

Technical Note 5

Title	Inglewood (P/2017/1133): Windy Corner Junction Modelling Results with Additional Committed Development Flows				
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Date	27 th June 2018			Version	3.1 (Dec 19)

1. Introduction

- 1.1. Key Transport Consultants is retained by Abacus Projects Ltd/Deeley Freed Estates to provide transport advice in respect of the proposed Inglewood development on land south of White Rock, Paignton, TQ4 7BQ. A Transport Assessment (TA) and Transport Assessment Addendum 1 (TAA) have been submitted to Torbay Council (TC) to support an application for up to 400 residential dwellings, a two-form entry primary school and a public house.
- 1.2. The A3022 Brixham Road/ A379 Dartmouth Road junction, known locally as Windy Corner, was modelled using LinSig V3 and the results were included within the November 2017 TA for the Inglewood development site. Following some initial comments from TC, the modelling was rerun and the findings were set out in the January 2018 TAA.
- 1.3. Following submission of the TAA, a request was received from TC that additional committed development flows be added to the Windy Corner junction model and the model tested again.
- 1.4. The purpose of this Technical Note (TN) is to set out the findings of the additional model runs at Windy Corner junction.
- 1.5. This TN continues in Section 2 with an overview of the previous modelling methodology. Section 3 compares the results of the existing Windy Corner layout with and without the Inglewood development and with and without the additional committed development flows requested.

2. Previous Analysis

- 2.1. Within the TA, Windy Corner junction was modelled for the following scenarios:
 - 2017 to examine the existing traffic flows;
 - 2019 the assumed year of first occupation of the development at Inglewood. This scenario included the adjusted development flows for the consented White Rock and Yannon's Farm developments;
 - 2024 the assumed year in which the development will be completed. This scenario
 included adjusted development flows for the consented White Rock and Yannon's Farm
 developments and the development flows for the committed Devonshire Park and
 Yalberton Road sites. The flows for the White Rock and Yannon's Farm developments

- were adjusted to allow for the fact that a portion of both developments are already built and generating trips that would have been captured in the May traffic surveys; and
- 2024 with Inglewood the assumed year in which the development will be completed.
 This scenario included the adjusted development flows for the consented White Rock
 and Yannon's Farm developments, the development flows for the committed Devonshire
 Park and Yalberton Road sites and the predicted Inglewood development flows.
- 2.2. As stated in paragraph 3.108 of the TAA, "The layout of the Windy Corner junction is far from a standard right angle signalised tee junction. In particular, the northbound "left turn" from A379 Dartmouth Road to A3022 Brixham Road is laid out as a fork left and is not subject to traffic signal control. As Torbay Council (TC) has previously modelled the junction, they were asked for comment on how best to model the junction. TC's comments are of a detailed nature and are set out in the footnote below. The TC comments were considered by KTC to be reasonable because of the slight deviation of the left turn from Dartmouth Road to Brixham Road and the excellent forward visibility to right turning movements from the northern section of Dartmouth Road, so they were adopted in the following analysis".
- 2.3. An email from Adam Luscombe (Torbay Council) dated 15th May 2018, questioned "how many of the 203 committed Brixham Neighbourhood Plan area sites counted by the Council in its five year supply have been accounted for in the traffic modelling assumption for 2024?" These housing numbers had not been included within the initial TA Scoping Note draft, which had been approved by TC, so no allowance had been made for these allocations within the junction assessment work undertaken as part of the Inglewood TA. After further consideration by TC, it was agreed that the Windy Corner 2024 modelling work would be rerun to include one additional development site in Brixham, the Wall Park site (P/2013/0785), as agreed in an email from Adam Luscombe, dated 29th May 2018.
- 2.4. The Wall Park TA, submitted under application number P/2013/0785, set out the development trips predicted to be generated by 165 dwellings (including 25 affordable); a touring caravan park (including facilities building with office, café, laundry room, showers, toilets and 2-bed managers flat, 12 no. camping pods, 59 permanent touring caravan pitches, associated access and parking); community sports pitch (to be used annually as an overflow touring caravan park/campsite for 69 pitches during June, July and August); changing & shower facilities building for community sports pitch with associated access and parking; landscape and ecological enhancement works (including bat barn, hedgerow planting and footpaths); associated pumping



¹ On 21 June 2017 Emma Hext, Technical Director at Jacobs, advised on behalf of TC that previous modelling work on the junction had: a) assigned a maximum flow of 1940 pcu/hr (based on calculations set out in RR67) for the give way northbound movement to Brixham Road, rather than the default value of 715 pcu/hr that would usually be used for a left turn give way slip at a signal junction with opposed movements; and b) that the co-efficient was varied from the default of 0.22 to 1.09.

stations, roads, footways/ cycleways, new vehicular access on Centry Road and alterations/ widening of existing access onto Wall Park Road; demolition of existing buildings (including former holiday park buildings and dwellings – 53 Wall Park Road).

- 2.5. The development trips set out in the Wall Park TA have been added to the 2024 base scenario trips for the Inglewood development site. The Windy Corner junction is not considered within the Wall Park TA. Therefore, any predicted development trips, from both the residential and touring caravan development, that are predicted on A3022 New Road at the Market Street/Fore Street/Bolton Street/ New Road junction are assumed to have travelled through the Windy Corner junction. At Windy Corner, distribution proportions were taken from the base traffic surveys at the junction. In practice, it is possible that some trips to/from the Wall Park site will not travel as far as, or via Windy Corner, but, by including all Wall Park traffic predicted on New Road, the new analysis provides a robust assessment of the impact of this committed development site on the junction.
- 2.6. The junction analysis was rerun for the 2024 tests both without and with the Inglewood development traffic, while also including the additional Wall Park committed development traffic flows, to allow for a comparison of how the Inglewood development would impact the operation of the junction.

3. A3022 Brixham Road/A379 Dartmouth Road/Langdon Lane Windy Corner Junction – Existing Layout

Without Inglewood Development Traffic

3.1. The <u>existing</u> Windy Corner junction layout was tested with the 2024 base flows to include the additional committed development flows generated by the Wall Park site. These are set out in Tables 3.1 and 3.2 below, alongside the previous 2024 + Adjusted Consented and Committed Development flows that were included within the Inglewood TAA. Values in excess of the design capacity are shown in red. The LinSig output is provided as Appendix A.



	Table 3.1: Windy Corner Junction (Existing Geometry) – AM Peak Hour, Without Inglewood Development Flows					
			08:0	0 - 09:00		
		From TAA (Table 3.27): 2024 + Adjusted Conser 2024 + Adjusted Conser and Committed Development Committed Development Development (Wall Pa		Development Committed		
		% Sat	MMQ	% Sat	MMQ	
1/1	A379 Dartmouth Road (north) Ahead	61.2%	11.7	61.9%	12.1	
1/2	A379 Dartmouth Road (north) Ahead + Right	39.2%	1.0	40.6%	1.0	
2/1	A379 Dartmouth Road (south) Left	98.0%	-	100.2%	-	
2/2	A379 Dartmouth Road (south) Ahead	98.0%	33.0	100.2%	45.4	
3/1	A3022 Brixham Road Left + Right	97.7%	24.5	98.5%	25.8	
Total	Cycle Time = 90 sec	PRC	-8.9%	PRC	-11.3%	

Table 3.2: Windy Corner Junction (Existing Geometry) – PM Peak Hour, Without Inglewood Development Flows					
			16:0	0 – 17:00	
		From TAA (Table 3.28): 2024 + Adjusted Consen and Committed Development Committed Development Committed Development Committed Development		Development Committed	
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	72.2%	13.4	73.7%	13.9
1/2	A379 Dartmouth Road (north) Ahead + Right	35.2%	1.0	35.2%	1.0
2/1	A379 Dartmouth Road (south) Left	106.1%	-	107.6%	1
2/2	A379 Dartmouth Road (south) Ahead	106.1%	76.3	107.6%	88.8
3/1	A3022 Brixham Road Left + Right	106.1%	59.9	107.8%	68.0
Total	Cycle Time = 90 sec	PRC	-17.9%	PRC	-19.8%

- 3.2. It should be noted that the results do not assign a MMQ to the A379 Dartmouth Road (south) left turn lane, as there is very little opposing traffic turning right from Dartmouth Road into Brixham Road, so stationary queues are unlikely to form at the give-way line.
- 3.3. It can be seen from Tables 3.1 and 3.2 above that the existing Windy Corner junction layout is predicted to be over its saturation and design capacities in 2024 in all AM and PM peak scenarios tested.



3.4. The junction was then modelled with 2024 traffic flows, including the additional committed development traffic flows, together with the predicted Inglewood development traffic. A summary of the results from the LinSig analysis is provided in Tables 3.3 and 3.4.

Table 3.3: Windy Corner Junction (Existing Geometry) – AM Peak Hour, With Inglewood Development Flows						
			08:0	00 - 09:00		
		From TAA (Table 3.29): 2024 + Adjusted C 2024 + Adjusted C and Committed Development Committed Development + Inglewood Development 2024 + Adjusted C and Committed Development Development 1024 + Adjusted C and Committed Development 1024 + Adjusted C and Committed Development 1024 + Adjusted C and Committed Development		Development Committed (Wall Park) +		
		% Sat	MMQ	% Sat	MMQ	
1/1	A379 Dartmouth Road (north) Ahead	62.5%	12.1	63.1%	12.3	
1/2	A379 Dartmouth Road (north) Ahead + Right	42.4%	1.1	47.0%	1.1	
2/1	A379 Dartmouth Road (south) Left	99.8%	-	102.0%	-	
2/2	A379 Dartmouth Road (south) Ahead	99.8%	42.5	102.0%	62.2	
3/1	A3022 Brixham Road Left + Right	100.2%	29.6	101.0%	31.2	
Total	Cycle Time = 90 sec	PRC	-11.4%	PRC	-13.3%	

Table 3.4: Windy Corner Junction (Existing Geometry) – PM Peak Hour, With Inglewood Development Flows					
			16:0	0 – 17:00	
		From TAA (Ta 2024 + Ad Consente Committed De + Inglew Develope	justed d and velopment ood	2024 + Adjusted Consente and Committed Developme + Additional Committed Development (Wall Park) Inglewood Development	
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	74.2%	13.8	75.7%	14.2
1/2	A379 Dartmouth Road (north) Ahead + Right	38.2%	1.1	35.9%	1.1
2/1	A379 Dartmouth Road (south) Left	108.3%	-	109.8%	1
2/2	A379 Dartmouth Road (south) Ahead	108.3%	93.9	109.8%	107.5
3/1	A3022 Brixham Road Left + Right	106.2%	61.3	107.8%	69.5
Total	Cycle Time = 90 sec	PRC	-12.4%	PRC	-22.1%

3.5. Unsurprisingly in light of the previous results, the results in Tables 3.3 and 3.4 predict that the existing Windy Corner junction layout would exceed both its design and saturation capacities in



the 2024 scenario with the Inglewood development traffic added. Particular problems are predicted on the Dartmouth Road (south) i.e. northbound, and Brixham Road approaches in both peak periods. The addition of the committed development traffic flows from the Wall Park site further exacerbates this problem.

- 3.6. The incremental impact of the Inglewood traffic is modest. For example, in the 2024 AM peak hour taken from the TAA in Table 3.1 when compared with the TAA figures in Table 3.3 the MMQ on A3022 Brixham Road is predicted to increase from 24.5 to just 29.6 pcus with the addition of the Inglewood development trips. In the 2024 PM peak, comparison of Tables 3.2 and 3.4 indicate an increase in the MMQ from 59.9 to just 61.3 pcus.
- 3.7. The addition of the Wall Park flows makes each scenario slightly worse in terms of junction capacity, but the additional flows do not affect the overall findings significantly.
- 3.8. In the AM peak, the difference between the 2024 base with the Wall Park flows and the scenario with the Inglewood development flows (also with the Wall Park flows), shows an increase in MMQ from 25.8 (Table 3.1) to 31.2 pcus (Table 3.3) on A3022 Brixham Road. In the PM peak, the increase is 68.0 to 69.5 pcus on A3022 Brixham Road.



4. A3022 Brixham Road/A379 Dartmouth Road/Langdon Lane Windy Corner Junction – Torbay Council Proposed Improved Junction Layout

Without Inglewood Development Traffic

- 4.1. TC proposes to undertake improvements south of the Windy Corner junction to alleviate northbound queuing problems on Dartmouth Road. TC (Adam Luscombe) provided a drawing (Torbay Council, Western Corridor, Windy Corner Junction Improvement, Preliminary Design Option 1, drawing number 8/9/7_01B). This is included at Appendix B and shows a scheme to provide two northbound lanes along the southern approach to the junction. To provide space for the northbound widening, southbound traffic would be diverted via Bascombe Road before rejoining the existing A379 carriageway approximately 190m south of the signalised junction.
- 4.2. At the time of writing the TAA, KTC understood that TC intended to implement their scheme commencing mid to late September 2018, with work completing by April 2019. It was also noted that their design may not yet be finalised.
- 4.3. The capacity of the Windy Corner junction with the TC scheme introduced has been analysed and a summary of the results from the LinSig analysis is provided in Tables 4.1 and 4.2 below. The LinSig output is provided at Appendix C

	Table 4.1: Windy Corner Junction with Torbay Council Proposed Improved Layout – AM Peak Hour, Without Inglewood Development Flows					
			08:0	0 - 09:00		
		From TAA (Table 3.30): 2024 + Adjusted Cons and Committed Develo Consented and Committed Development Committed Development		Development Committed		
		% Sat	MMQ	% Sat	MMQ	
1/1	A379 Dartmouth Road (north) Ahead	71.0%	14.2	71.7%	14.4	
1/2	A379 Dartmouth Road (north) Ahead + Right	39.2%	1.1	39.5%	1.1	
2/1	A379 Dartmouth Road (south) Left	79.7%	-	81.2%	-	
2/2	A379 Dartmouth Road (south) Ahead	79.7%	15.2	81.2%	15.9	
3/1	A3022 Brixham Road Left + Right	79.7%	15.4	80.4%	15.5	
Total	Cycle Time = 90 sec	PRC	12.9%	PRC	10.8%	



Table 4.2: Windy Corner Junction with Torbay Council Proposed Improved Layout – PM Peak Hour, Without Inglewood Development Flows					
			16:0	0 – 17:00	
From TAA (Table 3.31): 2024 + Adjusted Cons 2024 + Adjusted and Committed Develor Consented and + Additional Commit Committed Development Development (Wall F		Development Committed			
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	80.7%	15.1	82.4%	15.7
1/2	A379 Dartmouth Road (north) Ahead + Right	30.2%	1.0	30.4%	1.0
2/1	A379 Dartmouth Road (south) Left	69.6%	-	70.5%	-
2/2	A379 Dartmouth Road (south) Ahead	98.5%	15.2	100.0%	15.5
3/1	A3022 Brixham Road Left + Right	97.2%	33.1	98.9%	36.7
Total	Cycle Time = 90 sec	PRC	-9.5%	PRC	-11.1%

- 4.4. It can be seen from Tables 4.1 and 4.2 above that the Windy Corner junction with the TC proposed highway works included is predicted to return to being within its design and saturation capacities in all AM peak hour tests. However, the junction is predicted to remain in excess of its design and saturation capacities in the PM peak in the 2024 base scenario, both with and without the additional committed development flows from Wall Park.
- 4.5. For the 2024 scenario, the PRC of the junction is predicted to improve from -8.9% (in the TAA forecast) with the existing geometry in the AM peak (Table 3.1) to +12.9% with the Torbay improvements (Table 4.1). In the PM peak, the PRC is predicted to improve from -17.9% with the existing geometry (Table 3.2) to -9.5% with the TC improvements (Table 4.2). So the PM peak remains in excess of its design and saturation capacities but predicted conditions would be improved by the TC improvements.
- 4.6. The addition of the Wall Park flows to the base does not affect the overall findings significantly. In the AM peak, the difference between the 2024 base without and with the Wall Park flows, along with the TC highway improvements, predicts an increase in MMQ from 15.4 (Table 4.1) to 15.5 pcus (Table 4.1) on the A3022 Brixham Road arm. The predicted MMQ on the A379 Dartmouth Road Ahead lane is also predicted to increase from 15.2 pcus to 15.9 pcus. In the PM peak (Table 4.2), the increase is 33.1 to 36.7 pcus on the A3022 Brixham Road arm.

With Inglewood Development Traffic

4.7. The junction was then modelled with 2024 traffic flows, including the additional committed development traffic flows, together with the predicted Inglewood development traffic on the TC



proposed improved layout. A summary of the results from the LinSig analysis is provided in Tables 4.3 and 4.4.

Table 4.3: Windy Corner Junction with Torbay Council Proposed Improved Layout – AM Peak Hour, With Inglewood Development Flows					
			08:0	0 - 09:00	
From TAA (Table 3.32): 2024 + Adjusted Consented and Committed Development + Inglewood Development Development Development - Development Development		Development Committed Wall Park) +			
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	72.6%	14.5	73.4%	14.9
1/2	A379 Dartmouth Road (north) Ahead + Right	42.4%	1.2	42.7%	1.2
2/1	A379 Dartmouth Road (south) Left	80.8%	-	82.3%	-
2/2	A379 Dartmouth Road (south) Ahead	81.0%	15.5	82.9%	16.2
3/1	A3022 Brixham Road Left + Right	82.2%	16.6	82.9%	16.8
Total	Cycle Time = 90 sec	PRC	9.4%	PRC	8.5%

Table 4.4: Windy Corner Junction with Torbay Council Proposed Improved Layout – PM Peak Hour, With Inglewood Development Flows					
			16:0	0 – 17:00	
		From TAA (Ta 2024 + Adj Consented Committed Dev + Inglew Developr	usted d and velopment ood	2024 + Adjusted Consente and Committed Developme + Additional Committed Development (Wall Park) + Inglewood Development	
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	80.7%	15.1	82.4%	15.7
1/2	A379 Dartmouth Road (north) Ahead + Right	33.2%	1.1	33.4%	1.1
2/1	A379 Dartmouth Road (south) Left	70.9%	-	71.8%	-
2/2	A379 Dartmouth Road (south) Ahead	98.5%	15.3	100.0%	15.6
3/1	A3022 Brixham Road Left + Right	99.5%	38.6	101.1	43.7
Total	Cycle Time = 90 sec	PRC	-10.6%	PRC	-12.3%

4.8. Comparison of the results in Tables 4.3 and 4.4 with the results in Tables 4.1 and 4.2 shows that the addition of the Inglewood development traffic to Windy Corner junction in the 2024 scenario with the TC proposed highway works leads to a small decrease in the performance of the junction. In the AM peak hour the PRC of the junction is predicted to decrease from +12.9% (Table 4.1) to



- +9.4% (Table 4.3). In the PM peak, the PRC reduces from -9.5% (Table 4.2) to -10.6% (Table 4.4).
- 4.9. With the addition of the flows from Wall Park, the PRC in the AM Peak hour with the Inglewood flows decreases from +9.4% to +8.5% (Table 4.3) and in the PM peak the PRC decreases from -10.6% to -12.3% (Table 4.4).
- 4.10. It is unlikely that the addition of a small number of vehicles to the back of the queue on Brixham Road would be perceptible in each peak hour. However, Key Transport Consultants investigated options to mitigate the impact of the additional Inglewood development traffic on the junction and a further model run to test these highway improvements is outlined below.

5. A3022 Brixham Road/A379 Dartmouth Road/Langdon lane Windy Corner Junction – With KTC Proposed Junction Improvements

With Inglewood Development Traffic

- 5.1. To mitigate the impact of the Inglewood development traffic on Windy Corner junction KTC investigated a number of other highway improvements in addition to those being proposed by TC. The KTC proposed highway layout makes adjustments to the location and positioning of the existing islands within the junction and widens the carriageway, into the existing eastern verge. These changes enable the introduction of two southbound lanes from the signals to the point at which the southbound lane diverts onto Bascombe Road, as proposed on the TC preliminary highway improvements plan. In turn, this change allows both lanes on the northern Dartmouth Road arm to be assigned to southbound traffic. Reclaiming carriageway space from the islands and verges also allows for an area to be allocated for vehicles turning right from Dartmouth Road into Brixham Road enabling them to pull forward and wait within the junction without obstructing southbound traffic in the offside lane. It also enables the introduction of a short length (2 pcus) of two lane approach on the Brixham Road arm of the junction. It is proposed that the nearside of the two lanes would be marked as left and right turn and the offside be marked as right turn only.
- 5.2. A revised junction layout is shown on drawing 0734-053, enclosed in Appendix D.
- 5.3. A summary of the results from the LinSig analysis modelled in 2024 for the layout with both the TC and KTC proposed highway works and the predicted Inglewood development traffic flows, with and without the additional flows from Wall Park, is provided in Tables 5.1 and 5.2 below. The LinSig output is provided as Appendix E.



Table 5.1: Windy Corner Junction with Torbay Council and KTC Proposed Improvements – AM Peak Hour, With Inglewood Development Flows					
			08:0	0 - 09:00	
	From TAA (Table 3.33): 2024 + Adjusted Conserved and Committed Development Committed Development + Inglewood Development 2024 + Adjusted Conserved and Committed Development + Additional Committed Development (Wall Par Inglewood Development)		Development Committed Wall Park) +		
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	68.8%	13.5	71.1%	14.2
1/2	A379 Dartmouth Road (north) Ahead + Right	42.4%	1.1	42.7%	1.1
2/1	A379 Dartmouth Road (south) Left	80.4%	-	81.9%	-
2/2	A379 Dartmouth Road (south) Ahead	80.4%	14.6	81.9%	15.5
3/1	A3022 Brixham Road Left + Right	2.0%	0.0	2.0%	0.0
3/2	A3022 Brixham Road Right	80.2%	15.6	78.7%	15.4
Total	Cycle Time = 90 sec	PRC	12.0%	PRC	9.8%

Table 5.2: Windy Corner Junction with Torbay Council and KTC Proposed Improvements – PM Peak Hour, With Inglewood Development Flows					
			16:0	0 – 17:00	
		From TAA (Ta 2024 + Ad Consente Committed De + Inglew Developi	justed d and velopment vood	and Committed Development + Additional Committed	
		% Sat	MMQ	% Sat	MMQ
1/1	A379 Dartmouth Road (north) Ahead	76.7%	14.1	78.8%	14.8
1/2	A379 Dartmouth Road (north) Ahead + Right	33.3%	1.1	33.4%	1.0
2/1	A379 Dartmouth Road (south) Left	70.6%	-	71.5%	-
2/2	A379 Dartmouth Road (south) Ahead	89.3%	14.5	90.7%	14.8
3/1	A3022 Brixham Road Left + Right	4.1%	0.0	4.1%	0.0
3/2	A3022 Brixham Road Right	91.4%	25.4	93.0%	27.0
Total	Cycle Time = 90 sec	PRC	-1.5%	PRC	-3.3%

5.4. It can be seen from Tables 5.1 and 5.2 that, with the addition of the KTC proposed highway works, the PRC of the junction in the 2024 scenario with the Inglewood development traffic is predicted



- to improve from 9.4% (Table 4.3) to 12.0% (Table 5.1). In the PM peak the PRC is predicted to improve from -10.6% (Table 4.4) to -1.5% (Table 5.2).
- 5.5. With the addition of the Wall Park development flows the PRC in the AM peak hour is reduced from 12.0% to 9.8% (Table 5.1) and in the PM peak hour is reduced from -1.5% to -3.3% (Table 5.2).
- 5.6. Table 4.4 indicates that in the 2024 PM scenario with TC improvements and the addition of Inglewood development traffic the % Sat on Brixham Road is predicted to be 99.5% with a MMQ of 38.6 pcus. On the Dartmouth Road (south) ahead lane it is predicted to be 98.5% with a MMQ of 15.3 pcus and the % Sat on Dartmouth Road (north) ahead lane is 80.7% with a MMQ of 15.1 pcus. With the addition of the KTC proposed highway works all lanes are returned to being within their saturation capacities. For the KTC layout reported for the PM peak in Table 5.2, the separate lanes on Brixham Road were analysed separately, with 91.4% Sat and a MMQ of 25.4 pcus on the right turn lane and 4.1% with a MMQ of 0.0 pcus on the left and right turn lane. On the Dartmouth Road (south) ahead lane the % Sat is predicted to reduce to 89.3% with a MMQ of 14.5 pcus and on the Dartmouth Road (north) ahead lane 76.7% with a MMQ of 14.1 pcus.
- 5.7. The PRC values for the junction for the 2024 scenario without the addition of the Inglewood development traffic but with the TC highway improvements were 12.9% in the AM peak and -9.5% in the PM peak (Table 4.1 and 4.2). In comparison, Tables 5.1 and 5.2 show that not only do the KTC proposed highway works mitigate the addition of the Inglewood development traffic, they would also restore the junction to nearly being within its saturation capacities in the PM peak (-1.5%, Table 5.2) and to within its saturation and design capacities in the AM peak (12.0%, Table 5.1).
- 5.8. The addition of the Wall Park flows to the 2024 scenario in the with-Inglewood development reduces the PRC of the junction to 9.8% in the AM peak (Table 5.1) and -3.3% (Table 5.2) in the PM peak. Although the junction performs slightly worse than without the additional flows, the KTC proposed highway works still allow the junction to operate better with the Inglewood development flows, and the Wall Park flows, than the junction would operate without the Inglewood development flows in 2024 and without the KTC proposed highway works. In this latter scenario the PRC of the junction would be 10.8% in the AM peak (Table 4.1) and -11.1% in the PM peak (Table 4.2).



6. Conclusions

- 6.1. The volume of additional traffic that will travel through the Windy Corner junction as a result of the Wall Park development in Brixham has been identified and is small. A robust assessment has been undertaken in which all development flows to/from the Wall Park site that pass onto New Road at its junction with Market Street/Fore Street/Bolton Street are routed via Windy Corner, even though in practice a number of these movements are likely to be routed elsewhere.
- 6.2. As stated in the Inglewood TAA, the KTC proposed highway works mitigate the impact of the Inglewood development traffic at the Windy Corner junction, meaning that the junction will operate better in 2024 with the Inglewood development and its associated highway improvements, than without either.
- 6.3. The additional flows from the Wall Park site were added to the model and the model rerun for each scenario. Although the capacity of the junction became slightly worse in each scenario, the overall conclusions of the previous work remain unchanged. Even with the increase in base flows as a result of the inclusion of the Wall Park site the junction will continue to operate better in the 2024 scenario with the Inglewood development traffic and the associated highway improvements than it would without the Inglewood development.
- 6.4. The delivery of the KTC proposed highway works shown on drawing 0734-053 can be secured by imposing a Grampian condition upon a planning consent. This would overcome any grounds for refusal of the Inglewood application with respect to its traffic impact at Windy Corner.



APPENDIX A

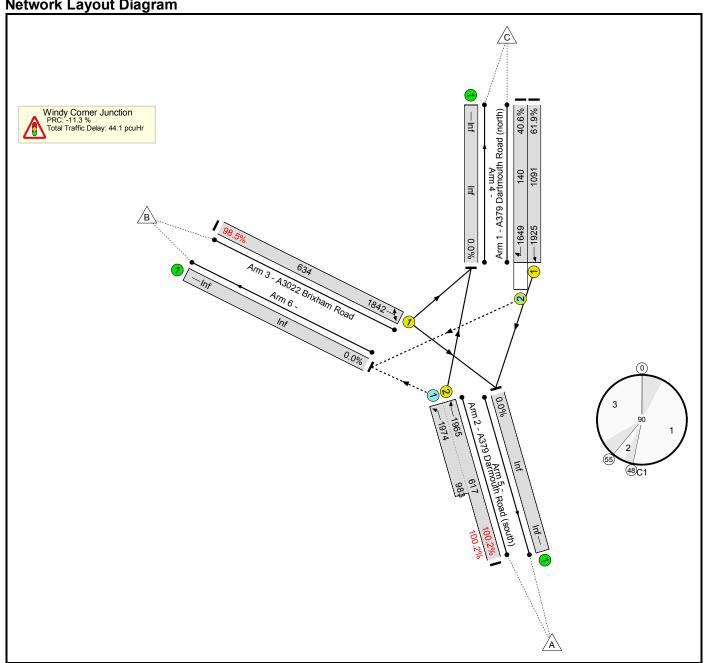


Basic Results Summary Basic Results Summary

User and Project Details

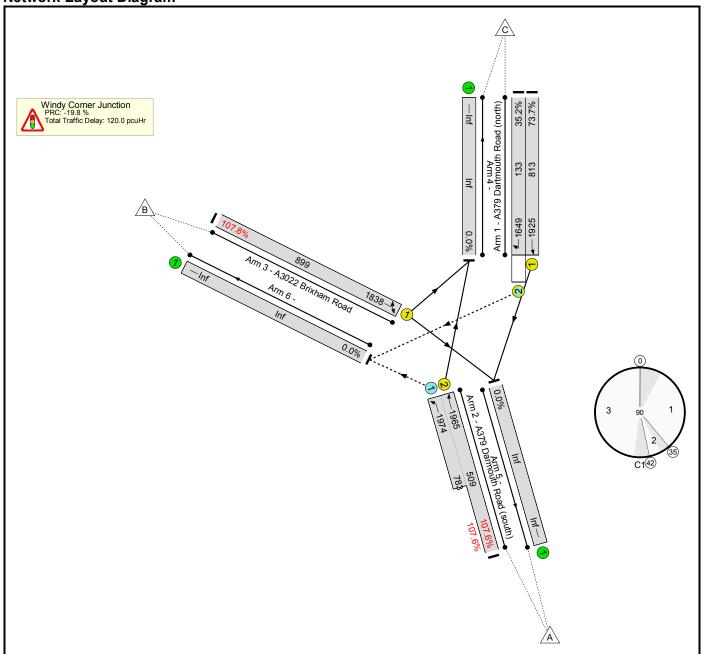
Project:	Inglewood
Title:	Windy Corner Existing Junction
Location:	
Additional detail:	
File name:	Windy Comer Existing Copy (modelled as existing give way) - additional committed development.lsg3x
Author:	FF
Company:	Key Transport Consultants
Address:	26 Berkeley Square, Bristol, BS8 1HP

Scenario 19: 'Add Com Dev 2024 AM' (FG27: '2024 + Add Com Dev AM', Plan 1: 'Network Control Plan 1') Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Existing Junction		-	-		-	-	-	-	-	-	100.2%	615	427	0	44.1	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	100.2%	615	427	0	44.1	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	50	-	675	1925	1091	61.9%	-	-	-	3.2	17.3	12.1
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	50	4	57	1649	140	40.6%	57	0	0	1.0	62.3	1.0
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	41	-	1603	1965:1974	617+983	100.2 : 100.2%	558	427	0	24.4	54.8	45.4
3/1	A3022 Brixham Road Left Right	U	С		1	30	-	625	1842	634	98.5%	-	-	-	15.4	88.9	25.8
		C1			or Signalled C Over All L		-11.3 -11.3	То	tal Delay for Sig Total Delay C	nalled Lanes Over All Lanes	(pcuHr): (pcuHr):	44.07 44.07	Cycle Time (s):	90			

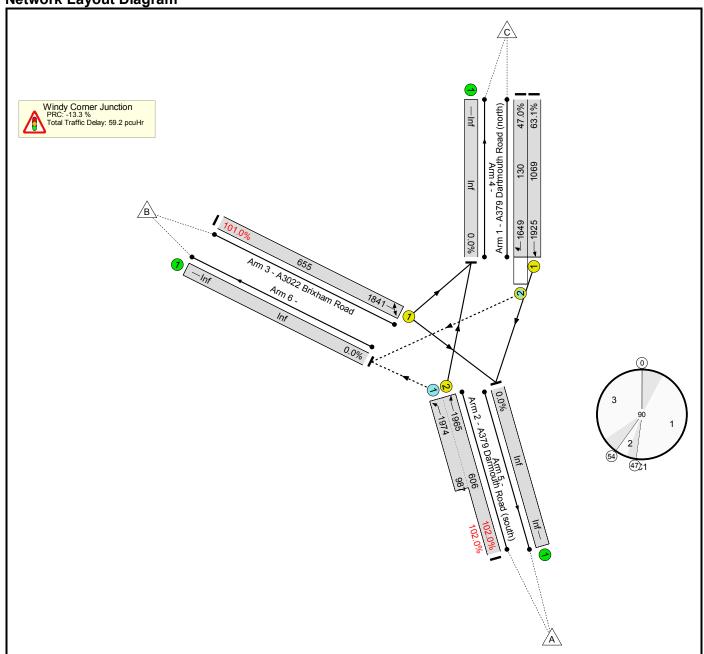
Scenario 20: 'Add Com Dev 2024 PM' (FG28: '2024 + Add Com Dev PM', Plan 1: 'Network Control Plan 1')



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Existing Junction	-		-		-	-	-	-	-	-	107.8%	318	572	0	120.0	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	107.8%	318	572	0	120.0	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	37	-	599	1925	813	73.7%	-	-	-	5.0	30.1	13.9
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	37	4	47	1649	133	35.2%	47	0	0	0.9	65.9	1.0
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	28	-	1391	1965:1974	509+783	107.6 : 107.6%	271	572	0	63.0	163.0	88.8
3/1	A3022 Brixham Road Left Right	U	С		1	43	-	969	1838	899	107.8%	-	-	-	51.2	190.2	68.0
C1 PRC for Signalled Lanes (%): -19						-19.8 -19.8	Tot	al Delay for Sigr Total Delay O			120.04 120.04	Cycle Time (s):	90				

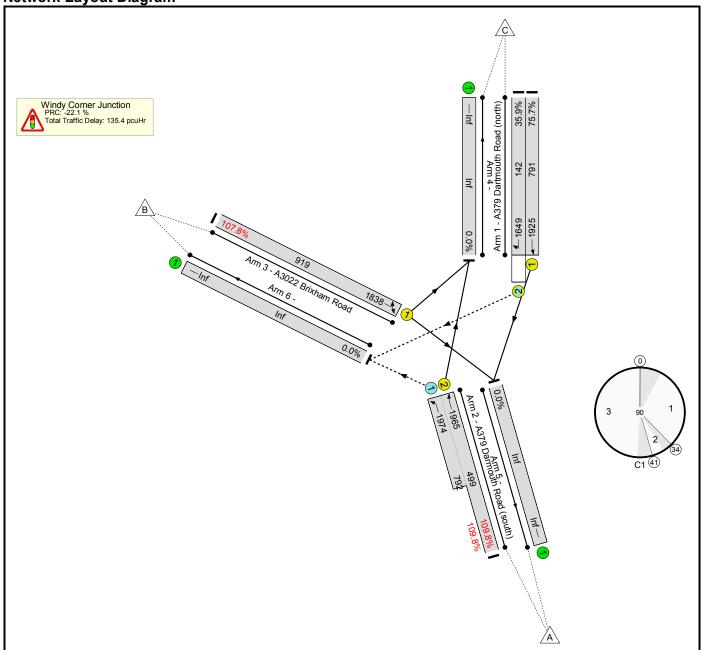
Basic Results Summary

Scenario 21: 'Add Com Dev + Dev 2024 AM' (FG29: '2024 + Add Com Dev + Dev AM', Plan 1: 'Network Control Plan 1')



Item		Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Existing Junction	-	-	-		-	-	-	-	-	-	102.0%	602	466	0	59.2	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	102.0%	602	466	0	59.2	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	A		1	49	-	675	1925	1069	63.1%	-	-	-	3.4	18.2	12.3
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	49	4	61	1649	130	47.0%	61	0	0	1.3	76.2	1.1
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	40	-	1625	1965:1974	606+987	102.0 : 102.0%	541	466	0	34.2	75.9	62.2
3/1	A3022 Brixham Road Left Right	U	С		1	31	-	661	1841	655	101.0%	-	-	-	20.2	110.2	31.2
		C1			or Signalled C Over All L		-13.3 -13.3	Tot	al Delay for Sigr Total Delay O			59.18 59.18	Cycle Time (s):	90			

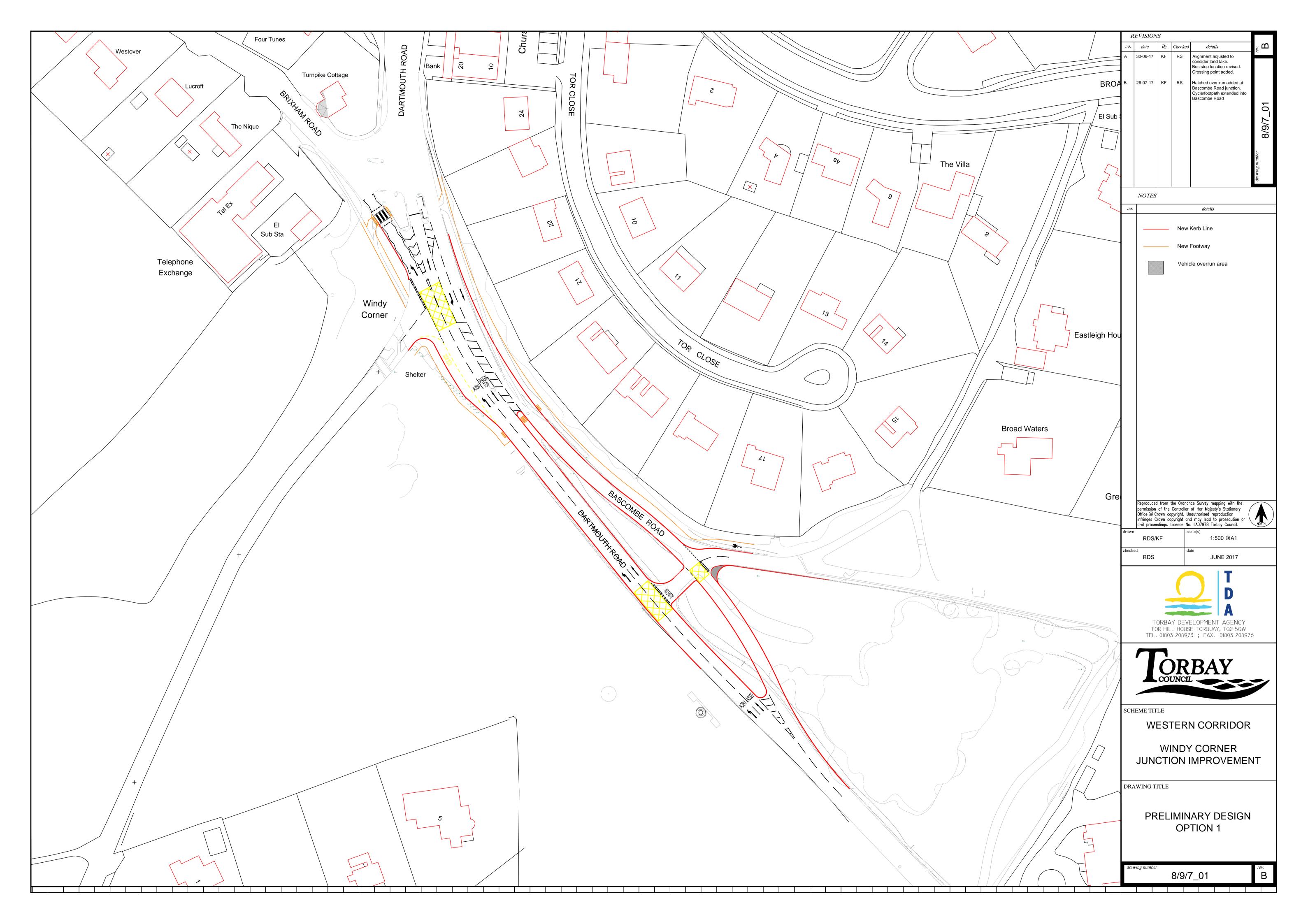
Scenario 22: 'Add Com Dev + Dev 2024 PM' (FG30: '2024 + Add Com Dev + Dev PM', Plan 1: 'Network Control Plan 1')



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Existing Junction	-		-		-	-	-	-	-	-	109.8%	303	609	0	135.4	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	109.8%	303	609	0	135.4	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	36	-	599	1925	791	75.7%	-	-	-	5.3	31.9	14.2
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	36	4	51	1649	142	35.9%	51	0	0	0.8	57.5	1.0
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	27	-	1418	1965:1974	499+792	109.8 : 109.8%	252	609	0	77.2	196.0	107.5
3/1	A3022 Brixham Road Left Right	U	С		1	44	-	991	1838	919	107.8%	-	-	-	52.1	189.3	69.5
		C1			or Signalled C Over All La		-22.1 -22.1	Tot	al Delay for Sigr Total Delay O			135.41 135.41	Cycle Time (s):	90			

APPENDIX B





APPENDIX C

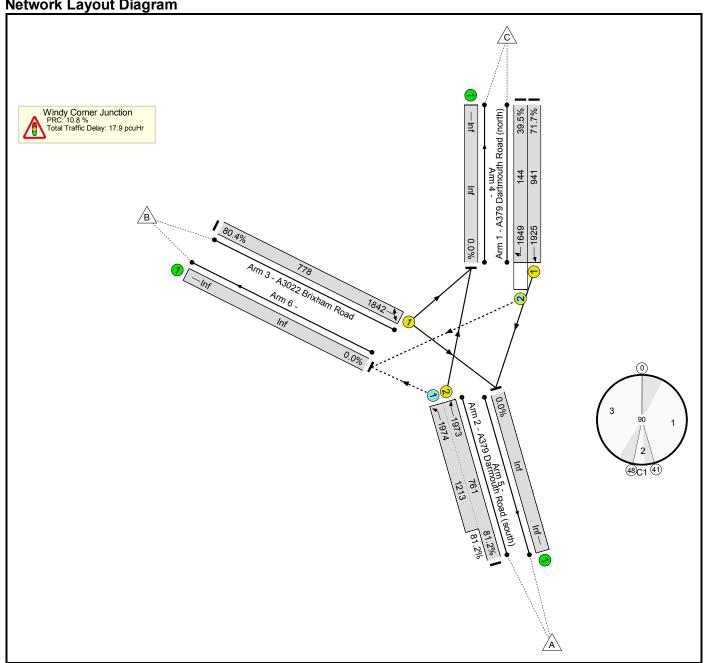


Basic Results Summary Basic Results Summary

User and Project Details

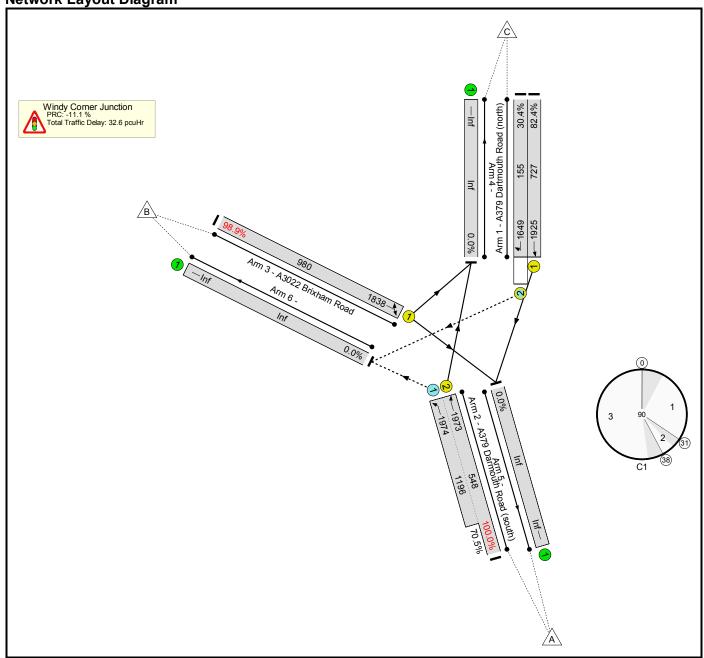
Project:	Inglewood
Title:	Windy Corner Junction - with Torbay Council Proposed Highway Works
Location:	
Additional detail:	
File name:	Windy Corner Existing Copy (modelled with Torbay proposed highway works 0734-033A) - additional committed development.lsg3x
Author:	FF
Company:	Key Transport Consultants
Address:	26 Berkeley Square, Bristol, BS8 1HP

Scenario 19: 'Add Com Dev 2024 AM' (FG27: '2024 + Add Com Dev AM', Plan 1: 'Network Control Plan 1') Network Layout Diagram



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - with Torbay Council Proposed Highway Works	-	-	-		-	-	-	-	-	-	81.2%	539	503	0	17.9	-	,
Windy Corner Junction	-	-	-		-	-	-	-	-	-	81.2%	539	503	0	17.9	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	43	-	675	1925	941	71.7%	-	-	-	4.7	24.8	14.4
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	43	4	57	1649	144	39.5%	57	0	0	1.0	61.0	1.1
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	34	-	1603	1973:1974	761+1213	81.2 : 81.2%	482	503	0	6.3	14.2	15.9
3/1	A3022 Brixham Road Left Right	U	С		1	37	-	625	1842	778	80.4%	-	-	-	5.9	34.2	15.5
	C1				ignalled Lan ver All Lane		10.8 10.8	Total I	Delay for Signal otal Delay Ove	led Lanes (pcu r All Lanes(pcu	Hr):	17.90 (17.90	Cycle Time (s):	90			

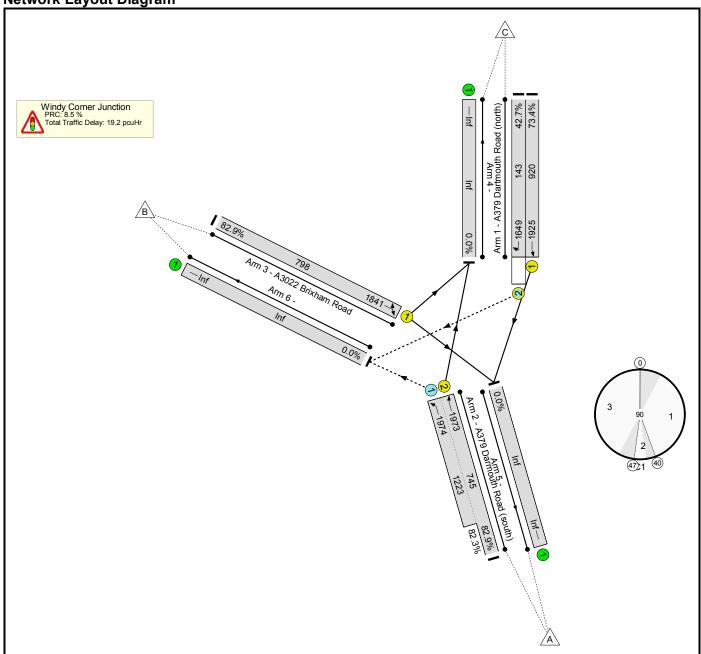
Scenario 20: 'Add Com Dev 2024 PM' (FG28: '2024 + Add Com Dev PM ', Plan 1: 'Network Control Plan 1')



ltem	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - with Torbay Council Proposed Highway Works		1	-		-	-	,	-	-	-	100.0%	365	525	0	32.6	-	,
Windy Corner Junction	-	-	-		-	-	-	-	-	-	100.0%	365	525	0	32.6	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	33	-	599	1925	727	82.4%	-	-	-	6.5	38.9	15.7
1/2	A379 Dartmouth Road (north) Right	0	А	D	1	33	4	47	1649	155	30.4%	47	0	0	0.7	53.7	1.0
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	24	-	1391	1973:1974	548+1196	100.0 : 70.5%	318	525	0	6.9	17.8	15.5
3/1	A3022 Brixham Road Left Right	U	С		1	47	1	969	1838	980	98.9%	-	-	-	18.6	69.0	36.7
		C1		PRC for S PRC O	ignalled Lan ver All Lane	es (%): s (%):	-11.1 -11.1		Delay for Signal Fotal Delay Over			2.64 C	ycle Time (s): 90				

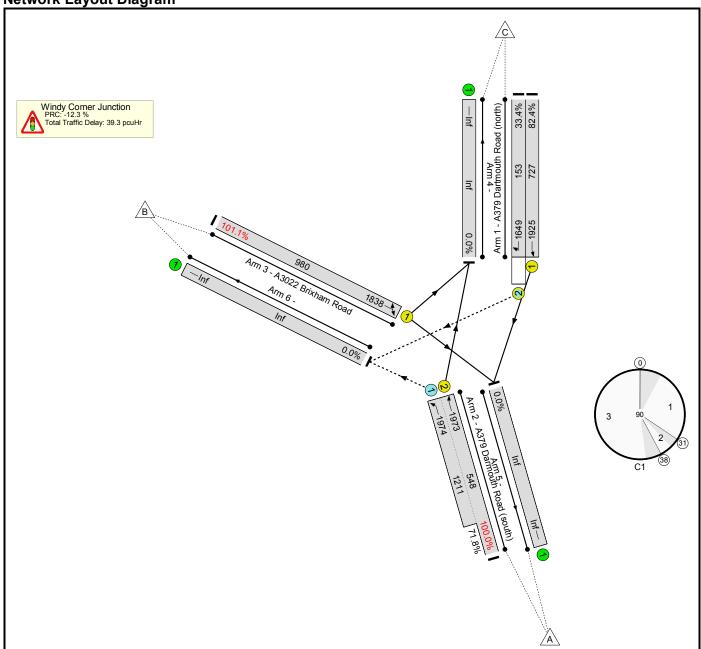
Basic Results Summary

Scenario 21: 'Add Com Dev + Dev 2024 AM' (FG29: '2024 + Add Com Dev + Dev AM', Plan 1: 'Network Control Plan 1')



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - with Torbay Council Proposed Highway Works	-	-	-		-	-	-	-	-	-	82.9%	542	526	0	19.2	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	82.9%	542	526	0	19.2	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	42	-	675	1925	920	73.4%	-	-	-	4.9	26.2	14.9
1/2	A379 Dartmouth Road (north) Right	0	A	D	1	42	4	61	1649	143	42.7%	61	0	0	1.1	63.8	1.2
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	33	-	1625	1973:1974	745+1223	82.9 : 82.3%	481	526	0	6.7	14.8	16.2
3/1	A3022 Brixham Road Left Right	U	С		1	38	-	661	1841	798	82.9%	-	-	-	6.5	35.3	16.8
		C1		PRC for Si	gnalled Lane ver All Lanes	es (%): s (%):	8.5 8.5		elay for Signallotal Delay Over			9.15 C 9.15	sycle Time (s): 90)			

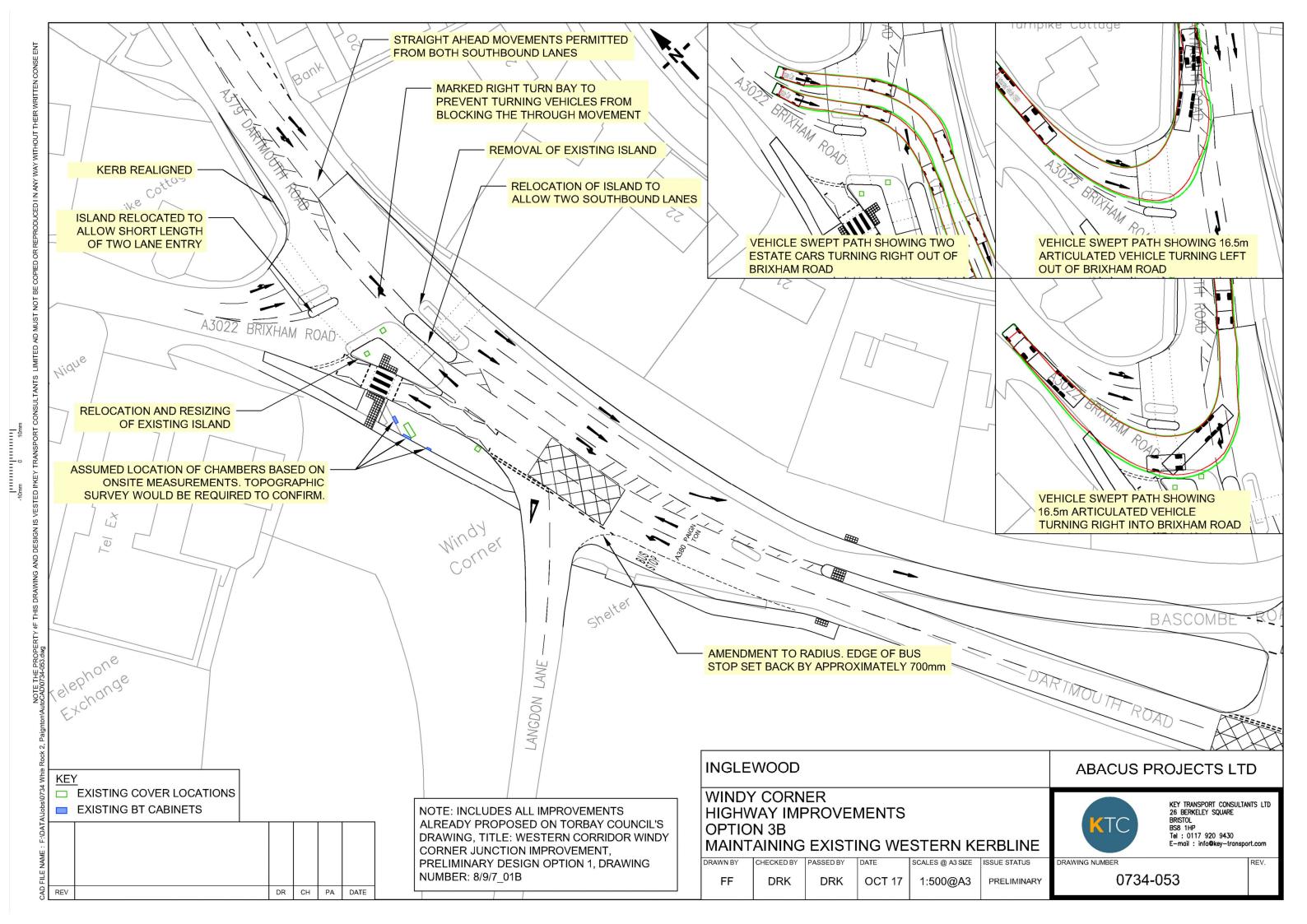
Scenario 22: 'Add Com Dev + Dev 2024 PM' (FG30: '2024 + Add Com Dev + Dev PM', Plan 1: 'Network Control Plan 1')



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - with Torbay Council Proposed Highway Works	-	-	-		-	-	-	-	-	-	101.1%	380	541	0	39.3	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	101.1%	380	541	0	39.3	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	33	-	599	1925	727	82.4%	-	-	-	6.5	38.9	15.7
1/2	A379 Dartmouth Road (north) Right	0	A	D	1	33	4	51	1649	153	33.4%	51	0	0	0.8	55.6	1.1
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	24	-	1418	1973:1974	548+1211	100.0 : 71.8%	329	541	0	7.0	17.8	15.6
3/1	A3022 Brixham Road Left Right	U	С		1	47	-	991	1838	980	101.1%	-	-	-	25.0	90.9	43.7
	С				ignalled Lan ver All Lane		-12.3 -12.3		Delay for Signal Fotal Delay Over			0.29 Cy	ycle Time (s): 90			_	

APPENDIX D





APPENDIX E



Basic Results Summary **Basic Results Summary**

User and Project Details

Project:	Inglewood
Title:	Windy Corner Junction - KTC proposed highway works
Location:	
Additional detail:	
File name:	Windy Corner Existing Copy (modelled with KTC proposed highway works 0734-044) - additional committed development.lsg3x
Author:	FF
Company:	Key Transport Consultants
Address:	26 Berkeley Square, Bristol, BS8 1HP

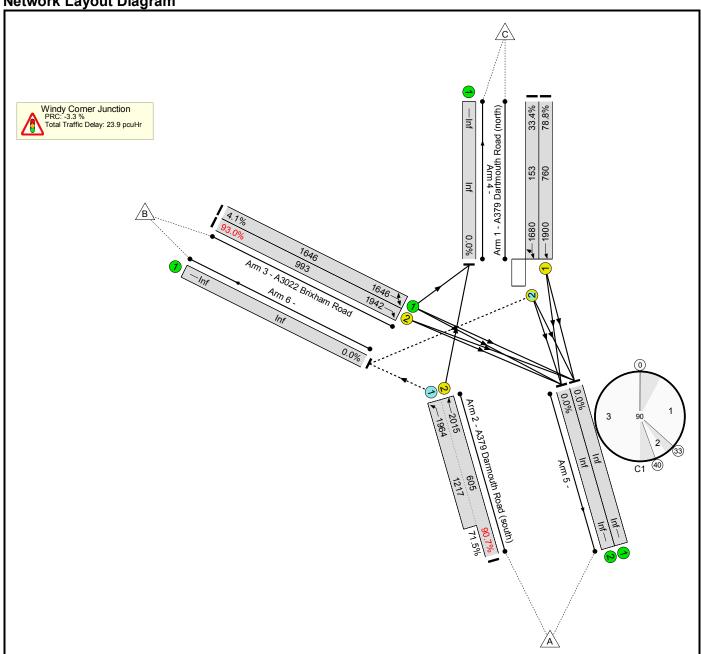
Scenario 19: 'Add Com Dev + Dev 2024 AM' (FG29: '2024 + Add Com Dev + Dev AM', Plan 1: 'Network Control

Plan 1') Network Layout Diagram Windy Corner Junction
PRC: 9.8 %
Total Traffic Delay: 17.7 pcuHr 143

Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - KTC proposed highway works	-	-	-		-	-	-	-	-	-	81.9%	564	503	0	17.7	-	-
Windy Corner Junction	-	-	-		-	-	-	-	-	-	81.9%	564	503	0	17.7	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	44	-	675	1900	950	71.1%	-	-	-	4.5	23.9	14.2
1/2	A379 Dartmouth Road (north) Ahead Right	0	A	D	1	44	4	61	1680	143	42.7%	61	0	0	1.1	63.6	1.1
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	35	-	1625	2015:1964	754+1229	81.9 : 81.9%	503	503	0	6.3	13.9	15.5
3/1	A3022 Brixham Road Left Right	U	-		-	-	-	33	1646	1646	2.0%	-	-	-	0.0	1.1	0.0
3/2	A3022 Brixham Road Right	U	С		1	36	-	628	1942	798	78.7%	-	-	-	5.8	33.4	15.4
		C1		PRC for S	Signalled La Over All Lan	nes (%): es (%):	9.8 9.8		Delay for Signa Total Delay Ove			17.65 17.66	Cycle Time (s):	90			•

Basic Results Summary

Scenario 20: 'Add Com Dev + Dev 2024 PM' (FG30: '2024 + Add Com Dev + Dev PM', Plan 1: 'Network Control Plan 1')



Item	Lane Description	Lane Type	Full Phase	Arrow Phase	Num Greens	Total Green (s)	Arrow Green (s)	Demand Flow (pcu)	Sat Flow (pcu/Hr)	Capacity (pcu)	Deg Sat (%)	Turners In Gaps (pcu)	Turners When Unopposed (pcu)	Turners In Intergreen (pcu)	Total Delay (pcuHr)	Av. Delay Per PCU (s/pcu)	Mean Max Queue (pcu)
Network: Windy Corner Junction - KTC proposed highway works	-	1	-		-	•	-	-	-	-	93.0%	399	522	0	23.9	-	
Windy Corner Junction	-	-	-		-	-	-	-	-	-	93.0%	399	522	0	23.9	-	-
1/1	A379 Dartmouth Road (north) Ahead	U	А		1	35	-	599	1900	760	78.8%	-	-	-	5.8	34.6	14.8
1/2	A379 Dartmouth Road (north) Ahead Right	0	A	D	1	35	4	51	1680	153	33.4%	51	0	0	0.8	55.4	1.0
2/2+2/1	A379 Darmouth Road (south) Ahead Left	U+O	В-		1	26	-	1418	2015:1964	605+1217	90.7 : 71.5%	348	522	0	6.4	16.1	14.8
3/1	A3022 Brixham Road Left Right	U	-		-	-	-	68	1646	1646	4.1%	-	-	-	0.0	1.1	0.0
3/2	A3022 Brixham Road Right	U	С		1	45	-	923	1942	993	93.0%	-	-	-	11.0	42.7	27.0
		C1		PRC for S	ignalled Lar	nes (%): es (%):	-3.3 -3.3		Delay for Signal Total Delay Over			23.85 (23.87	Cycle Time (s): 9	0			