



12

TRAFFIC AND TRANSPORTATION



12 TRAFFIC AND TRANSPORTATION

12.1 INTRODUCTION

12.1.1 GENERAL

This Chapter of the remedial Environmental Impact Assessment Report (rEiAR) provides an assessment of the traffic and transportation impacts of the Hudson Brothers Ltd (HBL) Kildare quarry (the 'Site'), in support of an application for Substitute Consent for the existing quarry located in the townlands of Philipstown and Redbog Co. Kildare.

12.1.2 TECHNICAL SCOPE

The technical scope of this assessment is to consider the potential impacts and effects that activities at the Site (as detailed in Chapter 2.0, Project Description) may have had on the traffic and transport infrastructure (the existing road network) during the review period.

This chapter will examine the potential traffic implications associated with the operations at the Site in terms of integration in the area and local roads network from September 2020 to present. This assessment will determine and quantify the extent of trips generated by the quarry, and the impact on operational performance of these trips on the local road network.

12.1.3 GEOGRAPHICAL AND TEMPORAL SCOPE

The geographical extent of this study for the assessment covers the area within the EIA boundary (Site) the connected existing road network utilised by the Development's activities.

The temporal scope of the assessment covers the period of September 2020 ('baseline conditions') to the present day ('current conditions'). This timeframe from 2020 to the present is subsequently referred to as the 'review/assessment period'. This assessment period equates to approximately three and a half years and is identified as 'short-term' duration (lasting one to seven years).

12.2 GUIDANCE AND PRIMARY SOURCES OF INFORMATION

In preparing this assessment, the following documents have been reviewed:

- "Traffic and Transport Assessment Guidelines" (May 2014) published by Transport Infrastructure Ireland (TII);
- Unit 5.3 (Travel Demand Projections) of the "Project Appraisal Guidelines" (2019) published by TII;
- Traffic count data, TII Count Sites "TMU N81 040.0 N N81" and "TMU N81 010.0 S", (<https://trafficdata.tii.ie/publicmultinodemap.asp>)
- Traffic Count Data, collected by IDASO Ltd on Thursday 16th November 2023 – included in Appendix 12A;
- Project Appraisal Guidelines for National Roads Unit 5.3 – Travel Demand Projections, PE-PAG-02017 (2021) Published by TII;
- Unit 16.1 (Expansion Factors for Short Period Traffic Counts) of the "Traffic Appraisal Guidelines" (2016) published by Published by TII;
- EPA's Guidelines on the Information to be Contained in EIARs (EPA, 2022)
- 2020 Site and Traffic Review report by PMCE Engineers.

12.3 ASSESSMENT METHODOLOGY AND SIGNIFICANCE CRITERIA

12.3.1 THE METHODOLOGY ADOPTED FOR THIS APPRAISAL AND REPORT INVOLVED, IS AS FOLLOWS:

- Review of previous Traffic and Transport Assessment reports;
- Trip Generation and Trip Assignment – This has been used to derive the expected increase in vehicle trips associated with the continued operation of the site. The analysis undertaken has estimated the trip generation of the site over a 12-hour period, based on historic and projected tonnage of quarry materials excavated. Trip assignment has been determined by existing traffic movements at the site access junction;
- Link Capacity Assessment – To obtain an Annual Average Daily Traffic (AADT) value for the N81 national road and to compare this against standard traffic volume levels on a similar type of road in order to compare the existing traffic on the roads network in the area and define how large of an impact quarry operation will have;
- Localised Junction Modelling – assess the expected performance of the junction associated with the expected increase in quarry traffic in terms of both capacity and queueing as resulting from continued operation; and
- Determination of final significance of impacts in accordance with criteria in the EPA's Guidelines on the Information to be Contained in EIARs (EPA, 2022).

12.3.2 ASSUMPTIONS

- Where historical information is not available, assumptions have been made as per the 2007 TTA and 2020 review;
- Extracted Pit Material Trips (Expits) are assumed to be distributed on the basis of the Client assumptions – 78.6% to the north and 21.4% to the south;
- Vehicles used for material transport are assumed as a worst case, being 5 axle hauling vehicles with capacity for 25 tonnes of material due to impact on roads maintenance scheduling by roads authorities;
- Hours of operation are assumed to be 07:00 to 18:00 Monday to Friday and 07:00 to 13:00 Saturday;
- Trips generated are assumed as evenly spread across the year and evenly throughout the day;
- Direct Employee Staff as per Spreadsheet provided by Hudson Brothers in November 2023;
- Miscellaneous (5) and Contract Staff Trips (26 Contract Staff) as per 2020 traffic review undertaken by client in 2020;
- Staff trips have been captured within the 2023 traffic survey;
- It is assumed for the sake of conservative estimation, that all trips generated are as per the latest information sourced from the 2023 survey and latest information from the client;
- For traffic growth, WSP has assumption is from TII Publications Unit 5.3 – Travel Demand Projections, PE-PAG-02017¹: Central Growth, HV, on basis of location and N81 National Route, Higher value to ensure potential impact maximised.

¹ <https://www.tiipublications.ie/library/PE-PAG-02017-03.pdf>

12.4 BASELINE AND SUBSEQUENT CONDITIONS (2020 TO PRESENT)

The Site is on lands at Philipstown and Redbog, Red Lane, Co. Kildare, along the Kildare/Wicklow border. Access to the Site is via the N81 National Road, and through the Hudson Brothers Limited Wicklow site, to the southeast. Regionally, the nearest town is Blessington, which is located approximately 2 km to the south of the Site. Beyond this there are several other small towns and the suburbs of Dublin.

Three main land uses have been identified surrounding the Site, these are agricultural and single-house residential lands, the R410 road and other quarry operations. The lands to the north and west can be characterised as rural in nature, with land uses in the area being agricultural and single-house residential. The R410 road passes through the 500 m buffer to the southwest of the Site and the lands immediately to the east and south of the Site are largely taken up by quarrying activities operated by unrelated parties. There was little change in the surrounding land use over the review period, other than the addition of a single house dwelling.

It is noted that activity at the Site involved the extraction of both rock (greywacke) and sand and gravel by dry excavation techniques.

The excavated sands and gravels were washed, screened, and processed through a fixed closed-circuit aggregate processing plant, located in the eastern part of the Site. Processed sand and gravel continued to be stockpiled adjacent to the aggregate plant prior to being transported to market by road going trucks.

The excavated rock material continued to be processed on the quarry floor by mobile crushing, screening, and associated plant before being stockpiled into specific graded aggregate stockpiles. Crushed rock aggregate was transported to market by road going trucks.

Vehicles travelling to/from the Hudson Brothers Quarry travel via the access road highlighted in black in Figure 12-1 below. Access and egress to both quarries are provided to the N81 national road in Co. Wicklow.

Figures 12-2, Figure 12-3 and Figure 12-4 provide a view of the road and junction layouts at the N81 entrance/exit junction.

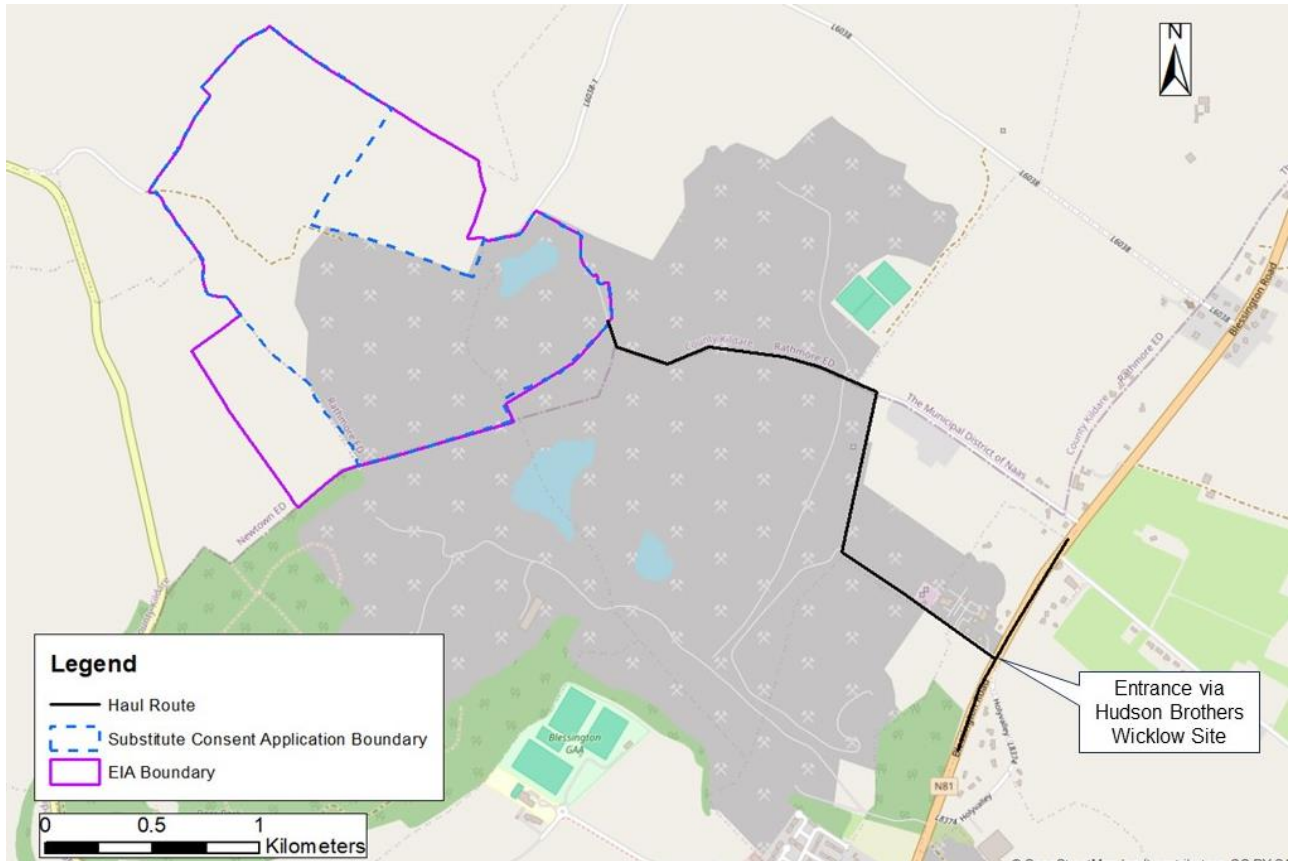


Figure 12-1 - Site Location Plan showing haul route.



Figure 12.2 – Site Access on N81



Figure 12.3 – N81 Looking South from Quarry Access



Figure 12.4 – L8373 Looking towards N81

12.4.1.1 The N81

The N81 is a National Secondary Road, approximately 77 km in length, travelling north-to-south from its junction with the M50 motorway (Junction 11) on the outskirts of Dublin to its junction with the N80 in Clish, Co. Carlow. The N81 provides dual carriageway standard from its junction with the M50 motorway for approximately 4 km (which includes the Tallaght bypass). Beyond this, the N81 is single carriageway road subject to the national speed limit. At its junction with the access to the HBL Wicklow

site, the N81 is a two-way single carriageway road with lane widths of approximately 5.5 m and a hard strip of approximately 0.5 m width on both sides of the carriageway. The N81 also provides a right turn lane for south bound vehicles entering the quarry. Additionally, a footpath is provided on the eastern side of the N81 which extends southwards where it terminates at the L8373, opposite the quarry access. The footpath provides access for pedestrians to a bus stop on the eastern side of the N81, however, no pedestrian crossing is located in this vicinity.

12.4.1.2 The L8373

The quarry access is located on the opposite side of the N81 to the L8373 local road. The L8373 is a single carriageway road, approximately 5 m wide, subject to a 50km/h speed limit. The road has no hard shoulder or hard strip facility on either side of the carriageway. The L8373 provides access to several residential properties before connecting back to the N81 further south of the quarry access.

12.4.1.3 Vehicles Transporting Extracted Material

Aside from general traffic accessing the Site, the only vehicles assumed to be normally accessing site are those carrying materials away from the site, assumed to be Ordinary Goods Vehicle OGV Class 2 vehicles with 5 axles, capable of transporting 25 tonnes per trip – this is to assume a worst case with regards to roads maintenance planning.

12.4.2 ROAD ACCIDENT DATA

WSP has attempted to collate road traffic collision (RTC) information from the Road Safety Authority (RSA) and TII websites. However, both authorities are in the process of reviewing their RTC data sharing policies and procedures. Record-level RTC data can't be shared until this review is complete and, as such, up to date traffic accident data is currently unavailable.

12.4.3 TRAFFIC VOLUMES

A 12-Hour classified turning count was carried out on Thursday 16 November 2023, at the N81/L8373/Quarry Access crossroads junction. The count took place between the hours of 07:00 and 19:00 hours, with this time period exceeding the hours of operation of the quarry for material transportation purposes. The time period also encompasses the peak hours on adjacent roads network. Surveyed vehicles were broken down into seven categories as follows:

1. Pedal Cycles;
2. Motorcycles;
3. Cars;
4. LGV (Light Goods Vehicles);
5. OGV1 (Two and Three Axle Goods Vehicles);
6. OGV2 (Four and Five Axle Goods Vehicles);
7. Buses.

These figures were factored to give Passenger Car Units (PCUs) by the survey company, utilising industry standard conversion factors.

The detailed results of the Traffic Survey are summarised in Appendix 12B, and a summary of the results has been provided in Table 12.1. The morning and evening peak hours have been established as follows: N81/L8373/Quarry Access crossroad junction – 07:15 to 08:15 (AM Peak) and 16:45 – 17:45 (PM Peak).

Table 12.1 – AADT At Junction – N81/L8373/Local Quarry Access – in Passenger Car Units (PCU)

Hour Ending	N81 (N)	L8373	N81 (S)	Access Road to Quarry
08:00	1,221.4	2	1,172.5	81.9
09:00	1,061.1	6	1,032.1	79.4
10:00	976.7	9.9	904.2	107.2
11:00	729	8	703.8	77
12:00	693	15.5	640.7	93
13:00	752.3	26	698.8	86.5
14:00	768.4	9.3	747.1	71.8
15:00	895.4	11	845.5	90.1
16:00	882.8	4	843.9	76.7
17:00	1,057.9	3	1,033.4	85.3
18:00	1,064.5	4	1,061.5	32.2
19:00	902.5	3	900.2	20.3
Period Total	11,005	101.7	10,583.7	901.4
Period Total HGV	1948.8	22.1	1545.7	574.4
% HGVs	17.71%	21.73%	14.60%	63.72%
Total AADT	14293	132	13746	1171

12.4.4 LOCAL ROADS IMPROVEMENT DURING OPERATIONAL PERIOD

No specific roads improvement schemes have been identified in the area of the quarry access onto the N81 as per Kildare County Council Development Plan 2017 – 2023 or the 2021 – 2023 Capital Programme.

12.4.5 TRIP GENERATIONS

12.4.5.1 Quarry Operational Movements

During the assessment period activities were permitted during the below hours:

- Excavation and processing of material between 0800 hours and 1800 hours, Monday to Friday and between 0800 hours and 1300 hours on Saturdays.
- Loading and transporting of processed material between 0700 hours and 1800 hours: Monday to Friday and between 0700 hours and 1300 hours on Saturdays.

- No activities on Sundays or public holidays

As such, transportation from the quarry took place a total of 61 hours per week.

The distribution of trips generated by the development have been provided by HBL including a split of vehicle direction on the N81 – approximately 78.66% northbound and approximately 21.34 % southbound.

In determining the rate of extraction, the daily traffic volumes associated with the export of material with regards the average number of loads per day from the site has been calculated for each year, based on the assumptions set out in Table 12.2 below:

Table 12.2 – Exported Materials and Loads Departing Site 2020 – 2023

Year	Number of Loads	Assumed Extracted Material (Tonnes)
2020	33,603	840,075
2021	29,603	740,075
2022	45,252	1,131,300
2023	28,153	703,825
Average	34,152.75	853,818.75

Table 12.3 – Recorded Trips by Year

	2020	2021	2022	2023
Extraction Rate	840,075	740,075	1,131,300	703,825
Amount Per week (50 weeks per year)	16,802	14,802	22,626	14,077
Loads per week (25 tonnes per load)	672.06	592.06	905.04	563.06
Loads per Hour (61 hours per week)	11.02	9.71	14.84	9.23
Loads per day (Weekday – 11 hours)	121.19 (122)	106.76 (107)	163.20 (164)	101.54 (102)
Trips per day (2 trips per load)	244	214	328	204

12.4.5.2 Staff Trips

There are 46 full time staff working at the quarry (as per figures provided by Hudson Brothers) and, it is assumed based on prior staff survey information, up to 26 contracted drivers (as per past surveys)

that work to provide additional cover during periods of high demand. In determining the number of trips generated by staff, it is assumed that most staff will work at the site simultaneously and will arrive during the morning peak hour, also leave during the evening peak hour. Lunch related trips are assumed to be distributed throughout the central part of the day. It is assumed that these trips have been captured as part of the November 2023 traffic survey.

12.4.5.3 Miscellaneous Trips

The trips generated aside from staff and material transport are captured within the traffic survey data and it is not expected that these will increase as part of continued operations at the Site. These miscellaneous trips allow for fuel, operations, meetings, site inspections etc. To allow for a correct assessment, it is assumed that these journeys are also included in the background survey traffic figures.

12.4.5.4 Derived Trip Rate

The total daily trips associate with the quarry operation includes the figures detailed above. Non extraction site trips are as follows:

- 92 Staff trips daily, 46 inbound and 46 outbound;
- 12 Lunch related trips;
- 52 contract staff related trips, 26 inbound and 26 outbound;

The distribution of trips throughout the day will be modelled based on the TRICS analysis created for this project, contained in Appendix 12B.

12.4.6 TRIP DISTRIBUTION

Table 12.4 shows the total distribution of the development traffic:

Table 12.4 – Trip Generation 2020 to 2023 inclusive - Totals

	2020	2021	2022	2023
Extraction Load Trips	244	216	330	204

When accessing the quarry, 78.66% of the traffic approaches from the north on the N81 while 21.34% approaches from the south on the N81. When leaving the site, the traffic uses the same split, 78.66% to the north on N81 and 21.34% to the south on the N81. No site related traffic utilises the L8373 side road. These splits have been displayed in Figure 12.5.

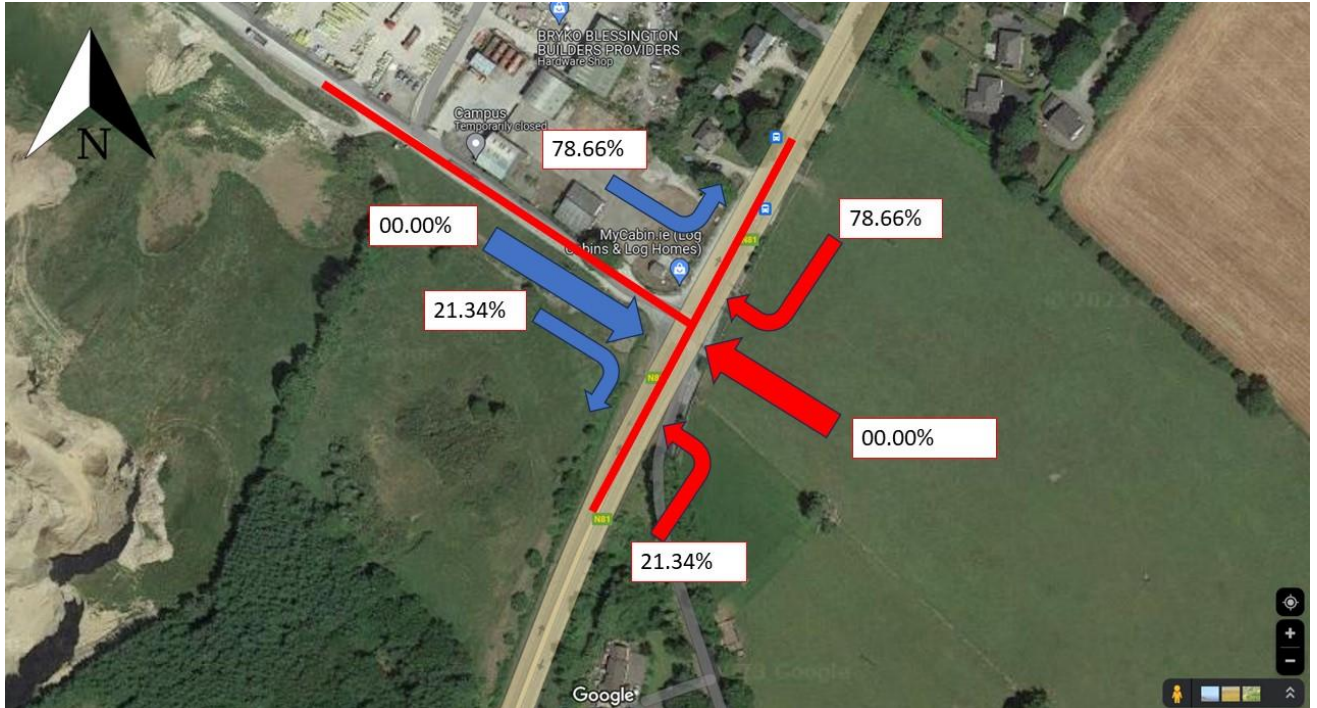


Figure 12.5 – Assignment of Quarry Development Traffic across N81 Junction

12.4.7 SCOPE OF ASSESSMENT

There was a maximum uplift of 32.24% on the quarry access in 2023, it was lowest at 21.33% in 2023. On the N81, the maximum impact is in the northern arm of the junction, with 2.08% uplift in 2022, dropping to an impact of 1.37% in 2023.

Section 2.1 of the “Traffic and Transport Assessment Guidelines” published by TII recommends that a traffic assessment should cover all of the roads and junctions where the quarry traffic exceeds 10% of the existing or background traffic, or 5% in congested or other sensitive locations, including junctions with national roads.

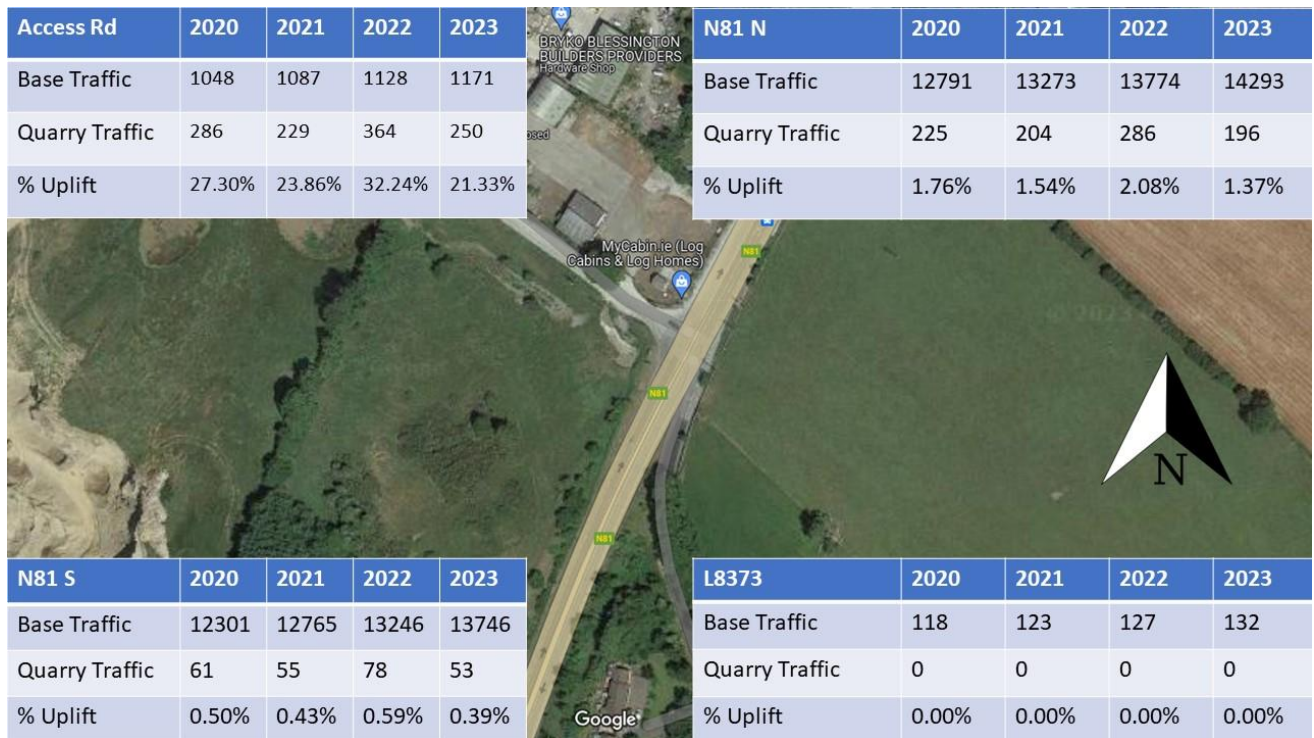


Figure 12.6 – Development Traffic as part of the background traffic volumes

While the additional traffic generated by the continuous operation of the quarry does not exceed 5% or 10% of the traffic on the N81 – it increases the amount of traffic using the local access road by 15 to 20%, and as a result, the assessment shall undertake a full capacity analysis of the junction by use of a PICADY analysis.

12.5 POTENTIAL EFFECTS

12.5.1 ROAD IMPACTS

Whilst this assessment has been structured with reference to projected travel figures, it should be noted that due to COVID-19, there was a substantial reduction in traffic on the roads network in 2020 and 2021. Examination of TII Counter sites on the N81 indicate traffic values returning to near pre COVID-19 levels as of November 2023.

12.5.1.1 Assessment years

The “Traffic and Transportation Assessment Guidelines” published by Transport Infrastructure Ireland recommend the assessment of traffic in the Opening year, for the Opening Year +5 years and the Opening Year +15 years.

As this is a retrospective application however, the years of operation (2020 to 2023) are to be considered.

12.5.1.2 Traffic Growth

Traffic Growth has been utilised as per Table 6.2 of TII Guidance – “Project Appraisal Guidelines for National Roads, Unit 5.3 – Travel Demand Projections.”

12.5.1.3 Link Capacity Assessment

When assessing the link capacity of a road, a Level of Service D has been chosen, according to TII Publications document DN-GEO-03031 “Rural Link Road Design, Table 6.1,” it is at this level that, *“speeds begin to decline slightly with slight increase of flows and density begins to increase somewhat more quickly. Freedom to manoeuvre within the traffic stream is more noticeably limited, and the driver experiences reduced comfort levels.”*

N81 National Road

The capacity of the N81 has been assessed in accordance with the TII Publications document DN-GEO-03031 “Rural Link Road Design.”

The ‘Road Type’ selected for the N81, which best describes the road layout at the site location is a “Type 1 Single Carriageway” in accordance with this publication, which represents a 7.3 m wide carriageway with 2.5 m hard shoulders, which minimises the number of accesses to avoid standing vehicles and minimise turning movements. The maximum AADT for a road of this type is 11,600.

The N81 Has a paved carriageway width of 12 m and a pedestrian footpath on its eastern site in the vicinity of the quarry. The forecast two-way AADT for the final forecast year (2024) is 13,689 on the northern arm of the junction and 14,036 on the southern arm.

Table 12.5 – Combined AADT for Assessment Years 2020 – 2023 inclusive, N81 South

AADT Forecast for Future Years	2020	2021	2022	2023
Background Traffic	12,791	12,765	13,246	13,746
Quarry Traffic	61	55	78	53
Combined Traffic (Background & Quarry)	12,852	12,820	13,246	13,799
Quarry Traffic as Percentage of Overall Traffic	0.47%	0.43%	0.58%	0.39%

Table 12.6 – Combined AADT for Assessment Years 2020 – 2023 inclusive, N81 North

AADT Forecast for Future Years	2020	2021	2022	2023
Background Traffic	12,791	13,273	13,774	14,293
Quarry Traffic	225	204	286	196
Combined Traffic (Background & Quarry)	13,016	13,477	14,060	14,489
Quarry Traffic as Percentage of Overall Traffic	1.73%	1.51%	2.03%	1.36%

Tables 12.5 and 12.6 indicate that in 2020, the N81 is operating at or just above capacity – as per the 2023 Traffic Survey. A traffic and turning survey was undertaken on November 16th 2023. Due to COVID-19, a drop in traffic volumes has been noticed on TII traffic counters (TMU N81 010 S and TMU N81 040.0 N), with traffic levels appearing to be currently returning to pre covid levels. It is noted



that the capacity threshold for Level of Service D for a ‘Type 1 Single Carriageway’ as described in TII Publication DN-GEO-03031 ‘Rural Link Design’ is 11,600 passenger car units.

It is of note that northbound on the N81, in 2022, the traffic generated is equivalent to 2.03%, dropping to 1.36% in 2023 as the baseline traffic increases. Southbound N81 impact similarly decreases from 0.80% to 0.58% in the same respective period. The relatively low impact of the traffic generated is therefore not classed as consequential to network operations due impacts of traffic generated being below 5%.

L8373 Local Road

The capacity of the L8373 has been assessed in accordance with the TII Publications document DN-GEO-03031, “Rural Road Link Design.”

The ‘Road Type’ selected for the road, which best describes the road layout, is a ‘Type 3 Single Carriageway’ in accordance with the above publication, which represents a 6.0m wide carriageway with 0.5m hard strips, cycle facilities and footways which minimises the number of direct accesses, incorporates simple priority junctions with other local roads and priority roads with ghost islands where necessary or roundabouts with major roads. Similarly to the N81, Table 6.1 of the guidance states that the maximum AADT for this type of road at Level of Service D is 5,000. There is no impact on this road by quarry extraction operations as all extractions head either north or south on the N81.

The L8373 has a carriageway width of 5 m and it is noted that there are no footpath or cycle facilities on this road. The forecast two-way AADT for this roadway (2024) is 60. This will be compared against the new survey data for confirmation. It is well below the maximum acceptable value, and this road is deemed as having sufficient capacity for this time period.

Table 12.7 below shows combined AADT figures for the assessment years on the L8373.

Table 12.7 – Combined AADT for Assessment Years 2020 - 2023, L8373

AADT Forecast for Future Years	2020	2021	2022	2023
Background Traffic	52	54	56	58
Quarry Traffic	0	0	0	0
Combined Traffic (Background & Quarry)	52	54	56	58
Quarry Traffic as Percentage of Overall Traffic	0%	0%	0%	0%

12.5.1.4 Junction Capacity Analysis

WSP has carried out an initial assessment of the existing junction using the industry standard Junctions 9 program. Junctions 9 provides an indication of the performance of a junction in terms of the Ratio of Flow to Capacity (RFC) and queue length on the approaches to the junction. An RFC value of 0.85 (85%) is considered to indicate a junction which is operating within capacity.

Junction capacity is measured as a RFC. The capacity analysis has been carried out for the peak operational hours for traffic, with assessment years of 2021. A rural junction with an RFC of below 0.85 is considered to be operating within capacity, and an RFC of 0.85 or above indicates a junction operating at or over capacity.

The detailed junction capacity analysis output for the analysed junction, for each of the assessment years, is included with this report, in Appendix 12C.

N81/L8373/Quarry Access Crossroads

A summary of the junction capacity analysis results for the N81/L8373/Quarry Access junction is shown in Table 12.8 below. The results indicate that as of 2024, the junction is performing within capacity.

Table 12.8 – Junction Capacity Analysis Results for the N81/Quarry Access/L8373

2024 (Without Quarry)	AM Peak – 07:15 – 08:15		PM Peak – 16:45 – 17:45	
	Queue (Veh)	RFC	Queue (Veh)	RFC
L8373 -N81 (S)/Quarry Access	0.0	0.01	0.1	0.05
L8373 – N81 (N)/Quarry Access	0.2	0.14	0.1	0.07
N81(N) – L8373/N81(S)/L8373	0.0	0.00	0.0	0.00
Quarry Access – N81(N)/L8373	0.0	0.00	0.0	0.00
Quarry Access – L8373/N81(S)	0.0	0.00	0.0	0.00
N81(S) – N81(N)/L8373/Quarry Access	0.0	0.03	0.0	0.01
2024 (With Quarry)	AM Peak – 07:15 – 08:15		PM Peak – 16:45 – 17:45	
	Queue (PCU)	RFC	Queue (PCU)	RFC
L8373 -N81 (S)/Quarry Access	0.0	0.01	0.1	0.05
L8373 – N81 (N)/Quarry Access	0.2	0.14	0.1	0.07
N81(N) – L8373/N81(S)/L8373	0.0	0.00	0.0	0.00
Quarry Access – N81(N)/L8373	0.0	0.00	0.0	0.01
Quarry Access – L8373/N81(S)	0.0	0.00	0.1	0.05
N81(S) – N81(N)/L8373/Quarry Access	0.1	0.05	0.0	0.04

12.5.1.5 Assessment of Significance – Road Impacts

Link capacity analysis was carried out on the N81 national road and the L8373 local road within the vicinity of the quarry. It was determined that the L8373 continued to operate within capacity for the time period of 2020 to 2024. The N81 historically has been operating over capacity. Checks against TII count sites on the N81 – specifically sites TMU N81 010.0 S (N81 between Blessington and Tallaght, South of R114 Jn, Co. Wicklow) and TMU N81 040.0 N (N81 between Hollywood and Baltinglass, Donard, Co. Wicklow) have demonstrated a significant drop in actual baseline traffic – likely due to COVID-19 lockdowns. On this basis, it is apparent that traffic figures are only now normalising, and the traffic impact has been lower in comparison to the assumptions made in the PMCE 2020 site review.

Junction Capacity Analysis was undertaken at the junction of the N81 and the local access road to the quarry. The results of the Junction Capacity Analysis indicate that the access is operating within capacity for the time period 2020 – 2023.

The effect of operational traffic from the Site during the assessment period is considered to be ‘Imperceptible’ or ‘An effect capable of measurement but without significant consequences’, (EPA, 2022). As such road impacts of the Development are ‘Not Significant’.

12.5.2 ROAD SAFETY

12.5.2.1 Site Access

Currently, there are no road markings or signage at the quarry access to indicate a priority junction. A stop sign and road markings were proposed to be installed to before entering the N81 carriageway. As per the recommendation of the 2020 RSA Stage 1 and 2 (submitted as part of Planning Ref.: 20/532), it is not proposed to place any road signs on the N81 to identify the quarry access road. Similarly, a drainage scheme had been designed for the access road – to ensure management of any excess surface water flow onto the access road, or from the road access onto adjacent land – this was included in previous transport and traffic correspondence with Kildare County Council. The reader is reminded that a concurrent Section 37L application with accompanying EIAR is to be submitted and can only be sought for the future development of the Site as a quarry. As such it is proposed that the aforementioned markings and signage would be proposed under separate permission.

It is noted that there is an existing dust reduction system extant on the access road, on the quarry side of the weigh bridge.

12.5.2.2 Sightlines and Visibility

The entrance to the quarry is via a local access road on the western side of the N81. Traffic travelling on the N81 has priority over traffic entering or exiting the site. The posted speed limit for the N81 at this location is 100 kph.

Sightlines have been assessed against Section 5.6.3 of TII Publications document DN-GEO-03060, which requires 215m of unobstructed visibility (where the design speed is 100 kph), viewed from a point 3m back from the edge of the carriageway. It should be noted that in the 2007 TTA, the then NRA standards required a point 4.5 metres back from the edge of major road on the minor arm, and this was also achieved. Road geometry has not changed since then, and the conditions remain unchanged, meaning visibility requirements are satisfied.

The available visibility to the left and to the right exceeds the 215 m visibility required for the design speed of 100kph and is deemed to be sufficient for the N81 posted speed limit at this location. The sightlines are illustrated in Appendix 12D of this report.

12.5.2.3 Public Transport

Bus stops are provided within close proximity to the quarry access on the N81. Bus stops identified as 4022 and 4057 are to the north on the N81 within 100m of the site access. Stops 4055 and 4023, similarly, are within 520 m to the south on the N81 road. Best practice for bus stop availability for major developments requires a distance no greater than 400 m where possible. These stops are served by Dublin Bus service route 65 which operates between terminus points in Dublin and Blessington. These bus stops are hardstanding areas with no shelters, hailing poles and raised kerbs, these are hail stops as opposed to scheduled stops.

12.5.2.4 Parking

The quarry employs approximately 46 full-time staff and caters for up to 26 contracted drivers during periods of high demand. There are currently 20 formal parking spaces within the site adjacent to the site offices and a further overflow area for additional parking is also provided. The formal parking provision, combined with the overflow space provides sufficient parking capacity for operations on site.

12.5.2.5 Pedestrians and Cyclists

A pedestrian footpath is provided on the eastern side of the N81 for approximately 330m between the L8371 and L8373 local roads, linking local residences on the N81 and bus stops. As noted before, no pedestrian crossing facilities are provided across the N81 in the vicinity of the junction. There are areas of hardstanding at the adjacent bus stops on the N81 to the site. Internally to the site, improvements are to be made in order to facilitate movements between formalised car parking area and the site office area – with reduced gradient and appropriate surface material. This is as per the recommendations within the 2020 Stage 1 and 2 Road Safety Audit, submitted as part of Planning Ref.: 20/532.

There are no current cycle lanes or other facilities on the N81, nor are there any bespoke cycling facilities on site. It is proposed to construct a covered Sheffield Stand type cycle storage bay adjacent to the site office, with signage on the access road identifying the possibility of cyclists, warning other road users of the hazard. These proposals would be submitted as a separate application.

12.5.2.6 Assessment of Significance – Road Safety

Sightlines have been assessed against Section 5.6.3 of the TII Publications document DN-GEO-03060, which requires a minimum of 215 metres of unobstructed visibility (where the design speed is 100kph) at a point 3.0 metres back from the edge of carriageway. The available visibility exceeds this distance to the left satisfying this requirement. This was confirmed as part of the 2007 Trafficwise Traffic and Transport Assessment.

Between formal parking and overflow parking capacity, there is sufficient parking capacity to allow for staff and visitors to site;

The effect of the Site on road safety during the assessment periods is considered to be 'Imperceptible' or 'An effect capable of measurement but without significant consequences', (EPA, 2022). As such road safety impacts of the Development are 'Not Significant'.

12.6 CONSIDERATION OF THIRD-PARTY SUBMISSIONS MADE DURING THE HBL 2020 PLANNING APPLICATION (KCC REG. REF.: 20/532)

Following the submission of the 2020 planning application (KCC Reg. Ref.:20/532), a number of third-party submissions were received by KCC. These third party submissions were considered as part of the Further Information response submitted to KCC prior to the invalidation of the application in September 2020. In the compilation of this section these submissions, concerns and points of note have been addressed in this assessment. Table 12.9 below provides a general summary of these submissions, concerns, and details where or how this item has been considered.

Table 12.9 – Third Party Submission Response

Submission Item Summary	Comment
<p>Increase in expected traffic volumes on local roads, prospect of HGVs going through Blessington, and road safety concerns</p>	<p>HGV traffic will follow the established practices and trip distribution for the HBL quarry. As has been demonstrated in section 12.3.7, northbound traffic amounts to 78.66% of impact on local roads network, with the remainder, 21.34% south bound on the N81 via Blessington.</p> <p>Additionally, this also establishes the percentage impact of the quarry on the N81 southbound at a maximum of 0.34% increase in HGV traffic, reducing over time relative to the baseline traffic conditions.</p> <p>This is not a significant increase in traffic impact.</p>

12.7 REMEDIAL MEASURES REQUIRED

There are no remedial measures required to be undertaken.

12.8 RESIDUAL EFFECTS

There are no residual effects as a result of effects during the assessment period.

12.9 CUMULATIVE EFFECTS

Cumulative effects have been considered in the assessment as part of background traffic measured and as part of the AADT for the assessment period.

12.10 MONITORING

Periodic checks of vehicles and internal traffic safety arrangements are undertaken as part of the Site's management. No other monitoring of traffic and transport is recommended.

12.11 DIFFICULTIES ENCOUNTERED

No particular difficulties were encountered in undertaking this assessment of traffic and transport at the Site during the assessment period.

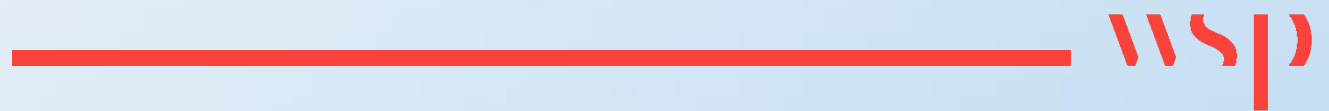
Appendix 12A

TRAFFIC COUNT DATA



Appendix 12B

TRAFFIC SURVEY



Junctions 9

PICADY 9 - Priority Intersection Module

Version: 9.5.1.7462
© Copyright TRL Limited, 2019

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

The users of this computer program for the solution of an engineering problem are in no way relieved of their responsibility for the correctness of the solution

Filename: N81_Site Access junction.j9

Path: C:\Users\UKAPS002\Desktop\Hudson Brothers Ltd Quarry - Belfast Work

Report generation date: 22/02/2024 14:08:06

- »N81_L8373_Quarry Access Junction - 2024 (without Quarry), AM
- »N81_L8373_Quarry Access Junction - 2024 (without Quarry), PM
- »N81_L8373_Quarry Access Junction - 2024 (with Quarry), AM
- »N81_L8373_Quarry Access Junction - 2024 (with Quarry), PM
- »N81_L8373_Quarry Access Junction - 2029 (without Quarry), AM
- »N81_L8373_Quarry Access Junction - 2029 (without Quarry), PM
- »N81_L8373_Quarry Access Junction - 2029 (with Quarry), AM
- »N81_L8373_Quarry Access Junction - 2029 (with Quarry), PM
- »N81_L8373_Quarry Access Junction - 2039 (without Quarry), AM
- »N81_L8373_Quarry Access Junction - 2039 (without Quarry), PM
- »N81_L8373_Quarry Access Junction - 2039 (with Quarry), AM
- »N81_L8373_Quarry Access Junction - 2039 (with Quarry), PM

Summary of junction performance

	AM		PM	
	Queue (PCU)	RFC	Queue (PCU)	RFC
N81_L8373_Quarry Access Junction - 2024 (without Quarry)				
Stream B-CD	0.0	0.01	0.1	0.05
Stream B-AD	0.2	0.14	0.1	0.07
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.00	0.0	0.00
Stream D-BC	0.0	0.00	0.0	0.00
Stream C-ABD	0.0	0.03	0.0	0.01
N81_L8373_Quarry Access Junction - 2024 (with Quarry)				
Stream B-CD	0.0	0.01	0.1	0.05
Stream B-AD	0.2	0.14	0.1	0.07
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.02	0.0	0.02
Stream D-BC	0.1	0.10	0.1	0.11
Stream C-ABD	0.1	0.09	0.1	0.06
N81_L8373_Quarry Access Junction - 2029 (without Quarry)				
Stream B-CD	0.0	0.01	0.1	0.06
Stream B-AD	0.3	0.21	0.1	0.10
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.00	0.0	0.00

Stream D-BC	0.0	0.00	0.0	0.00
Stream C-ABD	0.0	0.05	0.0	0.04
N81_L8373_Quarry Access Junction - 2029 (with Quarry)				
Stream B-CD	0.0	0.01	0.1	0.06
Stream B-AD	0.3	0.22	0.1	0.10
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.02	0.0	0.02
Stream D-BC	0.1	0.12	0.2	0.14
Stream C-ABD	0.1	0.11	0.1	0.07
N81_L8373_Quarry Access Junction - 2039 (without Quarry)				
Stream B-CD	0.0	0.02	0.1	0.08
Stream B-AD	0.5	0.35	0.2	0.14
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.00	0.0	0.00
Stream D-BC	0.0	0.00	0.0	0.00
Stream C-ABD	0.1	0.07	0.0	0.03
N81_L8373_Quarry Access Junction - 2039 (with Quarry)				
Stream B-CD	0.0	0.02	0.1	0.08
Stream B-AD	0.6	0.39	0.2	0.14
Stream A-BCD	0.0	0.00	0.0	0.00
Stream D-AB	0.0	0.03	0.0	0.03
Stream D-BC	0.2	0.14	0.2	0.18
Stream C-ABD	0.2	0.15	0.1	0.08

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

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

File summary

File Description

Title	
Location	
Site number	
Date	03/12/2023
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	CORPUKAPS002
Description	

Units

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

Analysis Options

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)	Run automatically
D1	2024 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D2	2024 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓
D3	2024 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D4	2024 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓
D5	2029 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D6	2029 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓
D7	2029 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D8	2029 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓
D9	2039 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D10	2039 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓
D11	2039 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓
D12	2039 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

N81_L8373_Quarry Access Junction - 2024 (without Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.50	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	622	0.100	0.253	0.253	-	-	-	0.159	0.361	-	0.253	0.253	0.126
B-C	613	0.083	0.210	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	495	0.080	0.201	0.201	-	-	-	0.127	0.288	0.127	-	-	-
B-D, offside lane	622	0.100	0.253	0.253	-	-	-	0.159	0.361	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D1	2024 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	981	100.000
B - Quarry Access		ONE HOUR	✓	40	100.000
C - N81 North		ONE HOUR	✓	271	100.000
D - L8373		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	18	963	0
	B - Quarry Access	37	0	3	0
	C - N81 North	256	13	0	2
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.01	9.68	0.0	A	3	4
B-AD	0.14	13.80	0.2	B	34	51
A-BCD	0.00	0.00	0.0	A	0	0
A-B					17	25
A-C					884	1325
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0
C-ABD	0.03	7.90	0.0	A	12	18
C-D					2	3
C-A					235	352

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	452	0.005	2	0.0	0.0	8.011	A
B-AD	28	7	403	0.069	28	0.0	0.1	9.592	A
A-BCD	0	0	1227	0.000	0	0.0	0.0	0.000	A
A-B	14	3			14				
A-C	725	181			725				
D-AB	0	0	457	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	365	0.000	0	0.0	0.0	0.000	A

C-ABD	10	2	557	0.018	10	0.0	0.0	6.575	A
C-D	2	0.38			2				
C-A	193	48			193				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	420	0.006	3	0.0	0.0	8.630	A
B-AD	33	8	360	0.092	33	0.1	0.1	10.998	B
A-BCD	0	0	1209	0.000	0	0.0	0.0	0.000	A
A-B	16	4			16				
A-C	866	216			866				
D-AB	0	0	434	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	338	0.000	0	0.0	0.0	0.000	A
C-ABD	12	3	521	0.022	12	0.0	0.0	7.072	A
C-D	2	0.45			2				
C-A	230	58			230				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	375	0.009	3	0.0	0.0	9.673	A
B-AD	41	10	302	0.135	41	0.1	0.2	13.775	B
A-BCD	0	0	1184	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1060	265			1060				
D-AB	0	0	400	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	301	0.000	0	0.0	0.0	0.000	A
C-ABD	14	4	470	0.030	14	0.0	0.0	7.899	A
C-D	2	0.55			2				
C-A	282	70			282				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	375	0.009	3	0.0	0.0	9.676	A
B-AD	41	10	302	0.135	41	0.2	0.2	13.797	B
A-BCD	0	0	1184	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1060	265			1060				
D-AB	0	0	400	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	301	0.000	0	0.0	0.0	0.000	A
C-ABD	14	4	470	0.030	14	0.0	0.0	7.899	A
C-D	2	0.55			2				
C-A	282	70			282				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	420	0.006	3	0.0	0.0	8.633	A
B-AD	33	8	360	0.092	33	0.2	0.1	11.018	B
A-BCD	0	0	1209	0.000	0	0.0	0.0	0.000	A
A-B	16	4			16				
A-C	866	216			866				

D-AB	0	0	434	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	338	0.000	0	0.0	0.0	0.000	A
C-ABD	12	3	521	0.022	12	0.0	0.0	7.076	A
C-D	2	0.45			2				
C-A	230	58			230				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	451	0.005	2	0.0	0.0	8.014	A
B-AD	28	7	403	0.069	28	0.1	0.1	9.606	A
A-BCD	0	0	1227	0.000	0	0.0	0.0	0.000	A
A-B	14	3			14				
A-C	725	181			725				
D-AB	0	0	457	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	365	0.000	0	0.0	0.0	0.000	A
C-ABD	10	2	557	0.018	10	0.0	0.0	6.576	A
C-D	2	0.38			2				
C-A	193	48			193				

N81_L8373_Quarry Access Junction - 2024 (without Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.38	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major

B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	550	0.088	0.224	0.224	-	-	-	0.141	0.319	-	0.224	0.224	0.112
B-C	702	0.095	0.240	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	567	0.091	0.231	0.231	-	-	-	0.145	0.329	0.145	-	-	-
B-D, offside lane	550	0.088	0.224	0.224	-	-	-	0.141	0.319	0.141	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D2	2024 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	375	100.000
B - Quarry Access		ONE HOUR	✓	47	100.000
C - N81 North		ONE HOUR	✓	770	100.000

D - L8373		ONE HOUR	✓	0	100.000
-----------	--	----------	---	---	---------

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	9	366	0
	B - Quarry Access	21	0	25	1
	C - N81 North	758	8	0	4
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.05	6.47	0.1	A	23	35
B-AD	0.07	11.42	0.1	B	20	30
A-BCD	0.00	0.00	0.0	A	0	0
A-B					8	12
A-C					336	504
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0
C-ABD	0.01	5.70	0.0	A	7	11
C-D					4	6
C-A					696	1043

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	622	0.031	19	0.0	0.0	5.969	A
B-AD	16	4	405	0.040	16	0.0	0.0	9.241	A

A-BCD	0	0	1058	0.000	0	0.0	0.0	0.000	A
A-B	7	2			7				
A-C	276	69			276				
D-AB	0	0	418	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	345	0.000	0	0.0	0.0	0.000	A
C-ABD	6	2	674	0.009	6	0.0	0.0	5.391	A
C-D	3	0.75			3				
C-A	571	143			571				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	606	0.038	23	0.0	0.0	6.171	A
B-AD	19	5	377	0.051	19	0.0	0.1	10.048	B
A-BCD	0	0	1007	0.000	0	0.0	0.0	0.000	A
A-B	8	2			8				
A-C	329	82			329				
D-AB	0	0	389	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	315	0.000	0	0.0	0.0	0.000	A
C-ABD	7	2	660	0.011	7	0.0	0.0	5.517	A
C-D	4	0.90			4				
C-A	681	170			681				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	584	0.048	28	0.0	0.1	6.473	A
B-AD	24	6	339	0.070	24	0.1	0.1	11.419	B
A-BCD	0	0	936	0.000	0	0.0	0.0	0.000	A
A-B	10	2			10				
A-C	403	101			403				
D-AB	0	0	347	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	273	0.000	0	0.0	0.0	0.000	A
C-ABD	9	2	640	0.014	9	0.0	0.0	5.700	A
C-D	4	1			4				
C-A	835	209			835				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	584	0.048	28	0.1	0.1	6.475	A
B-AD	24	6	339	0.070	24	0.1	0.1	11.421	B
A-BCD	0	0	936	0.000	0	0.0	0.0	0.000	A
A-B	10	2			10				
A-C	403	101			403				
D-AB	0	0	347	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	273	0.000	0	0.0	0.0	0.000	A
C-ABD	9	2	640	0.014	9	0.0	0.0	5.700	A
C-D	4	1			4				
C-A	835	209			835				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
--------	-----------------------	-------------------------	-------------------	-----	---------------------	-------------------	-----------------	-----------	-------------------------------

B-CD	23	6	606	0.038	23	0.1	0.0	6.177	A
B-AD	19	5	378	0.051	19	0.1	0.1	10.050	B
A-BCD	0	0	1007	0.000	0	0.0	0.0	0.000	A
A-B	8	2			8				
A-C	329	82			329				
D-AB	0	0	389	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	315	0.000	0	0.0	0.0	0.000	A
C-ABD	7	2	660	0.011	7	0.0	0.0	5.517	A
C-D	4	0.90			4				
C-A	681	170			681				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	622	0.031	19	0.0	0.0	5.979	A
B-AD	16	4	406	0.040	16	0.1	0.0	9.247	A
A-BCD	0	0	1058	0.000	0	0.0	0.0	0.000	A
A-B	7	2			7				
A-C	276	69			276				
D-AB	0	0	418	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	345	0.000	0	0.0	0.0	0.000	A
C-ABD	6	2	674	0.009	6	0.0	0.0	5.394	A
C-D	3	0.75			3				
C-A	571	143			571				

N81_L8373_Quarry Access Junction - 2024 (with Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.98	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	622	0.100	0.253	0.253	-	-	-	0.159	0.361	-	0.253	0.253	0.126
B-C	613	0.083	0.210	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	495	0.080	0.201	0.201	-	-	-	0.127	0.288	0.127	-	-	-
B-D, offside lane	622	0.100	0.253	0.253	-	-	-	0.159	0.361	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D3	2024 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	988	100.000
B - Quarry Access		ONE HOUR	✓	40	100.000
C - N81 North		ONE HOUR	✓	296	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	25	963	0
	B - Quarry Access	37	0	3	0
	C - N81 North	256	38	0	2
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.01	9.71	0.0	A	3	4
B-AD	0.14	14.72	0.2	B	34	51
A-BCD	0.00	0.00	0.0	A	0	0
A-B					23	34
A-C					884	1325
D-AB	0.02	14.69	0.0	B	3	5
D-BC	0.10	13.25	0.1	B	26	39
C-ABD	0.09	8.45	0.1	A	35	52
C-D					2	3
C-A					235	352

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	451	0.005	2	0.0	0.0	8.023	A
B-AD	28	7	392	0.071	28	0.0	0.1	9.874	A
A-BCD	0	0	1215	0.000	0	0.0	0.0	0.000	A
A-B	19	5			19				
A-C	725	181			725				
D-AB	3	0.69	308	0.009	3	0.0	0.0	11.790	B
D-BC	21	5	370	0.058	21	0.0	0.1	10.307	B
C-ABD	29	7	556	0.051	28	0.0	0.1	6.821	A
C-D	2	0.38			2				
C-A	193	48			193				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	419	0.006	3	0.0	0.0	8.649	A
B-AD	33	8	347	0.096	33	0.1	0.1	11.463	B
A-BCD	0	0	1195	0.000	0	0.0	0.0	0.000	A
A-B	22	6			22				
A-C	866	216			866				
D-AB	3	0.84	283	0.012	3	0.0	0.0	12.856	B
D-BC	25	6	342	0.074	25	0.1	0.1	11.372	B
C-ABD	34	9	519	0.066	34	0.1	0.1	7.424	A
C-D	2	0.45			2				
C-A	230	58			230				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	374	0.009	3	0.0	0.0	9.710	A
B-AD	41	10	285	0.143	41	0.1	0.2	14.690	B
A-BCD	0	0	1166	0.000	0	0.0	0.0	0.000	A
A-B	28	7			28				
A-C	1060	265			1060				
D-AB	4	1	249	0.017	4	0.0	0.0	14.688	B
D-BC	31	8	303	0.102	31	0.1	0.1	13.235	B
C-ABD	42	10	468	0.089	42	0.1	0.1	8.442	A
C-D	2	0.55			2				
C-A	282	70			282				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	374	0.009	3	0.0	0.0	9.712	A
B-AD	41	10	285	0.143	41	0.2	0.2	14.718	B
A-BCD	0	0	1166	0.000	0	0.0	0.0	0.000	A
A-B	28	7			28				
A-C	1060	265			1060				
D-AB	4	1	249	0.017	4	0.0	0.0	14.691	B
D-BC	31	8	303	0.102	31	0.1	0.1	13.250	B
C-ABD	42	10	468	0.089	42	0.1	0.1	8.446	A
C-D	2	0.55			2				
C-A	282	70			282				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	419	0.006	3	0.0	0.0	8.654	A
B-AD	33	8	347	0.096	33	0.2	0.1	11.489	B
A-BCD	0	0	1194	0.000	0	0.0	0.0	0.000	A
A-B	22	6			22				
A-C	866	216			866				
D-AB	3	0.84	283	0.012	3	0.0	0.0	12.863	B
D-BC	25	6	342	0.074	26	0.1	0.1	11.388	B
C-ABD	34	9	519	0.066	34	0.1	0.1	7.430	A
C-D	2	0.45			2				
C-A	230	58			230				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	451	0.005	2	0.0	0.0	8.027	A
B-AD	28	7	392	0.071	28	0.1	0.1	9.900	A
A-BCD	0	0	1215	0.000	0	0.0	0.0	0.000	A
A-B	19	5			19				
A-C	725	181			725				
D-AB	3	0.69	308	0.009	3	0.0	0.0	11.797	B
D-BC	21	5	370	0.058	21	0.1	0.1	10.329	B
C-ABD	29	7	556	0.051	29	0.1	0.1	6.828	A
C-D	2	0.38			2				
C-A	193	48			193				

N81_L8373_Quarry Access Junction - 2024 (with Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.88	A

Junction Network Options

Driving side	Lighting
--------------	----------

Left	Normal/unknown
------	----------------

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	550	0.088	0.224	0.224	-	-	-	0.141	0.319	-	0.224	0.224	0.112
B-C	702	0.095	0.240	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	567	0.091	0.231	0.231	-	-	-	0.145	0.329	0.145	-	-	-
B-D, offside lane	550	0.088	0.224	0.224	-	-	-	0.141	0.319	0.141	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D4	2024 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	382	100.000
B - Quarry Access		ONE HOUR	✓	47	100.000
C - N81 North		ONE HOUR	✓	796	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	16	366	0
	B - Quarry Access	21	0	25	1
	C - N81 North	758	34	0	4
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.05	6.50	0.1	A	23	35
B-AD	0.07	11.98	0.1	B	20	30
A-BCD	0.00	0.00	0.0	A	0	0
A-B					15	22
A-C					336	504
D-AB	0.02	16.22	0.0	C	3	5
D-BC	0.11	14.98	0.1	B	26	39
C-ABD	0.06	5.99	0.1	A	31	47
C-D					4	6
C-A					696	1043

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	621	0.031	19	0.0	0.0	5.978	A
B-AD	16	4	395	0.041	16	0.0	0.0	9.483	A
A-BCD	0	0	1046	0.000	0	0.0	0.0	0.000	A
A-B	12	3			12				
A-C	276	69			276				
D-AB	3	0.69	292	0.010	3	0.0	0.0	12.429	B
D-BC	21	5	349	0.061	21	0.0	0.1	10.988	B
C-ABD	26	6	672	0.038	25	0.0	0.0	5.563	A
C-D	3	0.75			3				
C-A	571	143			571				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	605	0.038	23	0.0	0.0	6.184	A
B-AD	19	5	366	0.053	19	0.0	0.1	10.394	B
A-BCD	0	0	992	0.000	0	0.0	0.0	0.000	A
A-B	14	4			14				
A-C	329	82			329				
D-AB	3	0.84	265	0.013	3	0.0	0.0	13.779	B
D-BC	25	6	316	0.080	25	0.1	0.1	12.370	B
C-ABD	31	8	658	0.046	31	0.0	0.0	5.736	A
C-D	4	0.90			4				
C-A	681	170			681				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	582	0.048	28	0.0	0.1	6.494	A
B-AD	24	6	324	0.073	24	0.1	0.1	11.973	B
A-BCD	0	0	918	0.000	0	0.0	0.0	0.000	A
A-B	18	4			18				
A-C	403	101			403				
D-AB	4	1	226	0.019	4	0.0	0.0	16.212	C
D-BC	31	8	271	0.114	31	0.1	0.1	14.954	B
C-ABD	37	9	638	0.059	37	0.0	0.1	5.990	A
C-D	4	1			4				
C-A	835	209			835				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	582	0.048	28	0.1	0.1	6.496	A
B-AD	24	6	324	0.073	24	0.1	0.1	11.978	B
A-BCD	0	0	918	0.000	0	0.0	0.0	0.000	A
A-B	18	4			18				
A-C	403	101			403				
D-AB	4	1	226	0.019	4	0.0	0.0	16.218	C
D-BC	31	8	271	0.114	31	0.1	0.1	14.976	B

C-ABD	37	9	638	0.059	37	0.1	0.1	5.990	A
C-D	4	1			4				
C-A	835	209			835				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	605	0.038	23	0.1	0.0	6.191	A
B-AD	19	5	366	0.053	19	0.1	0.1	10.398	B
A-BCD	0	0	992	0.000	0	0.0	0.0	0.000	A
A-B	14	4			14				
A-C	329	82			329				
D-AB	3	0.84	265	0.013	3	0.0	0.0	13.785	B
D-BC	25	6	316	0.080	26	0.1	0.1	12.393	B
C-ABD	31	8	658	0.046	31	0.1	0.0	5.737	A
C-D	4	0.90			4				
C-A	681	170			681				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	19	5	621	0.031	19	0.0	0.0	5.989	A
B-AD	16	4	396	0.041	16	0.1	0.0	9.491	A
A-BCD	0	0	1045	0.000	0	0.0	0.0	0.000	A
A-B	12	3			12				
A-C	276	69			276				
D-AB	3	0.69	292	0.010	3	0.0	0.0	12.439	B
D-BC	21	5	349	0.061	21	0.1	0.1	11.007	B
C-ABD	26	6	672	0.038	26	0.0	0.0	5.566	A
C-D	3	0.75			3				
C-A	571	143			571				

N81_L8373_Quarry Access Junction - 2029 (without Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
----------	------	---------------	----------------------	-----------------------	--------------------	--------------

1	untitled	Crossroads	Two-way		0.66	A
---	----------	------------	---------	--	------	---

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	623	0.100	0.253	0.253	-	-	-	0.159	0.362	-	0.253	0.253	0.127
B-C	611	0.083	0.209	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	494	0.079	0.201	0.201	-	-	-	0.126	0.287	0.126	-	-	-
B-D, offside lane	623	0.100	0.253	0.253	-	-	-	0.159	0.362	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D5	2029 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	1181	100.000
B - Quarry Access		ONE HOUR	✓	47	100.000
C - N81 North		ONE HOUR	✓	328	100.000
D - L8373		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	22	1159	0
	B - Quarry Access	44	0	3	0
	C - N81 North	309	17	0	2
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.01	11.22	0.0	B	3	4
B-AD	0.21	19.17	0.3	C	40	61
A-BCD	0.00	0.00	0.0	A	0	0
A-B					20	30
A-C					1064	1595
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0
C-ABD	0.05	9.11	0.0	A	16	23
C-D					2	3
C-A					284	425

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	418	0.005	2	0.0	0.0	8.669	A
B-AD	33	8	358	0.092	33	0.0	0.1	11.038	B
A-BCD	0	0	1207	0.000	0	0.0	0.0	0.000	A
A-B	17	4			17				
A-C	873	218			873				
D-AB	0	0	432	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	337	0.000	0	0.0	0.0	0.000	A
C-ABD	13	3	519	0.025	13	0.0	0.0	7.111	A
C-D	2	0.38			2				
C-A	233	58			233				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	379	0.007	3	0.0	0.0	9.568	A
B-AD	40	10	307	0.129	39	0.1	0.1	13.435	B
A-BCD	0	0	1185	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1042	260			1042				
D-AB	0	0	403	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	305	0.000	0	0.0	0.0	0.000	A
C-ABD	15	4	475	0.032	15	0.0	0.0	7.835	A
C-D	2	0.45			2				
C-A	278	69			278				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	324	0.010	3	0.0	0.0	11.210	B
B-AD	48	12	236	0.205	48	0.1	0.3	19.091	C
A-BCD	0	0	1155	0.000	0	0.0	0.0	0.000	A
A-B	24	6			24				
A-C	1276	319			1276				
D-AB	0	0	360	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	260	0.000	0	0.0	0.0	0.000	A
C-ABD	19	5	414	0.045	19	0.0	0.0	9.109	A
C-D	2	0.55			2				
C-A	340	85			340				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	324	0.010	3	0.0	0.0	11.216	B
B-AD	48	12	236	0.205	48	0.3	0.3	19.174	C

A-BCD	0	0	1155	0.000	0	0.0	0.0	0.000	A
A-B	24	6			24				
A-C	1276	319			1276				
D-AB	0	0	360	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	260	0.000	0	0.0	0.0	0.000	A
C-ABD	19	5	414	0.045	19	0.0	0.0	9.111	A
C-D	2	0.55			2				
C-A	340	85			340				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	379	0.007	3	0.0	0.0	9.576	A
B-AD	40	10	307	0.129	40	0.3	0.2	13.498	B
A-BCD	0	0	1185	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1042	260			1042				
D-AB	0	0	403	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	305	0.000	0	0.0	0.0	0.000	A
C-ABD	15	4	475	0.032	15	0.0	0.0	7.838	A
C-D	2	0.45			2				
C-A	278	69			278				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	417	0.005	2	0.0	0.0	8.675	A
B-AD	33	8	358	0.092	33	0.2	0.1	11.080	B
A-BCD	0	0	1207	0.000	0	0.0	0.0	0.000	A
A-B	17	4			17				
A-C	873	218			873				
D-AB	0	0	432	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	337	0.000	0	0.0	0.0	0.000	A
C-ABD	13	3	519	0.025	13	0.0	0.0	7.115	A
C-D	2	0.38			2				
C-A	233	58			233				

N81_L8373_Quarry Access Junction - 2029 (without Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.47	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	549	0.088	0.223	0.223	-	-	-	0.140	0.319	-	0.223	0.223	0.112
B-C	703	0.095	0.241	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	568	0.091	0.231	0.231	-	-	-	0.145	0.330	0.145	-	-	-
B-D, offside lane	549	0.088	0.223	0.223	-	-	-	0.140	0.319	0.140	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D6	2029 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	454	100.000
B - Quarry Access		ONE HOUR	✓	56	100.000
C - N81 North		ONE HOUR	✓	937	100.000
D - L8373		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	14	440	0
	B - Quarry Access	25	0	30	1
	C - N81 North	912	20	0	5
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.06	6.83	0.1	A	28	42
B-AD	0.10	13.66	0.1	B	23	35
A-BCD	0.00	0.00	0.0	A	0	0
A-B					13	19
A-C					404	606
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0

C-ABD	0.04	6.04	0.0	A	18	28
C-D					5	7
C-A					837	1255

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	608	0.038	23	0.0	0.0	6.152	A
B-AD	19	5	373	0.051	19	0.0	0.1	10.170	B
A-BCD	0	0	1000	0.000	0	0.0	0.0	0.000	A
A-B	11	3			11				
A-C	331	83			331				
D-AB	0	0	386	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	312	0.000	0	0.0	0.0	0.000	A
C-ABD	15	4	658	0.023	15	0.0	0.0	5.594	A
C-D	4	0.94			4				
C-A	687	172			687				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	27	7	588	0.047	27	0.0	0.0	6.416	A
B-AD	23	6	339	0.068	23	0.1	0.1	11.395	B
A-BCD	0	0	937	0.000	0	0.0	0.0	0.000	A
A-B	13	3			13				
A-C	396	99			396				
D-AB	0	0	349	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	275	0.000	0	0.0	0.0	0.000	A
C-ABD	18	4	642	0.028	18	0.0	0.0	5.772	A
C-D	4	1			4				
C-A	820	205			820				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	34	8	561	0.060	34	0.0	0.1	6.826	A
B-AD	28	7	291	0.096	28	0.1	0.1	13.654	B
A-BCD	0	0	851	0.000	0	0.0	0.0	0.000	A
A-B	15	4			15				
A-C	484	121			484				
D-AB	0	0	297	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	224	0.000	0	0.0	0.0	0.000	A
C-ABD	22	6	618	0.036	22	0.0	0.0	6.038	A
C-D	6	1			6				

C-A	1004	251			1004				
-----	------	-----	--	--	------	--	--	--	--

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	34	8	561	0.060	34	0.1	0.1	6.829	A
B-AD	28	7	291	0.096	28	0.1	0.1	13.662	B
A-BCD	0	0	851	0.000	0	0.0	0.0	0.000	A
A-B	15	4			15				
A-C	484	121			484				
D-AB	0	0	297	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	224	0.000	0	0.0	0.0	0.000	A
C-ABD	22	6	618	0.036	22	0.0	0.0	6.038	A
C-D	6	1			6				
C-A	1004	251			1004				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	27	7	588	0.047	28	0.1	0.0	6.422	A
B-AD	23	6	339	0.068	23	0.1	0.1	11.404	B
A-BCD	0	0	937	0.000	0	0.0	0.0	0.000	A
A-B	13	3			13				
A-C	396	99			396				
D-AB	0	0	349	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	275	0.000	0	0.0	0.0	0.000	A
C-ABD	18	4	642	0.028	18	0.0	0.0	5.773	A
C-D	4	1			4				
C-A	820	205			820				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	607	0.038	23	0.0	0.0	6.163	A
B-AD	19	5	373	0.051	19	0.1	0.1	10.181	B
A-BCD	0	0	1000	0.000	0	0.0	0.0	0.000	A
A-B	11	3			11				
A-C	331	83			331				
D-AB	0	0	386	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	312	0.000	0	0.0	0.0	0.000	A
C-ABD	15	4	658	0.023	15	0.0	0.0	5.597	A
C-D	4	0.94			4				
C-A	687	172			687				

N81_L8373_Quarry Access Junction - 2029 (with Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		1.16	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51

D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135
-----------	---------------------	------	------	------	------	------	---	------	---	-----

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	623	0.100	0.253	0.253	-	-	-	0.159	0.362	-	0.253	0.253	0.127
B-C	611	0.083	0.209	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	494	0.079	0.201	0.201	-	-	-	0.126	0.287	0.126	-	-	-
B-D, offside lane	623	0.100	0.253	0.253	-	-	-	0.159	0.362	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D7	2029 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	1188	100.000
B - Quarry Access		ONE HOUR	✓	47	100.000
C - N81 North		ONE HOUR	✓	353	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	29	1159	0
	B - Quarry Access	44	0	3	0
	C - N81 North	309	42	0	2
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.01	11.29	0.0	B	3	4
B-AD	0.22	21.01	0.3	C	40	61
A-BCD	0.00	0.00	0.0	A	0	0
A-B					27	40
A-C					1064	1595
D-AB	0.02	17.20	0.0	C	3	5
D-BC	0.12	15.70	0.1	C	26	39
C-ABD	0.11	9.85	0.1	A	39	58
C-D					2	3
C-A					284	425

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	417	0.005	2	0.0	0.0	8.684	A
B-AD	33	8	347	0.095	33	0.0	0.1	11.424	B
A-BCD	0	0	1195	0.000	0	0.0	0.0	0.000	A
A-B	22	5			22				
A-C	873	218			873				
D-AB	3	0.70	284	0.010	3	0.0	0.0	12.812	B
D-BC	21	5	341	0.062	21	0.0	0.1	11.237	B
C-ABD	32	8	517	0.061	31	0.0	0.1	7.403	A
C-D	2	0.38			2				
C-A	233	58			233				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	378	0.007	3	0.0	0.0	9.596	A
B-AD	40	10	294	0.135	39	0.1	0.2	14.125	B
A-BCD	0	0	1171	0.000	0	0.0	0.0	0.000	A
A-B	26	7			26				
A-C	1042	260			1042				
D-AB	3	0.84	254	0.013	3	0.0	0.0	14.347	B
D-BC	25	6	307	0.083	25	0.1	0.1	12.767	B
C-ABD	38	9	473	0.080	38	0.1	0.1	8.264	A
C-D	2	0.45			2				
C-A	278	69			278				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	322	0.010	3	0.0	0.0	11.280	B
B-AD	48	12	220	0.220	48	0.2	0.3	20.883	C
A-BCD	0	0	1137	0.000	0	0.0	0.0	0.000	A
A-B	32	8			32				
A-C	1276	319			1276				
D-AB	4	1	214	0.020	4	0.0	0.0	17.192	C
D-BC	31	8	260	0.119	31	0.1	0.1	15.686	C
C-ABD	46	12	412	0.112	46	0.1	0.1	9.838	A
C-D	2	0.55			2				
C-A	340	85			340				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.83	322	0.010	3	0.0	0.0	11.288	B
B-AD	48	12	220	0.220	48	0.3	0.3	21.005	C
A-BCD	0	0	1137	0.000	0	0.0	0.0	0.000	A
A-B	32	8			32				
A-C	1276	319			1276				
D-AB	4	1	214	0.020	4	0.0	0.0	17.202	C
D-BC	31	8	260	0.119	31	0.1	0.1	15.703	C
C-ABD	46	12	412	0.112	46	0.1	0.1	9.846	A
C-D	2	0.55			2				
C-A	340	85			340				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.67	378	0.007	3	0.0	0.0	9.604	A
B-AD	40	10	294	0.135	40	0.3	0.2	14.216	B
A-BCD	0	0	1170	0.000	0	0.0	0.0	0.000	A

A-B	26	7			26				
A-C	1042	260			1042				
D-AB	3	0.85	254	0.013	3	0.0	0.0	14.356	B
D-BC	25	6	307	0.083	26	0.1	0.1	12.795	B
C-ABD	38	9	473	0.080	38	0.1	0.1	8.274	A
C-D	2	0.45			2				
C-A	278	69			278				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	2	0.56	417	0.005	2	0.0	0.0	8.689	A
B-AD	33	8	347	0.095	33	0.2	0.1	11.474	B
A-BCD	0	0	1195	0.000	0	0.0	0.0	0.000	A
A-B	22	5			22				
A-C	873	218			873				
D-AB	3	0.70	284	0.010	3	0.0	0.0	12.824	B
D-BC	21	5	341	0.062	21	0.1	0.1	11.267	B
C-ABD	32	8	517	0.061	32	0.1	0.1	7.412	A
C-D	2	0.38			2				
C-A	233	58			233				

N81_L8373_Quarry Access Junction - 2029 (with Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

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

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	549	0.088	0.223	0.223	-	-	-	0.140	0.319	-	0.223	0.223	0.112
B-C	703	0.095	0.241	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	568	0.091	0.231	0.231	-	-	-	0.145	0.330	0.145	-	-	-
B-D, offside lane	549	0.088	0.223	0.223	-	-	-	0.140	0.319	0.140	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D8	2029 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	459	100.000
B - Quarry Access		ONE HOUR	✓	56	100.000
C - N81 North		ONE HOUR	✓	954	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

	To				
	A - N81 South	B - Quarry Access	C - N81 North	D - L8373	
From	A - N81 South	0	19	440	0
	B - Quarry Access	25	0	30	1
	C - N81 North	912	37	0	5
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

	To				
	A - N81 South	B - Quarry Access	C - N81 North	D - L8373	
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.06	6.85	0.1	A	28	42
B-AD	0.10	14.27	0.1	B	23	35
A-BCD	0.00	0.00	0.0	A	0	0
A-B					17	26
A-C					404	606
D-AB	0.02	19.82	0.0	C	4	5
D-BC	0.14	18.77	0.2	C	26	39
C-ABD	0.07	6.25	0.1	A	34	51
C-D					5	7
C-A					837	1255

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	607	0.038	23	0.0	0.0	6.159	A
B-AD	19	5	365	0.053	19	0.0	0.1	10.394	B
A-BCD	0	0	991	0.000	0	0.0	0.0	0.000	A
A-B	14	4			14				
A-C	331	83			331				
D-AB	3	0.70	265	0.011	3	0.0	0.0	13.729	B
D-BC	21	5	315	0.068	21	0.0	0.1	12.215	B
C-ABD	28	7	657	0.042	28	0.0	0.0	5.714	A
C-D	4	0.94			4				
C-A	687	172			687				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	27	7	587	0.047	27	0.0	0.0	6.427	A
B-AD	23	6	329	0.069	23	0.1	0.1	11.736	B
A-BCD	0	0	927	0.000	0	0.0	0.0	0.000	A
A-B	17	4			17				
A-C	396	99			396				
D-AB	3	0.85	232	0.015	3	0.0	0.0	15.756	C
D-BC	25	6	277	0.092	25	0.1	0.1	14.321	B
C-ABD	33	8	640	0.052	33	0.0	0.1	5.929	A
C-D	4	1			4				
C-A	820	205			820				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	34	8	559	0.060	34	0.0	0.1	6.846	A
B-AD	28	7	280	0.100	28	0.1	0.1	14.263	B
A-BCD	0	0	838	0.000	0	0.0	0.0	0.000	A
A-B	21	5			21				
A-C	484	121			484				
D-AB	4	1	186	0.023	4	0.0	0.0	19.813	C
D-BC	31	8	223	0.139	31	0.1	0.2	18.718	C
C-ABD	41	10	617	0.066	41	0.1	0.1	6.249	A
C-D	6	1			6				
C-A	1004	251			1004				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	34	8	559	0.060	34	0.1	0.1	6.849	A
B-AD	28	7	280	0.100	28	0.1	0.1	14.274	B
A-BCD	0	0	838	0.000	0	0.0	0.0	0.000	A
A-B	21	5			21				
A-C	484	121			484				
D-AB	4	1	186	0.023	4	0.0	0.0	19.824	C
D-BC	31	8	223	0.139	31	0.2	0.2	18.766	C
C-ABD	41	10	617	0.066	41	0.1	0.1	6.249	A
C-D	6	1			6				
C-A	1004	251			1004				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	27	7	587	0.047	28	0.1	0.0	6.437	A
B-AD	23	6	330	0.069	23	0.1	0.1	11.748	B
A-BCD	0	0	927	0.000	0	0.0	0.0	0.000	A
A-B	17	4			17				
A-C	396	99			396				
D-AB	3	0.85	232	0.015	3	0.0	0.0	15.771	C
D-BC	25	6	276	0.092	26	0.2	0.1	14.361	B
C-ABD	33	8	640	0.052	33	0.1	0.1	5.930	A
C-D	4	1			4				
C-A	820	205			820				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	23	6	607	0.038	23	0.0	0.0	6.171	A
B-AD	19	5	365	0.053	19	0.1	0.1	10.406	B
A-BCD	0	0	991	0.000	0	0.0	0.0	0.000	A
A-B	14	4			14				
A-C	331	83			331				
D-AB	3	0.70	265	0.011	3	0.0	0.0	13.742	B
D-BC	21	5	315	0.068	21	0.1	0.1	12.251	B
C-ABD	28	7	657	0.042	28	0.1	0.0	5.717	A
C-D	4	0.94			4				
C-A	687	172			687				

N81_L8373_Quarry Access Junction - 2039 (without Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		1.12	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	622	0.100	0.253	0.253	-	-	-	0.159	0.361	-	0.253	0.253	0.127
B-C	612	0.083	0.210	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	495	0.080	0.201	0.201	-	-	-	0.127	0.287	0.127	-	-	-
B-D, offside lane	622	0.100	0.253	0.253	-	-	-	0.159	0.361	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D9	2039 (without Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	1402	100.000
B - Quarry Access		ONE HOUR	✓	56	100.000
C - N81 North		ONE HOUR	✓	391	100.000
D - L8373		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	26	1376	0
	B - Quarry Access	52	0	4	0
	C - N81 North	366	22	0	3
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From				
A - N81 South	0	0	0	0
B - Quarry Access	0	0	0	0
C - N81 North	0	0	0	0
D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.02	13.86	0.0	B	4	6
B-AD	0.35	33.99	0.5	D	48	72
A-BCD	0.00	0.00	0.0	A	0	0
A-B					24	36
A-C					1263	1894
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0
C-ABD	0.07	10.99	0.1	B	20	30
C-D					3	4
C-A					336	504

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.75	381	0.008	3	0.0	0.0	9.522	A
B-AD	39	10	308	0.127	39	0.0	0.1	13.323	B
A-BCD	0	0	1185	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1036	259			1036				
D-AB	0	0	404	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	306	0.000	0	0.0	0.0	0.000	A
C-ABD	17	4	476	0.035	16	0.0	0.0	7.825	A
C-D	2	0.56			2				
C-A	276	69			276				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
--------	-----------------------	-------------------------	-------------------	-----	---------------------	-------------------	-----------------	-----------	-------------------------------

B-CD	4	0.90	334	0.011	4	0.0	0.0	10.888	B
B-AD	47	12	247	0.189	46	0.1	0.2	17.895	C
A-BCD	0	0	1159	0.000	0	0.0	0.0	0.000	A
A-B	23	6			23				
A-C	1237	309			1237				
D-AB	0	0	367	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	267	0.000	0	0.0	0.0	0.000	A
C-ABD	20	5	424	0.047	20	0.0	0.0	8.903	A
C-D	3	0.67			3				
C-A	329	82			329				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	1	265	0.017	4	0.0	0.0	13.823	B
B-AD	57	14	163	0.351	56	0.2	0.5	33.338	D
A-BCD	0	0	1122	0.000	0	0.0	0.0	0.000	A
A-B	29	7			29				
A-C	1515	379			1515				
D-AB	0	0	312	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	215	0.000	0	0.0	0.0	0.000	A
C-ABD	24	6	352	0.069	24	0.0	0.1	10.985	B
C-D	3	0.83			3				
C-A	403	101			403				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	1	264	0.017	4	0.0	0.0	13.860	B
B-AD	57	14	163	0.351	57	0.5	0.5	33.987	D
A-BCD	0	0	1122	0.000	0	0.0	0.0	0.000	A
A-B	29	7			29				
A-C	1515	379			1515				
D-AB	0	0	312	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	215	0.000	0	0.0	0.0	0.000	A
C-ABD	24	6	352	0.069	24	0.1	0.1	10.992	B
C-D	3	0.83			3				
C-A	403	101			403				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	0.90	334	0.011	4	0.0	0.0	10.913	B
B-AD	47	12	247	0.189	48	0.5	0.2	18.159	C
A-BCD	0	0	1159	0.000	0	0.0	0.0	0.000	A
A-B	23	6			23				
A-C	1237	309			1237				

D-AB	0	0	367	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	267	0.000	0	0.0	0.0	0.000	A
C-ABD	20	5	424	0.047	20	0.1	0.0	8.909	A
C-D	3	0.67			3				
C-A	329	82			329				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.75	381	0.008	3	0.0	0.0	9.532	A
B-AD	39	10	308	0.127	40	0.2	0.1	13.419	B
A-BCD	0	0	1185	0.000	0	0.0	0.0	0.000	A
A-B	20	5			20				
A-C	1036	259			1036				
D-AB	0	0	404	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	306	0.000	0	0.0	0.0	0.000	A
C-ABD	17	4	476	0.035	17	0.0	0.0	7.832	A
C-D	2	0.56			2				
C-A	276	69			276				

N81_L8373_Quarry Access Junction - 2039 (without Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		0.52	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	548	0.088	0.223	0.223	-	-	-	0.140	0.319	-	0.223	0.223	0.112
B-C	704	0.095	0.241	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	568	0.091	0.231	0.231	-	-	-	0.145	0.330	0.145	-	-	-
B-D, offside lane	548	0.088	0.223	0.223	-	-	-	0.140	0.319	0.140	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	652	-	-	-	-	-	-	0.223	-	0.088	-	-	-
D-B, nearside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-B, offside lane	502	0.128	0.128	0.292	-	-	-	0.204	0.204	0.081	-	-	-
D-C	502	-	0.128	0.292	0.102	0.204	0.204	0.204	0.204	0.081	-	-	-

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)	Run automatically
D10	2039 (without Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
------------------------------	-------------------------------	--------------------	---------------------------

✓	✓	HV Percentages	2.00
---	---	----------------	------

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	536	100.000
B - Quarry Access		ONE HOUR	✓	67	100.000
C - N81 North		ONE HOUR	✓	1104	100.000
D - L8373		ONE HOUR	✓	0	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	14	522	0
	B - Quarry Access	30	0	36	1
	C - N81 North	1082	16	0	6
	D - L8373	0	0	0	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.08	7.30	0.1	A	34	50
B-AD	0.14	16.91	0.2	C	28	42
A-BCD	0.00	0.00	0.0	A	0	0
A-B					13	19
A-C					479	718
D-AB	0.00	0.00	0.0	A	0	0
D-BC	0.00	0.00	0.0	A	0	0
C-ABD	0.03	6.23	0.0	A	15	22
C-D					6	8
C-A					993	1489

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	591	0.047	27	0.0	0.0	6.379	A
B-AD	23	6	342	0.067	23	0.0	0.1	11.276	B
A-BCD	0	0	943	0.000	0	0.0	0.0	0.000	A
A-B	11	3			11				
A-C	393	98			393				
D-AB	0	0	352	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	278	0.000	0	0.0	0.0	0.000	A
C-ABD	12	3	643	0.019	12	0.0	0.0	5.707	A
C-D	5	1			5				
C-A	815	204			815				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	33	8	568	0.058	33	0.0	0.1	6.726	A
B-AD	27	7	302	0.091	27	0.1	0.1	13.113	B
A-BCD	0	0	870	0.000	0	0.0	0.0	0.000	A
A-B	13	3			13				
A-C	469	117			469				
D-AB	0	0	308	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	234	0.000	0	0.0	0.0	0.000	A
C-ABD	14	4	623	0.023	14	0.0	0.0	5.917	A
C-D	5	1			5				
C-A	973	243			973				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	40	10	534	0.075	40	0.1	0.1	7.293	A
B-AD	34	8	246	0.136	33	0.1	0.2	16.891	C
A-BCD	0	0	768	0.000	0	0.0	0.0	0.000	A
A-B	15	4			15				
A-C	575	144			575				
D-AB	0	0	244	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	174	0.000	0	0.0	0.0	0.000	A
C-ABD	18	4	595	0.030	18	0.0	0.0	6.233	A
C-D	7	2			7				
C-A	1191	298			1191				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	40	10	533	0.075	40	0.1	0.1	7.299	A
B-AD	34	8	246	0.136	33	0.2	0.2	16.913	C
A-BCD	0	0	768	0.000	0	0.0	0.0	0.000	A
A-B	15	4			15				
A-C	575	144			575				
D-AB	0	0	244	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	174	0.000	0	0.0	0.0	0.000	A
C-ABD	18	4	595	0.030	18	0.0	0.0	6.233	A
C-D	7	2			7				
C-A	1191	298			1191				

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	33	8	567	0.058	33	0.1	0.1	6.737	A
B-AD	27	7	302	0.091	28	0.2	0.1	13.133	B
A-BCD	0	0	870	0.000	0	0.0	0.0	0.000	A
A-B	13	3			13				
A-C	469	117			469				
D-AB	0	0	308	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	234	0.000	0	0.0	0.0	0.000	A
C-ABD	14	4	623	0.023	14	0.0	0.0	5.920	A
C-D	5	1			5				
C-A	973	243			973				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	591	0.047	28	0.1	0.0	6.392	A
B-AD	23	6	342	0.067	23	0.1	0.1	11.293	B
A-BCD	0	0	943	0.000	0	0.0	0.0	0.000	A
A-B	11	3			11				
A-C	393	98			393				
D-AB	0	0	352	0.000	0	0.0	0.0	0.000	A
D-BC	0	0	278	0.000	0	0.0	0.0	0.000	A
C-ABD	12	3	643	0.019	12	0.0	0.0	5.710	A
C-D	5	1			5				
C-A	815	204			815				

N81_L8373_Quarry Access Junction - 2039 (with Quarry), AM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		1.75	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carrieway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	622	0.100	0.253	0.253	-	-	-	0.159	0.361	-	0.253	0.253	0.127
B-C	612	0.083	0.210	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	495	0.080	0.201	0.201	-	-	-	0.127	0.287	0.127	-	-	-
B-D, offside lane	622	0.100	0.253	0.253	-	-	-	0.159	0.361	0.159	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D11	2039 (with Quarry)	AM	ONE HOUR	07:00	08:30	15	✓

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

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	1409	100.000
B - Quarry Access		ONE HOUR	✓	56	100.000
C - N81 North		ONE HOUR	✓	416	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	33	1376	0
	B - Quarry Access	52	0	4	0
	C - N81 North	366	47	0	3
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

	To			
	A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From				
A - N81 South	0	0	0	0
B - Quarry Access	0	0	0	0
C - N81 North	0	0	0	0
D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.02	14.13	0.0	B	4	6
B-AD	0.39	40.18	0.6	E	48	72
A-BCD	0.00	0.00	0.0	A	0	0
A-B					30	45
A-C					1263	1894
D-AB	0.03	21.21	0.0	C	4	5
D-BC	0.14	19.76	0.2	C	26	39
C-ABD	0.15	12.08	0.2	B	43	65
C-D					3	4
C-A					336	504

Main Results for each time segment

07:00 - 07:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.75	380	0.008	3	0.0	0.0	9.545	A
B-AD	39	10	297	0.132	39	0.0	0.1	13.888	B
A-BCD	0	0	1173	0.000	0	0.0	0.0	0.000	A
A-B	25	6			25				
A-C	1036	259			1036				
D-AB	3	0.70	257	0.011	3	0.0	0.0	14.165	B
D-BC	21	5	309	0.069	21	0.0	0.1	12.488	B
C-ABD	35	9	475	0.075	35	0.0	0.1	8.178	A
C-D	2	0.56			2				
C-A	276	69			276				

07:15 - 07:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
--------	-----------------------	-------------------------	-------------------	-----	---------------------	-------------------	-----------------	-----------	-------------------------------

B-CD	4	0.90	333	0.011	4	0.0	0.0	10.937	B
B-AD	47	12	234	0.200	46	0.1	0.2	19.154	C
A-BCD	0	0	1144	0.000	0	0.0	0.0	0.000	A
A-B	30	7			30				
A-C	1237	309			1237				
D-AB	3	0.85	222	0.015	3	0.0	0.0	16.450	C
D-BC	25	6	269	0.094	25	0.1	0.1	14.775	B
C-ABD	42	11	422	0.100	42	0.1	0.1	9.464	A
C-D	3	0.67			3				
C-A	329	82			329				

07:30 - 07:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	1	260	0.017	4	0.0	0.0	14.067	B
B-AD	57	14	147	0.390	56	0.2	0.6	39.047	E
A-BCD	0	0	1104	0.000	0	0.0	0.0	0.000	A
A-B	36	9			36				
A-C	1515	379			1515				
D-AB	4	1	174	0.025	4	0.0	0.0	21.184	C
D-BC	31	8	213	0.145	31	0.1	0.2	19.689	C
C-ABD	52	13	350	0.148	52	0.1	0.2	12.061	B
C-D	3	0.83			3				
C-A	403	101			403				

07:45 - 08:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	1	259	0.017	4	0.0	0.0	14.128	B
B-AD	57	14	147	0.391	57	0.6	0.6	40.175	E
A-BCD	0	0	1104	0.000	0	0.0	0.0	0.000	A
A-B	36	9			36				
A-C	1515	379			1515				
D-AB	4	1	174	0.025	4	0.0	0.0	21.206	C
D-BC	31	8	213	0.145	31	0.2	0.2	19.761	C
C-ABD	52	13	350	0.148	52	0.2	0.2	12.080	B
C-D	3	0.83			3				
C-A	403	101			403				

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	4	0.90	332	0.011	4	0.0	0.0	10.968	B
B-AD	47	12	234	0.200	48	0.6	0.3	19.536	C
A-BCD	0	0	1144	0.000	0	0.0	0.0	0.000	A
A-B	30	7			30				
A-C	1237	309			1237				

D-AB	3	0.85	222	0.015	3	0.0	0.0	16.471	C
D-BC	25	6	268	0.094	26	0.2	0.1	14.838	B
C-ABD	42	11	422	0.100	42	0.2	0.1	9.481	A
C-D	3	0.67			3				
C-A	329	82			329				

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	3	0.75	380	0.008	3	0.0	0.0	9.557	A
B-AD	39	10	297	0.132	40	0.3	0.2	14.006	B
A-BCD	0	0	1173	0.000	0	0.0	0.0	0.000	A
A-B	25	6			25				
A-C	1036	259			1036				
D-AB	3	0.70	257	0.011	3	0.0	0.0	14.181	B
D-BC	21	5	309	0.069	21	0.1	0.1	12.532	B
C-ABD	35	9	475	0.075	36	0.1	0.1	8.195	A
C-D	2	0.56			2				
C-A	276	69			276				

N81_L8373_Quarry Access Junction - 2039 (with Quarry), PM

Data Errors and Warnings

Severity	Area	Item	Description
Warning	Minor arm flare	D - L8373 - Minor arm geometry	Is flare very short? Estimated flare length is zero but has been increased to 1 because a zero flare length is not allowed.
Warning	Vehicle Mix		HV% is zero for all movements / time segments. Vehicle Mix matrix should be completed whether working in PCUs or Vehs. If HV% at the junction is genuinely zero, please ignore this warning.

Analysis Set Details

ID	Name	Include in report	Network flow scaling factor (%)	Network capacity scaling factor (%)
A2	N81_L8373_Quarry Access Junction	✓	100.000	100.000

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	Crossroads	Two-way		1.09	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	N81 South		Major
B	Quarry Access		Minor
C	N81 North		Major
D	L8373		Minor

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Width for right turn (m)	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
A - N81 South	8.68				150.0	✓	2.00
C - N81 North	8.68		✓	3.38	150.0	✓	9.00

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

Minor Arm Geometry

Arm	Minor arm type	Width at give-way (m)	Width at 5m (m)	Width at 10m (m)	Width at 15m (m)	Width at 20m (m)	Estimate flare length	Flare length (PCU)	Visibility to left (m)	Visibility to right (m)
B - Quarry Access	One lane plus flare	10.00	9.00	7.00	4.86	4.48	✓	3.00	83	51
D - L8373	One lane plus flare	4.40	2.20	2.20	2.20	2.20	✓	1.00	8	135

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for A-D	Slope for B-A	Slope for B-C	Slope for B-D	Slope for C-A	Slope for C-B	Slope for C-D	Slope for D-A	Slope for D-B	Slope for D-C
A-D	661	-	-	-	-	-	-	0.226	0.323	0.226	-	-	-
B-A	548	0.088	0.223	0.223	-	-	-	0.140	0.319	-	0.223	0.223	0.112
B-C	704	0.095	0.241	-	-	-	-	-	-	-	-	-	-
B-D, nearside lane	568	0.091	0.231	0.231	-	-	-	0.145	0.330	0.145	-	-	-
B-D, offside lane	548	0.088	0.223	0.223	-	-	-	0.140	0.319	0.140	-	-	-
C-B	746	0.255	0.255	0.365	-	-	-	-	-	-	-	-	-
D-A	564	-	-	-	-	-	-	0.193	-	0.076	-	-	-
D-B, nearside lane	434	0.111	0.111	0.252	-	-	-	0.177	0.177	0.070	-	-	-
D-B, offside lane	516	0.132	0.132	0.300	-	-	-	0.210	0.210	0.083	-	-	-
D-C	516	-	0.132	0.300	0.105	0.210	0.210	0.210	0.210	0.083	-	-	-

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)	Run automatically
D12	2039 (with Quarry)	PM	ONE HOUR	16:15	17:45	15	✓

Vehicle mix varies over turn	Vehicle mix varies over entry	Vehicle mix source	PCU Factor for a HV (PCU)
------------------------------	-------------------------------	--------------------	---------------------------

✓	✓	HV Percentages	2.00
---	---	----------------	------

Demand overview (Traffic)

Arm	Linked arm	Profile type	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A - N81 South		ONE HOUR	✓	543	100.000
B - Quarry Access		ONE HOUR	✓	67	100.000
C - N81 North		ONE HOUR	✓	1129	100.000
D - L8373		ONE HOUR	✓	32	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	21	522	0
	B - Quarry Access	30	0	36	1
	C - N81 North	1082	41	0	6
	D - L8373	0	7	25	0

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A - N81 South	B - Quarry Access	C - N81 North	D - L8373
From	A - N81 South	0	0	0	0
	B - Quarry Access	0	0	0	0
	C - N81 North	0	0	0	0
	D - L8373	0	0	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS	Average Demand (PCU/hr)	Total Junction Arrivals (PCU)
B-CD	0.08	7.34	0.1	A	34	50
B-AD	0.14	18.14	0.2	C	28	42
A-BCD	0.00	0.00	0.0	A	0	0
A-B					19	29
A-C					479	718
D-AB	0.03	26.33	0.0	D	4	5
D-BC	0.18	26.09	0.2	D	26	39
C-ABD	0.08	6.57	0.1	A	38	56
C-D					6	8
C-A					993	1489

Main Results for each time segment

16:15 - 16:30

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	590	0.047	27	0.0	0.0	6.392	A
B-AD	23	6	332	0.069	23	0.0	0.1	11.627	B
A-BCD	0	0	931	0.000	0	0.0	0.0	0.000	A
A-B	16	4			16				
A-C	393	98			393				
D-AB	3	0.70	235	0.012	3	0.0	0.0	15.519	C
D-BC	21	5	279	0.076	21	0.0	0.1	13.957	B
C-ABD	31	8	641	0.048	31	0.0	0.1	5.893	A
C-D	5	1			5				
C-A	815	204			815				

16:30 - 16:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	33	8	566	0.058	33	0.0	0.1	6.746	A
B-AD	27	7	290	0.094	27	0.1	0.1	13.695	B
A-BCD	0	0	855	0.000	0	0.0	0.0	0.000	A
A-B	19	5			19				
A-C	469	117			469				
D-AB	3	0.86	196	0.018	3	0.0	0.0	18.728	C
D-BC	25	6	232	0.109	25	0.1	0.1	17.355	C
C-ABD	37	9	621	0.059	37	0.1	0.1	6.161	A
C-D	5	1			5				
C-A	973	243			973				

16:45 - 17:00

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	40	10	531	0.076	40	0.1	0.1	7.333	A
B-AD	34	8	232	0.144	33	0.1	0.2	18.097	C
A-BCD	0	0	750	0.000	0	0.0	0.0	0.000	A
A-B	23	6			23				
A-C	575	144			575				
D-AB	4	1	141	0.032	4	0.0	0.0	26.286	D
D-BC	31	8	169	0.182	30	0.1	0.2	25.953	D
C-ABD	45	11	593	0.076	45	0.1	0.1	6.569	A
C-D	7	2			7				
C-A	1191	298			1191				

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	40	10	531	0.076	40	0.1	0.1	7.340	A
B-AD	34	8	232	0.144	33	0.2	0.2	18.136	C
A-BCD	0	0	750	0.000	0	0.0	0.0	0.000	A
A-B	23	6			23				
A-C	575	144			575				
D-AB	5	1	141	0.032	5	0.0	0.0	26.334	D
D-BC	31	8	169	0.182	31	0.2	0.2	26.091	D
C-ABD	45	11	593	0.076	45	0.1	0.1	6.569	A
C-D	7	2			7				
C-A	1191	298			1191				

17:15 - 17:30

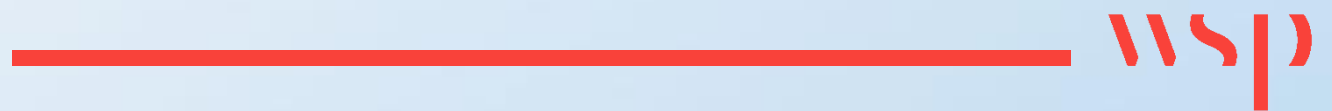
Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	33	8	566	0.058	33	0.1	0.1	6.758	A
B-AD	27	7	290	0.094	28	0.2	0.1	13.720	B
A-BCD	0	0	855	0.000	0	0.0	0.0	0.000	A
A-B	19	5			19				
A-C	469	117			469				
D-AB	3	0.87	195	0.018	4	0.0	0.0	18.762	C
D-BC	25	6	232	0.109	26	0.2	0.1	17.451	C
C-ABD	37	9	621	0.059	37	0.1	0.1	6.162	A
C-D	5	1			5				
C-A	973	243			973				

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Junction Arrivals (PCU)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	Start queue (PCU)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-CD	28	7	590	0.047	28	0.1	0.0	6.405	A
B-AD	23	6	332	0.069	23	0.1	0.1	11.651	B
A-BCD	0	0	931	0.000	0	0.0	0.0	0.000	A
A-B	16	4			16				
A-C	393	98			393				
D-AB	3	0.70	235	0.012	3	0.0	0.0	15.541	C
D-BC	21	5	278	0.076	21	0.1	0.1	14.018	B
C-ABD	31	8	641	0.048	31	0.1	0.1	5.899	A
C-D	5	1			5				
C-A	815	204			815				

Appendix 12C

JUNCTION CAPACITY ANALYSIS



TRIP RATE CALCULATION SELECTION PARAMETERS:

Land Use : 02 - EMPLOYMENT
 Category : H - QUARRY

VEHICLESSelected regions and areas:

03 SOUTH WEST	
DC DORSET	1 days
05 EAST MIDLANDS	
NR NORTHAMPTONSHIRE	1 days
08 NORTH WEST	
GM GREATER MANCHESTER	1 days
09 NORTH	
DH DURHAM	2 days

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

Secondary Filtering selection:

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

Parameter: Site area
 Actual Range: 10.00 to 40.00 (units: hect)
 Range Selected by User: 10.00 to 40.00 (units: hect)

Parking Spaces Range: All Surveys Included

Public Transport Provision:

Selection by: Include all surveys

Date Range: 01/01/86 to 09/11/10

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

Selected survey days:

Tuesday	2 days
Wednesday	2 days
Friday	1 days

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

Selected survey types:

Manual count	5 days
Directional ATC Count	0 days

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

Selected Locations:

Edge of Town	1
Free Standing (PPS6 Out of Town)	4

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

Selected Location Sub Categories:

Out of Town	4
No Sub Category	1

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

Secondary Filtering selection:Use Class:

B2	5 days
----	--------

This data displays the number of surveys per Use Class classification within the selected set. The Use Classes Order 2005 has been used for this purpose, which can be found within the Library module of TRICS®.

Secondary Filtering selection (Cont.):Population within 1 mile:

1,000 or Less	1 days
1,001 to 5,000	2 days
5,001 to 10,000	2 days

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

Population within 5 miles:

25,001 to 50,000	1 days
50,001 to 75,000	2 days
75,001 to 100,000	1 days
125,001 to 250,000	1 days

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

Car ownership within 5 miles:

0.6 to 1.0	4 days
1.1 to 1.5	1 days

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

Travel Plan:

Not Known	2 days
No	3 days

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

PTAL Rating:

No PTAL Present	5 days
-----------------	--------

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

LIST OF SITES relevant to selection parameters

1	DC-02-H-02	STONE QUARRY	DORSET
	SOUTHWELL STREET NEAR PORTLAND SOUTHWELL Free Standing (PPS6 Out of Town) Out of Town Total Site area: 40.00 hect Survey date: WEDNESDAY 03/09/97		Survey Type: MANUAL
2	DH-02-H-01	LIMESTONE QUARRY	DURHAM
	STONYBECK LANE NEAR DURHAM BISHOP MIDDLEHAM Free Standing (PPS6 Out of Town) Out of Town Total Site area: 10.00 hect Survey date: TUESDAY 02/12/08		Survey Type: MANUAL
3	DH-02-H-02	QUARRY	DURHAM
	HART VILLAGE HARTLEPOOL Free Standing (PPS6 Out of Town) Out of Town Total Site area: 22.80 hect Survey date: TUESDAY 09/11/10		Survey Type: MANUAL
4	GM-02-H-01	STONE QUARRY	GREATER MANCHESTER
	GEORGE'S LANE HORWICH Edge of Town No Sub Category Total Site area: 17.00 hect Survey date: FRIDAY 09/08/91		Survey Type: MANUAL
5	NR-02-H-01	GRAVEL QUARRY	NORTHAMPTONSHIRE
	WOLLASTON ROAD BOZEAT WELLINGBOROUGH Free Standing (PPS6 Out of Town) Out of Town Total Site area: 14.50 hect Survey date: WEDNESDAY 26/11/08		Survey Type: MANUAL

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

TRIP RATE for Land Use 02 - EMPLOYMENT/H - QUARRY

VEHICLES

Calculation factor: 1 hect

BOLD print indicates peak (busiest) period

Time Range	ARRIVALS			DEPARTURES			TOTALS		
	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate	No. Days	Ave. AREA	Trip Rate
00:00 - 00:30									
00:30 - 01:00									
01:00 - 01:30									
01:30 - 02:00									
02:00 - 02:30									
02:30 - 03:00									
03:00 - 03:30									
03:30 - 04:00									
04:00 - 04:30									
04:30 - 05:00									
05:00 - 05:30									
05:30 - 06:00									
06:00 - 06:30									
06:30 - 07:00									
07:00 - 07:30	5	20.86	0.393	5	20.86	0.153	5	20.86	0.546
07:30 - 08:00	5	20.86	0.249	5	20.86	0.211	5	20.86	0.460
08:00 - 08:30	5	20.86	0.230	5	20.86	0.163	5	20.86	0.393
08:30 - 09:00	5	20.86	0.201	5	20.86	0.221	5	20.86	0.422
09:00 - 09:30	5	20.86	0.259	5	20.86	0.240	5	20.86	0.499
09:30 - 10:00	5	20.86	0.268	5	20.86	0.192	5	20.86	0.460
10:00 - 10:30	5	20.86	0.153	5	20.86	0.173	5	20.86	0.326
10:30 - 11:00	5	20.86	0.182	5	20.86	0.182	5	20.86	0.364
11:00 - 11:30	5	20.86	0.173	5	20.86	0.163	5	20.86	0.336
11:30 - 12:00	5	20.86	0.173	5	20.86	0.153	5	20.86	0.326
12:00 - 12:30	5	20.86	0.105	5	20.86	0.153	5	20.86	0.258
12:30 - 13:00	5	20.86	0.153	5	20.86	0.163	5	20.86	0.316
13:00 - 13:30	5	20.86	0.192	5	20.86	0.201	5	20.86	0.393
13:30 - 14:00	5	20.86	0.230	5	20.86	0.240	5	20.86	0.470
14:00 - 14:30	5	20.86	0.249	5	20.86	0.211	5	20.86	0.460
14:30 - 15:00	5	20.86	0.221	5	20.86	0.259	5	20.86	0.480
15:00 - 15:30	5	20.86	0.192	5	20.86	0.182	5	20.86	0.374
15:30 - 16:00	5	20.86	0.182	5	20.86	0.125	5	20.86	0.307
16:00 - 16:30	4	22.45	0.156	4	22.45	0.134	4	22.45	0.290
16:30 - 17:00	4	22.45	0.134	4	22.45	0.156	4	22.45	0.290
17:00 - 17:30	4	22.45	0.067	4	22.45	0.111	4	22.45	0.178
17:30 - 18:00	4	22.45	0.033	4	22.45	0.234	4	22.45	0.267
18:00 - 18:30	4	22.45	0.011	4	22.45	0.089	4	22.45	0.100
18:30 - 19:00	4	22.45	0.011	4	22.45	0.011	4	22.45	0.022
19:00 - 19:30									
19:30 - 20:00									
20:00 - 20:30									
20:30 - 21:00									
21:00 - 21:30									
21:30 - 22:00									
22:00 - 22:30									
22:30 - 23:00									
23:00 - 23:30									
23:30 - 24:00									
Total Rates:			4.217			4.120			8.337

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

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

The survey data, graphs and all associated supporting information, contained within the TRICS Database are published by TRICS Consortium Limited ("the Company") and the Company claims copyright and database rights in this published work. The Company authorises those who possess a current TRICS licence to access the TRICS Database and copy the data contained within the TRICS Database for the licence holders' use only. Any resulting copy must retain all copyrights and other proprietary notices, and any disclaimer contained thereon.

The Company accepts no responsibility for loss which may arise from reliance on data contained in the TRICS Database. [No warranty of any kind, express or implied, is made as to the data contained in the TRICS Database.]

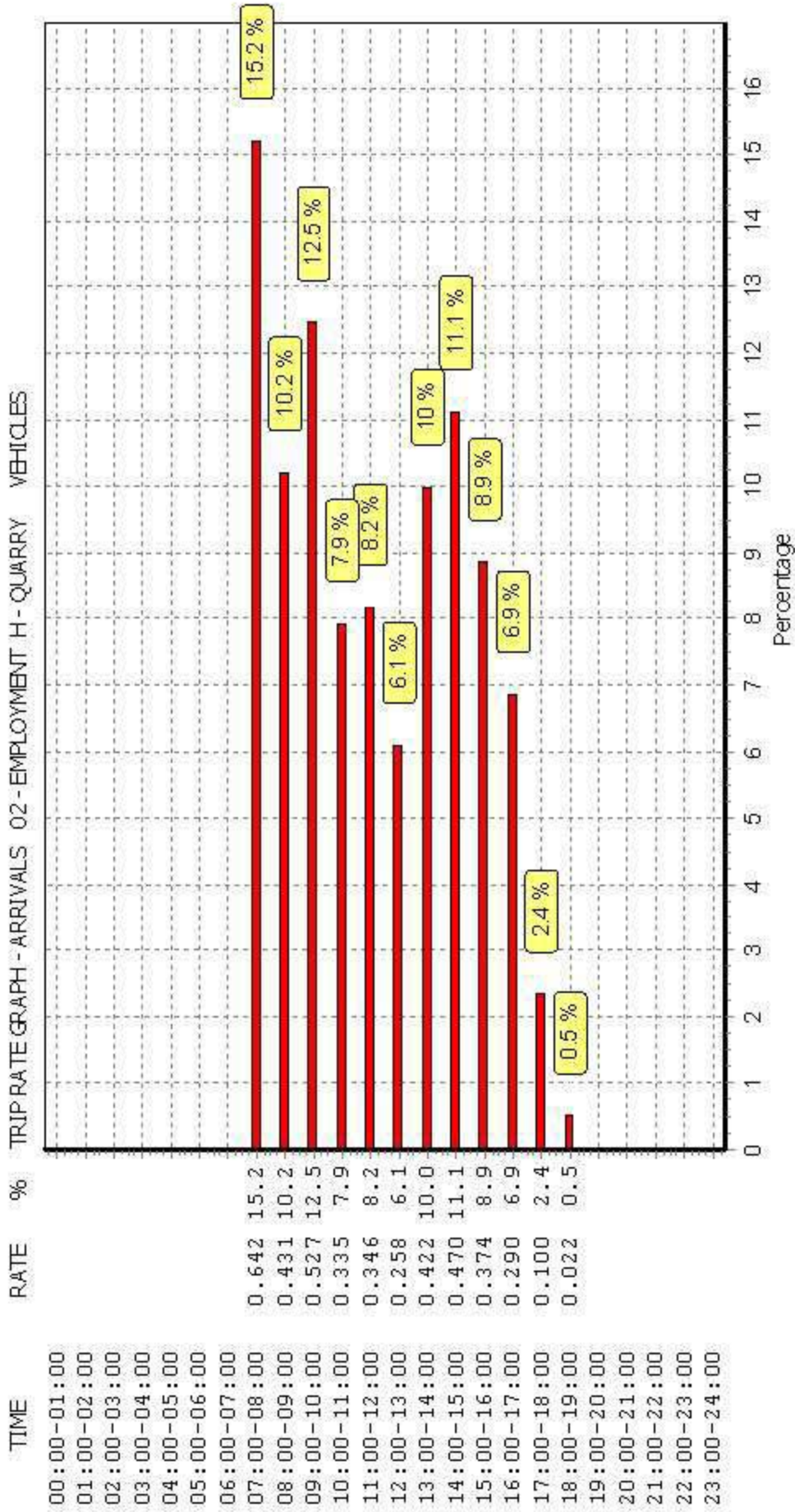
Parameter summary

Trip rate parameter range selected:	10.00 to 40.00 (units: hect)
Survey date date range:	01/01/86 - 09/11/10
Number of weekdays (Monday-Friday):	5
Number of Saturdays:	0
Number of Sundays:	0
Surveys automatically removed from selection:	1
Surveys manually removed from selection:	0

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

Licence No: 261601

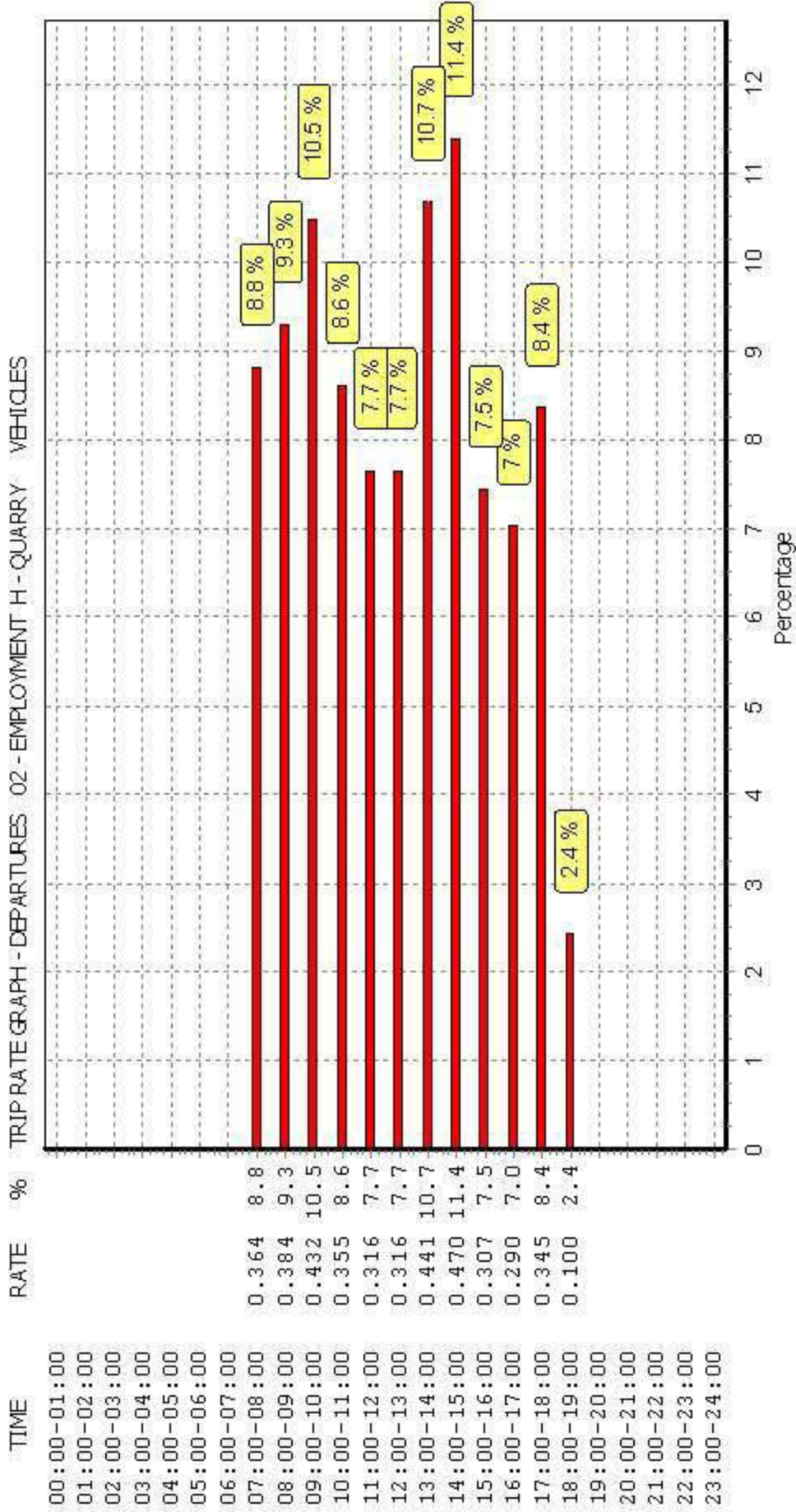
ICE Ltd Lower Commons Road Dublin 22



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Licence No: 261601

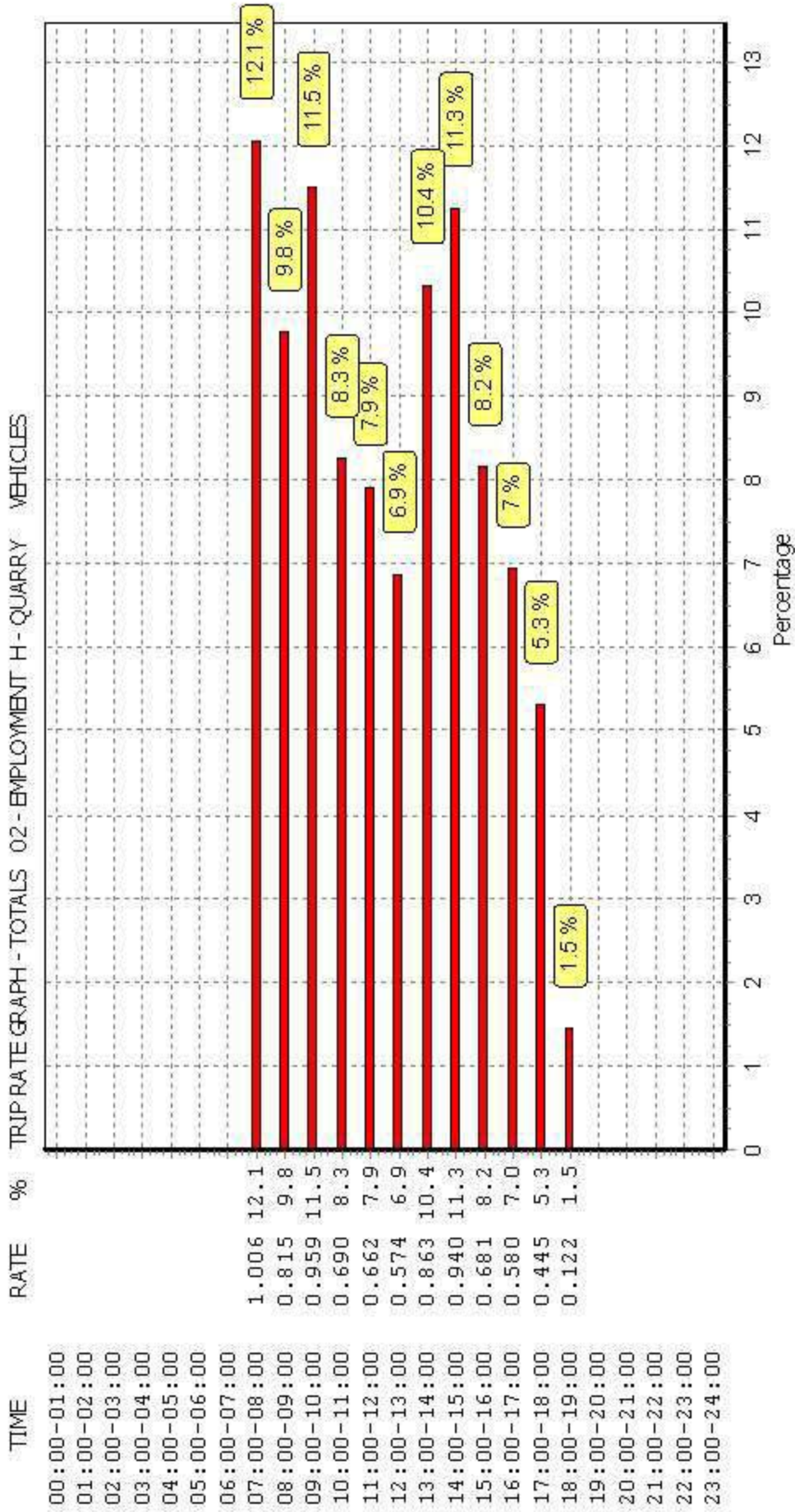
ICE Ltd Lower Commons Road Dublin 22



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

Licence No: 261601

ICE Ltd Lower Commons Road Dublin 22



This graph is a visual representation of the trip rate calculation results screen. The same time periods and trip rates are displayed, but in addition there is an additional column showing the percentage of the total trip rate by individual time period, allowing peak periods to be easily identified through observation. Note that the type of count and the selected direction is shown at the top of the graph.

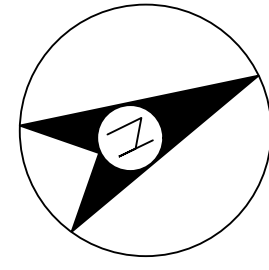
Appendix 12D

SIGHTLINES

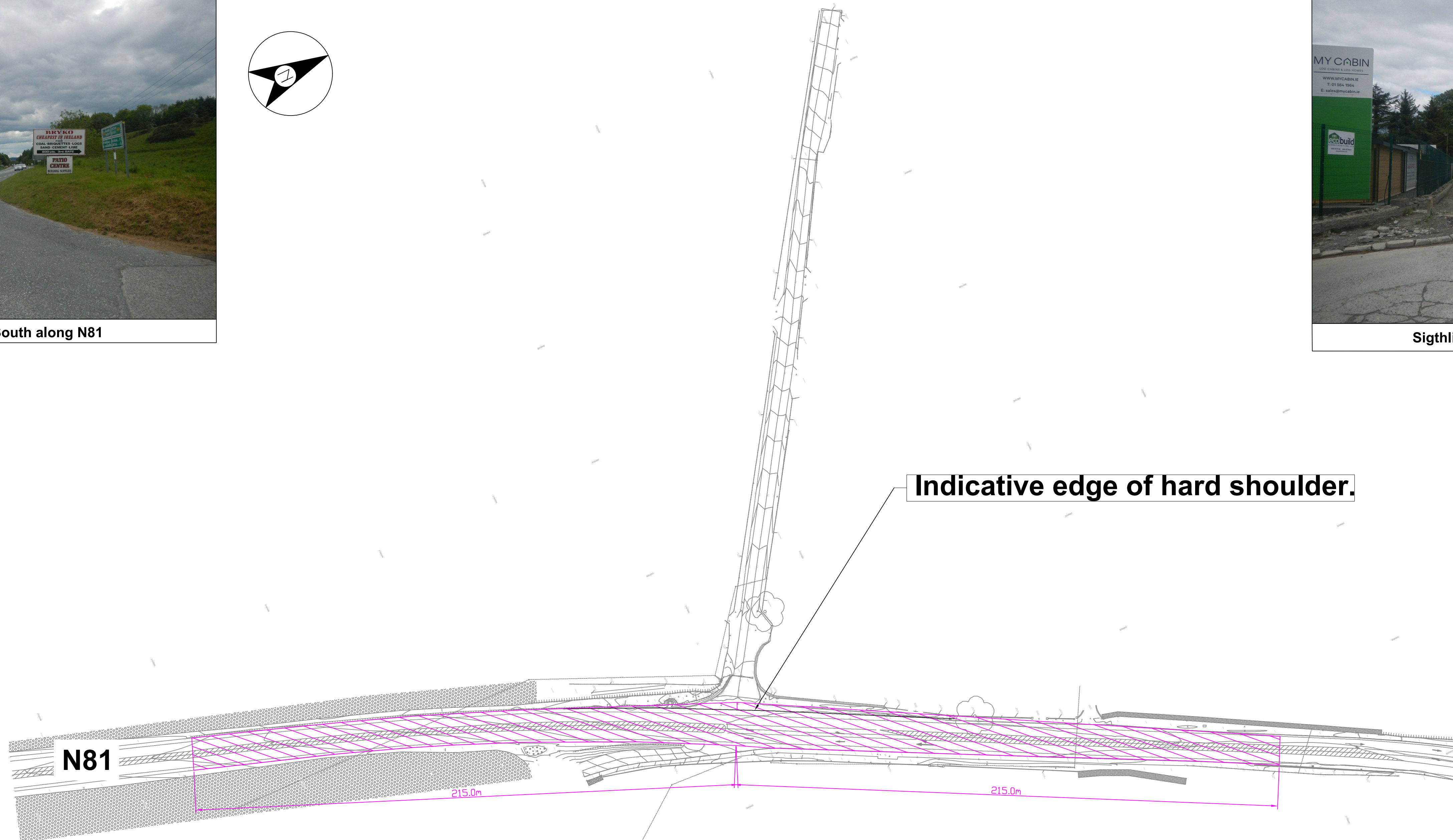




Sightlines looking South along N81



Sightlines looking North along N81



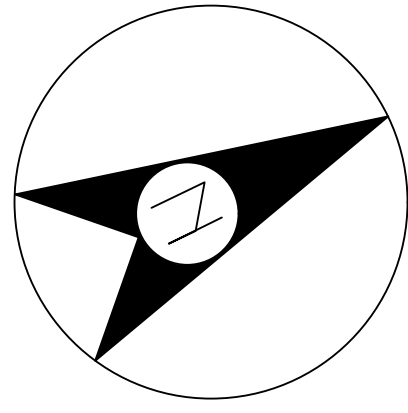
Rev.	Comment	Date
1.0	Draft	26/02/20

Notes:
 1. Do Not Scale - use figured dimensions only.
 2. Drawing is the property of PMCE Ltd.

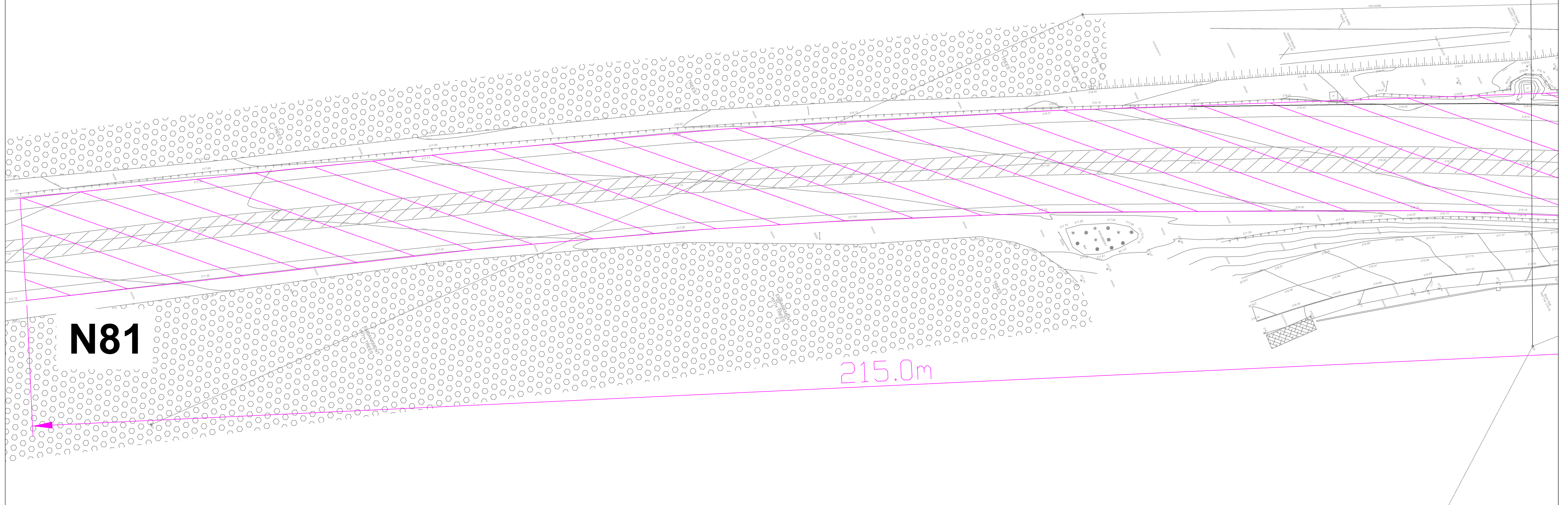
Project:
**Hudson Brothers Quarry
 Pit Extension, Co. Wicklow**

Drawing Title:
**Quarry Access
 Sightlines**

Drawn: AP	Date: 26/02/2020
Checked: AOR	Scale: 1:1000 A1
Approved: PJM	Status: Draft
Drawing No: P19-057-DG-001	Revision: 1.0



Sheet 1



PMCE
 PMCE Ltd.
 Mona Villa
 Lower Commons Road
 Brownsbarn
 Dublin 22
 Tel: +353 (1) 464 3041
 Fax: +353 (1) 459 1836
 Email: info@pmceconsultants.com
 Web: www.pmceconsultants.com

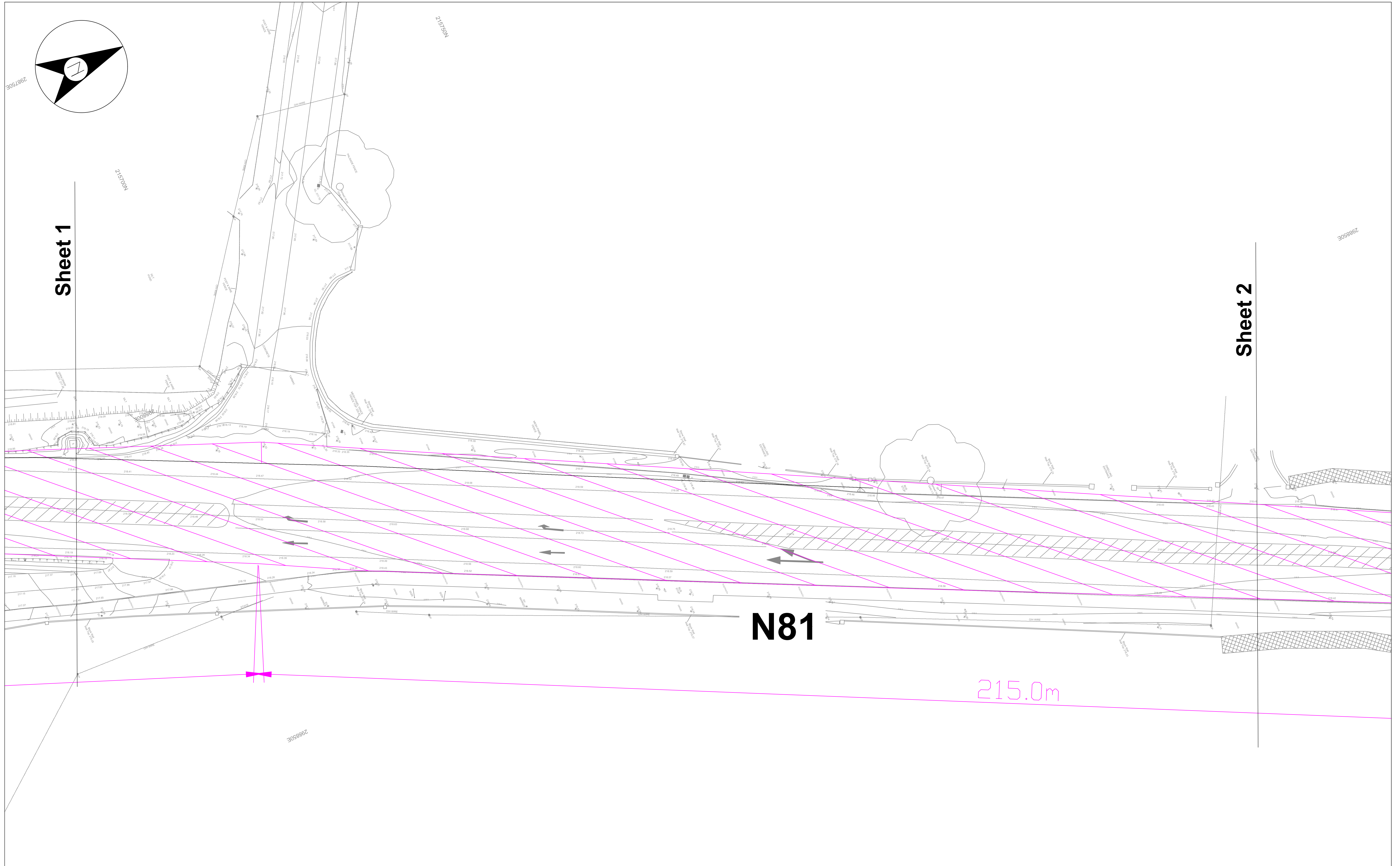
Rev.	Comment	Date
1.0	Draft	26/02/20

Notes:
 1. Do Not Scale - use figured dimensions only.
 2. Drawing is the property of PMCE Ltd.

Project:
**Hudson Brothers Quarry
 Pit Extension, Co. Wicklow**

Drawing Title:
**Quarry Access
 Sightlines**

Drawn: AP	Date: 26/02/2020
Checked: AOR	Scale: 1:250 A1
Approved: PJM	Status: Draft
Drawing No: P19-057-DG-002	Revision: 1.0



P.M.C.E.
 PMCE Ltd.
 Mona Villa
 Lower Commons Road
 Brownsbarn
 Dublin 22
 Tel: +353 (1) 464 3041
 Fax: +353 (1) 459 1836
 Email: info@pmceconsultants.com
 Web: www.pmceconsultants.com

Rev.	Comment	Date
1.0	Draft	26/02/20

Notes:
 1 Do Not Scale - use figured dimensions only.
 2. Drawing is the property of PMCE Ltd.

Project:
**Hudson Brothers Quarry
 Pit Extension, Co. Wicklow**

Drawing Title:
**Quarry Access
 Sightlines**

Drawn: AP	Date: 26/02/2020
Checked: AOR	Scale: 1:250 A1
Approved: PJM	Status: Draft
Drawing No: P19-057-DG-003	Revision: 1.0

