

Our Ref: A085136

Mr G Beattie
Alpha Design
Cockermouth

By email

Date: 20 July 2021

Dear Glen

**4/16/2409/001 & 4/18/2472/001 - KEEKLE MEADOWS – Sc 73 APPLICATION TO VARY
CONDITION 5 ON BOTH CONSENTS**

The proposed Sc73 application seeks to amend Condition 5 on both the above planning consents to increase the number of dwellings which can be occupied prior to the works to the B5295 Keekle Terrace which comprise the widening of Keekle Terrace to form a ghost island right turn lane. In both cases, Condition 5 currently states that the highway works shall be completed prior to the occupation of the 100th home served by the access road.

It is understood that an application for the Sc278 Agreement for the highway works has been commenced by High Grange Homes with Cumbria Highways over 12 months ago, but there have been unforeseen delays. To enable development to continue I have been asked to consider whether the provision of the highway works could be delayed to the occupation of the 125th home.

Increasing the number of dwellings which can be served prior to the highway works results in a small increase in traffic flows. The difference has been calculated using the trip rates from the agreed 2017 Transport Statement (Table 5.1 refers) submitted in support of a development of 65 homes (app ref 4/18/2472/001) at the site. The change in traffic generation from 100 to 125 homes is summarised in Table 1 below.

Table 1: Vehicle Trip Rates and Generated Traffic Flows – Additional 25 homes

Time Period	Arrivals		Departures		Total Trips
	Trip Rates	Trips	Trip Rates	Trips	
Weekday AM Peak 08:00 to 09:00	0.141	4	0.377	9	13
Weekday PM Peak 17:00 to 18:00	0.335	8	0.189	5	13

As can be seen, the increase in traffic is small being only 13 vehicles in the busiest hourly periods; that is on average around 1 extra vehicle every 4½ minutes.

The existing arrangement is a simple priority junction, as shown in Figure 1 attached. The effect of the additional traffic on the existing junction has been evaluated using the standard TRL Junctions9 modelling package. The flows along Keekle Terrace were taken from a survey on 25 February 2020 (pre-Covid 19) at the Keekle Terrace/ Dalzell Street junction and have been accepted by Cumbria CC as part of another study. As the survey is very recent, no growth has been applied. The generated traffic

flows for 125 homes were assigned as set out in the 2017 Transport Statement with 80% of traffic travelling to/ from the B5295 north of the site (Workington Whitehaven and Sellafeld) and 20% travelling to/ from the B5295 south of the site (Cleator Moor). The traffic flows are shown in Figure 2, attached.

The result of the Junctions9 assessment is summarised in Table 2 below and the output file is attached.

Table 2: Keekle Terrace/Site Access – Existing Arrangement

		AM Peak	PM Peak
Keekle Meadows Site Access	Max Q	0.2	0.1
	Av Delay	11 secs	13 secs
	Max RFC	0.14	0.08
Keekle Terrace (B5295) Northbound and Right-turn	Max Q	0.0	0.0
	Av Delay	5 secs	5 secs
	Max RFC	0.01	0.03

As can be seen from Table 2, with 125 homes the existing junction arrangement operates with minimal queues and delays on the site access road. The model assumes that vehicles turning right into the site will block the ahead flows on Keekle Terrace and even with this assumption in place the average delay encountered by a right-turning vehicle is only 5 seconds and a 0 queue is predicted.

The road safety performance of the existing junction has been assessed using Crashmap for the three-year period 2018 to 2020 and an extract is shown below.



Extract 1: Crashmap – Recorded Personal Injury Accidents 2018-2020

The Crashmap extract shows that there have been no personal injury accidents reported during the period which indicates satisfactory road safety performance.

Increasing the trigger point of the highway works from 100 homes to 125 homes results in an additional 13 vehicles using the site access in the busiest hours. On the basis of the Junctions9 assessment and the good road safety record of the existing junction there are no operational reasons why 125 homes could not be accessed from the existing junction prior to the highway improvement works being implemented.

Yours sincerely,

Dr Nick Bunn

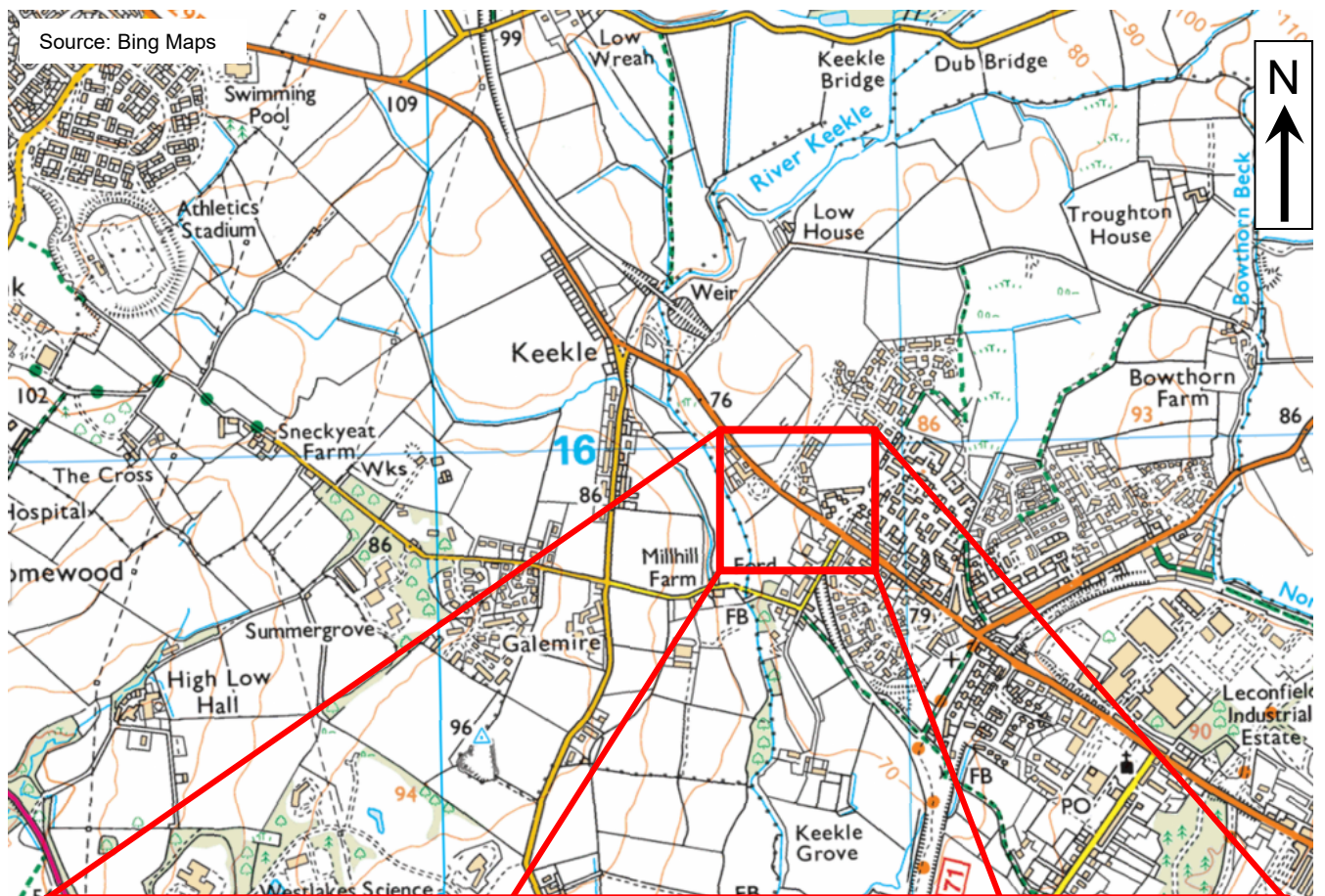
Director

For and on behalf of TetraTech Europe

Enc. Figure 1 – Current Junction Arrangement

Figure 2 – Site Access Flows

Junctions9 Model Report – Site Access

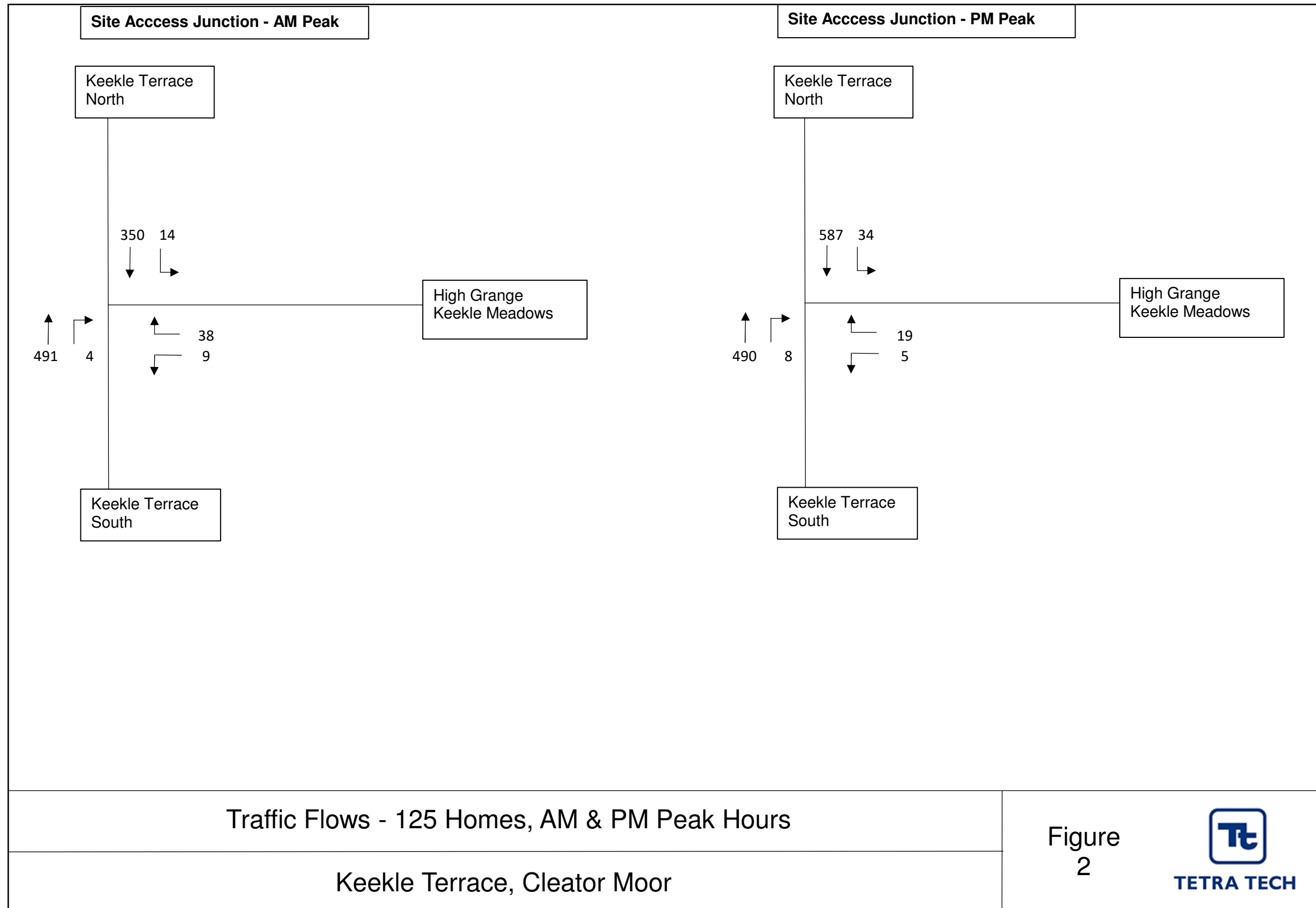


Source: Google Maps

Current Site Access Arrangement
Keekle Terrace, Cleator Moor

Figure
1





Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.5.0.6896 © Copyright TRL Limited, 2018
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Filename: Keekle Terrace-High Grange_July 2021 Sc73.j9
Path: I:\Projects\A085001 - A085500\A085136 Keekle Terrace\Analysis\Traffic Models
Report generation date: 19/07/2021 14:35:16

»125 homes (80:20 assignment), AM
 »125 homes (80:20 assignment), PM

Summary of junction performance

	AM			PM		
	Queue (PCU)	Delay (s)	RFC	Queue (PCU)	Delay (s)	RFC
125 homes (80:20 assignment)						
Stream B-AC	0.2	11.17	0.14	0.1	12.55	0.08
Stream C-AB	0.0	4.62	0.01	0.0	4.88	0.03

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	19/07/2021
Version	
Status	(new file)
Identifier	
Client	
Jobnumber	
Enumerator	TT\ELEANOR.BUNN
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

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

Demand Set Summary

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D3	125 homes (80:20 assignment)	AM	ONE HOUR	08:00	09:30	15
D4	125 homes (80:20 assignment)	PM	ONE HOUR	17:00	18:30	15

Analysis Set Details

ID	Network flow scaling factor (%)
A1	100.000

125 homes (80:20 assignment), AM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.62	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Arms

Arms

Arm	Name	Description	Arm type
A	Keekle Terrace NW		Major
B	High Grange		Minor
C	Keekle Terrace SE		Major

Major Arm Geometry

Arm	Width of carriageway (m)	Has kerbed central reserve	Has right turn bay	Visibility for right turn (m)	Blocks?	Blocking queue (PCU)
C	7.25			100.0	✓	0.00

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

Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.26	29	23

Slope / Intercept / Capacity

Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (PCU/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	511	0.088	0.222	0.140	0.318
1	B-C	655	0.095	0.240	-	-
1	C-B	632	0.232	0.232	-	-

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)
D3	125 homes (80:20 assignment)	AM	ONE HOUR	08:00	09:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	364	100.000
B		✓	47	100.000
C		✓	495	100.000

Origin-Destination Data

Demand (PCU/hr)

		To			
		A	B	C	
From	A	0	14	350	
	B	38	0	9	
	C	491	4	0	

Vehicle Mix

Heavy Vehicle Percentages

		To			
		A	B	C	
From	A	0	0	10	
	B	0	0	0	
	C	10	0	0	

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.14	11.17	0.2	B
C-AB	0.01	4.62	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

08:00 - 08:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	425	0.083	35	0.1	9.220	A
C-AB	5	821	0.007	5	0.0	4.600	A
C-A	367			367			
A-B	11			11			
A-C	263			263			

08:15 - 08:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	42	404	0.105	42	0.1	9.952	A
C-AB	7	861	0.009	7	0.0	4.411	A
C-A	438			438			
A-B	13			13			
A-C	315			315			

08:30 - 08:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	374	0.138	52	0.2	11.155	B
C-AB	11	918	0.012	11	0.0	4.180	A
C-A	534			534			
A-B	15			15			
A-C	385			385			

08:45 - 09:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	52	374	0.138	52	0.2	11.166	B
C-AB	11	918	0.012	11	0.0	4.195	A
C-A	534			534			
A-B	15			15			
A-C	385			385			

09:00 - 09:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	42	404	0.105	42	0.1	9.965	A
C-AB	7	861	0.009	7	0.0	4.444	A
C-A	438			438			
A-B	13			13			
A-C	315			315			

09:15 - 09:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	35	425	0.083	35	0.1	9.241	A
C-AB	5	821	0.007	6	0.0	4.618	A
C-A	367			367			
A-B	11			11			
A-C	263			263			

125 homes (80:20 assignment), PM

Data Errors and Warnings

No errors or warnings

Junction Network

Junctions

Junction	Name	Junction type	Major road direction	Use circulating lanes	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way		0.34	A

Junction Network Options

Driving side	Lighting
Left	Normal/unknown

Traffic Demand

Demand Set Details

ID	Scenario name	Time Period name	Traffic profile type	Start time (HH:mm)	Finish time (HH:mm)	Time segment length (min)
D4	125 homes (80:20 assignment)	PM	ONE HOUR	17:00	18:30	15

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

Demand overview (Traffic)

Arm	Linked arm	Use O-D data	Average Demand (PCU/hr)	Scaling Factor (%)
A		✓	621	100.000
B		✓	24	100.000
C		✓	498	100.000

Origin-Destination Data

Demand (PCU/hr)

		To		
		A	B	C
From	A	0	34	587
	B	19	0	5
	C	490	8	0

Vehicle Mix

Heavy Vehicle Percentages

		To		
		A	B	C
From	A	0	0	10
	B	0	0	0
	C	10	0	0

Results

Results Summary for whole modelled period

Stream	Max RFC	Max Delay (s)	Max Queue (PCU)	Max LOS
B-AC	0.08	12.55	0.1	B
C-AB	0.03	4.88	0.0	A
C-A				
A-B				
A-C				

Main Results for each time segment

17:00 - 17:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	385	0.047	18	0.0	9.811	A
C-AB	11	785	0.014	11	0.0	4.859	A
C-A	364			364			
A-B	26			26			
A-C	442			442			

17:15 - 17:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	355	0.061	22	0.1	10.801	B
C-AB	16	820	0.019	16	0.0	4.691	A
C-A	432			432			
A-B	31			31			
A-C	528			528			

17:30 - 17:45

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	313	0.084	26	0.1	12.546	B
C-AB	23	871	0.027	23	0.0	4.484	A
C-A	525			525			
A-B	37			37			
A-C	646			646			

17:45 - 18:00

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	26	313	0.084	26	0.1	12.550	B
C-AB	23	871	0.027	23	0.0	4.500	A
C-A	525			525			
A-B	37			37			
A-C	646			646			

18:00 - 18:15

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	22	355	0.061	22	0.1	10.811	B
C-AB	16	820	0.019	16	0.0	4.727	A
C-A	432			432			
A-B	31			31			
A-C	528			528			

18:15 - 18:30

Stream	Total Demand (PCU/hr)	Capacity (PCU/hr)	RFC	Throughput (PCU/hr)	End queue (PCU)	Delay (s)	Unsignalised level of service
B-AC	18	385	0.047	18	0.0	9.826	A
C-AB	11	785	0.015	11	0.0	4.878	A
C-A	364			364			
A-B	26			26			
A-C	442			442			