



St.Helens Council

This Study was commissioned by St Helens Borough Council in partnership with Highways England and Wigan Council as the first stage in considering options for junction improvements at Junction 23 of the M6. It does not represent Council policy. It is part of a visioning and options testing process.



St Helens Council

A580 / M6 J23 IMPROVEMENT OPTIONS SUPPLEMENTARY REPORT

Junction Assessment Results - Vista Road Link
Option





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Junction Assessment Results - Vista Road Link Option

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WSP

8 First Street

Manchester

M15 4RP

Phone: +44 161 200 5000

WSP.com

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Signature				
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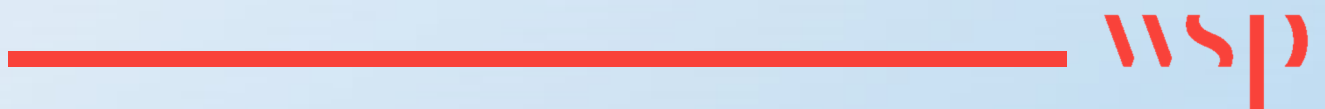
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1

INTRODUCTION



1 INTRODUCTION

1.1 BACKGROUND

The M6 Junction 23 situated within the metropolitan borough of St Helens provides a strategically important connection between the A580 East Lancashire Road (A580) and the M6 motorway. The signalised roundabout is grade-separated and has a cut-through facilitating east-west movements along the A580 corridor through the centre of the junction and which also accommodates right turn movements from the A580 onto the M6 motorway slip roads.

The junction is a strategically important route for the North-West of England, providing a connection between the strategic and principal road networks in this location. **Figure 1-1** describes the strategic location of the junction.

Figure 1-1 - Strategic context of M6 Junction 23



Source: Google Maps

The A580 corridor forms a key east-west connection between the cities of Manchester and Liverpool whilst also serving as an important logistics corridor providing access to numerous local employment sites in the borough. The M6 Junction 23 additionally provides connection to the local road network via the A49 Lodge Lane which forms the north-easterly and south-westerly arms of the junction. **Figure 1-2** describes the strategic location of the junction.

Figure 1-2 – M6 Junction 23 Layout



Source: Google Maps

The M6 Junction 23 currently operates at capacity, with drivers experiencing considerable delay to their journeys when travelling through the junction, particularly during weekday morning and evening peaks. Without appropriate intervention, these issues therefore reduce the junction's ability to accommodate future levels of traffic growth forecast for the region.

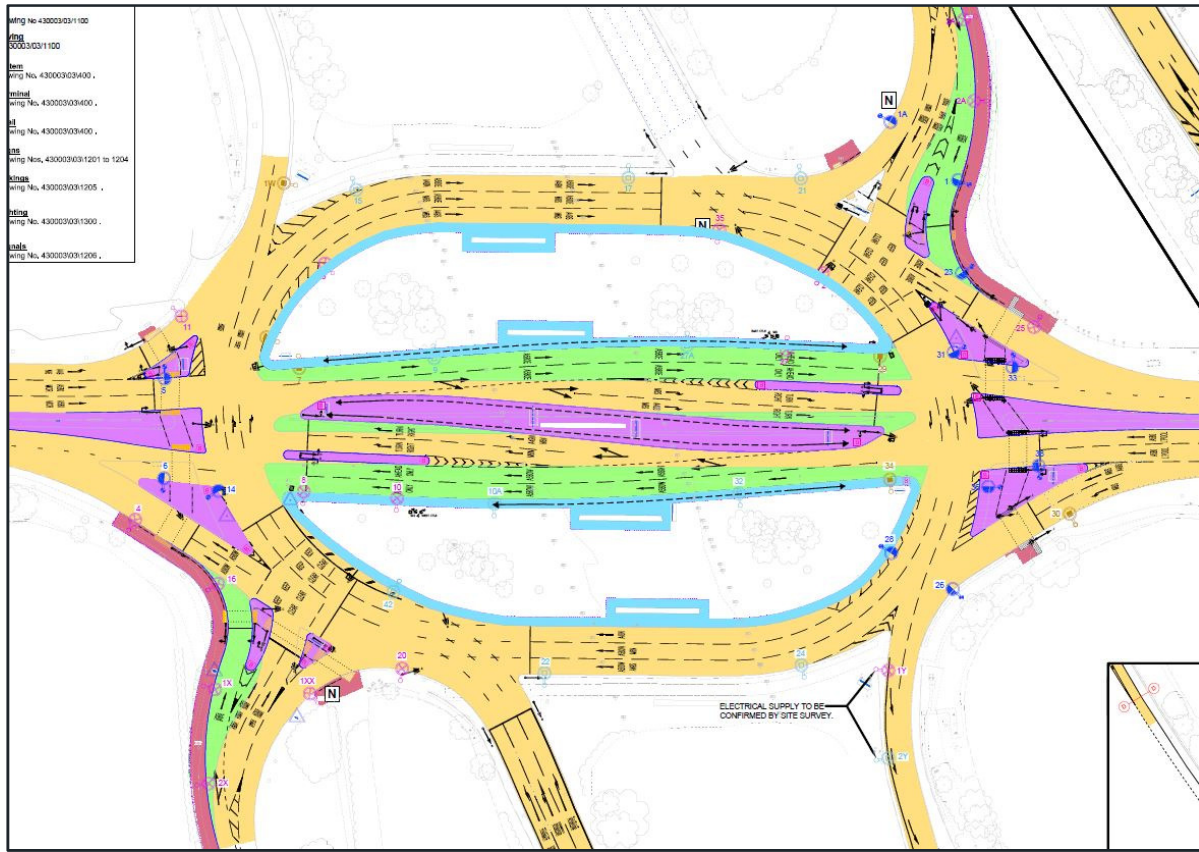
St Helens Metropolitan Borough Council (SHMBC) is currently in the process of drafting its Local Plan Core Strategy which sets out the Local Planning Authority's growth aspirations for the period 2018 to 2033. Within the local plan, a number of housing and employment sites have been allocated within the borough that are cumulatively expected to lead to a notable increase in traffic demand at M6 Junction 23. In immediate vicinity of the junction, on land to the north-east of M6 Junction 23, the logistics development known as Haydock Point North is currently subject to a live planning application.

To support the delivery of the planned growth, whilst ensuring that the junction can continue to provide an important strategic and local road connection, a study into potential capacity improvements at M6 Junction 23 has been commissioned by SHMBC.

1.2 EXISTING JUNCTION

It is known that the existing M6 Junction 23 (Haydock Island) junction currently operates at capacity, evidenced by the long queues and delays currently experienced at most of the arms of the junction during peak periods. A number of factors contribute to the operational issues experienced at the junction, including the fact that the junction caters for three separate corridors; the M6 motorway, A580 and A49, the presence of a high number of right turning movements at the junction, issues of small stacking spaces between stop lines, and problems around the failure to comply with signals as part of the existing layout. Error! Reference source not found. shows the existing junction design.

Figure 1-3 – M6 Junction 23 Existing Junction Design



1.3 PREVIOUS MODELLING

As part of Stage 1 of this study, a capacity based model was developed for M6 Junction 23 using TRANSYT modelling software. The key options considered as part of the previous modelling included;

- Scenario 2 – Removal of Lodge Lane northern and southern arm at M6 Junction 23.
- Scenario 7 – Relocation of Lodge Lane south to A580 west and Lodge Lane north to A580 east.
- Scenario 9 – Replacing the existing M6 J23 with a Diverging Diamond Interchange.

Within Scenarios 2 and 9, it would be necessary to consider providing new replacement A49/ A580 junctions as set out within Scenario 7.

A 2018 Base (existing) model was built to represent the existing layout of the junction and was validated using observed data, including flow and queue length survey data recorded on the dates of Wednesday 4th and Thursday 5th July 2018. The model was used to test 2023 and 2033 future year growth scenarios to understand the performance of the existing junction layout in the future and to identify potential improvement options.

The following summarises the key findings of the junction modelling exercise presented in the A580/ M6 Junction 23 Improvement Options Report (Appendix G of the Stage 1 Study Report):

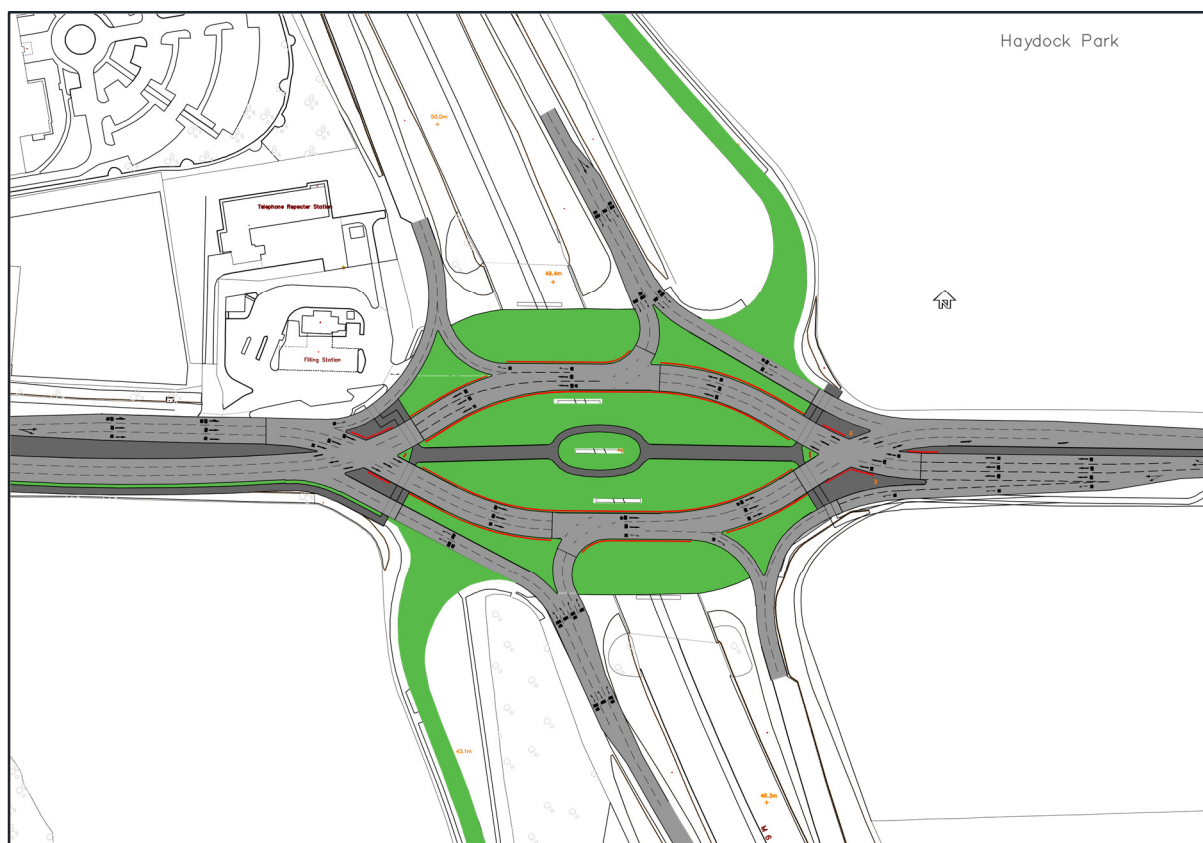
- *The existing junction currently experiences a high volume of right turning movements from the A580 onto the M6 which results in extensive queueing on the A580 arms.*

- *The A49 Lodge Lane Northern arm currently experiences issues which results in long delays and resulting extensive queuing on Lodge Lane. This causes drivers to become impatient and consequently, leads to signal violations and the presence of accidents within this part of the junction.*
- *The existing junction has limited internal stacking space, resulting in queues extending to the approach arms.*

The Stage 1 study report identified that the removal of the A49 arms from the existing junction (Scenario 2) would provide a marginal improvement in the performance of the existing M6 junction operation, but this is not sufficient to provide a long-term solution to address the impact of future traffic growth. Closing the A49 arm will require the A49 to be diverted to two new junctions on the A580 to the east and west of the M6 (Scenario 7).

As a longer-term improvement, a Diverging Diamond Interchange (DDI) option (Scenario 9) was considered and was found to provide a more efficient, safer and simpler layout than the existing signalised roundabout layout. The implementation of a DDI arrangement would require the detachment and relocation of the A49 arms in order for this type of junction to operate effectively. The DDI arrangement is illustrated in Error! Reference source not found. below.

Figure 1-4 – M6 J23 / A580 Diverging Diamond (Scenario 9)



1.4 LATEST COMMISSION

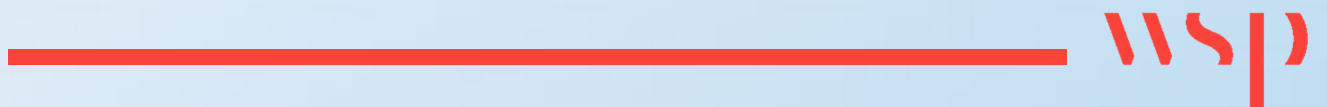
Following the outcomes of the previous study work, SHMBC has requested that an alternative option is considered to divert the A49 Lodge Lane (South) arm, relocated further west along A580 East Lancashire Road, via B5209 Vista Road, which is located to the south west of M6 Junction 23.

This report subsequently sets out the proposed layouts that have been identified for the diversion of the A49 Lodge Lane (South), followed by the associated junction capacity modelling results accounting for the effects of the diversion in both 'existing junction layout' and 'DDI arrangement' scenarios.



2

VISTA ROAD DIVERSION OPTION



2 VISTA ROAD DIVERSION OPTION

2.1 DIVERSION OF THE A49 VIA VISTA ROAD

This report considers an alternative option that will allow the A49 Lodge Lane (South) to be diverted onto the A590 East Lancashire Road (West) via the B5209 Vista Road. In addition, this alternative option also provides an opportunity to improve access to the A599 Penny Lane from the A580 East Lancashire Road corridor.

Figure 2-1 and **Figure 2-2** illustrate the previous junction arrangements considered, which enable a more direct access to be provided between the A49 Lodge Lane and the A580 East Lancashire Road by detaching the A49 Lodge Lane arms from M6 Junction 23.

Figure 2-1 – Previous A49 Lodge Lane Southern Arm Diversion Option

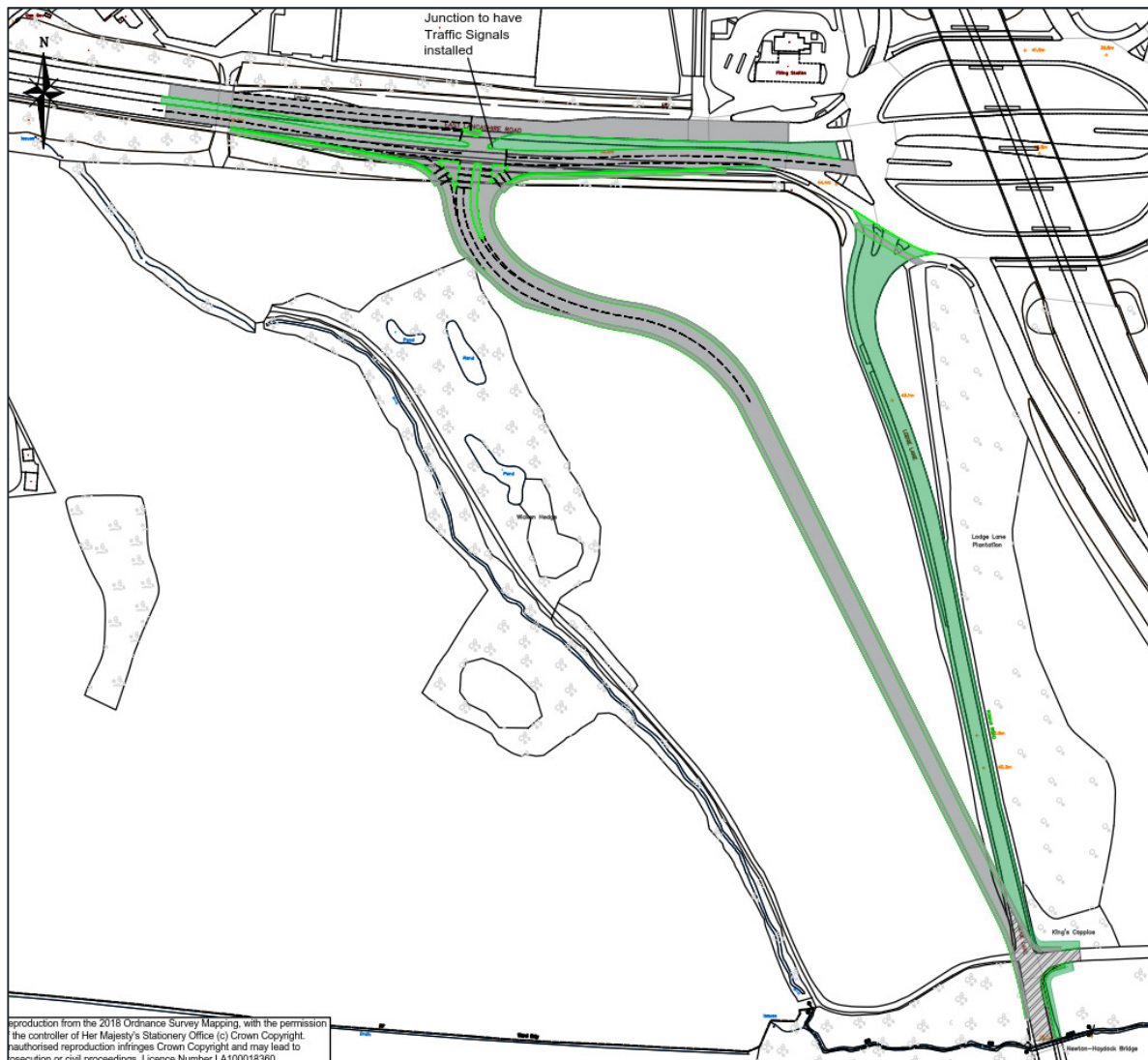


Figure 2-2 – Previous A49 Lodge Lane Northern Arm Diversion Option

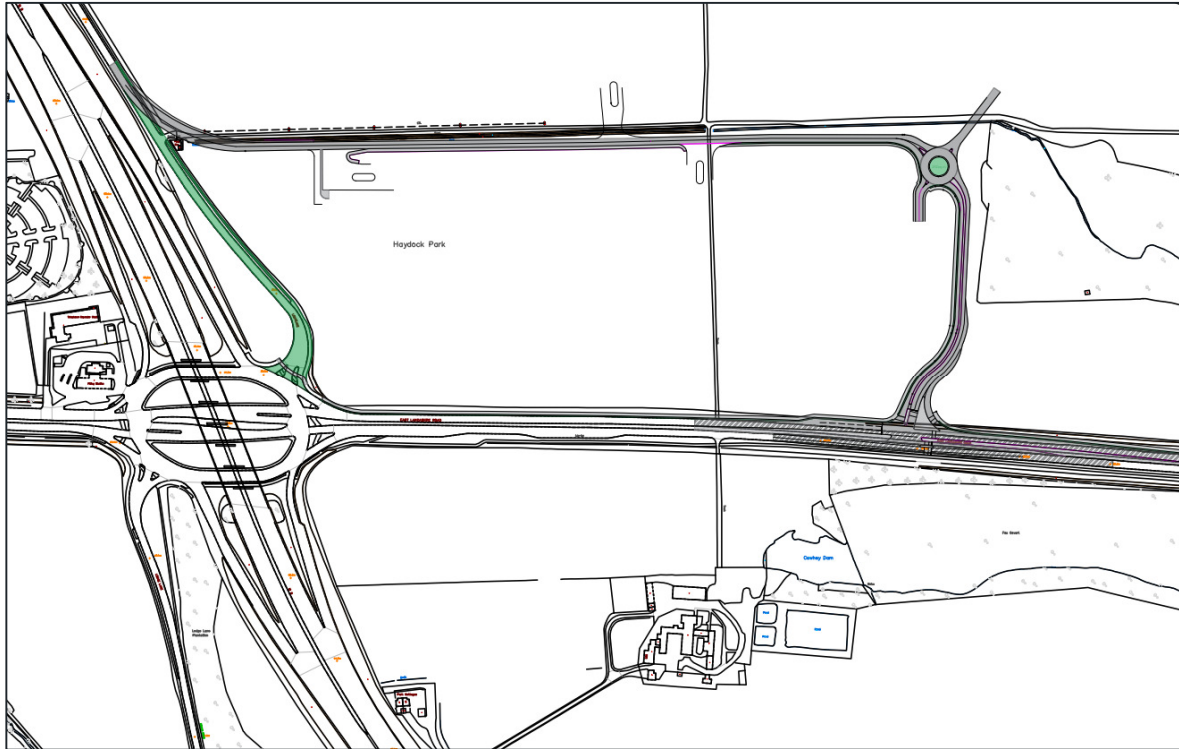


Figure 2-3 and **Figure 2-4** illustrate an alternative routing for the diversion of the A49 Lodge Lane on the west side of the M6 motorway, by providing a new link via the B5209 Vista Road. This route will form the basis of the alternative assessments considered within this report.

Figure 2-3 – A580 East Lancashire Road junction with Vista Road Link Road



Figure 2-4 – Vista Road Priority Junction with Vista Road Link

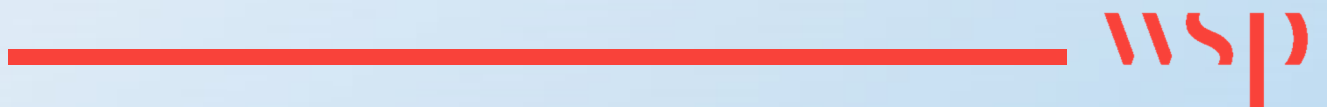


It should be noted that the relocated northern arm of the A49 Lodge Lane (**Figure 2-2**) remains the same layout as previously assessed, albeit the junction has been re-tested as part of this commission to account for the potential traffic redistribution effects resulting from the diversion of the southern arm of A49 via the B5209 Vista Road link road option.

The layout of the A580 East Lancashire Road / Vista Road link (**Figure 2-3**) junction has been amended based on the alignment of the proposed link road via B5209 Vista Road. As part of the realignment a new priority junction is formed between the B5209 Vista Road and the Vista Road Link (**Figure 2-4**) which has also been assessed as part of the junction capacity modelling along with the existing mini-roundabout at A599 Penny Lane / B5209 Vista Road.

3

ASSESSMENT METHODOLOGY



3 ASSESSMENT METHODOLOGY

3.1 ADDITIONAL SCENARIO TESTING

Additional assessments have been undertaken using TRANSYT 15 software, utilising the previous models developed for testing the combined Scenarios 2 and 7 (Existing junction without Lodge Lane arms and A49 Diverted arm), and combined Scenarios 9 and 7 (Diverging Diamond and A49 Diverted arm).

The diverted A49/ A580 West junction model was modified to reflect the change in alignment resulting from the alternative B5209 Vista Road link road alignment.

This report focuses on the effect of providing the alternative alignment via B5209 Vista Road and considers the effect of the change in traffic flows through the study junctions. The following scenarios have been tested for this commission:

- Scenario 10 (Existing junction without Lodge Lane arms and A49 Diverted arms, with Vista Road link); and
- Scenario 11 (Diverging Diamond and A49 Diverted arms, with Vista Road Link).

Additional assessments have been undertaken using Junctions 8 software, which is a tool for assessing the performance of priority-controlled junctions. The following additional junctions have been included in the assessments:

- Existing mini roundabout serving A599 Penny Lane/ B5209 Vista Road; and
- Proposed B5209 Vista Road/ Diverted A49 Vista Road link three arm priority junction.

The closure of the existing A49 Lodge Lane (South) arm accessing M6 Junction 23, and the provision of the new link via B5209 Vista Road, can be expected to result in the wider reassignment of traffic on the network that would have originally used the A49 Lodge Lane (South) to access M6 Junction 23 and the A580 corridor. To understand the potential traffic redistribution effects, analysis of the changes in flows 'without' and 'with' the B5209 Vista Road link road are presented in Chapter 5 of this report.

3.2 TRAFFIC FLOWS

To inform both the junction modelling and flow analysis exercises, traffic forecasts have been extracted from the St Helens SATURN Model (SHSM) for the 2033 Do Something (DS) relating to Scenarios 10 and 11. The 2033 traffic forecasts account for a planned growth of up to 33% during the AM peak and 19% during the PM peak for Scenario 10, and 39% during the AM peak and 21% during the PM peak in relation to Scenario 11.

It should be noted that the traffic forecasts extracted directly from the SHSM contain significantly higher levels of traffic growth than are forecast for the study area at a 2033 future year in the TEMPro database. This is due to the effects of traffic reassignment that are accounted for within the SATURN software. In line with the previous assessments, it has therefore been necessary to align the 2033 traffic forecasts with the lower growth of 15% for both AM and PM peaks forecast for this year within the TEMPro database. This ensures a comparable basis for each scenario. This has been achieved by factoring the SATURN forecasts to TEMPro levels, and then applying the difference between the 2017 SATURN Base and 2033 SATURN DS peak hour flows and adding these to the 2018 Survey

flows. This method ensures that any shift in origin and destination trips forecast by SATURN is maintained within the assessed traffic flows.

Table 1 and **Table 2** set out the AM and PM SATURN forecasts for the 2033 DS (Scenario 10). The difference between the SATURN 2017 Base flows and 2033 DS flows for Scenario 10 were factored down to account for the lower TEMPro growth forecasts and these were then added back onto the 2018 Survey flows.

Figure 3-1 – Traffic Matrix Zones Key

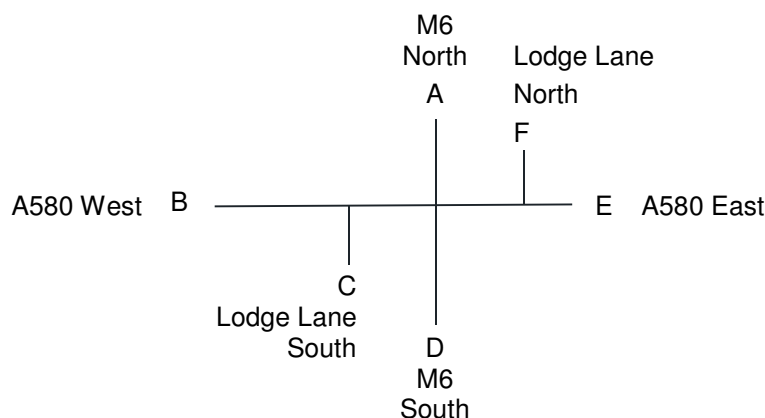


Table 1 – 2033 AM SATURN forecast (Scenario 10)

	A	B	C	D	E	F	SUM
A	0	78	289	0	795	28	1191
B	0	0	144	796	684	6	1630
C	109	179	0	107	73	0	468
D	0	960	210	0	362	406	1937
E	542	782	15	320	0	197	1855
F	18	0	0	389	505	0	912
SUM	669	1999	658	1611	2419	638	7993

Table 2 – 2033 PM SATURN forecast (Scenario 10)

	A	B	C	D	E	F	SUM
A	0	161	336	0	840	23	1360
B	0	0	139	644	777	41	1601
C	196	133	0	49	23	0	402
D	0	1132	107	0	316	429	1984
E	548	820	10	240	0	182	1799
F	0	0	0	363	492	0	855
SUM	745	2246	592	1295	2448	675	8001

Table 3 and **Table 4** below represent the AM and PM 2033 DS (Scenario 10) adjusted traffic forecasts, accounting for the lower TEMPro growth forecast.

Table 3 – 2033 AM TEMPRO adjusted Saturn forecast (Scenario 10)

	A	B	C	D	E	F	SUM
A	5	52	197	3	586	106	950
B	38	2	112	694	617	25	1488
C	131	123	0	79	57	33	423
D	1	672	153	1	352	253	1431
E	458	662	65	361	3	122	1671
F	10	0	27	210	264	1	506
SUM	643	1505	554	1348	1879	540	6468

Table 4 – 2033 PM TEMPRO adjusted Saturn forecast (Scenario 10)

	A	B	C	D	E	F	SUM
A	1	186	330	3	631	0	1145
B	59	0	101	532	696	22	1410
C	180	138	0	43	29	62	451
D	2	928	104	1	562	316	1914
E	336	735	61	345	5	133	1615
F	40	0	17	261	364	0	630
SUM	617	1935	613	1185	2287	527	7165

Table 5 and **Table 6** below set out the AM and PM SATURN flows forecasts for 2033 DS (Scenario 11). The difference between the SATURN Base flows and 2033 DS flows for Scenario 11 were

factored down to account for the lower TEMPro growth forecasts and these were then added back onto the 2018 Survey flows.

Table 5 – 2033 AM Saturn forecast (Scenario 11)

	A	B	C	D	E	F	SUM
A	0	103	288	0	861	29	1280
B	91	0	116	1170	814	28	2220
C	145	187	0	146	46	0	525
D	0	1059	196	0	299	384	1938
E	604	725	8	286	0	194	1817
F	0	0	0	282	318	0	600
SUM	840	2074	608	1885	2338	635	8380

Table 6 – 2033 PM Saturn forecast (Scenario 11)

	A	B	C	D	E	F	SUM
A	0	188	270	0	1157	20	1635
B	32	0	118	788	855	15	1808
C	182	131	0	101	49	0	463
D	0	1227	160	0	315	290	1991
E	639	697	20	283	0	170	1810
F	0	0	0	218	239	0	457
SUM	853	2244	568	1389	2615	495	8163

Table 7 and **Table 8** below represent the AM and PM 2033 DS (Scenario 11) adjusted flow forecasts, accounting for the lower TEMPRO growth forecast.

Table 7 – 2033 AM TEMPRO adjusted Saturn forecast (Scenario 11)

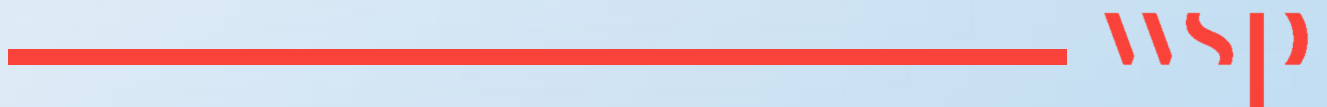
	A	B	C	D	E	F	SUM
A	5	57	182	3	594	113	954
B	72	2	101	813	675	39	1702
C	145	121	0	90	46	34	437
D	1	671	141	1	304	231	1350
E	490	643	62	326	3	124	1648
F	4	0	29	168	178	1	377
SUM	718	1492	514	1400	1800	543	6468

Table 8 – 2033 PM TEMPRO adjusted Saturn forecast (Scenario 11)

	A	B	C	D	E	F	SUM
A	1	196	270	3	837	2	1308
B	80	0	87	606	740	9	1521
C	168	139	0	78	50	64	500
D	2	968	135	1	538	221	1865
E	417	652	67	356	5	123	1619
F	40	-44	20	160	176	0	352
SUM	708	1910	578	1203	2347	419	7165

4

CAPACITY ASSESSMENT



4 CAPACITY ASSESSMENT

4.1 OVERVIEW

This chapter sets out the results of the junction capacity assessments, presented for the following junctions:

- M6 Junction 23 (Existing & DDI Layouts);
- A580/ A49 Diverted (East);
- A580/ A49 Vista Road link (West);
- A599 Penny Lane/ B5209 Vista Road (existing mini roundabout); and
- A49/ B5209 Vista Road (proposed priority junction)

4.2 SCENARIO 10 – ASSESSMENT RESULTS

For the purposes of assessing the effects of the B5209 Vista Road diversion on the Existing M6 Junction 23 arrangement with the A49 Lodge Lane Diverted arms, the 'M6 Junction 23 Existing Layout' (originally created for Scenario 2) and the diverted eastern and western A49 Lodge Lane arms (originally created for Scenario 7) were combined into a single TRANSYT 15 model. This approach was consistent with the combined model developed for the assessment of the DDI option (Scenarios 7 & 9) in the original reporting. The benefit of adopting a combined model is to enable the effects of platooning flows between the three junctions to be more clearly understood, and to identify any issues of there being insufficient time for vehicles to swap lanes. The A49 Vista Road link (West) arm was modified within the model to reflect the change in alignment for the B5209 Vista Road link road. The flows for the 2033 DS (Scenario 10) were entered into the combined TRANSYT 15 model.

Additional Junctions 8 models were created to assess the impact of the change in flows resulting from the 2033 DS (Scenario 10) to represent the existing A599 Penny Lane/ B5209 Vista Road mini roundabout, and the proposed A49 Vista Road link / B5209 Vista Road three arm priority junction.

Table 9 and **Table 10** below summarise the assessment of each of the key junctions using the 2033 DS AM and PM peak hour flows for Scenario 10.

Table 9 – Scenario 10 2033 Assessment - TRANSYT 15 Summary Results

			2033 DS			
Arm	AM			PM		
	DOS (%)	Mean Max Queue (PCU)	PI (£ Per Hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ Per Hr)
A580 / M6 J23 (without Lodge Lane arms)						
A580 East Lancashire Road WB Approach	94	19	-	83	14	-
M6 SB Off-Slip	63	7		95	18	
A580 East Lancashire Road EB Approach	96	24		101	39	
M6 NB Off-Slip	99	24		116	111	
A580 / A49 (new eastern junction)						
A49 Lodge Lane SB	67	4	-	87	7	-
A580 East Lancashire Road EB	90	30		66	15	
A580 East Lancashire Road WB	48	7		63	6	
A580 / B5209 Vista Road Link (new western junction)						
A49 Vista Road link NB	43	4	-	84	7	-
A580 East Lancashire Road EB	53	8		45	5	
A580 East Lancashire Road WB	84	16		68	11	
Combined Total			2897			4231

Table 10 – Scenario 10 2033 Assessment – JUNCTIONS 8 Summary Results

Arm	AM		PM	
	RFC	Queue (PCU)	RFC	Queue (PCU)
A599 Penny Lane / B5209 Vista Rd (mini roundabout)				
A599 Penny Lane East	0.37	1	0.48	1
B5209 Vista Road	0.31	0	0.35	1
A599 Penny Lane West	0.39	0	0.22	0
A49/ B5209 Vista Road Link (priority junction)				
Vista Road	0.36	1	0.35	1
Lodge Lane Right Turn	0.06	0	0.00	0

Table 9 above indicates that with A49 Lodge Lane arms removed from the existing M6 Junction 23, the modified motorway junction would operate above capacity on all arms of the junction during the 2033 DS (Scenario 10). The highest degree of saturation (DoS) is observed on M6 northbound off-slip during the PM peak, reaching a maximum DoS of 116% with a Mean Max Queue (MMQ) of 111 PCUs (approximately 638 metres). In this instance, the MMQ would exceed the length of the M6 northbound off-slip. It is also noted that the eastbound approach to the eastern A49 Lodge Lane diverted junction operates at its theoretical capacity with a DoS of 90%.

The assessment of the priority controlled junctions shown in **Table 10** demonstrate that these junctions would operate within capacity during the 2033 DS AM and PM peaks for Scenario 10.

4.3 SCENARIO 11 – ASSESSMENT RESULTS

The 'M6 Junction 23 DDI Option' TRANSYT 15 combined model (originally created for Scenarios 7 and 9) was used to assess the performance of the M6 Junction 23 DDI arrangement with the B5209 Vista Road diversion, as well as the diverted A49 Lodge Lane arms. The A49 Vista Road link (West) arm was modified within the model to reflect the change in alignment for the B5209 Vista Road link road. The flows for the 2033 DS (Scenario 10) were entered into the combined TRANSYT 15 model.

The Junctions 8 models developed for the existing A599 Penny Lane/ B5209 Vista Road mini roundabout, and the proposed A49/ B5209 Vista Road three arm priority junction, were used to assess the impact of the change in flows resulting from the 2033 DS (Scenario 11).

Table 11 and **Table 12** below summarise the assessment of each of the key junctions using the 2033 DS AM and PM peak hour flows for Scenario 11.

Table 11 – Scenario 11 2033 Assessment - TRANSYT 15 Summary Results

			2033 DS			
Arm	AM			PM		
	DOS (%)	Mean Max Queue (PCU)	PI (£ Per Hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ Per Hr)
A580 / M6 J23 (DDI option)						
A580 East Lancashire Road WB Approach	61	7	-	68	9	-
M6 SB Off-Slip	37	0		44	0	
A580 East Lancashire Road EB Approach	91	15		85	14	
M6 NB Off-Slip	50	4		62	9	
A580 / A49 (new eastern junction)						
A49 Lodge Lane SB	31	2	-	47	3	-
A580 East Lancashire Road EB	85	16		87	23	
A580 East Lancashire Road WB	54	7		54	6	
A580 / B5209 Vista Road link (new western junction)						
A49 Vista Road link NB	60	3	-	82	5	-
A580 East Lancashire Road EB	59	7		49	6	
A580 East Lancashire Road WB	78	12		80	19	
Combined Total			1140			1541

Table 12 – Scenario 11 2033 Assessment – JUNCTIONS 8 Summary Results

Arm	AM		PM	
	RFC	Queue (PCU)	RFC	Queue (PCU)
A599 Penny Lane / B5209 Vista Rd (mini roundabout)				
A599 Penny Lane East	0.43	1	0.56	1
B5209 Vista Road	0.34	1	0.39	1
A599 Penny Lane West	0.21	0	0.17	0
A49/ B5209 Vista Road Link Road (priority junction)				
Vista Road	0.36	1	0.35	1
Lodge Lane Right Turn	0.06	0	0.00	0

Table 11 above demonstrates that with the DDI in place at M6 Junction 23, the motorway junction would operate marginally beyond its theoretical capacity during the AM peak, with a maximum DoS of 91% and MMQ of 15 PCUs along the A580 East Lancashire eastbound approach. Whilst this is beyond the typical 90% threshold for capacity, it is important to take into consideration that the existing signalised roundabout is already operating beyond its theoretical capacity in 2018 without future traffic growth. All other arms would operate within capacity during the AM and PM peak.

The assessment of the priority controlled junctions shown in **Table 12** demonstrate that these junctions would operate within capacity during the 2033 DS AM and PM peaks for Scenario 11.



5

WIDER NETWORK REASSIGNMENT



5 WIDER NETWORK REASSIGNMENT

5.1 OVERVIEW

Using the St Helens SATURN (SHSM) model, which has been used to forecast the traffic flows for the junction assessments described in this report, flow analysis has been undertaken to compare the effects of introducing the B5209 Vista Road link on the wider network.

For this exercise, the traffic forecasts for the following scenarios have been examined:

- Base Year (2018);
- Scenario 1 (Do Minimum, i.e. no M6 Junction 23 improvement);
- Scenario 7 (Existing M6 Junction 23 without A49 Lodge Lane arms and A49 Diverted arms);
- Scenario 9 (Diverging Diamond and A49 Diverted arms).
- Scenario 10 (Existing M6 Junction 23 without A49 Lodge Lane arms and A49 Diverted arms, with Vista Road link); and
- Scenario 11 (Diverging Diamond and A49 Diverted arms, with Vista Road Link).

Each of the scenarios have been assigned with the 2033 forecast demand for the both AM and PM peaks.

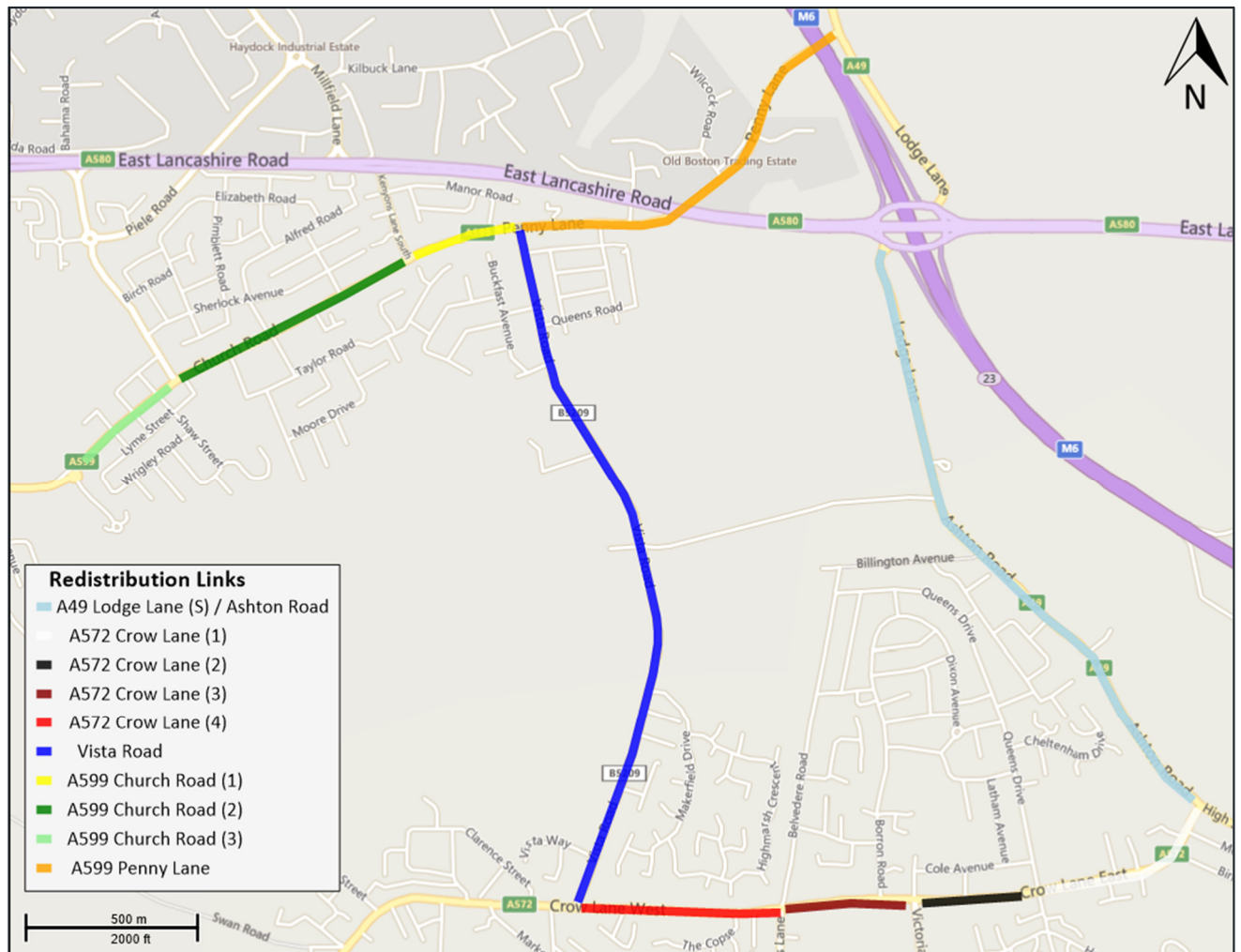
In Scenarios 7 and 9, the detached A49 Lodge Lane (S) arm would form a new junction on the A580 East Lancs Road to the west of M6 Junction 23.

In Scenarios 10 and 11, in which the A49 Lodge Lane (S) arm is also detached from M6 Junction 23, an alternative is presented for traffic to route via a new link formed from the B5209 Vista Road which would similarly form a new junction on the A580 East Lancs Road to the west. The immediate connections to the B5209 Vista Road are formed from the A572 Crow Lane to the south and the A599 Penny Lane/ Church Road to the north. The A599 Penny Lane connects to the existing A49 Lodge Lane (N) which, in all scenarios bar the Base Year (2018) and Scenario 1 (Do Minimum), would be diverted from M6 Junction 23 and form a new junction on the A580 East Lancs Road to the east. The A572 Crow Lane forms the main connection between the B5209 Vista Road and the A49 Lodge Lane (S) arm. With the A49 Lodge Lane (S) arm detached from M6 Junction 23, the introduction of the B5209 Vista Road link in both Scenarios 10 and 11 would form the immediate means of access to the A580 East Lancs Road from the south. There is therefore potential for increased traffic movements on the A572 Crow Lane corridor in order to access the B5209 Vista Road link.

In order to examine the forecast changes in traffic flows across each scenario, individual links have been examined for the A599 Penny Lane/ Church Road and A572 Crow Lane corridors. This is in order to recognise the potential variations in traffic between the key junctions along these corridors in the SHSM. This is most notably the case on the A572 Crow Lane corridor which consists of several signalised junctions on the section between the B5209 Vista Road and A49 Lodge Lane (S).

Figure 5-1 overleaf illustrates the individual links that have been examined within the SHSM.

Figure 5-1 – Link Analysis Key



5.2 TRAFFIC FLOW REASSIGNMENT COMPARISON

Table 13 and **Table 14** overleaf illustrate the 2033 actual flows that have been extracted from the SHSM for the relevant scenarios. For comparison purposes, the Base Year (2018) and Scenario 1 (Do Minimum) traffic forecasts have been included to understand the effects of the changes to the network relating to Scenarios 7, 9, 10 and 11.

Table 13 – 2033 Actual Flows (AM Peak)

AM Peak (2033) Actual Flows (PCUs)													
		Base		Scenario 1		Scenario 7		Scenario 9		Scenario 10		Scenario 11	
Ref	Link	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound
1	A49 Lodge Lane South	350	373	446	871	532	481	591	470	-	-	-	-
2	A572 Crow Lane (1)	370	384	636	457	396	520	412	530	231	368	229	368
3	A572 Crow Lane (2)	325	412	539	447	302	516	320	532	259	504	260	508
4	A572 Crow Lane (3)	252	195	508	267	263	299	285	296	338	493	331	485
5	A572 Crow Lane (4)	210	295	460	362	231	401	238	393	396	664	381	662
6	B5209 Vista Road	355	336	625	256	495	344	475	327	804	686	790	755
7	A599 Church Lane (1)	239	286	541	346	506	336	455	403	293	283	218	316
8	A599 Church Lane (2)	192	116	468	253	299	196	226	323	266	186	180	167
9	A599 Church Lane (3)	202	172	372	201	345	194	368	216	336	195	352	201
10	A599 Penny Lane	326	392	425	599	437	418	382	478	425	378	370	447

Table 14 – 2033 Actual Flows (PM Peak)

PM Peak (2033) Actual Flows (PCUs)													
		Base		Scenario 1		Scenario 7		Scenario 9		Scenario 10		Scenario 11	
Ref	Link	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound
1	A49 Lodge Lane South	353	398	707	733	628	431	691	410	-	-	-	-
2	A572 Crow Lane (1)	360	383	485	478	373	457	377	462	287	337	253	311
3	A572 Crow Lane (2)	364	307	497	385	401	380	399	386	422	367	363	344
4	A572 Crow Lane (3)	300	199	429	279	361	273	356	267	497	396	430	342
5	A572 Crow Lane (4)	225	270	365	346	330	350	330	341	552	530	494	483
6	B5209 Vista Road	374	398	478	326	488	384	502	396	762	627	723	653
7	A599 Church Lane (1)	244	250	291	286	407	419	421	447	207	367	175	405
8	A599 Church Lane (2)	158	225	238	309	237	354	214	442	187	286	164	330
9	A599 Church Lane (3)	232	170	261	235	255	272	269	286	257	249	261	292
10	A599 Penny Lane	422	404	376	523	429	546	486	620	324	446	370	583

Using the 2033 actual flows presented in the tables above, the differences between Scenario 1 (Do Minimum) and each of the assessed scenarios (Scenarios 7, 9, 10 and 11) have been compared. **Table 15** and **Table 16** below illustrate the differences in flow when compared to Scenario 1 (Do Minimum) resembling the effects of traffic reassignment within the SHSM as a consequence of the network alterations.

Table 15 – 2033 Do Minimum Differences (Actual Flows) (AM Peak)

AM Peak (2033) Differences (PCUs)									
		Scenario 7		Scenario 9		Scenario 10		Scenario 11	
Ref	Link	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound
1	A49 Lodge Lane South	86	-390	145	-401	-	-	-	-
2	A572 Crow Lane (1)	-240	63	-224	73	-405	-89	-407	-89
3	A572 Crow Lane (2)	-237	69	-219	85	-280	57	-279	61
4	A572 Crow Lane (3)	-245	32	-223	29	-170	226	-177	218
5	A572 Crow Lane (4)	-229	39	-222	31	-64	302	-79	300
6	B5209 Vista Road	-130	88	-150	71	179	430	165	499
7	A599 Church Lane (1)	-35	-10	-86	57	-248	-63	-323	-30
8	A599 Church Lane (2)	-169	-57	-242	70	-202	-67	-288	-86
9	A599 Church Lane (3)	-27	-7	-4	15	-36	-6	-20	0
10	A599 Penny Lane	12	-181	-43	-121	0	-221	-55	-152

Table 16 – 2033 Do Minimum Differences (Actual Flows) (PM Peak)

PM Peak (2033) Differences (PCUs)									
		Scenario 7		Scenario 9		Scenario 10		Scenario 11	
Ref	Link	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound	S/E bound	N/W bound
1	A49 Lodge Lane South	-79	-302	-16	-323	-	-	-	-
2	A572 Crow Lane (1)	-112	-21	-108	-16	-198	-141	-232	-167
3	A572 Crow Lane (2)	-96	-5	-98	1	-75	-18	-134	-41
4	A572 Crow Lane (3)	-68	-6	-73	-12	68	117	1	63
5	A572 Crow Lane (4)	-35	4	-35	-5	187	184	129	137
6	B5209 Vista Road	10	58	24	70	284	301	245	327
7	A599 Church Lane (1)	116	133	130	161	-84	81	-116	119
8	A599 Church Lane (2)	-1	45	-24	133	-51	-23	-74	21
9	A599 Church Lane (3)	-6	37	8	51	-4	14	0	57
10	A599 Penny Lane	53	23	110	97	-52	-77	-6	60

In the AM Peak flows shown in **Table 15**, when compared to Scenario 1 (Do Minimum) there is a clear reduction in vehicles travelling EB on the A572 Crow Lane across all four scenarios. In the adjacent direction, the effect of introducing the Vista Road link in Scenarios 10 and 11 results in a large increase in traffic assigned to the A572 WB, with an increase of flow up to 302 vehicles (Scenario 10). This is indicative of the closure of the A49 Lodge Lane (S) arm and the reassignment of traffic towards the Vista Road link. The B5209 Vista Road consequently sees an increase in flow in both directions with the introduction of the Vista Link Road in Scenarios 10 and 11. The increase in flows in Scenarios 10 and 11 is predominantly higher in the NB direction with vehicles accessing the A580 via the new junction formed with the Vista Road link. The A599 Church Lane is shown to see a reduction in traffic across all scenarios, particularly in an EB direction, which is more pronounced in Scenarios 10 and 11.

In the PM Peak, the flows presented in **Table 16** reveal that whilst traffic flows largely reduce on the A572 Crow Lane in Scenarios 7 and 9, the introduction of the Vista Road link in Scenarios 10 and 11 sees large increases in traffic in both EB and WB directions at the western end of the A572 Crow Lane closest to B5209 Vista Road. Large reductions in traffic do however occur at the eastern extent of A572 Crow Lane closest to the junction with A49 Lodge Lane, indicating increased delay at eastern end of the link. Similar to the AM Peak, the B5209 Vista Road features significant increases in traffic in both NB and SB directions with the introduction of the Vista Road link in Scenarios 10 and 11. The A599 Church Lane again demonstrates a reduction in traffic in an EB traffic in Scenarios 10 and 11, but to a lesser extent than in the AM Peak.

5.3 SATURN DIFFERENCE PLOTS

To more clearly understand the effects of the introduction of the Vista Road link, the difference plots against Scenario 1 (Do Minimum) have been compared for the equivalent scenarios below. The blue bars indicate a decrease of flow at the link and a green bar indicates an increase in flow at the link. It should also be noted that the thicker the bar, the larger the increase / decrease in traffic profile.

5.3.1 EXISTING M6 JUNCTION 23, WITH A49 ARMS RELOCATED: SCENARIO 7 (WITHOUT VISTA ROAD LINK) / SCENARIO 10 (WITH VISTA ROAD LINK)

The trip reassignment for both Scenario 7 and Scenario 10 have been compared to demonstrate the effects of the introduction of the Vista Road link, in conditions with the Existing M6 Junction 23, with the A49 arms detached and relocated.

Figure 5-2 – Trip Reassignment Plot – Scenario 7 (PCU Difference) – AM Peak

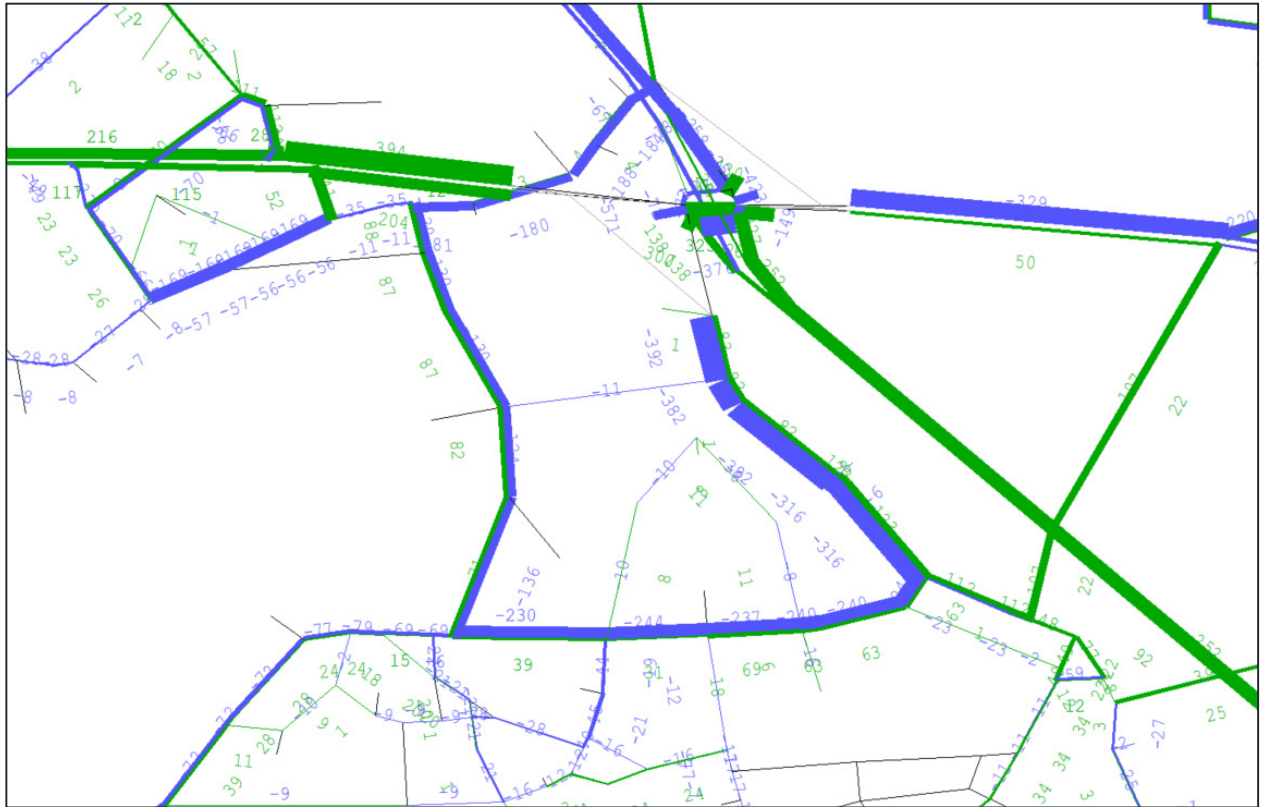
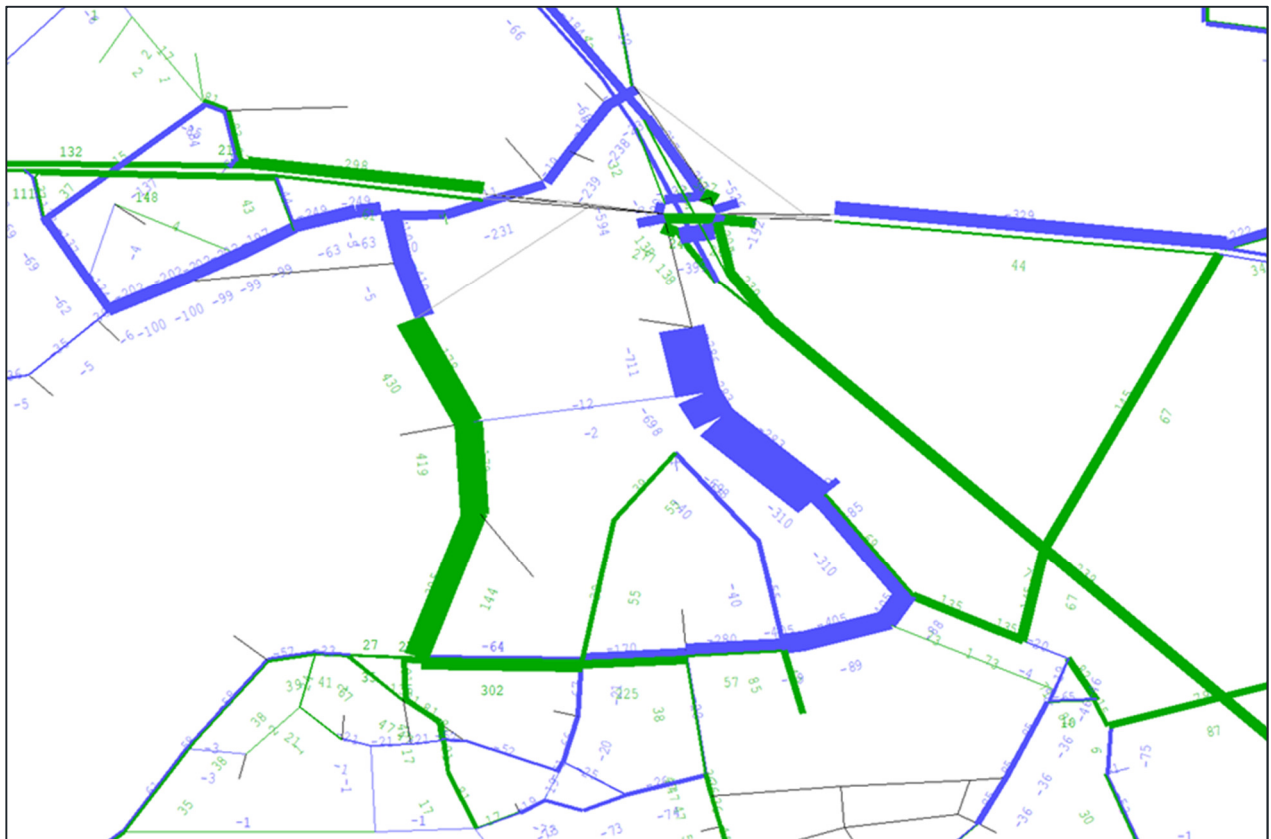


Figure 5-3 – Trip Reassignment Plot – Scenario 10 (PCU Difference) – AM Peak



As shown in the above AM Peak difference plots, In Scenario 7, the removal of the A49 Lodge Lane arms sees a large reduction in flows travelling northbound on the A49 South (-392 PCUs), with a consequent reduction in flow eastbound on the A572 Crow Lane (-244 PCUs). In comparison, in Scenario 10, the introduction of the Vista Road link sees a greater reduction in flows travelling northbound on the A49 South (-711 PCUs) and eastbound on the A572 Crow Lane (-485 PCUs).

In Scenario 7, it is noted that the effect of the closure of the A49 South arm sees some traffic take a more circuitous route to access the A580 west via B5209 Vista Road and Millfield Lane. However, in Scenario 10, the effect of the introduction of the Vista Road link can be seen with a substantial increase in flow northbound on the B5209 Vista Road (430 PCUs) and westbound on the A572 Crow Lane (302 PCUs).

It can also be seen that the detachment of the A49 South arm, and its relocation further west along the A580, sees a greater increase in flows in both directions on the A580 West, increasing westbound towards M6 Junction 23 by up to 394 PCUs in Scenario 7, compared to 298 PCUs in Scenario 10. This difference is partly down to traffic routing via Kenyons Lane South to access the A580 in Scenario 7.

In both Scenarios 7 and 10 in the AM Peak there is a consistent level of increase in flows routing via the Newton Lane to access the A580 from the east and travelling onto the M6 South.

Figure 5-4 – Trip Reassignment Plot – Scenario 7 (PCU Difference) – PM Peak

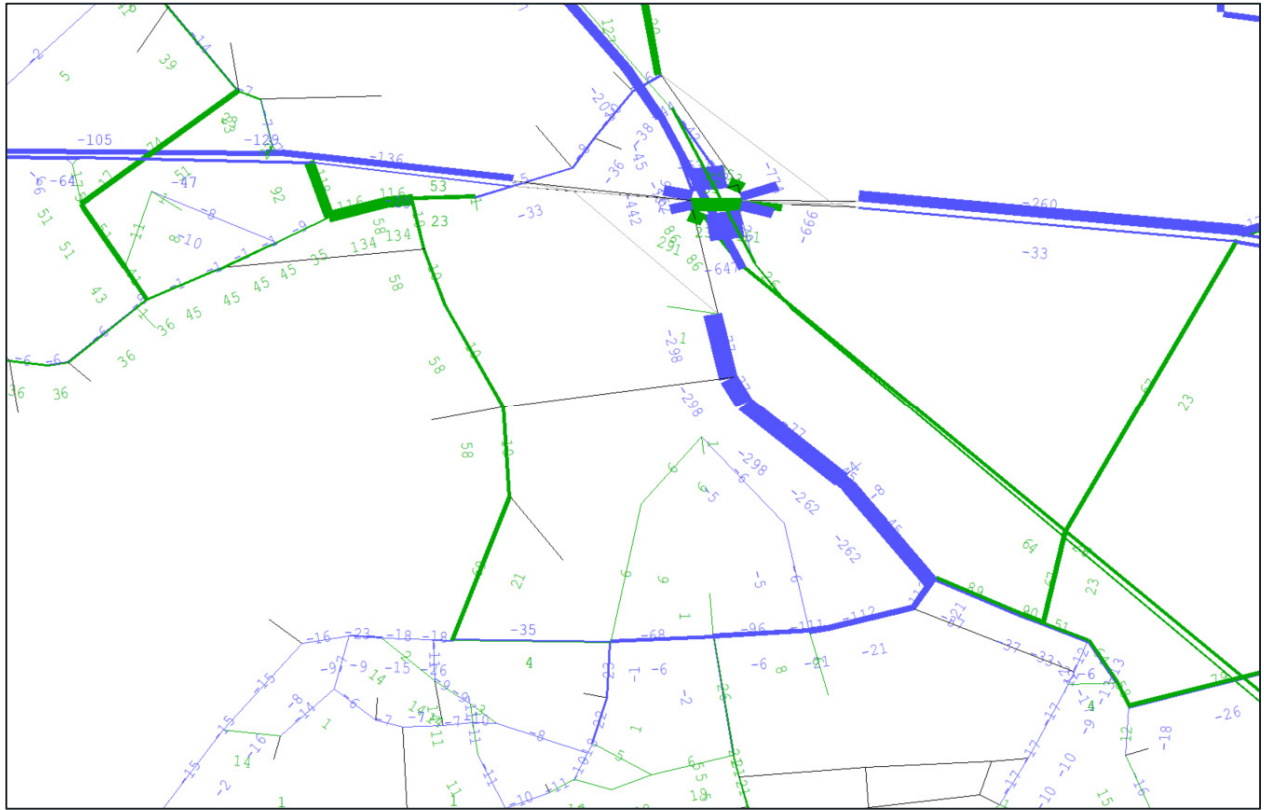
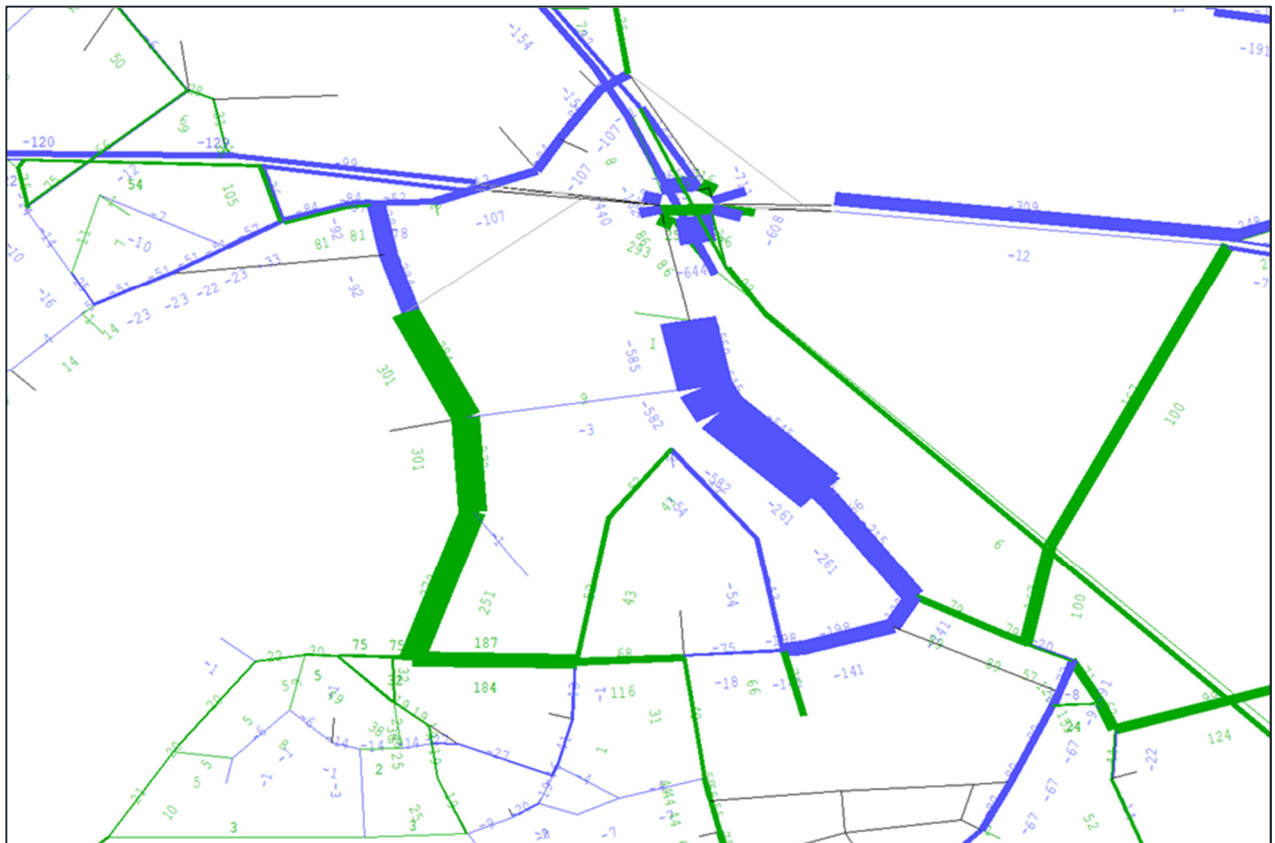


Figure 5-5 – Trip Reassignment Plot – Scenario 10 (PCU Difference) – PM Peak



Comparing the PM Peak difference plots, it can be seen that, similar to the AM Peak, the introduction of the Vista Road link in Scenario 10 presents a substantial increase in flow as vehicles travel to access the A580 west, with an increase westbound on the A572 Crow Lane (184 PCUs) and northbound on the B5209 Vista Road (301 PCUs).

It is also apparent that a greater volume of traffic routes from the east to access the Vista Road link in Scenario 10. Westbound flows on Southworth Road are shown to increase by 124 PCUs in Scenario 10, compared to a slight reduction of -26 PCUs in Scenario 7. Similarly, westbound flows on Newton Road are shown to increase by 100 PCUs in Scenario 10 as opposed to an increase of 23 PCUs in Scenario 7.

It can also be seen that there is a greater reduction in flows travelling eastbound on the A580 east of M6 Junction 23, with a reduction of -309 PCUs in Scenario 10 compared to -260 PCUs in Scenario 7. It is apparent that a greater volume of traffic access the A580 East via Newton Road in Scenario 10, with an increase of 167 PCUs travelling north-east towards the A580 junction in Scenario 10, compared to an increase of 67 PCUs in Scenario 7.

In Scenario 7 it is shown that there is an effect of traffic reassigning to the A599 Church Road to the north, which is not present in Scenario 10.

5.3.2 DIVERGING DIAMOND JUNCTION, WITH A49 ARMS RELOCATED: SCENARIO 9 (WITHOUT VISTA ROAD LINK) / SCENARIO 11 (WITH VISTA ROAD LINK)

The trip reassignment for both Scenario 9 and Scenario 11 have been compared to demonstrate the effects of the introduction of the Vista Road link, in conditions with the Diverging Diamond Interchange (DDI), with the A49 arms detached and relocated.

Figure 5-6 – Trip Reassignment Plot – Scenario 9 (PCU Difference) – AM Peak

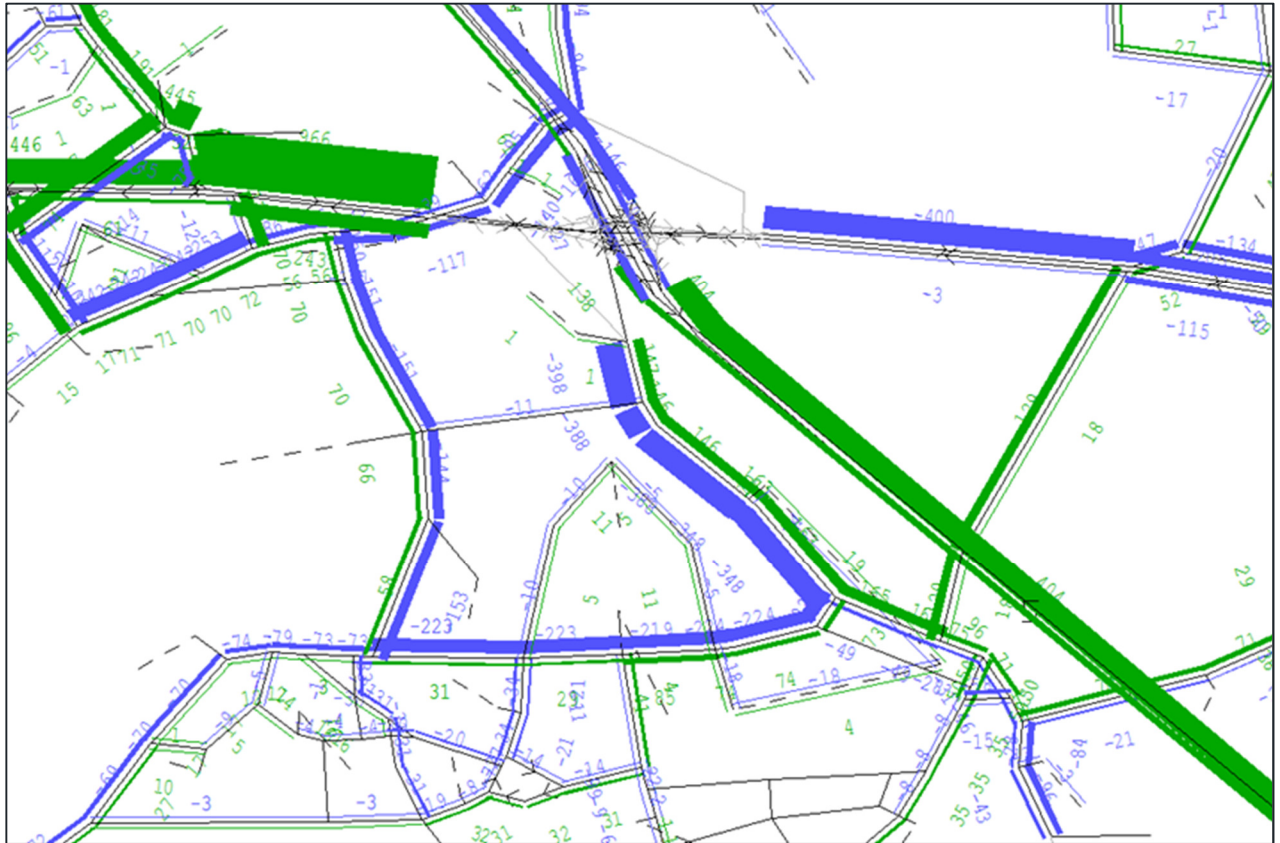
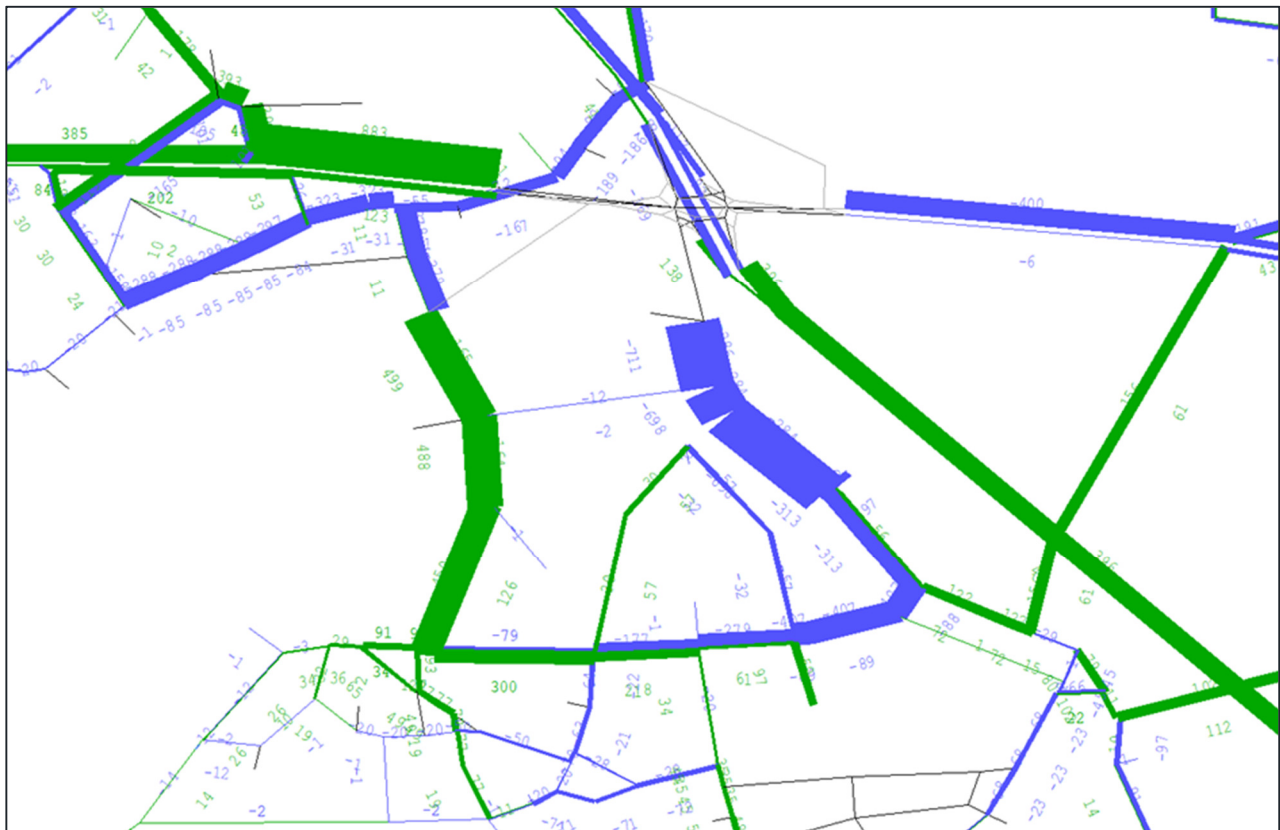


Figure 5-7 – Trip Reassignment Plot – Scenario 11 (PCU Difference) – AM Peak



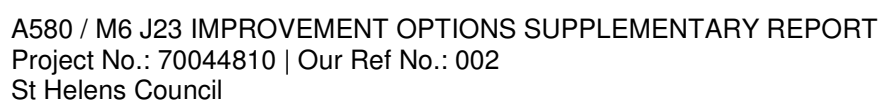
The above AM difference plots demonstrate that in both Scenario 9 and Scenario 11, the effect of the DDI arrangement results in a greater level of flow assigned to the A580 West link in comparison to the level of increases shown in the Existing M6 Junction 23 arrangement, presented as part of Scenario 7 and Scenario 10. Scenario 9 represents the largest increase in flow on the A580 West link (966 PCUs) compared to Scenario 11 (883 PCUs).

The diversion of the A49 South arm to a new junction on the A580 West in Scenario 9 sees an increase in southbound flows on the existing section of the A49 South (163 PCUs), though with a reduction in the northbound flows (-398 PCUs).

The introduction of the Vista Road link in Scenario 11 presents a substantial increase in flow on the A572 Crow Lane (300 PCUs) and B5209 Vista Road (499 PCUs), both of a similar magnitude to Scenario 10, presented earlier in **Figure 5-3**. In contrast, in Scenario 9 there is a much smaller increase in flow on A572 Crow Lane (31 PCUs) and B5209 Vista (70 PCUs), though with an increase in flow on A599 Church Road (70 PCUs) and Piele Road (96 PCUs) as traffic uses a more circuitous route to access the A580 West via the Millfield Lane junction. Notably, in Scenario 11, the A599 Church Road sees a reduction in flow (-85 PCUs) and the route described does not seem to be an attractive option.

It Scenario 11, there is a greater reduction in flows travelling in both directions of the A599 Church Road and A599 Penny Lane compared with Scenario 9.

Both Scenario 9 and Scenario 11 present a substantial increase in flow travelling on the M6 Southbound, greater than in the Existing M6 Junction 23 arrangement (with A49 arms relocated) shown in Scenario 7 and Scenario 10. This is attributable to the improved capacity afforded to M6 Junction 23 with the DDI arrangement.



Comparing the PM Peak difference plots, it can be seen that in Scenario 9 both northbound and southbound flows on the A49 South reduce, but to much greater levels in Scenario 11 in which traffic re-routes via the Vista Road link in Scenario 11. Consequently, the A572 Crow Lane witnesses and increase in both eastbound flow (129 PCUs) and westbound flow (136 PCUs) in Scenario 11 as opposed to a minor reduction in both directions in Scenario 9.

In Scenario 11, there is a greater increase in flow from the east with flows travelling southbound on Newton Lane increasing by 108 PCUs in Scenario 11 compared to just 3 PCUs in Scenario 9. Consequently, there is an increase in flow northbound on High Street in Scenario 11 (101 PCUs) as opposed to a reduction in flow in Scenario 9 (-108 PCUs). There is also an increase in westbound flow on A572 Newton Road in Scenario 11 (108 PCUs) compared to a reduction in flow in Scenario 9 (-79 PCUs). This partially reflects the attractiveness of the Vista Road link in Scenario 11.

Similar to the AM Peak, it can be seen that in Scenario 9, with the A49 South relocated, some traffic takes a more circuitous which results in increases in flow along the B5209 Vista Road northbound (70 PCUs), A599 Church Lane westbound (161 PCUs) and Piele Road (121 PCUs). This effect is not as evident in Scenario 11, although there is a marginally greater increase in traffic travelling northbound onto Kenyons Lane North in order to reach the Millfield Lane junction to access the A580.

Whilst there are increases in eastbound flows on the A580 West in both scenarios, there is a greater increase in Scenario 9 (236 PCUs) compared to Scenario 11 (134 PCUs).

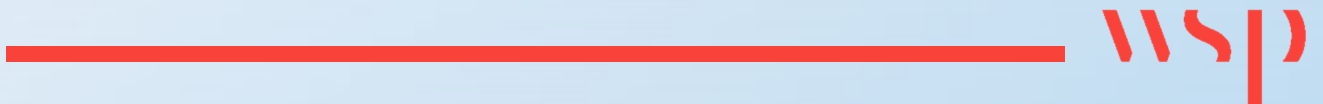
5.3.3 SUMMARY

To provide a more detailed understanding of the effects of traffic reassignment in conditions ‘without’ and ‘with’ the Vista Road link, SATURN difference plots have been created comparing the 2033 Do Minimum (Scenario 1) to each of the scenarios assessed in this report. In both Scenario 10 (Existing M6 Junction 23) and Scenario 11 (DDI arrangement) it is shown that there is a large transfer in flows from the existing section of the M6 South to the B5209 Vista Road and A572 Crow Lane demonstrative of the new route formed to access the A580 West.

Whilst there are clear consistencies between the ‘without’ (Scenarios 7 and 9) and ‘with’ (Scenarios 10 and 11) Vista Road link scenarios; most notably the increase in eastbound flows on the A580 West, together with increases in southbound flows on the M6 – both of which are most prominent in the AM Peak, and the reduction in eastbound flows on the A580 East in both AM and PM Peaks, it is apparent that there are some notable differences in traffic reassignment on more minor roads. This is particularly evident in the case of the A599 Church Road/ A599 Penny Lane corridor which generally sees a greater reduction in flows in both directions in the ‘with’ Vista Road link scenarios (Scenarios 10 and 11). In addition, the difference plots also highlight that there is a potential increased attractiveness of the Vista Road link for trips travelling to/ from the east, with both the Newton Lane and A572 Newton Road presenting increases in flow in Scenarios 10 and 11.

6

CAPACITY ASSESSMENTS – WITH / WITHOUT VISTA ROAD LINK COMPARISON



6 CAPACITY ASSESSMENTS – WITH / WITHOUT VISTA ROAD LINK COMPARISON

6.1 EXISTING M6 JUNCTION 23 WITH A49 ARMS RELOCATED

For comparison purposes, the TRANSYT 15 results using the 2033 SATURN forecasts have been compared for the Existing M6 Junction 23 arrangement, for the following scenarios:

- Scenario 7 (Existing M6 Junction 23 without A49 Lodge Lane arms and A49 Diverted arms);
- Scenario 10 (Existing M6 Junction 23 without A49 Lodge Lane arms and A49 Diverted arms, with Vista Road link); and

In the previous Stage 1 Study Report (May 2019), the assessment of Scenario 7 was formed by individual TRANSYT models representing M6 Junction 23 (with A49 arms detached) and two separate A49 Lodge Lane East and A49 Lodge Lane West models. In order to more accurately account for the effects of platooning flows between the three junctions, and to identify potential issues of lane weaving, the individual TRANSYT models have been combined to inform the below operational results. This method has additionally been taken forward to provide consistency with the assessment of Scenarios 10 and 11 within this report.

A comparison of the existing arrangement at M6 Junction 23 with the A49 Lodge Lane arms relocated, without the Vista Road link (Scenario 7) and with the Vista Road link (Scenario 10) are illustrated in **Table 17** and **Table 18** overleaf.

Table 17 – 2033 Do Something – Scenario 7 & 10 AM Peak Results

Arm	Scenario 7 (AM)			Scenario 10 (AM)		
	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)
A580 / M6 Junction 23						
A580 East Lancashire Road WB Approach	100	26	-	94	19	-
M6 SB Off-Slip	62	7		63	7	
A580 East Lancashire Road EB Approach	98	27		96	24	
M6 NB Off-Slip	91	16		99	24	
A580 / A49 (East)						
A49 Lodge Lane SB	68	4	-	67	4	-
A580 East Lancashire Road EB	90	31		90	30	
A580 East Lancashire Road WB	49	7		48	7	
A580 / A49 (West), A580 / B5209 Vista Road link						
A49 Lodge Lane NB	41	3	-	43	4	-
A580 East Lancashire Road EB	56	9		53	8	
A580 East Lancashire Road WB	87	18		84	16	
Combined Total			2897			2795

Table 18 – 2033 Do Something – Scenario 7 & 10 PM Peak Results

Arm	Scenario 7 (PM)			Scenario 10 (PM)		
	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)
A580 / M6 Junction 23						
A580 East Lancashire Road WB Approach	91	18	-	83	14	-
M6 SB Off-Slip	87	13		95	18	
A580 East Lancashire Road EB Approach	97	23		101	39	
M6 NB Off-Slip	105	76		116	111	
A580 / A49 (East)						
A49 Lodge Lane SB	81	6	-	87	7	-
A580 East Lancashire Road EB	68	16		66	15	
A580 East Lancashire Road WB	58	4		63	6	
A580 / A49 (West), A580/ B5209 Vista Road link						
A49 Lodge Lane NB	73	5	-	84	7	-
A580 East Lancashire Road EB	54	3		45	5	
A580 East Lancashire Road WB	73	17		68	11	
Combined Total			3888			4231

Based on the AM Peak model performance, it is confirmed that the results of Scenario 7 and Scenario 10 are comparable. In both scenarios M6 Junction 23 (without the A49 Lodge Lane arms) operates above its theoretical capacity, albeit with some alternation between the arms performing at practical capacity. In the case of Scenario 7, the A580 East (westbound approach) operates at capacity in, whereas in Scenario 10 the M6 NB off-slip does so. In both scenarios the relocated A49 Lodge Lane East junction is shown to operate at capacity, with the A580 EB approach recording a DoS of 90%.

In the PM Peak, there are more apparent differences between Scenarios 7 and 10. Whilst M6 Junction (without the A49 Lodge Lane arms) performs above capacity in both scenarios, it can be seen that the M6 NB off-slip performs further above capacity in Scenario 10 with a DoS of 116% compared to a DoS of 105% in Scenario 7. This results in a difference in the MMQ of 35 PCUs; from 76 PCUs in Scenario 7 to 111 PCUs in Scenario 10. This relatively large difference can be related to the fact that the M6 NB off-slip arm is operating above capacity at 2033, and is therefore susceptible to even minor increases in traffic flow or optimisation of signal timings at the junction. Similarly, in Scenario 10 it is shown that the A580 East (westbound approach) operates above capacity with a DoS of 101%. The greater levels of delay in Scenario 10 result in the performance index increasing by £343 per hour in the PM Peak.

6.2 DDI M6 JUNCTION 23 WITH A49 ARMS RELOCATED

For comparison purposes, the TRANSYT 15 results using the 2033 SATURN forecasts have been compared for the DDI arrangement at M6 Junction 23, for the following scenarios:

- Scenario 9 (Diverging Diamond and A49 Diverted arms).
- Scenario 11 (Diverging Diamond and A49 Diverted arms, with Vista Road Link).

For the assessment of Scenario 9, the 2033 Do Something (Sensitivity Test) presented in the Stage 1 Study Report (Table 39 of Appendix G) has been utilised. For the benefits of combining the TRANSYT model described above, the sensitivity test was originally run to provide a more accurate understanding of the performance of the DDI arrangement in the Stage 1 Study Report. This approach has been taken forward as part of this latest report to ensure a consistent means of comparison.

A comparison of the DDI arrangement at M6 Junction 23 with the A49 Lodge Lane arms relocated, without the Vista Road link (Scenario 9) and with the Vista Road link (Scenario 11) are illustrated in **Table 19** and **Table 20** below.

Table 19 – 2033 Do Something – Scenario 9 & 11 AM Peak Results

Arm	Scenario 9 (AM)			Scenario 11 (AM)		
	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)
A580 / M6 Junction 23						
A580 East Lancashire Road WB Approach	60	6	-	61	7	-
M6 SB Off-Slip	38	4		37	0	
A580 East Lancashire Road EB Approach	89	12		91	15	
M6 NB Off-Slip	50	4		50	4	
A580 / A49 (East)						
A49 Lodge Lane SB	32	2	-	31	2	-
A580 East Lancashire Road EB	85	14		85	16	
A580 East Lancashire Road WB	56	8		54	7	
A580 / A49 (West), A580 / B5209 Vista Road link						
A49 Lodge Lane NB	55	3	-	60	3	-
A580 East Lancashire Road EB	59	7		59	7	
A580 East Lancashire Road WB	81	15		78	12	
Combined Total			1124			1140

Table 20 – 2033 Do Something – Scenario 9 & 11 PM Peak Results

Arm	Scenario 9 (PM)			Scenario 11 (PM)		
	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)	DOS (%)	Mean Max Queue (PCU)	PI (£ per hr)
A580 / M6 Junction 23						
A580 East Lancashire Road WB Approach	64	8	-	68	9	-
M6 SB Off-Slip	48	5		44	0	
A580 East Lancashire Road EB Approach	75	11		85	14	
M6 NB Off-Slip	63	9		62	9	
A580 / A49 (East)						
A49 Lodge Lane SB	49	3	-	47	3	-
A580 East Lancashire Road EB	87	23		87	23	
A580 East Lancashire Road WB	51	6		54	6	
A580 / A49 (West), A580 / B5209 Vista Road link						
A49 Lodge Lane NB	65	3	-	82	5	-
A580 East Lancashire Road EB	53	5		49	6	
A580 East Lancashire Road WB	84	19		80	19	
Combined Total			1485			1541

Comparison of the performance of the DDI arrangement in Scenario 9 and Scenario 11 demonstrates there to be very little actual difference in the operational performance of the two alternative options. However, it should be noted that of the two options, when comparing the performance index along the A580 East Lancashire Road corridor, there is an increase cost of £16 per hour during the AM Peak and £56 per hour during the PM Peak resulting from the re-routing of flow via the Vista Road link.

6.3 SUMMARY

Overall, the comparison of the TRANSYT model performance has demonstrated that the potential alternative to introduce a new link from the B5209 Vista Road to form a new junction with the A580 East Lancashire Road corridor has relatively minimal benefit to the performance of M6 Junction 23 in 2033 Do Something conditions. Beyond the immediate M6 Junction 23 and A580 East Lancashire Road corridor, the traffic reassignment analysed as part of this supplementary study report has revealed that the alternative option is likely to introduce additional traffic demand particularly on the A572 Crow Lane corridor and neighbouring local roads which would require more detailed review should this option be taken forward as part of the M6 Junction 23 Study.



8 First Street
Manchester
M15 4RP

wsp.com