11.0 TRAFFIC AND TRANSPORT ASSESSMENT

11.1 Introduction

TOBIN have been appointed to prepare the Traffic and Transport chapter to support the Environmental Impact Assessment Report (EIAR) for the proposed quarry development located at Ballymullen, Abbeyleix, Co. Laois. The Traffic and Transportation assessment has been prepared to assess the traffic impacts of the proposed quarry for the Construction, Operational and Decommissioning Phases of the Project on the existing road network and receiving environment. Figures which are referenced in this text are provided in Appendix 11.1.

In preparing this Traffic and Transportation Assessment Report, reference has been made to the following documentation:

- Transport Infrastructure Ireland (TII) Publication (Technical) PE-PDV-02045 (May 2014) 'Traffic and Transport Assessment Guidelines';
- TII Publication (Technical) PE-PAG-02017 (May 2019) 'Project Appraisal Guidelines for National Roads Unit 5.3: Travel Demand Projections';
- TII Publication (Standards) DN-GEO-03060 (June 2017) Geometric Design of Junctions (priority junctions, direct accesses, roundabouts, grade separated, and compact grade separated junctions); and
- *Laois County Development Plan 2021-2027*.

The objective of the assessment is to assess the potential traffic impacts associated with the proposed quarry. The assessment will look at the impacts that the quarry will have on the existing road network. This chapter will calculate the expected volume of traffic that will be generated by the quarry and assess the impact that this traffic will have on the operational capacity of the road network.

11.1.1 Scoping and Meetings

Scoping was undertaken with the Roads & Transportation Section, Laois County Council on the 19th of November 2019. The location of the traffic counts was agreed with Laois and the standard documentation for undertaking the Traffic and Transportation Assessment.

11.1.2 Structure of the Report

This chapter is divided into eight sections:

- Section 11.1 includes this introduction;
- Section 11.2 describes the existing site and the proposed development;
- Section 11.3 provides an overview of the baseline traffic conditions, explaining how this information was obtained;
- Section 11.4 outlines the assumptions that have been made in the calculation of traffic generated by the quarry and the factors used to forecast the future road network traffic;
- Section 11.5 explains the methodology used and the results of the analysis performed on the nominated junctions. An investigation into link capacity is also dealt with in this Chapter;

- Section 11.6 addresses issues relating to road safety, parking provision, pedestrians & cyclists and access for people with disabilities; and
- Section 11.7 contains the conclusions and recommendations of the Report.

11.2 Site Description

11.2.1 Site Location

The proposed development is located at Knocknamoe and Ballymullen which is a semi-rural area located 4.8km north-west of Ballinakill town and 1.4km south-east of Abbeyleix town. The proposed entrance into the quarry will be accessed via a direct access onto the L-5731-25 local road (see Site Location Map in Appendix 11.1).

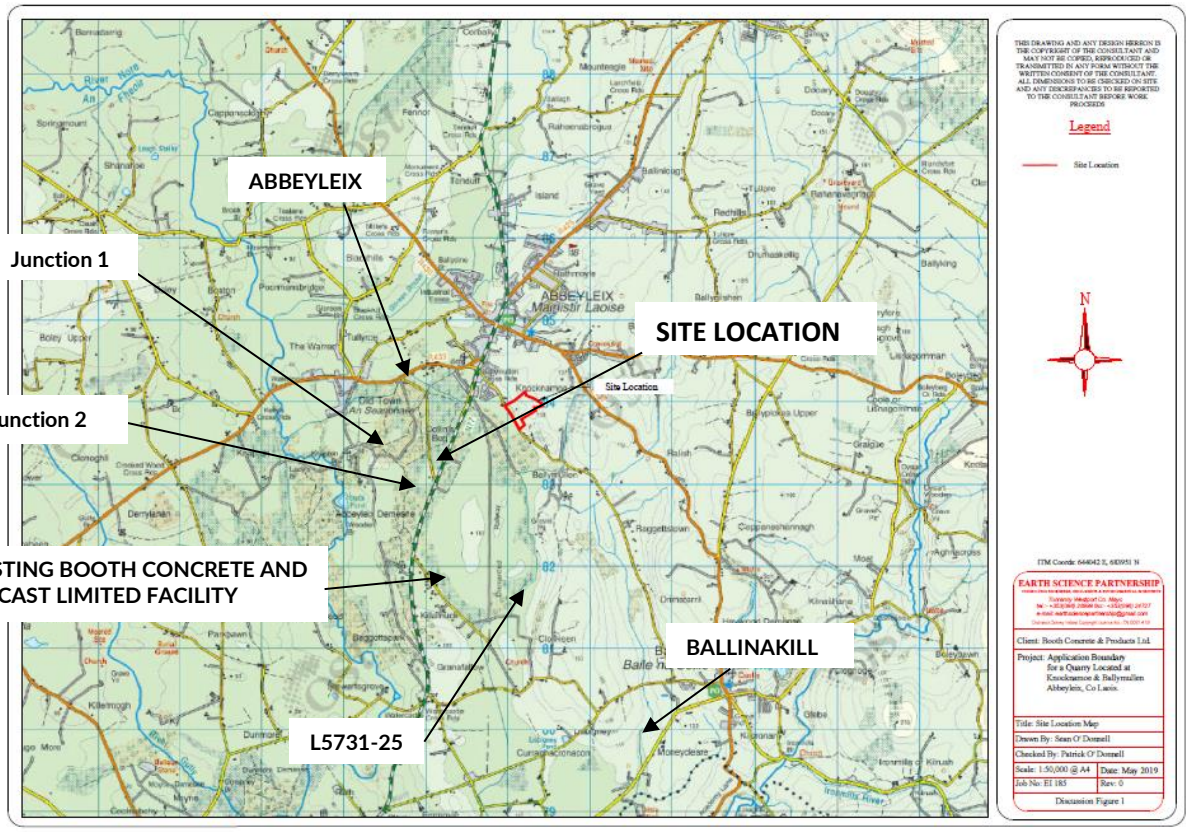


Figure 11.1: Site Location Map.

11.2.1.1 Construction Phase

Construction traffic will be limited, the traffic will include delivery of hardcore to construct internal access roads and wheel wash.

11.2.1.2 Operational Phase

The application site is approximately 8.5 hectares in area and will be used to provide material to the existing Booth and Precast Manufacturing Facility which is located 1.3km southeast of the proposed quarry. Day to day activities associated with the quarry are summarised in Figure 11.2.

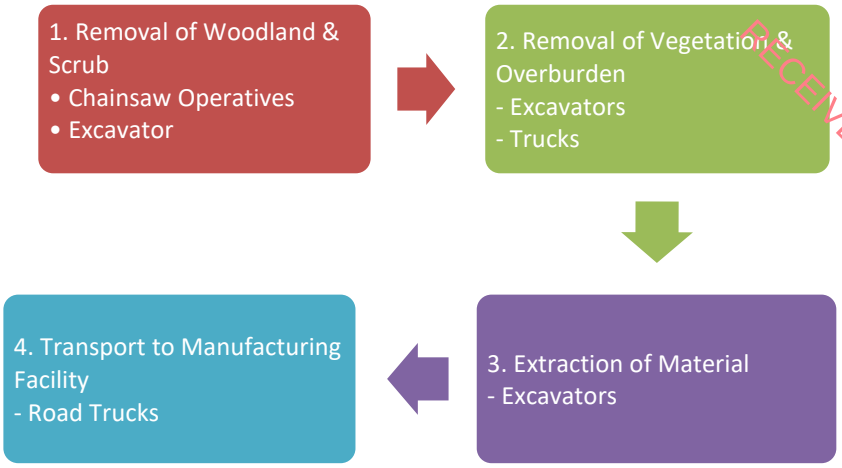


Figure 11.2: Summary of Activities proposed at the Quarry

The following plant will operate at the application site on a full or part time basis:

- Excavators;
- Road Trucks; and
- Water Bowser

The proposed quarrying activities includes the extraction of sand and gravel which will be transferred to road-going trucks.

It has been estimated there is a reserve of sand and gravel material available in the region of 800,000m3 or 1.6 million tonnes (conversion factor of 2m3/tonne). The maximum rate of extraction proposed is 200,000 tonnes per annum with the anticipated rate to be lower than this. A summary of the estimated traffic is demonstrated in Table 11.1.

Table 11.1: Generated Traffic for the Proposed Quarry

Annual Extraction (Tonnes)	Working weeks/ year	Working days/ year	Daily Extraction (Tonnes)	% and Number of Rigid (20 Tonnes)		% and Number of Rigid (28 Tonnes)		Total Vehicle per day
200,000	50	5.5	727	25%	9	75%	20	29

Note: this table denotes one-way movements from the quarry to the manufacturing facility

The site will also provide employment for approximately two people and include a wheel wash and internal road within the site boundary.

11.2.1.3 Decommissioning Phase

Decommission works shall involve landscape and restoration which will include the removal of all plant and machinery, landscaping and restoration of areas on completion of extraction.

11.2.1.4 Haul Roads

The Operational Phase haul routes are currently being utilised as part of the normal operations of the Booth Concrete and Precast Limited Facility. The proposed quarry will replace the importing of material from various third part quarries and pits to the facility. Figure 11.3 shows the locations of these third parties where material is currently sourced from.

No intensification of activities at Booth Concrete and Precast Limited Facility operations are proposed. Hence, no increase in quarry traffic on the current haul routes being utilised.

It should be noted the traffic will be reduced going through Abbeyleix as material will be sourced closer to the manufacturing facility.

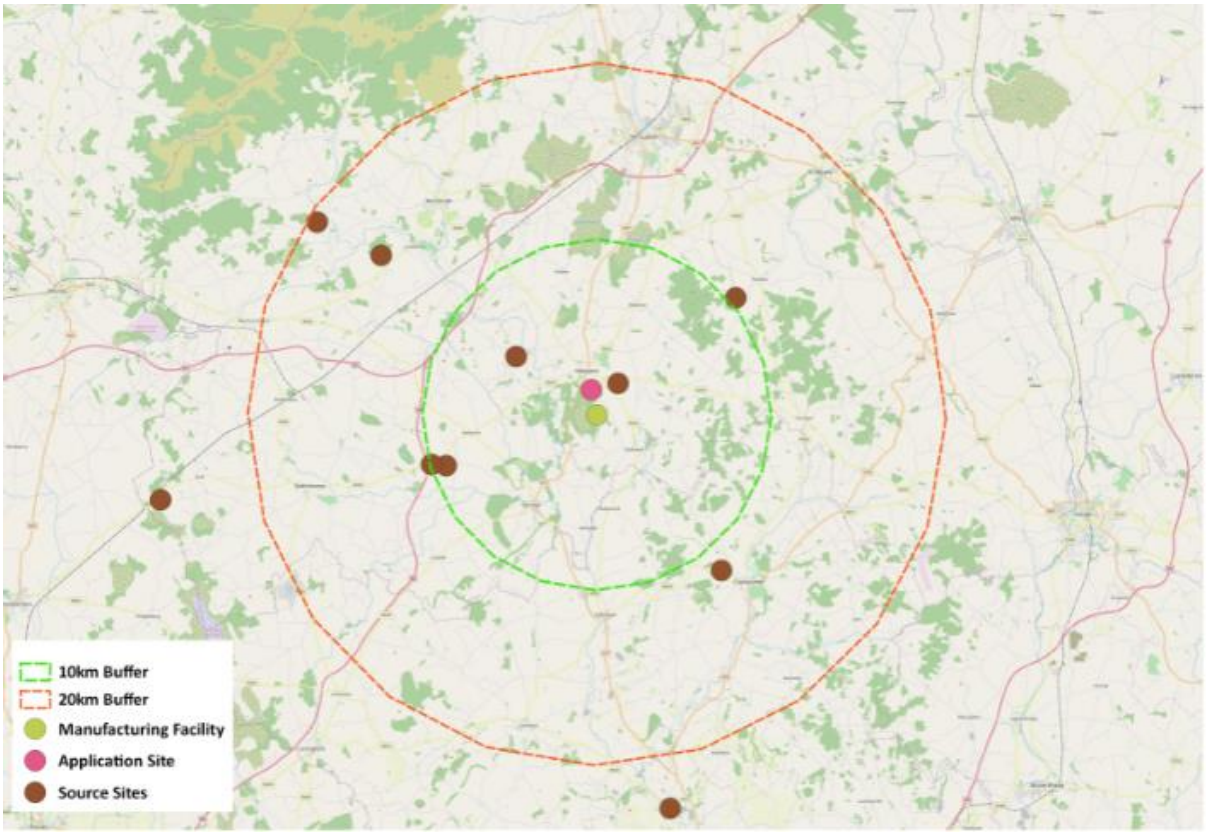


Figure 11.3: Existing Quarries and Pits

The Decommission Phase will result in traffic generations along similar routes to the Operation Phase haul routes. The volume of traffic anticipated during the decommission phase will be of a shorter duration than the operational phase. Short term peaks may be encountered during the decommissioning in excess of the proposed operational traffic.

11.3 Baseline Traffic Conditions

11.3.1 Description of Existing Environment

This section provides an overview of the location and environmental setting of the proposed quarry, describing key features of the natural and built environment which fall within, or in proximity to the proposed quarry.

11.3.1.1 Study Area

The location of the quarry is detailed in Section 11.1 and the study area comprises the road network in the vicinity of the quarry including its haul routes. The quarry is situated on the L-5731-25 local road. The L-5731-25 connects the urban centre of Abbeyleix village located approximately 1.4km to the north-west of the application area to Ballinakill approximately 4.5km to the south-east. At Abbeyleix, the road network connects to national and regional roads including the N77, R433, R425 and R430.

Land-use in the vicinity of the application area and the proposed quarry consists mainly of agricultural land with livestock farming being the predominant sector practiced. A number of one-off houses and farmsteads are located along the length of the L-5731-25 local road in the vicinity of the quarry.

11.3.1.2 Sensitive Receptors

In order to identify potential sensitive receptors, a desktop study was carried out to identify schools, hospitals, nursing homes and settlements in proximity to the study area. The site visit confirmed the following sensitive receptors identified:

- Town of Abbeyleix, Co. Laois – 1.4 km north-west of Site Access
- Town of Ballinakill, Co. Laois – 4.5 km south-east of Site Access

11.3.1.3 Traffic Surveys

In order to determine the magnitude of the existing traffic flows, the results of a manual classified junction turning count and two-way Automated Traffic Count (ATC) were used. The traffic surveys were carried out by Tracsis Limited. The junction count was undertaken on Thursday the 13th of June 2019 between the hours 07:00 and 19:00. The two-way ATC was undertaken between the 13th of June 2019 and Wednesday the 19th of June 2019.

The count information was obtained at the following locations, refer to Figure 11.1:

- Junction 1: Existing N77/L5731-25/ L5731 staggered junction; and
- Junction 2: Two-way ATC along L5731

This survey distinguished between light good vehicles and heavy good vehicles. The traffic count data is included in Appendix 11.2 of this report. The results of this survey indicated that the peak traffic levels through the junction occurred between the morning peak (AM Peak) of 08:00 and 09:00 and in the evening peak (PM Peak) between 16:30 and 17:30.

Description of Proposed Junction

The site lies on the north-east of the L-5731-25. The proposed quarry will be accessed via a single direct access onto the local road where an existing gate is situated, see Figure 11.4.

Figure 11.4: Proposed Site Access (Existing Gate) on L-5731-25- Aerial Map (Google Maps)

The details of the proposed works at the access is shown on drawings PP-110-03 (Annex A) The works include ensuring the visibility requirements of 3 x 160 metres are as per the Laois Development Plan.

Operational Hours and Staff

The quarry operating hours will be between 07:00 to 20:00 Monday to Friday, and 08:00 to 18:00 Saturday. Occasionally, there may be a requirement to undertake work outside these hours.

The proposed quarry development will provide employment for approximately 2 personnel directly with potential for further indirect employment. Additional personnel such as sub-contractors for contract hauliers, maintenance contractors, etc. also supply an indirect source of employment.

11.4 Trip Generation And Distribution

The assumed traffic generation outlined in Section 0 was reviewed to determine the peak operation traffic volumes for the proposed quarry.

11.4.1 Operational Phase Traffic Generation

As outlined above, it is estimated there will be 29 (one-way) truck movements per day at the proposed quarry as well as the two staff light vehicle movements (one-way). The total traffic and peak traffic for the day is shown in Table 11.2 below.

Table 11.2: Existing Peak Traffic Volumes at the Quarry Access

Quarry Traffic at Site Entrance – Peak Activity 2019 Traffic Count						
			AM Peak		PM Peak	
Time	07:00-20:00		08:00-09:00		16:30-17:30	
	Arrivals	Departures	Arrivals	Departures	Arrivals	Departures
LV	2	2	2	0	0	2
HGV	29	29	2	2	2	2

11.4.1.1 Assumptions

The following assumptions have been made in the development of the Operational Phase Generated traffic:

- All operational staff will arrive in the AM peak (08:00-09:00) and depart in the PM peak (16:30-17:30);
- Assumed that operational staff will travel to work in their own vehicle (single occupancy light vehicle); and
- Assume Heavy Goods Vehicles (HGV) operation within a 12-hour period during weekday and a 9-hour period on Saturday, deducting 1 hour for lunch.

11.4.2 Operational Phase Trip Distribution

For the purposes of this report, the following trip distribution has been assumed at the quarry:

- Arrivals: 100% of the HGV's will travel to the existing Booth Precast Manufacturing Facility on the L5731-25 [turn left from quarry in direction of Ballinakill.
- Departures: The arrivals distribution in reverse.

At the existing staggered junction on the N77 with the L-5731, current HGV operations pass through this junction for the existing Booth Precast Manufacturing Facility. It has been assumed that the quarry traffic generations will match the existing trip distributions patterns at this junction. The trip distribution of the quarry generated traffic for the AM and PM peak hours is shown in Figure 11. to Figure .

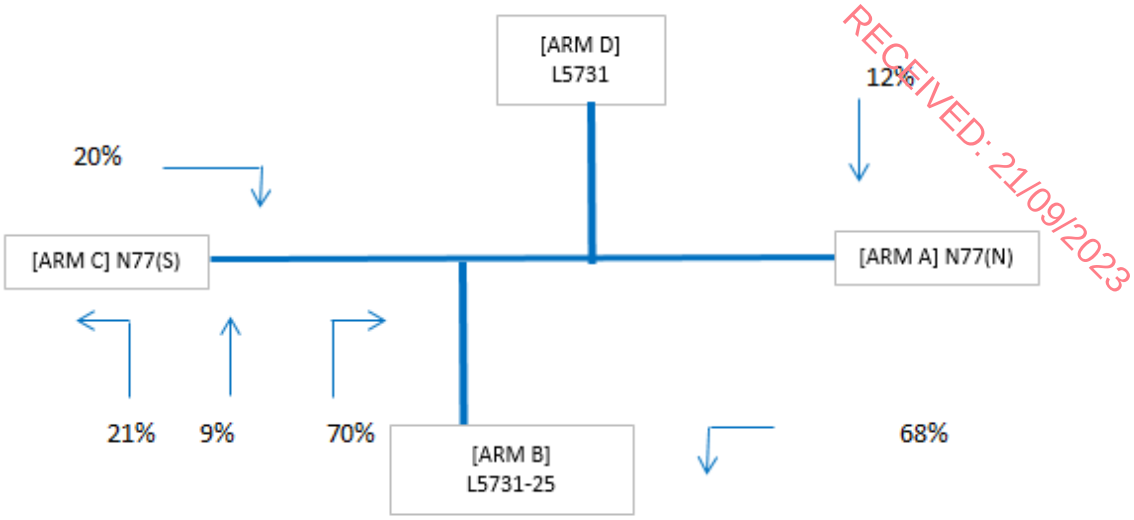


Figure 11.5: Junction 1: Distribution of Generated Traffic AM Peak

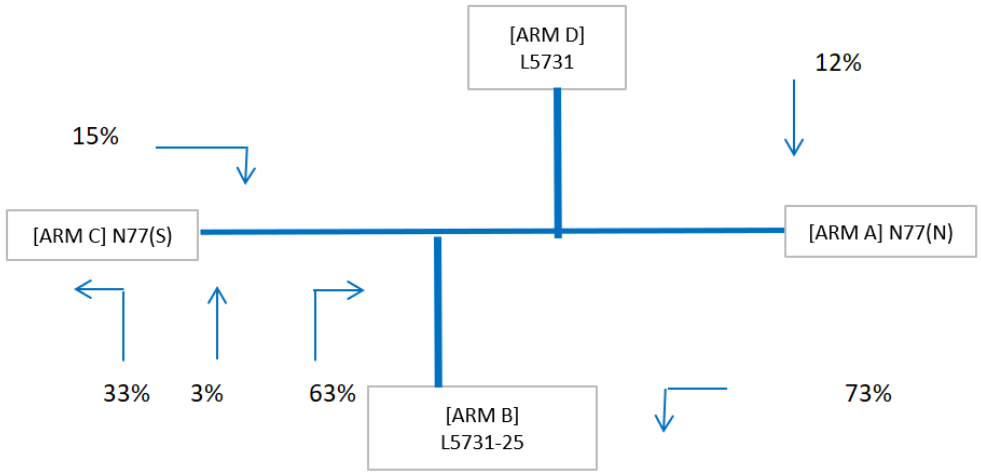


Figure 11.6: Junction 1: Distribution of Generated Traffic PM Peak

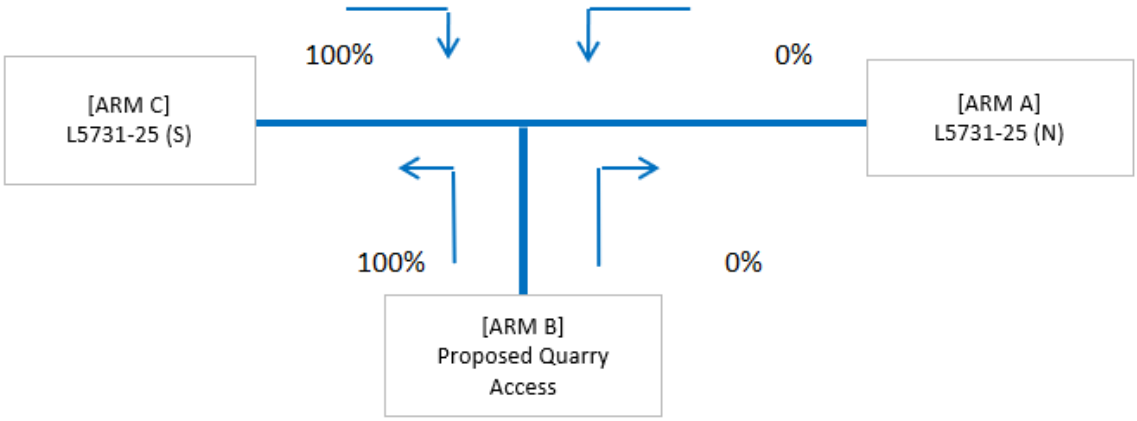


Figure 11.7: Junction 2: Distribution of Generated Traffic AM Peak

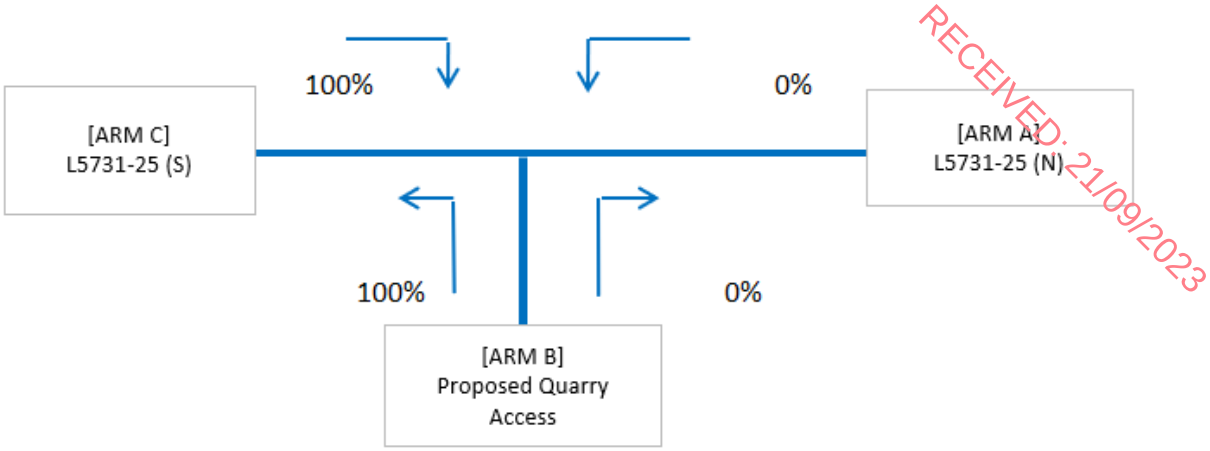


Figure 11.8: Junction 2: Distribution of Generated Traffic PM Peak

11.4.2.1 Committed Developments

Due to the nature of the surrounding environs to the development, it is anticipated that the committed developments in the vicinity will be one-off housing or agricultural farmland use. To account for the potential cumulative impacts on the road network traffic capacity from these anticipated committed developments in the area, a high sensitivity growth rate was selected to apply to the baseflow traffic volumes to give a robust network traffic volume for each year of the assessment.

11.4 Traffic and Transportation Assessment

11.4.1 Seasonal Adjustment of Baseline Traffic

In order to undertake an analysis of the junctions, it is sometimes necessary to apply a correction factor to convert the traffic count data into seasonally adjusted traffic flows to take account of the seasonal variation that is experienced with traffic volumes.

The seasonal adjustment conversion factors were calculated using live TII traffic count data taken from the N77 between Abbeyleix and Durrow, Kilamuck, Co. Laois. A comparison of the day of the traffic count data survey with the AADT for the previous 12-months indicates the traffic flows on the day of the traffic counts survey are higher than the annual average. Hence no seasonal adjustment factor is required.

11.4.2 Assessment Years

11.4.2.1 Operational Phase Assessment Years

The operational phase assessment years are derived from the requirements of the TII Traffic and Transportation Assessment Guidelines:

- 2021 – Envisaged Opening Year; and
- 2031 – 10 Years beyond year of opening.

11.5.3 Traffic Growth of Baseline Traffic

In order to undertake a robust and comparable traffic assessment, it is necessary for baseline traffic data to be factored based on nationally adopted growth rates detailed in the TII PAG Unit 5.3 Travel Demand Projections[1]. A high growth factor was applied to the baseline traffic to forecast the traffic volumes to the associated assessment years.

Table 11.3: Link-Based Growth Rates for County Laois Annual Growth Rates (excluding Metropolitan Area)

11.3 show the associated high sensitivity growth rates applied to the baseline traffic flows on the existing road network to forecast to the future assessment years baseflow traffic.

Table 11.3: Link-Based Growth Rates for County Laois Annual Growth Rates (excluding Metropolitan Area)

County	2016-2030		2030-2040	
	LV	HV	LV	HV
Laois	1.0179	1.0314	1.0082	1.0160

11.5.4 Junction Analysis

11.5.4.1 Traffic Assessment Parameters

Junctions associated with the Project have been analysed using the following Transport Research Laboratory (TRL) computer programs:

- JUNCTION 9 – PICADY, a widely accepted tool used for the analysis of priority junctions.

The key parameters examined in the results of the analysis are:

- The Ratio of Flow to Capacity Value (RFC) - The desirable RFC Values for junctions assessed using PICADY is less than 0.85. Values over 1.00 RFC indicate that the approach arm is over capacity;
- Maximum queue length on all approach to the junctions; and
- Average delay for each vehicle passing through the junction during the modelled period.

PICADY requires the following input data:

- Basic modelling parameters (usually peak hour traffic counts synthesised over a 90-minute model period);
- Geometric parameters (including lane numbers and widths, visibility, storage provision etc.); and
- Traffic demand data (usually peak hour origin/destination table with composition of heavy goods vehicles input*).

For the purpose of this Report, the varying vehicle types have been segregated into Light Vehicles (LV) and Heavy Goods Vehicles (HGV) prior to input. Traffic volumes input into the assessment software were in number of vehicles and, accordingly commercial vehicle composition was set to the percentage of that arm.

11.5.4.2 Traffic Assessment Results

Construction Phase

As previous stated, the volume of traffic and its duration for the construction phase is envisaged to be less than the operational phase at the quarry. Hence, the construction phase traffic was not assessed.

Operational Phase

- *Junction 1*

A summary of the results for the existing staggered junction, N77/ L-5731/ L-5731-25, (Junction 1) for the AM peak (08:00 - 09:00) and PM peak (16:30 - 17:30) hours during the Operational Phase are provided in **Error! Reference source not found.**11.4. A complete set of outputs from JUNCTION 9 are included in Appendix 11.3.

Table 11.4: Summary PICADY Outputs - Junction 1: N77 Staggered Junction

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	Junction Delay (s)	Queue (Veh)	Delay (s)	RFC	Junction Delay (s)
	2019							
Stream B-ACD	0.1	13.27	0.12	1.23	0.1	11.73	0.1	0.83
Stream A-BCD	0	5.03	0		0	4.55	0.01	
Stream D-ABC	0.1	11.07	0.1		0	9.49	0.05	
Stream C-ABD	0	5.23	0.02		0	4.99	0.01	
	2021 No Development							
Stream B-ACD	0.1	13.7	0.12	1.26	0.1	11.98	0.1	0.83
Stream A-BCD	0	5.01	0		0	4.52	0.01	
Stream D-ABC	0.1	11.35	0.1		0	9.66	0.05	
Stream C-ABD	0	5.19	0.02		0	4.97	0.01	
	2021 With Development							
Stream B-ACD	0.1	13.74	0.13	1.37	0.1	12.1	0.11	0.94
Stream A-BCD	0	5.04	0.01		0	4.54	0.01	
Stream D-ABC	0.1	11.45	0.12		0.1	9.68	0.06	
Stream C-ABD	0	5.18	0.02		0	4.97	0.01	
	2031 No Development							
Stream B-ACD	0.2	16.19	0.18	1.52	0.2	13.54	0.14	0.97
Stream A-BCD	0	4.95	0		0	4.39	0.01	
Stream D-ABC	0.2	13.22	0.14		0.1	10.63	0.07	
Stream C-ABD	0	5.07	0.02		0	4.91	0.01	
	2031 With Development							

Stream B-ACD	0.3	16.63	0.22	1.96	0.2	14.4	0.18	1.39
Stream A-BCD	0.1	5.07	0.04		0.1	4.49	0.05	
Stream D-ABC	0.2	13.81	0.19		0.1	11.02	0.11	
Stream C-ABD	0	5.03	0.02		0	4.88	0.01	

The summary of the junction performance analysis in Table 11.4 indicates that Junction 1 will operate within capacity, with max RFC of 0.22 encountered at the junction well below the maximum desired RFC of 0.85.

The summary indicates that there will be negligible queues and minimal delays during both the peak hours for both the do-nothing (i.e. no development) and do-something scenarios (i.e. with development).

A comparison of the do-nothing and do-something scenarios indicates a minor impact by the proposed development on the junction.

- *Junction 2*

A summary of the operational phase traffic results for the proposed quarry direct access onto the L5731-25 Local road (Junction 2) for the AM peak (08:00 - 09:00) and PM peak (16:30 – 17:30) hours are provided in Table 11.. A complete set of outputs from JUNCTION 9 are included in Appendix 11.3.

Table 11.5: Summary PICADY Outputs - Junction 2: Proposed Quarry Entrance L-5731-25

	AM				PM			
	Queue (Veh)	**Delay (s)**	**RFC**	**Junction Delay (s)**	**Queue (Veh)**	**Delay (s)**	**RFC**	**Junction Delay (s)**
	2019							
Stream B-AC	0	0	0	0	0	0	0	0
Stream C-AB	0	0	0		0	0	0	
	2021 No Development							
Stream B-AC	0	0	0	0	0	0	0	0
Stream C-AB	0	0	0		0	0	0	
	2021 With Development							
Stream B-AC	0	0	0	0.72	0	0	0	0.73
Stream C-AB	0	10.74	0.01		0	10.51	0.01	
	2031 No Development							
Stream B-AC	0	0	0	0	0	0	0	0
Stream C-AB	0	0	0		0	0	0	
	2031 With Development							
Stream B-AC	0	0	0	0.58	0	0	0	0.61
Stream C-AB	0	10.7	0.01		0	10.42	0.01	

Note: The Do-Nothing (No development) scenario results in values of zero in the table above, as when there is no development, there is no operating junction and traffic is free flow through traffic.

The summary of performance analysis in **Error! Reference source not found.**11.5 indicates that Junction 2 will operate within capacity, with max RFC of 0.01 encountered at the junction well below the maximum desired RFC of 0.85.

The summary indicates that there will be no queueing (0 vehicles) and minimal delays (max of 10.7 seconds for right turning traffic to the quarry) in both the peak hours including development traffic.

Decommission Phase

As previous stated, the volume of traffic and its duration during the decommission phase is envisaged to be less than the operational phase at the quarry. Hence, the decommission phase traffic was not assessed.

11.5.6 Link Capacity

The link capacity is the maximum potential two-way capacity of a road between junctions. It is typically expressed in terms of Annual Average Daily Traffic (AADT). The capacity of the road network was first assessed using TII Publication (Standards) DN-GEO-03031 (June 2017) Table 6/1 'Recommended Rural Road Layouts'. The extract in Table 11.11.6 shows the road type and flows applicable for this assessment.

Table 11.6: Link Capacity – Extract from Table 6/1 Recommended Rural Road Layouts

TII Publications *DN-GEO-03031*
Rural Road Link Design *April 2017*

Table 6.1: Recommended Rural Road Layouts

Type of Road 1.	Capacity[2] (AADT) for Level of Service D	Edge Treatment	Access Treatment	Junction Treatment at Minor Road	Junction Treatment at Major Road
Type 3 Single (6.0m) Carriageway (National Secondary Roads Only)	5,000	0.5m hard strip. Cycle Facilities Footways	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Simple Priority Junctions[5]	Priority junctions, with ghost islands where necessary[5] or roundabouts.
Type 2 Single (7.0m) Carriageway	8,600	0.5m hard strips. Cycle Facilities Footways	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary[5].	Priority junctions, with ghost islands[5] roundabouts [3], compact grade separation where necessary.
Type 1 Single[4] (7.3m) Carriageway	11,600	2.5m hard shoulders	Minimise number of accesses to avoid standing vehicles and concentrate turning movements.	Priority junctions, with ghost islands where necessary[5].	Ghost islands[5] or roundabouts or, compact grade separation where necessary

However, it should be noted that this assessment has its limitations, in that it does not account for the traffic flow profile (i.e. daily peak and through traffic flows) or percentage of HGV's. It is also aimed at new roads and gives an indication of what standard of road is required for the level of flows from the traffic model. Although this check gives an indication of whether the

links have capacity, there are other restrictions which impact capacity along a road network such as junctions, changes in speed limits and inconsistent road widths.
A calculation was undertaken to expand the ATC count to an AADT using the guidance in the TII PE-PAG-02039. The calculated AADT for the peak operations in the design year 2031 is 742 AADT on the L-5731-25. The L-5731-25 will operate with an 85% spare capacity including proposed quarry operating.

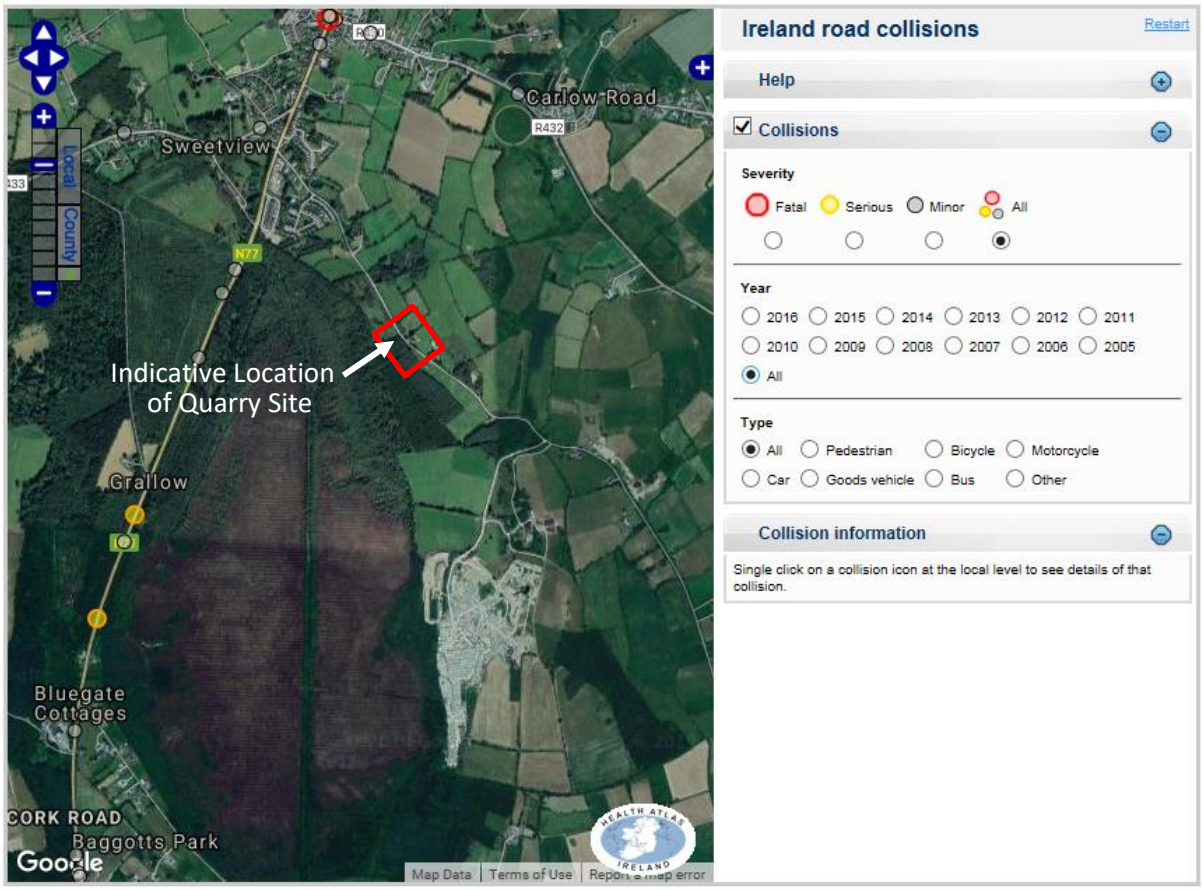
11.6 Other Road Issues

11.6.1 Road Safety

No collisions were recorded on the Road Safety Authorities (RSA) Collision Statistics database in the vicinity of the development of the site access on the L5731-25, see Figure 11.9. The Collision Statistics database identifies collisions from the year 2005 to 2016.

A Stage 1/2 Road Safety Audit was also carried out on the proposed development design and its recommendations were incorporated into the final scheme design.

Figure 11.9: Collision Statistics in the vicinity of the Site Access



Note - the RSA database is not a comprehensive record of collisions and should be reviewed in conjunction with the Local Authority / Gardaí records for the site.

11.6.2 Pavement Condition

A Falling Weight Deflectometer (FWD) survey to indicate the structural condition, and a Visual Condition Survey (VCS) to determine the Pavement Condition Index (PCI) was carried out along the L5731-25.
The extents of the surveys commenced at the junction with the N77 to the Booths Concrete entrance. The report summarising the results of these surveys have been submitted as part of the planning application.

11.6.3 Parking Provision

Parking provisions shall be provided in accordance with the Laois Development Plan. Due to limited staff car parking spaces required, there shall be sufficient parking within the proposed quarry for the staff, thus ensuring parking associated with the quarry does not occur along the public road network.

11.6.4 Pedestrians and Cyclist

Pedestrian facilities will be provided where required within the proposed quarry to facilitate safe pedestrian movements in accordance with the Quarry Health and Safety Plan. No specific provision has been made to accommodate cyclists.

11.6.5 Public Transport

There is no regular public transport service in operation in the immediate vicinity of the quarry. Therefore, it is not expected that the staff working at the quarry will utilise the bus services.

11.7 Conclusions and Recommendations

11.7.1 Conclusions

The conclusions to this report are as follows:

- The proposed quarry access will operate well within capacity up to and including the design year of 2031, with the inclusion of quarry-generated traffic.
- Car parking spaces will be provided within the proposed quarry site for the staff, thus ensuring parking associated with the quarry does not occur along the public road network.
- The link road analysis shows the L-5731-25 will operate with an 85% spare capacity with the proposed quarry operating in the design year of 2031.

11.7.2 Recommendations

The following are measures that will be implemented to mitigate the impacts associated with the Project:

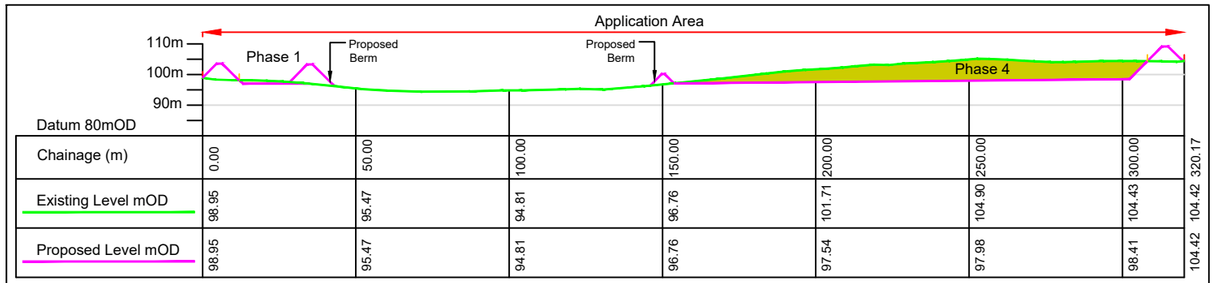
- No parking shall be permitted along the L-5731-25 as this will restrict visibility and reduce road width for passing vehicles; and

- Visibility of 3 x 160 metres to be maintained at the proposed site direct access in accordance with the Laois Development Plan.

11.7.3 Other Factors

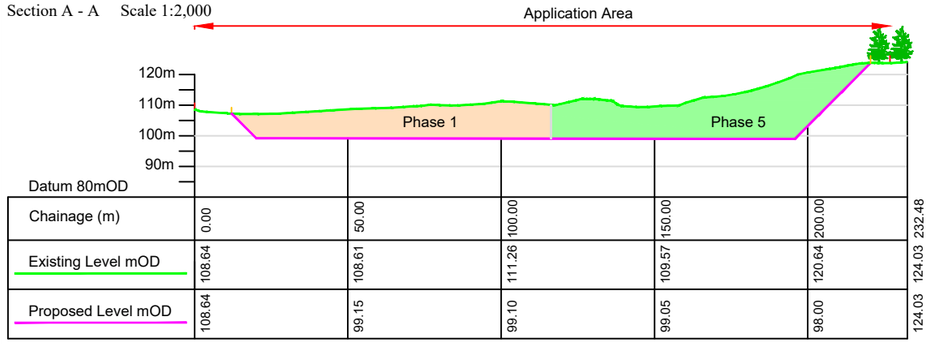
It should also be noted in practice unladen trucks will in practice collect a load when passing. Therefore, this will further reduce the traffic and further increase the spare capacity of the road.

Appendix 11.1: Figures



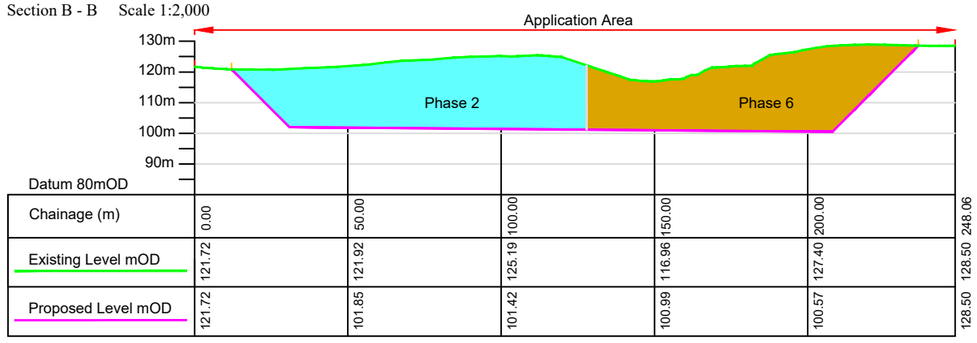
Chainage (m)	0.00	50.00	100.00	150.00	200.00	250.00	300.00	320.17
Existing Level mOD	98.95	95.47	94.81	96.76	101.71	104.90	104.43	104.42
Proposed Level mOD	98.95	95.47	94.81	96.76	97.54	97.98	98.41	104.42

Section A - A Scale 1:2,000



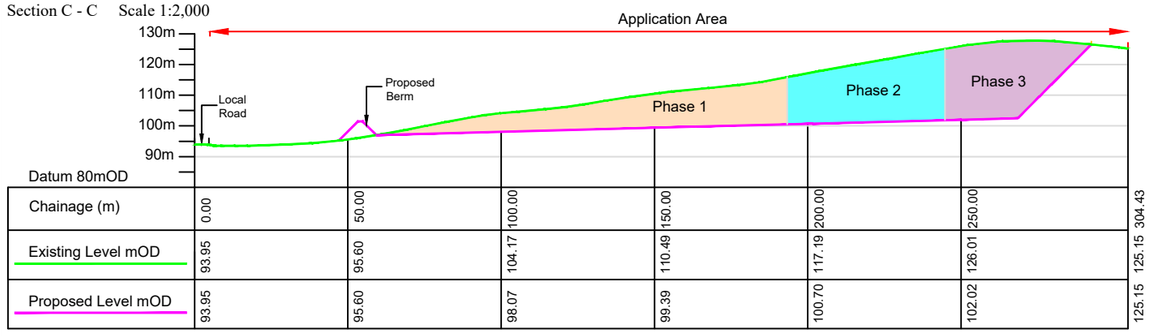
Chainage (m)	0.00	50.00	100.00	150.00	200.00	232.48
Existing Level mOD	108.64	108.61	111.26	109.57	120.64	124.03
Proposed Level mOD	108.64	99.15	99.10	99.05	98.00	124.03

Section B - B Scale 1:2,000



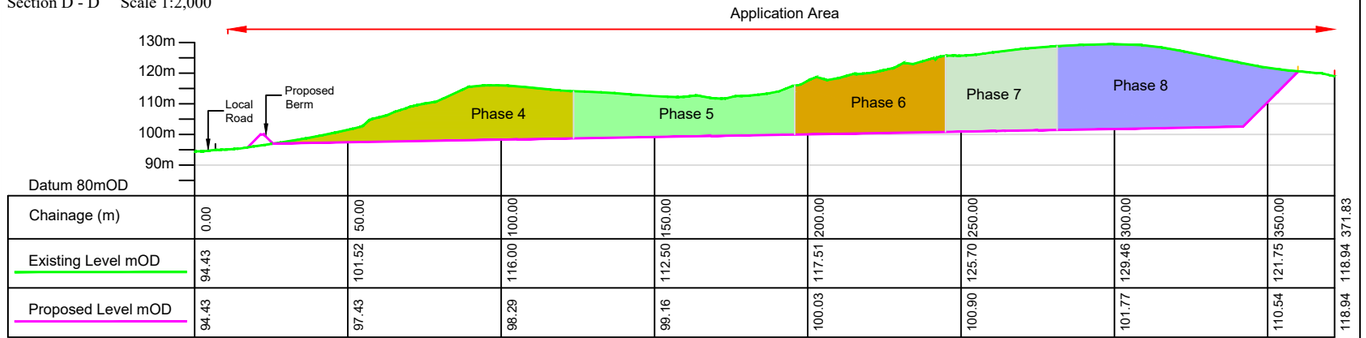
Chainage (m)	0.00	50.00	100.00	150.00	200.00	248.06	
Existing Level mOD	121.72	121.92	125.19	116.96	127.40	128.50	
Proposed Level mOD	121.72	101.85	101.42	100.99	100.57	128.50	

Section C - C Scale 1:2,000



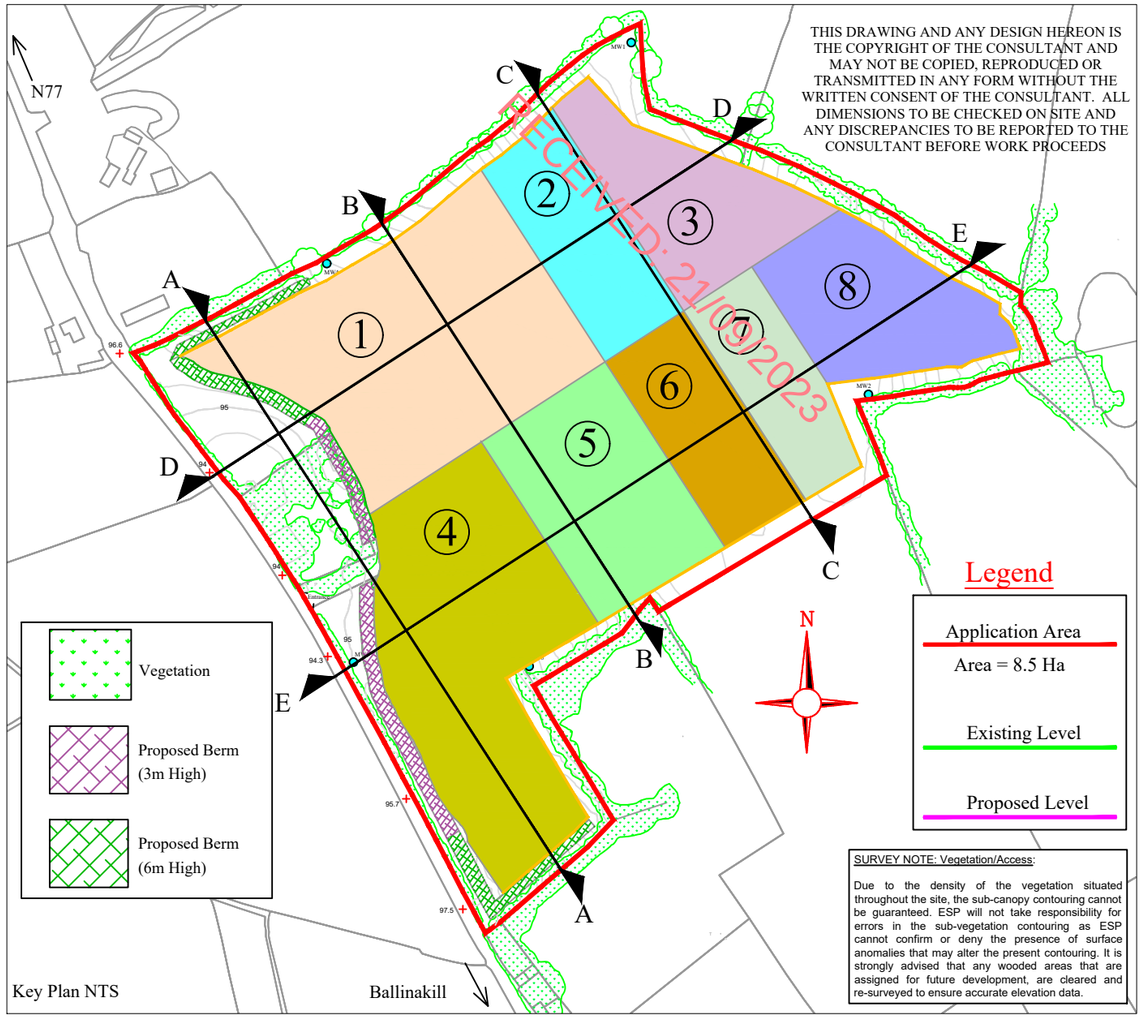
Chainage (m)	0.00	50.00	100.00	150.00	200.00	250.00	304.43
Existing Level mOD	93.95	95.60	104.17	110.49	117.19	126.01	125.15
Proposed Level mOD	93.95	95.60	98.07	99.39	100.70	102.02	125.15

Section D - D Scale 1:2,000



Chainage (m)	0.00	50.00	100.00	150.00	200.00	250.00	300.00	350.00	371.83
Existing Level mOD	94.43	101.52	116.00	112.50	117.51	125.70	129.46	121.75	118.94
Proposed Level mOD	94.43	97.43	98.29	99.16	100.03	100.90	101.77	110.54	118.94

Section E - E Scale 1:2,000



SURVEY NOTE: Vegetation/Access:

Due to the density of the vegetation situated throughout the site, the sub-canopy contouring cannot be guaranteed. ESP will not take responsibility for errors in the sub-vegetation contouring as ESP cannot confirm or deny the presence of surface anomalies that may alter the present contouring. It is strongly advised that any wooded areas that are assigned for future development, are cleared and re-surveyed to ensure accurate elevation data.

Extraction Phases				
Phase	Color	m3	Tonne	Months
1		82,396	164,792	11
2		99,687	199,374	12
3		99,443	198,886	12
4		80,224	160,448	9.7
5		158,400	316,800	19
6		96,953	193,906	12
7		96,952	193,904	12
8		99,405	198,810	12
		813,460	1,626,920	

Conversion used from m3 to tonne is 2.0
Estimated extraction rate of 200,000 tonnes per year

OSI Ref. No. 4233-B, 4175-D, 4176-C, 4234-A

ITM Coordinates E 644042, N 683951

All Levels Relative to Ordnance Datum

EARTH SCIENCE PARTNERSHIP
CONSULTING ENGINEERS, GEOLOGISTS & ENVIRONMENTAL SCIENTISTS
Tonranny Westport Co. Mayo
tel.:- +353(098) 28999 fax:- +353(098) 24727
e-mail: earthsciencepartnership@gmail.com

Client: Booth Precast Products Ltd.

Project: Environmental Impact Assessment Report to Accompany a Planning Application for a Sand & Gravel Pit at Knocknamoe & Ballymullen, Abbeyleix, Co Laois

Title: Phased Extraction Sections

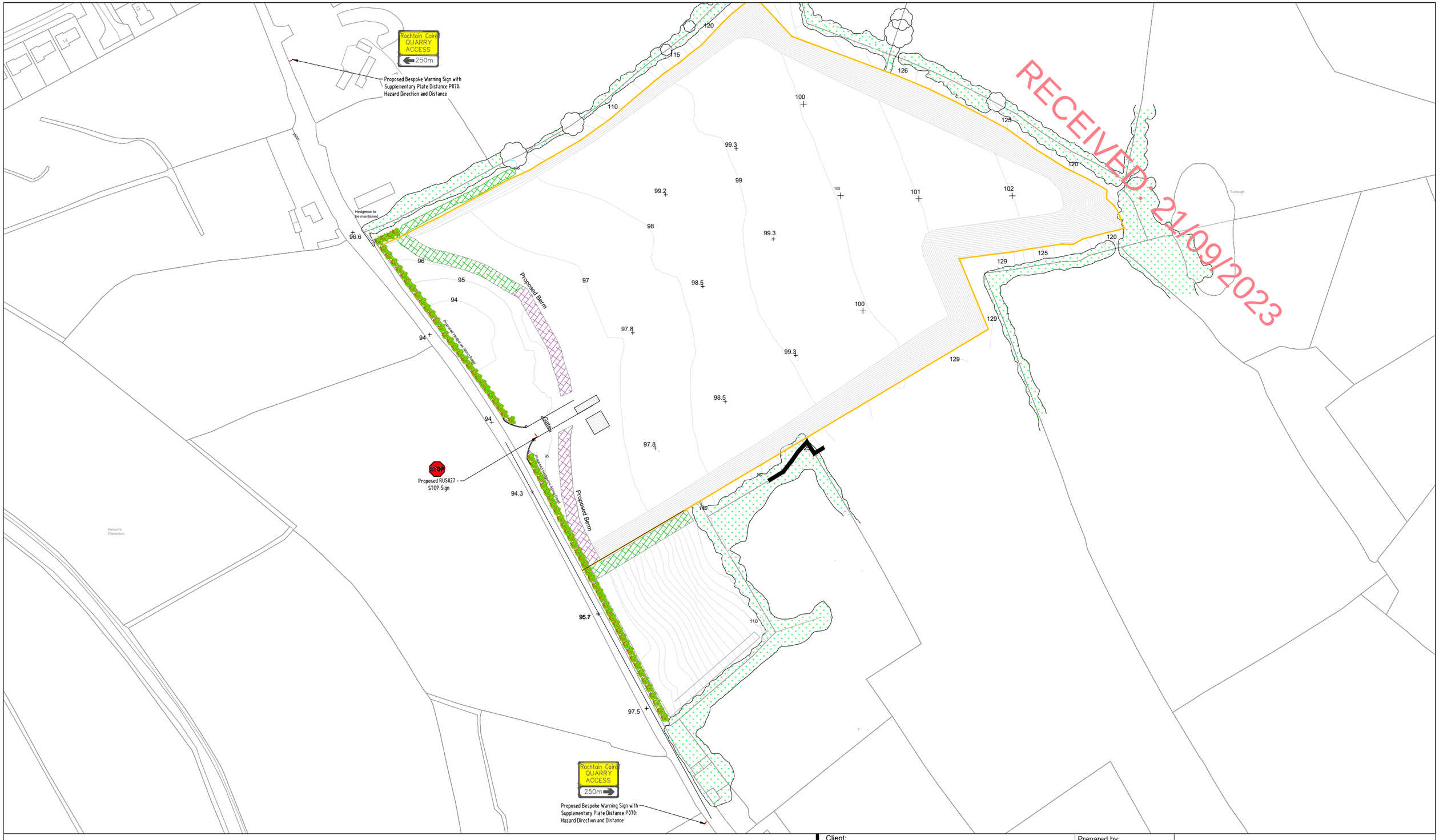
Drawn By: Sean O' Donnell

Checked By: Patrick O' Donnell

Scale: 1:2,000 @ A3 | Date: Oct 2021

Job No: EI 185A | Rev: 0

Figure 3.3



Rev	Date	Description	By	Chkd.
B				
A	29.08.22	Issue	MR	JOF

Client: Booth Concrete ad Product Ltd.

Project: Booth Precast
Request for Further Information

Title: Road Signage

Prepared by: M.Rooney
Checked: J.O'Flaherty
Date: August 2022
Project Director: M. McDonnell
Drawing Status: Planning
Scale @ A1: 1:500 (1:1,000 @A3)

TOBIN Consulting Engineers,
Fairgreen House,
Fairgreen Road,
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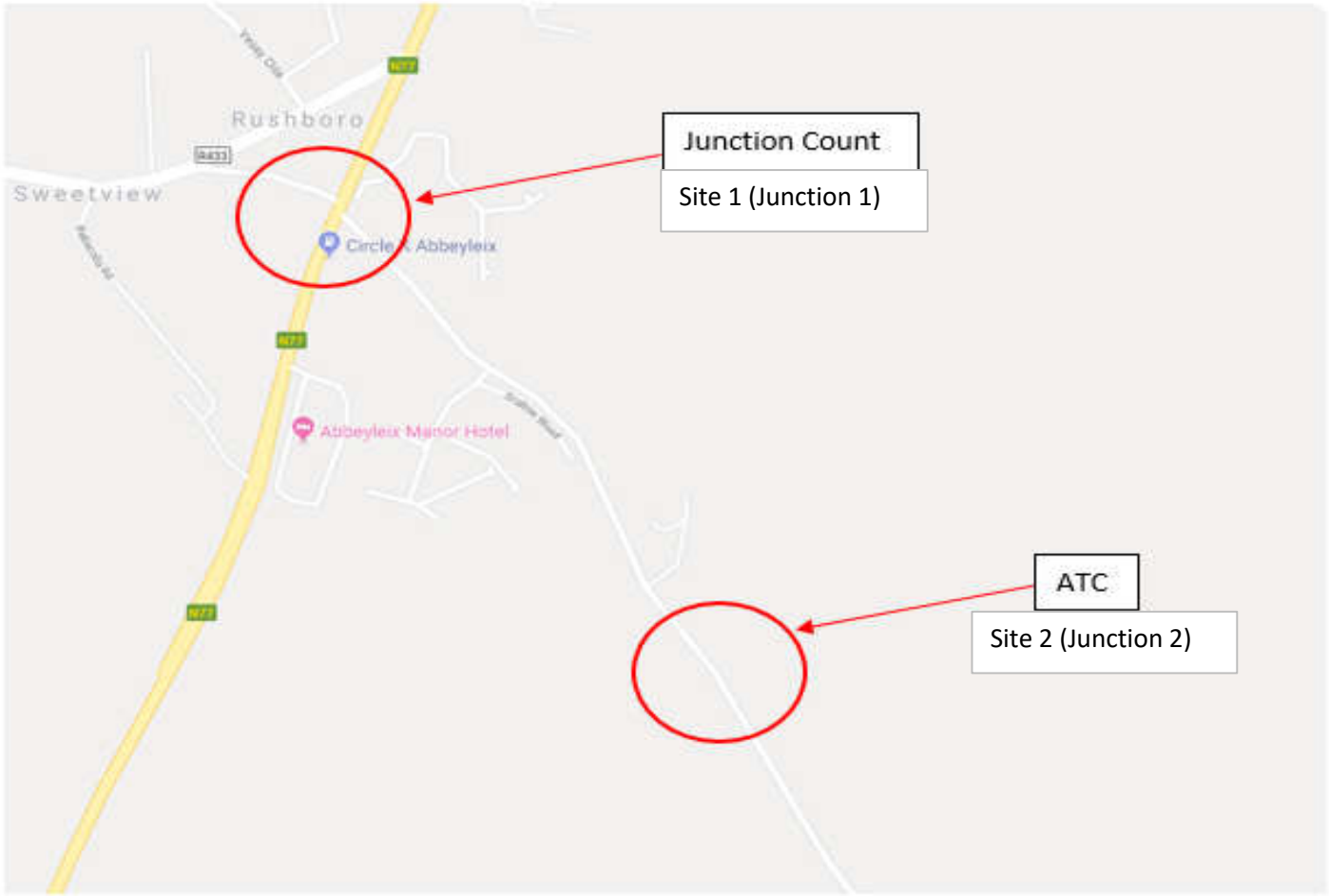
e-mail: info@tobin.ie
www.tobin.ie

Drawing No.: 11410-2000

Revision: A

Appendix 11.2: Traffic Counts

1) Proposed Sand and Gravel Quarry Abbelyleix, Co. Laois - Site Location attached (190515-site locations)
   - ATC to provide data for proposed Junction into Quarry;
   - Junction Count N71 – R433 (regional road) Staggered Junction



Traffic Calculations for Abbeyleix Quarry

Junction 1 Staggered Junction - N77/ L5731/L5731-25

At Present AM Peak (08:00 - 09:00)

Seasonally Adjusted 2019

2021 - Year of Opening		
Laois	***LGV***	***HGV***
2013 - 2030 index	*1.0179*	*1.0314*
Years	*2*	*2*
Growth Factor	***1.036***	***1.064***

2030(9 Years after Opening)		
Laois	***LGV***	***HGV***
2013-2030 index	*1.0179*	*1.0314*
Years	*11*	*11*
Growth Factor	***1.216***	***1.405***

2031 (10 Years after Opening)		
Laois	***LGV***	***HGV***
2031 - 2040 index	*1.0082*	*1.0160*
Years	*1*	*1*
Growth Factor	***1.008***	***1.016***
Combined Factors	***1.226***	***1.427***

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	11	6	238	25	1	0
B	16	7	0	0	7	0	2	1
C	303	45	4	1	0	0	8	2
D	9	0	2	1	19	1	0	0

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	11	6	247	27	1	0
B	17	7	0	0	7	0	2	1
C	314	48	4	1	0	0	8	2
D	9	0	2	1	20	1	0	0

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	13	9	292	36	1	0
B	20	10	0	0	9	0	2	1
C	371	64	5	1	0	0	10	3
D	11	0	2	1	23	1	0	0

AM PEAK GENERATED TRAFFIC

Junction 1 Staggered Junction - N77/ L5731/L5731-25

WITH DEVELOPMENT

Generated Traffic

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	2	0	0	0	0	0
B	0	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0

2021 - Year of Opening

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	11	6	247	27	3	0
B	17	7	0	0	7	0	4	1
C	314	48	4	1	0	0	11	2
D	11	0	4	1	21	1	0	0

2031 (10 Years after Opening)

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	13	9	292	36	13	0
B	20	10	0	0	9	0	13	1
C	371	64	5	1	0	0	24	3
D	16	0	8	1	26	1	0	0

TOBIN
CONSULTING ENGINEERS

Traffic Calculations for Abbeyleix Quarry

Junction 1 Staggered Junction - N77/ L5731/L5731-25

At Present PM Peak (16:30 - 17:30)

Seasonally Adjusted 2019

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	2	0	17	2	349	25	3	0
B	17	2	0	0	8	2	0	1
C	233	18	4	0	0	0	16	4
D	7	0	3	0	6	1	0	0

2020 - Year of Opening

Laois	LGV	HGV
2013 - 2030 index	1.0179	1.0314
Years	2	2
Growth Factor	1.036	1.064

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	2	0	18	2	362	27	3	0
B	18	2	0	0	8	2	0	1
C	241	19	4	0	0	0	17	4
D	7	0	3	0	6	1	0	0

2030(9 Years after Opening)

Laois	LGV	HGV
2013 - 2030 index	1.0179	1.0314
Years	11	11
Growth Factor	1.216	1.405

2031 (10 Years after Opening)

Laois	LGV	HGV
2031 - 2040 index	1.0082	1.0160
Years	1	1
Growth Factor	1.009	1.016
Combined Factors	1.225	1.427

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	2	0	21	3	428	36	4	0
B	21	3	0	0	10	3	0	1
C	286	26	5	0	0	0	39	6
D	9	0	4	0	7	1	0	0

AM PEAK GENERATED TRAFFIC

Junction 1 Staggered Junction - N77/ L5731/L5731-25

WITH DEVELOPMENT

Generated Traffic

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	0	0	0	0	0	0	0	0
B	2	0	0	0	0	0	0	0
C	0	0	0	0	0	0	0	0
D	0	0	0	0	0	0	0	0

2020 - Year of Opening

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	2	0	18	2	362	27	5	0
B	18	2	0	0	8	2	2	1
C	241	19	4	0	0	0	19	4
D	9	0	5	0	7	1	0	0

2031 (10 Years after Opening)

Route	A	HGV	B	HGV	C	HGV	D	HGV
A	2	0	21	3	428	36	16	0
B	21	3	0	0	10	3	11	1
C	286	26	5	0	0	0	33	6
D	14	0	9	0	10	1	0	0

Traffic Calculations for Abbeyleix Quarry

Junction 2 - Proposed Quarry Entrance

AM Peak (08:00 - 09:00)

Seasonally Adjusted 2019

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	11	9
B	0	0	0	0	0	0
C	10	7	0	0	0	0

2020 Year of Opening

	Laois	LGV	HGV
	2016 - 2030 index	1.0179	1.0314
	Years	2	2
	High Growth Factor	**1.0361**	**1.0638**

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	11	10
B	0	0	0	0	0	0
C	10	7	0	0	0	0

2031 (10 Years after Opening)

	Laois	LGV	HGV
	2016-2030 index	1.0179	1.0314
	Years	11	11
	High Growth Factor	**1.2155**	**1.4051**
	Laois	**LGV**	**HGV**
	2030-2040 index	1.0082	1.0160
	Years	1	1
	High Growth Factor	**1.0082**	**1.0160**
	Combined Factors	**1.2255**	**1.4276**

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	13	13
B	0	0	0	0	0	0
C	12	10	0	0	0	0

AM PEAK GENERATED TRAFFIC

Junction 2 - Proposed Quarry Entrance

WITH DEVELOPMENT

Generated Traffic

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	0	0
B	0	0	0	0	0	2
C	0	0	0	2	0	0

Year of Opening

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	11	10
B	0	0	0	0	0	2
C	10	7	0	2	0	0

2031 (10 Years after Opening)

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	13	13
B	0	0	0	0	0	2
C	12	10	0	2	0	0

Traffic Calculations for Abbeyleix Quarry

Junction 2 - Proposed Quarry Entrance

At Present PM Peak (16:30 - 17:30)

Seasonally Adjusted 2019

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	13	3
B	0	0	0	0	0	0
C	21	6	0	0	0	0

2020 Year of Opening

Laois	LGV	HGV
2016 - 2030 index	*1.0179*	*1.0314*
Years	*2*	*2*
High Growth Factor	***1.0361***	***1.0638***

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	13	3
B	0	0	0	0	0	0
C	22	6	0	0	0	0

2031 (10 Years after Opening)

Laois	LGV	HGV
2016-2030 index	*1.0179*	*1.0314*
Years	*11*	*11*
High Growth Factor	***1.2155***	***1.4051***

Laois	LGV	HGV
2030-2040 index	*1.0082*	*1.0160*
Years	*1*	*1*
High Growth Factor	***1.0082***	***1.0160***
Combined Factors	***1.2255***	***1.4276***

Route	A	HGV	B	HGV	C	HGV
A	0	0	0	0	16	4
B	0	0	0	0	0	0
C	26	9	0	0	0	0

AM PEAK GENERATED TRAFFIC

Junction 2 - Proposed Quarry Entrance

WITH DEVELOPMENT

Generated Traffic

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	0	0
B	0	0	0	0	0	2
C	0	0	0	2	0	0

Year of Opening

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	13	3
B	0	0	0	0	0	2
C	22	6	0	2	0	0

2031 (10 Years after Opening)

Route	A	HGV	B	HGV	C	HGV
A	0	0	2	0	16	4
B	0	0	0	0	0	2
C	26	9	0	2	0	0

Appendix 11.3: Junction 9 (PICADY) Results

Appendix 11.3 – Junction 9 (PICADY) Results

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: Junction 1.j9
Path: J:\Projects\11100 - Traffic Chapter Abbeyleix Quarry\05-Design\01-Calculations
Report generation date: 12/03/2021 14:03:36

Summary of junction performance

	AM						PM					
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	2019											
Stream B-ACD	D1	0.1	13.27	0.12	B	1.23	D2	0.1	11.73	0.10	B	0.83
Stream A-BCD		0.0	5.03	0.00	A			0.0	4.55	0.01	A	
Stream D-ABC		0.1	11.07	0.10	B			0.0	9.49	0.05	A	
Stream C-ABD		0.0	5.23	0.02	A			0.0	4.99	0.01	A	
	2021 No Development											
Stream B-ACD	D3	0.1	13.70	0.12	B	1.26	D4	0.1	11.98	0.10	B	0.83
Stream A-BCD		0.0	5.01	0.00	A			0.0	4.52	0.01	A	
Stream D-ABC		0.1	11.35	0.10	B			0.0	9.66	0.05	A	
Stream C-ABD		0.0	5.19	0.02	A			0.0	4.97	0.01	A	
	2021 With Development											
Stream B-ACD	D5	0.1	13.74	0.13	B	1.37	D6	0.1	12.10	0.11	B	0.94
Stream A-BCD		0.0	5.04	0.01	A			0.0	4.54	0.01	A	
Stream D-ABC		0.1	11.45	0.12	B			0.1	9.68	0.06	A	
Stream C-ABD		0.0	5.18	0.02	A			0.0	4.97	0.01	A	
	2031 No Development											
Stream B-ACD	D7	0.2	16.19	0.18	C	1.52	D8	0.2	13.54	0.14	B	0.97
Stream A-BCD		0.0	4.95	0.00	A			0.0	4.39	0.01	A	
Stream D-ABC		0.2	13.22	0.14	B			0.1	10.63	0.07	B	
Stream C-ABD		0.0	5.07	0.02	A			0.0	4.91	0.01	A	
	2031 With Development											
Stream B-ACD	D9	0.3	16.63	0.22	C	1.96	D10	0.2	14.40	0.18	B	1.39
Stream A-BCD		0.1	5.07	0.04	A			0.1	4.49	0.05	A	
Stream D-ABC		0.2	13.81	0.19	B			0.1	11.02	0.11	B	
Stream C-ABD		0.0	5.03	0.02	A			0.0	4.88	0.01	A	

Values shown are the highest values encountered over all time segments. Delay is the maximum value of average delay per arriving vehicle. Junction LOS and Junction Delay are demand-weighted averages.

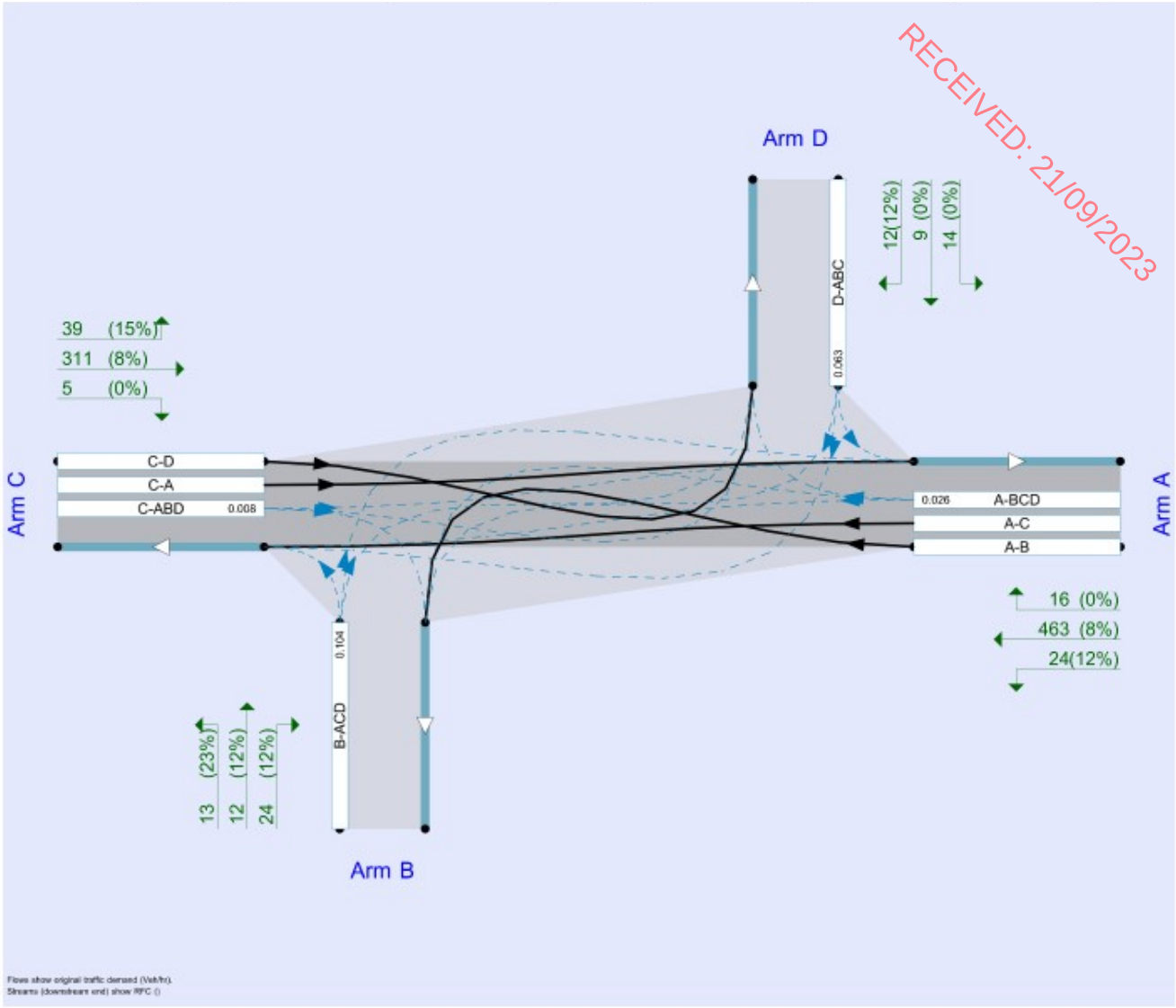
File summary

File Description

Title	Junction 1
Location	
Site number	
Date	15/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	10808
Enumerator	TOBIN\Maria Rooney
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	Veh	Veh	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15
D2	2019	PM	ONE HOUR	16:15	17:45	15
D3	2021 No Development	AM	ONE HOUR	07:45	09:15	15
D4	2021 No Development	PM	ONE HOUR	16:15	17:45	15
D5	2021 With Development	AM	ONE HOUR	07:45	09:15	15
D6	2021 With Development	PM	ONE HOUR	16:15	17:45	15
D7	2031 No Development	AM	ONE HOUR	07:45	09:15	15
D8	2031 No Development	PM	ONE HOUR	16:15	17:45	15
D9	2031 With Development	AM	ONE HOUR	07:45	09:15	15
D10	2031 With Development	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

2019, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.23	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N77 (N)		Major
B	Unknown Local Road		Minor
C	N77 (S)		Major
D	L5731		Minor

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)
A	7.00			160.0	✓	0.00
C	7.00			180.0	✓	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	3.00	42	18
D	One lane	3.00	25	30

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-B	Slope for D-C
A-D	667	-	-	-	0.247	0.247	0.247	-	0.247	-	-
B-AD	500	0.087	0.220	-	-	-	0.139	0.315	0.139	0.087	0.220
B-C	635	0.093	0.235	-	-	-	-	-	-	0.093	0.235
C-B	678	0.251	0.251	-	-	-	-	-	-	0.251	0.251
D-A	643	-	-	-	0.238	0.094	0.238	-	0.094	-	-
D-BC	500	0.139	0.139	0.315	0.220	0.087	0.220	-	0.087	-	-

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	281	100.000
B		✓	33	100.000
C		✓	363	100.000
D		✓	32	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	17	263	1
	B	23	0	7	3
	C	348	5	0	10
	D	9	3	20	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	35	10	0
	B	30	0	0	33
	C	13	20	0	20
	D	0	33	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.12	13.27	0.1	B
A-BCD	0.00	5.03	0.0	A
A-B				
A-C				
D-ABC	0.10	11.07	0.1	B
C-ABD	0.02	5.23	0.0	A
C-D				
C-A				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	25	343	0.072	25	0.1	11.289	B
A-BCD	1	719	0.001	1	0.0	5.011	A
A-B	13			13			
A-C	198			198			
D-ABC	24	405	0.059	24	0.1	9.432	A
C-ABD	6	695	0.009	6	0.0	5.227	A
C-D	7			7			
C-A	260			260			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	30	328	0.090	30	0.1	12.051	B
A-BCD	1	732	0.002	1	0.0	4.915	A
A-B	15			15			
A-C	236			236			
D-ABC	29	387	0.074	29	0.1	10.057	B
C-ABD	8	722	0.011	8	0.0	5.049	A
C-D	9			9			
C-A	309			309			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	36	308	0.118	36	0.1	13.256	B
A-BCD	2	751	0.002	2	0.0	4.791	A
A-B	19			19			
A-C	289			289			
D-ABC	35	361	0.098	35	0.1	11.060	B
C-ABD	11	761	0.015	11	0.0	4.812	A
C-D	11			11			
C-A	377			377			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	36	308	0.118	36	0.1	13.270	B
A-BCD	2	751	0.002	2	0.0	4.808	A
A-B	19			19			
A-C	289			289			
D-ABC	35	360	0.098	35	0.1	11.067	B
C-ABD	11	761	0.015	11	0.0	4.804	A
C-D	11			11			
C-A	377			377			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	30	328	0.090	30	0.1	12.070	B
A-BCD	1	732	0.002	1	0.0	4.950	A
A-B	15			15			
A-C	236			236			
D-ABC	29	386	0.074	29	0.1	10.069	B
C-ABD	8	722	0.011	8	0.0	5.032	A
C-D	9			9			
C-A	309			309			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	25	343	0.072	25	0.1	11.320	B
A-BCD	1	719	0.001	1	0.0	5.030	A
A-B	13			13			
A-C	198			198			
D-ABC	24	405	0.059	24	0.1	9.451	A
C-ABD	6	695	0.009	6	0.0	5.219	A
C-D	7			7			
C-A	260			260			

2019, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		0.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2019	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	396	100.000
B		✓	30	100.000
C		✓	275	100.000
D		✓	17	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	19	374	3
	B	19	0	10	1
	C	251	4	0	20
	D	7	3	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	11	7	0
	B	11	0	20	100
	C	7	0	0	20
	D	0	0	14	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.10	11.73	0.1	B
A-BCD	0.01	4.55	0.0	A
A-B				
A-C				
D-ABC	0.05	9.49	0.0	A
C-ABD	0.01	4.99	0.0	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	23	379	0.060	22	0.1	10.093	B
A-BCD	4	797	0.005	4	0.0	4.538	A
A-B	14			14			
A-C	280			280			
D-ABC	13	437	0.029	13	0.0	8.489	A
C-ABD	4	727	0.006	4	0.0	4.976	A
C-D	15			15			
C-A	188			188			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	27	363	0.074	27	0.1	10.723	B
A-BCD	5	824	0.006	5	0.0	4.384	A
A-B	17			17			
A-C	334			334			
D-ABC	15	421	0.036	15	0.0	8.883	A
C-ABD	5	739	0.007	5	0.0	4.896	A
C-D	18			18			
C-A	224			224			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	33	340	0.097	33	0.1	11.719	B
A-BCD	7	864	0.008	7	0.0	4.191	A
A-B	21			21			
A-C	409			409			
D-ABC	19	398	0.047	19	0.0	9.490	A
C-ABD	7	757	0.010	7	0.0	4.791	A
C-D	22			22			
C-A	274			274			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	33	340	0.097	33	0.1	11.727	B
A-BCD	7	864	0.008	7	0.0	4.201	A
A-B	21			21			
A-C	409			409			
D-ABC	19	398	0.047	19	0.0	9.493	A
C-ABD	7	757	0.010	7	0.0	4.802	A
C-D	22			22			
C-A	274			274			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	27	363	0.074	27	0.1	10.736	B
A-BCD	5	824	0.006	5	0.0	4.405	A
A-B	17			17			
A-C	334			334			
D-ABC	15	420	0.036	15	0.0	8.886	A
C-ABD	5	739	0.007	5	0.0	4.921	A
C-D	18			18			
C-A	224			224			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	23	379	0.060	23	0.1	10.111	B
A-BCD	4	797	0.005	4	0.0	4.551	A
A-B	14			14			
A-C	280			280			
D-ABC	13	437	0.029	13	0.0	8.494	A
C-ABD	4	727	0.006	4	0.0	4.990	A
C-D	15			15			
C-A	188			188			

2021 No Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.26	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2021 No Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	292	100.000
B		✓	34	100.000
C		✓	377	100.000
D		✓	33	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	18	273	1
	B	24	0	7	3
	C	362	5	0	10
	D	9	3	21	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	36	10	0
	B	31	0	0	34
	C	13	20	0	20
	D	0	34	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.12	13.70	0.1	B
A-BCD	0.00	5.01	0.0	A
A-B				
A-C				
D-ABC	0.10	11.35	0.1	B
C-ABD	0.02	5.19	0.0	A
C-D				
C-A				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	26	337	0.076	25	0.1	11.543	B
A-BCD	1	722	0.002	1	0.0	4.994	A
A-B	14			14			
A-C	205			205			
D-ABC	25	400	0.062	25	0.1	9.578	A
C-ABD	6	700	0.009	6	0.0	5.187	A
C-D	7			7			
C-A	270			270			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	31	321	0.095	30	0.1	12.367	B
A-BCD	1	735	0.002	1	0.0	4.894	A
A-B	16			16			
A-C	245			245			
D-ABC	30	381	0.078	30	0.1	10.254	B
C-ABD	8	729	0.011	8	0.0	5.005	A
C-D	9			9			
C-A	322			322			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	37	300	0.125	37	0.1	13.688	B
A-BCD	2	755	0.003	2	0.0	4.765	A
A-B	20			20			
A-C	300			300			
D-ABC	36	353	0.103	36	0.1	11.343	B
C-ABD	12	769	0.015	12	0.0	4.761	A
C-D	11			11			
C-A	392			392			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	37	300	0.125	37	0.1	13.703	B
A-BCD	2	755	0.003	2	0.0	4.780	A
A-B	20			20			
A-C	300			300			
D-ABC	36	353	0.103	36	0.1	11.351	B
C-ABD	12	769	0.015	12	0.0	4.753	A
C-D	11			11			
C-A	392			392			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	31	321	0.095	31	0.1	12.390	B
A-BCD	1	735	0.002	1	0.0	4.929	A
A-B	16			16			
A-C	245			245			
D-ABC	30	381	0.078	30	0.1	10.268	B
C-ABD	8	729	0.011	8	0.0	4.985	A
C-D	9			9			
C-A	322			322			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	26	337	0.076	26	0.1	11.577	B
A-BCD	1	722	0.002	1	0.0	5.014	A
A-B	14			14			
A-C	205			205			
D-ABC	25	400	0.062	25	0.1	9.600	A
C-ABD	6	700	0.009	6	0.0	5.179	A
C-D	7			7			
C-A	270			270			

2021 No Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		0.83	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2021 No Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	411	100.000
B		✓	31	100.000
C		✓	286	100.000
D		✓	17	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	20	388	3
	B	20	0	10	1
	C	261	4	0	21
	D	7	3	7	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	11	7	0
	B	11	0	20	100
	C	7	0	0	20
	D	0	0	15	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.10	11.98	0.1	B
A-BCD	0.01	4.52	0.0	A
A-B				
A-C				
D-ABC	0.05	9.66	0.0	A
C-ABD	0.01	4.97	0.0	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	23	375	0.062	23	0.1	10.223	B
A-BCD	4	802	0.005	4	0.0	4.509	A
A-B	15			15			
A-C	291			291			
D-ABC	13	432	0.030	13	0.0	8.594	A
C-ABD	4	730	0.006	4	0.0	4.959	A
C-D	16			16			
C-A	195			195			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	28	358	0.078	28	0.1	10.897	B
A-BCD	5	831	0.006	5	0.0	4.351	A
A-B	18			18			
A-C	347			347			
D-ABC	15	415	0.037	15	0.0	9.012	A
C-ABD	5	743	0.007	5	0.0	4.874	A
C-D	19			19			
C-A	233			233			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	34	335	0.102	34	0.1	11.969	B
A-BCD	7	872	0.008	7	0.0	4.152	A
A-B	22			22			
A-C	424			424			
D-ABC	19	391	0.048	19	0.0	9.660	A
C-ABD	7	761	0.010	7	0.0	4.764	A
C-D	23			23			
C-A	285			285			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	34	335	0.102	34	0.1	11.982	B
A-BCD	7	872	0.008	7	0.0	4.161	A
A-B	22			22			
A-C	424			424			
D-ABC	19	391	0.048	19	0.0	9.663	A
C-ABD	7	761	0.010	7	0.0	4.775	A
C-D	23			23			
C-A	285			285			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	28	358	0.078	28	0.1	10.909	B
A-BCD	5	831	0.006	5	0.0	4.372	A
A-B	18			18			
A-C	347			347			
D-ABC	15	415	0.037	15	0.0	9.017	A
C-ABD	5	743	0.007	5	0.0	4.900	A
C-D	19			19			
C-A	233			233			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	23	375	0.062	23	0.1	10.244	B
A-BCD	4	802	0.005	4	0.0	4.520	A
A-B	15			15			
A-C	291			291			
D-ABC	13	431	0.030	13	0.0	8.601	A
C-ABD	4	730	0.006	4	0.0	4.971	A
C-D	16			16			
C-A	195			195			

2021 With Development , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.37	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2021 With Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	294	100.000
B		✓	36	100.000
C		✓	380	100.000
D		✓	38	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	18	273	3
	B	24	0	7	5
	C	362	5	0	13
	D	11	5	22	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	36	10	0
	B	31	0	0	21
	C	13	20	0	16
	D	0	22	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.13	13.74	0.1	B
A-BCD	0.01	5.04	0.0	A
A-B				
A-C				
D-ABC	0.12	11.45	0.1	B
C-ABD	0.02	5.18	0.0	A
C-D				
C-A				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	27	339	0.080	27	0.1	11.514	B
A-BCD	3	721	0.005	3	0.0	5.015	A
A-B	13			13			
A-C	205			205			
D-ABC	29	404	0.071	28	0.1	9.587	A
C-ABD	6	701	0.009	6	0.0	5.179	A
C-D	10			10			
C-A	270			270			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	32	323	0.100	32	0.1	12.361	B
A-BCD	4	734	0.006	4	0.0	4.919	A
A-B	16			16			
A-C	244			244			
D-ABC	34	384	0.089	34	0.1	10.292	B
C-ABD	8	730	0.011	8	0.0	4.995	A
C-D	12			12			
C-A	322			322			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	40	302	0.131	39	0.1	13.720	B
A-BCD	6	754	0.008	6	0.0	4.796	A
A-B	20			20			
A-C	298			298			
D-ABC	42	356	0.117	42	0.1	11.436	B
C-ABD	12	771	0.015	12	0.0	4.750	A
C-D	14			14			
C-A	392			392			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	40	302	0.131	40	0.1	13.737	B
A-BCD	6	754	0.008	6	0.0	4.814	A
A-B	20			20			
A-C	298			298			
D-ABC	42	356	0.117	42	0.1	11.446	B
C-ABD	12	771	0.015	12	0.0	4.742	A
C-D	14			14			
C-A	392			392			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	32	323	0.100	33	0.1	12.385	B
A-BCD	4	734	0.006	4	0.0	4.956	A
A-B	16			16			
A-C	244			244			
D-ABC	34	384	0.089	34	0.1	10.306	B
C-ABD	8	730	0.011	8	0.0	4.977	A
C-D	12			12			
C-A	322			322			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	27	339	0.080	27	0.1	11.549	B
A-BCD	3	721	0.005	3	0.0	5.035	A
A-B	13			13			
A-C	205			205			
D-ABC	29	403	0.071	29	0.1	9.611	A
C-ABD	6	701	0.009	6	0.0	5.168	A
C-D	10			10			
C-A	270			270			

2021 With Development , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		0.94	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2021 With Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	413	100.000
B		✓	33	100.000
C		✓	288	100.000
D		✓	22	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	20	388	5
	B	20	0	10	3
	C	261	4	0	23
	D	9	5	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	11	7	0
	B	11	0	20	36
	C	7	0	0	18
	D	0	0	13	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.11	12.10	0.1	B
A-BCD	0.01	4.54	0.0	A
A-B				
A-C				
D-ABC	0.06	9.68	0.1	A
C-ABD	0.01	4.97	0.0	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	25	375	0.066	25	0.1	10.261	B
A-BCD	6	801	0.008	6	0.0	4.526	A
A-B	15			15			
A-C	290			290			
D-ABC	17	437	0.038	16	0.0	8.551	A
C-ABD	4	731	0.006	4	0.0	4.955	A
C-D	17			17			
C-A	195			195			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	30	358	0.083	30	0.1	10.968	B
A-BCD	8	830	0.010	8	0.0	4.371	A
A-B	18			18			
A-C	345			345			
D-ABC	20	420	0.047	20	0.0	8.989	A
C-ABD	5	743	0.007	5	0.0	4.870	A
C-D	21			21			
C-A	233			233			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	36	334	0.109	36	0.1	12.087	B
A-BCD	11	871	0.013	11	0.0	4.178	A
A-B	22			22			
A-C	422			422			
D-ABC	24	396	0.061	24	0.1	9.675	A
C-ABD	7	762	0.010	7	0.0	4.759	A
C-D	25			25			
C-A	285			285			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	36	334	0.109	36	0.1	12.097	B
A-BCD	11	871	0.013	11	0.0	4.187	A
A-B	22			22			
A-C	422			422			
D-ABC	24	396	0.061	24	0.1	9.678	A
C-ABD	7	762	0.010	7	0.0	4.769	A
C-D	25			25			
C-A	285			285			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	30	358	0.083	30	0.1	10.983	B
A-BCD	8	830	0.010	8	0.0	4.395	A
A-B	18			18			
A-C	345			345			
D-ABC	20	420	0.047	20	0.0	8.996	A
C-ABD	5	743	0.007	6	0.0	4.895	A
C-D	21			21			
C-A	233			233			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	25	375	0.066	25	0.1	10.291	B
A-BCD	6	801	0.008	6	0.0	4.540	A
A-B	15			15			
A-C	290			290			
D-ABC	17	437	0.038	17	0.0	8.559	A
C-ABD	4	730	0.006	4	0.0	4.967	A
C-D	17			17			
C-A	195			195			

2031 No Development, AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2031 No Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	350	100.000
B		✓	43	100.000
C		✓	455	100.000
D		✓	40	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	22	327	1
	B	30	0	9	4
	C	436	6	0	13
	D	11	4	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	39	11	0
	B	34	0	0	37
	C	15	23	0	23
	D	0	37	6	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.18	16.19	0.2	C
A-BCD	0.00	4.95	0.0	A
A-B				
A-C				
D-ABC	0.14	13.22	0.2	B
C-ABD	0.02	5.07	0.0	A
C-D				
C-A				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	32	314	0.103	32	0.1	12.749	B
A-BCD	1	732	0.002	1	0.0	4.924	A
A-B	17			17			
A-C	246			246			
D-ABC	30	373	0.081	30	0.1	10.468	B
C-ABD	9	719	0.012	8	0.0	5.067	A
C-D	10			10			
C-A	324			324			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	39	295	0.131	39	0.1	14.009	B
A-BCD	2	749	0.002	2	0.0	4.802	A
A-B	20			20			
A-C	293			293			
D-ABC	36	349	0.103	36	0.1	11.475	B
C-ABD	12	755	0.015	12	0.0	4.853	A
C-D	12			12			
C-A	386			386			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	47	270	0.176	47	0.2	16.157	C
A-BCD	2	774	0.003	2	0.0	4.646	A
A-B	24			24			
A-C	359			359			
D-ABC	44	316	0.139	44	0.2	13.201	B
C-ABD	17	806	0.021	17	0.0	4.573	A
C-D	14			14			
C-A	470			470			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	47	270	0.176	47	0.2	16.192	C
A-BCD	2	774	0.003	2	0.0	4.665	A
A-B	24			24			
A-C	359			359			
D-ABC	44	316	0.139	44	0.2	13.222	B
C-ABD	17	806	0.021	17	0.0	4.564	A
C-D	14			14			
C-A	470			470			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	39	295	0.131	39	0.2	14.051	B
A-BCD	2	748	0.002	2	0.0	4.845	A
A-B	20			20			
A-C	293			293			
D-ABC	36	349	0.103	36	0.1	11.498	B
C-ABD	12	755	0.015	12	0.0	4.832	A
C-D	12			12			
C-A	386			386			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	32	314	0.103	33	0.1	12.805	B
A-BCD	1	732	0.002	1	0.0	4.948	A
A-B	17			17			
A-C	246			246			
D-ABC	30	373	0.081	30	0.1	10.502	B
C-ABD	9	719	0.012	9	0.0	5.057	A
C-D	10			10			
C-A	324			324			

2031 No Development, PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		0.97	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2031 No Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	491	100.000
B		✓	38	100.000
C		✓	341	100.000
D		✓	22	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	24	463	4
	B	24	0	13	1
	C	311	5	0	25
	D	9	4	9	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	12	8	0
	B	12	0	23	100
	C	8	0	0	23
	D	0	0	16	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.14	13.54	0.2	B
A-BCD	0.01	4.39	0.0	A
A-B				
A-C				
D-ABC	0.07	10.63	0.1	B
C-ABD	0.01	4.91	0.0	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	29	356	0.080	28	0.1	10.969	B
A-BCD	5	829	0.007	5	0.0	4.370	A
A-B	18			18			
A-C	346			346			
D-ABC	17	412	0.040	16	0.0	9.101	A
C-ABD	6	740	0.008	6	0.0	4.899	A
C-D	19			19			
C-A	232			232			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	34	336	0.102	34	0.1	11.922	B
A-BCD	7	864	0.008	7	0.0	4.191	A
A-B	21			21			
A-C	413			413			
D-ABC	20	391	0.051	20	0.1	9.685	A
C-ABD	7	756	0.010	7	0.0	4.797	A
C-D	22			22			
C-A	277			277			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	42	308	0.136	42	0.2	13.524	B
A-BCD	11	915	0.012	11	0.0	3.970	A
A-B	26			26			
A-C	504			504			
D-ABC	24	363	0.067	24	0.1	10.629	B
C-ABD	10	780	0.013	10	0.0	4.666	A
C-D	27			27			
C-A	338			338			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	42	308	0.136	42	0.2	13.541	B
A-BCD	11	915	0.012	11	0.0	3.982	A
A-B	26			26			
A-C	504			504			
D-ABC	24	363	0.067	24	0.1	10.634	B
C-ABD	11	780	0.013	11	0.0	4.681	A
C-D	27			27			
C-A	338			338			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	34	336	0.102	34	0.1	11.943	B
A-BCD	7	864	0.008	7	0.0	4.217	A
A-B	21			21			
A-C	413			413			
D-ABC	20	391	0.051	20	0.1	9.692	A
C-ABD	8	756	0.010	8	0.0	4.829	A
C-D	22			22			
C-A	277			277			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	29	356	0.080	29	0.1	11.001	B
A-BCD	5	829	0.007	5	0.0	4.386	A
A-B	18			18			
A-C	346			346			
D-ABC	17	412	0.040	17	0.0	9.112	A
C-ABD	6	740	0.008	6	0.0	4.914	A
C-D	19			19			
C-A	232			232			

2031 With Development , AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.96	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2031 With Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	362	100.000
B		✓	54	100.000
C		✓	468	100.000
D		✓	54	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	22	327	13
	B	30	0	9	15
	C	436	6	0	26
	D	16	10	28	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	39	11	0
	B	34	0	0	10
	C	15	23	0	11
	D	0	15	5	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.22	16.63	0.3	C
A-BCD	0.04	5.07	0.1	A
A-B				
A-C				
D-ABC	0.19	13.81	0.2	B
C-ABD	0.02	5.03	0.0	A
C-D				
C-A				

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	41	323	0.126	40	0.1	12.694	B
A-BCD	15	728	0.021	15	0.0	5.047	A
A-B	16			16			
A-C	241			241			
D-ABC	41	380	0.107	40	0.1	10.571	B
C-ABD	9	725	0.012	9	0.0	5.025	A
C-D	19			19			
C-A	324			324			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	49	303	0.160	48	0.2	14.108	B
A-BCD	20	744	0.027	20	0.0	4.954	A
A-B	19			19			
A-C	286			286			
D-ABC	49	355	0.137	48	0.2	11.731	B
C-ABD	12	762	0.016	12	0.0	4.808	A
C-D	23			23			
C-A	386			386			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	59	276	0.215	59	0.3	16.579	C
A-BCD	29	769	0.037	29	0.1	4.843	A
A-B	23			23			
A-C	347			347			
D-ABC	59	320	0.186	59	0.2	13.778	B
C-ABD	18	815	0.022	18	0.0	4.523	A
C-D	28			28			
C-A	470			470			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	59	276	0.216	59	0.3	16.629	C
A-BCD	29	769	0.037	29	0.1	4.863	A
A-B	23			23			
A-C	347			347			
D-ABC	59	320	0.186	59	0.2	13.809	B
C-ABD	18	815	0.022	18	0.0	4.513	A
C-D	28			28			
C-A	470			470			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	49	303	0.160	49	0.2	14.169	B
A-BCD	20	744	0.027	20	0.0	5.003	A
A-B	19			19			
A-C	286			286			
D-ABC	49	355	0.137	49	0.2	11.769	B
C-ABD	12	762	0.016	12	0.0	4.785	A
C-D	23			23			
C-A	386			386			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	41	323	0.126	41	0.1	12.769	B
A-BCD	15	728	0.021	15	0.0	5.074	A
A-B	16			16			
A-C	241			241			
D-ABC	41	380	0.107	41	0.1	10.617	B
C-ABD	9	725	0.012	9	0.0	5.014	A
C-D	19			19			
C-A	324			324			

2031 With Development , PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Right-Left Stagger	Two-way		1.39	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2031 With Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	503	100.000
B		✓	49	100.000
C		✓	355	100.000
D		✓	35	100.000

Origin-Destination Data

Demand (Veh/hr)

		To			
		A	B	C	D
From	A	0	24	463	16
	B	24	0	13	12
	C	311	5	0	39
	D	14	9	12	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	D
From	A	0	12	8	0
	B	12	0	23	12
	C	8	0	0	15
	D	0	0	12	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max LOS
B-ACD	0.18	14.40	0.2	B
A-BCD	0.05	4.49	0.1	A
A-B				
A-C				
D-ABC	0.11	11.02	0.1	B
C-ABD	0.01	4.88	0.0	A
C-D				
C-A				

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	37	355	0.104	36	0.1	11.283	B
A-BCD	22	825	0.026	22	0.0	4.479	A
A-B	18			18			
A-C	339			339			
D-ABC	26	418	0.063	26	0.1	9.191	A
C-ABD	6	746	0.008	6	0.0	4.861	A
C-D	29			29			
C-A	232			232			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	44	334	0.132	44	0.1	12.416	B
A-BCD	29	860	0.034	29	0.0	4.323	A
A-B	21			21			
A-C	402			402			
D-ABC	31	396	0.080	31	0.1	9.877	A
C-ABD	8	763	0.010	8	0.0	4.753	A
C-D	35			35			
C-A	277			277			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	54	304	0.178	54	0.2	14.371	B
A-BCD	43	910	0.047	43	0.1	4.139	A
A-B	25			25			
A-C	486			486			
D-ABC	39	365	0.106	38	0.1	11.014	B
C-ABD	11	789	0.014	11	0.0	4.613	A
C-D	42			42			
C-A	338			338			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	54	304	0.178	54	0.2	14.401	B
A-BCD	43	910	0.047	43	0.1	4.151	A
A-B	25			25			
A-C	486			486			
D-ABC	39	365	0.106	39	0.1	11.019	B
C-ABD	11	789	0.014	11	0.0	4.628	A
C-D	42			42			
C-A	338			338			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	44	334	0.132	44	0.2	12.451	B
A-BCD	29	860	0.034	30	0.0	4.354	A
A-B	21			21			
A-C	402			402			
D-ABC	31	396	0.080	32	0.1	9.890	A
C-ABD	8	763	0.010	8	0.0	4.784	A
C-D	35			35			
C-A	277			277			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-ACD	37	355	0.104	37	0.1	11.326	B
A-BCD	22	825	0.026	22	0.0	4.495	A
A-B	18			18			
A-C	339			339			
D-ABC	26	417	0.063	26	0.1	9.211	A
C-ABD	6	746	0.008	6	0.0	4.876	A
C-D	29			29			
C-A	232			232			

Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462

Filename: Junction 2.j9
Path: J:\Projects\11100 - Traffic Chapter Abbeyleix Quarry\05-Design\01-Calculations
Report generation date: 12/03/2021 14:10:43

Summary of junction performance

	AM						PM					
	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)	Set ID	Queue (Veh)	Delay (s)	RFC	LOS	Junction Delay (s)
	2019											
Stream B-AC	D1	0.0	0.00	0.00	A	0.00	D2	0.0	0.00	0.00	A	0.00
Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
	2021 No Development											
Stream B-AC	D3	0.0	0.00	0.00	A	0.00	D4	0.0	0.00	0.00	A	0.00
Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
	2021 With Development											
Stream B-AC	D5	0.0	0.00	0.00	A	0.72	D6	0.0	0.00	0.00	A	0.73
Stream C-AB		0.0	10.74	0.01	B			0.0	10.51	0.01	B	
	2031 No Development											
Stream B-AC	D7	0.0	0.00	0.00	A	0.00	D8	0.0	0.00	0.00	A	0.00
Stream C-AB		0.0	0.00	0.00	A			0.0	0.00	0.00	A	
	2031 With Development											
Stream B-AC	D9	0.0	0.00	0.00	A	0.58	D10	0.0	0.00	0.00	A	0.61
Stream C-AB		0.0	10.70	0.01	B			0.0	10.42	0.01	B	

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. Junction LOS and Junction Delay are demand-weighted averages.

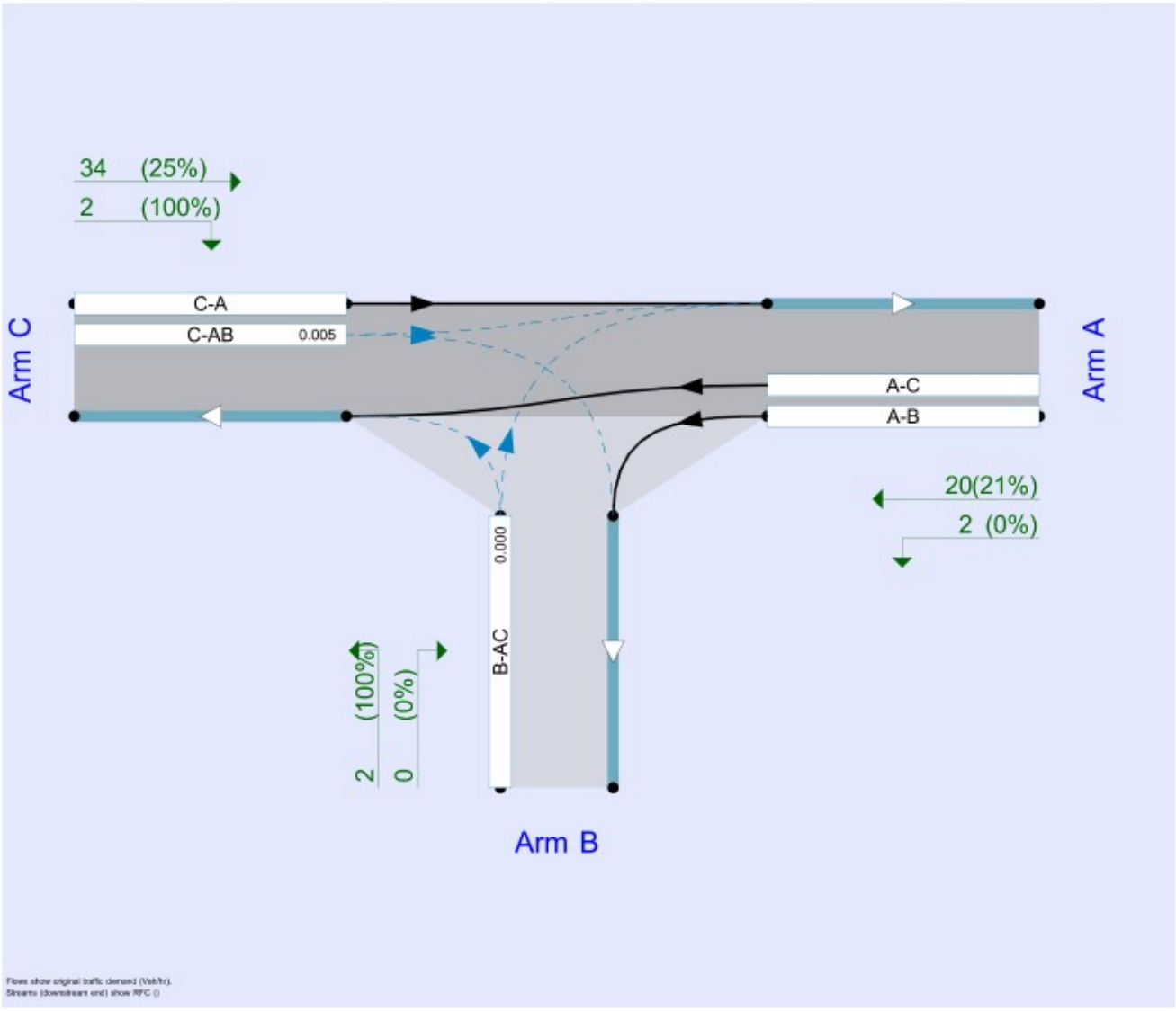
File summary

File Description

Title	Juncton 2
Location	
Site number	
Date	15/11/2019
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	10808
Enumerator	TOBIN\Maria Rooney
Description	Reviewed by LG 19.12.2019 for Issue

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	Veh	Veh	perHour	s	-Min	perMin



The junction diagram reflects the last run of Junctions.

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15
D2	2019	PM	ONE HOUR	16:15	17:45	15
D3	2021 No Development	AM	ONE HOUR	07:45	09:15	15
D4	2021 No Development	PM	ONE HOUR	16:15	17:45	15
D5	2021 With Development	AM	ONE HOUR	07:45	09:15	15
D6	2021 With Development	PM	ONE HOUR	16:15	17:45	15
D7	2031 No Development	AM	ONE HOUR	07:45	09:15	15
D8	2031 No Development	PM	ONE HOUR	16:15	17:45	15
D9	2031 With Development	AM	ONE HOUR	07:45	09:15	15
D10	2031 With Development	PM	ONE HOUR	16:15	17:45	15

Analysis Set Details

ID	Network flow scaling factor (%)
A2	100.000

2019, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Unknown Local Road (N)		Major
B	Proposed Quarry		Minor
C	Unknown Local Road (N)		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	5.90			148.0	✓	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	2.50	192	142

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
B-A	585	0.107	0.270	0.170	0.386
B-C	678	0.104	0.264	-	-
C-B	660	0.257	0.257	-	-

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

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D1	2019	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	20	100.000
B		✓	0	100.000
C		✓	17	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	20
	B	0	0	0
	C	17	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	45
	B	0	0	0
	C	41	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	543	0.000	0	0.0	0.000	A
C-A	13			13			
A-B	0			0			
A-C	15			15			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	619	0.000	0	0.0	0.000	A
C-AB	0	542	0.000	0	0.0	0.000	A
C-A	15			15			
A-B	0			0			
A-C	18			18			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	617	0.000	0	0.0	0.000	A
C-AB	0	541	0.000	0	0.0	0.000	A
C-A	19			19			
A-B	0			0			
A-C	22			22			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	617	0.000	0	0.0	0.000	A
C-AB	0	541	0.000	0	0.0	0.000	A
C-A	19			19			
A-B	0			0			
A-C	22			22			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	619	0.000	0	0.0	0.000	A
C-AB	0	542	0.000	0	0.0	0.000	A
C-A	15			15			
A-B	0			0			
A-C	18			18			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	543	0.000	0	0.0	0.000	A
C-A	13			13			
A-B	0			0			
A-C	15			15			

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

09:00 - 09:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2019, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D2	2019	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	16	100.000
B		✓	0	100.000
C		✓	27	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	16
	B	0	0	0
	C	27	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	19
	B	0	0	0
	C	22	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	621	0.000	0	0.0	0.000	A
C-AB	0	591	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	12			12			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	24			24			
A-B	0			0			
A-C	14			14			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	619	0.000	0	0.0	0.000	A
C-AB	0	589	0.000	0	0.0	0.000	A
C-A	30			30			
A-B	0			0			
A-C	18			18			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	619	0.000	0	0.0	0.000	A
C-AB	0	589	0.000	0	0.0	0.000	A
C-A	30			30			
A-B	0			0			
A-C	18			18			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	590	0.000	0	0.0	0.000	A
C-A	24			24			
A-B	0			0			
A-C	14			14			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	621	0.000	0	0.0	0.000	A
C-AB	0	591	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	12			12			

Queue Variation Results for each time segment

16:15 - 16:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:30 - 17:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2021 No Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	2021 No Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	21	100.000
B		✓	0	100.000
C		✓	18	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	21
	B	0	0	0
	C	18	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	46
	B	0	0	0
	C	42	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	540	0.000	0	0.0	0.000	A
C-A	14			14			
A-B	0			0			
A-C	16			16			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	539	0.000	0	0.0	0.000	A
C-A	16			16			
A-B	0			0			
A-C	19			19			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	538	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	23			23			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	538	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	23			23			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	539	0.000	0	0.0	0.000	A
C-A	16			16			
A-B	0			0			
A-C	19			19			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	540	0.000	0	0.0	0.000	A
C-A	14			14			
A-B	0			0			
A-C	16			16			

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

09:00 - 09:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2021 No Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	2021 No Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	17	100.000
B		✓	0	100.000
C		✓	28	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	17
	B	0	0	0
	C	28	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	19
	B	0	0	0
	C	23	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	621	0.000	0	0.0	0.000	A
C-AB	0	588	0.000	0	0.0	0.000	A
C-A	21			21			
A-B	0			0			
A-C	13			13			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	25			25			
A-B	0			0			
A-C	15			15			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	31			31			
A-B	0			0			
A-C	19			19			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	31			31			
A-B	0			0			
A-C	19			19			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	587	0.000	0	0.0	0.000	A
C-A	25			25			
A-B	0			0			
A-C	15			15			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	621	0.000	0	0.0	0.000	A
C-AB	0	588	0.000	0	0.0	0.000	A
C-A	21			21			
A-B	0			0			
A-C	13			13			

Queue Variation Results for each time segment

16:15 - 16:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:30 - 17:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2021 With Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.72	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D5	2021 With Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	23	100.000
B		✓	2	100.000
C		✓	20	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	21
	B	0	0	2
	C	18	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	46
	B	0	0	100
	C	42	100	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.01	10.74	0.0	0.5	B
C-A					
A-B					
A-C					

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	337	0.005	2	0.0	10.740	B
C-A	13			13			
A-B	2			2			
A-C	16			16			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	338	0.006	2	0.0	10.717	B
C-A	16			16			
A-B	2			2			
A-C	19			19			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	340	0.007	2	0.0	10.675	B
C-A	20			20			
A-B	2			2			
A-C	23			23			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	340	0.007	2	0.0	10.662	B
C-A	20			20			
A-B	2			2			
A-C	23			23			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	338	0.006	2	0.0	10.689	B
C-A	16			16			
A-B	2			2			
A-C	19			19			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	337	0.005	2	0.0	10.725	B
C-A	13			13			
A-B	2			2			
A-C	16			16			

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

09:00 - 09:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2021 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.73	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D6	2021 With Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	19	100.000
B		✓	2	100.000
C		✓	30	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	17
	B	0	0	2
	C	28	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	19
	B	0	0	100
	C	23	100	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.01	10.51	0.0	0.5	B
C-A					
A-B					
A-C					

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	344	0.005	2	0.0	10.512	B
C-A	21			21			
A-B	2			2			
A-C	13			13			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	347	0.006	2	0.0	10.457	B
C-A	25			25			
A-B	2			2			
A-C	15			15			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	351	0.007	2	0.0	10.362	B
C-A	31			31			
A-B	2			2			
A-C	19			19			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	351	0.007	2	0.0	10.336	B
C-A	31			31			
A-B	2			2			
A-C	19			19			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	347	0.006	2	0.0	10.399	B
C-A	25			25			
A-B	2			2			
A-C	15			15			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	344	0.005	2	0.0	10.484	B
C-A	21			21			
A-B	2			2			
A-C	13			13			

Queue Variation Results for each time segment

16:15 - 16:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:30 - 17:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2031 No Development, AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D7	2031 No Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	26	100.000
B		✓	0	100.000
C		✓	22	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	26
	B	0	0	0
	C	22	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	49
	B	0	0	0
	C	45	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	532	0.000	0	0.0	0.000	A
C-A	17			17			
A-B	0			0			
A-C	20			20			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	531	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	23			23			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	613	0.000	0	0.0	0.000	A
C-AB	0	530	0.000	0	0.0	0.000	A
C-A	24			24			
A-B	0			0			
A-C	29			29			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	613	0.000	0	0.0	0.000	A
C-AB	0	530	0.000	0	0.0	0.000	A
C-A	24			24			
A-B	0			0			
A-C	29			29			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	531	0.000	0	0.0	0.000	A
C-A	20			20			
A-B	0			0			
A-C	23			23			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	532	0.000	0	0.0	0.000	A
C-A	17			17			
A-B	0			0			
A-C	20			20			

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

09:00 - 09:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2031 No Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.00	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D8	2031 No Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	20	100.000
B		✓	0	100.000
C		✓	34	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	0	20
	B	0	0	0
	C	34	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	21
	B	0	0	0
	C	25	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.00	0.00	0.0	~1	A
C-A					
A-B					
A-C					

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	582	0.000	0	0.0	0.000	A
C-A	26			26			
A-B	0			0			
A-C	15			15			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	581	0.000	0	0.0	0.000	A
C-A	31			31			
A-B	0			0			
A-C	18			18			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	580	0.000	0	0.0	0.000	A
C-A	37			37			
A-B	0			0			
A-C	22			22			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	616	0.000	0	0.0	0.000	A
C-AB	0	580	0.000	0	0.0	0.000	A
C-A	37			37			
A-B	0			0			
A-C	22			22			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	618	0.000	0	0.0	0.000	A
C-AB	0	581	0.000	0	0.0	0.000	A
C-A	31			31			
A-B	0			0			
A-C	18			18			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	620	0.000	0	0.0	0.000	A
C-AB	0	582	0.000	0	0.0	0.000	A
C-A	26			26			
A-B	0			0			
A-C	15			15			

Queue Variation Results for each time segment

16:15 - 16:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

17:30 - 17:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2031 With Development , AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.58	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D9	2031 With Development	AM	ONE HOUR	07:45	09:15	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	28	100.000
B		✓	2	100.000
C		✓	24	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	26
	B	0	0	2
	C	22	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	49
	B	0	0	100
	C	45	100	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.01	10.70	0.0	0.5	B
C-A					
A-B					
A-C					

Main Results for each time segment

07:45 - 08:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	338	0.005	2	0.0	10.696	B
C-A	16			16			
A-B	2			2			
A-C	20			20			

08:00 - 08:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	340	0.006	2	0.0	10.667	B
C-A	20			20			
A-B	2			2			
A-C	23			23			

08:15 - 08:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	408	0.000	0	0.0	0.000	A
C-AB	2	342	0.007	2	0.0	10.614	B
C-A	24			24			
A-B	2			2			
A-C	29			29			

08:30 - 08:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	408	0.000	0	0.0	0.000	A
C-AB	2	342	0.007	2	0.0	10.599	B
C-A	24			24			
A-B	2			2			
A-C	29			29			

08:45 - 09:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	340	0.006	2	0.0	10.635	B
C-A	20			20			
A-B	2			2			
A-C	23			23			

09:00 - 09:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	338	0.005	2	0.0	10.679	B
C-A	16			16			
A-B	2			2			
A-C	20			20			

Queue Variation Results for each time segment

07:45 - 08:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

08:00 - 08:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

08:15 - 08:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:30 - 08:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

08:45 - 09:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

09:00 - 09:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

2031 With Development, PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Major arm width	Arm C - Major arm geometry	For two-way major roads, please interpret results with caution if the total major carriageway width is less than 6m.
Warning	Queue variations	Analysis Options	Queue percentiles may be unreliable if the mean queue in any time segment is very low or very high.

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.61	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D10	2031 With Development	PM	ONE HOUR	16:15	17:45	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (Veh/hr)	Scaling Factor (%)
A		✓	22	100.000
B		✓	2	100.000
C		✓	36	100.000

Origin-Destination Data

Demand (Veh/hr)

		To		
		A	B	C
From	A	0	2	20
	B	0	0	2
	C	34	2	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	21
	B	0	0	100
	C	25	100	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (Veh)	Max 95th percentile Queue (Veh)	Max LOS
B-AC	0.00	0.00	0.0	~1	A
C-AB	0.01	10.42	0.0	0.5	B
C-A					
A-B					
A-C					

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	347	0.005	2	0.0	10.420	B
C-A	25			25			
A-B	2			2			
A-C	15			15			

16:30 - 16:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	351	0.006	2	0.0	10.353	B
C-A	30			30			
A-B	2			2			
A-C	18			18			

16:45 - 17:00

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	355	0.007	2	0.0	10.237	B
C-A	37			37			
A-B	2			2			
A-C	22			22			

17:00 - 17:15

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	410	0.000	0	0.0	0.000	A
C-AB	2	355	0.007	2	0.0	10.206	B
C-A	37			37			
A-B	2			2			
A-C	22			22			

17:15 - 17:30

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	411	0.000	0	0.0	0.000	A
C-AB	2	351	0.006	2	0.0	10.285	B
C-A	30			30			
A-B	2			2			
A-C	18			18			

17:30 - 17:45

Stream	Total Demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	End queue (Veh)	Delay (s)	Unsignalised level of service
B-AC	0	413	0.000	0	0.0	0.000	A
C-AB	2	347	0.005	2	0.0	10.388	B
C-A	25			25			
A-B	2			2			
A-C	15			15			

Queue Variation Results for each time segment

16:15 - 16:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

16:30 - 16:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.01	0.25	0.45	0.48			N/A	N/A

16:45 - 17:00

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:00 - 17:15

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:15 - 17:30

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.01	0.00	0.00	0.01	0.01			N/A	N/A

17:30 - 17:45

Stream	Mean (Veh)	Q05 (Veh)	Q50 (Veh)	Q90 (Veh)	Q95 (Veh)	Percentile message	Marker message	Probability of reaching or exceeding marker	Probability of exactly reaching marker
B-AC	0.00	0.00	0.00	0.00	0.00			N/A	N/A
C-AB	0.00	0.00	0.00	0.00	0.00			N/A	N/A

Appendix 11.4: Pavement Condition Survey

MILESTONE
Pavement Technologies

Pavement Investigation

Earthscience Partnership: L5731 Abbeyleix

Unit 2A Kells Enterprise Centre, Cavan Road, Kells, Co. Meath Ph. 086-7947688

Client: Earthscience Partnership

Address: Tonranny, Westport, Co. Mayo.

Site: L5731 Abbeyleix

Date: 30-May-2022

Contents:

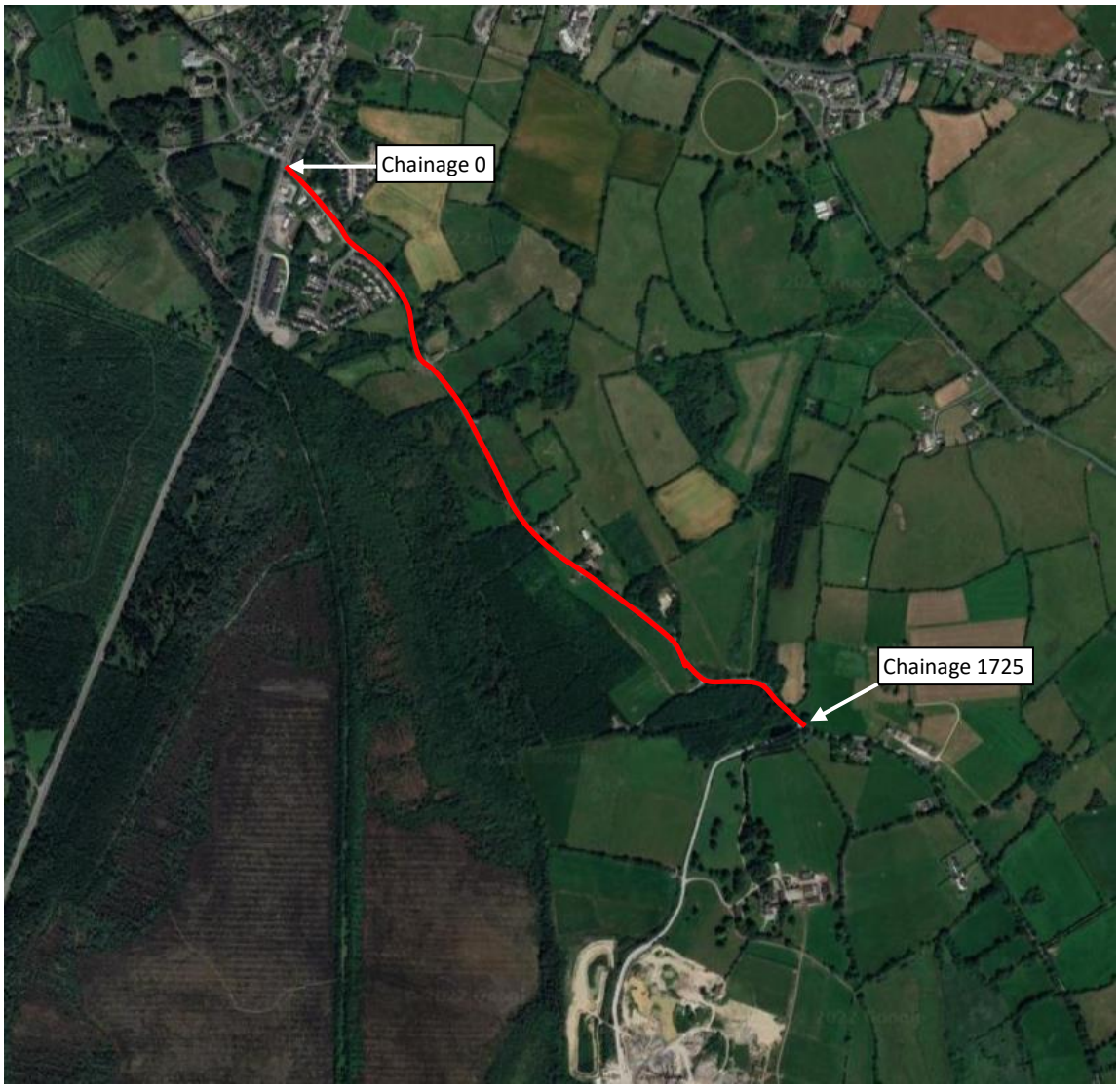
1. Introduction:

A survey on the L5731 just south of Abbeyleix was required to assess the condition of the existing pavement as part of a planning application by Booth Precast Products. This included a Falling Weight Deflectometer (FWD) survey to indicate the structural condition, and a Visual Condition Survey (VCS) to determine the Pavement Condition Index (PCI).

2. Site Details

The test section was part of the L5731 just south of Abbeyleix, commencing at the junction with the N77 (Chainage 0), and proceeding south for 1,725 metres finishing at the entrance to Booth Concrete as shown in Figure 1. Deflections were measured at 50 metre intervals in the nearside wheel-track of each lane, and staggered by 25 metres between lanes.

Figure 1: L5731 Abbeyleix Site Map



3. Visual Condition Survey

3.1. Background to Survey

Visual Condition Surveys are inspections carried out to assess pavement surface conditions. Surface distress is damage observed on the pavement surface and there are four major categories:

- Surface Defects: Ravelling, Bleeding
- Pavement Deformation: Rutting, Surface Distortion
- Cracks: Alligator Cracking, Edge Cracking and Breakup, Other Cracking (longitudinal, transverse, reflection, slippage, etc.)
- Surface Openings: Patching, Potholes, Road Disintegration

The purpose of condition rating is to be able to compare a pavement segment relative to other segments. The *Department of Transport, Tourism and Sport* '*Flexible Roads Manua*l' contains a rating scheme based solely on visual pavement distresses. This scheme rates a pavement from 1 for failed to 10 for excellent. Tables of ratings and treatment measures from the manual are contained in Appendix C.

3.2. Survey Details

A field inspection was carried out to record observations such as details of pavement surfacing and defects, changes in surface appearance and length of individual segments along which the condition remains the same.

3.3. Pavement Condition Index Results

This 1,725 metres section of the L5731 was divided into four individual segments of similar construction and condition. Each of the four segments were rated based on the criteria in the *'Flexible Roads Manual'.*

As is normally the case, no segment is entirely consistent, and none will have all the types of distresses listed in the manual for any particular rating. Therefore, some averaging and judgement is required to determine the PCI results contained in Table 1. Pictures of the segments detailed in Table 1 can be found in Appendix D.

In general the pavement is in reasonably good condition from Chainage 0 to 380 with few signs of surface distress or damage. The remainder of the pavement to Chainage 1725 features frequent instances of cracking, edge damage and surface distortion.

Table 1: L5731 PCI Results

Section	Chainage	Description	Picture	Rating
A	0 to 250	Reasonably good surface, some visible cracking.	D1, D2, D3, D4, D5, D6	8
B	250 to 380	Minor surface distortion, patching in good condition, ravelling around transverse joint.	D7, D8	7
C	380 to 1080	Patching, edge damage, cracking and surface distortion.	D9, D10, D11, D12	5
D	1080 to 1725	Narrows to single lane from Chainage 1080 to 1313. Reasonable surface with some distortion, cracking and patching.	D13, D14, D15, D16, D17, D18	6

4. FWD Survey

4.1. Description of testing

A load pulse is produced by dropping a known mass, and is transmitted to the pavement through the loading plate. The load cell measures the load imparted to the pavement surface. Geophones mounted radially from the centre of the load plate measure the pavement deflection in response to the load.

In this case the load level was set at 40kN and the load pulse applied through a 300mm diameter plate. Deflections at each geophone were measured at a resolution of 1 micron. At each test point at least 3 drops were made, after an initial drop to settle the loading plate.

4.2. FWD Details

Testing was carried out using the Primax 1500 FWD manufactured by Sweco. Readings were taken from 9 geophones mounted radially from the centre of the load plate and positioned as follows:

Geophone Number	D1	D2	D3	D4	D5	D6	D7	D8	D9
Distance from centre of load(mm)	0	300	450	600	900	1200	1500	1800	2100

4.3. Date of Survey

The survey took place on May 3rd, 2022.

4.4. Tabulated Deflections

The deflection bowl created by the FWD load pulse is influenced by the stiffness of the different pavement layers. Deflection values are tabulated in Appendix A as follows:

D1: Indication of overall pavement performance

D1-D2: Indicates condition of upper pavement layers

D9: Indication of sub-grade condition

Guidance on deflection criteria provided in D.T.T.A.S. publication *'Guidelines on the Depth of Overlay to be used on Rural Regional and Local Roads'* is reproduced in Table 2 and Table 3. Values contained in Appendix A are highlighted according to the colour key shown.

Table 2: Central and SCI Deflection Criteria for Rural Regional and Local Roads

Central Deflection (D1)	SCI (D1-D2)	Comment
<300	<150	Good load spreading ability
300-500	150-250	Good to poor load spreading ability
501-800	251-400	Poor to bad load spreading ability
>800	>400	Bad load spreading ability

Table 3: Outer Deflection Criteria for Rural Regional and Local Roads

Outer Deflection (D9)	Comment
<15	Stiff subgrade
15-30	Stiff to moderate subgrade
31-45	Moderate to weak subgrade
>45	Weak subgrade

Table 4 shows average deflection values for nine sub-sections with deflections of similar magnitude.

Table 4 Average Deflection Values

Chainage		Southbound			Northbound		
From	To	D1	D1-D2	D9	D1	D1-D2	D9
0	350	274	74	37	360	90	49
350	725	476	127	74	551	148	88
725	950	509	176	41	369	90	54
950	1050	280	80	30	564	254	27
1050	1125	822	358	36	492	174	37
1125	1725	281	100	18	297	105	23

Based on these average deflection values the pavement condition could be summarised as follows:

- From Chainage 0 to 725 the upper pavement layers have good load spreading ability and the subgrade is weak.
- The northbound lane remains relatively strong to Chainage 950 while the southbound lane is significantly weaker.
- The remainder of the pavement to Chainage 1725 has good load spreading ability with possible localised weaknesses identified at Chainage 975 in the northbound lane and Chainage 1100 in the southbound lane. The subgrade is moderate to weak along this sub-section.

4.5. Deflection Graphs

The selected deflection parameters are plotted against distance in Appendix B. Deflection and deflection difference graphs are useful for showing relative differences in the condition of the layers.

Appendix A:

Tabulated Deflections

Table A1: Southbound Deflection Values

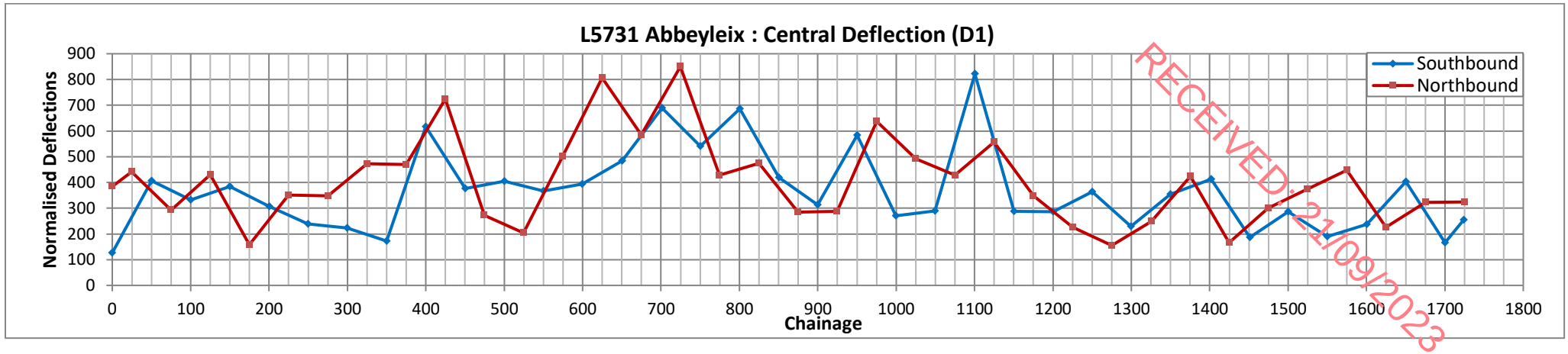
Chainage	D1	D1-D2	D9
0	127	29	30
50	407	120	37
100	332	98	29
150	384	109	34
200	308	80	44
250	238	64	54
300	223	42	49
350	172	50	23
400	616	137	126
450	377	80	92
500	405	180	20
550	367	135	22
600	394	95	50
650	484	130	99
700	689	133	110
750	541	160	46
800	687	199	69
850	418	159	24
900	313	105	30
950	584	259	36
1000	270	94	22
1050	290	67	38
1100	822	358	36
1150	288	90	24
1200	285	100	18
1250	364	127	31
1300	229	90	13
1350	354	119	22
1400	413	174	21
1450	186	39	26
1500	287	123	4
1550	190	74	16
1600	237	84	28
1650	403	174	10
1700	167	39	15
1725	255	61	10

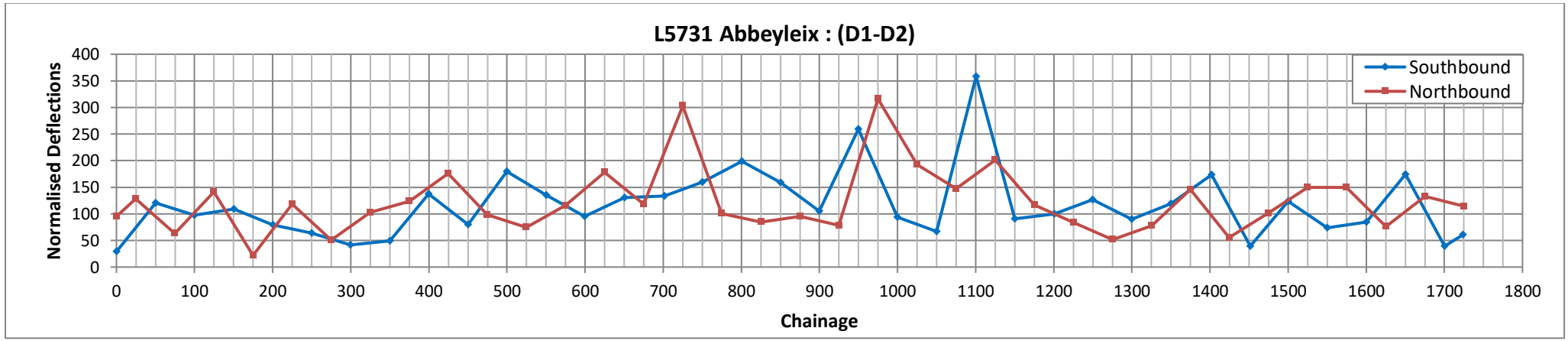
Table A2: Northbound Deflection Values

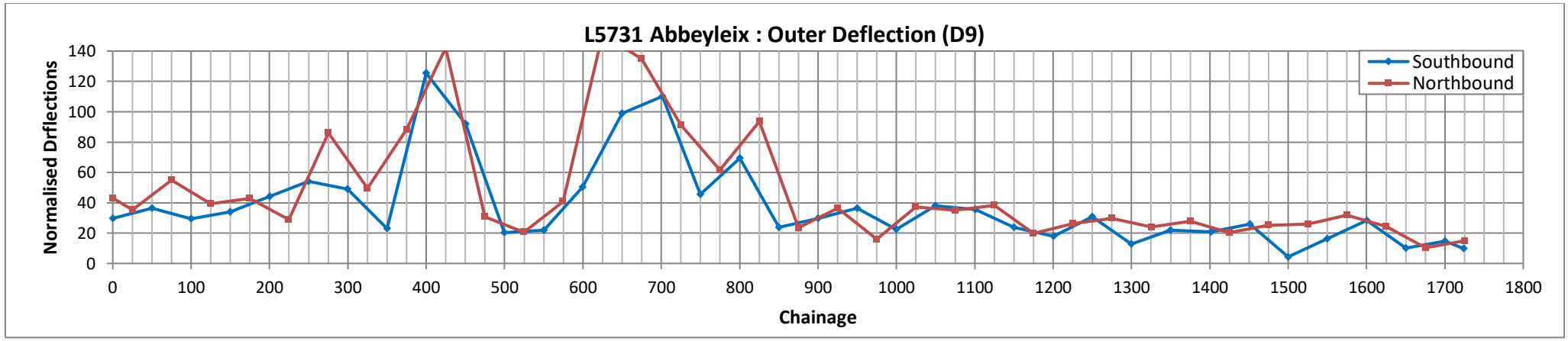
Chainage	D1	D1-D2	D9
0	384	95	43
25	442	129	35
75	293	63	55
125	430	141	39
175	158	22	43
225	352	118	29
275	348	51	86
325	472	103	50
375	470	124	89
425	725	175	142
475	271	99	31
525	204	75	21
575	501	116	41
625	806	178	151
675	585	118	135
725	850	303	92
775	429	101	62
825	474	84	94
875	284	95	24
925	289	79	37
975	637	316	16
1025	492	192	37
1075	429	147	35
1125	556	201	38
1175	348	117	20
1225	226	83	26
1275	155	52	30
1325	249	78	24
1375	424	146	28
1425	166	55	20
1475	300	101	25
1525	375	149	26
1575	447	149	32
1625	227	76	24
1675	322	133	10
1725	324	115	15

Appendix B:

Deflection Graphs







Appendix C

Treatment Measures and Rating System Tables

Table C1: Treatment Measures

Overall Rating	Treatment Measures	Surface	Structure
10	**Routine Maintenance**	Excellent	
9		Very Good	
8	**Resealing & Restoration of Skid Resistance**	Fair	Good
7		Poor	
6	**Surface Restoration** – Carry out localised repairs and treat with surface treatment or thin overlay.	Fair	Fair
5		Poor	
4	**Structural Overlay** - Required to strengthen road. Localised patching and repairs required prior to overlay.	Poor Overall	
3			
2	**Road Reconstruction** - Needs full depth reconstruction with extensive base repair.	Very Poor Overall	
1		Failed Overall	

Table C2: Rating System

Overall Rating	Primary Rating Indicators*	Secondary Rating Indicators*
10	No visible defects.	Road surface in perfect condition. like new.
9	Less than 10 % of surface with surface defects[1]	Road surface in very good condition.
8	10% to 30% of surface with surface defects[1]	Little or No Other defects.
7	Greater than 30% of surface with surface defects[1]	Little or No Other defects. Old surface with aged appearance.
6	Less than 20% of other Cracking[2] may be present. Patching generally in good condition. May be out of shape requiring some reduction in driver speed.	Surface defects[1] may be present. No structural distresses[3]
5	Greater than 20% Cracking[2] present. Patching generally in fair condition. Out of shape requiring reduction in driver speed. Very localised structural distress[3] (< 5 sq.m of surface) may be present.	Surface defects[1] may be present.
4	Structural Distress[3] present. Rutting or Alligator Cracking for 5% to 25% of surface. Short lengths of Edge Breakup/Cracking. Small number of Potholes.	Other defects may be present.
3	Significant areas of Structural distress[3]. Rutting or Alligator Cracking for 25% to 50% of surface. Significant continuous lengths with Edge Breakup/Cracking. Frequent Potholes.	Other defects may be present.
2	Large areas of Structural distress[3]. Rutting or Alligator Cracking for over 50% of surface. Severe Rutting (over 75 mm deep). Extensive Patching in very poor condition. Many Potholes.	Very difficult to drive on.
1	Severe Structural distress[3] with extensive loss of pavement surface. Road Disintegration of surface. Many large and deep Potholes. Patching in failed condition.	Severe Deterioration Virtually undriveable.

*Individual pavements will not have all the types of distress listed for any particular rating. They may have only one or two types.

Note 1: Surface Defects = ravelling or bleeding.
Note 2: Other Cracking = longitudinal, transverse, reflection or slippage cracking.
Note 3: Structural Distress = rutting, alligator cracking, edge breakup/cracking or potholes.

Appendix D

Pavement Pictures

Picture D1: Section A – Junction at Chainage 0

Picture D2: Section A – Transverse Joint at Chainage 23

Picture D3: Section A – Chainage 40, some cracking in wheeltracks

Picture D4: Section A – Road narrows to single lane, Chainage 90 to 140

Picture D5: Section A Chainage 140 – Good surface with Antiskid and Ramp

Picture D6: Section A – Transverse Joint at Chainage 250

Picture D7: Section B – Patching in good repair

Picture D8: Section B – Transverse Joint at Chainage 380

Picture D9: Section C – Edge Damage, patching surface distortion ~ Chainage 450

Picture D10: Section C – Cracking and Surface Distortion ~ Chainage 700

Picture D11: Section C – Edge Repairs and surface distortion ~ Chainage 750

Picture D12: Section C – Edge Damage and repairs ~ Chainage 1000

Picture D13: Section D – Road narrows and surface improves at Chainage 1080

Picture D14: Section D – Road widens again at Chainage 1310, good surface

Picture D15: Section D, Some edge damage and surface distortion, bleeding in wheel-tracks

Picture E16: Section D

Picture D17: Section D – Some cracking and distortion

Picture D18: Section D – Cracking at entrance to Booth Concrete