

TECHNICAL NOTE

Job Name: Crawley Transport Study

Job No: 332610211

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Subject: Task 2: Sensitivity Test to Model Local Plan and Gatwick Airport DCO

1. Introduction

- 1.1. Stantec has been assisting Crawley Borough Council (CBC) with the transport modelling to inform the transport evidence base for the Crawley Local Plan Review (LPR). Stantec has been commissioned by CBC on a number of tasks to further inform the transport evidence base.
- 1.2. This task is required to understand the cumulative highway impacts of the Crawley Local Plan Scenario 2 and Gatwick Airport Limited Development Consent Order (GAL DCO). This seeks to allay West Sussex County Council (WSSCC) concerns of the GAL DCO potentially coming first instead of the Crawley Local Plan coming first due to delays in the Local Plan timetable.
- 1.3. The task has taken the modelled LPR Scenario 2 with Sustainable Mitigation and added the DCO development trips and mitigation assumptions.
- 1.4. The test has retained the Gatwick Green employment floor area assumptions as used in the previous testing i.e., 77,500 SQM GFA,
- 1.5. The cumulative impacts have been compared against the 2035 Reference Case, which has been used in the local plan transport evidence base as a proxy for 2037. Hereafter 2037 is used to refer to the LPR models. This technical note reports on the results of this sensitivity test (referred to as Sensitivity Test 1).

2. Matrix Changes

- 2.1. DCO development Trip ends figures were provided for Future Baseline years 2032, 2038, and 2047 as well as for With Project scenarios for 2032, 2038 and 2047. The 2038 With Project trip ends for the relevant Gatwick Zones 112/312, 143, 144, 145 and 146 were used as target trip numbers to update the Crawley Local Plan Scenario 2 with Sustainable Mitigation matrices and hence create the GAL DCO sensitivity test matrices.
 - 2.2. Table 1 provide a summary of comparison between the 2037 Reference Case, 2037 Local Plan Scenario 2 with Sustainable Measures and 2037 Local Plan Scenario 2 with Sustainable Mitigation plus the GAL DCO matrices, for the AM peak hour and PM peak hour. The Crawley Transport Model used to inform the transport evidence base comprises five matrix levels representing:
 - Car commute trips – Level 1
 - Car other trips – Level 2
 - Car employer business trips – Level 3
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- Light Goods Vehicles (LGV) – Level 4
- Heavy Goods Vehicles (HGV) – Level 5

Table 1: AM peak Matrix Comparison with 2037 Reference Case in Pcu/hr

AM peak (08:00 – 09:00)								
Level	2035 Reference	2035 LP Scenario 2 with Sustainable Mitigation	2035 LP2 SUSTAINABLE & GAL DCO	2035 LP2 SUSTAINABLE minus 2035 REFERENCE CASE		2035 LP2 SUSTAINABLE & GAL DCO minus 2035 REFERENCE CASE		
				Diff	% Diff	Diff	% Diff	
1	22,446.3	22,816.5	23,212.0	370.2	1.6%	765.7	3.4%	
2	26,308.3	26,800.4	27,274.7	492.1	1.9%	966.4	3.7%	
3	6,876.1	7,043.8	7,192.3	167.6	2.4%	316.2	4.6%	
4	65,59.9	67,52.2	6,908.2	192.4	2.9%	348.3	5.3%	
5	5,835.3	5,991.2	6,173.7	155.8	2.7%	338.4	5.8%	
TOTAL	68,025.9	69,404.0	70,760.9	1,378.2	2.0%	2,735.0	4.0%	

Table 2: PM peak Matrix Comparison with 2037 Reference Case in Pcu/hr

PM peak (17:00 – 18:00)								
LEVEL	2035 REFERENCE CASE	2035 LP2 SUSTAINABLE	2035 LP2 SUSTAINABLE & GAL DCO	2035 LP2 SUSTAINABLE minus 2035 REFERENCE CASE		2035 LP2 SUSTAINABLE & GAL DCO minus 2035 REFERENCE CASE		
				Diff	% Diff	Diff	% Diff	
1	21,627.1	22,004.1	22,366.2	377.0	1.7%	739.0	3.4%	
2	31,080.4	31,846.0	32,210.6	765.7	2.5%	1130.2	3.6%	
3	4,662.5	4,908.5	4,952.9	246.0	5.3%	290.4	6.2%	
4	5,776.6	5,960.7	6,017.4	184.0	3.2%	240.8	4.2%	
5	3,995.8	4,077.3	4,149.7	81.6	2.0%	153.9	3.9%	
TOTAL	67,142.4	68,796.6	69,696.7	1,654.2	2.5%	2,554.3	3.8%	

2.3. It can be seen from Table 1 that:

- In the AM peak hour, the GLA DCO matrix, has 2,735 more trips than the 2037 Reference Case or an increase of 4% over the Reference Case. For perspective, the AM Scenario 2 LP with sustainable matrix has 2% more trips than the Reference Case.
- In the PM peak hour, the GAL DCO matrix has 2,554.3 more trips than the 2037 Reference Case or an increase of 3.8% over the Reference Case. For perspective, the PM Scenario 2 LP with sustainable matrix has 2.5% more trips than the Reference Case.

2.4. Appendix A summarises a comparison of trip ends with the 2037 Reference Case Scenario, 2037 Local Plan Scenario 2 with Sustainable Measures, modelled 2037 Local Plan Scenario 2 with Sustainable Measures plus the GAL DCO matrices and the received GAL zones trip ends. The comparison shows that:

- In both the AM and PM peaks the biggest increase in trips for the GAL DCO trips is in zones 143 and 144 representing the North and South Terminals at Gatwick;
- This is the case for both origin and destination trip ends.
- Overall, in the AM peak the GAL DCO sensitivity test has 65% more origin trip ends in the Gatwick zones compared to the 2035 Reference Case while the equivalent increase in the PM peak origin trip ends is 32%.

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- Overall, in the AM peak the GAL DCO sensitivity test has 18% more destination trip ends compared to the 2035 Reference Case while the equivalent increase in the PM peak destination trip ends is also 18%.
- Appendix A also compares the GAL DCO sensitivity test trip ends as included in the Stantec models against the 2038 With Project trip end numbers provided by GAL consultants Atkins through WSCC. These are seen to match closely.

3. Network Changes

- 3.1. As part of the GAL DCO development scenario, some changes were made to the network arrangements at A23/A217 Longbridge roundabout, Gatwick North Terminal Roundabout and Gatwick South Terminal Roundabout. The designs for the mitigation were provided to Stantec by WSCC and reflect highway mitigation proposals put forward by GAL.
- 3.2. Appendix B illustrate the network modifications proposed. These schemes were coded into the 2037 Scenario 2 LP with Sustainable Mitigation networks for the AM and PM peak hours. The GAL DCO matrices were then assigned to the updated networks followed by analysis of the network impacts.

4. Flow Changes

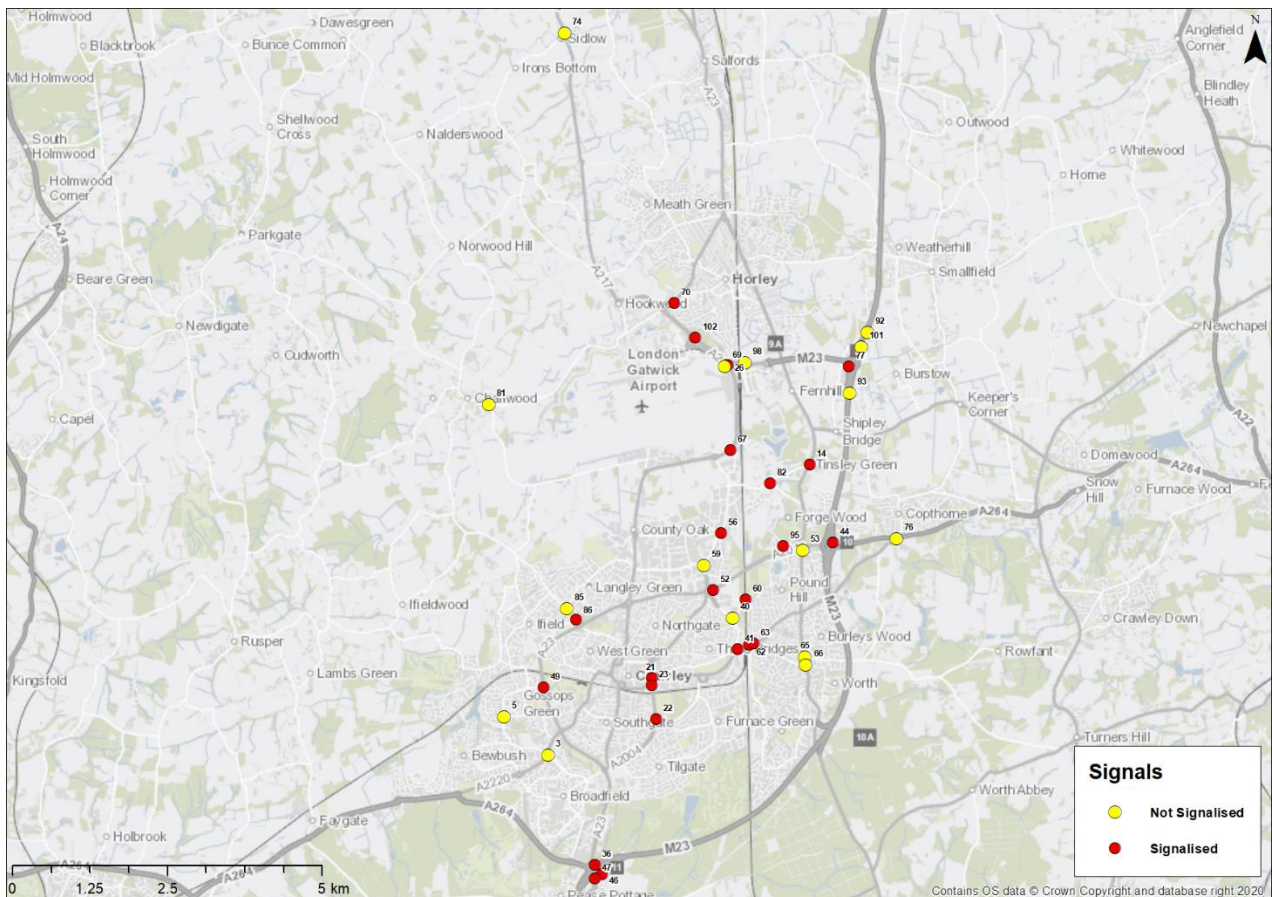
- 4.1. Traffic flow comparisons between the Reference Case and the GAL DCO sensitivity test are provided within Appendix C. These show where changes in traffic flows are seen on the network.
- 4.2. In both the AM and PM peaks, the main flow increases are predicted along the M23 Spur off M23 J9 as well as on Airport Way. For two-way traffic in the AM peak, Airport Way increases by 676 pcus (13.8%), M23 Spur off M23 J9 increases by 473 pcus (10%) and London Rd east of Longbridge Roundabout increases by 242 pcus (6.1%).
- 4.3. Similarly for two-way traffic in PM peak, Airport Way increases by 175 pcus (3.5%), M23 Spur off M23 J9 increases by 1155 pcus (27.3%) and London Rd east of Longbridge Roundabout increases by 629 pcus (14.7%).
- 4.4. Airport Way sees the most increases in the AM peak and M23 Spur off M23 J9 in the PM peak. These are sites within the vicinity of the North and South Terminal zones 143 and 144 respectively which are planned to see significant trip increases in the GAL DCO scenario.
- 4.5. There are also significant increases predicted at M23 J9 in both the AM and PM peaks. In the AM peak there are flow decreases of 213 pcus (3.9%) on the M23 links leading to M23 J9 in both the northbound and increase of 203 pcus (3.4%) in southbound directions, as well as increases of 168 pcus (3.5%) on the M23 southbound between M23 J9 and M23 J10.
- 4.6. In the PM peak there are flow increase of 263 pcus, 5.7% on the M23 northbound north of M23 J9. Increases of 156 pcus, 3.7% northbound and 403 pcus, 7.1% southbound are also predicted on the M23 in both directions between M23 J9 and M23 J10. Flow increases of 237 pcus, 7.2% are also predicted on the M23 southbound between M23 J10 and M23 J11.
- 4.7. Within Crawley, flow increases are predicted on a number of links especially west of M23 J10 along the A2011 Crawley Avenue in both directions in the AM peak (189 pcus, 14.4% Eastbound; 177 pcus, 7.8% Westbound) and eastbound in the PM peak (291 pcus, 11.9%). There are also flow increases of the order of 200 pcus (25%) on B2036 Balcombe Rd northbound in the AM peak. Flow increases are also predicted on the western edge of Crawley on Rusper Road in both the AM and PM peaks. Flow increases are also predicted on roads in Crawley town centre especially in the PM peak.

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5. Analysis of Overcapacity Junctions

- 5.1. In order to determine which junctions had material adverse impacts when compared to the Reference Case, the study examined junctions across the modelled network, in order to understand and identify capacity issues as a result of the GAL DCO sensitivity test. The analysis identified junctions where at least one turning movement is overcapacity i.e., has a Volume to Capacity ratio (V/C %) greater than or equal to 100%. This means that the flow for at least one turn, is equal to or exceeds the capacity available for that turn at the junction.
- 5.2. WSCC, as highway authority, advised during the LPR transport evidence base modelling, that where junctions are only a little over the volume to capacity ratio threshold (within 1.5% difference in V/C) when compared to the Reference Case, a further review should be undertaken with consideration of average delay per vehicle. WSCC suggested that any junction with turning movements where delay increased by 30 seconds or more to a value over 90 seconds on major routes (120 seconds on minor roads) was severely impacted. These delay values align with values set out in WSCC’s Transport Assessment (TA) guidance. This same approach has been used for this sensitivity test.
- 5.3. It should be noted that the assessment looks at the operation of junctions with both the LP and GAL DCO development combined and therefore, any junction highlighted as being over capacity and above the thresholds noted above, would be a result of the cumulative impacts of the two separate elements and not just from the Local Plan developments.
- 5.4. Based on this analysis, the junctions deemed to be overcapacity in the GAL DCO test are indicated in Figure 1 and summarised in Table 3 for AM peak and Table 4 for PM peak.
- 5.5. Junction delay information at the junctions discussed in this section can be found in Appendix D.

Figure 1: Overcapacity Junctions



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Table 3: Scenario 2 LP with Sustainable Mitigation + GAL DCO Overcapacity Junctions – AM Peak

Item No.	Jun. ID	Node	Junction Name	Junction Type	2035 Reference Case	2035 Scenario 2 with Sustainable Measure & GAL DCO
ii	14	1824	B2036/Radford Road	Signalised Junction	105.0	106.7
iii	21	1010	Southgate Avenue/College Road/Haslett Avenue East	Signalised Junction	94.5	100.6
iv	22	1750	Southgate Avenue/Southgate Drive	Signalised Junction	91.4	100.5
v	26	2017	A23 London Road/Perimeter Road North	Signalised Junction	79.7	101.7
vi	40	1440	Hazelwick Avenue/Bycroft Avenue Roundabout	Roundabout	97.9	100.6
vii	46	1616	M23 Junction J11 Roundabout	Signalised Junction	104.4	106.5
viii	47	1618	M23 Junction J11 Roundabout	Signalised Junction	102.6	104.6
ix	52	1687	Hazlewick Roundabout	Signalised Junction	93.3	100.6
x	56	1826	Gatwick Road/ Fleming Way Roundabout	Signalised Junction	96.6	100.9
xi	65	1970	Turners Hill Rd/B2036 Roundabout	Roundabout	98.7	100.2
xii	67	2016	Beehive Ring Rd/London Rd	Signalised Junction	99.8	102.1
xiii	69	2072	Perimeter Rd N/London Rd	Priority Junction	30.9	106.1
xiv	74	2546	Ironsbottom/A217/Reigate Rd	Priority Junction	105.8	111.3
xv	76	2650	Copthorne Way/Brookhill Rd/A2220/Copthorne Common	Roundabout	106.0	107.8
xvi	77	2715	M23 J9/Gatwick Interchange NB Diverge	Signalised Junction	42.4	118.3
xvii	81	9044	Lowfield Heath Rd/The Street/Horley Rd	Priority Junction	98.5	100.4
xviii	82	9070	Radford Rd/Steers Ln	Signalised Junction	106.3	108.5
xix	92	70109	M23 J9 SB Diverge	Priority Junction	93.7	107.5
xx	98	81001	Airport Way E /South Terminal Roundabout	Priority Junction	62.1	102.0
xxi	101	82000	M23 Junction 9 SB Diverge	Priority Junction	93.7	100.5
xxii	102	99828	Proposed North Terminal Junction (DCO Mitigation)	Signalised Junction	-	103.1

Table 4: Scenario 2 LP with Sustainable Mitigation + GAL DCO Overcapacity Junctions – PM Peak

Item No.	Jun. ID	Node	Junction Name	Junction Type	2035 Reference Case	2035 Scenario 2 with Sustainable Measure & GAL DCO
i	3	1860	Broadfield Roundabout/	Roundabout	112.3	115.5
ii	5	9081	Gossops Drive/Buckswood Drive	Roundabout	103.6	105.4
vi	14	1824	B2036/Radford Road	Signalised Junction	90.7	101.0
vii	23	1020	A2004 Southgate Avenue/Station Way	Signalised Junction	74.0	100.2
viii	36	1611	M23 Junction J11 Roundabout	Signalised Junction	106.7	111.2
ix	41	1450	Hazlewick Ave/Haslett Ave E	Signalised Junction	98.1	102.8
x	44	1604	Crawley Interchange	Signalised Junction	105.8	107.7
xi	49	1651	Gossops Dr/Crawley Avenue Junction	Signalised Junction	106.2	109.5
xii	53	1692	Balcombe Rd/Haywards/B2036	Priority Junction	99.4	101.2
xiii	59	1840	Manor Royal/Gatwick Rd Roundabout	Roundabout	98.3	100.1
xiv	60	1900	St Mary's Drive	Signalised Junction	101.3	108.4
xv	62	1930	Haslett Avenue E/Station Hill	Signalised Junction	106.7	110.6
xvi	63	1940	St Mary's Drive/Haslett Ave E	Signalised Junction	100.7	102.2
xvii	66	1980	B2036/Worth Rd	Priority Junction	83.5	100.5
xviii	70	2100	Massetts Rd/Brighton Rd	Signalised Junction	96.3	100.8
xix	74	2546	Ironsbottom/A217/Reigate Rd	Priority Junction	151.1	155.3
xx	76	2650	Copthorne Way/Brookhill Rd/A2220/Copthorne Common	Roundabout	108.5	110.7
xxi	85	9076	Ifield Avenue/Stagelands	Priority Junction	103.4	106.2
xxii	86	9077	Ifield Drive/Ifield Avenue	Signalised Junction	101.9	103.6
xxiii	93	70111	M23 Junction J9 SB Merge	Priority Junction	77.8	100.2
xxiv	95	80156	Crawley Avenue/A2011 Diverge	Signalised Junction	102.5	105.5

5.1. Twenty-one junctions are identified as overcapacity in the AM peak of which Junction ID's 21 and 22 were identified in LP Scenario 2 with Sustainable Mitigation. The other nineteen are additional overcapacity junctions with GAL DCO in place.

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- 5.2. Twenty-one junctions are identified as overcapacity in the PM peak of which Junction ID 3 was identified in LP Scenario 2 with Sustainable Mitigation. The other twenty are additional junctions with GAL DCO.
- 5.3. The location of overcapacity junctions is largely in keeping with locations of increased flows discussed in Section 4 above.
- 5.4. In total there are 39 junctions which have been identified in either the AM or PM peak (or both). The largest increases in V/C are seen at junctions closest to Gatwick Airport as expected.
- 5.5. Some of the smaller increases, generally seen at junctions further from Gatwick are potentially a result of sensitivities in the model and given the small increases, could be resolved through signal optimisation where applicable or through behavioural change. In both the AM and PM peaks, the majority of overcapacity junctions are signal controlled and would potentially benefit from optimisation in practice. A large number, particularly in the AM peak, have a V/C of only just above 100% and so would likely only be over capacity towards the end of the plan period, should all the growth materialise as modelled.
- 5.6. In the AM peak, the worst performing junctions (with a V/C increase greater than 5) are:
- Southgate Avenue/College Road/Haslett Avenue East
 - Southgate Avenue/Southgate Drive
 - A23 London Road/Perimeter Road North
 - Hazelwick Roundabout
 - Perimeter Rd N/London Rd
 - Ironsbottom/A217/Reigate Rd
 - M23 J9/Gatwick Interchange NB Diverge
 - M23 J9 SB Diverge
 - Airport Way E /South Terminal Roundabout
- 5.7. In the PM peak the worst performing junctions (with a V/C increase greater than 5) are:
- B2036/Radford Road
 - A2004 Southgate Avenue/Station Way
 - St Mary's Drive
 - B2036/Worth Rd
 - M23 J9 SB Merge

6. SRN Merge and Diverge Flows

- 6.1. M23 Motorway and diverge flows in vehicles/hour to enable have been provided as Appendix E to allow merge-diverge assessments to be undertaken, should they be required by National Highways. These have been provided from the same junctions as provided in the LPR comprising the M23 junctions from J9 to J11 inclusive.

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7. Summary and Conclusion

- 7.1. This technical note has reported on the sensitivity test to understand the cumulative impacts of the Crawley Local Plan Scenario 2 with Sustainable Mitigation + Gatwick Development Consent Order (DCO). The test seeks to allay West Sussex County Council (WSSC) concerns of the Gatwick Airport DCO potentially coming first instead of the Crawley Local Plan coming first due to delays in the Local Plan timetable.
- 7.2. The matrix update for the GAL DCO sensitivity test shows that this scenario has 4% more trips in the AM peak than the 2035 Reference case in the AM peak. By comparison, the Scenario 2 LP with Sustainable mitigation has 2% more trips. In the PM peak the GAL DCO sensitivity test has 3.8% more trips than the 2035 Reference Case. By comparison the Scenario 2 LP with Sustainable mitigation has 2.5% more trips.
- 7.3. In terms of trip ends for the Gatwick zones 112/312, 143, 144, 145 and 146, it has been shown that the GAL DCO sensitivity test has 65% more origin trip ends in the Gatwick zones compared to the 2035 Reference Case while the equivalent increase in the PM peak origin trip ends is 32%. In terms of destination trip ends, in the AM peak the GAL DCO sensitivity test has 18% more destination trip ends compared to the 2035 Reference Case while the equivalent increase in the PM peak destination trip ends is also 18%.
- 7.4. Highway mitigation schemes proposed by GAL were coded into the sensitivity test and following assignment of the updated matrices analysis was undertaken to understand the impacts on the network.
- 7.5. Flow increases were predicted across Crawley as a result of the GAL DCO. In both the AM and PM peaks, the most significant flow increases are predicted along the M23 Spur off M23 J9 as well as on Airport Way. Airport Way sees the most increases in the vicinity of the North and South Terminal zones 143 and 144 respectively which are planned to see significant trip increases in the GAL DCO scenario. There also significant flow increases on the from north of M23 J9 all the way to M23 J11.
- 7.1. Within Crawley, flow increases are predicted on a number of links especially west of M23 J10 along the A2011 Crawley Avenue in both directions in the AM peak and eastbound in the PM peak. There are also flow increases on B2036 Balcombe Rd northbound in the AM peak. Flow increases are also predicted on the western edge of Crawley on Rusper Road in both the AM and PM peaks. Flow increases are also predicted on roads in Crawley town centre especially in the PM peak.
- 7.2. Twenty-one overcapacity junctions that would require some level of mitigation were identified in the AM peak while twenty-one were also identified in the PM, with three junctions being identified as common to both peaks. It is noted that the majority of these junctions are signal controlled junctions that would benefit from optimisation in practice.

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Appendix A: Comparison of Trip ends

AM ORIGINS					SCENARIO minus REFERENCE			% DIFFERENCE		
GATWICK ZONE NO.	2037 REFERENCE CASE	2035 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO
112/312	416	408	499	504	-7	84	88	-2%	20%	21%
143	516	512	1497	1513	-4	981	996	-1%	190%	193%
144	734	722	1867	1881	-12	1133	1147	-2%	154%	156%
145	325	321	28	28	-4	-297	-297	-1%	-91%	-91%
146	774	759	672	677	-14	-101	-96	-2%	-13%	-12%
TOTAL	2764	2722	4563	4602	-42	1799	1838	-2%	65%	66%

AM DESTINATIONS					SCENARIO minus REFERENCE			% DIFFERENCE		
GATWICK ZONE NO.	2037 REFERENCE CASE	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO
112/312	817	816	898	891	-1	81	75	0%	10%	9%
143	896	904	1982	1995	8	1086	1099	1%	121%	123%
144	1680	1681	1988	1975	2	308	295	0%	18%	18%
145	559	558	32	32	-1	-527	-527	0%	-94%	-94%
146	1030	1031	972	965	1	-58	-65	0%	-6%	-6%
TOTAL	4981	4991	5871	5858	10	890	877	0%	18%	18%

PM ORIGINS					SCENARIO minus REFERENCE			% DIFFERENCE		
GATWICK ZONE NO.	2037 REFERENCE CASE	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO
112/312	681	677	790	792	-5	109	111	-1%	16%	16%
143	569	569	1811	1816	1	1242	1248	0%	218%	219%
144	871	874	1318	1322	3	447	451	0%	51%	52%
145	471	472	28	28	1	-444	-443	0%	-94%	-94%
146	873	876	644	646	3	-230	-227	0%	-26%	-26%
TOTAL	3466	3468	4590	4605	3	1124	1139	0%	32%	33%

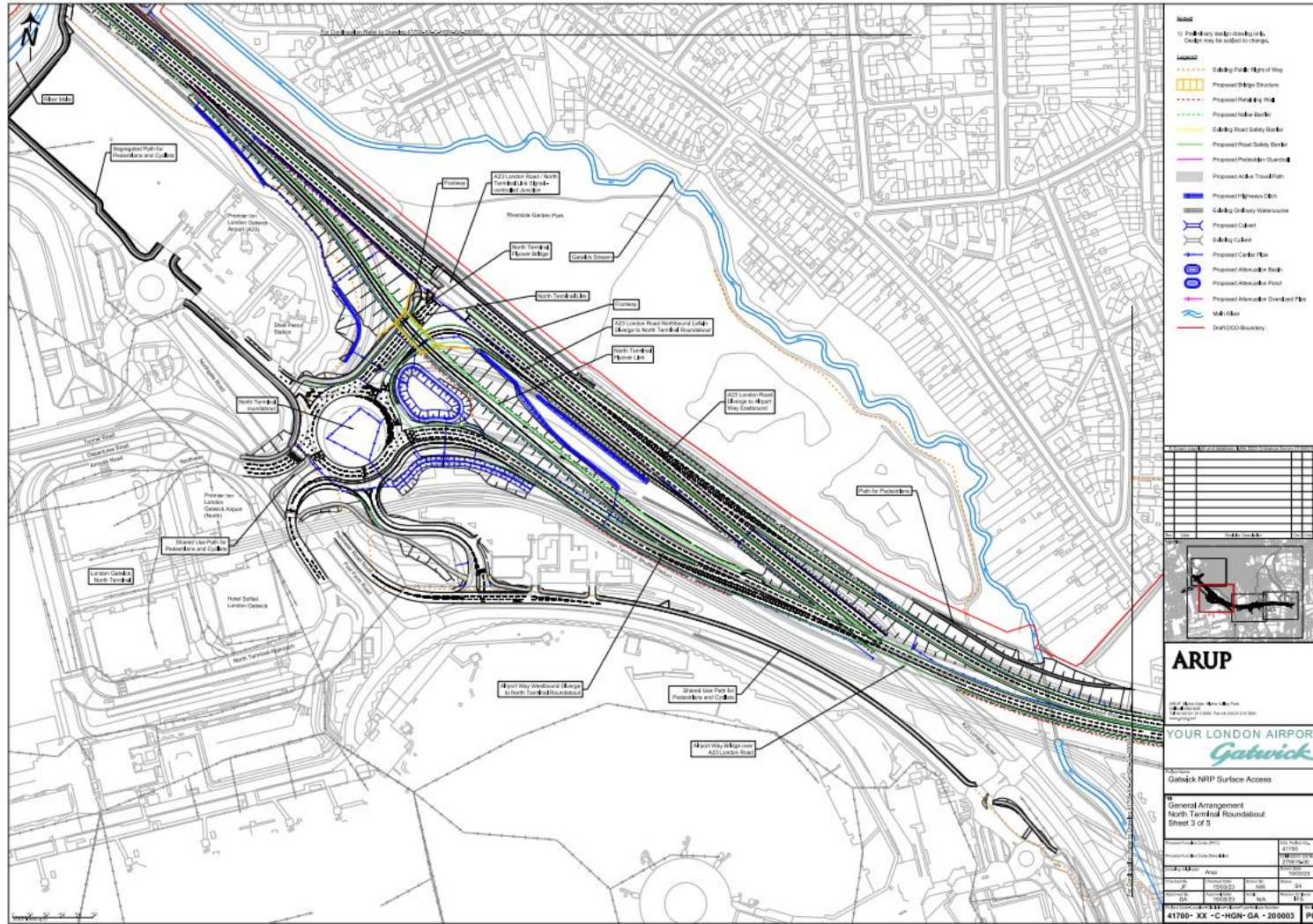
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GATWICK ZONE NO.	PM DESTINATIONS				SCENARIO minus REFERENCE			% DIFFERENCE		
	2037 REFERENCE CASE	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO	2037 LP2 SUSTAINABLE	2037 LP2 SUSTAINABLE & GAL DCO	ATKINS GAL DCO
112/312	250	248	474	473	-3	224	222	-1%	89%	89%
143	568	557	1405	1419	-11	837	851	-2%	147%	150%
144	1120	1095	1238	1253	-25	118	133	-2%	11%	12%
145	236	234	21	21	-2	-215	-215	-1%	-91%	-91%
146	990	971	600	605	-18	-390	-384	-2%	-39%	-39%
TOTAL	3164	3105	3738	3771	-59	574	607	-2%	18%	19%

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7.3.

General Arrangement of North Terminal Roundabout

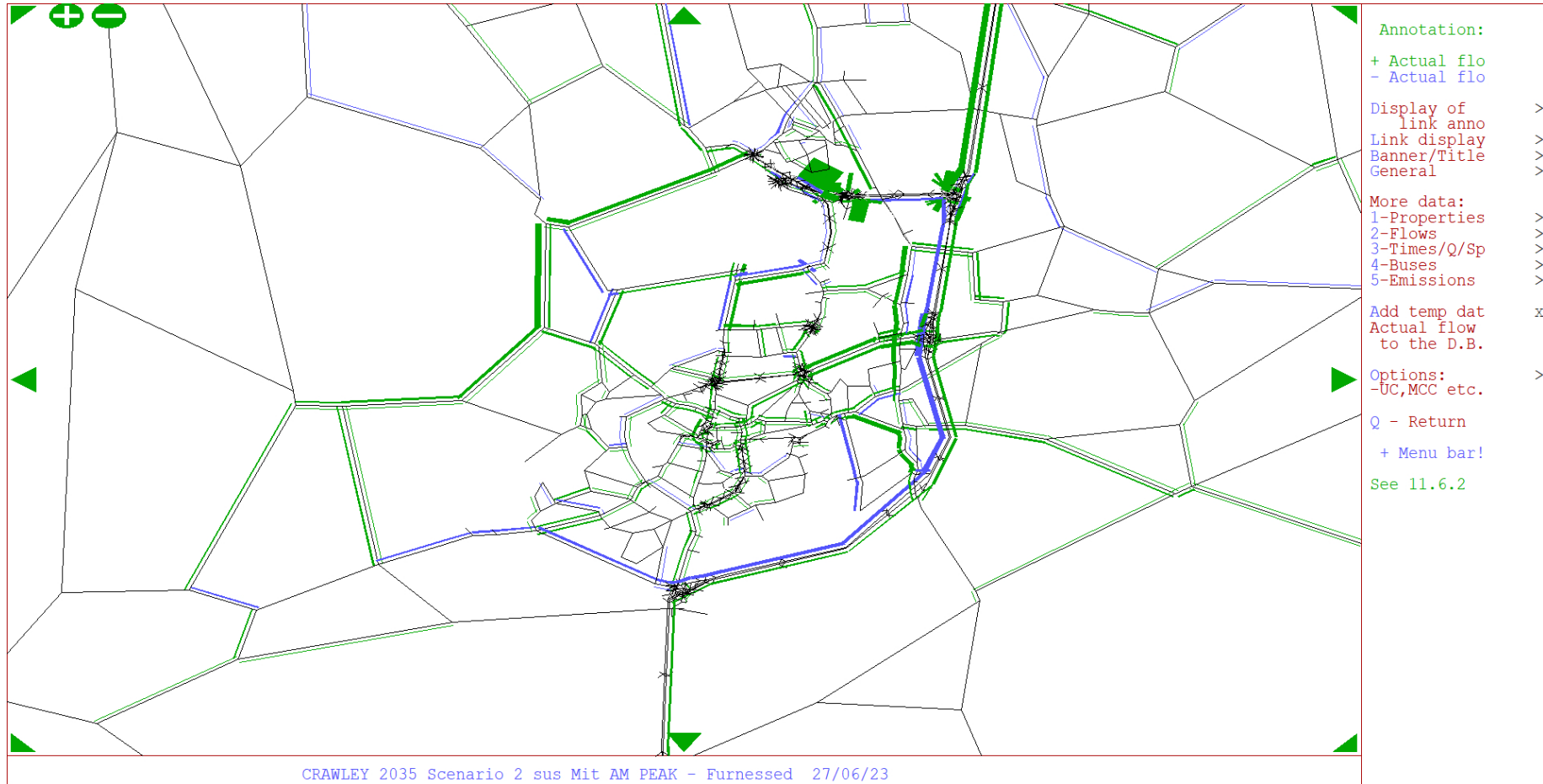


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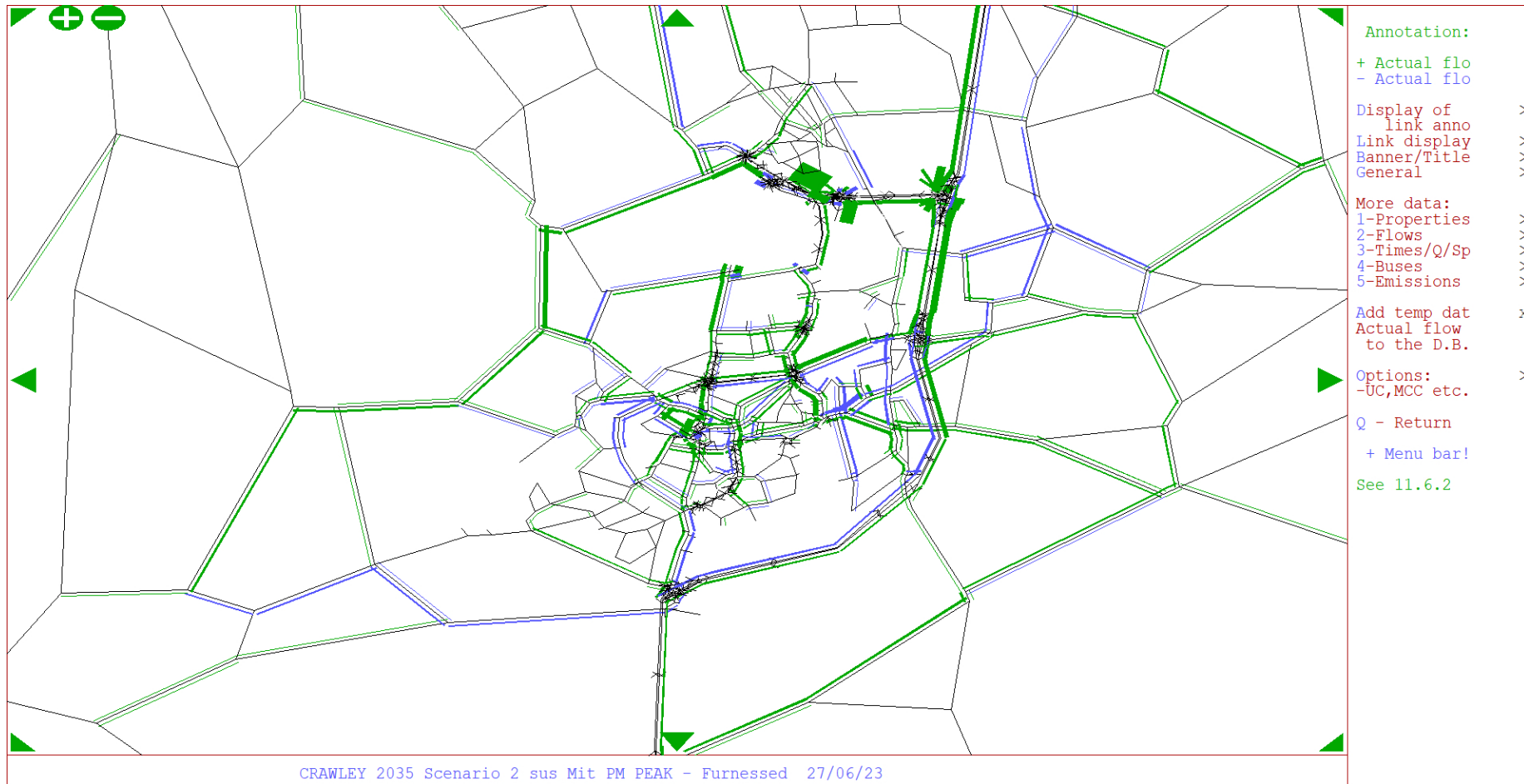
Appendix C Flow Difference plots(pcus)

Flow Difference Outputs 2035 AM Scenario 2 with Sustainable Mitigation + GAL DCO – Reference Case (With Sustainable Mitigation)



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Flow Difference Outputs 2035 PM Scenario 2 with Sustainable Mitigation + GAL DCO – Reference Case (With Sustainable Mitigation)



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Appendix D Delays in seconds

AM Delays for Overcapacity Junctions

Item No.	Node	Junction Name	Junction Type	2035 Reference Case	2035 Scenario 2 with Sustainable Measure & GAL DCO
14	1824	B2036/Radford Road	Signalised Junction	109.6	141.1
21	1010	Southgate Avenue/College Road/Haslett Avenue East	Signalised Junction	52.3	59.7
22	1750	Southgate Avenue/Southgate Drive	Signalised Junction	37.0	47.2
26	2017	A23 London Road/Perimeter Road North	Signalised Junction	36.1	62.4
40	1440	Hazelwick Avenue/Bycroft Avenue Roundabout	Roundabout	31.6	49.1
46	1616	M23 Junction J11 Roundabout	Signalised Junction	99.1	135.2
47	1618	M23 Junction J11 Roundabout	Signalised Junction	63.4	99.9
52	1687	Hazlewick Roundabout	Signalised Junction	21.5	30.2
56	1826	Gatwick Road/ Fleming Way Roundabout	Signalised Junction	10.7	26.7
65	1970	Turners Hill Rd/B2036 Roundabout	Roundabout	12.8	22.8
67	2016	Beehive Ring Rd/London Rd	Signalised Junction	37.0	58.8
69	2072	Perimeter Rd N/London Rd	Priority Junction	3.9	114.8
74	2546	Ironsbottom/A217/Reigate Rd	Priority Junction	173.9	275.6
76	2650	Cophorne Way/Brookhill Rd/A2220/Cophorne Common	Roundabout	144.5	176.8
77	2715	M23 J9/Gatwick Interchange NB Diverge	Signalised Junction	7.1	351.7
81	9044	Lowfield Heath Rd/The Street/Horley Rd	Priority Junction	34.8	52.7
82	9070	Radford Rd/Steers Ln	Signalised Junction	133.8	172.7
92	70109	M23 J9 SB Diverge	Priority Junction	36.6	135.2
98	81001	Airport Way E /South Terminal Roundabout	Priority Junction	0.0	35.4
101	82000	M23 Junction 9 NB Diverge	Priority Junction	27.0	146.1
102	99828	Proposed North Terminal Junction (DCO Mitigation)	Signalised Junction	0.0	73.4

TECHNICAL NOTE

PM Delays for Overcapacity Junctions

Item No.	Node	Junction Name	Junction Type	2035 Reference Case	2035 Scenario 2 with Sustainable Measure & GAL DCO
3	1860	Broadfield Roundabout/	Roundabout	248.0	304.9
5	9081	Gossops Drive/Buckswood Drive	Roundabout	80.6	111.6
14	1824	B2036/Radford Road	Signalised Junction	14.4	35.4
23	1020	A2004 Southgate Avenue/Station Way	Signalised Junction	29.4	36.0
36	1611	M23 Junction J11 Roundabout	Signalised Junction	137.5	218.7
41	1450	Hazlewick Ave/Haslett Ave E	Signalised Junction	37.4	75.4
44	1604	Crawley Interchange	Signalised Junction	121.7	157.8
49	1651	Gossops Dr/Crawley Avenue Junction	Signalised Junction	153.2	210.2
53	1692	Balcombe Rd/Haywards/B2036	Priority Junction	0.0	20.7
59	1840	Manor Royal/Gatwick Rd Roundabout	Roundabout	30.7	40.2
60	1900	St Mary's Drive	Signalised Junction	50.2	182.9
62	1930	Haslett Avenue E/Station Hill	Signalised Junction	159.1	221.8
63	1940	St Mary's Drive/Haslett Ave E	Signalised Junction	43.4	59.6
66	1980	B2036/Worth Rd	Priority Junction	18.1	61.0
70	2100	Massetts Rd/Brighton Rd	Signalised Junction	16.2	37.8
74	2546	Ironsbottom/A217/Reigate Rd	Priority Junction	1002.5	1078.2
76	2650	Copthorne Way/Brookhill Rd/A2220/Copthorne Common	Roundabout	192.2	229.8
85	9076	Ifield Avenue/Stagelands	Priority Junction	103.9	160.7
86	9077	Ifield Drive/Ifield Avenue	Signalised Junction	57.5	90.3
93	70111	M23 Junction J9 SB Merge	Priority Junction	0.5	3.4
95	80156	Crawley Avenue/A2011 Diverge	Signalised Junction	70.0	123.3

TECHNICAL NOTE

Appendix E Merge and Diverge Flows (pcus)

M23 J9 Southbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	3,638	3,877	1,780	835
2035 Local Plan with Sustainable Measures	3,725	3,930	1,767	835
2035 Local Plan with Sustainable Measures & GAL DCO	3,559	3,737	1,906	916

M23 J9 Northbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	3,651	3,200	1,246	667
2035 Local Plan with Sustainable Measures	3,726	3,338	1,296	675
2035 Local Plan with Sustainable Measures & GAL DCO	3,610	3,163	1,121	851

M23 J9 Southbound Merge				
Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	3,638	3,877	586	1,482
2035 Local Plan with Sustainable Measures	3,725	3,930	593	1,602
2035 Local Plan with Sustainable Measures & GAL DCO	3,559	3,737	829	2,011

M23 J9 Northbound Merge				
Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	3,651	3,200	1,144	852
2035 Local Plan with Sustainable Measures	3,726	3,338	824	1,078
2035 Local Plan with Sustainable Measures & GAL DCO	3,610	3,163	1,211	1,444

M23 J10 Southbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	2,736	4,071	1,489	1,291
2035 Local Plan with Sustainable Measures	2,733	4,198	1,586	1,337
2035 Local Plan with Sustainable Measures & GAL DCO	2,826	4,358	1,563	1,389

M23 J10 Northbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	3,497	2,374	1,565	866
2035 Local Plan with Sustainable Measures	3,494	2,350	1,594	928
2035 Local Plan with Sustainable Measures & GAL DCO	3,178	2,309	1,608	770

M23 J10 Southbound Merge				
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M23 J10 Northbound Merge				
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TECHNICAL NOTE

Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	2,736	4,071	819	1,375
2035 Local Plan with Sustainable Measures	2,733	4,198	882	1,332
2035 Local Plan with Sustainable Measures & GAL DCO	2,826	4,358	876	1,327

Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	3,497	2,374	1,400	1,493
2035 Local Plan with Sustainable Measures	3,494	2,350	1,529	1,661
2035 Local Plan with Sustainable Measures & GAL DCO	3,178	2,309	1,554	1,703

M23 J10A Southbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	3,093	4,846	463	601
2035 Local Plan with Sustainable Measures	3,136	4,926	480	604
2035 Local Plan with Sustainable Measures & GAL DCO	3,179	4,935	524	627

M23 J10A Northbound Merge				
Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	4,443	2,821	620	419
2035 Local Plan with Sustainable Measures	4,533	2,836	555	442
2035 Local Plan with Sustainable Measures & GAL DCO	4,261	2,728	525	352

M23 J11 Southbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	1,841	3,285	1,252	1,561
2035 Local Plan with Sustainable Measures	1,891	3,344	1,245	1,582
2035 Local Plan with Sustainable Measures & GAL DCO	1,914	3,347	1,265	1,588

M23 J11 Northbound Diverge				
Scenario	Downstream Mainline		Diverge Flow	
	AM	PM	AM	PM
Reference Case	3,052	1,598	1,446	1,201
2035 Local Plan with Sustainable Measures	3,131	1,620	1,443	1,276
2035 Local Plan with Sustainable Measures & GAL DCO	3,077	1,497	1,443	1,312

M23 J11 Southbound Merge				
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M23 J11 Northbound Merge				
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TECHNICAL NOTE

Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	1,841	3,285	1,252	1,561
2035 Local Plan with Sustainable Measures	1,891	3,344	1,281	1,437
2035 Local Plan with Sustainable Measures & GAL DCO	1,914	3,347	1,278	1,433

Scenario	Upstream Mainline		Merge Flow	
	AM	PM	AM	PM
Reference Case	3,052	1,598	1,391	1,222
2035 Local Plan with Sustainable Measures	3,131	1,620	1,402	1,214
2035 Local Plan with Sustainable Measures & GAL DCO	3,077	1,497	1,184	1,229