected regions and areas:

01	GREATER LONDON		
	BE	BEXLEY	1 days
02	SOUTH EAST		
	BU	BUCKINGHAMSHIRE	1 days
	EX	ESSEX	3 days
03	SOUTH WEST		
	DV	DEVON	1 days
	SM	SOMERSET	1 days
04	EAST ANGLIA		
	NF	NORFOLK	1 days
05	EAST MIDLANDS		
	LN	LINCOLNSHIRE	4 days
06	WEST MIDLANDS		
	WK	WARWICKSHIRE	2 days
07	YORKSHIRE & NORTH LINCOLNSHIRE		
	AK	WAKEFIELD	3 days
	AL	CALDERDALE	1 days
	NY	NORTH YORKSHIRE	2 days
09	NORTH		
	TW	TYNE & WEAR	2 days
10	WALES		
	SW	SWANSEA	2 days
	VG	VALE OF GLAMORGAN	1 days
11	SCOTLAND		
	HI	HIGHLAND	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:	1470 to 37130 (units: sqm)
Range Selected by User:	1000 to 40000 (units: sqm)

Parking Spaces Range: All Surveys Included

Public Transport Provision:
Selection by: Include all surveys

Date Range: 01/01/16 to 30/04/24

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	6 days
Tuesday	3 days
Wednesday	7 days
Thursday	5 days
Friday	5 days

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

Selected survey types:

Manual count	26 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	25
Free Standing (PPS6 Out of Town)	1

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

Selected Location Sub Categories:

Industrial Zone	13
Development Zone	1
Residential Zone	2
Out of Town	2
No Sub Category	8

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	9 days - Selected
Servicing vehicles Excluded	18 days - Selected

Secondary Filtering selection:

Use Class:
Not Known 26 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®.

Filter by Site Operations Breakdown:
All Surveys Included

Population within 500m Range:
All Surveys Included

Secondary Filtering selection (Cont.):

Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	2 days
5,001 to 10,000	5 days
10,001 to 15,000	9 days
15,001 to 20,000	4 days
20,001 to 25,000	2 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	5 days
25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
100,001 to 125,000	2 days
125,001 to 250,000	12 days
250,001 to 500,000	2 days
500,001 or More	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	17 days
1.1 to 1.5	9 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	26 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	25 days
1b Very poor	1 days

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

LIST OF SITES relevant to selection parameters

1 AK-02-D-01 INDUSTRIAL ESTATE WAKEFIELD
CARR WOOD ROAD
CASTLEFORD

Edge of Town
Development Zone
Total Gross floor area: 1776 sqm
Survey date: MONDAY *22/05/17* *Survey Type: MANUAL*

2 AK-02-D-02 INDUSTRIAL ESTATE (PART) WAKEFIELD
PIONEER WAY
CASTLEFORD

Edge of Town
Industrial Zone
Total Gross floor area: 4328 sqm
Survey date: TUESDAY *23/05/17* *Survey Type: MANUAL*

3 AK-02-D-03 INDUSTRIAL ESTATE WAKEFIELD
THUNDERHEAD RIDGE RD
CASTLEFORD
GLASSHOUGHTON
Edge of Town
No Sub Category
Total Gross floor area: 3191 sqm
Survey date: MONDAY *15/05/17* *Survey Type: MANUAL*

4 AL-02-D-01 INDUSTRIAL ESTATE CALDERDALE
MILL LANE
HALIFAX

Edge of Town
No Sub Category
Total Gross floor area: 11305 sqm
Survey date: WEDNESDAY *17/10/18* *Survey Type: MANUAL*

5 BE-02-D-01 INDUSTRIAL ESTATE BEXLEY
CRABTREE MANORWAY N.
ERITH

Edge of Town
Industrial Zone
Total Gross floor area: 3300 sqm
Survey date: WEDNESDAY *19/09/18* *Survey Type: MANUAL*

6 BU-02-D-01 INDUSTRIAL ESTATE BUCKINGHAMSHIRE
BEECH ROAD
HIGH WYCOMBE

Edge of Town
Residential Zone
Total Gross floor area: 6460 sqm
Survey date: MONDAY *06/11/23* *Survey Type: MANUAL*

7 DV-02-D-07 INDUSTRIAL ESTATE DEVON
BITTERN ROAD
EXETER
SOWTON IND. ESTATE
Edge of Town
Industrial Zone
Total Gross floor area: 3600 sqm
Survey date: MONDAY *03/07/17* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

8 EX-02-D-03 INDUSTRIAL ESTATE ESSEX
WYNCOLLS ROAD
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 4876 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

9 EX-02-D-04 INDUSTRIAL ESTATE ESSEX
PASTURE ROAD
WITHAM

Edge of Town
Industrial Zone
Total Gross floor area: 37130 sqm
Survey date: THURSDAY *10/05/18* *Survey Type: MANUAL*

10 EX-02-D-05 INDUSTRIAL ESTATE ESSEX
HECKWORTH CLOSE
COLCHESTER
SEVERALLS INDUSTRIAL PK
Edge of Town
Industrial Zone
Total Gross floor area: 7280 sqm
Survey date: FRIDAY *18/05/18* *Survey Type: MANUAL*

11 HI-02-D-04 INDUSTRIAL ESTATE HIGHLAND
FORRES ROAD
NAIRN

Edge of Town
No Sub Category
Total Gross floor area: 17000 sqm
Survey date: TUESDAY *18/04/23* *Survey Type: MANUAL*

12 LN-02-D-04 INDUSTRIAL ESTATE LINCOLNSHIRE
TATTERSHALL WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1506 sqm
Survey date: MONDAY *22/04/24* *Survey Type: MANUAL*

13 LN-02-D-05 INDUSTRIAL ESTATE LINCOLNSHIRE
BELVOIR WAY
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 2176 sqm
Survey date: THURSDAY *18/04/24* *Survey Type: MANUAL*

14 LN-02-D-06 INDUSTRIAL ESTATE LINCOLNSHIRE
RICHMOND ROAD
LOUTH

Edge of Town
Industrial Zone
Total Gross floor area: 1470 sqm
Survey date: TUESDAY *30/04/24* *Survey Type: MANUAL*

15 LN-02-D-07 INDUSTRIAL ESTATE LINCOLNSHIRE
TRENT ROAD
GRANTHAM

Edge of Town
Residential Zone
Total Gross floor area: 10438 sqm
Survey date: FRIDAY *26/04/24* *Survey Type: MANUAL*

LIST OF SITES relevant to selection parameters (Cont.)

16 NF-02-D-04 INDUSTRIAL ESTATE NORFOLK
DRAYTON HIGH ROAD
NORWICH

Edge of Town
No Sub Category
Total Gross floor area: 10673 sqm
Survey date: WEDNESDAY 14/09/22 Survey Type: MANUAL

17 NY-02-D-03 INDUSTRIAL ESTATE NORTH YORKSHIRE
RACECOURSE ROAD
RICHMOND

Edge of Town
Out of Town
Total Gross floor area: 35183 sqm
Survey date: THURSDAY 05/05/22 Survey Type: MANUAL

18 NY-02-D-04 INDUSTRIAL ESTATE NORTH YORKSHIRE
GRIMBALD CRAG CLOSE
KNARESBOROUGH

Edge of Town
Industrial Zone
Total Gross floor area: 1660 sqm
Survey date: FRIDAY 30/06/23 Survey Type: MANUAL

19 SM-02-D-01 INDUSTRIAL ESTATE SOMERSET
A359
YEOVIL
SPARKFORD
Free Standing (PPS6 Out of Town)
Out of Town
Total Gross floor area: 12000 sqm
Survey date: WEDNESDAY 03/04/19 Survey Type: MANUAL

20 SW-02-D-01 INDUSTRIAL ESTATE SWANSEA
UPPER FOREST WAY
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 6822 sqm
Survey date: WEDNESDAY 09/10/19 Survey Type: MANUAL

21 SW-02-D-02 INDUSTRIAL ESTATE SWANSEA
CLARION COURT
SWANSEA
SWANSEA ENTERPRISE PK
Edge of Town
Industrial Zone
Total Gross floor area: 5280 sqm
Survey date: THURSDAY 10/10/19 Survey Type: MANUAL

22 TW-02-D-09 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 6200 sqm
Survey date: WEDNESDAY 18/05/22 Survey Type: MANUAL

LIST OF SITES relevant to selection parameters (Cont.)

23 TW-02-D-10 INDUSTRIAL ESTATE TYNE & WEAR
ELEVENTH AVENUE
GATESHEAD
TEAM VALLEY
Edge of Town
No Sub Category
Total Gross floor area: 21500 sqm
Survey date: WEDNESDAY 18/05/22 Survey Type: MANUAL

24 VG-02-D-01 INDUSTRIAL ESTATE VALE OF GLAMORGAN
ARTHUR STREET
BARRY

Edge of Town
No Sub Category
Total Gross floor area: 13091 sqm
Survey date: MONDAY 08/05/17 Survey Type: MANUAL

25 WK-02-D-03 INDUSTRIAL ESTATE WARWICKSHIRE
EASTBORO WAY
NUNEATON

Edge of Town
Industrial Zone
Total Gross floor area: 20860 sqm
Survey date: THURSDAY 26/09/19 Survey Type: MANUAL

26 WK-02-D-04 INDUSTRIAL ESTATE WARWICKSHIRE
ABELES WAY
ATHERSTONE

Edge of Town
No Sub Category
Total Gross floor area: 17500 sqm
Survey date: FRIDAY 27/09/19 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.

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL CYCLISTS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	15	10982	0.004	15	10982	0.000	15	10982	0.004
06:00 - 07:00	15	10982	0.004	15	10982	0.000	15	10982	0.004
07:00 - 08:00	26	10254	0.008	26	10254	0.001	26	10254	0.009
08:00 - 09:00	26	10254	0.008	26	10254	0.000	26	10254	0.008
09:00 - 10:00	26	10254	0.003	26	10254	0.002	26	10254	0.005
10:00 - 11:00	26	10254	0.000	26	10254	0.002	26	10254	0.002
11:00 - 12:00	26	10254	0.003	26	10254	0.003	26	10254	0.006
12:00 - 13:00	26	10254	0.002	26	10254	0.001	26	10254	0.003
13:00 - 14:00	26	10254	0.002	26	10254	0.002	26	10254	0.004
14:00 - 15:00	26	10254	0.001	26	10254	0.006	26	10254	0.007
15:00 - 16:00	26	10254	0.001	26	10254	0.004	26	10254	0.005
16:00 - 17:00	26	10254	0.001	26	10254	0.006	26	10254	0.007
17:00 - 18:00	26	10254	0.006	26	10254	0.012	26	10254	0.018
18:00 - 19:00	26	10254	0.000	26	10254	0.002	26	10254	0.002
19:00 - 20:00	16	10502	0.001	16	10502	0.001	16	10502	0.002
20:00 - 21:00	16	10502	0.000	16	10502	0.000	16	10502	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.044			0.042			0.086

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PEDESTRIANS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	15	10982	0.002	15	10982	0.001	15	10982	0.003
06:00 - 07:00	15	10982	0.010	15	10982	0.001	15	10982	0.011
07:00 - 08:00	26	10254	0.023	26	10254	0.013	26	10254	0.036
08:00 - 09:00	26	10254	0.033	26	10254	0.027	26	10254	0.060
09:00 - 10:00	26	10254	0.024	26	10254	0.014	26	10254	0.038
10:00 - 11:00	26	10254	0.014	26	10254	0.015	26	10254	0.029
11:00 - 12:00	26	10254	0.020	26	10254	0.023	26	10254	0.043
12:00 - 13:00	26	10254	0.046	26	10254	0.046	26	10254	0.092
13:00 - 14:00	26	10254	0.047	26	10254	0.050	26	10254	0.097
14:00 - 15:00	26	10254	0.029	26	10254	0.023	26	10254	0.052
15:00 - 16:00	26	10254	0.017	26	10254	0.015	26	10254	0.032
16:00 - 17:00	26	10254	0.020	26	10254	0.027	26	10254	0.047
17:00 - 18:00	26	10254	0.025	26	10254	0.041	26	10254	0.066
18:00 - 19:00	26	10254	0.010	26	10254	0.023	26	10254	0.033
19:00 - 20:00	16	10502	0.004	16	10502	0.018	16	10502	0.022
20:00 - 21:00	16	10502	0.004	16	10502	0.003	16	10502	0.007
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.328			0.340			0.668

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

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

TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL PUBLIC TRANSPORT USERS
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	15	10982	0.000	15	10982	0.000	15	10982	0.000
06:00 - 07:00	15	10982	0.002	15	10982	0.000	15	10982	0.002
07:00 - 08:00	26	10254	0.012	26	10254	0.000	26	10254	0.012
08:00 - 09:00	26	10254	0.019	26	10254	0.002	26	10254	0.021
09:00 - 10:00	26	10254	0.008	26	10254	0.000	26	10254	0.008
10:00 - 11:00	26	10254	0.005	26	10254	0.002	26	10254	0.007
11:00 - 12:00	26	10254	0.004	26	10254	0.004	26	10254	0.008
12:00 - 13:00	26	10254	0.015	26	10254	0.019	26	10254	0.034
13:00 - 14:00	26	10254	0.020	26	10254	0.012	26	10254	0.032
14:00 - 15:00	26	10254	0.004	26	10254	0.008	26	10254	0.012
15:00 - 16:00	26	10254	0.003	26	10254	0.009	26	10254	0.012
16:00 - 17:00	26	10254	0.005	26	10254	0.009	26	10254	0.014
17:00 - 18:00	26	10254	0.003	26	10254	0.023	26	10254	0.026
18:00 - 19:00	26	10254	0.001	26	10254	0.012	26	10254	0.013
19:00 - 20:00	16	10502	0.000	16	10502	0.002	16	10502	0.002
20:00 - 21:00	16	10502	0.000	16	10502	0.000	16	10502	0.000
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			0.101			0.102			0.203

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

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

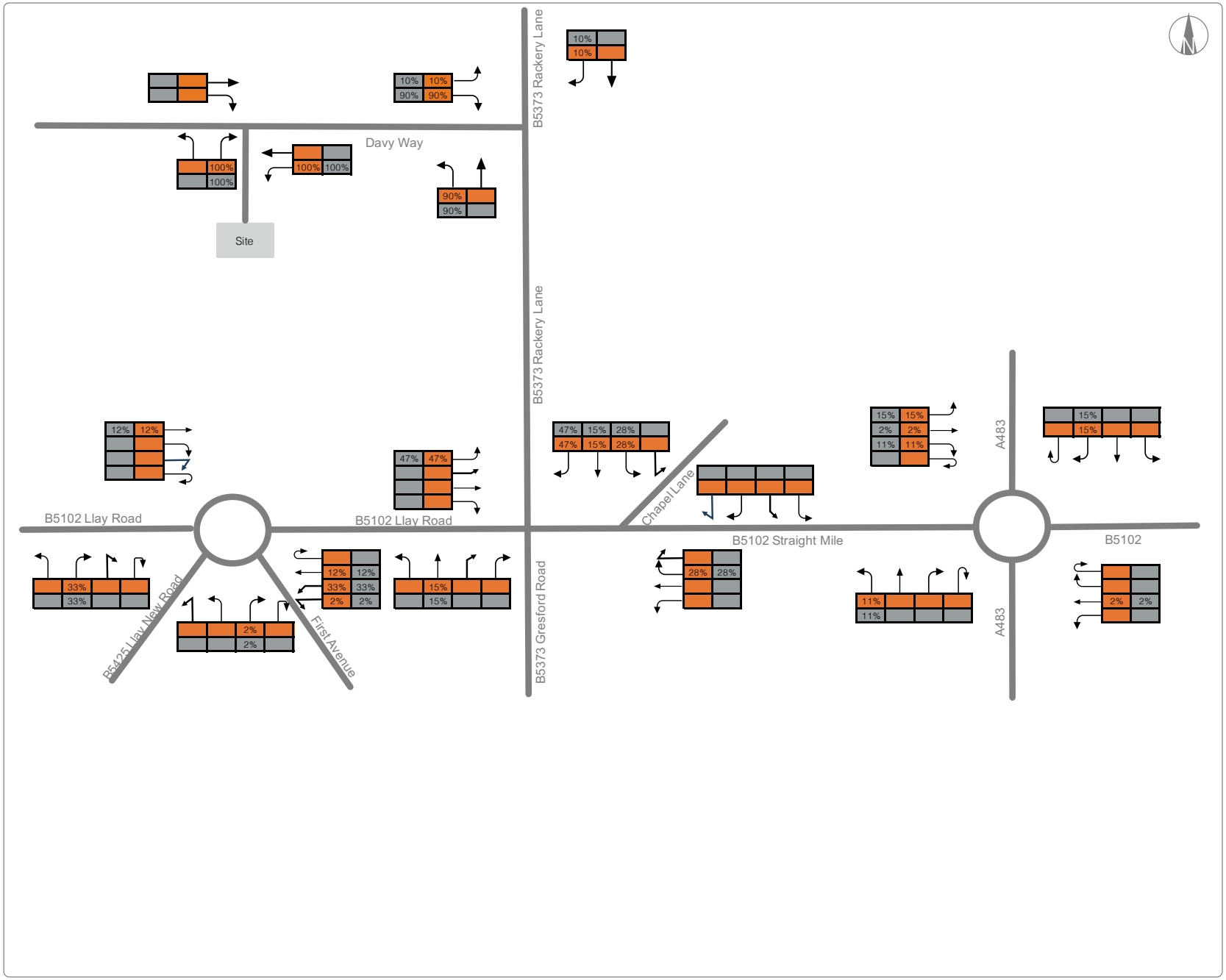
TRIP RATE for Land Use 02 - EMPLOYMENT/D - INDUSTRIAL ESTATE
MULTI-MODAL TOTAL PEOPLE
Calculation factor: 100 sqm
BOLD print indicates peak (busiest) period
Total People to Total Vehicles ratio (all time periods and directions): 1.35

	ARRIVALS			DEPARTURES			TOTALS		
Time Range	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate	No. Days	Ave. GFA	Trip Rate
00:00 - 01:00									
01:00 - 02:00									
02:00 - 03:00									
03:00 - 04:00									
04:00 - 05:00									
05:00 - 06:00	15	10982	0.086	15	10982	0.018	15	10982	0.104
06:00 - 07:00	15	10982	0.182	15	10982	0.057	15	10982	0.239
07:00 - 08:00	26	10254	0.546	26	10254	0.168	26	10254	0.714
08:00 - 09:00	26	10254	0.826	26	10254	0.330	26	10254	1.156
09:00 - 10:00	26	10254	0.595	26	10254	0.414	26	10254	1.009
10:00 - 11:00	26	10254	0.518	26	10254	0.450	26	10254	0.968
11:00 - 12:00	26	10254	0.497	26	10254	0.513	26	10254	1.010
12:00 - 13:00	26	10254	0.551	26	10254	0.609	26	10254	1.160
13:00 - 14:00	26	10254	0.571	26	10254	0.588	26	10254	1.159
14:00 - 15:00	26	10254	0.460	26	10254	0.562	26	10254	1.022
15:00 - 16:00	26	10254	0.415	26	10254	0.478	26	10254	0.893
16:00 - 17:00	26	10254	0.502	26	10254	0.709	26	10254	1.211
17:00 - 18:00	26	10254	0.322	26	10254	0.831	26	10254	1.153
18:00 - 19:00	26	10254	0.146	26	10254	0.371	26	10254	0.517
19:00 - 20:00	16	10502	0.091	16	10502	0.179	16	10502	0.270
20:00 - 21:00	16	10502	0.034	16	10502	0.078	16	10502	0.112
21:00 - 22:00									
22:00 - 23:00									
23:00 - 24:00									
Total Rates:			6.342			6.355			12.697

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

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

APPENDIX G Network Diagrams



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

Davy Way, Llay

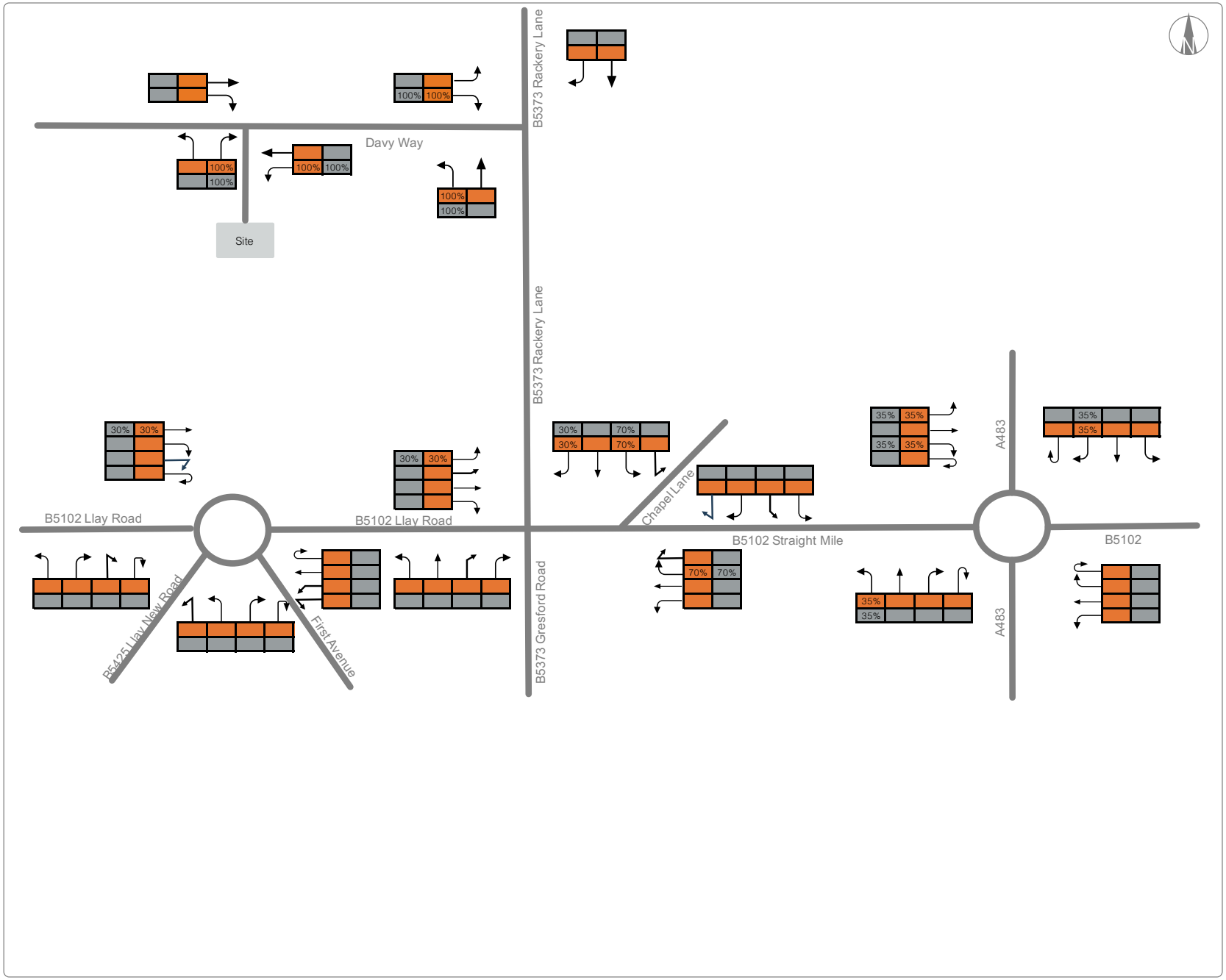
J327829

Trip Distribution

Car / LGV

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

Davy Way, Llay

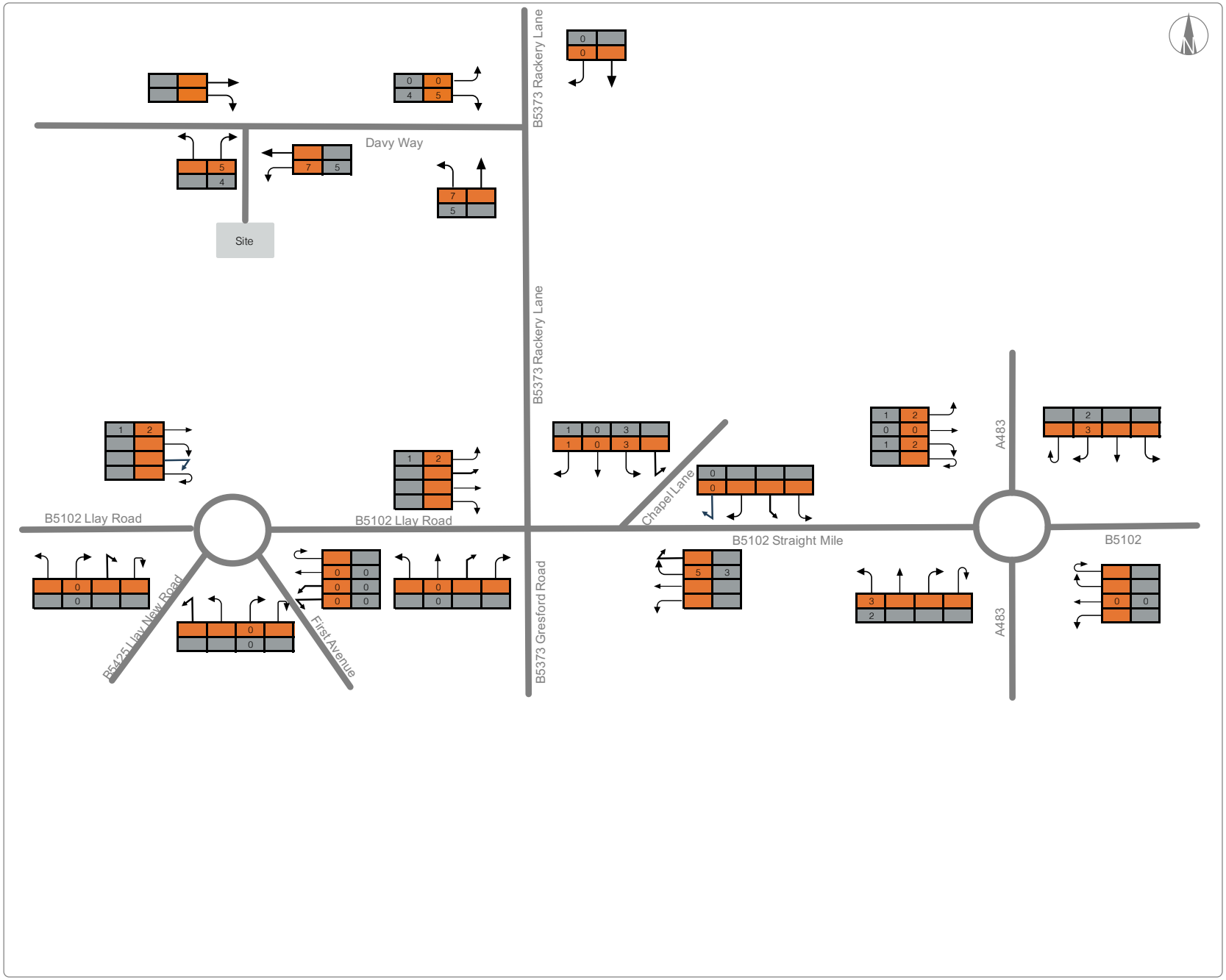
J327829

Trip Distribution

HGVs

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

Davy Way, Llay

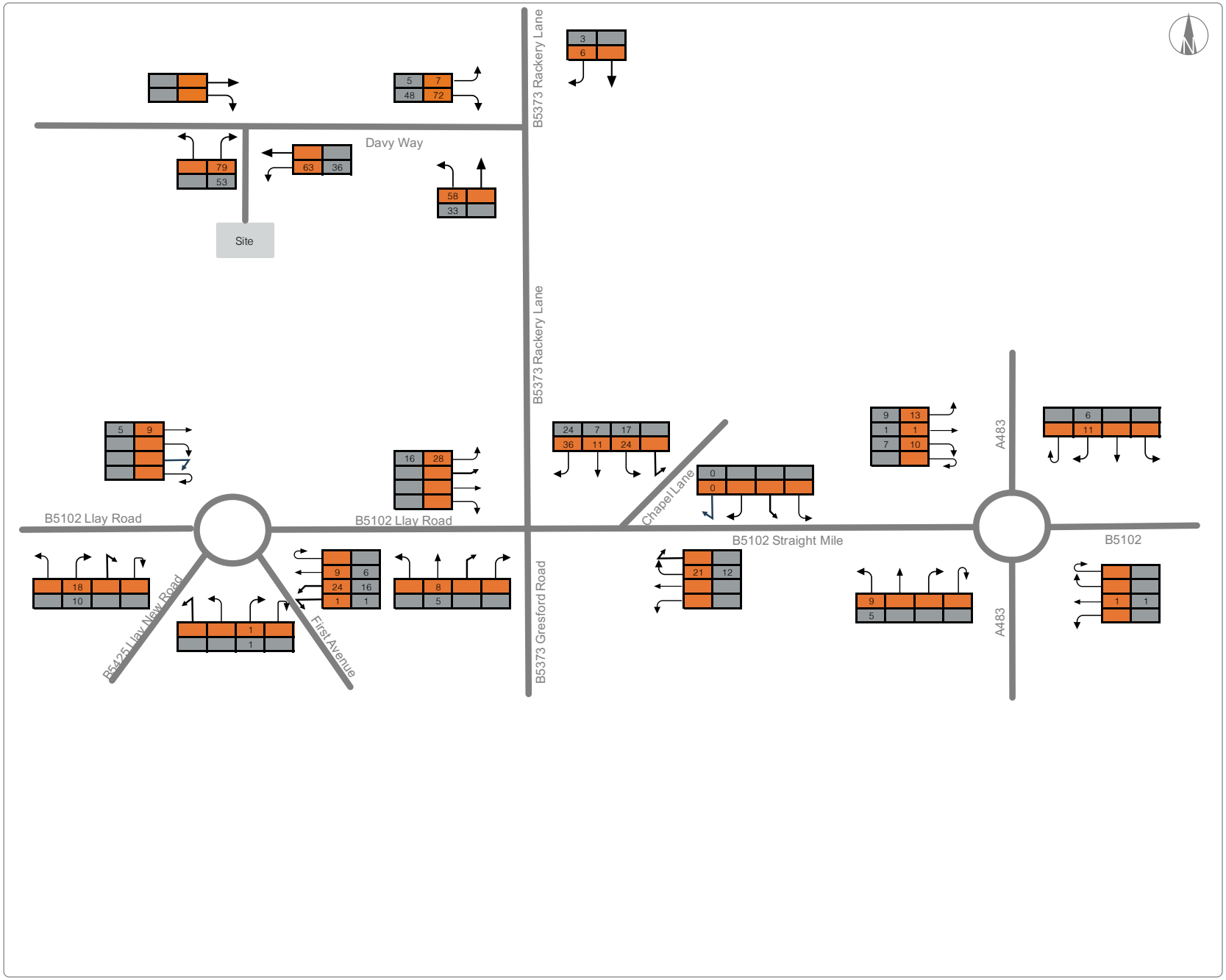
J327829

Development Trips

HGVs

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

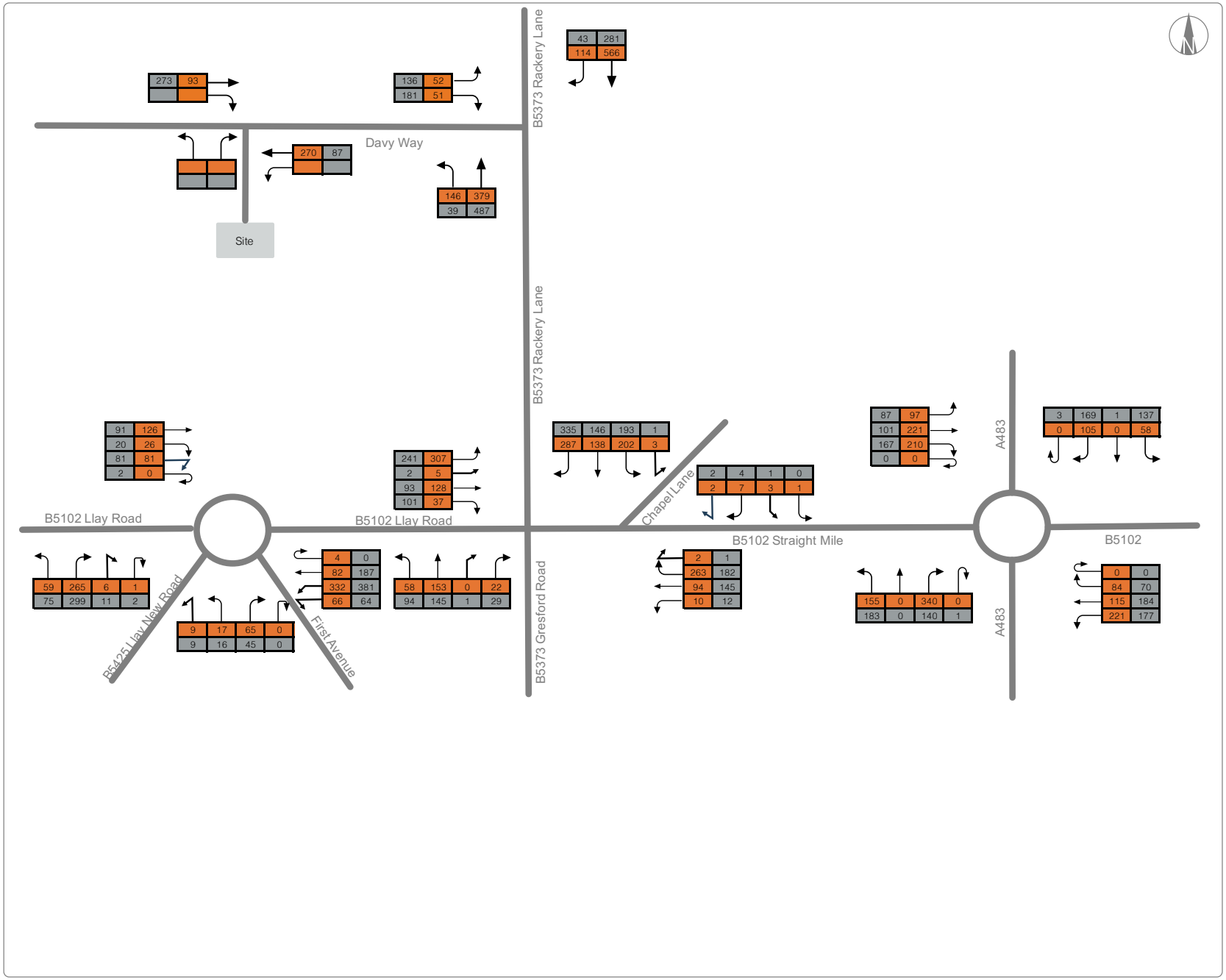
Davy Way, Llay

J327829

Development Trips

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

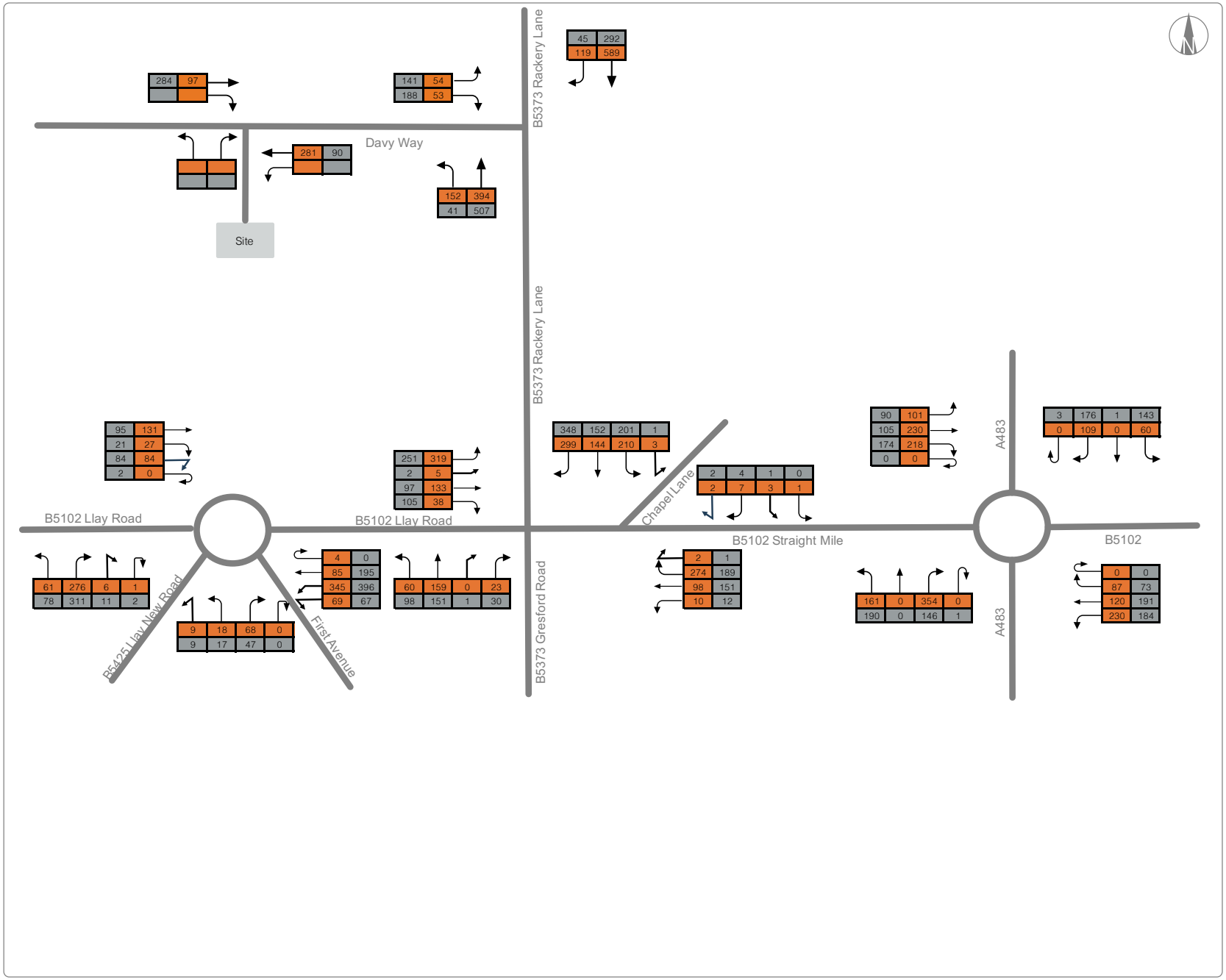
Davy Way, Llay

J327829

2023 Survey

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

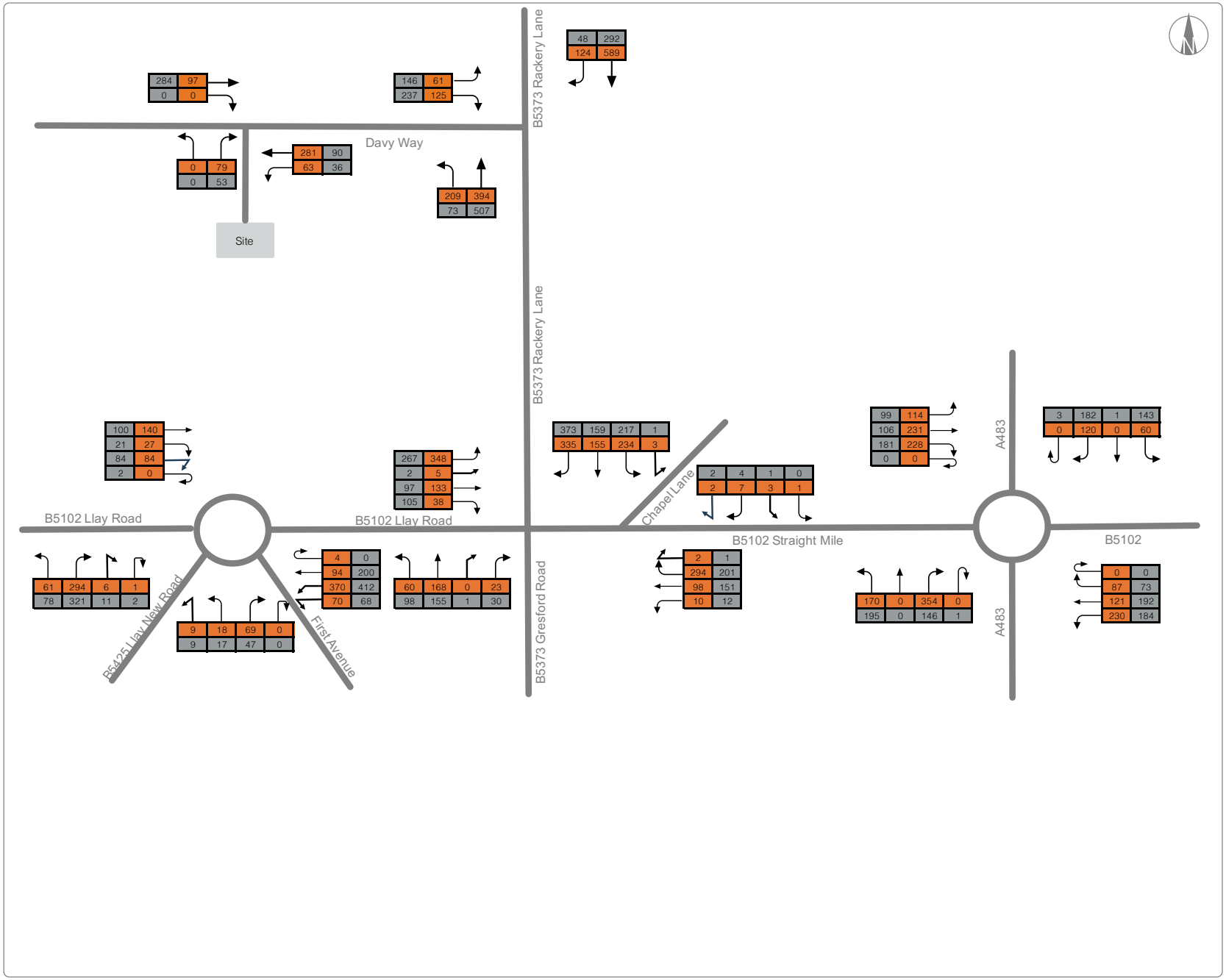
Davy Way, Llay

J327829

2029 Base

PREPARED	CHECKED
LJ	ME

mode transport planning



NOTES

AM Network Peak Hour (07:45 - 08:45)

PM Network Peak Hour (16:30 - 17:30)

All Flows are in PCU's

LEGEND

AM

PM

RA & CE Platt Ltd

Davy Way, Llay

J327829

2029 Base + Development

PREPARED	CHECKED
LJ	ME

mode transport planning

APPENDIX H Signal Specifications

Telent Traffic Controller Configuration Forms

Customer: ANWYL GROUP / BELLWAY HOMES

Intersection description: STRAIGHT MILE / LLAY ROAD, WREXHAM - CROWN CROSSROADS. SCN WC4030

Telent tender no.: **Telent works order no.:**

Customers order no.: **Dated:**

Customers engineer: JUSTIN STILLER (CANWELLS)

Customers telephone no.: **Ext:**

Equipment installation by: TELENT

Slot cutting by:

Civil works by:

Configuration no.: CFGCE351 **Issue:** 1.0 **Configuration engineer:** IAIN ROSS (TELENT)

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General Data

Power supply data	
Lamp Supply	48 Volts
Peak current	0 Amps

Solar switch data				
Call delay period (Seconds)	10	10	10	10
Cancel delay period (Seconds)	10	10	10	10
DFM active times (Hours or minutes)	24H	24H	24H	24H
DFM inactive times (Hours or minutes)	24H	24H	24H	24H

Options	
Is manual disable via handset option required?	No
Limit handset warnings to UTC enabled warnings?	No

VERSION INFO
==========
CONFIGURATION IS COMPATIBLE WITH 2.18 FIRMWARE.

MANUAL PANEL
==========
SW 1 BUTTON: MOVA INHIBIT.

AUX 1 LED: VA MODE ACTIVE.
AUX 2 LED: MOVA MODE ACTIVE.

SOFTWARE SWITCHES
==========
SCB/255=1 MOVA INHIBIT.
SCB/256=1 CRB DISABLE FOR TESTING ONLY.

DETECTION
==========
ALL DETECTION IS FROM INTERNAL LOOP DETECTORS.
EX17 IS A UNIDIRECTIONAL LOOP.
ESL18 HAS CALL DELAY / CALL CANCEL AND SO HAS UNLATCHED DEMAND FOR PHASE E.

AIN1 IS REQUIRED TO HAVE AN EXTENSION LONGER THAN THE UPPER LIMIT OF 5.0 SECONDS, SO IT IS DONE IN CONDITIONING. TIMER SCT/7 'AIN1EXT' (DEFAULT 6.0 SECONDS) CONTROLS THE LENGTH OF THE EXTENSION NOT HANDSET COMMAND 'EXT/AIN1'.

OUTPUTS
==========
MOVA SP.COND OUTPUTS M1_OC1 TO M1_OC8 ARE PASSED TO THE PARALLEL OUTPUTS M1_OC1_A TO M1_OC8_A RESPECTIVELY.
THESE ARE FOR POSSIBLE FUTURE USE IF LINKING FROM MOVA IS NEEDED TO ANOTHER SITE

REVERSION
==========
REVERSION IS TWO STAGE IN VA AND MOVA:
1. IMMEDIATE TO STAGE 1:
  - IN THE ABSENCE OF DEMANDS, EXTENSIONS AND IN LOOPS ACTIVE, REVERSION WILL BE TO STAGE 1. IT CAN BE DELAYED IF SCT/3 'S1RVRT' IS MADE GREATER THAN THE DEFAULT OF 0 SECONDS.
  - MDET19 IS PULSED FOR 1 SECOND (SCT/5 'MD19PLS') TO DEMAND STAGE 1 WHEN RUNNING MOVA.
2. DELAYED TO ALL RED STAGE 6:
  - DURING STAGE 1, IN THE ABSENCE OF DEMANDS, EXTENSIONS AND IN LOOPS ACTIVE, REVERSION WILL BE TO ALL RED STAGE 6. THE DELAY TIME IS SET BY SCT/4 'S6RVRT' WHICH HAS A DEFAULT OF 25 SECONDS.
  - MDET20 IS PULSED FOR 1 SECOND (SCT/6 'MD20PLS') TO DEMAND STAGE 6 (ALL RED) WHEN RUNNING MOVA.

CONTINUED ON FOLLOWING PAGE:

MOVA
====
INTEGRAL MOVA 8 IS PROVIDED.
STOPLINES ARE PASSED TO MOVA AS RAW STATE WHEN RELATED PHASE GREEN, AND FINAL STATE (AFTER ANY CALL DELAY) WHEN RED.
MDET19 CALLS STAGE 1 REVERSION.
MDET20 CALLS STAGE 6 (ALL RED) REVERSION.
MOVA CRB IS TOGGLED FOR 2 SECONDS EVERY 3 MINUTES WHEN MOVA CAN TAKE CONTROL.

SPECIAL DFM REPORTING TO RM
==========
AFTER MOVA HAS RUN ONCE (SCFLAG 256 BECOMES ACTIVE), IF MOVA DROPS OFF FOR CONFIGURED DFM TIME (3 MIN), THEN A DFM FAULT WILL BE RAISED VIA THE _MOVA_ VIRTUAL DETECTOR.
AFTER MOVA HAS COME BACK ONLINE THE DFM CAN BE RESET USING THE RDF COMMAND.

Configuration History

Issue	Date	Description
	14/06/22	Initial Configuration
0.1	14/06/2022	Intermediate edit
0.2	20/06/2022	Intermediate edit
0.3	21/06/2022	Intermediate edit
0.4	21/06/2022	Intermediate edit
0.5	24/06/2022	Intermediate edit
1.0	24/06/2022	Up issue after customer FAT.

Phase General

Phase Id	Road Name(s)	Phs. type	Appearance assoc'ted		Termination assoc'ted		Restart allowed	App. in man
			type	phase(s)	type	phase(s)		
A	STRAIGHT MILE	T	0		0		No	0
B	GRESFORD ROAD	T	0		0		No	0
C	LLAY ROAD	T	0		0		No	0
D	RACKERY LANE	T	0		0		No	0
E	CHAPEL LANE	T	0		0		No	0
DA	DUMMY ALL RED	G	0		0		No	0

Phase Minimum Greens

Phase Id	Min green Time	Min green limit	Window time	Speed measurement facilities		Assoc to ped. phases	Varimax required	Cond demand type	Conditioning phases
				Exist	Ped. phases				
A	7	7	-	No		No	False	None	
B	7	7	-	No		No	False	None	
C	7	7	-	No		No	False	None	
D	7	7	-	No		No	False	None	
E	7	7	-	No		No	False	None	
DA	3	1	-	No		No	False	None	

Phase Maximum Greens

Phase Id	Maximum greens (VA)								Maximum greens (PTM)								Maximum greens (FVP)							
	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7	Set 8
A	25.0	20.0	25.0	20.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
B	20.0	15.0	20.0	15.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
C	25.0	20.0	25.0	20.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
D	20.0	15.0	20.0	15.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
E	10.0	8.0	10.0	8.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DA	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

Phase Compensation

Phase Id	Phase compensation sets			
	Set 1	Set 2	Set 3	Set 4
A	0	0	0	0
B	0	0	0	0
C	0	0	0	0
D	0	0	0	0
E	0	0	0	0
DA	0	0	0	0

Phase Conflicts, Opposing and Revertive Demands

Phase Id	Conflicting greens	Opposed by phase demands	Opposed by stage demands	Revertive phase demands
A	B,C,D,E	ALL		
B	A,C,D,E	ALL		
C	A,B,D,E	ALL		
D	A,B,C,E	ALL		
E	A,B,C,D	ALL		
DA		ALL		

Lamp Sequences

Phs. type	Sequence description	Start-up starting			Start-up stoping			Normal starting			Normal stopping			Running		Stopped		Shutdown	
		State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	Duration	State 1	State 2	State 1	State 2	State 1	State 2
FP	Far/Side pedestrian	G	G	0	R	R	0	G	G	0	B	B	3	G	G	R	R	B	B
G	Ind/Filter	G	G	0	B	B	0	G	G	0	B	B	0	G	G	B	B	B	B
L	LRT	G	G	0	A	A	5	G	G	0	A	A	5	G	G	R	R	B	B
NP	Near/Side pedestrian	G	G	0	R	R	0	G	G	0	R	R	3	G	G	R	R	B	B
P	Pedestrian	G	G	0	R	R	0	G	G	0	B	B	PBT	G	G	R	R	B	B
PP	Pelican Pedestrian	R	R	0	B	G	3	G	G	0	B	G	0.1	G	G	R	R	B	B
PT	Pelican Traffic	B	A	5	A	A	3	B	A	6	A	A	3	G	G	R	R	B	B
T	Traffic	G	G	0	A	A	3	R,A	R,A	2	A	A	3	G	G	R	R	B	B
W	Wig-Wag	A	A	5	B	B	0	A	A	5	B	B	0	R	G	B	B	B	B

Stage Data

Stream 1		Start-up stage no.	6	Stand alone ped. stream	No
0					
1	A				
2	E				
3	D				
4	C				
5	B				
6	DA				

Stream 1		Starting intergreen duration	12
C.L.F			
PSV emergency			
Hurry Call 1			
Hurry Call 2			
Hurry Call 3			
Hurry Call 4			
LRT			
Manual	1	No	
Manual FT	2	No	
Normal - VA	4	No	
PSV priority			
Part time			
UTC	3	No	
A,B,C,D,E			

Manual Mode

Manual button no.	Stage number for each stream																Street name(s)
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	
All red	6																ALL RED
1	1																STRAIGHT MILE
2	2																CHAPEL LANE
3	3																RACKERY LANE
4	4																LLAY ROAD
5	5																GRESFORD ROAD
6																	
7																	
8																	
9																	
10																	
Button no. for initial manual stage set																1	Streams that must be in manual mode together

UTC General, Confirm and SF/LO Qualification Periods

UTC option	1 (MCE 0105/0106)
TF Reset time	00:00:00

Stream linking options															
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
U	U	U	U	U	U	U	U	U	U	U	U	U	U	U	U

Sync confirm times	
RT reply bit	3
SR reply bit	3

Time sync data	
Day type	Any
Reference time	00:00:00
Repeat rate	24H
Window time	24H

Stream	Confirm bit(s) to be used for manual mode running on stream	Confirm bit(s) to be used for fixed time running on stream
1		

Controller state	Confirm bit(s) to be used for controller state
Manual mode selected	
Signals off failed	
Signals off manually	
Detectors fault	
Controller fault	
Controller warning	
Manual fixed time selected	

SR reply output:	
RT reply output:	
TF reply output:	
DC reply output:	
SG input:	
SO input:	
TS input:	
TC input:	

L01	10.0	L02	10.0	L03	10.0	L04	10.0	L05	10.0	L06	10.0	L07	10.0	L08	10.0
SF01	7.0	SF02	7.0	SF03	7.0	SF04	7.0	SF05	7.0	SF06	7.0	SF07	7.0	SF08	7.0
SF09	7.0	SF10	7.0	SF11	7.0	SF12	7.0	SF13	7.0	SF14	7.0	SF15	7.0	SF16	7.0

UTC Force Bits

Force bit	Phase demands to be considered for demand depended stages	Required phase extensions	Stage to force in each stream															
			1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
F01			1															
F02			2															
F03			3															
F04			4															
F05			5															
F06			6															

UTC Control/Reply Bit Stage Stream Associations

	Associated input bits							Associated output bits				
Stream	FM	LO	LL	GO	LRTI	TO	PV	FC	HC	FGR	TOR	LRTR
1						TO						

UTC Timeouts and Local Link Inhibits

	UTC bits									
	F	D	DX	SF	FM	LO	GO	LL	LRTI	PV
Timeout duration	200									500
No timeouts allowed	False	True	True	True	True	True	True	True	True	False

FT and VA

Stream 1																
FT mode data													Normal FT or VA to max			VA
From stage	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Demand dependent phases during VA to max				DA												
Arterial reversion to stage/phase					VA stage selection option required					Near						

Intergreen Minimums

From phs	To phs					
	A	B	C	D	E	DA
A		7	9	8	5	3
B	6		7	5	8	3
C	7	6		6	9	3
D	6	5	5		8	3
E	5	8	10	8		3
DA	2	2	2	2	2	

Intergreen Limits

From phs	To phs					
	A	B	C	D	E	DA
A		5	5	5	5	3
B	5		5	5	5	3
C	5	5		5	5	3
D	5	5	5		5	3
E	5	5	5	5		3
DA	2	2	2	2	2	

Detector Data 1

Det. name	Det. type	Dummy	Vis. unit no.	Active state	Count det.	Self reset	Detector reset		Prority Units	Latched phase demand(s)	Unlatched phase demand(s)	Green extension(s)		Varimax phases	PSV normal demands unlatched
							Gap period	Gap count				Phase	Taper %		
AIN1	NM	No		SC	No	No	-	-					100		-
AX2	NM	No		SC	No	No	-	-		A		A(3.5)	100		-
AX3	NM	No		SC	No	No	-	-		A		A(3.5)	100		-
ASL4	NM	No		SC	No	No	-	-		A		A(1.0)	100		-
ASL5	NM	No		SC	No	No	-	-		A		A(1.0)	100		-
BIN6	NM	No		SC	No	No	-	-					100		-
BX7	NM	No		SC	No	No	-	-		B		B(4.0)	100		-
BSL8	NM	No		SC	No	No	-	-		B		B(1.0)	100		-
CIN9	NM	No		SC	No	No	-	-					100		-
CX10	NM	No		SC	No	No	-	-		C		C(4.0)	100		-
CSL11	NM	No		SC	No	No	-	-		C		C(1.0)	100		-
DIN12	NM	No		SC	No	No	-	-					100		-
DX13	NM	No		SC	No	No	-	-		D		D(4.0)	100		-
DX14	NM	No		SC	No	No	-	-		D		D(4.0)	100		-
DSL15	NM	No		SC	No	No	-	-		D		D(1.0)	100		-
DSL16	NM	No		SC	No	No	-	-		D		D(1.0)	100		-
EX17	UD	No		SC	No	No	-	-		E		E(4.0)	100		-
ESL18	NM	No		SC	No	No	-	-			E	E(1.0)	100		-
MOVA	NM	No		SC	No	No	-	-					100		-

Detector Data 2

Det. name	DFM Timings								DFM force states		Call/cancel timings								Associated to ped.			
	DFA				DFI						DCL				DCN							
	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Active	Inactive	Set 1	Set 2	Set 3	Set 4	Set 1	Set 2	Set 3	Set 4	Phase	Extn.	Push Buttons	Confirm Self
AIN1	30M	30M			18H	18H			A	A										-		-
AX2	30M	30M			18H	18H			A	A										-		-
AX3	30M	30M			18H	18H			A	A										-		-
ASL4	30M	30M			18H	18H			A	A										-		-
ASL5	30M	30M			18H	18H			A	A										-		-
BIN6	30M	30M			18H	18H			A	A										-		-
BX7	30M	30M			18H	18H			A	A										-		-
BSL8	30M	30M			18H	18H			A	A										-		-
CIN9	30M	30M			18H	18H			A	A										-		-
CX10	30M	30M			18H	18H			A	A										-		-
CSL11	30M	30M			18H	18H			A	A										-		-
DIN12	30M	30M			18H	18H			A	A										-		-
DX13	30M	30M			18H	18H			A	A										-		-
DX14	30M	30M			18H	18H			A	A										-		-
DSL15	30M	30M			18H	18H			A	A										-		-
DSL16	30M	30M			18H	18H			A	A										-		-
EX17	30M	30M			18H	18H			A	A										-		-
ESL18	30M	30M			18H	18H			A	A	3.0	3.0			2.0	2.0				-		-
MOVA	3M	3M	3M	3M					N	N										-		-

Timetable

No.	Day type	Time	Event list	Priorities
1	WKD	07:00:00	1	1
2	WKD	09:30:00	2	1
3	WKD	15:30:00	3	1
4	WKD	19:00:00	4	1
5	SAT	09:00:00	1	1
6	SAT	19:00:00	4	1
7	SUN	09:00:00	1	1
8	SUN	19:00:00	4	1

Timetable Event Lists

List no.	Event Action 1		Event Action 2		Event Action 3		Event Action 4		Event Action 5		Event Action 6		Event Action 7		Event Action 8	
	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params	Type	Params
1	TTS	1														
2	TTS	2														
3	TTS	3														
4	TTS	4														
5	TTS	5														
6	TTS	6														
7	TTS	7														
8	TTS	8														

Timetable Priorities

Priority level 1. All year round					
Start			End		
Month	Day	Hour	Month	Day	Hour
Jan	1	0	Dec	31	24

Special Conditioning Timers

Timer no.	Timer name	Duration	Fixed	Comment
1	CRBTOG	2	No	CRB TOGGLE DURATION
2	CRBGAP	180	No	GAP BETWEEN CRB TOGGLES
3	S1RVRT	0	No	REVERSION TO STAGE 1 DELAY
4	S6RVRT	25	No	REVERSION TO STAGE 6 DELAY
5	MD19PLS	1	No	MDET19 PULSE TIMER
6	MD20PLS	1	No	MDET20 PULSE TIMER
7	AIN1EXT	6	No	AIN1 GREEN EXTENSION TIMER

Special Conditioning Statements

Statement 1										Name	
Comments	VA mode lights AUX1 LED.										
If	VAMODE-1										
Then	MPLEDON-AUX1										
Else	MPLEDOFF-AUX1										

Statement 2										Name	MOVINH
Comments	FT/MAN/MOVA inhibit buttons selected, or SCB/255=1 inhibits MOVA forces F1-F6. Continued by next statement.										
If	MANIP-FTSEL	**Or**	MANIP-MANSEL	**Or**	MANIP-SW1	**Or**	SCBITS-255				
Then	UTCBITI-F1	UTCBITI-F2	UTCBITI-F3	UTCBITI-F4							
Else	UTCBITN-F1	UTCBITN-F2	UTCBITN-F3	UTCBITN-F4							

Statement 3										Name	
Comments	Continuation of previous statement.										
If	STMNT-MOVINH										
Then	UTCBITI-F5	UTCBITI-F6									
Else	UTCBITN-F5	UTCBITN-F6									

Statement 4										Name	
Comments	Any MOVA bit active sets FLAG 1.										
If	UTCBIT-F1	**Or**	UTCBIT-F2	**Or**	UTCBIT-F3	**Or**	UTCBIT-F4	**Or**	UTCBIT-F5		
Or	UTCBIT-F6										
Then	SCFLGON-1										
Else	SCFLGOFF-1										

Statement 5										Name	MOVA
Comments	UTC mode with any MOVA force bit active (FLAG 1) and indicates MOVA active, used in later statements. Also lights AUX2 LED to indicate MOVA online and sets FLAG 256 for Telent RM MOVA online monitoring.										
If	UTCMODE-1	**And**	SCFLAG-1								
Then	MPLEDON-AUX2	SCFLGON-256									
Else	MPLEDOFF-AUX2										

Statement 6										Name	
Comments	MOVA TO bit not present inhibits UTC mode as no true-UTC configured.										
If Not	FLTIP-TO										
Then	UTCI-1										
Else	UTCN-1										

Special Conditioning Statements

Statement 7	Name
Comments	MOVA CRB: Not running MOVA mode starts CRBTOG AND CRBGAP timers, else stops CRBGAP timer.

If Not STMNT-MOVA
Then SCTSTART-CRBTOG SCTSTART-CRBGAP
Else SCTSTOP-CRBGAP

Statement 8	Name
Comments	MOVA CRB: CRBGAP timer expired and still not running MOVA mode starts CRBTOG and CRBGAP timers.

If SCTEXPRD-CRBGAP **And not** STMNT-MOVA
Then SCTSTART-CRBTOG SCTSTART-CRBGAP

Statement 9	Name
Comments	MOVA CRB: CRBTOG timer running, SHD/MSD/STU mode active or MAN/MFT/MOVA Inhibit switch ON or SCB/255 active then toggle CRB reply. SCB/256=1 disables for testing.

If SCTRUNNG-CRBTOG **Or** SHDMODE-1 **Or** MSDMODE-1 **Or** STUMODE-1 **Or** MANIP-MANSEL
Or MANIP-FTSEL **Or** MANIP-SW1 **Or** SCBITS-255 **And not** SCBITS-256
Then OUTPUTA-CRB
Else OUTPUTN-CRB

Statement 10	Name
Comments	Revertive Phase Demands: Note: The following conditioning is required to avoid an issue with delayed reversion in MOVA mode if revertive phase demands are set in the "Real Phases 1/2 - Basic" screen. The following statements do the same thing, but no in MOVA mode to avoid the issues.

Statement 11	Name
Comments	Revertive Phase Demands: Set FLAG 2 when Phase A green, else clear it.

If PHASE-A
Then SCFLGON-2
Else SCFLGOFF-2

Statement 12	Name
Comments	Revertive Phase Demands: Phase A just terminated with extensions active, and not in MOVA mode, inserts a revertive demand.

If Not PHASE-A **And** SCFLAG-2 **And** PHSEXT-A **And not** STMNT-MOVA
Then LPHSDMD-A

Special Conditioning Statements

Statement 13	Name
Comments	Revertive Phase Demands: Set FLAG 3 when Phase B green, else clear it.

If PHASE-B
Then SCFLGON-3
Else SCFLGOFF-3

Statement 14	Name
Comments	Revertive Phase Demands: Phase B just terminated with extensions active, and not in MOVA mode, inserts a revertive demand.

If Not PHASE-B **And** SCFLAG-3 **And** PHSEXT-B **And not** STMNT-MOVA
Then LPHSDMD-B

Statement 15	Name
Comments	Revertive Phase Demands: Set FLAG 4 when Phase C green, else clear it.

If PHASE-C
Then SCFLGON-4
Else SCFLGOFF-4

Statement 16	Name
Comments	Revertive Phase Demands: Phase C just terminated with extensions active, and not in MOVA mode, inserts a revertive demand.

If Not PHASE-C **And** SCFLAG-4 **And** PHSEXT-C **And not** STMNT-MOVA
Then LPHSDMD-C

Statement 17	Name
Comments	Revertive Phase Demands: Set FLAG 5 when Phase D green, else clear it.

If PHASE-D
Then SCFLGON-5
Else SCFLGOFF-5

Statement 18	Name
Comments	Revertive Phase Demands: Phase D just terminated with extensions active, and not in MOVA mode, inserts a revertive demand.

If Not PHASE-D **And** SCFLAG-5 **And** PHSEXT-D **And not** STMNT-MOVA
Then LPHSDMD-D

Special Conditioning Statements

Statement 19	Name
Comments	Revertive Phase Demands: Set FLAG 6 when Phase E green, else clear it.

If PHASE-E
Then SCFLGON-6
Else SCFLGOFF-6

Statement 20	Name
Comments	Revertive Phase Demands: Phase E just terminated with extensions active, and not in MOVA mode, inserts a revertive demand.

If Not PHASE-E **And** SCFLAG-6 **And** PHSEXT-E **And not** STMNT-MOVA
Then LPHSDMD-E

Statement 21	Name
Comments	MOVA conditioning: Raw state of ASL4 when phase A green, or after any call delay in Red activates MDET4.

If RDET-ASL4 **And** PHASE-A **Or** FDET-ASL4
Then OUTPUTA-MDET4
Else OUTPUTN-MDET4

Statement 22	Name
Comments	MOVA conditioning: Raw state of ASL5 when phase A green, or after any call delay in Red activates MDET5.

If RDET-ASL5 **And** PHASE-A **Or** FDET-ASL5
Then OUTPUTA-MDET5
Else OUTPUTN-MDET5

Statement 23	Name
Comments	MOVA conditioning: Raw state of BSL8 when phase B green, or after any call delay in Red activates MDET8.

If RDET-BSL8 **And** PHASE-B **Or** FDET-BSL8
Then OUTPUTA-MDET8
Else OUTPUTN-MDET8

Statement 24	Name
Comments	MOVA conditioning: Raw state of CSL11 when phase C green, or after any call delay in Red activates MDET11.

If RDET-CSL11 **And** PHASE-C **Or** FDET-CSL11
Then OUTPUTA-MDET11
Else OUTPUTN-MDET11

Special Conditioning Statements

Statement 25									Name	
Comments	MOVA conditioning: Raw state of DSL15 when phase D green, or after any call delay in Red activates MDET15.									
If	RDET-DSL15	**And**	PHASE-D	**Or**	FDET-DSL15					
Then	OUTPUTA-MDET15									
Else	OUTPUTN-MDET15									

Statement 26									Name	
Comments	MOVA conditioning: Raw state of DSL16 when phase D green, or after any call delay in Red activates MDET16.									
If	RDET-DSL16	**And**	PHASE-D	**Or**	FDET-DSL16					
Then	OUTPUTA-MDET16									
Else	OUTPUTN-MDET16									

Statement 27									Name	
Comments	MOVA conditioning: Final state of UD loop EX17 activates MDET17.									
If	FDET-EX17									
Then	OUTPUTA-MDET17									
Else	OUTPUTN-MDET17									

Statement 28									Name	
Comments	MOVA conditioning: Raw state of ESL18 when phase E green, or after any call delay in Red activates MDET18.									
If	RDET-ESL18	**And**	PHASE-E	**Or**	FDET-ESL18					
Then	OUTPUTA-MDET18									
Else	OUTPUTN-MDET18									

Statement 29									Name	REST
Comments	Reversion Part 1 - To stage 1: No demands or extensions or IN loops active starts S1RVRT timer and clears flag 7, else clears flag 7.									
If	PHSDMD-A	**Or**	PHSDMD-B	**Or**	PHSDMD-C	**Or**	PHSDMD-D	**Or**	PHSDMD-E	
Or	PHSEXT-A	**Or**	PHSEXT-B	**Or**	PHSEXT-C	**Or**	PHSEXT-D	**Or**	PHSEXT-E	
Or	FDET-AIN1	**Or**	FDET-BIN6	**Or**	FDET-CIN9	**Or**	FDET-DIN12	**Not**		
Then	SCTSTART-S1RVRT	SCFLGOFF-7								
Else	SCTSTOP-S1RVRT	SCFLGOFF-7								

Special Conditioning Statements

Statement 30	Name
Comments	Reversion Part 1 - To stage 1: Stage 1 revert timer expired and still resting (STMNT-REST true) activates FLAG 7.

If SCTEXPRD-S1RVRT **And** STMNT-REST **And not** SCFLAG-8
Then SCFLGON-7

Statement 31	Name	CALLS1
Comments	Reversion Part 1 - To stage 1: FLAG 7 true and not in stage 1 and not in stage 6, demand stage 1 for VA.	

If SCFLAG-7 **And not** CURSTG-1.1 **And not** CURSTG-1.6
Then STGDMDA-1.1
Else STGDMDN-1.1

Statement 32	Name
Comments	Reversion Part 1 -To stage1: Remove FLAG 7 if going to or in All REd Stage 6.

If CURSTG-1.6
Then SCFLGOFF-7

Statement 33	Name
Comments	Reversion Part 1 - To stage 1: Previous statement TRUE starts MD19PLS (MDET19 pulse timer). FLAG 9 used to prevent re-pulsing of detector when timer expires and conditions still TRUE.

If STMNT-CALLS1 **And not** SCFLAG-9
Then SCTSTART-MD19PLS SCFLGON-9

Statement 34	Name
Comments	Reversion Part 1 - To stage 1: MD19PLS (MDET19 pulse timer) running activates MDET19 for reversion to stage 1 in MOVA.

If SCTRUNNG-MD19PLS
Then OUTPUTA-MDET19
Else OUTPUTN-MDET19

Special Conditioning Statements

Statement 35	Name
Comments	Reversion Part 1 - To stage 1: Reset FLAG 9 to allow MD19PLS timer to start again when conditions allow.

If Not	STMNT-REST	**Or**	CURSTG-1.1
Then	SCFLGOFF-9		

Statement 36	Name
Comments	Reversion Part 2 - To All Red: No demands, extensions or IN loops active (STMNT-REST) when in stage 1 starts All Red reversion timer S6RVRT and clears FLAG 8, else clears FLAG 8.

If	STMNT-REST	**And**	CURSTG-1.1
Then	SCTSTART-S6RVRT	SCFLGOFF-8	
Else	SCTSTOP-S6RVRT	SCFLGOFF-8	

Statement 37	Name
Comments	Reversion Part 2 - To All Red: S6RVRT timer expired and STMNT-REST still TRUE, and still in stage 1 activates FLAG 8 and clears flag 7.

If	SCTEXPRD-S6RVRT	**And**	STMNT-REST	**And**	CURSTG-1.1
Then	SCFLGON-8	SCFLGOFF-7			

Statement 38	Name	CALLS6
Comments	Reversion Part 2 - To All Red: FLAG 8 true and not in stage 6, demand stage 6 for VA.	

If	SCFLAG-8	**And not**	CURSTG-1.6
Then	STGDMDA-1.6		
Else	STGDMDN-1.6		

Statement 39	Name
Comments	Reversion Part 2 - To All Red: Previous statement TRUE starts MD20PLS (MDET20 pulse timer). FLAG 10 used to prevent re-pulsing of detector when timer expires and conditions still TRUE.

If	STMNT-CALLS6	**And not**	SCFLAG-10
Then	SCTSTART-MD20PLS	SCFLGON-10	

Statement 40	Name
Comments	Reversion Part 2 - To All Red: MD20PLS (MDET20 pulse timer) running activates MDET20 for reversion to stage 6 in MOVA.

If	SCTRUNNG-MD20PLS
Then	OUTPUTA-MDET20
Else	OUTPUTN-MDET20

Special Conditioning Statements

Statement 41	Name
Comments	Reversion Part 2 - To All Red: Reset FLAG 10 to allow MD20PLS timer to start again when conditions allow.

If STMNT-REST **Or** CURSTG-1.6
Then SCFLGOFF-10

Statement 42	Name
Comments	Pass MOVA M1_OC1 to parallel M1_OC1_A.

If FLTIP-M1_OC1
Then OUTPUTA-M1_OC1_A
Else OUTPUTI-M1_OC1_A

Statement 43	Name
Comments	Pass MOVA M1_OC2 to parallel M1_OC2_A.

If FLTIP-M1_OC2
Then OUTPUTA-M1_OC2_A
Else OUTPUTI-M1_OC2_A

Statement 44	Name
Comments	Pass MOVA M1_OC3 to parallel M1_OC3_A.

If FLTIP-M1_OC3
Then OUTPUTA-M1_OC3_A
Else OUTPUTI-M1_OC3_A

Statement 45	Name
Comments	Pass MOVA M1_OC4 to parallel M1_OC4_A.

If FLTIP-M1_OC4
Then OUTPUTA-M1_OC4_A
Else OUTPUTI-M1_OC4_A

Statement 46	Name
Comments	Pass MOVA M1_OC5 to parallel M1_OC5_A.

If FLTIP-M1_OC5
Then OUTPUTA-M1_OC5_A
Else OUTPUTI-M1_OC5_A

Special Conditioning Statements

Statement 47	Name
Comments	Pass MOVA M1_OC6 to parallel M1_OC6_A.

If FLTIP-M1_OC6
Then OUTPUTA-M1_OC6_A
Else OUTPUTI-M1_OC6_A

Statement 48	Name
Comments	Pass MOVA M1_OC7 to parallel M1_OC7_A.

If FLTIP-M1_OC7
Then OUTPUTA-M1_OC7_A
Else OUTPUTI-M1_OC7_A

Statement 49	Name
Comments	Pass MOVA M1_OC8 to parallel M1_OC8_A.

If FLTIP-M1_OC8
Then OUTPUTA-M1_OC8_A
Else OUTPUTI-M1_OC8_A

Statement 50	Name
Comments	Telent RM: Not running MOVA mode and FLAG 256 TRUE activates _MOVA_ output.

If Not STMNT-MOVA **And** SCFLAG-256
Then OUTPUTA-_MOVA_
Else OUTPUTN-_MOVA_

Statement 51	Name
Comments	Detector AIN1 extends phase A: Required as max EXT is 5.0s. AIN1 active or timer AIN1EXT running, extend phase A.

If FDET-AIN1 **Or** SCTRUNNG-AIN1EXT
Then EXTA-A

Statement 52	Name
Comments	Detector AIN1 extends phase A: When AIN1 goes inactive, start timer AIN1EXT.

If Not FDET-AIN1
Then SCTSTART-AIN1EXT

Special Conditioning Statements

Statement 53	Name	NOEXA

Comments	Detector AIN1 extends phase A: AIN1 gone inactive and timer AIN1EXT expired, then clear the conditioned extension.

If Not FDET-AIN1 **And** SCTEXPRD-AIN1EXT

Then EXTN-A

Red Lamp Monitoring (RLM)

Auto clear red lamp warnings	1st

Stream based data					
Stream no.	Shutdown required	Red flt. extension	Single red lamp fault input name	Multiple red lamp fault input name	Inhibit stages
1	No	0			

RLM Phase Inhibits

Second red failure phase data	
Phase Id	Inhibited phases
A	
B	
C	
D	
E	
DA	
Restrict first lamp failure all red extension	False

General Lamp Monitoring

Fault indications		Mains unstable indications output(s)	
Auto clear red lamp warnings	1st		
Flash DFM for lamp conflict	No		
Flash DFM for lamp failure	No		
Unstable toroid indication (as lamp failure)	No		

Phase	Lamp Types			Single fault	Multi faults	Red lamp mapping	Failure indication output	Conflict indication output(s)
	Green	Amber	Red					
A	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	2			
B	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	2			
C	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	2			
D	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	2			
E	ELV LED (3R)	ELV LED (3R)	ELV LED (3R)	1	2			

Inputs

Input No.	Input name	Source	Active State	Comment
0	F01	Virtual	SC	MOVA F1
1	F02	Virtual	SC	MOVA F2
2	F03	Virtual	SC	MOVA F3
3	F04	Virtual	SC	MOVA F4
4	F05	Virtual	SC	MOVA F5
5	F06	Virtual	SC	MOVA F6 (ALL RED)
6	TO	Virtual	SC	
7	HI	Virtual	SC	
8	SP	Virtual	SC	
9	FAULT	Virtual	SC	
21	*_MOVA_	Virtual	SC	MOVA OFFLINE FOR TELENT RM
0	*AIN1	Loop detector	SC	
1	*AX2	Loop detector	SC	
2	*AX3	Loop detector	SC	
3	SPARE3	Loop detector	SC	
4	*ASL4	Loop detector	SC	
5	*ASL5	Loop detector	SC	
6	*BIN6	Loop detector	SC	
7	*BX7	Loop detector	SC	
8	*BSL8	Loop detector	SC	
9	*CIN9	Loop detector	SC	
10	*CX10	Loop detector	SC	
11	*CSL11	Loop detector	SC	
12	*DIN12	Loop detector	SC	
13	*DX13	Loop detector	SC	
14	*DX14	Loop detector	SC	
15	SPARE15	Loop detector	OC	
16	*DSL15	Loop detector	SC	
17	*DSL16	Loop detector	SC	
18	*EX17	Loop detector	SC	EX17 UD ENTRY
19	*EX17-B	Loop detector	SC	EX17 UD EXIT
20	*ESL18	Loop detector	SC	UNLATCHED DEMAND CALL/CANCEL LOOP

Outputs

Output Number	Destination	Output name	Invert state	Comment
10	Virtual	CRB	No	
11	Virtual	MDET4	No	RDET ASL4 WHEN A GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
12	Virtual	MDET5	No	RDET ASL5 WHEN A GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
13	Virtual	MDET8	No	RDET BSL8 WHEN B GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
14	Virtual	MDET11	No	RDET CSL11 WHEN C GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
15	Virtual	MDET15	No	RDET DSL15 WHEN D GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
16	Virtual	MDET16	No	RDET DSL16 WHEN D GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
17	Virtual	MDET17	No	FDET UNIDIRECTIONAL LOOP EX17
18	Virtual	MDET18	No	RDET ESL18 WHEN E GREEN, ELSE AFTER ANY CALL DELAY WHEN RED
19	Virtual	MDET19	No	REQUEST REVERSION TO STAGE 1 (PULSE)
20	Virtual	MDET20	No	REQUEST REVERSION TO STAGE 6 ALL RED (PULSE)
0	Parallel	M1_OC1_A	No	MOVA SP. COND. OUTPUT 1
1	Parallel	M1_OC2_A	No	MOVA SP. COND. OUTPUT 2
2	Parallel	M1_OC3_A	No	MOVA SP. COND. OUTPUT 3
3	Parallel	M1_OC4_A	No	MOVA SP. COND. OUTPUT 4
4	Parallel	M1_OC5_A	No	MOVA SP. COND. OUTPUT 5
5	Parallel	M1_OC6_A	No	MOVA SP. COND. OUTPUT 6
6	Parallel	M1_OC7_A	No	MOVA SP. COND. OUTPUT 7
7	Parallel	M1_OC8_A	No	MOVA SP. COND. OUTPUT 8

Hardware Build Information

Safety cards	
Number	Fitted
1	Yes
2	No

Loop Detector Cards		
Number	Fitted	Detectors
4	No	-

Safety card 1	
1	Yes
2	Yes
3	Yes
4	No
5	No
6	No
7	No
8	No
9	No
10	No
11	No
12	No
13	No
14	No
15	No
16	No

IO Cards	
Number	Card Type
1	Handset
2	IO 16/16
3	Not Fitted
4	Not Fitted
5	Not Fitted
6	Not Fitted
7	Not Fitted
8	Not Fitted

Loop Detector Cards		
Number	Fitted	Detectors
1	Yes	16
2	Yes	5
3	No	-

Virtual Bits

Bit No.	Bit name	Invert	Active	Comment
0	F01	False	False	
1	F02	False	False	
2	F03	False	False	
3	F04	False	False	
4	F05	False	False	
5	F06	False	False	
6	TO	False	False	
7	HI	False	False	
8	SP	False	False	
9	FAULT	False	False	
10	CRB	true	False	
11	MDET4	False	False	
12	MDET5	False	False	
13	MDET8	False	False	
14	MDET11	False	False	
15	MDET15	False	False	
16	MDET16	False	False	
17	MDET17	False	False	
18	MDET18	False	False	
19	MDET19	False	False	
20	MDET20	False	False	
21	_MOVA_	False	False	MOVA OFFLINE FOR TELENT RM.

iMOVA Stream Associations

1	TO	SP	CRB	HI	FAULT

iMOVA Detectors

Stream	1
Detector Number	Detector Name
1	*AIN1
2	*AX2
3	*AX3
4	MDET4
5	MDET5
6	*BIN6
7	*BX7
8	MDET8
9	*CIN9
10	*CX10
11	MDET11
12	*DIN12
13	*DX13
14	*DX14
15	MDET15
16	MDET16
17	MDET17
18	MDET18
19	MDET19
20	MDET20
21	
22	
23	
24	
25	
26	
27	
28	
29	
30	
31	
32	
33	
34	
35	
36	
37	
38	

Stream	1
Detector Number	Detector Name
39	
40	
41	
42	
43	
44	
45	
46	
47	
48	
49	
50	
51	
52	
53	
54	
55	
56	
57	
58	
59	
60	
61	
62	
63	
64	

iMOVA Force Bits

Stream	1	
Force Bit	Name	
1	F01	
2	F02	
3	F03	
4	F04	
5	F05	
6	F06	
7		
8		
9		
10		

iMOVA Stage Confirms

Stream	1	
Stage Confirm	Name	Direct Mapping
1		1.1
2		1.2
3		1.3
4		1.4
5		1.5
6		1.6
7		
8		
9		
10		
11		
12		
13		
14		
15		
16		
17		
18		
19		
20		
21		
22		
23		
24		

iMOVA Phase Confirms

Stream	1	
Phase Confirm	Name	Direct Mapping
1		
2		
3		
4		
5		
6		
7		
8		

iMOVA Output Channels

Stream	1
Number	Name
1	M1_OC1
2	M1_OC2
3	M1_OC3
4	M1_OC4
5	M1_OC5
6	M1_OC6
7	M1_OC7
8	M1_OC8

British summertime change data			
Mode	European Harmonised		
BST start week	-	BST end week	-

Clock source	Mains

APPENDIX I PICADY Results

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462
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Filename: Site Access_Davy Way.j9
Path: C:\Users\Windows\mode Dropbox\Project\Manchester\2. Projects\J327829_Davy Way, Llay\4. Data\6. Junction Capacity Assessments\Junctions
Report generation date: 25/07/2025 10:33:03

«2029 Base + Dev, PM
»Junction Network
»Arms
»Traffic Demand
»Origin-Destination Data
»Vehicle Mix
»Results

Summary of junction performance

	AM						PM					
	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity	Set ID	Queue (PCU)	Delay (s)	RFC	LOS	Network Residual Capacity
	2029 Base + Dev											
Stream B-AC	D1	0.2	9.91	0.19	A	144 %	D2	0.1	8.70	0.12	A	238 %
Stream C-AB		0.0	0.00	0.00	A	[Stream B-AC]		0.0	0.00	0.00	A	[Stream B-AC]

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

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

File summary

File Description

Title	
Location	
Site number	
Date	05/04/2024
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	DESKTOP-P980MS0\Windows
Description	

Units

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

Analysis Options

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

Analysis Set Details

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

Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D2	2029 Base + Dev	PM	Base + Development	ONE HOUR	07:45	09:15	15	✓

2029 Base + Dev, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Pedestrian Crossing	Arm B - Pedestrian crossing	Pedestrian crossing uses default flow of 0. Is this correct?
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		1.00	A

Junction Network Options

Driving side	Lighting	Network residual capacity (%)	First arm reaching threshold
Left	Normal/unknown	238	Stream B-AC

Arms

Arms

Arm	Name	Description	Arm type
A	Davy Way E		Major
B	Site Access		Minor
C	Davy Way W		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.30			143.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.65	43	43

Zebra Crossings

Arm	Space between crossing and junction entry (Left) (PCU)	Vehicles queueing on exit (Zebra) (PCU)	Central Refuge	Crossing data type	Crossing length (entry side) (m)	Crossing time (entry side) (s)	Crossing length (exit side) (m)	Crossing time (exit side) (s)
B	1.00	1.00	✓	Distance	5.00	3.57	9.20	6.57

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	546	0.094	0.237	0.149	0.339
B-C	693	0.100	0.253	-	-
C-B	657	0.240	0.240	-	-

The slopes and intercepts shown above do NOT include any corrections or adjustments.

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

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

Traffic Demand

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		ONE HOUR	✓	126	100.000
B		ONE HOUR	✓	53	100.000
C		ONE HOUR	✓	284	100.000

Demand overview (Pedestrians)

Arm	Profile type	Average pedestrian flow (Ped/hr)
A		
B	[ONEHOUR]	1.00
C		

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	36	90
	B	53	0	0
	C	284	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	0
	B	0	0	0
	C	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-AC	0.12	8.70	0.1	A	49	73
C-AB	0.00	0.00	0.0	A	0	0
C-A					261	391
A-B					33	50
A-C					83	124

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	0.00	496	0.081	40	0.0	0.1	7.889	A
C-AB	0	0		634	0.000	0	0.0	0.0	0.000	A
C-A	214	53				214				
A-B	27	7				27				
A-C	68	17				68				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	12	0.00	486	0.098	48	0.1	0.1	8.212	A
C-AB	0	0		630	0.000	0	0.0	0.0	0.000	A
C-A	255	64				255				
A-B	32	8				32				
A-C	81	20				81				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	58	15	0.00	472	0.124	58	0.1	0.1	8.693	A
C-AB	0	0		623	0.000	0	0.0	0.0	0.000	A
C-A	313	78				313				
A-B	40	10				40				
A-C	99	25				99				

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	58	15	0.00	472	0.124	58	0.1	0.1	8.698	A
C-AB	0	0		623	0.000	0	0.0	0.0	0.000	A
C-A	313	78				313				
A-B	40	10				40				
A-C	99	25				99				

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	48	12	0.00	486	0.098	48	0.1	0.1	8.221	A
C-AB	0	0		630	0.000	0	0.0	0.0	0.000	A
C-A	255	64				255				
A-B	32	8				32				
A-C	81	20				81				

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Pedestrian demand (Ped/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	40	10	0.00	496	0.081	40	0.1	0.1	7.903	A
C-AB	0	0		634	0.000	0	0.0	0.0	0.000	A
C-A	214	53				214				
A-B	27	7				27				
A-C	68	17				68				

APPENDIX J LinSig Results

LinSig V1 style report

User and Project Details

Project:	
Title:	
Location:	
Additional detail:	
File name:	240704 StraightMileRd_LLayRd_GresfordRd_Rackery_Chapel.lsg3x
Author:	
Company:	
Address:	

Phase Input Data

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

Phase Intergreens Matrix

Terminating Phase \ Starting Phase	A	B	C	D	E
A		7	9	8	5
B	6		7	5	8
C	7	6		6	9
D	6	5	5		8
E	5	8	10	8	

Phase Delays

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

Prohibited Stage Change

From Stage \ To Stage	1	2	3	4	5
1		5	8	9	7
2	5		8	10	8
3	6	8		5	5
4	7	9	6		6
5	6	8	5	7	

Phases in Stage

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

Give-Way Lane Input Data

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane
There are no Opposed Lanes in this Junction

Lane Input Data

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	U	D	2	3	60.0	Geom	-	3.00	0.00	Y	Arm 6 Ahead	Inf
											Arm 9 Left	22.00
											Arm 10 Left	11.00
1/2 (Rackery Lane)	U	D	2	3	12.2	Geom	-	3.00	0.00	Y	Arm 7 Right	12.00
											Arm 7 Left	9.00
2/1 (Gresford Road)	U	B	2	3	60.0	Geom	-	3.40	0.00	Y	Arm 8 Ahead	Inf
											Arm 9 Right	7.00
											Arm 10 Right	8.00
3/1 (Chapel Lane)	U	E	2	3	60.0	Geom	-	4.50	0.00	Y	Arm 6 Left	20.00
											Arm 7 Ahead	40.00
											Arm 8 Right	40.00
											Arm 9 U-Turn	7.00
4/1 (Straight Mile)	U	A	2	3	16.5	Geom	-	3.25	0.00	Y	Arm 6 Left	9.00
											Arm 7 Ahead	Inf
4/2 (Straight Mile)	U	A	2	3	60.0	Geom	-	3.25	0.00	Y	Arm 8 Right	11.00
											Arm 10 U-Turn	7.00
5/1 (Llay Road)	U	C	2	3	60.0	Geom	-	5.00	0.00	Y	Arm 6 Right	20.00
											Arm 8 Left	18.00
											Arm 9 Ahead	Inf
											Arm 10 Ahead	Inf
6/1	U		2	3	60.0	Inf	-	-	-	-	-	-
7/1	U		2	3	60.0	Inf	-	-	-	-	-	-
8/1	U		2	3	60.0	Inf	-	-	-	-	-	-
9/1	U		2	3	60.0	Inf	-	-	-	-	-	-

10/1	U		2	3	60.0	Inf	-	-	-	-	-	-

Lane Saturation Flows

Scenario 1: '2023 Base AM' (FG1: '2023 Base AM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	40.2 %	1839	1839
				Arm 9 Left	22.00	58.9 %		
				Arm 10 Left	11.00	0.9 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	24.9 %	1841	1841
				Arm 8 Ahead	Inf	65.7 %		
				Arm 9 Right	7.00	9.4 %		
				Arm 10 Right	8.00	0.0 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	23.1 %	1949	1949
				Arm 7 Ahead	40.00	53.8 %		
				Arm 8 Right	40.00	15.4 %		
				Arm 9 U-Turn	7.00	7.7 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	9.6 %	1909	1909
				Arm 7 Ahead	Inf	90.4 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.2 %	1706	1706
				Arm 10 U-Turn	7.00	0.8 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	7.8 %	1996	1996
				Arm 8 Left	18.00	64.4 %		
				Arm 9 Ahead	Inf	26.8 %		
				Arm 10 Ahead	Inf	1.0 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 2: '2023 Base PM' (FG2: '2023 Base PM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	42.9 %	1843	1843
				Arm 9 Left	22.00	56.8 %		
				Arm 10 Left	11.00	0.3 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	34.9 %	1807	1807
				Arm 8 Ahead	Inf	53.9 %		
				Arm 9 Right	7.00	10.8 %		
				Arm 10 Right	8.00	0.4 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	14.3 %	1980	1980
				Arm 7 Ahead	40.00	57.1 %		
				Arm 8 Right	40.00	28.6 %		
				Arm 9 U-Turn	7.00	0.0 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	7.6 %	1916	1916
				Arm 7 Ahead	Inf	92.4 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.5 %	1707	1707
				Arm 10 U-Turn	7.00	0.5 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	23.1 %	1989	1989
				Arm 8 Left	18.00	55.1 %		
				Arm 9 Ahead	Inf	21.3 %		
				Arm 10 Ahead	Inf	0.5 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 3: '2029 Base AM' (FG3: '2029 Base AM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	40.3 %	1839	1839
				Arm 9 Left	22.00	58.8 %		
				Arm 10 Left	11.00	0.8 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	24.8 %	1841	1841
				Arm 8 Ahead	Inf	65.7 %		
				Arm 9 Right	7.00	9.5 %		
				Arm 10 Right	8.00	0.0 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	23.1 %	1949	1949
				Arm 7 Ahead	40.00	53.8 %		
				Arm 8 Right	40.00	15.4 %		
				Arm 9 U-Turn	7.00	7.7 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	9.3 %	1911	1911
				Arm 7 Ahead	Inf	90.7 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.3 %	1706	1706
				Arm 10 U-Turn	7.00	0.7 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	7.7 %	1996	1996
				Arm 8 Left	18.00	64.4 %		
				Arm 9 Ahead	Inf	26.9 %		
				Arm 10 Ahead	Inf	1.0 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 4: '2029 Base PM' (FG4: '2029 Base PM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	42.9 %	1843	1843
				Arm 9 Left	22.00	56.8 %		
				Arm 10 Left	11.00	0.3 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	35.0 %	1807	1807
				Arm 8 Ahead	Inf	53.9 %		
				Arm 9 Right	7.00	10.7 %		
				Arm 10 Right	8.00	0.4 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	14.3 %	1980	1980
				Arm 7 Ahead	40.00	57.1 %		
				Arm 8 Right	40.00	28.6 %		
				Arm 9 U-Turn	7.00	0.0 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	7.4 %	1916	1916
				Arm 7 Ahead	Inf	92.6 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.5 %	1707	1707
				Arm 10 U-Turn	7.00	0.5 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	23.1 %	1989	1989
				Arm 8 Left	18.00	55.2 %		
				Arm 9 Ahead	Inf	21.3 %		
				Arm 10 Ahead	Inf	0.4 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 5: '2029 Base + Dev AM' (FG5: '2029 Base + Dev AM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	39.7 %	1838	1838
				Arm 9 Left	22.00	59.5 %		
				Arm 10 Left	11.00	0.8 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	24.0 %	1845	1845
				Arm 8 Ahead	Inf	66.8 %		
				Arm 9 Right	7.00	9.2 %		
				Arm 10 Right	8.00	0.0 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	23.1 %	1949	1949
				Arm 7 Ahead	40.00	53.8 %		
				Arm 8 Right	40.00	15.4 %		
				Arm 9 U-Turn	7.00	7.7 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	9.3 %	1911	1911
				Arm 7 Ahead	Inf	90.7 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.3 %	1706	1706
				Arm 10 U-Turn	7.00	0.7 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	7.3 %	1994	1994
				Arm 8 Left	18.00	66.4 %		
				Arm 9 Ahead	Inf	25.4 %		
				Arm 10 Ahead	Inf	1.0 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Scenario 6: '2029 Base + Dev PM' (FG6: '2029 Base + Dev PM', Plan 4: 'Bonus Green')

Junction: Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane

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 (Rackery Lane)	3.00	0.00	Y	Arm 6 Ahead	Inf	42.1 %	1842	1842
				Arm 9 Left	22.00	57.7 %		
				Arm 10 Left	11.00	0.3 %		
1/2 (Rackery Lane)	3.00	0.00	Y	Arm 7 Right	12.00	100.0 %	1702	1702
2/1 (Gresford Road)	3.40	0.00	Y	Arm 7 Left	9.00	34.5 %	1809	1809
				Arm 8 Ahead	Inf	54.6 %		
				Arm 9 Right	7.00	10.6 %		
				Arm 10 Right	8.00	0.4 %		
3/1 (Chapel Lane)	4.50	0.00	Y	Arm 6 Left	20.00	14.3 %	1980	1980
				Arm 7 Ahead	40.00	57.1 %		
				Arm 8 Right	40.00	28.6 %		
				Arm 9 U-Turn	7.00	0.0 %		
4/1 (Straight Mile)	3.25	0.00	Y	Arm 6 Left	9.00	7.4 %	1916	1916
				Arm 7 Ahead	Inf	92.6 %		
4/2 (Straight Mile)	3.25	0.00	Y	Arm 8 Right	11.00	99.5 %	1707	1707
				Arm 10 U-Turn	7.00	0.5 %		
5/1 (Llay Road)	5.00	0.00	Y	Arm 6 Right	20.00	22.3 %	1988	1988
				Arm 8 Left	18.00	56.7 %		
				Arm 9 Ahead	Inf	20.6 %		
				Arm 10 Ahead	Inf	0.4 %		
6/1	Infinite Saturation Flow						Inf	Inf
7/1	Infinite Saturation Flow						Inf	Inf
8/1	Infinite Saturation Flow						Inf	Inf
9/1	Infinite Saturation Flow						Inf	Inf
10/1	Infinite Saturation Flow						Inf	Inf

Traffic Flow Groups

Flow Group	Start Time	End Time	Duration	Formula
1: '2023 Base AM'	07:45	08:45	01:00	
2: '2023 Base PM'	16:30	17:30	01:00	
3: '2029 Base AM'	07:45	08:45	01:00	
4: '2029 Base PM'	16:30	17:30	01:00	
5: '2029 Base + Dev AM'	07:45	08:45	01:00	
6: '2029 Base + Dev PM'	16:30	17:30	01:00	

Traffic Flows, Desired

FG1: '2023 Base AM'

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	3	202	138	287	630
	B	2	0	1	3	7	13
	C	263	2	0	10	94	369
	D	153	0	22	0	58	233
	E	307	5	128	37	0	477
	Tot.	725	10	353	188	446	1722

FG2: '2023 Base PM'

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	1	193	146	335	675
	B	2	0	0	1	4	7
	C	182	1	0	12	145	340
	D	145	1	29	0	94	269
	E	241	2	93	101	0	437
	Tot.	570	5	315	260	578	1728

FG3: '2029 Base AM'

Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	3	210	144	299	656
	B	2	0	1	3	7	13
	C	274	2	0	10	98	384
	D	159	0	23	0	60	242
	E	319	5	133	38	0	495
	Tot.	754	10	367	195	464	1790

FG4: '2029 Base PM'
Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	1	201	152	348	702
	B	2	0	0	1	4	7
	C	189	1	0	12	151	353
	D	151	1	30	0	98	280
	E	251	2	97	105	0	455
	Tot.	593	5	328	270	601	1797

FG5: '2029 Base + Dev AM'
Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	3	220	147	311	681
	B	2	0	1	3	7	13
	C	294	2	0	10	98	404
	D	167	0	23	0	60	250
	E	348	5	133	38	0	524
	Tot.	811	10	377	198	476	1872

FG6: '2029 Base + Dev PM'
Desired Flow :

		Destination					
		A	B	C	D	E	Tot.
Origin	A	0	1	218	159	373	751
	B	2	0	0	1	4	7
	C	201	1	0	12	151	365
	D	155	1	30	0	98	284
	E	267	2	97	105	0	471
	Tot.	625	5	345	277	626	1878

Stage Timings

Scenario 1: '2023 Base AM' (FG1: '2023 Base AM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	16	7	20	31	16
Change Point	0	22	34	62	98

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**90.0%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**90.0%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	20	-	630	1839:1702	381+319	90.0 : 90.0%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	16	-	233	1841	261	89.3%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	13	1949	49	26.7%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	16	-	369	1706:1909	299+117	88.8 : 88.8%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	31	-	477	1996	532	89.6%
6/1		U	N/A	N/A	-		-	-	-	188	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	446	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	725	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	353	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	10	Inf	Inf	0.0%

LinSig V1 style report

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	**-**	**-**	**0**	**0**	**0**	**21.9**	**14.8**	**0.0**	**36.7**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**21.9**	**14.8**	**0.0**	**36.7**	**-**	**-**	**-**	**-**
1/1+1/2	630	630	-	-	-	8.0	4.0	-	12.0	68.8	11.1	4.0	15.1
2/1	233	233	-	-	-	3.3	3.4	-	6.6	102.7	7.6	3.4	10.9
3/1	13	13	-	-	-	0.2	0.2	-	0.4	107.4	0.4	0.2	0.6
4/2+4/1	369	369	-	-	-	4.8	3.4	-	8.2	80.5	8.6	3.4	12.1
5/1	477	477	-	-	-	5.6	3.8	-	9.4	71.0	15.2	3.8	19.0
6/1	188	188	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	446	446	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	725	725	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	353	353	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	10	10	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 0.0 Total Delay for Signalled Lanes (pcuHr): 36.74 Cycle Time (s): 120
PRC Over All Lanes (%): 0.0 Total Delay Over All Lanes(pcuHr): 36.74

Stage Timings

Scenario 2: '2023 Base PM' (FG2: '2023 Base PM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	10	7	23	30	20
Change Point	0	16	28	59	94

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**85.1%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**85.1%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	23	-	675	1843:1702	400+394	84.9 : 84.9%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	20	-	269	1807	316	85.1%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	7	1980	50	14.1%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	10	-	340	1707:1916	228+255	80.4 : 61.5%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	30	-	437	1989	514	85.0%
6/1		U	N/A	N/A	-		-	-	-	260	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	578	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	570	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	315	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	5	Inf	Inf	0.0%

Item	Arriving (pcu)	Leaving (pcu)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Uniform Delay (pcuHr)	Rand + Oversat Delay (pcuHr)	Storage Area Uniform Delay (pcuHr)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Max. Back of Uniform Queue (pcu)	Rand + Oversat Queue (pcu)	Mean Max Queue (pcu)
Network	**-**	**-**	**0**	**0**	**0**	**21.5**	**9.2**	**0.0**	**30.7**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**21.5**	**9.2**	**0.0**	**30.7**	**-**	**-**	**-**	**-**
1/1+1/2	675	675	-	-	-	8.0	2.7	-	10.7	57.0	10.5	2.7	13.2
2/1	269	269	-	-	-	3.6	2.6	-	6.2	82.4	8.7	2.6	11.2
3/1	7	7	-	-	-	0.1	0.1	-	0.2	99.7	0.2	0.1	0.3
4/2+4/1	340	340	-	-	-	4.7	1.2	-	5.9	62.2	5.9	1.2	7.1
5/1	437	437	-	-	-	5.1	2.7	-	7.8	64.2	13.8	2.7	16.5
6/1	260	260	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	578	578	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	570	570	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	315	315	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	5	5	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 5.8 Total Delay for Signalled Lanes (pcuHr): 30.71 Cycle Time (s): 120
PRC Over All Lanes (%): 5.8 Total Delay Over All Lanes(pcuHr): 30.71

Stage Timings

Scenario 3: '2029 Base AM' (FG3: '2029 Base AM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	16	7	20	31	16
Change Point	0	22	34	62	98

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.7%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**93.7%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	20	-	656	1839:1702	381+319	93.7 : 93.7%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	16	-	242	1841	261	92.8%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	13	1949	49	26.7%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	16	-	384	1706:1911	299+117	92.4 : 92.4%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	31	-	495	1996	532	93.0%
6/1		U	N/A	N/A	-		-	-	-	195	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	464	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	754	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	367	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	10	Inf	Inf	0.0%

LinSig V1 style report

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	**-**	**-**	**0**	**0**	**0**	**23.0**	**20.3**	**0.0**	**43.3**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**23.0**	**20.3**	**0.0**	**43.3**	**-**	**-**	**-**	**-**
1/1+1/2	656	656	-	-	-	8.4	5.8	-	14.3	78.3	11.6	5.8	17.5
2/1	242	242	-	-	-	3.4	4.4	-	7.8	116.2	7.9	4.4	12.3
3/1	13	13	-	-	-	0.2	0.2	-	0.4	107.4	0.4	0.2	0.6
4/2+4/1	384	384	-	-	-	5.0	4.7	-	9.7	91.3	9.0	4.7	13.8
5/1	495	495	-	-	-	5.9	5.2	-	11.1	80.7	16.1	5.2	21.3
6/1	195	195	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	464	464	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	754	754	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	367	367	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	10	10	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -4.1 Total Delay for Signalled Lanes (pcuHr): 43.30 Cycle Time (s): 120
PRC Over All Lanes (%): -4.1 Total Delay Over All Lanes(pcuHr): 43.30

Stage Timings

Scenario 4: '2029 Base PM' (FG4: '2029 Base PM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	10	7	23	30	20
Change Point	0	16	28	59	94

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.6%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**88.6%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	23	-	702	1843:1702	401+394	88.2 : 88.2%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	20	-	280	1807	316	88.5%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	7	1980	50	14.1%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	10	-	353	1707:1916	228+255	83.5 : 63.8%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	30	-	455	1989	514	88.6%
6/1		U	N/A	N/A	-		-	-	-	270	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	601	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	593	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	328	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	5	Inf	Inf	0.0%

LinSig V1 style report

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	**-**	**-**	**0**	**0**	**0**	**22.6**	**11.6**	**0.0**	**34.2**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**22.6**	**11.6**	**0.0**	**34.2**	**-**	**-**	**-**	**-**
1/1+1/2	702	702	-	-	-	8.4	3.5	-	11.9	60.9	11.0	3.5	14.5
2/1	280	280	-	-	-	3.8	3.3	-	7.0	90.4	9.1	3.3	12.4
3/1	7	7	-	-	-	0.1	0.1	-	0.2	99.7	0.2	0.1	0.3
4/2+4/1	353	353	-	-	-	4.9	1.3	-	6.2	63.6	6.2	1.3	7.5
5/1	455	455	-	-	-	5.4	3.5	-	8.9	70.2	14.5	3.5	18.0
6/1	270	270	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	601	601	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	593	593	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	328	328	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	5	5	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): 1.6 Total Delay for Signalled Lanes (pcuHr): 34.21 Cycle Time (s): 120
PRC Over All Lanes (%): 1.6 Total Delay Over All Lanes(pcuHr): 34.21

Stage Timings

Scenario 5: '2029 Base + Dev AM' (FG5: '2029 Base + Dev AM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	15	7	19	31	16
Change Point	0	21	33	60	96

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**97.5%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**97.5%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	19	-	681	1838:1702	379+319	97.5 : 97.5%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	16	-	250	1845	266	94.1%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	13	1949	132	9.8%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	15	-	404	1706:1911	304+111	97.5 : 97.5%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	31	-	524	1994	541	96.9%
6/1		U	N/A	N/A	-		-	-	-	198	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	476	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	811	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	377	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	10	Inf	Inf	0.0%

LinSig V1 style report

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	**-**	**-**	**0**	**0**	**0**	**23.7**	**30.1**	**0.0**	**53.8**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**23.7**	**30.1**	**0.0**	**53.8**	**-**	**-**	**-**	**-**
1/1+1/2	681	681	-	-	-	8.6	9.4	-	18.0	95.2	11.9	9.4	21.3
2/1	250	250	-	-	-	3.5	4.9	-	8.4	120.4	8.1	4.9	12.9
3/1	13	13	-	-	-	0.2	0.1	-	0.2	66.8	0.4	0.1	0.5
4/2+4/1	404	404	-	-	-	5.2	7.8	-	13.0	116.0	9.6	7.8	17.4
5/1	524	524	-	-	-	6.2	8.0	-	14.2	97.5	16.9	8.0	24.9
6/1	198	198	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	476	476	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	811	811	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	377	377	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	10	10	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -8.4 Total Delay for Signalled Lanes (pcuHr): 53.81 Cycle Time (s): 118
PRC Over All Lanes (%): -8.4 Total Delay Over All Lanes(pcuHr): 53.81

Stage Timings

Scenario 6: '2029 Base + Dev PM' (FG6: '2029 Base + Dev PM', Plan 4: 'Bonus Green')

Stage	1	2	3	4	5
Duration	9	7	23	29	19
Change Point	0	15	27	58	92

Network Results

Item	Lane Description	Lane Type	Controller Stream	Position In Filtered Route	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)
Network	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.4%**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	-	-	**N/A**	-	-		-	-	-	-	-	-	**92.4%**
1/1+1/2	Rackery Lane Ahead Right Left Left2	U	N/A	N/A	D		1	23	-	751	1842:1702	410+405	92.2 : 92.2%
2/1	Gresford Road Left Ahead Right Right2	U	N/A	N/A	B		1	19	-	284	1809	309	91.8%
3/1	Chapel Lane Left Ahead Right U-Turn	U	N/A	N/A	E		1	7	-	7	1980	135	5.2%
4/2+4/1	Straight Mile Left Ahead Right U-Turn	U	N/A	N/A	A		1	9	-	365	1707:1916	219+246	92.3 : 66.4%
5/1	Llay Road Right Left Ahead Ahead2	U	N/A	N/A	C		1	29	-	471	1988	510	92.4%
6/1		U	N/A	N/A	-		-	-	-	277	Inf	Inf	0.0%
7/1		U	N/A	N/A	-		-	-	-	626	Inf	Inf	0.0%
8/1		U	N/A	N/A	-		-	-	-	625	Inf	Inf	0.0%
9/1		U	N/A	N/A	-		-	-	-	345	Inf	Inf	0.0%
10/1		U	N/A	N/A	-		-	-	-	5	Inf	Inf	0.0%

LinSig V1 style report

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	**-**	**-**	**0**	**0**	**0**	**23.2**	**16.0**	**0.0**	**39.2**	**-**	**-**	**-**	**-**
Straight Mile Road / Gresford Road / Llay Road / Rackery Lane / Chapel Lane	**-**	**-**	**0**	**0**	**0**	**23.2**	**16.0**	**0.0**	**39.2**	**-**	**-**	**-**	**-**
1/1+1/2	751	751	-	-	-	8.8	5.1	-	13.9	66.4	11.6	5.1	16.7
2/1	284	284	-	-	-	3.8	4.2	-	8.0	101.2	9.1	4.2	13.3
3/1	7	7	-	-	-	0.1	0.0	-	0.1	65.3	0.2	0.0	0.2
4/2+4/1	365	365	-	-	-	5.0	1.8	-	6.8	67.1	6.5	1.8	8.2
5/1	471	471	-	-	-	5.5	4.9	-	10.4	79.5	14.9	4.9	19.8
6/1	277	277	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
7/1	626	626	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
8/1	625	625	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
9/1	345	345	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0
10/1	5	5	-	-	-	0.0	0.0	-	0.0	0.0	0.0	0.0	0.0

C1 PRC for Signalled Lanes (%): -2.7 Total Delay for Signalled Lanes (pcuHr): 39.17 Cycle Time (s): 117
PRC Over All Lanes (%): -2.7 Total Delay Over All Lanes(pcuHr): 39.17