

Access Strategy A

MG0123 – A49 Corridor VISSIM, Warrington

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1. INTRODUCTION

1.1 Background

- 1.1.1 Modelling Group Ltd has previously developed a base-year microsimulation model of the A49 corridor for the area to the north of Warrington, surrounding the M62 junction 9. For further detailed information relating to this exercise, please refer to '[MG0123_A49WarringCorridor_BaseModellingReport_v1.2.pdf](#)'.
- 1.1.2 The aim of this model has been to provide a robust platform on which the proposed development (Peel Hall) can be tested and impact upon the highway network assessed in the future years 2022, 2027 and 2032.

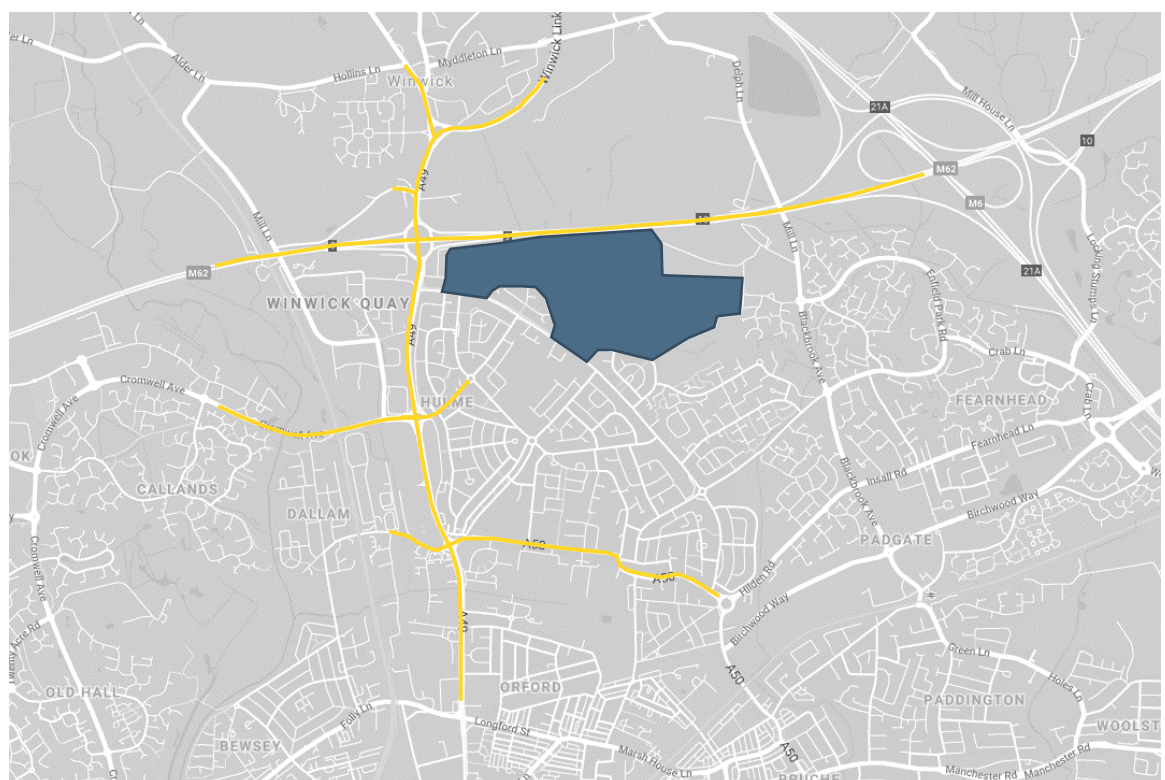


FIGURE 1.1: NETWORK EXTENTS AND APPROXIMATE LOCATION OF DEVELOPMENT

1.2 Report Purpose

- 1.2.1 The following report summarises the methodology used to build and test the model, as well as the results obtained to determine the comparative performance impacts of Peel Hall Access Strategy A flows within the committed future year networks, as detailed above.

1.4 Report Structure

The report is structured as follows:

- **Section 2: Methodology** including information on the model development and scenarios tested;
- **Section 3: Model Performance** including network performance statistics, queue lengths and journey times; and
- **Section 4: Summary and Recommendations.**

2 METHODOLOGY

2.1 Overview

- 2.1.1 The model extent used is consistent with the 2019 base model as highlighted in Figure 2.1.
- 2.1.2 Also consistent with the 2019 base year modelling, the 2022, 2027 and 2032 models are modelled to cover a 2.5-hour period, for the AM and PM traffic peaks.
- 2.1.3 In the AM, this period covers 07:00-09:30, with an hour 'warm-up' from 07:00-08:00, and a half-hour 'cool-down' from 09:00-09:30. In the PM, this period covers 16:00-18:30, with an hour 'warm-up' from 16:00-17:00, and a half-hour 'cool-down' from 18:00-18:30.
- 2.1.4 The model has been developed using the same version of the software as used for the validated base model (PTV VISSIM 11.00-12). Results have been output with a model resolution of 5-time steps per second, as was used in the base model. The same random seeds have also been used (starting from 5, increasing by 5 each run, for 10 runs).

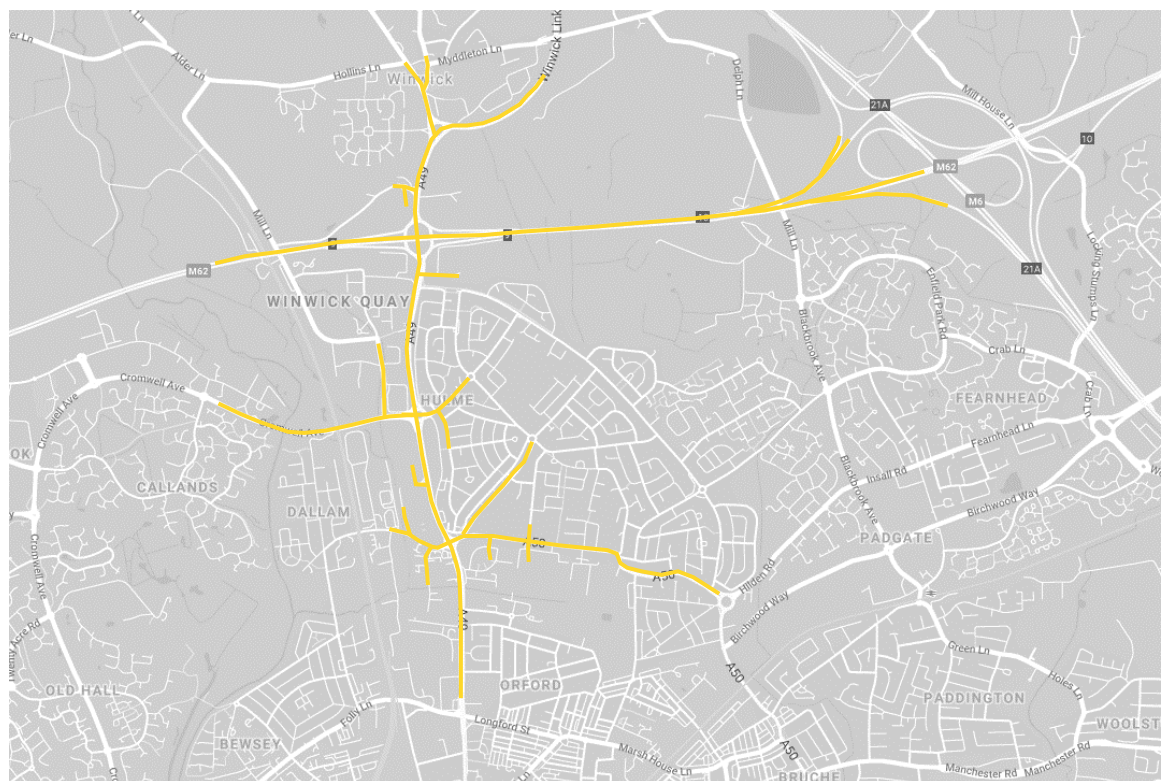


FIGURE 2.1: VALIDATED 2019 MODEL EXTENTS

2.2 Scenarios Tested

2.2.1 The scenarios tested in the model were:

- 2022 Do Minimum (Reference Case)
- 2022 Do Something (Full Development Scenario)
- 2027 Do Minimum (Reference Case)
- 2027 Do Something (Full Development Scenario)
- 2032 Do Minimum (Reference Case)
- 2032 Do Something (Full Development Scenario)

2.2.2 The flows for each scenario were provided by Highgate Transportation in the spreadsheet '*Peel Hall Access Strategy A - Flow Diagram Spreadsheet - REISSUE 200120.xlsm*'. The flow diagrams within this were developed using the SATURN model (WMMTM16) outputs provided by AECOM.

2.2.3 In order to ensure a fully transparent and traceable process in the conversion of these flows into a useable format for entry into the VISSIM models, the matrices creation module in LinSig 3 was used to develop Origin-Destination matrices for each vehicle type.

2.2.4 The current model area does not have any route choice, hence the choice of LinSig was considered appropriate to evaluate the routing for both lights and heavies. A total of 15 different scenarios for Lights and Heavies have been processed. A skeleton model of the area was constructed and turning counts were imported at each junction for validation purposes.

2.2.5 Flow consistency checks were undertaken on the SATURN flow diagrams provided to make sure that the number of vehicles leaving one junction were equal to the number of vehicles entering the next one. It was concluded that the flow provided was consistent and could be used for flow estimation in LinSig. Traffic data was processed by LinSig and it was concluded that 100% of the GEH values for all scenarios were below a threshold of 3.

2.2.6 The LinSig model has been provided for review as part of the final model submission for Option A, and is detailed further in Appendix B.

2.3 Network Development

2.3.1 Several changes have been made to the model network to reflect planned improvements in the area. These include:

- **A49 Newton Road/ Winwick Link Road Junction (Winwick Island)** – Widening of the northbound and southbound approaches on Newton Road, widening of the westbound approach from Winwick Link Road including the creation of a segregated left turn lane. Also included, is widening of the circulatory carriageway.
- **A49 Newton Road / Delph Lane Junction** – Additional lane for Newton Road northbound, including widened exit merge.
- **A49 Winwick Road/ Junction Nine Retail Park Junction** – Widening of Winwick Road northbound to facilitate a dedicated left turn lane into the retail park, Widening of Winwick Road southbound to extend the existing dedicated right turn lane into the retail park.

2.3.2 Detailed drawings used to model junction mitigations are shown in Appendix E.

2.3.3 Additional changes were also made to remove some priority rules at the roundabout, as it became apparent that the increase in overall traffic volume caused the network to ‘lock up’ on some model runs, in a manner which was judged to be entirely unrealistic.

2.4 Traffic Compositions

As with the original models, three primary traffic compositions were used in the models: Cars, LGVs and HGVs. However, when modelling the ‘Do Something’ scenario models, additional development related traffic was added as a separate vehicle type, based on the Cars composition.

3 MODEL PERFORMANCE

3.1 Overview

3.1.1 The impact of the development on the local highway network has been assessed in 2022, 2027, and 2032, using the following model outputs:

- Overall network performance statistics; including average per vehicle delay/speed, total network delay, latent demand;
- Average maximum & “average average” queue lengths at key junctions; and
- Average journey times and volumes along key routes.

3.1.2 All modelled scenario results are averaged over 10 random seed runs, to reflect daily fluctuations in arrival patterns.

3.2 Network Performance Statistics

3.2.1 This section summarises the network performance statistics. Network performance data is split into two main types – average per vehicle data, and total network statistics (taken over the peak hour).

3.2.2 Data is then further broken down as follows:

- Per Trip Average Per Vehicle Data:
 - **Delay** – defined as average time spent in a delay state (i.e. being held below desired speed due to network conditions);
 - **Stops** – defined as the average number of times each vehicle comes to a full stop;
 - **Speed** – defined as the overall average speed per trip, in miles per hour;
 - **Stopped Delay** – defined as the average amount of time spent in an unwanted, stopped state
- Total Network Data
 - **Distance** – defined as the total cumulative distance travelled by all vehicles completing trips within the peak hour;
 - **Travel Time** – defined as the total cumulative travel time of all vehicles completing trips within the peak hour;
 - **Delay Time** – defined as the total cumulative time spent in a delay state by all vehicles during the peak hour;
 - **Stops** – defined as the total cumulative number of vehicle stops within the network during the peak hour;
 - **Stopped Delay** – defined as the total cumulative amount of time spent in an unwanted, stopped state by all vehicles during the peak hour;
 - **Vehicles Active** – defined as the total number of vehicles still active within the network at the end of the peak hour;
 - **Vehicles Arrived** – defined as the total number of completed trips by the end of the peak hour;
 - **Latent Delay** – defined as the total amount of delay stored outside of the network (i.e. experienced by **Latent Demand** – see below, and therefore not counted in the **Delay Time** statistic defined above) at the end of the evaluation interval;
 - **Latent Demand** – defined as the total number of vehicles (demand) stuck outside of the network at the end of the evaluation interval (generally due to queueing and delays).

- 3.2.3 Tables 3.1 and 3.2 show the summary data for the AM and PM modelled peaks respectively.
- 3.2.4 There are two or three primary links with congestion levels which tend to lead to latent demand at the end of the peak periods (i.e. trapped outside of the network). These are:
- Golborne Road – in the morning peak, traffic struggles to access the A49 at this junction due to the high volume of right turners (in and out) combined with the high volume of northbound and southbound traffic on the A49 itself. If remedied, and using the detail found in the error files as a guide (although it is worth noting that the error files only record latent demand at the end of the model run – i.e. after the half-hour long cool-down period, whereas the summary data in tables 3.1 and 3.2 is just for the actual modelled peak, but only shows the total with no further detail) this could lead to as much 400-500 additional vehicles entering the network in the AM 2032 Do Something model. In the AM 2032 Do Minimum model, there is approximately 200 vehicles trapped outside of the network here. This is despite this entry link being extended to approximately 2.5km from the junction.
 - Sandy Lane West and/ or Cromwell Avenue – The signalised roundabout junction with the A49 is a very congested junction in most future year scenarios. However, in the PM peak, there is the added complication that there is a high proportion of right-turning traffic from each of the approaches, as well as heavy ahead movements on all arms. This makes balancing fixed-time plans very difficult. As the volumes on the A49 are so high, the northbound and southbound traffic has to have a lot of priority, meaning traffic on either Cromwell Avenue or Sandy Lane West, or both, struggle to get through the junction. In 2032, this results in some latent demand.

	Average Per/Vehicle - 08:00-09:00				Total Network Statistics - 08:00-09:00								
	Delay	Stops	Speed	Stopped Delay	Distance	Travel Time	Delay Time	Stops	Stopped Delay	Vehicles Active	Vehicles Arrived	Latent Delay	Latent Demand
AM DoMin 2022	144	8	26	58	62372	5270989	2445827	139932	988752	1341	15695	939	3
AM DoSom 2022	195	10	22	85	63084	6378632	3462379	184486	1508796	1644	16075	250855	209
AM DoMin 2027	179	11	24	72	65018	6171315	3233343	195161	1298129	1467	16579	105573	129
AM DoSom 2027	203	12	22	81	65786	6788242	3773433	220861	1494284	1656	16893	259067	230
AM DoMin 2032	232	15	20	90	68507	7555407	4469041	288945	1726514	1699	17586	140302	160
AM DoSom 2032	282	17	18	114	69255	8797932	5620567	342031	2273726	2113	17848	431226	334

TABLE 3.1: AM PEAK NETWORK PERFORMANCE STATISTICS SUMMARY

	Average Per/Vehicle - 17:00-18:00				Total Network Statistics - 17:00-18:00								
	Delay	Stops	Speed	Stopped Delay	Distance	Travel Time	Delay Time	Stops	Stopped Delay	Vehicles Active	Vehicles Arrived	Latent Delay	Latent Demand
PM DoMin 2022	106	3	29	57	63419	4908340	1996392	58286	1069227	1359	17473	1357	0
PM DoSom 2022	126	4	26	64	64776	5527084	2485479	71876	1251305	1541	18135	5880	0
PM DoMin 2027	100	3	30	52	66713	5063540	1998446	56795	1031286	1379	18531	23684	16
PM DoSom 2027	143	5	25	73	67798	6151377	2972079	100662	1516812	1683	19036	150179	106
PM DoMin 2032	112	3	28	58	70417	5596665	2363268	69767	1223348	1503	19567	54959	40
PM DoSom 2032	174	6	22	93	71047	7125402	3805499	133757	2034172	2001	19916	288881	184

TABLE 3.2: PM PEAK NETWORK PERFORMANCE STATISTICS SUMMARY

3.3 Queue Length Comparison

- 3.3.1 Average absolute maximum queue lengths (i.e. the average of the single largest queue lengths to occur at any point during each of the seed runs), and “average average” (i.e. the average of the queue lengths over the entire peak period, averaged for all seed runs) have been analysed at the following junctions:
- A49 Newton Road / Winwick Park Avenue / Winwick Link Road
 - A49 Newton Road / Delph Lane
 - M62 Junction 9
 - A49 Winwick Road / Birch Avenue
 - A49 Winwick Road / Poplars Avenue
 - A49 Winwick Road / A574 Cromwell Avenue / Sandy Lane West
 - A49 Winwick Road / Junction NINE Retail Park
 - A49 Winwick Road / Hawleys Lane / A50 Long Lane
- 3.3.2 Queue lengths have been extracted for comparison during the AM peak (08:00-09:00) period and PM peak (17:00-18:00) periods.
- 3.3.3 When analysing the figures, it is worth noting that VISSIM collects queue lengths from a given marker extending backwards along the link until it reaches another queue marker. Hence, where there are junctions close together the queue lengths are capped at the distance between the junctions. This can be misleading – as such, queue outputs should be read in conjunction with journey time results to gain a full understanding of scenario differences.
- 3.3.4 Tables 3.3 and 3.4 summarise the AM peak average and average maximum queue comparisons respectively. There are some more notable increases to maximum queue lengths for traffic on the eastbound off-slip from the M62 which are reasonably consistent in all scenarios. When watching the model, it is clear this is just down to the slightly non-responsive nature of the signal controller within the model, which has been created as a fixed time controller. As a result, it is likely that the numbers shown very much represent a worst-case scenario, as the signals onsite run under MOVA control. The queueing vehicles are always well contained within the link stacking capacity (of approximately 315m within the model – maximum queue lengths are approximately 200m in all Do Something scenarios).
- 3.3.5 To the south of M62 Junction 9, the worst impacts are seen on the Sandy Lane West approach to the A49 Winwick Road / A574 Cromwell Avenue / Sandy Lane West roundabout. There was a need to extend the link length for Sandy Lane West (from approximately 300m in reality, to almost 1500m), in an attempt to get all traffic loaded into the model.

08:00-09:00									
		2022				2027			
		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	14	17	4	26%	17	23	6	38%
	A49 NB	14	17	4	26%	17	23	6	38%
	A49 NB to Winwick Link Rd	14	17	4	26%	17	23	6	38%
	Winwick Park Ave to A49 NB	4	5	0	2%	5	5	0	0%
	Winwick Park Ave to Winwick Link Rd	4	5	0	2%	5	5	0	0%
	Winwick Park Ave to A49 SB	4	5	0	2%	5	5	0	0%
	A49 SB to Winwick Link Rd	51	57	6	13%	43	45	2	4%
	A49 SB	51	57	6	13%	43	45	2	4%
	A49 SB to Winwick Park Ave	51	57	6	13%	43	45	2	4%
	Winwick Link Rd to A49 SB	2	2	0	-1%	3	3	0	-1%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	3	3	0	-2%	5	5	0	-1%
	Winwick Link Rd to A49 NB	3	3	0	-2%	5	5	0	-1%
	A49 NB	21	24	3	16%	38	57	19	50%
	A49 NB to Delph Ln	21	24	3	17%	38	57	19	50%
	A49 SB	44	45	1	2%	50	49	-1	-2%
M62 Junction 9	A49 SB to Delph Ln	12	12	0	0%	12	12	0	4%
	Delph Ln to A49 NB	6	6	0	-2%	6	5	0	-3%
	Delph Ln to A49 SB	8	8	0	0%	7	7	0	1%
	A49 NB to M62 WB	15	16	2	11%	22	28	6	26%
	A49 NB	15	16	2	11%	22	28	6	26%
	A49 NB to M62 EB	15	16	2	11%	22	28	6	26%
	A49 NB to A49 SB (U-Turn)	15	16	2	11%	22	28	6	26%
	M62 EB to A49 NB	26	90	64	251%	16	44	28	174%
	M62 EB to A49 SB	26	90	64	251%	16	44	28	174%
	A49 SB to M62 EB	41	40	-1	-3%	41	40	-1	-3%
	A49 SB	41	40	-1	-3%	41	40	-1	-3%
	A49 SB to M62 WB	41	40	-1	-3%	41	40	-1	-3%
	M62 WB to A49 SB	14	14	0	2%	14	14	0	-1%
	M62 WB to A49 NB	14	14	0	2%	14	14	0	-1%

08:00-09:00									
		2022				2027			
		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	2	2	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	2	2	-
	A49 NB	0	0	0	-	0	2	2	-
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB	2	10	8	449%	2	0	-2	-98%
	A49 SB to Sandy Ln West	208	199	-9	-4%	124	136	12	9%
	A49 SB	208	199	-9	-4%	124	136	12	9%
	A49 SB to Cromwell Ave	208	199	-9	-4%	124	136	12	9%
	Cromwell Ave to A49 NB	17	20	3	18%	23	27	4	18%
	Cromwell Ave to Sandy Ln West	30	35	5	18%	40	47	7	18%
	Cromwell Ave to A49 SB	30	35	5	18%	40	47	7	18%
	Cromwell Ave to Cromwell Ave (U-turn)	30	35	5	18%	40	47	7	18%
	A49 NB	4	7	3	63%	6	10	3	48%
	A49 NB to Sandy Ln West	4	7	3	63%	6	10	3	48%
	A49 NB to Cromwell Ave	4	7	3	63%	6	10	3	48%
	Sandy Ln West to A49 NB	17	194	177	1024%	21	200	179	875%
	Sandy Ln West to Sandy Ln (U-turn)	17	194	177	1024%	21	200	179	875%
	Sandy Ln West to A49 SB	17	194	177	1024%	21	200	179	875%
	Sandy Ln West to Cromwell Ave	17	194	177	1024%	21	200	179	875%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	16	16	1	4%	23	24	1	4%
	A49 NB to Junction NINE Retail	16	16	1	4%	23	24	1	4%
	Junction NINE Retail to A49 SB	6	6	0	2%	6	6	0	-2%
	Junction NINE Retail to A49 NB	5	5	0	6%	5	5	0	2%
	A49 SB	16	12	-5	-29%	45	36	-9	-21%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	12	12	0	1%	12	13	1	10%
	A49 SB to Hawleys Lane	61	55	-6	-9%	65	62	-4	-5%
	A49 SB to Long Lane	0	2	1	369%	0	0	0	-
	A49 SB	138	113	-25	-18%	172	167	-5	-3%
	A49 NB to Hawleys Lane	19	23	4	20%	34	51	18	52%
	A49 NB to Long Lane	9	10	0	5%	13	19	6	43%
	A49 NB	19	23	4	20%	34	51	18	52%
	Long Lane to A49 SB	21	85	64	313%	18	57	40	225%
	Long Lane to Hawleys Lane	74	116	42	57%	46	79	34	74%
	Long Lane to A49 NB	74	116	42	57%	46	79	34	74%
	Hawleys Lane to Long Lane	9	9	1	7%	9	9	0	3%
	Hawleys Lane to A49 SB	9	9	1	7%	9	9	0	3%
	Hawleys Lane to A49 NB	5	5	0	1%	5	5	0	2%

TABLE 3.3: AVERAGE AM PEAK HOUR QUEUE LENGTH COMPARISON

- 3.3.6 The southbound movement on the A49 has the largest traffic volume and is very sensitive to any increase in delay – even tiny changes to signal timings can quickly lead to queue lengths reaching back to, and beyond, M62 Junction 9. As a result, Sandy Lane West gets a disproportionate penalisation as a result of being the movement directly competing for green time with southbound traffic on the A49.
- 3.3.7 There are steadily increasing average queue lengths for all traffic on the A49 northbound and from A50 Long Lane at the southernmost junction within the model extents. This is particularly true in 2032, where the comparative increase in average queue lengths is approximately 50-125m on both approaches.
- 3.3.8 Tables 3.5 and 3.6 summarise the PM peak average and average maximum queue comparisons respectively. In much the same way as with the morning peak models, there are some more notable increases to maximum queue lengths for traffic on the eastbound off-slip from the M62 which are reasonably consistent in all scenarios. The average queue length increases are much lower though, and both are well contained within the link stacking capacity (the largest maximum being ~250m in 2032, with a stacking capacity of 315m for the link – although with all average measures being considerably lower, it is unlikely that this happens often in the model.)
- 3.3.9 To the south of M62 Junction 9, there are also increases to average and maximum queue lengths on the Sandy Lane West arm of the A49 Winwick Road / A574 Cromwell Avenue / Sandy Lane West roundabout. In much the same way as is found with the AM peak models, the level of congestion and need to give the A49 priority at this junction make it very difficult to assign enough time to the side arms, leading to high levels of queuing.
- 3.3.10 Further south, there are increases to average queue lengths for northbound traffic on the A49 at the A49 Winwick Road / Hawleys Lane / A50 Long Lane junction, although the queuing here does clear, as can be seen from the lack of any latent demand at the southernmost end of the model.
- 3.3.11 Further details regarding queue length output data can be found in Appendix C.

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	104	137	34	33%	109	141	31	29%	144	177	34	24%
	A49 NB	104	137	34	33%	109	141	31	29%	144	177	34	24%
	A49 NB to Winwick Link Rd	104	137	34	33%	109	141	31	29%	144	177	34	24%
	Winwick Park Ave to A49 NB	34	35	1	3%	35	35	0	0%	37	37	0	0%
	Winwick Park Ave to Winwick Link Rd	34	35	1	3%	35	35	0	0%	37	37	0	0%
	Winwick Park Ave to A49 SB	34	35	1	3%	35	35	0	0%	37	37	0	0%
	A49 SB to Winwick Link Rd	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	A49 SB	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	A49 SB to Winwick Park Ave	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	Winwick Link Rd to A49 SB	31	29	-2	-5%	41	38	-3	-8%	35	33	-2	-5%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	31	29	-1	-4%	41	38	-3	-8%	36	73	37	105%
	Winwick Link Rd to A49 NB	31	29	-1	-4%	41	38	-3	-8%	36	73	37	105%
	A49 NB	126	180	54	43%	179	241	62	35%	239	191	-48	-20%
	A49 NB to Delp Ln	131	185	54	42%	184	245	62	34%	243	195	-48	-20%
	A49 SB	211	220	8	4%	238	234	-4	-2%	273	302	29	10%
	A49 SB to Delph Ln	86	100	13	15%	86	95	9	10%	95	229	133	140%
	Delph Ln to A49 NB	48	47	0	0%	41	40	-1	-2%	49	51	2	4%
	Delph Ln to A49 SB	42	42	0	0%	37	36	-1	-3%	45	46	1	3%
	A49 NB to M62 WB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	A49 NB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
M62 Junction 9	A49 NB to M62 EB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	A49 NB to A49 SB (U-Turn)	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	M62 EB to A49 NB	95	227	132	139%	83	198	115	137%	92	198	106	116%
	M62 EB to A49 SB	95	227	132	139%	83	198	115	137%	92	198	106	116%
	A49 SB to M62 EB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	A49 SB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	A49 SB to M62 WB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	M62 WB to A49 SB	79	79	1	1%	81	82	1	1%	90	130	40	45%
	M62 WB to A49 NB	79	79	1	1%	81	82	1	1%	90	130	40	45%

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	7	7	-	0	0	0	-	1	28	26	1890%
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	4	20	16	405%	132	80	-52	-39%
	A49 NB	0	0	0	-	4	20	16	405%	132	80	-52	-39%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB	32	43	11	33%	18	6	-12	-67%	166	127	-39	-23%
	A49 SB to Sandy Ln West	407	431	24	6%	328	392	64	20%	471	471	0	0%
	A49 SB	407	431	24	6%	328	392	64	20%	471	471	0	0%
	A49 SB to Cromwell Ave	407	431	24	6%	328	392	64	20%	471	471	0	0%
	Cromwell Ave to A49 NB	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to Sandy Ln West	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to A49 SB	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to Cromwell Ave (U-turn)	120	124	4	3%	127	131	4	3%	135	140	5	4%
	A49 NB	85	108	23	27%	103	121	18	17%	133	141	8	6%
	A49 NB to Sandy Ln West	85	108	23	27%	103	121	18	17%	133	141	8	6%
	A49 NB to Cromwell Ave	85	108	23	27%	103	121	18	17%	133	141	8	6%
	Sandy Ln West to A49 NB	114	292	178	157%	122	294	171	140%	252	296	44	18%
	Sandy Ln West to Sandy Ln (U-turn)	114	292	178	157%	122	294	171	140%	252	296	44	18%
A49 Winwick Road @ Junction NINE Retail Park	Sandy Ln West to A49 SB	114	292	178	157%	122	294	171	140%	252	296	44	18%
	Sandy Ln West to Cromwell Ave	114	292	178	157%	122	294	171	140%	252	296	44	18%
	A49 NB	147	167	20	13%	168	173	6	3%	174	171	-2	-1%
	A49 NB to Junction NINE Retail	147	167	20	13%	168	173	6	3%	174	171	-2	-1%
	Junction NINE Retail to A49 SB	27	27	0	0%	27	27	0	0%	30	34	3	11%
	Junction NINE Retail to A49 NB	25	25	0	0%	25	25	0	0%	28	31	3	12%
	A49 SB	140	127	-13	-9%	206	218	12	6%	361	348	-13	-4%
	A49 SB to Junction NINE Retail	54	58	3	6%	63	66	3	4%	69	66	-3	-5%
	A49 SB to Hawleys Lane	302	283	-19	-6%	312	311	-1	0%	328	330	2	1%
	A49 SB to Long Lane	32	74	42	130%	0	0	0	-	0	0	0	-
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB	325	316	-9	-3%	334	331	-3	-1%	336	340	4	1%
	A49 NB to Hawleys Lane	175	219	43	25%	233	303	70	30%	438	508	70	16%
	A49 NB to Long Lane	75	88	13	18%	108	177	69	64%	351	501	150	43%
	A49 NB	175	219	43	25%	233	303	70	30%	438	508	70	16%
	Long Lane to A49 SB	152	188	36	23%	132	190	58	44%	154	170	16	10%
	Long Lane to Hawleys Lane	164	187	23	14%	155	182	28	18%	149	159	10	7%
	Long Lane to A49 NB	164	187	23	14%	155	182	28	18%	149	159	10	7%
	Hawleys Lane to Long Lane	65	69	4	6%	56	60	5	8%	80	76	-4	-5%
	Hawleys Lane to A49 SB	65	69	4	6%	56	60	5	8%	80	76	-4	-5%
	Hawleys Lane to A49 NB	62	52	-10	-15%	52	56	4	7%	70	65	-4	-6%

TABLE 3.4: AVERAGE MAXIMUM AM PEAK HOUR QUEUE LENGTH COMPARISON

		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	11	12	0	3%	12	13	1	7%	13	20	7	53%
	A49 NB	11	12	0	3%	12	13	1	7%	13	20	7	53%
	A49 NB to Winwick Link Rd	11	12	0	3%	12	13	1	7%	13	20	7	53%
	Winwick Park Ave to A49 NB	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	Winwick Park Ave to Winwick Link Rd	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	Winwick Park Ave to A49 SB	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	A49 SB to Winwick Link Rd	18	20	2	11%	20	21	1	6%	22	28	6	30%
	A49 SB	18	20	2	11%	20	21	1	6%	22	28	6	30%
	A49 SB to Winwick Park Ave	18	20	2	11%	20	21	1	6%	22	28	6	30%
	Winwick Link Rd to A49 SB	16	26	10	64%	8	4	-4	-47%	10	63	53	514%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	4	11	7	166%	4	5	1	18%	6	39	33	568%
	Winwick Link Rd to A49 NB	4	11	7	166%	4	5	1	18%	6	39	33	568%
	A49 NB	29	31	2	7%	30	39	9	32%	39	44	6	15%
	A49 NB to Delp Ln	29	31	2	7%	29	39	10	33%	39	44	6	15%
	A49 SB	92	114	23	25%	62	58	-4	-7%	86	206	120	139%
M62 Junction 9	A49 SB to Delph Ln	11	11	-1	-6%	10	10	0	1%	11	49	38	356%
	Delph Ln to A49 NB	52	70	18	36%	88	89	1	1%	100	100	0	0%
	Delph Ln to A49 SB	49	67	18	37%	84	85	1	1%	97	97	0	0%
	A49 NB to M62 WB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB to M62 EB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB to A49 SB (U-Turn)	12	13	1	9%	12	12	0	2%	13	16	3	24%
	M62 EB to A49 NB	17	51	34	195%	21	50	29	142%	21	62	41	197%
	M62 EB to A49 SB	17	51	34	195%	21	50	29	142%	21	62	41	197%
	A49 SB to M62 EB	60	69	10	16%	57	58	1	2%	62	82	20	32%
A49 SB	60	69	10	16%	57	58	1	2%	62	82	20	32%	
A49 SB to M62 WB	60	69	10	16%	57	58	1	2%	62	82	20	32%	
M62 WB to A49 SB	17	20	3	19%	12	12	1	6%	12	25	13	111%	
M62 WB to A49 NB	17	20	3	19%	12	12	1	6%	12	25	13	111%	

						17:00-18:00							
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	8	0	-8	-100%	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SB	145	158	13	9%	48	50	2	3%	81	163	82	101%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	A49 SB	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	A49 SB to Cromwell Ave	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	Cromwell Ave to A49 NB	40	32	-8	-21%	53	59	6	10%	49	44	-5	-9%
	Cromwell Ave to Sandy Ln West	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	Cromwell Ave to A49 SB	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	Cromwell Ave to Cromwell Ave (U-turn)	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	A49 NB	22	22	0	2%	28	34	5	19%	54	61	7	12%
	A49 NB to Sandy Ln West	22	22	0	2%	28	34	5	19%	54	61	7	12%
	A49 NB to Cromwell Ave	22	22	0	2%	28	34	5	19%	54	61	7	12%
	Sandy Ln West to A49 NB	17	181	164	984%	32	260	228	708%	63	263	200	316%
	Sandy Ln West to Sandy Ln (U-turn)	17	181	164	984%	32	260	228	708%	63	263	200	316%
	Sandy Ln West to A49 SB	17	181	164	984%	32	260	228	708%	63	263	200	316%
Sandy Ln West to Cromwell Ave	17	181	164	984%	32	260	228	708%	63	263	200	316%	
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	31	32	1	2%	39	41	2	6%	44	43	-1	-1%
	A49 NB to Junction NINE Retail	31	32	1	2%	39	41	2	6%	44	43	-1	-1%
	Junction NINE Retail to A49 SB	45	100	55	122%	30	63	33	110%	29	39	10	33%
	Junction NINE Retail to A49 NB	42	97	55	130%	28	61	33	119%	27	36	10	36%
	A49 SB	304	273	-31	-10%	289	215	-75	-26%	273	227	-45	-17%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	41	14	-27	-66%	11	17	6	51%	13	15	2	18%
	A49 SB to Hawleys Lane	39	39	0	-1%	28	36	8	28%	34	32	-3	-8%
	A49 SB to Long Lane	34	107	73	218%	46	56	10	23%	24	42	18	77%
	A49 SB	255	257	1	0%	245	246	2	1%	246	244	-2	-1%
	A49 NB to Hawleys Lane	31	54	22	70%	43	112	69	161%	109	353	245	225%
	A49 NB to Long Lane	8	11	3	30%	10	36	26	251%	31	234	203	655%
	A49 NB	31	54	22	70%	43	112	69	161%	109	353	245	225%
	Long Lane to A49 SB	8	22	14	169%	11	34	23	213%	19	54	35	185%
	Long Lane to Hawleys Lane	30	38	8	28%	32	48	17	52%	49	80	32	65%
	Long Lane to A49 NB	30	38	8	28%	32	48	17	52%	49	80	32	65%
	Hawleys Lane to Long Lane	31	43	12	37%	60	75	15	25%	74	82	8	11%
	Hawleys Lane to A49 SB	31	43	12	37%	60	75	15	25%	74	82	8	11%
	Hawleys Lane to A49 NB	24	29	6	24%	42	57	16	37%	58	64	6	10%

TABLE 3.5: AVERAGE PM PEAK HOUR QUEUE LENGTH COMPARISON

		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	98	107	9	9%	98	119	21	21%	120	152	32	27%
	A49 NB	98	107	9	9%	98	119	21	21%	120	152	32	27%
	A49 NB to Winwick Link Rd	98	107	9	9%	98	119	21	21%	120	152	32	27%
	Winwick Park Ave to A49 NB	12	26	14	123%	11	12	2	14%	13	27	14	104%
	Winwick Park Ave to Winwick Link Rd	12	26	14	123%	11	12	2	14%	13	27	14	104%
	Winwick Park Ave to A49 SB	12	26	14	123%	11	12	2	14%	13	27	14	104%
	A49 SB to Winwick Link Rd	75	92	17	23%	79	90	11	13%	88	106	18	20%
	A49 SB	75	92	17	23%	79	90	11	13%	88	106	18	20%
	A49 SB to Winwick Park Ave	75	92	17	23%	79	90	11	13%	88	106	18	20%
	Winwick Link Rd to A49 SB	197	247	49	25%	133	101	-32	-24%	183	364	181	99%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	156	72	-84	-54%	60	74	14	22%	73	175	102	141%
	Winwick Link Rd to A49 NB	156	72	-84	-54%	60	74	14	22%	73	175	102	141%
	A49 NB	189	228	39	20%	191	301	110	58%	249	279	30	12%
	A49 NB to Delp Ln	194	233	39	20%	195	305	110	56%	254	284	30	12%
	A49 SB	335	372	37	11%	253	264	11	4%	327	440	114	35%
M62 Junction 9	A49 SB to Delph Ln	92	70	-23	-24%	64	64	0	0%	65	179	113	173%
	Delph Ln to A49 NB	179	185	6	3%	188	187	-1	0%	202	187	-14	-7%
	Delph Ln to A49 SB	175	181	6	3%	184	183	-1	0%	198	183	-14	-7%
	A49 NB to M62 WB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB to M62 EB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB to A49 SB (U-Turn)	116	128	12	10%	113	117	4	4%	112	130	18	16%
	M62 EB to A49 NB	108	234	126	117%	119	229	110	93%	115	256	141	122%
	M62 EB to A49 SB	108	234	126	117%	119	229	110	93%	115	256	141	122%
	A49 SB to M62 EB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	A49 SB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	A49 SB to M62 WB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	M62 WB to A49 SB	88	105	17	19%	62	85	23	37%	64	113	49	76%
	M62 WB to A49 NB	88	105	17	19%	62	85	23	37%	64	113	49	76%

						17:00-18:00							
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	38	0	-38	-100%	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	1	1	-	0	0	0	-	0	12	12	-
	A49 NB	0	1	1	-	0	0	0	-	0	12	12	-
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB	459	482	22	5%	202	309	107	53%	406	472	66	16%
	A49 SB to Sandy Ln West	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	A49 SB	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	A49 SB to Cromwell Ave	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	Cromwell Ave to A49 NB	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to Sandy Ln West	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to A49 SB	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to Cromwell Ave (U-turn)	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	A49 NB	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	A49 NB to Sandy Ln West	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	A49 NB to Cromwell Ave	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	Sandy Ln West to A49 NB	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to Sandy Ln (U-turn)	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to A49 SB	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to Cromwell Ave	142	292	150	106%	179	293	113	63%	228	293	64	28%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	236	238	3	1%	241	249	7	3%	268	256	-12	-4%
	A49 NB to Junction NINE Retail	236	238	3	1%	241	249	7	3%	268	256	-12	-4%
	Junction NINE Retail to A49 SB	101	170	69	69%	86	134	48	55%	81	100	19	23%
	Junction NINE Retail to A49 NB	98	167	69	70%	84	132	48	57%	79	97	19	24%
	A49 SB	452	450	-2	0%	449	397	-51	-11%	473	446	-27	-6%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	92	61	-31	-34%	56	93	37	66%	58	69	11	19%
	A49 SB to Hawleys Lane	250	279	29	12%	246	299	53	21%	327	328	1	0%
	A49 SB to Long Lane	69	241	172	249%	70	172	101	144%	68	137	70	103%
	A49 SB	343	343	0	0%	343	340	-3	-1%	341	341	0	0%
	A49 NB to Hawleys Lane	319	414	95	30%	325	503	178	55%	459	509	51	11%
	A49 NB to Long Lane	79	123	45	57%	135	271	136	101%	233	502	269	115%
	A49 NB	319	414	95	30%	325	503	178	55%	459	509	51	11%
	Long Lane to A49 SB	71	152	81	114%	114	154	40	35%	146	155	9	6%
	Long Lane to Hawleys Lane	129	148	19	15%	143	148	5	3%	146	151	5	3%
	Long Lane to A49 NB	129	148	19	15%	143	148	5	3%	146	151	5	3%
	Hawleys Lane to Long Lane	126	128	2	2%	126	127	1	1%	128	131	3	3%
	Hawleys Lane to A49 SB	126	128	2	2%	126	127	1	1%	128	131	3	3%
	Hawleys Lane to A49 NB	130	133	3	2%	133	133	1	0%	134	137	4	3%

TABLE 3.6: AVERAGE MAXIMUM PM PEAK HOUR QUEUE LENGTH COMPARISON

3.4 Journey Times Comparison

- 3.4.1 Consistent with the base year modelling, average journey times have been extracted for a single evaluation interval covering the peak hour for both the AM (08:00-09:00) and PM (17:00-18:00) scenario models. The separate routes used for evaluation were as follows:

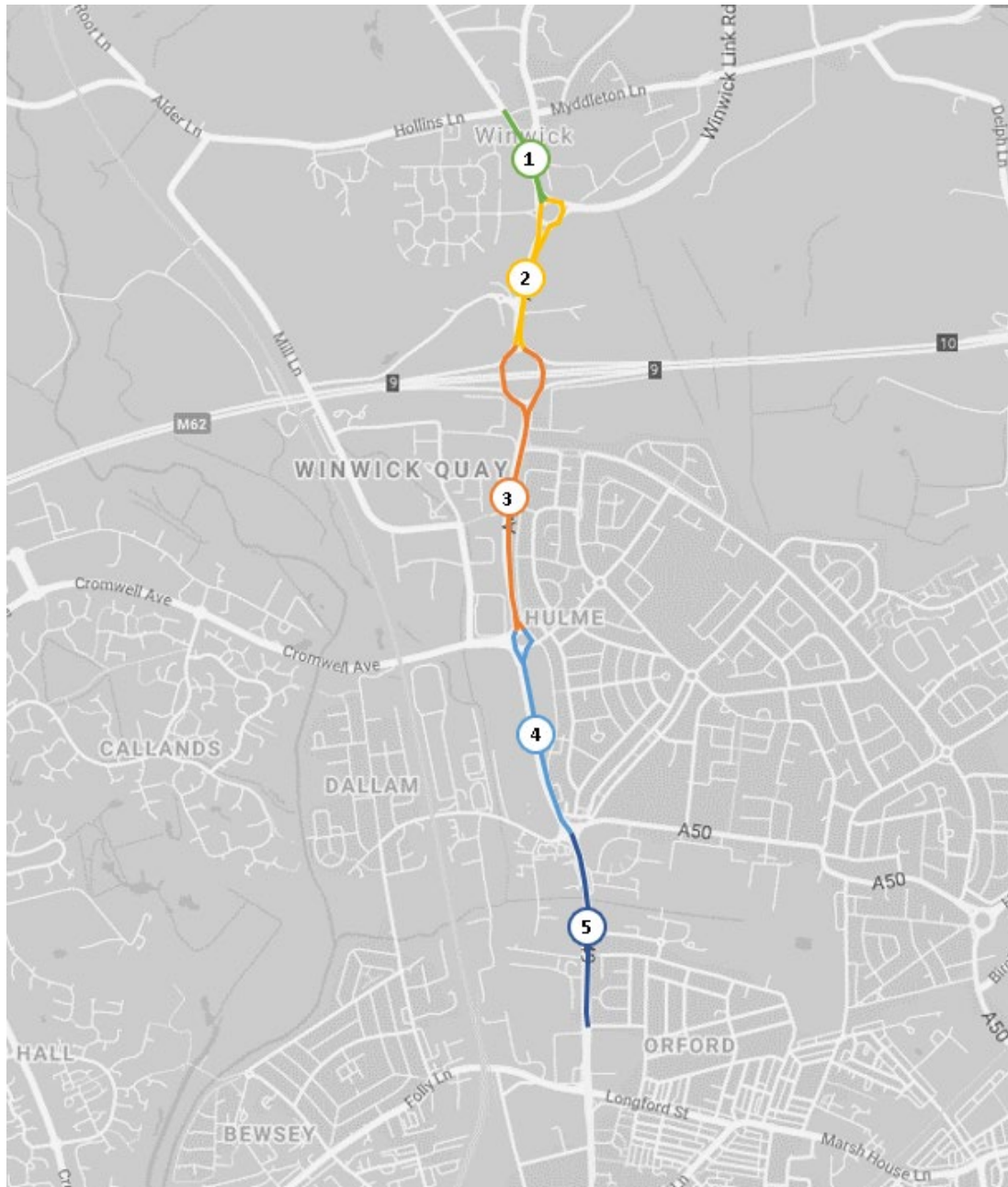


FIGURE 3.1: JOURNEY TIME SECTIONS ASSESSED

- 3.4.2 Table 3.7 summarises the average peak hour journey times for both northbound and southbound traffic during the AM peak, for each future year scenario.
- 3.4.3 It is clear that for both northbound and southbound traffic travelling on the A49, there is not any sort of statistically noticeable impact until 2032. Even then, the majority of that impact happens on the northbound approach to one signalised junction – the junction with the A49 / A50 – which may be at least partially a result of the signal controller setup

AM Journey Time (s) - 08:00-09:00

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	80	91	11	13%	97	98	1	1%	101	113	12	11%
2 NB	104	109	5	5%	116	116	0	0%	119	128	9	7%
3 NB	84	86	2	2%	91	92	1	1%	127	105	-22	-17%
4 NB	96	98	3	3%	102	103	1	1%	103	104	1	1%
5 NB	89	93	4	4%	120	121	1	0%	173	250	77	45%
	452	476	24.32	5%	527	530	3.53	1%	623	700	76.87	12%

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	73	79	5	7%	70	71	0	0%	67	59	-8	-12%
2 SB	103	105	1	1%	104	104	0	0%	108	114	6	5%
3 SB	179	181	2	1%	151	151	0	0%	206	189	-17	-8%
4 SB	140	130	-11	-8%	160	160	0	0%	208	198	-10	-5%
5 SB	63	65	2	3%	65	65	0	0%	65	66	1	2%
	559	559	-0.27	0%	550	551	0.99	0%	654	626	-28.03	-4%

TABLE 3.7: AM PEAK JOURNEY TIME COMPARISON

PM Journey Time (s) - 17:00-18:00

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	57	59	2	3%	63	63	0	0%	70	70	0	0%
2 NB	115	115	0	0%	118	118	0	0%	132	132	0	0%
3 NB	85	87	3	3%	87	87	0	0%	89	89	0	0%
4 NB	102	102	0	0%	108	109	0	0%	112	113	1	1%
5 NB	90	105	15	16%	129	130	0	0%	209	209	0	0%
	448	468	19.45	4%	506	507	1.34	0%	612	613	1.39	0%

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	55	60	5	8%	57	57	0	0%	70	70	0	0%
2 SB	157	183	27	17%	116	117	1	1%	221	223	2	1%
3 SB	341	313	-28	-8%	249	250	1	0%	285	286	1	0%
4 SB	316	315	-1	0%	273	274	1	0%	269	269	1	0%
5 SB	62	62	0	0%	64	64	0	0%	64	65	0	0%
	932	934	2.35	0%	759	762	2.48	0%	909	912	3.23	0%

TABLE 3.8: PM PEAK JOURNEY TIME COMPARISON

3.4.4 Table 3.8 summarises the average peak hour journey times for both northbound and southbound traffic during the PM peak, for each future year scenario.

3.4.5 In an effort to ensure that the comparison was fair, the same signal timings were used for each peak/ year combination. In the PM peak, it is clear that the development has no real impact on travel times along the A49 when this is the case.

4 SUMMARY AND RECOMMENDATIONS

- 4.1.1 Building on the 2019 Base Year Model, 2022, 2027 and 2032 'Do Minimum' model scenarios were produced to act as reference case models for the purposes of comparison, with the aim of assessing the impact of traffic flow changes associated with the proposed Peel Hall development.
- 4.1.2 The following 'Do Something', or 'With Development' scenarios, were compared to their associated reference cases:
- 2022 Do Something (Full Development Scenario)
 - 2027 Do Something (Part Development Scenario)
 - 2032 Do Something (Full Development Scenario)
- 4.1.3 There are some relatively minor, steady increases to delay, queue lengths etc. as a result of the growth in both background traffic and specific development related traffic. However, there are some notable areas where higher levels of delay are apparent. These are primarily the following locations:
- Eastbound M62 off-slip – this is likely an issue which could be partially, if not entirely solved through proper revalidation of the MOVA dataset onsite. A better understanding of the potential benefits could be achieved with more detailed modelling of the signals within the VISSIM model (the junction still currently runs from the original models fixed-time signal controller).
 - Eastbound motorway diverge M62 – this is an issue in the AM peak scenarios, which becomes more and more apparent as each layer of growth is added. The effect of the edge of network delay is modelled as per the original AECOM model, provided by Highways England.
 - A49 Winwick Road / A574 Cromwell Avenue / Sandy Lane West – this junction is very sensitive to traffic growth, runs very tight, fixed-time signal plans, and is particularly physically constrained. There is the potential that more responsive, demand-dependent signal control would help balance the delay-demand. If there is scope for additional highway space (there is currently very little internal storage, and the entry arm from Sandy Lane West is particularly constrained) then this would also warrant further investigation.
 - A49 Winwick Road / Hawleys Lane / A50 Long Lane – this junction is modelled as per the original model signal controller. This is very limited in its ability to be anything like as responsive as the on-street controller (which is MOVA controlled). A better understanding of the potential benefits could be achieved with more detailed modelling of the signals within the VISSIM model.

APPENDIX A:

TURNING VOLUME CALIBRATION CHECKS

AM VOLUME COMPARISON – 07:00-08:00 (WARM-UP PERIOD)

		07:00-08:00											
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	15	17	2	13%	17	18	1	6%	19	18	-1	-5%
	A49 NB	683	696	13	2%	722	728	6	1%	738	766	28	4%
	A49 NBto Winwick Link Rd	408	405	-3	-1%	438	439	1	0%	456	460	4	1%
	Winwick Park Ave to A49 NB	23	25	2	9%	27	27	0	0%	29	29	0	0%
	Winwick Park Ave to Winwick Link Rd	46	46	0	0%	50	50	0	0%	55	53	-2	-4%
	Winwick Park Ave to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SBto Winwick Link Rd	1	10	9	900%	24	29	5	21%	26	32	6	23%
	A49 SB	806	827	21	3%	826	825	-1	0%	823	841	18	2%
	A49 SBto Winwick Park Ave	4	4	0	0%	3	3	0	0%	3	3	0	0%
	Winwick Link Rd to A49 SB	683	683	0	0%	718	715	-3	0%	758	761	3	0%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	8	8	0	0%	9	9	0	0%	10	10	0	0%
	Winwick Link Rd to A49 NB	10	11	1	10%	56	57	1	2%	57	57	0	0%
	A49 NB	1045	1056	11	1%	1113	1123	10	1%	1151	1177	26	2%
	A49 NBto Delp Ln	200	212	12	6%	234	249	15	6%	253	245	-8	-3%
	A49 SB	1306	1330	24	2%	1347	1349	2	0%	1386	1408	22	2%
	A49 SBto Delph Ln	166	164	-2	-1%	175	169	-6	-3%	172	172	0	0%
M62 Junction 9	Delph Ln to A49 NB	86	86	0	0%	89	88	-1	-1%	93	93	0	0%
	Delph Ln to A49 SB	92	92	0	0%	91	92	1	1%	94	98	4	4%
	A49 NBto M62 WB	163	169	6	4%	169	169	0	0%	187	222	35	19%
	A49 NB	430	444	14	3%	449	466	17	4%	483	493	10	2%
	A49 NBto M62 EB	384	401	17	4%	414	424	10	2%	438	444	6	1%
	A49 NBto A49 SB (U-Turn)	0	5	5	-	0	5	5	-	0	6	6	-
	M62 EBto A49 NB	723	734	11	2%	815	831	16	2%	854	871	17	2%
	M62 EBto A49 SB	244	235	-9	-4%	227	227	0	0%	245	252	7	3%
	A49 SBto M62 EB	250	275	25	10%	254	262	8	3%	272	295	23	8%
	A49 SB	707	693	-14	-2%	717	713	-4	-1%	731	738	7	1%
A49 Winwick Rd/ Birch Ave	A49 SB to M62 WB	398	410	12	3%	426	423	-3	-1%	436	431	-5	-1%
	M62 WBto A49 SB	599	609	10	2%	648	655	7	1%	707	725	18	3%
A49 Winwick Road @ Poplars Avenue	M62 WBto A49 NB	103	99	-4	-4%	92	86	-6	-7%	77	68	-9	-12%
	A49 SBto Birch Ave	5	14	9	180%	6	14	8	133%	6	15	9	150%
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	Birch Rd to A49 SB	6	24	18	300%	6	24	18	300%	6	24	18	300%
	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	1017	1056	39	4%	1069	1103	34	3%	1147	1199	52	5%
	A49 SB	1547	1546	-1	0%	1587	1605	18	1%	1678	1725	47	3%
	A49 SBto Sandy Ln West	188	208	20	11%	250	285	35	14%	313	317	4	1%
	A49 SB	1030	1003	-27	-3%	1002	979	-23	-2%	987	995	8	1%
	A49 SBto Cramwell Ave	249	256	7	3%	271	275	4	1%	299	320	21	7%
	Cramwell Ave to A49 NB	254	255	1	0%	267	265	-2	-1%	293	282	-11	-4%
	Cramwell Ave to Sandy Ln West	268	297	29	11%	295	312	17	6%	302	325	23	8%
	Cramwell Ave to A49 SB	486	504	18	4%	539	558	19	4%	590	583	-7	-1%
A49 Winwick Road @ Junction NINE Retail Park	Cramwell Ave to Cramwell Ave (U-turn)	28	29	1	4%	30	29	-1	-3%	32	31	-1	-3%
	A49 NB	628	626	-2	0%	652	651	-1	0%	684	688	4	1%
	A49 NBto Sandy Ln West	47	66	19	40%	59	88	29	49%	74	98	24	32%
	A49 NBto Cramwell Ave	252	259	7	3%	266	276	10	4%	284	295	11	4%
	Sandy Ln West to A49 NB	149	188	39	26%	164	199	35	21%	184	238	54	29%
	Sandy Ln West to Sandy Ln (U-turn	0	0	0	-	0	0	0	-	0	0	0	-
	Sandy Ln West to A49 SB	18	6	-12	-67%	4	7	3	75%	4	8	4	100%
	Sandy Ln West to Cramwell Ave	224	302	78	35%	237	286	49	21%	251	317	66	26%
	A49 NB	859	881	22	3%	904	935	31	3%	947	980	33	3%
	A49 NBto Junction NINE Retail	48	53	5	10%	48	51	3	6%	51	58	7	14%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	Junction NINE Retail to A49 SB	86	88	2	2%	84	78	-6	-7%	76	73	-3	-4%
	Junction NINE Retail to A49 NB	86	91	5	6%	100	107	7	7%	121	130	9	7%
	A49 SB	1410	1386	-24	-2%	1409	1405	-4	0%	1436	1438	2	0%
	A49 SBto Junction NINE Retail	109	111	2	2%	120	124	4	3%	124	129	5	4%
	A49 SBto Hawleys Lane	185	188	3	2%	195	190	-5	-3%	194	196	2	1%
	A49 SBto Long Lane	146	126	-20	-14%	83	84	1	1%	65	58	-7	-11%
	A49 SB	1133	1132	-1	0%	1157	1154	-3	0%	1173	1181	8	1%
	A49 NBto Hawleys Lane	155	163	8	5%	176	180	4	2%	199	198	-1	-1%
	A49 NBto Long Lane	104	106	2	2%	104	105	1	1%	104	104	0	0%
	A49 NB	692	705	13	2%	710	736	26	4%	755	772	17	2%
	Long Lane to A49 SB	185	315	130	70%	214	293	79	37%	263	387	124	47%
	Long Lane to Hawleys Lane	198	203	5	3%	208	214	6	3%	217	223	6	3%
	Long Lane to A49 NB	86	97	11	13%	91	99	8	9%	98	112	14	14%
	Hawleys Lane to Long Lane	67	70	3	4%	69	68	-1	-1%	72	73	1	1%
	Hawleys Lane to A49 SB	0	0	0	-	1	1	0	0%	1	1	0	0%
	Hawleys Lane to A49 NB	144	149	5	3%	158	160	2	1%	172	179	7	4%

AM VOLUME COMPARISON – 08:00-09:00 (PEAK PERIOD)

08:00-09:00													
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	20	18	-2	-10%	19	20	1	5%	21	22	1	5%
	A49 NB	751	783	32	4%	795	811	16	2%	815	841	26	3%
	A49 NBto Winwick Link Rd	452	453	1	0%	468	476	8	2%	491	494	3	1%
	Winwick Park Ave to A49 NB	35	31	-4	-11%	36	37	1	3%	45	43	-2	-4%
	Winwick Park Ave to Winwick Link Rd	62	66	4	6%	69	71	2	3%	75	77	2	3%
	Winwick Park Ave to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SBto Winwick Link Rd	1	11	10	1000%	32	35	3	9%	32	38	6	19%
	A49 SB	973	965	-8	-1%	950	948	-2	0%	941	943	2	0%
	A49 SBto Winwick Park Ave	6	4	-2	-33%	4	5	1	25%	4	4	0	0%
	Winwick Link Rd to A49 SB	788	788	0	0%	831	827	-4	0%	875	880	5	1%
	Winwick Link Rd to Winwick Park Ave	9	9	0	0%	7	7	0	0%	9	9	0	0%
	Winwick Link Rd to A49 NB	12	13	1	8%	70	70	0	0%	71	71	0	0%
A49 Newton Road/ Delph Lane	A49 NB	1132	1164	32	3%	1189	1215	26	2%	1220	1261	41	3%
	A49 NBto Delp Ln	228	242	14	6%	264	285	21	8%	285	272	-13	-5%
	A49 SB	1551	1549	-2	0%	1582	1578	-4	0%	1609	1620	11	1%
	A49 SBto Delph Ln	201	195	-6	-3%	200	198	-2	-1%	206	204	-2	-1%
	Delph Ln to A49 NB	84	84	0	0%	86	85	-1	-1%	92	94	2	2%
	Delph Ln to A49 SB	100	100	0	0%	95	96	1	1%	103	105	2	2%
M62 Junction 9	A49 NBto M62 WB	210	222	12	6%	226	232	6	3%	257	295	38	15%
	A49 NB	579	592	13	2%	606	621	15	2%	632	640	8	1%
	A49 NBto M62 EB	540	554	14	3%	570	579	9	2%	585	603	18	3%
	A49 NBto A49 SB (U-Turn)	0	6	6	-	0	6	6	-	0	8	8	-
	M62 EBto A49 NB	679	719	40	6%	761	792	31	4%	800	827	27	3%
	M62 EBto A49 SB	238	245	7	3%	218	224	6	3%	236	247	11	5%
	A49 SBto M62 EB	306	328	22	7%	318	323	5	2%	334	353	19	6%
	A49 SB	876	847	-29	-3%	866	858	-8	-1%	871	876	5	1%
	A49 SB to M62 WB	480	485	5	1%	502	502	0	0%	510	498	-12	-2%
	M62 WBto A49 SB	555	565	10	2%	601	607	6	1%	652	659	7	1%
A49 Winwick Rd/ Birch Ave	M62 WBto A49 NB	104	100	-4	-4%	91	86	-5	-5%	75	68	-7	-9%
	A49 SBto Birch Ave	5	15	10	200%	5	16	11	220%	5	15	10	200%
A49 Winwick Road @ Poplars Avenue	Birch Rd to A49 SB	15	37	22	147%	15	38	23	153%	14	33	19	136%
	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	1320	1368	48	4%	1407	1443	36	3%	1493	1552	59	4%
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	A49 SB	1677	1683	6	0%	1695	1719	24	1%	1760	1801	41	2%
	A49 SBto Sandy Ln West	207	232	25	12%	267	303	36	13%	324	327	3	1%
	A49 SB	1193	1155	-38	-3%	1121	1098	-23	-2%	1077	1089	12	1%
	A49 SBto Cramwell Ave	295	306	11	4%	315	313	-2	-1%	339	366	27	8%
	Cramwell Ave to A49 NB	295	297	2	1%	315	318	3	1%	349	331	-18	-5%
	Cramwell Ave to Sandy Ln West	341	378	37	11%	377	400	23	6%	393	415	22	6%
	Cramwell Ave to A49 SB	609	635	26	4%	675	707	32	5%	749	733	-16	-2%
	Cramwell Ave to Cramwell Ave (U-turn)	40	37	-3	-8%	37	38	1	3%	43	38	-5	-12%
	A49 NB	827	830	3	0%	876	879	3	0%	917	909	-8	-1%
	A49 NBto Sandy Ln West	61	84	23	38%	80	111	31	39%	99	124	25	25%
	A49 NBto Cramwell Ave	320	326	6	2%	337	342	5	1%	354	362	8	2%
	Sandy Ln West to A49 NB	199	238	39	20%	216	248	32	15%	242	293	51	21%
	Sandy Ln West to Sandy Ln (U-turn)	0	0	0	-	0	0	0	-	0	0	0	-
	Sandy Ln West to A49 SB	25	9	-16	-64%	6	9	3	50%	6	10	4	67%
A49 Winwick Road @ Junction NINE Retail Park	Sandy Ln West to Cramwell Ave	285	373	88	31%	308	355	47	15%	318	380	62	19%
	A49 NB	1108	1129	21	2%	1168	1204	36	3%	1232	1249	17	1%
	A49 NBto Junction NINE Retail	68	76	8	12%	68	74	6	9%	70	77	7	10%
	Junction NINE Retail to A49 SB	80	80	0	0%	75	71	-4	-5%	70	69	-1	-1%
	Junction NINE Retail to A49 NB	94	100	6	6%	111	115	4	4%	127	135	8	6%
	A49 SB	1677	1646	-31	-2%	1644	1652	8	0%	1672	1672	0	0%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SBto Junction NINE Retail	136	140	4	3%	142	148	6	4%	148	151	3	2%
	A49 SBto Hawleys Lane	234	234	0	0%	234	239	5	2%	251	249	-2	-1%
	A49 SBto Long Lane	172	147	-25	-15%	104	99	-5	-5%	83	73	-10	-12%
	A49 SB	1335	1331	-4	0%	1404	1406	2	0%	1414	1419	5	0%
	A49 NBto Hawleys Lane	201	211	10	5%	233	238	5	2%	254	248	-6	-2%
	A49 NBto Long Lane	148	149	1	1%	150	150	0	0%	147	146	-1	-1%
	A49 NB	893	914	21	2%	949	980	31	3%	962	968	6	1%
	Long Lane to A49 SB	255	397	142	56%	296	385	89	30%	351	471	120	34%
	Long Lane to Hawleys Lane	256	252	-4	-2%	255	264	9	4%	263	269	6	2%
	Long Lane to A49 NB	115	121	6	5%	116	125	9	8%	119	129	10	8%
	Hawleys Lane to Long Lane	80	82	2	3%	82	84	2	2%	87	89	2	2%
	Hawleys Lane to A49 SB	1	1	0	0%	1	1	0	0%	1	1	0	0%
	Hawleys Lane to A49 NB	179	184	5	3%	191	193	2	1%	209	216	7	3%

AM VOLUME COMPARISON – 09:00-09:30 (COOL-DOWN PERIOD)

		09:00-09:30											
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	7	8	1	14%	9	7	-2	-22%	8	8	0	0%
	A49 NB	338	359	21	6%	356	370	14	4%	370	403	33	9%
	A49 NBto Winwick Link Rd	203	207	4	2%	217	221	4	2%	231	239	8	3%
	Winwick Park Ave to A49 NB	13	15	2	15%	15	16	1	7%	15	16	1	7%
	Winwick Park Ave to Winwick Link Rd	23	23	0	0%	24	24	0	0%	26	26	0	0%
	Winwick Park Ave to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SBto Winwick Link Rd	0	7	7	-	15	16	1	7%	16	20	4	25%
	A49 SB	474	472	-2	0%	451	452	1	0%	444	434	-10	-2%
	A49 SBto Winwick Park Ave	2	1	-1	-50%	3	2	-1	-33%	2	2	0	0%
	Winwick Link Rd to A49 SB	345	346	1	0%	369	366	-3	-1%	388	389	1	0%
	Winwick Link Rd to Winwick Park Ave	5	4	-1	-20%	4	4	0	0%	4	4	0	0%
A49 Newton Road/ Delph Lane	Winwick Link Rd to A49 NB	5	5	0	0%	29	28	-1	-3%	28	28	0	0%
	A49 NB	521	545	24	5%	549	569	20	4%	579	614	35	6%
	A49 NBto Delp Ln	103	113	10	10%	122	130	8	7%	128	127	-1	-1%
	A49 SB	739	740	1	0%	732	732	0	0%	746	738	-8	-1%
	A49 SBto Delph Ln	94	92	-2	-2%	99	96	-3	-3%	99	95	-4	-4%
	Delph Ln to A49 NB	36	36	0	0%	39	39	0	0%	40	41	1	3%
M62 Junction 9	Delph Ln to A49 SB	51	52	1	2%	48	49	1	2%	53	54	1	2%
	A49 NBto M62 WB	94	104	10	11%	103	111	8	8%	120	149	29	24%
	A49 NB	258	271	13	5%	273	289	16	6%	308	322	14	5%
	A49 NBto M62 EB	238	252	14	6%	257	272	15	6%	288	287	-1	0%
	A49 NBto A49 SB (U-Turn)	0	3	3	-	0	3	3	-	0	3	3	-
	M62 EBto A49 NB	307	330	23	7%	343	362	19	6%	357	381	24	7%
	M62 EBto A49 SB	109	112	3	3%	102	107	5	5%	107	112	5	5%
	A49 SBto M62 EB	140	159	19	14%	138	144	6	4%	145	162	17	12%
	A49 SB	416	397	-19	-5%	412	405	-7	-2%	419	411	-8	-2%
	A49 SB to M62 WB	227	230	3	1%	231	231	0	0%	236	226	-10	-4%
A49 Winwick Rd/ Birch Ave	M62 WBto A49 SB	270	276	6	2%	293	296	3	1%	319	331	12	4%
	M62 WBto A49 NB	53	51	-2	-4%	47	44	-3	-6%	39	37	-2	-5%
A49 Winwick Road @ Poplars Avenue	A49 SBto Birch Ave	3	8	5	167%	3	7	4	133%	3	7	4	133%
	Birch Rd to A49 SB	9	21	12	133%	9	21	12	133%	9	25	16	178%
	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	A49 NB	583	622	39	7%	612	658	46	8%	689	753	64	9%
	A49 SB	805	804	-1	0%	814	823	9	1%	856	880	24	3%
	A49 SBto Sandy Ln West	104	113	9	9%	133	154	21	16%	172	167	-5	-3%
	A49 SB	574	555	-19	-3%	538	525	-13	-2%	538	528	-10	-2%
	A49 SBto Cramwell Ave	134	139	5	4%	148	148	0	0%	167	173	6	4%
	Cramwell Ave to A49 NB	138	139	1	1%	142	141	-1	-1%	155	169	14	9%
	Cramwell Ave to Sandy Ln West	154	170	16	10%	166	180	14	8%	178	207	29	16%
	Cramwell Ave to A49 SB	266	274	8	3%	304	318	14	5%	335	370	35	10%
	Cramwell Ave to Cramwell Ave (U-turn)	14	15	1	7%	16	17	1	6%	16	19	3	19%
	A49 NB	346	348	2	1%	366	372	6	2%	398	416	18	5%
	A49 NBto Sandy Ln West	28	38	10	36%	34	52	18	53%	47	64	17	36%
	A49 NBto Cramwell Ave	137	142	5	4%	149	153	4	3%	163	176	13	8%
	Sandy Ln West to A49 NB	90	124	34	38%	99	134	35	35%	115	149	34	30%
	Sandy Ln West to Sandy Ln (U-turn)	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Junction NINE Retail Park	Sandy Ln West to A49 SB	11	5	-6	-55%	3	6	3	100%	3	5	2	67%
	Sandy Ln West to Cramwell Ave	126	189	63	50%	131	182	51	39%	145	192	47	32%
	A49 NB	454	472	18	4%	492	516	24	5%	534	579	45	8%
	A49 NBto Junction NINE Retail	27	31	4	15%	29	31	2	7%	30	35	5	17%
	Junction NINE Retail to A49 SB	41	41	0	0%	42	39	-3	-7%	38	35	-3	-8%
	Junction NINE Retail to A49 NB	47	49	2	4%	52	54	2	4%	62	67	5	8%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB	784	782	-2	0%	793	790	-3	0%	806	818	12	1%
	A49 SBto Junction NINE Retail	68	67	-1	-1%	69	71	2	3%	74	79	5	7%
	A49 SBto Hawleys Lane	117	117	0	0%	121	117	-4	-3%	120	123	3	3%
	A49 SBto Long Lane	84	74	-10	-12%	51	49	-2	-4%	43	38	-5	-12%
	A49 SB	637	639	2	0%	652	655	3	0%	720	727	7	1%
	A49 NBto Hawleys Lane	76	80	4	5%	85	86	1	1%	104	111	7	7%
	A49 NBto Long Lane	55	59	4	7%	56	60	4	7%	65	72	7	11%
	A49 NB	344	350	6	2%	354	372	18	5%	422	466	44	10%
	Long Lane to A49 SB	128	211	83	65%	142	203	61	43%	172	231	59	34%
	Long Lane to Hawleys Lane	128	133	5	4%	137	143	6	4%	128	130	2	2%
	Long Lane to A49 NB	56	62	6	11%	58	67	9	16%	59	66	7	12%
	Hawleys Lane to Long Lane	41	43	2	5%	44	42	-2	-5%	42	43	1	2%
	Hawleys Lane to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	Hawleys Lane to A49 NB	75	77	2	3%	88	90	2	2%	92	96	4	4%

PM VOLUME COMPARISON – 16:00-17:00 (WARM-UP PERIOD)

		16:00-17:00											
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	83	82	-1	-1%	86	91	5	6%	91	96	5	5%
	A49 NB	872	875	3	0%	903	918	15	2%	935	929	-6	-1%
	A49 NBto Winwick Link Rd	855	849	-6	-1%	903	893	-10	-1%	941	931	-10	-1%
	Winwick Park Ave to A49 NB	3	24	21	700%	3	3	0	0%	4	25	21	525%
	Winwick Park Ave to Winwick Link Rd	4	6	2	50%	4	5	1	25%	5	7	2	40%
	Winwick Park Ave to A49 SB	10	22	12	120%	9	10	1	11%	12	24	12	100%
	A49 SBto Winwick Link Rd	9	18	9	100%	63	64	1	2%	63	64	1	2%
	A49 SB	496	496	0	0%	536	548	12	2%	561	566	5	1%
	A49 SBto Winwick Park Ave	13	11	-2	-15%	12	14	2	17%	13	14	1	8%
	Winwick Link Rd to A49 SB	860	859	-1	0%	899	902	3	0%	951	952	1	0%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	17	18	1	6%	17	17	0	0%	19	19	0	0%
	Winwick Link Rd to A49 NB	0	2	2	-	40	41	1	3%	40	42	2	5%
	A49 NB	1566	1543	-23	-1%	1600	1606	6	0%	1661	1646	-15	-1%
	A49 NBto Delp Ln	101	106	5	5%	104	102	-2	-2%	111	108	-3	-3%
	A49 SB	1262	1267	5	0%	1339	1357	18	1%	1416	1434	18	1%
	A49 SBto Delph Ln	93	97	4	4%	93	92	-1	-1%	95	92	-3	-3%
M62 Junction 9	Delph Ln to A49 NB	275	293	18	7%	322	325	3	1%	342	342	0	0%
	Delph Ln to A49 SB	150	159	9	6%	167	167	0	0%	174	173	-1	-1%
	A49 NBto M62 WB	366	378	12	3%	383	393	10	3%	406	413	7	2%
	A49 NB	1003	976	-27	-3%	994	995	1	0%	1025	1019	-6	-1%
	A49 NBto M62 EB	219	222	3	1%	235	225	-10	-4%	240	241	1	0%
	A49 NBto A49 SB (U-Turn)	4	14	10	250%	4	16	12	300%	4	14	10	250%
	M62 EBto A49 NB	616	630	14	2%	658	660	2	0%	691	684	-7	-1%
	M62 EBto A49 SB	472	539	67	14%	505	512	7	1%	533	620	87	16%
	A49 SBto M62 EB	150	145	-5	-3%	163	163	0	0%	169	165	-4	-2%
	A49 SB	886	916	30	3%	922	943	21	2%	977	1011	34	3%
A49 Winwick Rd/ Birch Ave	A49 SB to M62 WB	341	332	-9	-3%	382	379	-3	-1%	403	388	-15	-4%
	M62 WBto A49 SB	273	303	30	11%	286	295	9	3%	302	330	28	9%
A49 Winwick Road @ Poplars Avenue	M62 WBto A49 NB	58	57	-1	-2%	62	61	-1	-2%	65	63	-2	-3%
	A49 SBto Birch Ave	19	36	17	89%	22	35	13	59%	22	37	15	68%
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	Birch Rd to A49 SB	0	12	12	-	0	12	12	-	0	12	12	-
	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	1620	1621	1	0%	1649	1659	10	1%	1712	1723	11	1%
	A49 SB	1610	1736	126	8%	1687	1734	47	3%	1784	1938	154	9%
	A49 SBto Sandy Ln West	266	414	148	56%	288	339	51	18%	332	483	151	45%
	A49 SB	934	926	-8	-1%	977	966	-11	-1%	1008	1004	-4	0%
	A49 SBto Cramwell Ave	343	324	-19	-6%	365	358	-7	-2%	378	365	-13	-3%
	Cramwell Ave to A49 NB	243	232	-11	-5%	223	215	-8	-4%	226	218	-8	-4%
	Cramwell Ave to Sandy Ln West	212	273	61	29%	237	275	38	16%	247	312	65	26%
	Cramwell Ave to A49 SB	398	376	-22	-6%	398	387	-11	-3%	420	401	-19	-5%
	Cramwell Ave to Cramwell Ave (U-turn)	36	33	-3	-8%	37	36	-1	-3%	38	37	-1	-3%
	A49 NB	1220	1197	-23	-2%	1244	1226	-18	-1%	1280	1297	17	1%
	A49 NBto Sandy Ln West	73	103	30	41%	120	173	53	44%	146	170	24	16%
	A49 NBto Cramwell Ave	500	503	3	1%	517	513	-4	-1%	529	530	1	0%
A49 Winwick Road @ Junction NINE Retail Park	Sandy Ln West to A49 NB	190	225	35	18%	210	253	43	20%	238	240	2	1%
	Sandy Ln West to Sandy Ln (U-turn)	0	0	0	-	0	0	0	-	0	0	0	-
	Sandy Ln West to A49 SB	42	66	24	57%	41	57	16	39%	47	55	8	17%
	Sandy Ln West to Cramwell Ave	318	406	88	28%	348	400	52	15%	378	410	32	8%
	A49 NB	1674	1683	9	1%	1739	1768	29	2%	1788	1809	21	1%
	A49 NBto Junction NINE Retail	90	91	1	1%	98	98	0	0%	99	104	5	5%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	Junction NINE Retail to A49 SB	201	218	17	8%	194	219	25	13%	187	206	19	10%
	Junction NINE Retail to A49 NB	146	147	1	1%	174	179	5	3%	203	223	20	10%
	A49 SB	1222	1205	-17	-1%	1285	1263	-22	-2%	1324	1302	-22	-2%
	A49 SBto Junction NINE Retail	95	109	14	15%	100	118	18	18%	112	124	12	11%
	A49 SBto Hawleys Lane	111	104	-7	-6%	111	107	-4	-4%	117	115	-2	-2%
	A49 SBto Long Lane	168	190	22	13%	167	190	23	14%	161	163	2	1%
	A49 SB	1082	1067	-15	-1%	1116	1100	-16	-1%	1162	1156	-6	-1%
	A49 NBto Hawleys Lane	82	84	2	2%	86	85	-1	-1%	89	92	3	3%
	A49 NBto Long Lane	191	212	21	11%	199	237	38	19%	204	225	21	10%
	A49 NB	1386	1398	12	1%	1457	1468	11	1%	1479	1497	18	1%
	Long Lane to A49 SB	206	325	119	58%	237	358	121	51%	268	361	93	35%
	Long Lane to Hawleys Lane	162	172	10	6%	165	176	11	7%	170	175	5	3%

PM VOLUME COMPARISON – 17:00-18:00 (PEAK PERIOD)

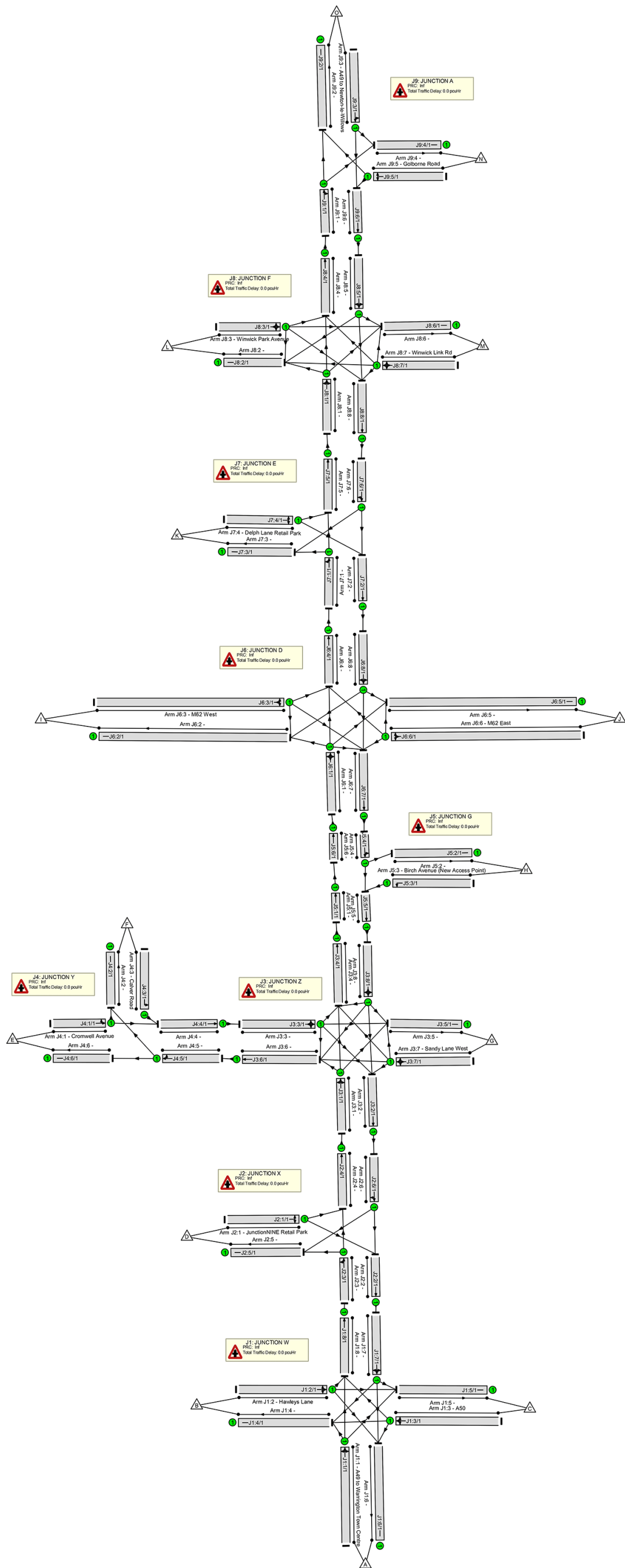
		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	86	88	2	2%	89	94	5	6%	99	100	1	1%
	A49 NB	915	928	13	1%	935	960	25	3%	976	948	-28	-3%
	A49 NBto Winwick Link Rd	917	922	5	1%	950	942	-8	-1%	998	978	-20	-2%
	Winwick Park Ave to A49 NB	4	40	36	900%	4	4	0	0%	5	41	36	720%
	Winwick Park Ave to Winwick Link Rd	7	8	1	14%	8	7	-1	-13%	9	9	0	0%
	Winwick Park Ave to A49 SB	14	30	16	114%	15	15	0	0%	18	33	15	83%
	A49 SBto Winwick Link Rd	12	21	9	75%	75	78	3	4%	74	76	2	3%
	A49 SB	537	532	-5	-1%	584	606	22	4%	611	592	-19	-3%
	A49 SBto Winwick Park Ave	14	15	1	7%	14	15	1	7%	15	15	0	0%
	Winwick Link Rd to A49 SB	848	832	-16	-2%	913	923	10	1%	960	870	-90	-9%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	18	18	0	0%	18	18	0	0%	19	17	-2	-11%
	Winwick Link Rd to A49 NB	0	2	2	-	40	41	1	3%	40	41	1	3%
	A49 NB	1598	1611	13	1%	1622	1641	19	1%	1711	1686	-25	-1%
	A49 NBto Delp Ln	110	116	6	5%	118	118	0	0%	122	123	1	1%
	A49 SB	1287	1273	-14	-1%	1405	1437	32	2%	1477	1384	-93	-6%
	A49 SBto Delph Ln	93	98	5	5%	101	101	0	0%	103	94	-9	-9%
	Delph Ln to A49 NB	313	324	11	4%	347	352	5	1%	356	349	-7	-2%
M62 Junction 9	Delph Ln to A49 SB	193	201	8	4%	208	208	0	0%	214	212	-2	-1%
	A49 NBto M62 WB	403	433	30	7%	427	438	11	3%	451	463	12	3%
	A49 NB	1085	1079	-6	-1%	1074	1086	12	1%	1132	1116	-16	-1%
	A49 NBto M62 EB	243	245	2	1%	252	246	-6	-2%	271	268	-3	-1%
	A49 NBto A49 SB (U-Turn)	4	15	11	275%	3	20	17	567%	2	16	14	700%
	M62 EBto A49 NB	562	580	18	3%	603	611	8	1%	634	627	-7	-1%
	M62 EBto A49 SB	444	516	72	16%	479	492	13	3%	503	591	88	17%
	A49 SBto M62 EB	169	162	-7	-4%	178	181	3	2%	187	170	-17	-9%
	A49 SB	913	933	20	2%	999	1032	33	3%	1045	1008	-37	-4%
	A49 SB to M62 WB	370	350	-20	-5%	429	429	0	0%	451	405	-46	-10%
A49 Winwick Rd/ Birch Ave	M62 WBto A49 SB	281	316	35	12%	303	315	12	4%	324	355	31	10%
	M62 WBto A49 NB	62	61	-1	-2%	65	65	0	0%	69	67	-2	-3%
A49 Winwick Road @ Poplars Avenue	A49 SBto Birch Ave	19	35	16	84%	20	38	18	90%	20	38	18	90%
	Birch Rd to A49 SB	0	11	11	-	0	11	11	-	0	11	11	-
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	1733	1769	36	2%	1751	1792	41	2%	1846	1864	18	1%
	A49 SB	1598	1739	141	9%	1758	1819	61	3%	1842	1930	88	5%
	A49 SBto Sandy Ln West	254	411	157	62%	300	357	57	19%	339	486	147	43%
	A49 SB	941	944	3	0%	1035	1036	1	0%	1056	1038	-18	-2%
	A49 SBto Cramwell Ave	347	333	-14	-4%	372	372	0	0%	388	371	-17	-4%
	Cramwell Ave to A49 NB	261	251	-10	-4%	232	215	-17	-7%	230	219	-11	-5%
	Cramwell Ave to Sandy Ln West	223	292	69	31%	243	282	39	16%	258	331	73	28%
	Cramwell Ave to A49 SB	442	422	-20	-5%	433	417	-16	-4%	451	445	-6	-1%
	Cramwell Ave to Cramwell Ave (U-turn)	42	39	-3	-7%	43	42	-1	-2%	43	44	1	2%
	A49 NB	1257	1241	-16	-1%	1283	1285	2	0%	1346	1368	22	2%
	A49 NBto Sandy Ln West	77	111	34	44%	121	178	57	47%	154	181	27	18%
	A49 NBto Cramwell Ave	496	508	12	2%	516	517	1	0%	539	545	6	1%
	Sandy Ln West to A49 NB	206	270	64	31%	236	286	50	21%	266	270	4	2%
A49 Winwick Road @ Junction NINE Retail Park	Sandy Ln West to Sandy Ln (U-turn)	0	0	0	-	0	0	0	-	0	0	0	-
	Sandy Ln West to A49 SB	48	74	26	54%	43	60	17	40%	46	56	10	22%
	Sandy Ln West to Cramwell Ave	349	458	109	31%	384	445	61	16%	418	447	29	7%
	A49 NB	1676	1705	29	2%	1736	1788	52	3%	1820	1856	36	2%
	A49 NBto Junction NINE Retail	89	94	5	6%	98	102	4	4%	109	118	9	8%
	Junction NINE Retail to A49 SB	193	194	1	1%	191	215	24	13%	185	200	15	8%
	Junction NINE Retail to A49 NB	146	145	-1	-1%	178	180	2	1%	208	228	20	10%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB	1350	1341	-9	-1%	1382	1366	-16	-1%	1437	1415	-22	-2%
	A49 SBto Junction NINE Retail	101	117	16	16%	107	130	23	21%	122	128	6	5%
	A49 SBto Hawleys Lane	120	114	-6	-5%	124	124	0	0%	128	123	-5	-4%
	A49 SBto Long Lane	183	203	20	11%	185	214	29	16%	167	179	12	7%
	A49 SB	1215	1192	-23	-2%	1307	1283	-24	-2%	1317	1309	-8	-1%
	A49 NBto Hawleys Lane	77	80	3	4%	82	85	3	4%	88	91	3	3%
	A49 NBto Long Lane	188	214	26	14%	192	237	45	23%	205	233	28	14%
	A49 NB	1358	1393	35	3%	1424	1466	42	3%	1484	1535	51	3%
	Long Lane to A49 SB	219	349	130	59%	238	379	141	59%	289	402	113	39%
	Long Lane to Hawleys Lane	178	187	9	5%	179	194	15	8%	193	206	13	7%
	Long Lane to A49 NB	107	107	0	0%	104	108	4	4%	110	112	2	2%
	Hawleys Lane to Long Lane	131	144	13	10%	133	138	5	4%	140	141	1	1%
	Hawleys Lane to A49 SB	19	19	0	0%	18	18	0	0%	19	19	0	0%
	Hawleys Lane to A49 NB	307	305	-2	-1%	311	320	9	3%	339	338	-1	0%

PM VOLUME COMPARISON – 18:00-18:30 (COOL-DOWN PERIOD)

		18:00-18:30											
		2022				2027				2032			
Junction/ Movement		Vehicle Flow		Difference		Vehicle Flow		Difference		Vehicle Flow		Difference	
Junction	Approach	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%	DoMin	DoSom	Actual	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NBto Winwick Park Ave	41	42	1	2%	43	43	0	0%	46	45	-1	-2%
	A49 NB	391	403	12	3%	416	438	22	5%	448	454	6	1%
	A49 NBto Winwick Link Rd	404	407	3	1%	430	436	6	1%	454	451	-3	-1%
	Winwick Park Ave to A49 NB	3	22	19	633%	3	3	0	0%	4	22	18	450%
	Winwick Park Ave to Winwick Link Rd	4	6	2	50%	5	5	0	0%	4	6	2	50%
	Winwick Park Ave to A49 SB	9	17	8	89%	8	9	1	13%	9	20	11	122%
	A49 SBto Winwick Link Rd	4	9	5	125%	31	35	4	13%	31	34	3	10%
	A49 SB	284	296	12	4%	301	314	13	4%	319	329	10	3%
	A49 SBto Winwick Park Ave	8	8	0	0%	7	8	1	14%	8	8	0	0%
	Winwick Link Rd to A49 SB	425	437	12	3%	437	431	-6	-1%	471	458	-13	-3%
A49 Newton Road/ Delph Lane	Winwick Link Rd to Winwick Park Ave	9	9	0	0%	9	9	0	0%	9	9	0	0%
	Winwick Link Rd to A49 NB	0	1	1	-	19	19	0	0%	19	21	2	11%
	A49 NB	706	707	1	0%	724	751	27	4%	760	762	2	0%
	A49 NBto Delp Ln	49	49	0	0%	53	57	4	8%	56	54	-2	-4%
	A49 SB	677	711	34	5%	702	706	4	1%	758	760	2	0%
	A49 SBto Delph Ln	50	55	5	10%	52	50	-2	-4%	51	52	1	2%
M62 Junction 9	Delph Ln to A49 NB	137	147	10	7%	170	172	2	1%	193	190	-3	-2%
	Delph Ln to A49 SB	75	81	6	8%	90	89	-1	-1%	97	96	-1	-1%
	A49 NBto M62 WB	173	183	10	6%	181	193	12	7%	196	205	9	5%
	A49 NB	461	462	1	0%	466	489	23	5%	492	498	6	1%
	A49 NBto M62 EB	103	110	7	7%	114	116	2	2%	121	120	-1	-1%
	A49 NBto A49 SB (U-Turn)	2	9	7	350%	1	10	9	900%	2	9	7	350%
	M62 EBto A49 NB	253	259	6	2%	269	276	7	3%	282	278	-4	-1%
	M62 EBto A49 SB	204	234	30	15%	211	213	2	1%	228	263	35	15%
	A49 SBto M62 EB	75	77	2	3%	81	79	-2	-2%	87	83	-4	-5%
	A49 SB	497	532	35	7%	501	507	6	1%	538	552	14	3%
A49 Winwick Rd/ Birch Ave	A49 SB to M62 WB	192	196	4	2%	214	214	0	0%	233	224	-9	-4%
	M62 WBto A49 SB	134	147	13	10%	138	141	3	2%	143	160	17	12%
A49 Winwick Road @ Poplars Avenue	M62 WBto A49 NB	34	33	-1	-3%	35	36	1	3%	36	36	0	0%
	A49 SBto Birch Ave	9	21	12	133%	11	20	9	82%	12	23	11	92%
A49 Winwick Road/ A574 Cramwell Avenue/Sandy Lane West	Birch Rd to A49 SB	0	6	6	-	0	6	6	-	0	6	6	-
	A49 NBto Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	743	770	27	4%	761	807	46	6%	813	839	26	3%
	A49 SB	835	918	83	10%	849	871	22	3%	915	988	73	8%
	A49 SBto Sandy Ln West	140	223	83	59%	152	177	25	16%	176	251	75	43%
	A49 SB	517	529	12	2%	546	534	-12	-2%	558	545	-13	-2%
	A49 SBto Cramwell Ave	191	182	-9	-5%	203	194	-9	-4%	210	204	-6	-3%
	Cramwell Ave to A49 NB	122	117	-5	-4%	105	104	-1	-1%	118	109	-9	-8%
	Cramwell Ave to Sandy Ln West	106	140	34	32%	119	147	28	24%	134	165	31	23%
	Cramwell Ave to A49 SB	214	200	-14	-7%	212	215	3	1%	240	214	-26	-11%
A49 Winwick Road @ Junction NINE Retail Park	Cramwell Ave to Cramwell Ave (U-turn)	21	20	-1	-5%	24	22	-2	-8%	23	21	-2	-9%
	A49 NB	537	542	5	1%	560	559	-1	0%	579	609	30	5%
	A49 NBto Sandy Ln West	35	52	17	49%	56	83	27	48%	67	84	17	25%
	A49 NBto Cramwell Ave	208	208	0	0%	216	220	4	2%	223	232	9	4%
	Sandy Ln West to A49 NB	89	114	25	28%	97	145	48	49%	110	138	28	25%
	Sandy Ln West to Sandy Ln (U-turn)	0	0	0	-	0	0	0	-	0	0	0	-
	Sandy Ln West to A49 SB	19	32	13	68%	18	31	13	72%	19	29	10	53%
	Sandy Ln West to Cramwell Ave	136	196	60	44%	154	225	71	46%	174	226	52	30%
	A49 NB	726	741	15	2%	768	803	35	5%	806	852	46	6%
	A49 NBto Junction NINE Retail	40	44	4	10%	45	45	0	0%	46	52	6	13%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	Junction NINE Retail to A49 SB	77	96	19	25%	67	84	17	25%	68	75	7	10%
	Junction NINE Retail to A49 NB	48	56	8	17%	56	59	3	5%	65	79	14	22%
	A49 SB	704	697	-7	-1%	735	726	-9	-1%	758	724	-34	-4%
	A49 SBto Junction NINE Retail	49	64	15	31%	56	67	11	20%	62	66	4	6%
	A49 SBto Hawleys Lane	68	70	2	3%	66	66	0	0%	69	68	-1	-1%
	A49 SBto Long Lane	102	109	7	7%	93	108	15	16%	93	91	-2	-2%
	A49 SB	615	616	1	0%	633	625	-8	-1%	672	663	-9	-1%
	A49 NBto Hawleys Lane	34	35	1	3%	34	35	1	3%	37	41	4	11%
	A49 NBto Long Lane	82	93	11	13%	86	107	21	24%	90	104	14	16%
	A49 NB	573	588	15	3%	597	613	16	3%	630	669	39	6%
A49 Winwick Road/ Hawleys Lane to A49 SB	Long Lane to A49 SB	101	173	72	71%	116	191	75	65%	134	204	70	52%
	Long Lane to Hawleys Lane	86	84	-2	-2%	85	90	5	6%	87	97	10	11%
	Long Lane to A49 NB	52	54	2	4%	54	58	4	7%	56	57	1	2%
	Hawleys Lane to Long Lane	61	67	6	10%	66	74	8	12%	66	72	6	9%
	Hawleys Lane to A49 SB	8	8	0	0%	9	9	0	0%	9	9	0	0%
	Hawleys Lane to A49 NB	136	136	0	0%	149	166	17	11%	166	176	10	6%

APPENDIX B:

LinSig NETWORK DIAGRAM



APPENDIX C:

QUEUE DATA

AM AVERAGE QUEUE LENGTH COMPARISON

		07:00-08:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	11	11	0	0%	13	13	0	-1%	15	16	0	2%
	A49 NB	11	11	0	0%	13	13	0	-1%	15	16	0	2%
	A49 NB to Winwick Link Rd	11	11	0	0%	13	13	0	-1%	15	16	0	2%
	Winwick Park Ave to A49 NB	4	4	0	1%	4	4	0	0%	4	4	0	0%
	Winwick Park Ave to Winwick Link Rd	4	4	0	1%	4	4	0	0%	4	4	0	0%
	Winwick Park Ave to A49 SB	4	4	0	1%	4	4	0	0%	4	4	0	0%
	A49 SB to Winwick Link Rd	33	38	5	16%	31	32	1	4%	30	27	-3	-10%
	A49 SB	33	38	5	16%	31	32	1	4%	30	27	-3	-10%
	A49 SB to Winwick Park Ave	33	38	5	16%	31	32	1	4%	30	27	-3	-10%
	Winwick Link Rd to A49 SB	2	2	0	-2%	3	3	0	-3%	3	3	0	-3%
	Winwick Link Rd to Winwick Park Ave	3	3	0	-2%	4	4	0	-2%	4	4	0	-2%
	Winwick Link Rd to A49 NB	3	3	0	-2%	4	4	0	-2%	4	4	0	-2%
A49 Newton Road/ Delph Lane	A49 NB	19	20	1	6%	23	24	1	7%	23	18	-5	-20%
	A49 NB to Delph Ln	19	20	1	6%	23	24	1	5%	23	18	-5	-20%
	A49 SB	27	31	4	15%	31	31	0	1%	32	25	-6	-20%
	A49 SB to Delph Ln	11	11	0	-3%	11	10	-1	-7%	11	22	12	107%
	Delph Ln to A49 NB	6	6	0	2%	6	6	0	5%	6	8	2	27%
	Delph Ln to A49 SB	8	8	0	1%	7	7	0	2%	8	8	1	7%
M62 Junction 9	A49 NB to M62 WB	9	10	1	8%	10	10	0	1%	11	12	1	11%
	A49 NB	9	10	1	8%	10	10	0	1%	11	12	1	11%
	A49 NB to M62 EB	9	10	1	8%	10	10	0	1%	11	12	1	11%
	A49 NB to A49 SB (U-Turn)	9	10	1	8%	10	10	0	1%	11	12	1	11%
	M62 EB to A49 NB	37	122	85	229%	18	53	36	203%	20	42	22	109%
	M62 EB to A49 SB	37	122	85	229%	18	53	36	203%	20	42	22	109%
	A49 SB to M62 EB	24	25	1	3%	29	29	-1	-2%	31	36	6	18%
	A49 SB	24	25	1	3%	29	29	-1	-2%	31	36	6	18%
	A49 SB to M62 WB	24	25	1	3%	29	29	-1	-2%	31	36	6	18%
	M62 WB to A49 SB	15	15	0	1%	17	16	0	-1%	18	18	0	1%
	M62 WB to A49 NB	15	15	0	1%	17	16	0	-1%	18	18	0	1%

		07:00-08:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SB	0	0	0	-	0	0	0	-100%	0	0	0	-100%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	88	79	-10	-11%	81	72	-8	-10%	89	81	-8	-9%
	A49 SB	88	79	-10	-11%	81	72	-8	-10%	89	81	-8	-9%
	A49 SB to Cromwell Ave	88	79	-10	-11%	81	72	-8	-10%	89	81	-8	-9%
	Cromwell Ave to A49 NB	11	13	1	12%	14	16	1	10%	19	23	5	26%
	Cromwell Ave to Sandy Ln West	19	22	3	13%	24	27	3	11%	32	40	8	26%
	Cromwell Ave to A49 SB	19	22	3	13%	24	27	3	11%	32	40	8	26%
	Cromwell Ave to Cromwell Ave (U-turn)	19	22	3	13%	24	27	3	11%	32	40	8	26%
	A49 NB	2	3	0	22%	3	2	0	-3%	3	4	1	55%
	A49 NB to Sandy Ln West	2	3	0	22%	3	2	0	-3%	3	4	1	55%
	A49 NB to Cromwell Ave	2	3	0	22%	3	2	0	-3%	3	4	1	55%
	Sandy Ln West to A49 NB	9	41	32	340%	9	40	31	327%	14	53	39	275%
	Sandy Ln West to Sandy Ln (U-turn)	9	41	32	340%	9	40	31	327%	14	53	39	275%
	Sandy Ln West to A49 SB	9	41	32	340%	9	40	31	327%	14	53	39	275%
	Sandy Ln West to Cromwell Ave	9	41	32	340%	9	40	31	327%	14	53	39	275%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	2	2	0	3%	5	5	0	8%	14	14	0	3%
	A49 NB to Junction NINE Retail	2	2	0	3%	5	5	0	8%	14	14	0	3%
	Junction NINE Retail to A49 SB	6	6	0	-1%	6	6	0	-5%	6	6	0	-2%
	Junction NINE Retail to A49 NB	4	5	0	5%	5	5	0	0%	5	6	0	7%
	A49 SB	7	6	0	-4%	7	7	0	-6%	10	13	3	27%
	A49 SB to Junction NINE Retail	9	9	0	-2%	10	10	0	3%	10	11	1	5%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	21	20	-1	-4%	29	23	-6	-19%	35	40	6	17%
	A49 SB to Long Lane	1	0	-1	-57%	0	0	0	-	0	0	0	-
	A49 SB	54	55	0	0%	67	65	-2	-3%	98	103	5	6%
	A49 NB to Hawleys Lane	13	15	1	9%	17	20	3	17%	24	28	4	17%
	A49 NB to Long Lane	6	6	0	5%	7	7	0	5%	7	8	1	14%
	A49 NB	13	15	1	9%	17	20	3	17%	24	28	4	17%
	Long Lane to A49 SB	10	36	26	259%	9	20	11	128%	11	46	36	328%
	Long Lane to Hawleys Lane	43	60	17	40%	31	42	11	36%	27	56	29	105%
	Long Lane to A49 NB	43	60	17	40%	31	42	11	36%	27	56	29	105%
	Hawleys Lane to Long Lane	6	7	0	2%	7	7	0	-2%	7	7	0	1%
	Hawleys Lane to A49 SB	6	7	0	2%	7	7	0	-2%	7	7	0	1%
	Hawleys Lane to A49 NB	3	3	0	2%	4	4	0	-3%	4	4	0	7%

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	14	17	4	26%	17	23	6	38%	25	49	24	96%
	A49 NB	14	17	4	26%	17	23	6	38%	25	49	24	96%
	A49 NB to Winwick Link Rd	14	17	4	26%	17	23	6	38%	25	49	24	96%
	Winwick Park Ave to A49 NB	4	5	0	2%	5	5	0	0%	5	5	0	0%
	Winwick Park Ave to Winwick Link Rd	4	5	0	2%	5	5	0	0%	5	5	0	0%
	Winwick Park Ave to A49 SB	4	5	0	2%	5	5	0	0%	5	5	0	0%
	A49 SB to Winwick Link Rd	51	57	6	13%	43	45	2	4%	41	32	-9	-21%
	A49 SB	51	57	6	13%	43	45	2	4%	41	32	-9	-21%
	A49 SB to Winwick Park Ave	51	57	6	13%	43	45	2	4%	41	32	-9	-21%
	Winwick Link Rd to A49 SB	2	2	0	-1%	3	3	0	-1%	4	3	0	-3%
	Winwick Link Rd to Winwick Park Ave	3	3	0	-2%	5	5	0	-1%	5	5	0	9%
	Winwick Link Rd to A49 NB	3	3	0	-2%	5	5	0	-1%	5	5	0	9%
A49 Newton Road/ Delph Lane	A49 NB	21	24	3	16%	38	57	19	50%	57	28	-29	-51%
	A49 NB to Delp Ln	21	24	3	17%	38	57	19	50%	58	29	-29	-51%
	A49 SB	44	45	1	2%	50	49	-1	-2%	61	64	3	5%
	A49 SB to Delph Ln	12	12	0	0%	12	12	0	4%	12	34	22	187%
	Delph Ln to A49 NB	6	6	0	-2%	6	5	0	-3%	7	8	1	15%
	Delph Ln to A49 SB	8	8	0	0%	7	7	0	1%	8	8	1	7%
M62 Junction 9	A49 NB to M62 WB	15	16	2	11%	22	28	6	26%	60	39	-21	-35%
	A49 NB	15	16	2	11%	22	28	6	26%	60	39	-21	-35%
	A49 NB to M62 EB	15	16	2	11%	22	28	6	26%	60	39	-21	-35%
	A49 NB to A49 SB (U-Turn)	15	16	2	11%	22	28	6	26%	60	39	-21	-35%
	M62 EB to A49 NB	26	90	64	251%	16	44	28	174%	18	35	17	91%
	M62 EB to A49 SB	26	90	64	251%	16	44	28	174%	18	35	17	91%
	A49 SB to M62 EB	41	40	-1	-3%	41	40	-1	-3%	44	57	14	31%
	A49 SB	41	40	-1	-3%	41	40	-1	-3%	44	57	14	31%
	A49 SB to M62 WB	41	40	-1	-3%	41	40	-1	-3%	44	57	14	31%
	M62 WB to A49 SB	14	14	0	2%	14	14	0	-1%	17	28	11	68%
	M62 WB to A49 NB	14	14	0	2%	14	14	0	-1%	17	28	11	68%

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	2	2	-	0	0	0	-	0	8	8	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	2	2	-	49	20	-29	-59%
	A49 NB	0	0	0	-	0	2	2	-	49	20	-29	-59%
	A49 SB	2	10	8	449%	2	0	-2	-98%	25	39	14	59%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	208	199	-9	-4%	124	136	12	9%	263	211	-52	-20%
	A49 SB	208	199	-9	-4%	124	136	12	9%	263	211	-52	-20%
	A49 SB to Cromwell Ave	208	199	-9	-4%	124	136	12	9%	263	211	-52	-20%
	Cromwell Ave to A49 NB	17	20	3	18%	23	27	4	18%	34	51	17	51%
	Cromwell Ave to Sandy Ln West	30	35	5	18%	40	47	7	18%	58	84	26	45%
	Cromwell Ave to A49 SB	30	35	5	18%	40	47	7	18%	58	84	26	45%
	Cromwell Ave to Cromwell Ave (U-turn)	30	35	5	18%	40	47	7	18%	58	84	26	45%
	A49 NB	4	7	3	63%	6	10	3	48%	11	12	1	12%
	A49 NB to Sandy Ln West	4	7	3	63%	6	10	3	48%	11	12	1	12%
	A49 NB to Cromwell Ave	4	7	3	63%	6	10	3	48%	11	12	1	12%
	Sandy Ln West to A49 NB	17	194	177	1024%	21	200	179	875%	99	224	125	126%
	Sandy Ln West to Sandy Ln (U-turn)	17	194	177	1024%	21	200	179	875%	99	224	125	126%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	16	16	1	4%	23	24	1	4%	23	24	0	2%
	A49 NB to Junction NINE Retail	16	16	1	4%	23	24	1	4%	23	24	0	2%
	Junction NINE Retail to A49 SB	6	6	0	2%	6	6	0	-2%	6	6	0	1%
	Junction NINE Retail to A49 NB	5	5	0	6%	5	5	0	2%	5	6	0	7%
	A49 SB	16	12	-5	-29%	45	36	-9	-21%	133	115	-18	-13%
	A49 SB to Junction NINE Retail	12	12	0	1%	12	13	1	10%	13	13	1	5%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	61	55	-6	-9%	65	62	-4	-5%	85	78	-7	-8%
	A49 SB to Long Lane	0	2	1	369%	0	0	0	-	0	0	0	-
	A49 SB	138	113	-25	-18%	172	167	-5	-3%	206	200	-6	-3%
	A49 NB to Hawleys Lane	19	23	4	20%	34	51	18	52%	123	248	125	102%
	A49 NB to Long Lane	9	10	0	5%	13	19	6	43%	45	112	67	148%
	A49 NB	19	23	4	20%	34	51	18	52%	123	248	125	102%
	Long Lane to A49 SB	21	85	64	313%	18	57	40	225%	28	98	70	247%
	Long Lane to Hawleys Lane	74	116	42	57%	46	79	34	74%	55	97	43	78%
	Long Lane to A49 NB	74	116	42	57%	46	79	34	74%	55	97	43	78%
	Hawleys Lane to Long Lane	9	9	1	7%	9	9	0	3%	10	10	0	-1%
	Hawleys Lane to A49 SB	9	9	1	7%	9	9	0	3%	10	10	0	-1%
	Hawleys Lane to A49 NB	5	5	0	1%	5	5	0	2%	5	5	0	0%

		09:00-09:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	11	13	2	13%	12	14	1	11%	13	19	6	44%
	A49 NB	11	13	2	13%	12	14	1	11%	13	19	6	44%
	A49 NB to Winwick Link Rd	11	13	2	13%	12	14	1	11%	13	19	6	44%
	Winwick Park Ave to A49 NB	4	4	0	0%	4	4	0	0%	4	4	0	1%
	Winwick Park Ave to Winwick Link Rd	4	4	0	0%	4	4	0	0%	4	4	0	1%
	Winwick Park Ave to A49 SB	4	4	0	0%	4	4	0	0%	4	4	0	1%
	A49 SB to Winwick Link Rd	41	57	16	38%	38	39	2	4%	34	29	-5	-15%
	A49 SB	41	57	16	38%	38	39	2	4%	34	29	-5	-15%
	A49 SB to Winwick Park Ave	41	57	16	38%	38	39	2	4%	34	29	-5	-15%
	Winwick Link Rd to A49 SB	2	2	0	-4%	3	3	0	4%	3	3	0	-1%
	Winwick Link Rd to Winwick Park Ave	3	2	0	-5%	4	4	0	2%	4	4	0	0%
	Winwick Link Rd to A49 NB	3	2	0	-5%	4	4	0	2%	4	4	0	0%
A49 Newton Road/ Delph Lane	A49 NB	19	21	2	12%	31	38	7	24%	104	22	-83	-79%
	A49 NB to Delp Ln	19	21	2	12%	31	38	8	25%	106	22	-84	-79%
	A49 SB	39	36	-3	-7%	33	31	-2	-5%	46	21	-24	-53%
	A49 SB to Delph Ln	12	12	0	1%	14	12	-1	-10%	15	22	7	46%
	Delph Ln to A49 NB	6	6	0	-2%	5	6	0	6%	7	8	1	18%
	Delph Ln to A49 SB	8	8	0	2%	7	7	0	0%	8	9	1	8%
M62 Junction 9	A49 NB to M62 WB	10	12	2	15%	13	21	8	59%	62	18	-45	-71%
	A49 NB	10	12	2	15%	13	21	8	59%	62	18	-45	-71%
	A49 NB to M62 EB	10	12	2	15%	13	21	8	59%	62	18	-45	-71%
	A49 NB to A49 SB (U-Turn)	10	12	2	15%	13	21	8	59%	62	18	-45	-71%
	M62 EB to A49 NB	19	60	40	208%	15	36	21	140%	15	29	13	88%
	M62 EB to A49 SB	19	60	40	208%	15	36	21	140%	15	29	13	88%
	A49 SB to M62 EB	31	31	0	0%	35	35	-1	-2%	40	39	-1	-2%
	A49 SB	31	31	0	0%	35	35	-1	-2%	40	39	-1	-2%
	A49 SB to M62 WB	31	31	0	0%	35	35	-1	-2%	40	39	-1	-2%
	M62 WB to A49 SB	13	13	0	2%	13	13	0	-1%	30	29	-1	-4%
	M62 WB to A49 NB	13	13	0	2%	13	13	0	-1%	30	29	-1	-4%

		09:00-09:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	5	25	20	391%
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	48	0	-48	-100%
	A49 NB	0	0	0	-	0	0	0	-	48	0	-48	-100%
	A49 SB	0	0	0	-	0	0	0	-	67	38	-29	-43%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	103	125	21	21%	62	96	34	55%	283	209	-74	-26%
	A49 SB	103	125	21	21%	62	96	34	55%	283	209	-74	-26%
	A49 SB to Cromwell Ave	103	125	21	21%	62	96	34	55%	283	209	-74	-26%
	Cromwell Ave to A49 NB	13	13	1	5%	15	20	4	28%	21	48	27	126%
	Cromwell Ave to Sandy Ln West	21	22	1	6%	27	35	8	30%	37	79	42	114%
	Cromwell Ave to A49 SB	21	22	1	6%	27	35	8	30%	37	79	42	114%
	Cromwell Ave to Cromwell Ave (U-turn)	21	22	1	6%	27	35	8	30%	37	79	42	114%
	A49 NB	2	3	1	33%	3	3	0	1%	5	8	4	76%
	A49 NB to Sandy Ln West	2	3	1	33%	3	3	0	1%	5	8	4	76%
	A49 NB to Cromwell Ave	2	3	1	33%	3	3	0	1%	5	8	4	76%
	Sandy Ln West to A49 NB	11	234	223	1949%	12	216	205	1758%	37	266	229	617%
	Sandy Ln West to Sandy Ln (U-turn)	11	234	223	1949%	12	216	205	1758%	37	266	229	617%
	Sandy Ln West to A49 SB	11	234	223	1949%	12	216	205	1758%	37	266	229	617%
	Sandy Ln West to Cromwell Ave	11	234	223	1949%	12	216	205	1758%	37	266	229	617%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	24	25	0	1%	6	7	0	4%	29	33	4	15%
	A49 NB to Junction NINE Retail	24	25	0	1%	6	7	0	4%	29	33	4	15%
	Junction NINE Retail to A49 SB	6	6	0	-3%	6	6	0	-3%	6	6	0	3%
	Junction NINE Retail to A49 NB	4	5	0	7%	5	5	0	1%	5	6	0	5%
	A49 SB	60	22	-38	-63%	19	10	-9	-48%	79	144	64	81%
	A49 SB to Junction NINE Retail	12	12	0	-3%	11	12	1	14%	12	13	1	8%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	61	52	-9	-15%	46	39	-7	-15%	63	70	8	12%
	A49 SB to Long Lane	19	1	-19	-97%	0	0	0	-100%	0	0	0	-
	A49 SB	157	134	-23	-14%	120	102	-19	-15%	172	198	26	15%
	A49 NB to Hawleys Lane	11	11	0	0%	14	18	5	36%	70	242	172	246%
	A49 NB to Long Lane	5	6	1	12%	7	11	3	42%	31	148	117	384%
	A49 NB	11	11	0	0%	14	18	5	36%	70	242	172	246%
	Long Lane to A49 SB	24	114	90	383%	19	116	96	497%	29	124	95	333%
	Long Lane to Hawleys Lane	77	128	51	66%	66	131	65	99%	59	124	65	110%
	Long Lane to A49 NB	77	128	51	66%	66	131	65	99%	59	124	65	110%
	Hawleys Lane to Long Lane	8	9	1	10%	9	8	-1	-12%	9	10	1	7%
	Hawleys Lane to A49 SB	8	9	1	10%	9	8	-1	-12%	9	10	1	7%
	Hawleys Lane to A49 NB	3	3	0	1%	3	3	0	2%	3	4	0	13%

PM AVERAGE QUEUE LENGTH COMPARISON

		16:00-17:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	11	12	0	3%	12	13	1	8%	13	13	0	-3%
	A49 NB	11	12	0	3%	12	13	1	8%	13	13	0	-3%
	A49 NB to Winwick Link Rd	11	12	0	3%	12	13	1	8%	13	13	0	-3%
	Winwick Park Ave to A49 NB	1	2	1	172%	1	1	0	4%	1	2	1	148%
	Winwick Park Ave to Winwick Link Rd	1	2	1	172%	1	1	0	4%	1	2	1	148%
	Winwick Park Ave to A49 SB	1	2	1	172%	1	1	0	4%	1	2	1	148%
	A49 SB to Winwick Link Rd	16	17	0	3%	18	18	0	3%	19	19	0	1%
	A49 SB	16	17	0	3%	18	18	0	3%	19	19	0	1%
	A49 SB to Winwick Park Ave	16	17	0	3%	18	18	0	3%	19	19	0	1%
	Winwick Link Rd to A49 SB	1	1	0	5%	2	2	0	2%	2	2	0	0%
	Winwick Link Rd to Winwick Park Ave	2	2	0	6%	4	4	0	3%	4	4	0	3%
	Winwick Link Rd to A49 NB	2	2	0	6%	4	4	0	3%	4	4	0	3%
A49 Newton Road/ Delph Lane	A49 NB	29	33	3	11%	32	43	10	32%	37	41	4	12%
	A49 NB to Delph Ln	29	32	3	12%	32	43	11	34%	37	41	4	12%
	A49 SB	16	17	0	3%	19	21	2	9%	21	26	6	27%
	A49 SB to Delph Ln	10	13	3	25%	11	10	-1	-10%	12	12	-1	-5%
	Delph Ln to A49 NB	17	20	2	13%	24	24	0	2%	28	27	-1	-3%
	Delph Ln to A49 SB	16	18	2	13%	21	21	1	3%	25	25	-1	-2%
M62 Junction 9	A49 NB to M62 WB	11	11	0	-3%	11	12	1	9%	11	13	2	14%
	A49 NB	11	11	0	-3%	11	12	1	9%	11	13	2	14%
	A49 NB to M62 EB	11	11	0	-3%	11	12	1	9%	11	13	2	14%
	A49 NB to A49 SB (U-Turn)	11	11	0	-3%	11	12	1	9%	11	13	2	14%
	M62 EB to A49 NB	20	63	43	210%	25	67	42	170%	24	77	54	228%
	M62 EB to A49 SB	20	63	43	210%	25	67	42	170%	24	77	54	228%
	A49 SB to M62 EB	27	27	0	1%	33	35	2	6%	34	41	7	21%
	A49 SB	27	27	0	1%	33	35	2	6%	34	41	7	21%
	A49 SB to M62 WB	27	27	0	1%	33	35	2	6%	34	41	7	21%
	M62 WB to A49 SB	7	9	2	25%	8	9	2	20%	8	10	2	31%
	M62 WB to A49 NB	7	9	2	25%	8	9	2	20%	8	10	2	31%

		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SB	0	0	0	-	0	0	0	-	1	14	13	1554%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	66	108	42	63%	56	96	40	72%	105	161	56	53%
	A49 SB	66	108	42	63%	56	96	40	72%	105	161	56	53%
	A49 SB to Cromwell Ave	66	108	42	63%	56	96	40	72%	105	161	56	53%
	Cromwell Ave to A49 NB	18	18	0	-1%	21	30	10	47%	25	26	1	5%
	Cromwell Ave to Sandy Ln West	31	31	0	-1%	36	51	15	41%	44	46	2	5%
	Cromwell Ave to A49 SB	31	31	0	-1%	36	51	15	41%	44	46	2	5%
	Cromwell Ave to Cromwell Ave (U-turn)	31	31	0	-1%	36	51	15	41%	44	46	2	5%
	A49 NB	27	27	0	0%	37	36	-1	-2%	53	62	9	17%
	A49 NB to Sandy Ln West	27	27	0	0%	37	36	-1	-2%	53	62	9	17%
	A49 NB to Cromwell Ave	27	27	0	0%	37	36	-1	-2%	53	62	9	17%
	Sandy Ln West to A49 NB	12	98	86	703%	20	181	161	799%	43	201	158	372%
	Sandy Ln West to Sandy Ln (U-turn)	12	98	86	703%	20	181	161	799%	43	201	158	372%
	Sandy Ln West to A49 SB	12	98	86	703%	20	181	161	799%	43	201	158	372%
	Sandy Ln West to Cromwell Ave	12	98	86	703%	20	181	161	799%	43	201	158	372%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	38	38	0	-1%	42	41	-1	-3%	48	48	0	0%
	A49 NB to Junction NINE Retail	38	38	0	-1%	42	41	-1	-3%	48	48	0	0%
	Junction NINE Retail to A49 SB	25	41	15	60%	19	32	13	67%	18	22	4	25%
	Junction NINE Retail to A49 NB	23	38	15	67%	17	30	12	71%	16	20	4	28%
	A49 SB	72	55	-17	-24%	58	55	-2	-4%	28	40	12	41%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	11	12	2	15%	10	16	6	66%	13	15	2	14%
	A49 SB to Hawleys Lane	25	19	-6	-23%	22	24	1	5%	24	23	-1	-6%
	A49 SB to Long Lane	0	32	32	-	7	12	5	61%	1	14	13	1459%
	A49 SB	177	159	-18	-10%	158	153	-5	-3%	145	143	-2	-2%
	A49 NB to Hawleys Lane	45	67	23	51%	51	81	29	57%	74	156	81	110%
	A49 NB to Long Lane	9	12	4	41%	12	17	5	47%	13	55	41	310%
	A49 NB	45	67	23	51%	51	81	29	57%	74	156	81	110%
	Long Lane to A49 SB	8	20	12	161%	12	35	24	206%	18	39	20	112%
	Long Lane to Hawleys Lane	30	40	10	32%	49	61	12	24%	62	70	7	12%
	Long Lane to A49 NB	30	40	10	32%	49	61	12	24%	62	70	7	12%
	Hawleys Lane to Long Lane	21	32	11	53%	30	39	10	32%	37	38	2	4%
	Hawleys Lane to A49 SB	21	32	11	53%	30	39	10	32%	37	38	2	4%
	Hawleys Lane to A49 NB	16	21	5	32%	23	31	8	34%	28	31	3	9%

		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	11	12	0	3%	12	13	1	7%	13	20	7	53%
	A49 NB	11	12	0	3%	12	13	1	7%	13	20	7	53%
	A49 NB to Winwick Link Rd	11	12	0	3%	12	13	1	7%	13	20	7	53%
	Winwick Park Ave to A49 NB	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	Winwick Park Ave to Winwick Link Rd	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	Winwick Park Ave to A49 SB	1	3	2	193%	1	1	0	-1%	1	4	2	167%
	A49 SB to Winwick Link Rd	18	20	2	11%	20	21	1	6%	22	28	6	30%
	A49 SB	18	20	2	11%	20	21	1	6%	22	28	6	30%
	A49 SB to Winwick Park Ave	18	20	2	11%	20	21	1	6%	22	28	6	30%
	Winwick Link Rd to A49 SB	16	26	10	64%	8	4	-4	-47%	10	63	53	514%
	Winwick Link Rd to Winwick Park Ave	4	11	7	166%	4	5	1	18%	6	39	33	568%
	Winwick Link Rd to A49 NB	4	11	7	166%	4	5	1	18%	6	39	33	568%
A49 Newton Road/ Delph Lane	A49 NB	29	31	2	7%	30	39	9	32%	39	44	6	15%
	A49 NB to Delp Ln	29	31	2	7%	29	39	10	33%	39	44	6	15%
	A49 SB	92	114	23	25%	62	58	-4	-7%	86	206	120	139%
	A49 SB to Delph Ln	11	11	-1	-6%	10	10	0	1%	11	49	38	356%
	Delph Ln to A49 NB	52	70	18	36%	88	89	1	1%	100	100	0	0%
	Delph Ln to A49 SB	49	67	18	37%	84	85	1	1%	97	97	0	0%
M62 Junction 9	A49 NB to M62 WB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB to M62 EB	12	13	1	9%	12	12	0	2%	13	16	3	24%
	A49 NB to A49 SB (U-Turn)	12	13	1	9%	12	12	0	2%	13	16	3	24%
	M62 EB to A49 NB	17	51	34	195%	21	50	29	142%	21	62	41	197%
	M62 EB to A49 SB	17	51	34	195%	21	50	29	142%	21	62	41	197%
	A49 SB to M62 EB	60	69	10	16%	57	58	1	2%	62	82	20	32%
	A49 SB	60	69	10	16%	57	58	1	2%	62	82	20	32%
	A49 SB to M62 WB	60	69	10	16%	57	58	1	2%	62	82	20	32%
	M62 WB to A49 SB	17	20	3	19%	12	12	1	6%	12	25	13	111%
	M62 WB to A49 NB	17	20	3	19%	12	12	1	6%	12	25	13	111%

		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	8	0	-8	-100%	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SB	145	158	13	9%	48	50	2	3%	81	163	82	101%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	A49 SB	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	A49 SB to Cromwell Ave	378	367	-10	-3%	288	331	43	15%	347	394	47	14%
	Cromwell Ave to A49 NB	40	32	-8	-21%	53	59	6	10%	49	44	-5	-9%
	Cromwell Ave to Sandy Ln West	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	Cromwell Ave to A49 SB	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	Cromwell Ave to Cromwell Ave (U-turn)	62	52	-10	-17%	76	89	13	17%	78	73	-5	-6%
	A49 NB	22	22	0	2%	28	34	5	19%	54	61	7	12%
	A49 NB to Sandy Ln West	22	22	0	2%	28	34	5	19%	54	61	7	12%
	A49 NB to Cromwell Ave	22	22	0	2%	28	34	5	19%	54	61	7	12%
	Sandy Ln West to A49 NB	17	181	164	984%	32	260	228	708%	63	263	200	316%
	Sandy Ln West to Sandy Ln (U-turn)	17	181	164	984%	32	260	228	708%	63	263	200	316%
	Sandy Ln West to A49 SB	17	181	164	984%	32	260	228	708%	63	263	200	316%
	Sandy Ln West to Cromwell Ave	17	181	164	984%	32	260	228	708%	63	263	200	316%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	31	32	1	2%	39	41	2	6%	44	43	-1	-1%
	A49 NB to Junction NINE Retail	31	32	1	2%	39	41	2	6%	44	43	-1	-1%
	Junction NINE Retail to A49 SB	45	100	55	122%	30	63	33	110%	29	39	10	33%
	Junction NINE Retail to A49 NB	42	97	55	130%	28	61	33	119%	27	36	10	36%
	A49 SB	304	273	-31	-10%	289	215	-75	-26%	273	227	-45	-17%
	A49 SB to Junction NINE Retail	41	14	-27	-66%	11	17	6	51%	13	15	2	18%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	39	39	0	-1%	28	36	8	28%	34	32	-3	-8%
	A49 SB to Long Lane	34	107	73	218%	46	56	10	23%	24	42	18	77%
	A49 SB	255	257	1	0%	245	246	2	1%	246	244	-2	-1%
	A49 NB to Hawleys Lane	31	54	22	70%	43	112	69	161%	109	353	245	225%
	A49 NB to Long Lane	8	11	3	30%	10	36	26	251%	31	234	203	655%
	A49 NB	31	54	22	70%	43	112	69	161%	109	353	245	225%
	Long Lane to A49 SB	8	22	14	169%	11	34	23	213%	19	54	35	185%
	Long Lane to Hawleys Lane	30	38	8	28%	32	48	17	52%	49	80	32	65%
	Long Lane to A49 NB	30	38	8	28%	32	48	17	52%	49	80	32	65%
	Hawleys Lane to Long Lane	31	43	12	37%	60	75	15	25%	74	82	8	11%
	Hawleys Lane to A49 SB	31	43	12	37%	60	75	15	25%	74	82	8	11%
	Hawleys Lane to A49 NB	24	29	6	24%	42	57	16	37%	58	64	6	10%

		18:00-18:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	10	15	5	50%	11	11	0	2%	11	40	29	270%
	A49 NB	10	15	5	50%	11	11	0	2%	11	40	29	270%
	A49 NB to Winwick Link Rd	10	15	5	50%	11	11	0	2%	11	40	29	270%
	Winwick Park Ave to A49 NB	1	4	2	192%	1	1	0	16%	1	4	2	173%
	Winwick Park Ave to Winwick Link Rd	1	4	2	192%	1	1	0	16%	1	4	2	173%
	Winwick Park Ave to A49 SB	1	4	2	192%	1	1	0	16%	1	4	2	173%
	A49 SB to Winwick Link Rd	18	25	7	41%	19	21	2	10%	21	36	15	74%
	A49 SB	18	25	7	41%	19	21	2	10%	21	36	15	74%
	A49 SB to Winwick Park Ave	18	25	7	41%	19	21	2	10%	21	36	15	74%
	Winwick Link Rd to A49 SB	92	110	18	20%	47	26	-20	-44%	39	178	139	354%
	Winwick Link Rd to Winwick Park Ave	69	49	-19	-28%	31	8	-23	-73%	31	127	96	307%
	Winwick Link Rd to A49 NB	69	49	-19	-28%	31	8	-23	-73%	31	127	96	307%
A49 Newton Road/ Delph Lane	A49 NB	21	24	3	15%	23	26	3	14%	25	69	45	183%
	A49 NB to Delp Ln	19	22	3	16%	21	25	4	17%	24	69	46	193%
	A49 SB	262	260	-2	-1%	127	107	-20	-16%	169	346	177	104%
	A49 SB to Delph Ln	51	50	-2	-3%	28	40	12	45%	31	198	167	547%
	Delph Ln to A49 NB	16	20	4	25%	43	44	2	4%	87	104	18	21%
	Delph Ln to A49 SB	15	18	4	27%	40	42	2	4%	83	101	18	21%
M62 Junction 9	A49 NB to M62 WB	8	9	0	4%	9	10	1	14%	11	37	26	242%
	A49 NB	8	9	0	4%	9	10	1	14%	11	37	26	242%
	A49 NB to M62 EB	8	9	0	4%	9	10	1	14%	11	37	26	242%
	A49 NB to A49 SB (U-Turn)	8	9	0	4%	9	10	1	14%	11	37	26	242%
	M62 EB to A49 NB	13	29	16	124%	14	29	15	112%	15	96	81	532%
	M62 EB to A49 SB	13	29	16	124%	14	29	15	112%	15	96	81	532%
	A49 SB to M62 EB	80	76	-5	-6%	52	54	2	3%	63	81	18	29%
	A49 SB	80	76	-5	-6%	52	54	2	3%	63	81	18	29%
	A49 SB to M62 WB	80	76	-5	-6%	52	54	2	3%	63	81	18	29%
	M62 WB to A49 SB	21	22	1	3%	10	12	2	24%	12	17	5	45%
	M62 WB to A49 NB	21	22	1	3%	10	12	2	24%	12	17	5	45%

		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	44	44	-
	A49 NB	0	0	0	-	0	0	0	-	0	44	44	-
A49 Winwick Road @ Poplars Avenue	A49 SB	249	217	-33	-13%	55	99	44	80%	124	162	38	30%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	461	449	-12	-3%	302	410	108	36%	412	411	-1	0%
	A49 SB	461	449	-12	-3%	302	410	108	36%	412	411	-1	0%
	A49 SB to Cromwell Ave	461	449	-12	-3%	302	410	108	36%	412	411	-1	0%
	Cromwell Ave to A49 NB	29	21	-8	-28%	46	58	12	27%	53	48	-5	-10%
	Cromwell Ave to Sandy Ln West	50	36	-14	-27%	71	87	17	24%	84	78	-6	-8%
	Cromwell Ave to A49 SB	50	36	-14	-27%	71	87	17	24%	84	78	-6	-8%
	Cromwell Ave to Cromwell Ave (U-turn)	50	36	-14	-27%	71	87	17	24%	84	78	-6	-8%
	A49 NB	6	5	-1	-11%	8	9	1	12%	10	31	21	207%
	A49 NB to Sandy Ln West	6	5	-1	-11%	8	9	1	12%	10	31	21	207%
	A49 NB to Cromwell Ave	6	5	-1	-11%	8	9	1	12%	10	31	21	207%
	Sandy Ln West to A49 NB	8	63	55	651%	12	260	248	2065%	22	261	239	1082%
	Sandy Ln West to Sandy Ln (U-turn)	8	63	55	651%	12	260	248	2065%	22	261	239	1082%
	Sandy Ln West to A49 SB	8	63	55	651%	12	260	248	2065%	22	261	239	1082%
	Sandy Ln West to Cromwell Ave	8	63	55	651%	12	260	248	2065%	22	261	239	1082%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	23	24	1	5%	25	27	2	9%	28	52	24	86%
	A49 NB to Junction NINE Retail	23	24	1	5%	25	27	2	9%	28	52	24	86%
	Junction NINE Retail to A49 SB	14	52	38	267%	12	20	9	73%	11	14	4	34%
	Junction NINE Retail to A49 NB	12	50	38	324%	10	18	8	84%	9	12	4	43%
	A49 SB	233	229	-5	-2%	334	255	-80	-24%	366	144	-222	-61%
	A49 SB to Junction NINE Retail	18	15	-3	-14%	12	17	5	41%	13	17	4	27%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	40	40	0	0%	30	33	3	10%	38	29	-9	-24%
	A49 SB to Long Lane	26	118	92	359%	40	30	-11	-26%	1	3	2	261%
	A49 SB	241	251	11	4%	240	234	-6	-3%	231	194	-37	-16%
	A49 NB to Hawleys Lane	17	18	1	8%	21	26	5	22%	23	64	41	181%
	A49 NB to Long Lane	8	9	1	17%	9	16	7	81%	10	27	18	181%
	A49 NB	17	18	1	8%	21	26	5	22%	23	64	41	181%
	Long Lane to A49 SB	8	22	15	193%	9	25	17	195%	15	48	33	216%
	Long Lane to Hawleys Lane	27	30	4	13%	20	27	7	35%	34	65	32	94%
	Long Lane to A49 NB	27	30	4	13%	20	27	7	35%	34	65	32	94%
	Hawleys Lane to Long Lane	21	26	5	24%	39	65	25	65%	45	76	30	67%
	Hawleys Lane to A49 SB	21	26	5	24%	39	65	25	65%	45	76	30	67%
	Hawleys Lane to A49 NB	14	15	1	5%	28	54	26	92%	35	64	29	81%

AM MAXIMUM QUEUE LENGTH COMPARISON

		07:00-08:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	83	82	-1	-2%	110	112	2	2%	122	115	-6	-5%
	A49 NB	83	82	-1	-2%	110	112	2	2%	122	115	-6	-5%
	A49 NB to Winwick Link Rd	83	82	-1	-2%	110	112	2	2%	122	115	-6	-5%
	Winwick Park Ave to A49 NB	29	29	1	2%	30	29	0	-1%	30	30	0	0%
	Winwick Park Ave to Winwick Link Rd	29	29	1	2%	30	29	0	-1%	30	30	0	0%
	Winwick Park Ave to A49 SB	29	29	1	2%	30	29	0	-1%	30	30	0	0%
	A49 SB to Winwick Link Rd	168	176	8	5%	140	148	8	6%	127	107	-21	-16%
	A49 SB	168	176	8	5%	140	148	8	6%	127	107	-21	-16%
	A49 SB to Winwick Park Ave	168	176	8	5%	140	148	8	6%	127	107	-21	-16%
	Winwick Link Rd to A49 SB	32	33	1	2%	36	33	-3	-9%	37	36	0	-1%
	Winwick Link Rd to Winwick Park Ave	32	33	1	2%	37	33	-4	-10%	37	37	0	0%
	Winwick Link Rd to A49 NB	32	33	1	2%	37	33	-4	-10%	37	37	0	0%
A49 Newton Road/ Delph Lane	A49 NB	130	153	22	17%	159	178	20	12%	162	171	10	6%
	A49 NB to Delph Ln	135	157	22	17%	163	183	20	12%	166	176	10	6%
	A49 SB	159	191	32	20%	193	201	9	5%	198	197	-1	0%
	A49 SB to Delph Ln	78	78	0	0%	73	74	1	1%	67	125	58	86%
	Delph Ln to A49 NB	43	42	-1	-2%	41	41	0	-1%	46	47	1	3%
	Delph Ln to A49 SB	40	39	-1	-2%	38	38	-1	-2%	47	43	-3	-7%
M62 Junction 9	A49 NB to M62 WB	88	94	6	7%	100	95	-5	-5%	92	107	15	16%
	A49 NB	88	94	6	7%	100	95	-5	-5%	92	107	15	16%
	A49 NB to M62 EB	88	94	6	7%	100	95	-5	-5%	92	107	15	16%
	A49 NB to A49 SB (U-Turn)	88	94	6	7%	100	95	-5	-5%	92	107	15	16%
	M62 EB to A49 NB	143	285	141	99%	95	233	138	146%	103	223	121	118%
	M62 EB to A49 SB	143	285	141	99%	95	233	138	146%	103	223	121	118%
	A49 SB to M62 EB	154	158	4	3%	161	159	-3	-2%	159	163	4	3%
	A49 SB	154	158	4	3%	161	159	-3	-2%	159	163	4	3%
	A49 SB to M62 WB	154	158	4	3%	161	159	-3	-2%	159	163	4	3%
	M62 WB to A49 SB	93	95	2	2%	93	97	3	3%	101	104	4	4%
	M62 WB to A49 NB	93	95	2	2%	93	97	3	3%	101	104	4	4%

		07:00-08:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 SB	0	0	0	-	7	0	-7	-100%	4	0	-4	-100%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	350	351	1	0%	310	334	24	8%	363	387	24	7%
	A49 SB	350	351	1	0%	310	334	24	8%	363	387	24	7%
	A49 SB to Cromwell Ave	350	351	1	0%	310	334	24	8%	363	387	24	7%
	Cromwell Ave to A49 NB	109	109	0	0%	112	127	15	14%	127	131	4	3%
	Cromwell Ave to Sandy Ln West	109	109	0	0%	112	127	15	14%	127	131	4	3%
	Cromwell Ave to A49 SB	109	109	0	0%	112	127	15	14%	127	131	4	3%
	Cromwell Ave to Cromwell Ave (U-turn)	109	109	0	0%	112	127	15	14%	127	131	4	3%
	A49 NB	78	76	-1	-2%	92	76	-16	-17%	69	82	13	19%
	A49 NB to Sandy Ln West	78	76	-1	-2%	92	76	-16	-17%	69	82	13	19%
	A49 NB to Cromwell Ave	78	76	-1	-2%	92	76	-16	-17%	69	82	13	19%
	Sandy Ln West to A49 NB	91	228	137	152%	90	225	135	149%	117	270	153	131%
	Sandy Ln West to Sandy Ln (U-turn)	91	228	137	152%	90	225	135	149%	117	270	153	131%
	Sandy Ln West to A49 SB	91	228	137	152%	90	225	135	149%	117	270	153	131%
	Sandy Ln West to Cromwell Ave	91	228	137	152%	90	225	135	149%	117	270	153	131%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	58	51	-7	-12%	48	54	6	12%	112	117	5	4%
	A49 NB to Junction NINE Retail	58	51	-7	-12%	48	54	6	12%	112	117	5	4%
	Junction NINE Retail to A49 SB	26	27	1	6%	27	27	0	-1%	28	29	1	5%
	Junction NINE Retail to A49 NB	23	25	2	7%	25	24	0	-1%	25	27	2	7%
	A49 SB	104	102	-2	-2%	105	108	3	3%	142	148	6	4%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	53	50	-2	-4%	59	58	-2	-3%	59	60	2	3%
	A49 SB to Hawleys Lane	199	206	8	4%	236	182	-55	-23%	305	289	-15	-5%
	A49 SB to Long Lane	74	47	-27	-36%	1	0	-1	-100%	0	0	0	-
	A49 SB	274	257	-17	-6%	269	264	-5	-2%	334	328	-6	-2%
	A49 NB to Hawleys Lane	160	170	10	6%	201	236	36	18%	276	320	44	16%
	A49 NB to Long Lane	61	62	2	3%	85	112	27	32%	88	125	37	42%
	A49 NB	160	170	10	6%	201	236	36	18%	276	320	44	16%
	Long Lane to A49 SB	104	162	58	56%	83	144	61	74%	97	156	59	60%
	Long Lane to Hawleys Lane	142	156	15	10%	145	152	7	4%	127	150	22	18%
	Long Lane to A49 NB	142	156	15	10%	145	152	7	4%	127	150	22	18%
	Hawleys Lane to Long Lane	43	41	-2	-4%	52	52	0	1%	56	51	-5	-8%
	Hawleys Lane to A49 SB	43	41	-2	-4%	52	52	0	1%	56	51	-5	-8%
	Hawleys Lane to A49 NB	47	44	-4	-8%	55	46	-8	-15%	54	54	0	0%

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	104	137	34	33%	109	141	31	29%	144	177	34	24%
	A49 NB	104	137	34	33%	109	141	31	29%	144	177	34	24%
	A49 NB to Winwick Link Rd	104	137	34	33%	109	141	31	29%	144	177	34	24%
	Winwick Park Ave to A49 NB	34	35	1	3%	35	35	0	0%	37	37	0	0%
	Winwick Park Ave to Winwick Link Rd	34	35	1	3%	35	35	0	0%	37	37	0	0%
	Winwick Park Ave to A49 SB	34	35	1	3%	35	35	0	0%	37	37	0	0%
	A49 SB to Winwick Link Rd	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	A49 SB	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	A49 SB to Winwick Park Ave	181	183	2	1%	166	167	1	1%	168	154	-14	-8%
	Winwick Link Rd to A49 SB	31	29	-2	-5%	41	38	-3	-8%	35	33	-2	-5%
	Winwick Link Rd to Winwick Park Ave	31	29	-1	-4%	41	38	-3	-8%	36	73	37	105%
	Winwick Link Rd to A49 NB	31	29	-1	-4%	41	38	-3	-8%	36	73	37	105%
A49 Newton Road/ Delph Lane	A49 NB	126	180	54	43%	179	241	62	35%	239	191	-48	-20%
	A49 NB to Delp Ln	131	185	54	42%	184	245	62	34%	243	195	-48	-20%
	A49 SB	211	220	8	4%	238	234	-4	-2%	273	302	29	10%
	A49 SB to Delph Ln	86	100	13	15%	86	95	9	10%	95	229	133	140%
	Delph Ln to A49 NB	48	47	0	0%	41	40	-1	-2%	49	51	2	4%
	Delph Ln to A49 SB	42	42	0	0%	37	36	-1	-3%	45	46	1	3%
M62 Junction 9	A49 NB to M62 WB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	A49 NB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	A49 NB to M62 EB	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	A49 NB to A49 SB (U-Turn)	122	110	-12	-10%	120	133	13	11%	157	145	-12	-8%
	M62 EB to A49 NB	95	227	132	139%	83	198	115	137%	92	198	106	116%
	M62 EB to A49 SB	95	227	132	139%	83	198	115	137%	92	198	106	116%
	A49 SB to M62 EB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	A49 SB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	A49 SB to M62 WB	163	165	2	1%	163	165	1	1%	163	167	4	3%
	M62 WB to A49 SB	79	79	1	1%	81	82	1	1%	90	130	40	45%
	M62 WB to A49 NB	79	79	1	1%	81	82	1	1%	90	130	40	45%

		08:00-09:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	7	7	-	0	0	0	-	1	28	26	1890%
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	4	20	16	405%	132	80	-52	-39%
	A49 NB	0	0	0	-	4	20	16	405%	132	80	-52	-39%
	A49 SB	32	43	11	33%	18	6	-12	-67%	166	127	-39	-23%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	407	431	24	6%	328	392	64	20%	471	471	0	0%
	A49 SB	407	431	24	6%	328	392	64	20%	471	471	0	0%
	A49 SB to Cromwell Ave	407	431	24	6%	328	392	64	20%	471	471	0	0%
	Cromwell Ave to A49 NB	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to Sandy Ln West	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to A49 SB	120	124	4	3%	127	131	4	3%	135	140	5	4%
	Cromwell Ave to Cromwell Ave (U-turn)	120	124	4	3%	127	131	4	3%	135	140	5	4%
	A49 NB	85	108	23	27%	103	121	18	17%	133	141	8	6%
	A49 NB to Sandy Ln West	85	108	23	27%	103	121	18	17%	133	141	8	6%
	A49 NB to Cromwell Ave	85	108	23	27%	103	121	18	17%	133	141	8	6%
	Sandy Ln West to A49 NB	114	292	178	157%	122	294	171	140%	252	296	44	18%
	Sandy Ln West to Sandy Ln (U-turn)	114	292	178	157%	122	294	171	140%	252	296	44	18%
	Sandy Ln West to A49 SB	114	292	178	157%	122	294	171	140%	252	296	44	18%
	Sandy Ln West to Cromwell Ave	114	292	178	157%	122	294	171	140%	252	296	44	18%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	147	167	20	13%	168	173	6	3%	174	171	-2	-1%
	A49 NB to Junction NINE Retail	147	167	20	13%	168	173	6	3%	174	171	-2	-1%
	Junction NINE Retail to A49 SB	27	27	0	0%	27	27	0	0%	30	34	3	11%
	Junction NINE Retail to A49 NB	25	25	0	0%	25	25	0	0%	28	31	3	12%
	A49 SB	140	127	-13	-9%	206	218	12	6%	361	348	-13	-4%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	54	58	3	6%	63	66	3	4%	69	66	-3	-5%
	A49 SB to Hawleys Lane	302	283	-19	-6%	312	311	-1	0%	328	330	2	1%
	A49 SB to Long Lane	32	74	42	130%	0	0	0	-	0	0	0	-
	A49 SB	325	316	-9	-3%	334	331	-3	-1%	336	340	4	1%
	A49 NB to Hawleys Lane	175	219	43	25%	233	303	70	30%	438	508	70	16%
	A49 NB to Long Lane	75	88	13	18%	108	177	69	64%	351	501	150	43%
	A49 NB	175	219	43	25%	233	303	70	30%	438	508	70	16%
	Long Lane to A49 SB	152	188	36	23%	132	190	58	44%	154	170	16	10%
	Long Lane to Hawleys Lane	164	187	23	14%	155	182	28	18%	149	159	10	7%
	Long Lane to A49 NB	164	187	23	14%	155	182	28	18%	149	159	10	7%
	Hawleys Lane to Long Lane	65	69	4	6%	56	60	5	8%	80	76	-4	-5%
	Hawleys Lane to A49 SB	65	69	4	6%	56	60	5	8%	80	76	-4	-5%
	Hawleys Lane to A49 NB	62	52	-10	-15%	52	56	4	7%	70	65	-4	-6%

		09:00-09:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	85	86	1	1%	86	102	15	18%	99	121	22	22%
	A49 NB	85	86	1	1%	86	102	15	18%	99	121	22	22%
	A49 NB to Winwick Link Rd	85	86	1	1%	86	102	15	18%	99	121	22	22%
	Winwick Park Ave to A49 NB	24	25	1	2%	25	24	-1	-2%	25	25	0	0%
	Winwick Park Ave to Winwick Link Rd	24	25	1	2%	25	24	-1	-2%	25	25	0	0%
	Winwick Park Ave to A49 SB	24	25	1	2%	25	24	-1	-2%	25	25	0	0%
	A49 SB to Winwick Link Rd	128	178	50	39%	122	125	3	3%	107	101	-6	-5%
	A49 SB	128	178	50	39%	122	125	3	3%	107	101	-6	-5%
	A49 SB to Winwick Park Ave	128	178	50	39%	122	125	3	3%	107	101	-6	-5%
	Winwick Link Rd to A49 SB	25	26	0	1%	27	28	1	5%	30	30	0	0%
	Winwick Link Rd to Winwick Park Ave	25	26	0	1%	27	28	1	5%	31	31	0	1%
	Winwick Link Rd to A49 NB	25	26	0	1%	27	28	1	5%	31	31	0	1%
A49 Newton Road/ Delph Lane	A49 NB	115	141	26	22%	152	174	22	15%	246	189	-57	-23%
	A49 NB to Delp Ln	119	145	26	22%	156	178	22	14%	250	194	-57	-23%
	A49 SB	200	184	-16	-8%	172	167	-6	-3%	222	139	-83	-37%
	A49 SB to Delph Ln	69	68	-1	-2%	78	63	-15	-19%	97	87	-10	-10%
	Delph Ln to A49 NB	45	44	-1	-3%	35	37	1	4%	42	51	9	21%
	Delph Ln to A49 SB	41	40	-1	-3%	32	33	1	2%	38	47	9	23%
M62 Junction 9	A49 NB to M62 WB	84	85	0	0%	98	118	20	21%	165	115	-50	-30%
	A49 NB	84	85	0	0%	98	118	20	21%	165	115	-50	-30%
	A49 NB to M62 EB	84	85	0	0%	98	118	20	21%	165	115	-50	-30%
	A49 NB to A49 SB (U-Turn)	84	85	0	0%	98	118	20	21%	165	115	-50	-30%
	M62 EB to A49 NB	81	168	86	106%	80	167	87	108%	80	181	101	126%
	M62 EB to A49 SB	81	168	86	106%	80	167	87	108%	80	181	101	126%
	A49 SB to M62 EB	158	153	-5	-3%	157	152	-5	-3%	157	152	-5	-3%
	A49 SB	158	153	-5	-3%	157	152	-5	-3%	157	152	-5	-3%
	A49 SB to M62 WB	158	153	-5	-3%	157	152	-5	-3%	157	152	-5	-3%
	M62 WB to A49 SB	63	64	1	2%	72	69	-2	-3%	107	121	14	13%
	M62 WB to A49 NB	63	64	1	2%	72	69	-2	-3%	107	121	14	13%

		09:00-09:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	10	35	24	235%
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	1	0	-1	-100%	2	10	8	348%	121	1	-120	-99%
	A49 NB	1	0	-1	-100%	2	10	8	348%	121	1	-120	-99%
	A49 SB	0	8	8	-	0	10	10	-	183	110	-72	-40%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	289	292	3	1%	228	265	37	16%	416	375	-41	-10%
	A49 SB	289	292	3	1%	228	265	37	16%	416	375	-41	-10%
	A49 SB to Cromwell Ave	289	292	3	1%	228	265	37	16%	416	375	-41	-10%
	Cromwell Ave to A49 NB	96	102	5	5%	110	123	13	11%	125	135	10	8%
	Cromwell Ave to Sandy Ln West	96	102	5	5%	110	123	13	11%	125	135	10	8%
	Cromwell Ave to A49 SB	96	102	5	5%	110	123	13	11%	125	135	10	8%
	Cromwell Ave to Cromwell Ave (U-turn)	96	102	5	5%	110	123	13	11%	125	135	10	8%
	A49 NB	63	67	4	6%	76	76	0	0%	72	95	23	32%
	A49 NB to Sandy Ln West	63	67	4	6%	76	76	0	0%	72	95	23	32%
	A49 NB to Cromwell Ave	63	67	4	6%	76	76	0	0%	72	95	23	32%
	Sandy Ln West to A49 NB	83	293	211	255%	88	294	206	235%	163	295	133	81%
	Sandy Ln West to Sandy Ln (U-turn)	83	293	211	255%	88	294	206	235%	163	295	133	81%
	Sandy Ln West to A49 SB	83	293	211	255%	88	294	206	235%	163	295	133	81%
	Sandy Ln West to Cromwell Ave	83	293	211	255%	88	294	206	235%	163	295	133	81%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	131	134	3	2%	125	118	-7	-6%	136	156	21	15%
	A49 NB to Junction NINE Retail	131	134	3	2%	125	118	-7	-6%	136	156	21	15%
	Junction NINE Retail to A49 SB	25	27	1	5%	25	25	1	3%	26	30	4	15%
	Junction NINE Retail to A49 NB	23	24	1	6%	22	23	1	3%	24	28	4	15%
	A49 SB	225	137	-88	-39%	134	116	-18	-14%	224	326	102	45%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	52	55	3	6%	49	60	11	23%	56	58	2	3%
	A49 SB to Hawleys Lane	268	250	-18	-7%	264	256	-8	-3%	293	311	17	6%
	A49 SB to Long Lane	72	20	-52	-72%	13	0	-13	-100%	0	0	0	-
	A49 SB	301	295	-6	-2%	299	294	-4	-1%	319	329	9	3%
	A49 NB to Hawleys Lane	122	122	1	0%	132	213	81	61%	415	507	92	22%
	A49 NB to Long Lane	47	57	10	22%	60	88	28	47%	264	501	237	90%
	A49 NB	122	122	1	0%	132	213	81	61%	415	507	92	22%
	Long Lane to A49 SB	125	192	66	53%	141	218	77	55%	143	187	44	31%
	Long Lane to Hawleys Lane	174	184	9	5%	162	209	47	29%	151	178	27	18%
	Long Lane to A49 NB	174	184	9	5%	162	209	47	29%	151	178	27	18%
	Hawleys Lane to Long Lane	47	51	4	7%	52	43	-9	-18%	50	61	11	23%
	Hawleys Lane to A49 SB	47	51	4	7%	52	43	-9	-18%	50	61	11	23%
	Hawleys Lane to A49 NB	34	38	3	9%	46	40	-6	-12%	33	40	7	21%

PM MAXIMUM QUEUE LENGTH COMPARISON

		16:00-17:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	111	113	2	2%	116	121	5	4%	115	118	3	2%
	A49 NB	111	113	2	2%	116	121	5	4%	115	118	3	2%
	A49 NB to Winwick Link Rd	111	113	2	2%	116	121	5	4%	115	118	3	2%
	Winwick Park Ave to A49 NB	10	18	8	74%	10	11	1	5%	10	18	8	73%
	Winwick Park Ave to Winwick Link Rd	10	18	8	74%	10	11	1	5%	10	18	8	73%
	Winwick Park Ave to A49 SB	10	18	8	74%	10	11	1	5%	10	18	8	73%
	A49 SB to Winwick Link Rd	73	84	11	15%	76	83	7	9%	81	86	5	6%
	A49 SB	73	84	11	15%	76	83	7	9%	81	86	5	6%
	A49 SB to Winwick Park Ave	73	84	11	15%	76	83	7	9%	81	86	5	6%
	Winwick Link Rd to A49 SB	27	27	0	-1%	27	28	1	4%	29	29	0	0%
	Winwick Link Rd to Winwick Park Ave	27	27	0	-1%	27	28	1	4%	29	29	0	0%
	Winwick Link Rd to A49 NB	27	27	0	-1%	27	28	1	4%	29	29	0	0%
A49 Newton Road/ Delph Lane	A49 NB	209	250	41	20%	213	284	70	33%	251	273	22	9%
	A49 NB to Delph Ln	213	255	41	19%	216	288	73	34%	255	277	22	9%
	A49 SB	132	146	14	11%	150	163	13	9%	154	185	31	20%
	A49 SB to Delph Ln	58	79	21	35%	73	65	-8	-10%	82	78	-5	-6%
	Delph Ln to A49 NB	90	101	11	12%	110	110	0	0%	130	129	-1	-1%
	Delph Ln to A49 SB	86	97	11	12%	106	106	0	0%	126	125	-1	-1%
M62 Junction 9	A49 NB to M62 WB	113	110	-3	-3%	106	136	30	28%	100	130	30	30%
	A49 NB	113	110	-3	-3%	106	136	30	28%	100	130	30	30%
	A49 NB to M62 EB	113	110	-3	-3%	106	136	30	28%	100	130	30	30%
	A49 NB to A49 SB (U-Turn)	113	110	-3	-3%	106	136	30	28%	100	130	30	30%
	M62 EB to A49 NB	124	275	151	122%	138	274	136	99%	125	287	161	129%
	M62 EB to A49 SB	124	275	151	122%	138	274	136	99%	125	287	161	129%
	A49 SB to M62 EB	152	148	-4	-2%	161	162	0	0%	163	163	0	0%
	A49 SB	152	148	-4	-2%	161	162	0	0%	163	163	0	0%
	A49 SB to M62 WB	152	148	-4	-2%	161	162	0	0%	163	163	0	0%
	M62 WB to A49 SB	50	74	24	48%	52	78	26	49%	53	82	29	55%
	M62 WB to A49 NB	50	74	24	48%	52	78	26	49%	53	82	29	55%

		16:00-17:00											
Junction/ Movement		2022				2027				2032			
		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
	A49 NB to Woburn Rd	6	2	-5	-75%	0	6	6	-	0	0	0	-
	A49 NB	6	2	-5	-75%	0	6	6	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 SB	0	8	8	-	0	1	1	-	18	161	143	806%
	A49 SB to Sandy Ln West	297	386	89	30%	298	406	108	36%	379	444	65	17%
	A49 SB	297	386	89	30%	298	406	108	36%	379	444	65	17%
	A49 SB to Cromwell Ave	297	386	89	30%	298	406	108	36%	379	444	65	17%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	Cromwell Ave to A49 NB	102	104	2	2%	117	132	14	12%	121	122	2	1%
	Cromwell Ave to Sandy Ln West	102	104	2	2%	117	132	14	12%	121	122	2	1%
	Cromwell Ave to A49 SB	102	104	2	2%	117	132	14	12%	121	122	2	1%
	Cromwell Ave to Cromwell Ave (U-turn)	102	104	2	2%	117	132	14	12%	121	122	2	1%
	A49 NB	239	239	0	0%	235	247	11	5%	262	276	13	5%
	A49 NB to Sandy Ln West	239	239	0	0%	235	247	11	5%	262	276	13	5%
	A49 NB to Cromwell Ave	239	239	0	0%	235	247	11	5%	262	276	13	5%
	Sandy Ln West to A49 NB	121	295	174	144%	155	295	140	91%	196	295	98	50%
	Sandy Ln West to Sandy Ln (U-turn)	121	295	174	144%	155	295	140	91%	196	295	98	50%
	Sandy Ln West to A49 SB	121	295	174	144%	155	295	140	91%	196	295	98	50%
	Sandy Ln West to Cromwell Ave	121	295	174	144%	155	295	140	91%	196	295	98	50%
	A49 NB	246	242	-4	-1%	239	230	-9	-4%	257	238	-20	-8%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB to Junction NINE Retail	246	242	-4	-1%	239	230	-9	-4%	257	238	-20	-8%
	Junction NINE Retail to A49 SB	86	119	33	38%	61	96	35	57%	51	66	15	29%
	Junction NINE Retail to A49 NB	83	116	33	40%	59	94	35	59%	49	64	15	30%
	A49 SB	344	361	17	5%	298	294	-4	-1%	225	267	42	19%
	A49 SB to Junction NINE Retail	55	60	5	9%	53	89	36	69%	81	68	-13	-16%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Hawleys Lane	194	179	-14	-7%	204	192	-12	-6%	248	243	-5	-2%
	A49 SB to Long Lane	0	167	167	-	69	105	36	52%	58	68	10	16%
	A49 SB	340	339	-1	0%	338	339	1	0%	339	337	-2	-1%
	A49 NB to Hawleys Lane	346	438	92	27%	376	468	92	24%	463	507	45	10%
	A49 NB to Long Lane	94	200	106	113%	190	295	105	55%	238	492	254	107%
	A49 NB	346	438	92	27%	376	468	92	24%	463	507	45	10%
	Long Lane to A49 SB	98	153	55	56%	127	153	26	20%	148	154	7	4%
	Long Lane to Hawleys Lane	135	140	5	4%	141	149	8	5%	148	148	0	0%
	Long Lane to A49 NB	135	140	5	4%	141	149	8	5%	148	148	0	0%
	Hawleys Lane to Long Lane	119	126	6	5%	121	125	4	3%	124	125	1	1%
	Hawleys Lane to A49 SB	119	126	6	5%	121	125	4	3%	124	125	1	1%
	Hawleys Lane to A49 NB	116	130	13	11%	129	130	1	1%	129	129	1	0%

		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	98	107	9	9%	98	119	21	21%	120	152	32	27%
	A49 NB	98	107	9	9%	98	119	21	21%	120	152	32	27%
	A49 NB to Winwick Link Rd	98	107	9	9%	98	119	21	21%	120	152	32	27%
	Winwick Park Ave to A49 NB	12	26	14	123%	11	12	2	14%	13	27	14	104%
	Winwick Park Ave to Winwick Link Rd	12	26	14	123%	11	12	2	14%	13	27	14	104%
	Winwick Park Ave to A49 SB	12	26	14	123%	11	12	2	14%	13	27	14	104%
	A49 SB to Winwick Link Rd	75	92	17	23%	79	90	11	13%	88	106	18	20%
	A49 SB	75	92	17	23%	79	90	11	13%	88	106	18	20%
	A49 SB to Winwick Park Ave	75	92	17	23%	79	90	11	13%	88	106	18	20%
	Winwick Link Rd to A49 SB	197	247	49	25%	133	101	-32	-24%	183	364	181	99%
	Winwick Link Rd to Winwick Park Ave	156	72	-84	-54%	60	74	14	22%	73	175	102	141%
	Winwick Link Rd to A49 NB	156	72	-84	-54%	60	74	14	22%	73	175	102	141%
A49 Newton Road/ Delph Lane	A49 NB	189	228	39	20%	191	301	110	58%	249	279	30	12%
	A49 NB to Delp Ln	194	233	39	20%	195	305	110	56%	254	284	30	12%
	A49 SB	335	372	37	11%	253	264	11	4%	327	440	114	35%
	A49 SB to Delph Ln	92	70	-23	-24%	64	64	0	0%	65	179	113	173%
	Delph Ln to A49 NB	179	185	6	3%	188	187	-1	0%	202	187	-14	-7%
	Delph Ln to A49 SB	175	181	6	3%	184	183	-1	0%	198	183	-14	-7%
M62 Junction 9	A49 NB to M62 WB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB to M62 EB	116	128	12	10%	113	117	4	4%	112	130	18	16%
	A49 NB to A49 SB (U-Turn)	116	128	12	10%	113	117	4	4%	112	130	18	16%
	M62 EB to A49 NB	108	234	126	117%	119	229	110	93%	115	256	141	122%
	M62 EB to A49 SB	108	234	126	117%	119	229	110	93%	115	256	141	122%
	A49 SB to M62 EB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	A49 SB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	A49 SB to M62 WB	172	178	6	3%	166	167	1	1%	171	174	3	2%
	M62 WB to A49 SB	88	105	17	19%	62	85	23	37%	64	113	49	76%
	M62 WB to A49 NB	88	105	17	19%	62	85	23	37%	64	113	49	76%

		17:00-18:00											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	38	0	-38	-100%	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	1	1	-	0	0	0	-	0	12	12	-
	A49 NB	0	1	1	-	0	0	0	-	0	12	12	-
	A49 SB	459	482	22	5%	202	309	107	53%	406	472	66	16%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	A49 SB	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	A49 SB to Cromwell Ave	512	512	-1	0%	489	509	20	4%	511	512	0	0%
	Cromwell Ave to A49 NB	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to Sandy Ln West	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to A49 SB	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	Cromwell Ave to Cromwell Ave (U-turn)	124	123	-2	-1%	132	135	3	2%	132	131	-1	-1%
	A49 NB	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	A49 NB to Sandy Ln West	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	A49 NB to Cromwell Ave	216	214	-2	-1%	230	249	20	9%	264	271	7	3%
	Sandy Ln West to A49 NB	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to Sandy Ln (U-turn)	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to A49 SB	142	292	150	106%	179	293	113	63%	228	293	64	28%
	Sandy Ln West to Cromwell Ave	142	292	150	106%	179	293	113	63%	228	293	64	28%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	236	238	3	1%	241	249	7	3%	268	256	-12	-4%
	A49 NB to Junction NINE Retail	236	238	3	1%	241	249	7	3%	268	256	-12	-4%
	Junction NINE Retail to A49 SB	101	170	69	69%	86	134	48	55%	81	100	19	23%
	Junction NINE Retail to A49 NB	98	167	69	70%	84	132	48	57%	79	97	19	24%
	A49 SB	452	450	-2	0%	449	397	-51	-11%	473	446	-27	-6%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	92	61	-31	-34%	56	93	37	66%	58	69	11	19%
	A49 SB to Hawleys Lane	250	279	29	12%	246	299	53	21%	327	328	1	0%
	A49 SB to Long Lane	69	241	172	249%	70	172	101	144%	68	137	70	103%
	A49 SB	343	343	0	0%	343	340	-3	-1%	341	341	0	0%
	A49 NB to Hawleys Lane	319	414	95	30%	325	503	178	55%	459	509	51	11%
	A49 NB to Long Lane	79	123	45	57%	135	271	136	101%	233	502	269	115%
	A49 NB	319	414	95	30%	325	503	178	55%	459	509	51	11%
	Long Lane to A49 SB	71	152	81	114%	114	154	40	35%	146	155	9	6%
	Long Lane to Hawleys Lane	129	148	19	15%	143	148	5	3%	146	151	5	3%
	Long Lane to A49 NB	129	148	19	15%	143	148	5	3%	146	151	5	3%
	Hawleys Lane to Long Lane	126	128	2	2%	126	127	1	1%	128	131	3	3%
	Hawleys Lane to A49 SB	126	128	2	2%	126	127	1	1%	128	131	3	3%
	Hawleys Lane to A49 NB	130	133	3	2%	133	133	1	0%	134	137	4	3%

		18:00-18:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Newton Road/ A49 Winwick Link Road/ Winwick Park Avenue	A49 NB to Winwick Park Ave	85	97	13	15%	75	84	8	11%	81	160	79	98%
	A49 NB	85	97	13	15%	75	84	8	11%	81	160	79	98%
	A49 NB to Winwick Link Rd	85	97	13	15%	75	84	8	11%	81	160	79	98%
	Winwick Park Ave to A49 NB	12	25	13	103%	11	13	2	18%	11	23	12	103%
	Winwick Park Ave to Winwick Link Rd	12	25	13	103%	11	13	2	18%	11	23	12	103%
	Winwick Park Ave to A49 SB	12	25	13	103%	11	13	2	18%	11	23	12	103%
	A49 SB to Winwick Link Rd	68	98	29	43%	77	86	9	11%	77	113	35	46%
	A49 SB	68	98	29	43%	77	86	9	11%	77	113	35	46%
	A49 SB to Winwick Park Ave	68	98	29	43%	77	86	9	11%	77	113	35	46%
	Winwick Link Rd to A49 SB	269	265	-4	-1%	165	135	-30	-18%	178	375	197	110%
	Winwick Link Rd to Winwick Park Ave	169	123	-47	-27%	124	71	-53	-43%	121	272	151	125%
	Winwick Link Rd to A49 NB	169	123	-47	-27%	124	71	-53	-43%	121	272	151	125%
A49 Newton Road/ Delph Lane	A49 NB	120	145	25	21%	154	152	-2	-1%	155	244	89	58%
	A49 NB to Delp Ln	124	150	25	20%	159	157	-2	-1%	160	249	89	56%
	A49 SB	353	405	51	15%	232	236	4	2%	309	440	131	42%
	A49 SB to Delph Ln	87	162	75	86%	106	137	31	29%	124	292	167	135%
	Delph Ln to A49 NB	84	107	23	27%	144	152	9	6%	179	182	3	2%
	Delph Ln to A49 SB	80	103	23	28%	140	148	9	6%	175	178	3	2%
M62 Junction 9	A49 NB to M62 WB	82	81	0	0%	81	99	18	22%	99	128	29	29%
	A49 NB	82	81	0	0%	81	99	18	22%	99	128	29	29%
	A49 NB to M62 EB	82	81	0	0%	81	99	18	22%	99	128	29	29%
	A49 NB to A49 SB (U-Turn)	82	81	0	0%	81	99	18	22%	99	128	29	29%
	M62 EB to A49 NB	77	185	107	139%	87	177	90	104%	88	255	166	188%
	M62 EB to A49 SB	77	185	107	139%	87	177	90	104%	88	255	166	188%
	A49 SB to M62 EB	170	170	0	0%	159	159	0	0%	166	169	3	2%
	A49 SB	170	170	0	0%	159	159	0	0%	166	169	3	2%
	A49 SB to M62 WB	170	170	0	0%	159	159	0	0%	166	169	3	2%
	M62 WB to A49 SB	79	88	10	12%	55	61	6	11%	57	87	31	54%
	M62 WB to A49 NB	79	88	10	12%	55	61	6	11%	57	87	31	54%

		18:00-18:30											
		2022				2027				2032			
Junction/ Movement		Length (metres)		Difference		Length (metres)		Difference		Length (metres)		Difference	
Junction	Approach	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%	DoMin	DoSom	Actual (metres)	%
A49 Winwick Rd/ Birch Ave	A49 SB to Birch Ave	0	0	0	-	0	0	0	-	0	0	0	-
	Birch Rd to A49 SB	0	0	0	-	0	0	0	-	0	0	0	-
A49 Winwick Road @ Poplars Avenue	A49 NB to Woburn Rd	0	0	0	-	0	3	3	-	0	102	102	-
	A49 NB	0	0	0	-	0	3	3	-	0	102	102	-
	A49 SB	450	452	2	0%	185	329	144	77%	341	440	99	29%
A49 Winwick Road/ A574 Cromwell Avenue/ Sandy Lane West	A49 SB to Sandy Ln West	512	510	-3	0%	464	510	46	10%	509	509	0	0%
	A49 SB	512	510	-3	0%	464	510	46	10%	509	509	0	0%
	A49 SB to Cromwell Ave	512	510	-3	0%	464	510	46	10%	509	509	0	0%
	Cromwell Ave to A49 NB	117	107	-10	-8%	129	133	4	3%	132	132	0	0%
	Cromwell Ave to Sandy Ln West	117	107	-10	-8%	129	133	4	3%	132	132	0	0%
	Cromwell Ave to A49 SB	117	107	-10	-8%	129	133	4	3%	132	132	0	0%
	Cromwell Ave to Cromwell Ave (U-turn)	117	107	-10	-8%	129	133	4	3%	132	132	0	0%
	A49 NB	106	101	-6	-5%	130	126	-5	-4%	130	189	59	45%
	A49 NB to Sandy Ln West	106	101	-6	-5%	130	126	-5	-4%	130	189	59	45%
	A49 NB to Cromwell Ave	106	101	-6	-5%	130	126	-5	-4%	130	189	59	45%
	Sandy Ln West to A49 NB	82	269	187	229%	99	292	194	196%	135	292	158	117%
	Sandy Ln West to Sandy Ln (U-turn)	82	269	187	229%	99	292	194	196%	135	292	158	117%
	Sandy Ln West to A49 SB	82	269	187	229%	99	292	194	196%	135	292	158	117%
	Sandy Ln West to Cromwell Ave	82	269	187	229%	99	292	194	196%	135	292	158	117%
A49 Winwick Road @ Junction NINE Retail Park	A49 NB	180	188	8	4%	183	189	6	3%	205	244	39	19%
	A49 NB to Junction NINE Retail	180	188	8	4%	183	189	6	3%	205	244	39	19%
	Junction NINE Retail to A49 SB	55	140	85	153%	35	58	22	64%	36	50	15	41%
	Junction NINE Retail to A49 NB	53	138	85	160%	33	55	22	68%	33	48	15	44%
	A49 SB	403	416	13	3%	444	362	-82	-18%	460	275	-185	-40%
A49 Winwick Road/ Hawleys Lane/ A50 Long Lane	A49 SB to Junction NINE Retail	85	54	-30	-36%	53	62	9	17%	55	61	6	11%
	A49 SB to Hawleys Lane	216	221	5	2%	158	236	78	49%	275	171	-104	-38%
	A49 SB to Long Lane	35	239	204	589%	69	102	34	49%	26	34	8	31%
	A49 SB	337	339	2	1%	338	338	0	0%	339	331	-8	-3%
	A49 NB to Hawleys Lane	155	176	21	13%	196	231	35	18%	208	358	151	73%
	A49 NB to Long Lane	74	82	8	11%	83	134	51	61%	108	215	106	98%
	A49 NB	155	176	21	13%	196	231	35	18%	208	358	151	73%
	Long Lane to A49 SB	67	138	71	106%	68	152	84	124%	109	153	44	40%
	Long Lane to Hawleys Lane	100	123	23	23%	101	122	21	21%	126	139	13	10%
	Long Lane to A49 NB	100	123	23	23%	101	122	21	21%	126	139	13	10%
	Hawleys Lane to Long Lane	111	115	5	4%	115	124	9	8%	124	127	3	3%
	Hawleys Lane to A49 SB	111	115	5	4%	115	124	9	8%	124	127	3	3%
	Hawleys Lane to A49 NB	109	113	4	3%	122	132	11	9%	130	133	3	2%

APPENDIX D:

JOURNEY TIME DATA

AM Journey Time (s) - 07:00-08:00

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	68	72	4	6%	78	80	2	3%	82	85	2	3%
2 NB	98	100	2	2%	104	104	1	1%	103	100	-3	-3%
3 NB	80	82	2	3%	81	82	1	1%	81	85	5	6%
4 NB	81	83	2	3%	80	83	3	4%	88	89	1	1%
5 NB	86	88	2	2%	91	94	4	4%	99	104	5	5%
	413	425	12.15	3%	433	443	10.19	2%	453	463	9.45	2%

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	62	67	5	8%	61	62	1	2%	60	56	-4	-7%
2 SB	92	96	5	5%	96	96	1	1%	96	95	-1	-1%
3 SB	145	142	-3	-2%	135	132	-2	-2%	136	132	-4	-3%
4 SB	106	106	0	0%	117	116	-1	-1%	132	138	7	5%
5 SB	61	62	1	1%	62	63	0	1%	63	65	1	2%
	466	473	7.67	2%	470	469	-0.97	0%	488	486	-1.81	0%

PM Journey Time (s) - 16:00-17:00

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	57	58	1	2%	61	63	2	3%	63	63	0	1%
2 NB	116	118	1	1%	117	121	4	4%	121	123	2	2%
3 NB	84	86	2	2%	84	87	3	4%	84	87	2	3%
4 NB	104	105	1	1%	106	108	2	2%	113	116	2	2%
5 NB	100	114	14	14%	99	116	17	17%	111	142	30	27%
	461	481	19.32	4%	467	495	27.89	6%	492	530	37.63	8%

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	55	56	1	1%	56	56	0	1%	56	57	1	1%
2 SB	84	85	2	2%	87	90	3	3%	88	93	6	7%
3 SB	140	155	14	10%	134	149	15	11%	149	170	21	14%
4 SB	224	209	-15	-7%	197	194	-3	-1%	177	181	5	3%
5 SB	61	62	1	2%	62	62	1	2%	62	63	1	2%
	564	568	3.6	1%	536	552	16.32	3%	532	564	32.55	6%

AM Journey Time (s) - 08:00-09:00

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	80	91	11	13%	97	98	1	1%	101	113	12	11%
2 NB	104	109	5	5%	116	116	0	0%	119	128	9	7%
3 NB	84	86	2	2%	91	92	1	1%	127	105	-22	-17%
4 NB	96	98	3	3%	102	103	1	1%	103	104	1	1%
5 NB	89	93	4	4%	120	121	1	0%	173	250	77	45%
	452	476	24.32	5%	527	530	3.53	1%	623	700	76.87	12%

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	73	79	5	7%	70	71	0	0%	67	59	-8	-12%
2 SB	103	105	1	1%	104	104	0	0%	108	114	6	5%
3 SB	179	181	2	1%	151	151	0	0%	206	189	-17	-8%
4 SB	140	130	-11	-8%	160	160	0	0%	208	198	-10	-5%
5 SB	63	65	2	3%	65	65	0	0%	65	66	1	2%
	559	559	-0.27	0%	550	551	0.99	0%	654	626	-28.03	-4%

PM Journey Time (s) - 17:00-18:00

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	57	59	2	3%	63	63	0	0%	70	70	0	0%
2 NB	115	115	0	0%	118	118	0	0%	132	132	0	0%
3 NB	85	87	3	3%	87	87	0	0%	89	89	0	0%
4 NB	102	102	0	0%	108	109	0	0%	112	113	1	1%
5 NB	90	105	15	16%	129	130	0	0%	209	209	0	0%
	448	468	19.45	4%	506	507	1.34	0%	612	613	1.39	0%

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	55	60	5	8%	57	57	0	0%	70	70	0	0%
2 SB	157	183	27	17%	116	117	1	1%	221	223	2	1%
3 SB	341	313	-28	-8%	249	250	1	0%	285	286	1	0%
4 SB	316	315	-1	0%	273	274	1	0%	269	269	1	0%
5 SB	62	62	0	0%	64	64	0	0%	64	65	0	0%
	932	934	2.35	0%	759	762	2.48	0%	909	912	3.23	0%

AM Journey Time (s) - 09:00-09:30

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	69	74	5	7%	76	77	1	1%	77	83	6	8%
2 NB	97	103	5	6%	106	106	1	1%	112	102	-11	-9%
3 NB	80	84	3	4%	89	89	0	0%	127	89	-37	-29%
4 NB	108	110	2	2%	84	84	1	1%	106	109	3	3%
5 NB	84	83	-1	-1%	93	94	1	1%	131	234	103	78%
	439	453	14.32	3%	447	451	3.19	1%	553	617	64.08	12%

Section	AM 2022				AM 2027				AM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	66	79	13	20%	65	65	0	0%	61	57	-4	-7%
2 SB	98	101	4	4%	99	99	1	1%	104	95	-9	-9%
3 SB	144	156	12	9%	137	137	0	0%	220	180	-40	-18%
4 SB	171	146	-25	-15%	124	124	0	0%	175	202	27	15%
5 SB	63	64	1	2%	66	66	0	0%	63	66	3	4%
	541	546	5.21	1%	490	491	1.57	0%	623	600	-23.8	-4%

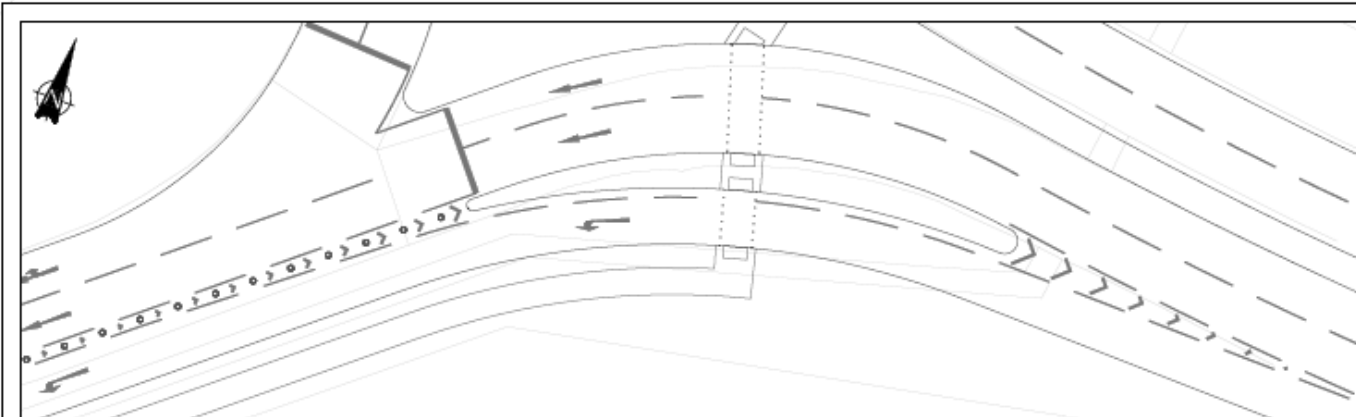
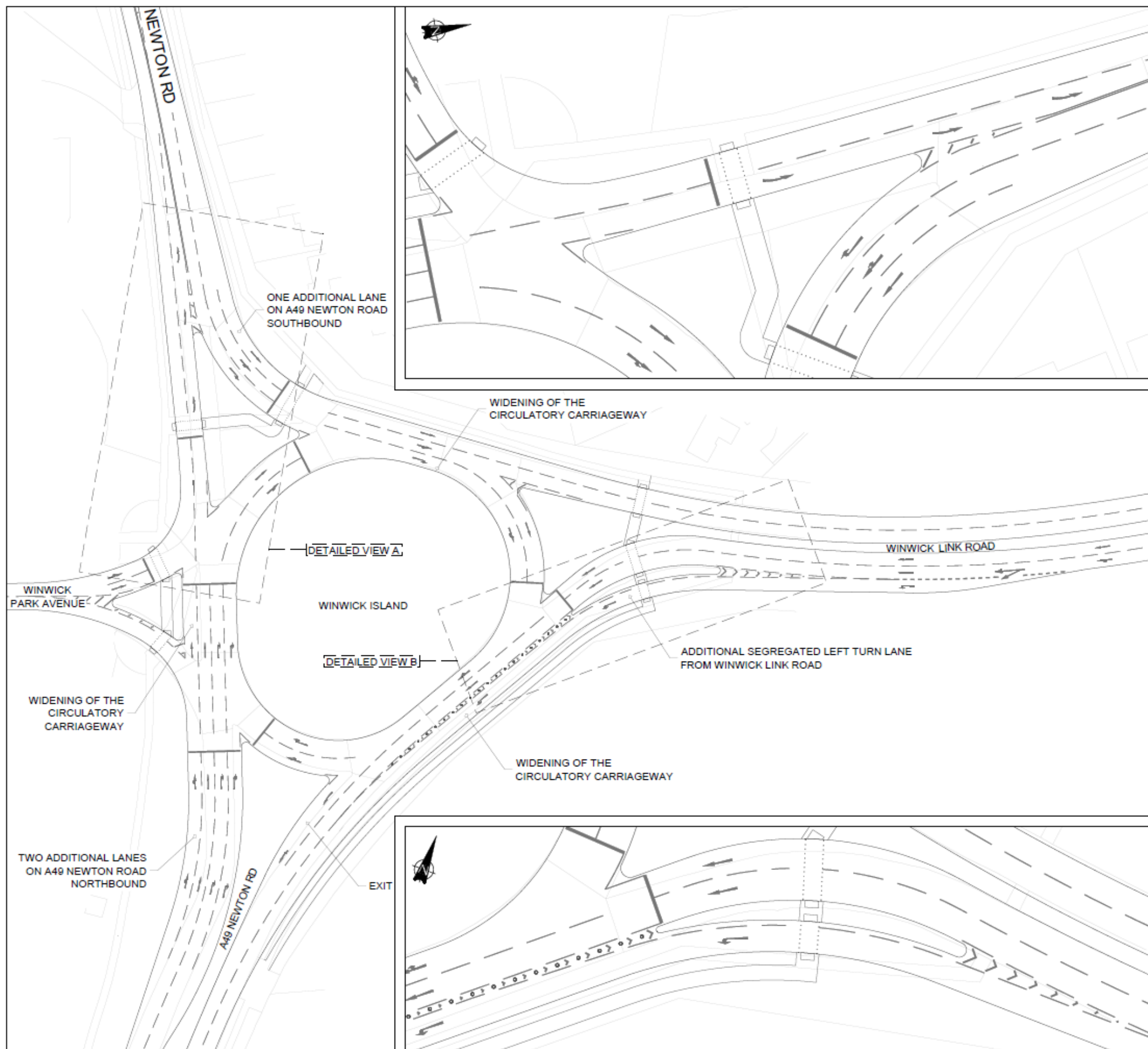
PM Journey Time (s) - 18:00-18:30

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 NB	53	60	6	12%	59	59	0	0%	75	75	0	0%
2 NB	109	113	4	4%	113	113	0	0%	142	143	1	1%
3 NB	82	84	2	2%	86	87	0	0%	131	131	0	0%
4 NB	94	95	0	0%	95	96	1	1%	118	119	1	1%
5 NB	82	84	2	2%	91	91	1	1%	106	106	0	0%
	421	436	14.5	3%	444	446	1.87	0%	572	574	2.02	0%

Section	PM 2022				PM 2027				PM 2032			
	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%	Do Min	Do Som	Diff	%
1 SB	58	67	9	16%	56	56	0	0%	80	81	0	0%
2 SB	204	196	-7	-3%	128	129	1	1%	235	236	1	0%
3 SB	381	323	-58	-15%	290	290	-1	0%	277	277	0	0%
4 SB	275	288	13	5%	243	244	0	0%	212	212	0	0%
5 SB	63	62	-1	-1%	64	64	0	0%	65	65	0	0%
	980	937	-42.86	-4%	781	781	0.45	0%	870	871	1.38	0%

APPENDIX E:

MITIGATION DESIGNS



NOTES:

Notes area for project details and comments.

A	Existing lines rendered under proposed	29/02/16	DD	KY
Rev:	Description:	Date:	By:	Chkd:

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Status: **PRELIMINARY**

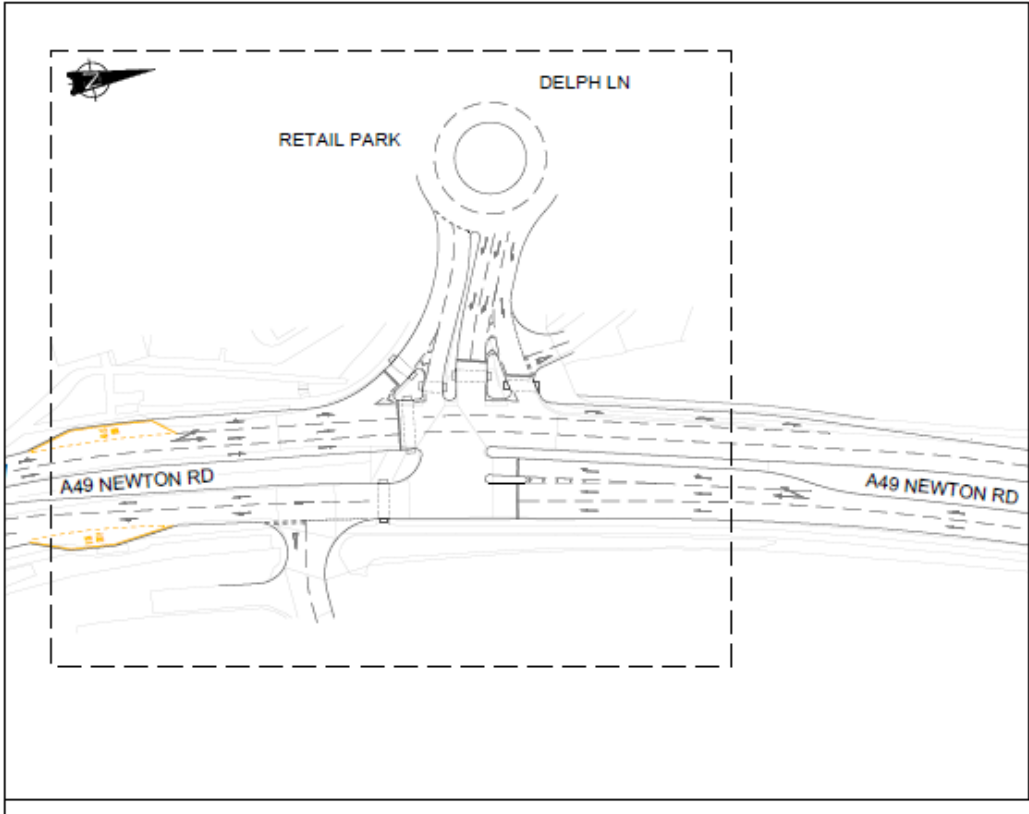
Project: **PARKSIDE
PHASE I**

Org Title: **JUNCTION IMPROVEMENT PROPOSAL
JUNCTION 3 - WINWICK ISLAND**

Scale: 1:1000	Size: A3	First Issue: 16/02/16	Drawn: DD	Checked: JG
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Org No: TPMA1389-103	Rev: A
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NOTES:

A	Existing lines rendered under proposed	29/02/16	DD	KY
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Status: PRELIMINARY

Project: PARKSIDE
PHASE I

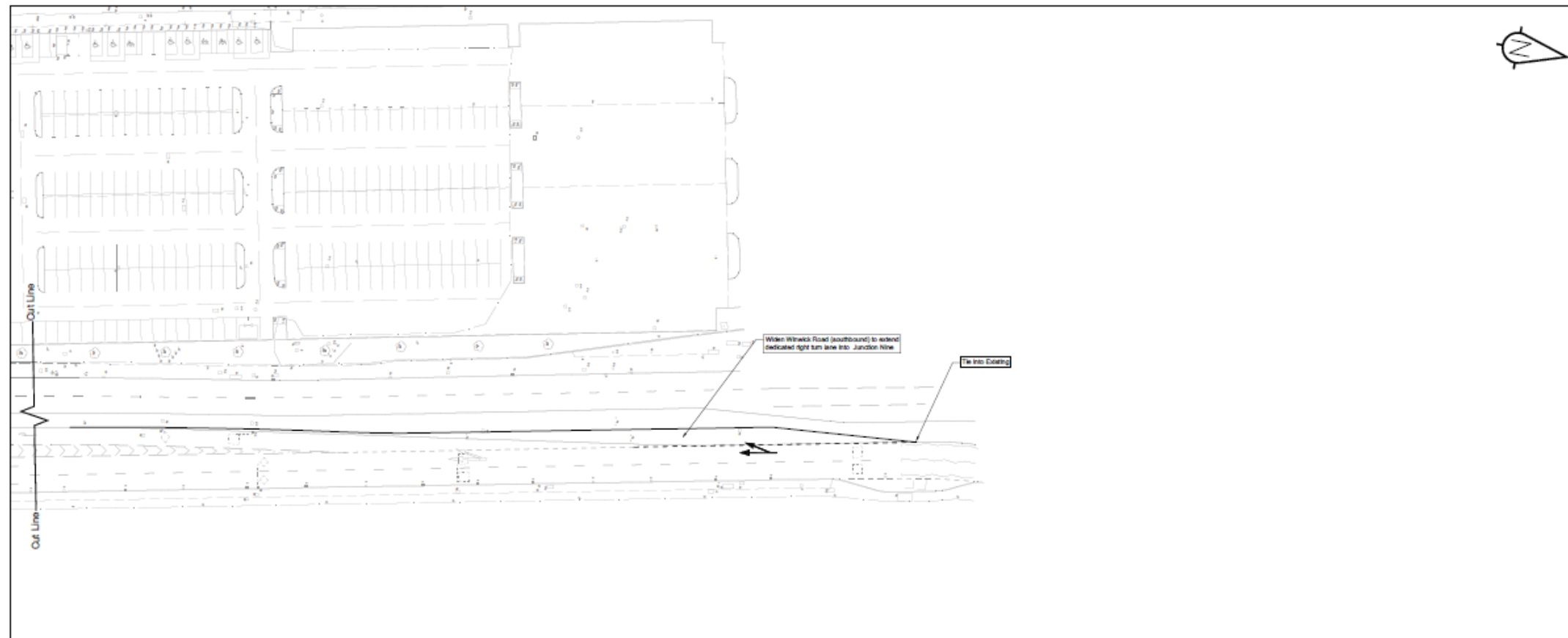
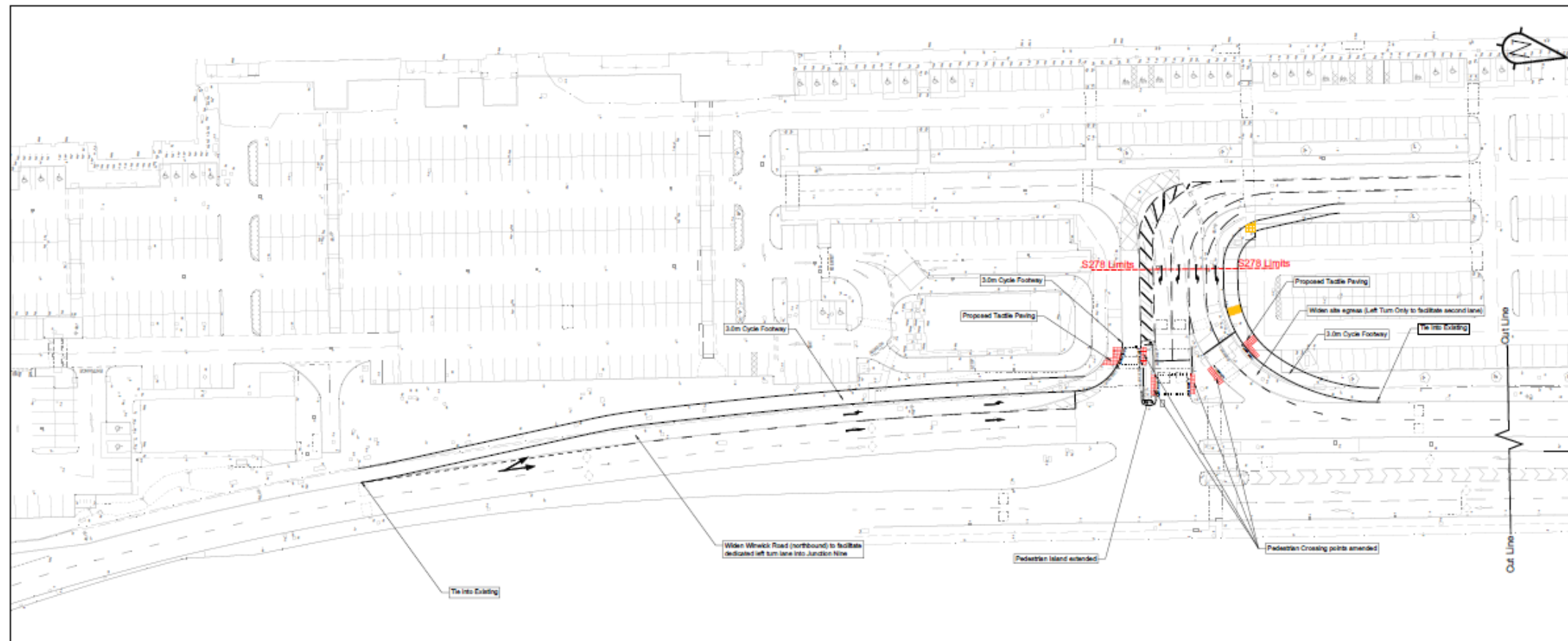
Drg Title: JUNCTION IMPROVEMENT PROPOSAL
JUNCTION 2 - DELPH LANE

Scale: 1:500	Size: A3	First Issue: 16/02/16	Drawn: DD	Checked: JG
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Drg No: TPMA1389-102

Rev: A

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- Service connections are not shown but their presence should be anticipated.
- Reference to any third party equipment shown on this drawing was only relevant at the time the drawing was prepared.
- It is the client's responsibility to ensure that any equipment ordered meets the design.

Rev	Amendment	Drawn	Date	Checked



Client
DERWENT CONSTRUCTION LIMITED

Project Title
JUNCTION NINE RETAIL PARK
WARRINGTON

Drawing Title
WINWICK ROAD S278 WORKS
GENERAL ARRANGEMENT

Scale 1:500	Drawn By DH
Drawing Size A1	Checked By PJM
Date 19.02.19	Approved By PJM

Drawing Number 10733-100-001	Rev
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