

# Land to the East of St Nicholas

## Redrow Homes (South Wales)

### Transport Assessment Addendum

March 2016

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## **1 INTRODUCTION**

- 1.1 Vectos is appointed by Redrow Homes (South Wales) to provide transportation and highways advice for the proposed residential development of the Land to the East of St Nicholas.
- 1.2 Following discussions with Planning and Highways Officers at the Vale of Glamorgan Council (VoGC) in relation to the current planning application (Ref: 2015/00249/FUL), this Transport Statement Addendum (TSA) has been produced to supplement the previously submitted (October 2015) Vectos Transport Statement (W141341-TS-Final).
- 1.3 As within the previously submitted Transport Statement, the development will be accessed via a new priority T-junction, to be constructed in place of the existing property 'Emmaville'. The current Masterplan shows a provision of circa 101 residential units which is an increase from the 96 units that were assessed in the Vectos TS.
- 1.4 The purpose of this TSA is to consider the available traffic capacity at the proposed site access junction.

## 2 TECHNICAL ANALYSIS

- 2.1 Whilst the current St Nicholas Redrow Masterplan contains circa 101 residential dwellings, for robustness this TSA assesses the effect of 200 dwellings at the site access junction.
- 2.2 **Figure 1** illustrates the proposed site access junction which has been developed in accordance with regular dialogue with the County Highways officer.

**Figure 1 – Illustrative site access junction**



- 2.3 **Table 2.1** summarises the vehicle trip rates used in the Vectos Transport Statement (TS) October 2015.

**Table 4.2 – Summary of trip rates**

Mode	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Vehicles	0.144	0.399	0.380	0.224

- 2.4 The forecast traffic generation for 200 residential dwellings is contained in **Table 2.2**.

**Table 2.2 – Summary of traffic generation**

Mode	AM Peak		PM Peak	
	Arrivals	Departures	Arrivals	Departures
Vehicles	29	80	76	45

- 2.5 Development traffic has been distributed according to observed traffic flow proportions, as per the methodology used in the Vectos TS.
- 2.6 The revised traffic flow diagrams for 200 residential units are contained in **Appendix A**.
- 2.7 The PICADY model for the site access junction used the same 2018 and 2020 future year scenarios as used in the Vectos TS, but with development traffic for 200 units.
- 2.8 The PICADY output sheets are contained in **Appendix B**, however the results are summarised in **Table 2.3**.

**Table 2.3 – Summary of PICADY results**

Year	Movement	AM Peak		PM Peak	
		RFC	Queue	RFC	Queue
2018	Site egress	0.27	1 vehicles	0.16	1 vehicles
	Right turn	0.02	0 vehicles	0.10	1 vehicles
2020	Site egress	0.28	1 vehicles	0.16	1 vehicles
	Right turn	0.02	0 vehicles	0.10	1 vehicles

- 2.9 **Table 2.3** demonstrates that the proposed site access priority junction is forecast to operate well within its theoretical capacity limits with minimal queuing predicted at the site egress or in the right turn lane into the site.
- 2.10 The results of the PICADY analysis for 200 units, as presented above, are broadly the same as the VoG LDP allocation ‘sensitivity’ analysis undertaken in the Vectos TS October 2015. On this basis, it is clear that the proposed site access junction can accommodate significantly

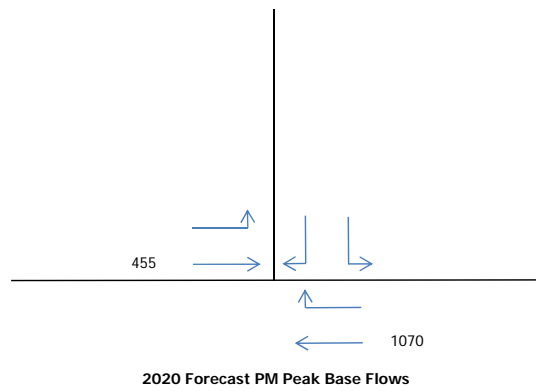
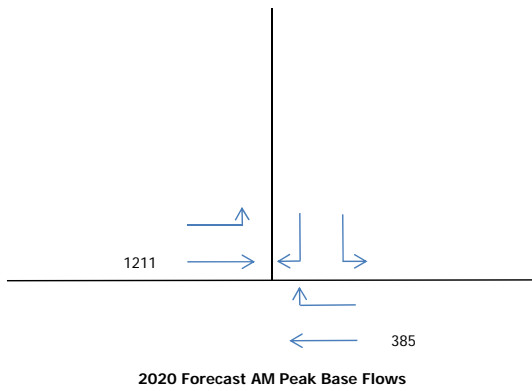
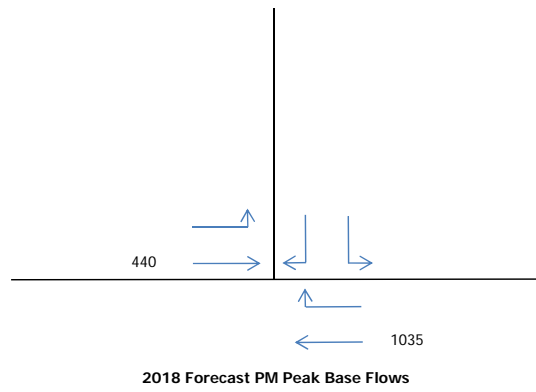
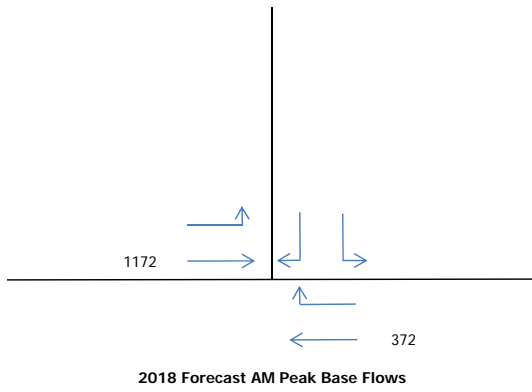
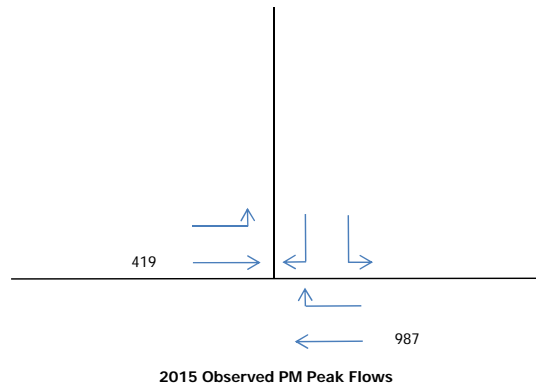
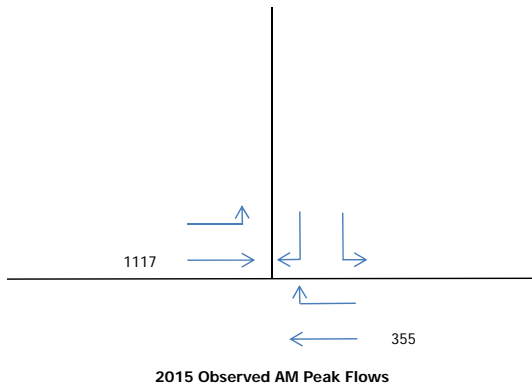
more traffic than would arise from 200 new dwellings i.e. the access could accommodate significantly more dwellings than is currently being proposed.

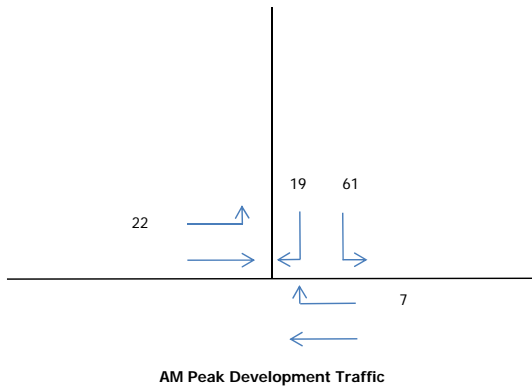
### **3 CONCLUSION**

- 3.1 The technical analysis contained within this Transport Statement Addendum has clearly demonstrated that the proposed access into the site via 'Emmaville' has sufficient capacity to accommodate significantly more new homes than is currently being proposed within the revised Masterplan for the site.
  
- 3.2 As such, the traffic capacity of the junction should not have a bearing on the number of dwellings allowed on this site.

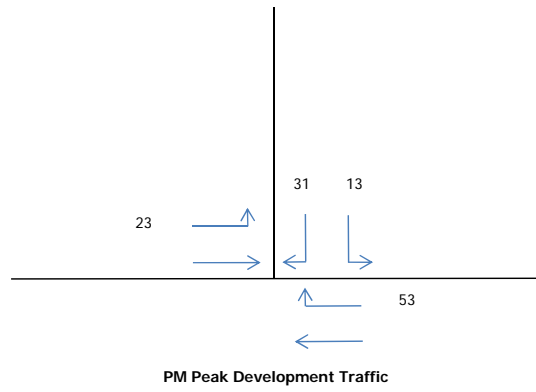
## **APPENDIX A**



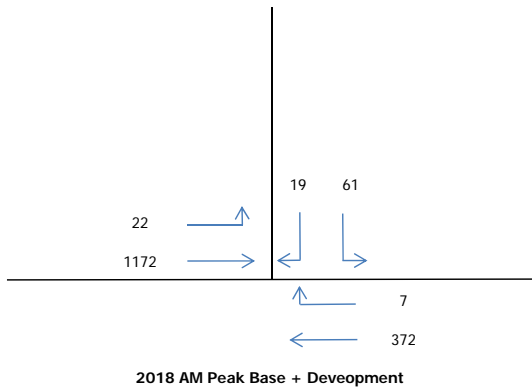




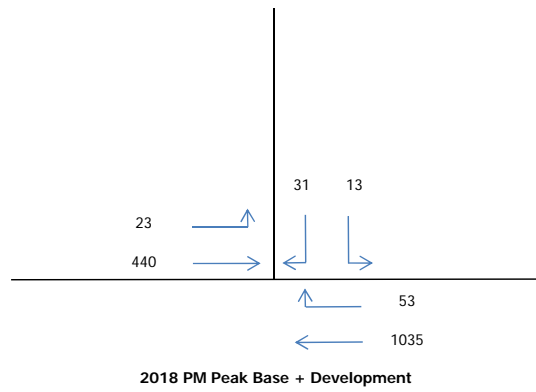
AM Peak Development Traffic



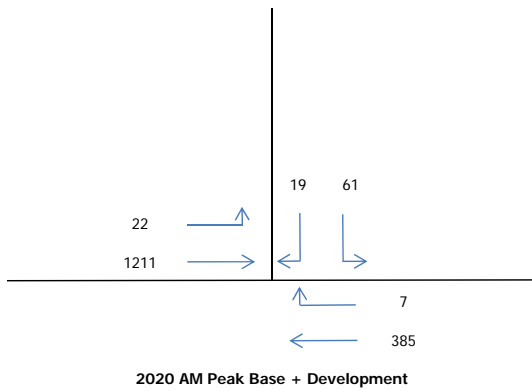
PM Peak Development Traffic



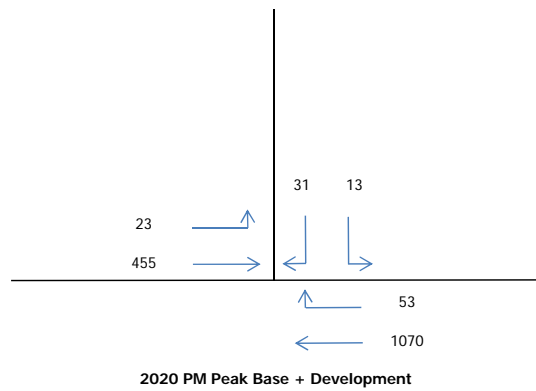
2018 AM Peak Base + Development



2018 PM Peak Base + Development



2020 AM Peak Base + Development



2020 PM Peak Base + Development

## **APPENDIX B**

Junctions 9
PICADY 9 - Priority Intersection Module
Version: 9.0.0.4211 [] © Copyright TRL Limited, 2016
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**Filename:** Emmaville Site access v2 (Feb 2016 200 units).j9  
**Path:** H:\Projects\W140000\W141341 - St. Nicholas\Picady  
**Report generation date:** 17/02/2016 14:47:33

- «Scenario 1, AM
  - »Junction Network
  - »Arms
  - »Traffic Demand
  - »Origin-Destination Data
  - »Vehicle Mix
  - »Results

### Summary of junction performance

	AM				PM			
	Queue (Veh)	Delay (s)	RFC	LOS	Queue (Veh)	Delay (s)	RFC	LOS
<b>Scenario 1</b>								
Stream B-AC	0.4	15.34	0.27	C	0.2	13.75	0.16	B
Stream C-A								
Stream C-B	0.0	8.75	0.02	A	0.1	6.68	0.10	A
Stream A-B								
Stream A-C								
<b>Scenario 2</b>								
Stream B-AC	0.4	16.02	0.28	C	0.2	14.18	0.16	B
Stream C-A								
Stream C-B	0.0	8.96	0.02	A	0.1	6.73	0.10	A
Stream A-B								
Stream A-C								

*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

<b>Title</b>	Site Access
<b>Location</b>	St Nicholas
<b>Site number</b>	
<b>Date</b>	12/02/2015
<b>Version</b>	
<b>Status</b>	
<b>Identifier</b>	
<b>Client</b>	Redrow Homes
<b>Jobnumber</b>	W141341
<b>Enumerator</b>	VECTOS"Chris.Evans
<b>Description</b>	

## Units

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

## 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

## Analysis Set Details

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

## Demand Set Details

ID	Scenario name	Time Period name	Description	Traffic profile type	Model start time (HH:mm)	Model finish time (HH:mm)	Time segment length (min)	Run automatically
D1	Scenario 1	AM	2018 AM Peak Base + Development	ONE HOUR	08:00	09:30	15	✓

# Scenario 1, AM

## Data Errors and Warnings

No errors or warnings

# Junction Network

## Junctions

Junction	Name	Junction Type	Major road direction	Junction Delay (s)	Junction LOS
1	untitled	T-Junction	Two-way	0.78	A

## Junction Network Options

Driving side	Lighting
Left	Normal/unknown

# Arms

## Arms

Arm	Name	Description	Arm type
A	A48 west		Major
B	Site Access		Minor
C	A48 east		Major

## 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)
C	10.50		✓	3.00	136.0		-

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

## Minor Arm Geometry

Arm	Minor arm type	Lane width (m)	Visibility to left (m)	Visibility to right (m)
B	One lane	3.00	21	40

## Slope / Intercept / Capacity

### Priority Intersection Slopes and Intercepts

Junction	Stream	Intercept (Veh/hr)	Slope for A-B	Slope for A-C	Slope for C-A	Slope for C-B
1	B-A	504.021	0.074	0.187	0.117	0.267
1	B-C	649.118	0.080	0.202	-	-
1	C-B	709.553	0.221	0.221	-	-

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

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

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

# Traffic Demand

Vehicle mix varies over time	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 (Veh/hr)	Scaling Factor (%)
A		ONE HOUR	✓	1194.00	100.000
B		ONE HOUR	✓	80.00	100.000
C		ONE HOUR	✓	379.00	100.000

# Origin-Destination Data

## Demand (Veh/hr)

		To		
		A	B	C
From	A	0.000	22.000	1172.000
	B	19.000	0.000	61.000
	C	372.000	7.000	0.000

## Proportions

		To		
		A	B	C
From	A	0.00	0.02	0.98
	B	0.24	0.00	0.76
	C	0.98	0.02	0.00

# Vehicle Mix

## Heavy Vehicle proportion

(08:00-08:15)

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	3	0	0

## Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.014
	B	1.000	1.000	1.000
	C	1.025	1.000	1.000

## Heavy Vehicle proportion

(08:15-08:30)

		To		
		A	B	C
From	A	0	0	1
	B	0	0	0
	C	3	0	0

## Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.014
	B	1.000	1.000	1.000
	C	1.025	1.000	1.000

## Heavy Vehicle proportion

(08:30-08:45)

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

## Average PCU Per Veh

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

**Heavy Vehicle proportion**

(08:45-09:00)

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

**Average PCU Per Veh**

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

**Heavy Vehicle proportion**

(09:00-09:15)

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

**Average PCU Per Veh**

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

**Heavy Vehicle proportion**

(09:15-09:30)

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

**Average PCU Per Veh**

		To		
		A	B	C
From	A	1.000	1.000	1.000
	B	1.000	1.000	1.000
	C	1.000	1.000	1.000

## Results

### Results Summary for whole modelled period

Stream	Max RFC	Max delay (s)	Max Queue (Veh)	Max LOS	Average Demand (Veh/hr)	Total Junction Arrivals (Veh)
B-AC	0.27	15.34	0.4	C	73.41	110.11
C-A					341.35	512.03
C-B	0.02	8.75	0.0	A	6.42	9.63
A-B					20.19	30.28
A-C					1075.45	1613.17

### Main Results for each time segment

#### Main results: (08:00-08:15)

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-AC	60.23	60.23	15.06	0.00	412.69	0.146	59.55	0.0	0.2	10.175	B
C-A	280.06	280.06	70.02	0.00			280.06				
C-B	5.27	5.27	1.32	0.00	508.08	0.010	5.23	0.0	0.0	7.158	A
A-B	16.56	16.56	4.14	0.00			16.56				
A-C	882.34	882.34	220.59	0.00			882.34				



**Main results: (08:15-08:30)**

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-A-C	71.92	71.92	17.98	0.00	373.64	0.192	71.65	0.2	0.2	11.909	B
C-A	334.42	334.42	83.61	0.00			334.42				
C-B	6.29	6.29	1.57	0.00	468.97	0.013	6.28	0.0	0.0	7.780	A
A-B	19.78	19.78	4.94	0.00			19.78				
A-C	1053.60	1053.60	263.40	0.00			1053.60				

**Main results: (08:30-08:45)**

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-A-C	88.08	88.08	22.02	0.00	322.73	0.273	87.55	0.2	0.4	15.272	C
C-A	409.58	409.58	102.39	0.00			409.58				
C-B	7.71	7.71	1.93	0.00	418.90	0.018	7.69	0.0	0.0	8.754	A
A-B	24.22	24.22	6.06	0.00			24.22				
A-C	1290.40	1290.40	322.60	0.00			1290.40				

**Main results: (08:45-09:00)**

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-A-C	88.08	88.08	22.02	0.00	322.73	0.273	88.07	0.4	0.4	15.338	C
C-A	409.58	409.58	102.39	0.00			409.58				
C-B	7.71	7.71	1.93	0.00	418.90	0.018	7.71	0.0	0.0	8.754	A
A-B	24.22	24.22	6.06	0.00			24.22				
A-C	1290.40	1290.40	322.60	0.00			1290.40				

**Main results: (09:00-09:15)**

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-A-C	71.92	71.92	17.98	0.00	377.15	0.191	72.45	0.4	0.2	11.836	B
C-A	334.42	334.42	83.61	0.00			334.42				
C-B	6.29	6.29	1.57	0.00	472.23	0.013	6.31	0.0	0.0	7.728	A
A-B	19.78	19.78	4.94	0.00			19.78				
A-C	1053.60	1053.60	263.40	0.00			1053.60				

**Main results: (09:15-09:30)**

Stream	Total Demand (Veh/hr)	Junction demand (Veh/hr)	Junction Arrivals (Veh)	Bypass demand (Veh/hr)	Capacity (Veh/hr)	RFC	Throughput (Veh/hr)	Start queue (Veh)	End queue (Veh)	Delay (s)	LOS
B-A-C	60.23	60.23	15.06	0.00	415.57	0.145	60.50	0.2	0.2	10.146	B
C-A	280.06	280.06	70.02	0.00			280.06				
C-B	5.27	5.27	1.32	0.00	510.81	0.010	5.28	0.0	0.0	7.120	A
A-B	16.56	16.56	4.14	0.00			16.56				
A-C	882.34	882.34	220.59	0.00			882.34				