



SNC • LAVALIN

Oxfordshire Flood Alleviation Scheme

VISSIM Model Assessment Report

Environment Agency

27 March 2019



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1. Introduction

1.1. Background

Atkins has been commissioned by the Environment Agency (EA), to evaluate the impact on the A34 Hinksey Hill Interchange due to the closure of Old Abingdon Road and Kennington Road, during the construction of the Oxford Flood Alleviation scheme.

In 2017, Atkins developed base year VISSIM models of the area for Oxfordshire County Council (OCC) and they will be used for this assessment. Further details on the modelling and subsequent validation results could be found the 'Hinksey Hill VISSIM Model LMVR' which was submitted to OCC in April 2018.

1.2. Traffic Modelling

The models have been developed using VISSIM software, which is part of the PTV Vision Transport modelling suite and is a microscopic traffic flow simulation model based on car following and lane change logic. VISSIM can analyse vehicular traffic including bus / tram, pedestrian and bicycle operations under constraints such as lane configuration, traffic composition, traffic signals, and bus/tram stops. VISSIM does not follow the conventional link / node modelling system but utilises a link / connector system that enables complex highway geometry to be modelled. The link / connector system also permits different traffic controls (signal, give way or stop) to be utilised anywhere in the model. VISSIM is also capable of modelling vehicle actuation traffic control utilising the Vehicle Actuated Programming (VAP) module, as well as MOVA using the PCMOVA module from TRL. Therefore, it is an appropriate tool for the evaluation of the combination of complex geometry and traffic controls (give way and traffic signal) operations that will be assessed within the study area.

The study area is shown below, in Figure 1.1, while Figure 1.2 shows the extent of the VISSIM network. The area includes five signalised junctions, Hinksey Hill roundabout, A423 Kennington roundabout, the A4144/Abingdon Road junction, A4144/Weirs Lane junction and the Redbridge Park and Ride bus signal. There are also several priority junctions as shown in Figures 1.1 and 1.2.

The models have been constructed using static assignment from 2017 junction turning count data and updated to 2019 flows using growth factors from the National Roads Traffic Forecast (NRTF) and the Trip End Model Presentation Program (TEMPRO). As the model was originally based on static assignment, no potential re-routing due to congestion or modal shift has been assumed for each of the proposed road closures.

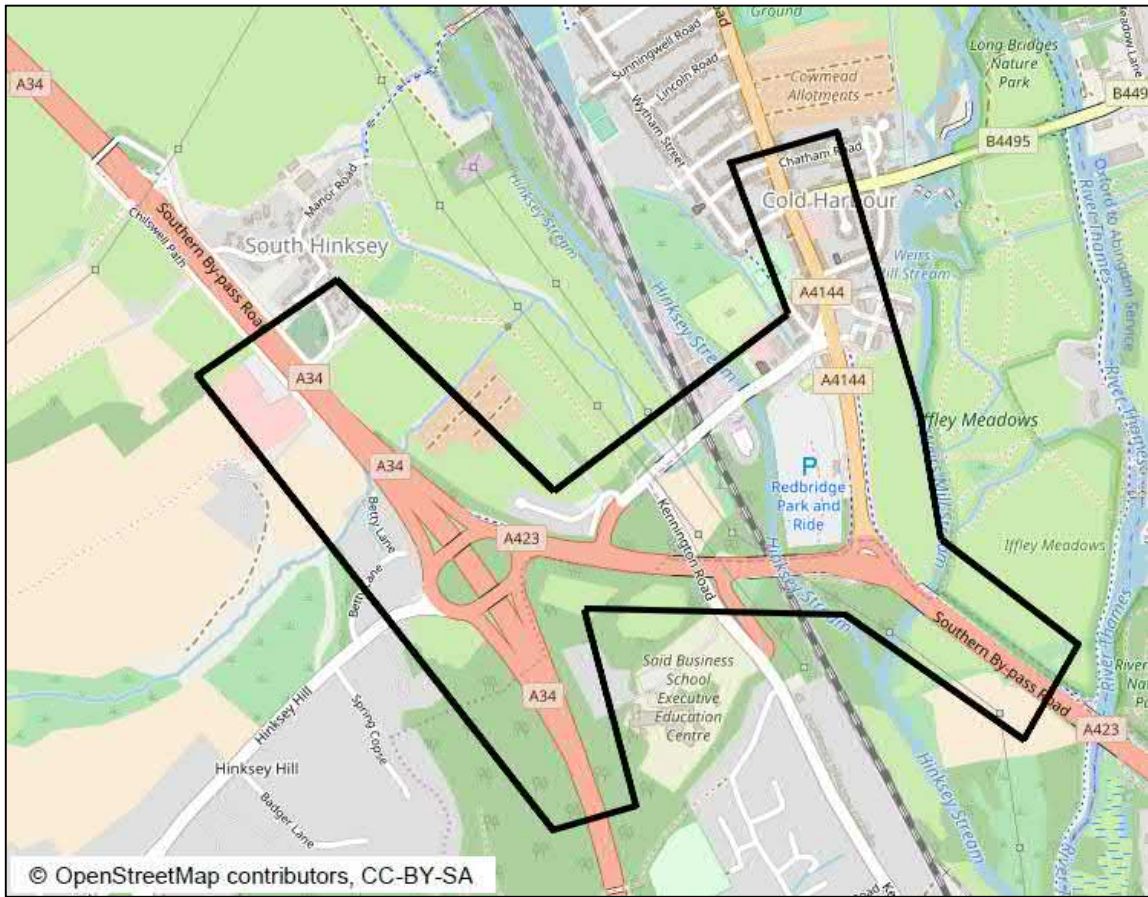


Figure 1.1 – Network Extents

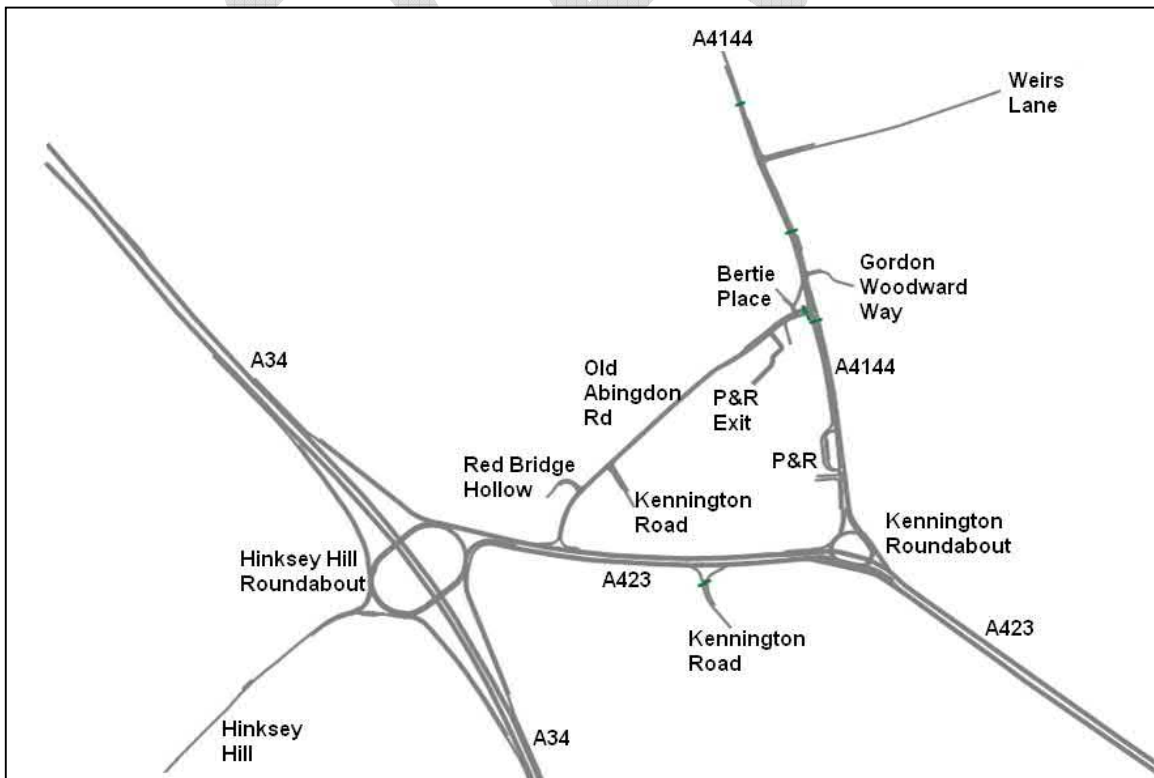


Figure 1.2 – VISSIM Network Extents

The models have been built for the morning peak period from 07:15 to 09:15 and an evening peak period from 16:15 to 18:15. A 30 minute warm-up period has been added prior to each peak to populate the network with vehicles and create representative peak period traffic conditions for undertaking model output data analysis.

1.3. Report Structure

The report is set out as follows:

- Section 2 – Forecasting Methodology;
- Section 3 – Modelled Scenarios;
- Section 4 – Model Results;
- Section 5 – Mitigation Results; and,
- Section 6 – Summary and Conclusion.

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2. Forecasting Methodology

2.1. Growth Factors

The works for the scheme is due to be undertaken in 2019. Therefore, it was necessary to apply growth to the traffic flows from 2017 to 2019. This was done using the NRTF and TEMPRO to gain a growth factor.

The approach is to use NRTF growth figures which are then locally adjusted using figures from TEMPRO to provide a growth factor specific to the locality, as it takes into account local planning data. The process undertaken is detailed below:

NRTF was calculated for the South East region for other Urban areas for all vehicles from 2017 to 2019. The factor was 1.026 (2.6%).

TEMPRO data was extracted from the 7.2 dataset for car drivers on an average weekday for the South East region and 3 districts, Oxford, South Oxfordshire and Vale of White Horse. This was done for Production/Attraction and Origin/Destination. Adjustments were then carried out using the following formula:

NRTF factor x (Average District TEMPRO factor / SE Region TEMPRO factor)

An average growth rate of the 3 districts was then calculated to provide the overall growth rate that will be applied to the 2017 flows.

As the Origin/Destination data provided a marginally higher growth rate, it was confirmed to apply this factor to the 2017 flows to provide a worst-case scenario. The factors are shown below in Tables 2.1 and 2.2

Table 2.1 Growth Factors – Production/Attraction

Region/ District	Production	Attraction	Average	Growth	Avg of Regions
SE	1.025	1.026	1.026		
Oxford	1.035	1.023	1.029	1.029	
South Oxfordshire	1.025	1.025	1.025	1.025	
Vale of White Horse	1.034	1.024	1.029	1.029	1.028

Table 2.2 Growth Factors – Origin/Destination

Region/ District	Origin	Destination	Average	Growth	Avg of Regions
SE	1.026	1.026	1.026		
Oxford	1.030	1.030	1.030	1.030	
South Oxfordshire	1.025	1.025	1.025	1.025	
Vale of White Horse	1.030	1.031	1.030	1.031	1.029

The 2019 traffic flows are provided in Appendix A for both the AM and PM peaks.

2.2. 2019 Do Minimum

The 2017 base VISSIM model was updated with the 2019 flows to create a DM scenario for the AM and PM peak period.

All signal timings, bus routes and service frequencies have remained consistent with the base model.

Within the previous modelling, it was noticed that a high level of unmet demand was present in the forecast year models, and therefore, the following input links have been extended in the 2019 DM model to be able to process the unmet demand:

- A34 northbound;
- Kennington Road south;
- A423 Eastern Bypass; and,
- A4144 Southbound.

No other changes have been made to the network and the 2019 DM model has been utilised for each of the scenarios described below.

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3. Modelled Scenarios

3.1. 2019 Scenario 1

The first proposal is the closure of a section of Old Abingdon Road between Red Bridge Hollow and Kennington Road junction. It incorporates the following re-routing assumptions:

- Right turn from Kennington Road to Old Abingdon Road and left turn from Old Abingdon Road into Kennington Road to remain open;
- Red Bridge Hollow remains open for local access only with the A423. Vehicles re-routed to exit/enter via A423;
- Access to Old Abingdon Road and Kennington Road from the A423 is closed. Vehicles from Hinksey Interchange that previously used this route to travel into Oxford will continue to Kennington Roundabout and turn left to travel north along A4144. Vehicles that travelled to Kennington Road will now make a U-turn at Kennington Roundabout and use the A423 westbound off slip to travel to Kennington Road south;
- Vehicles that were turning left out of Kennington Road to join the A423 have been re-routed 50/50 as follows: 50% to turn right onto Old Abingdon Road to the A4144 and travel south to Kennington Roundabout, and 50% to re-route via Kennington Road south onto the slip to join the A423 WB, u-turn at Hinksey Hill and travel eastbound along A423 to Kennington Roundabout; and,
- Bus services have been re-routed via A423 and Kennington Roundabout.

Figure 3.1 provides a visual of the Scenario and re-routing as described above.

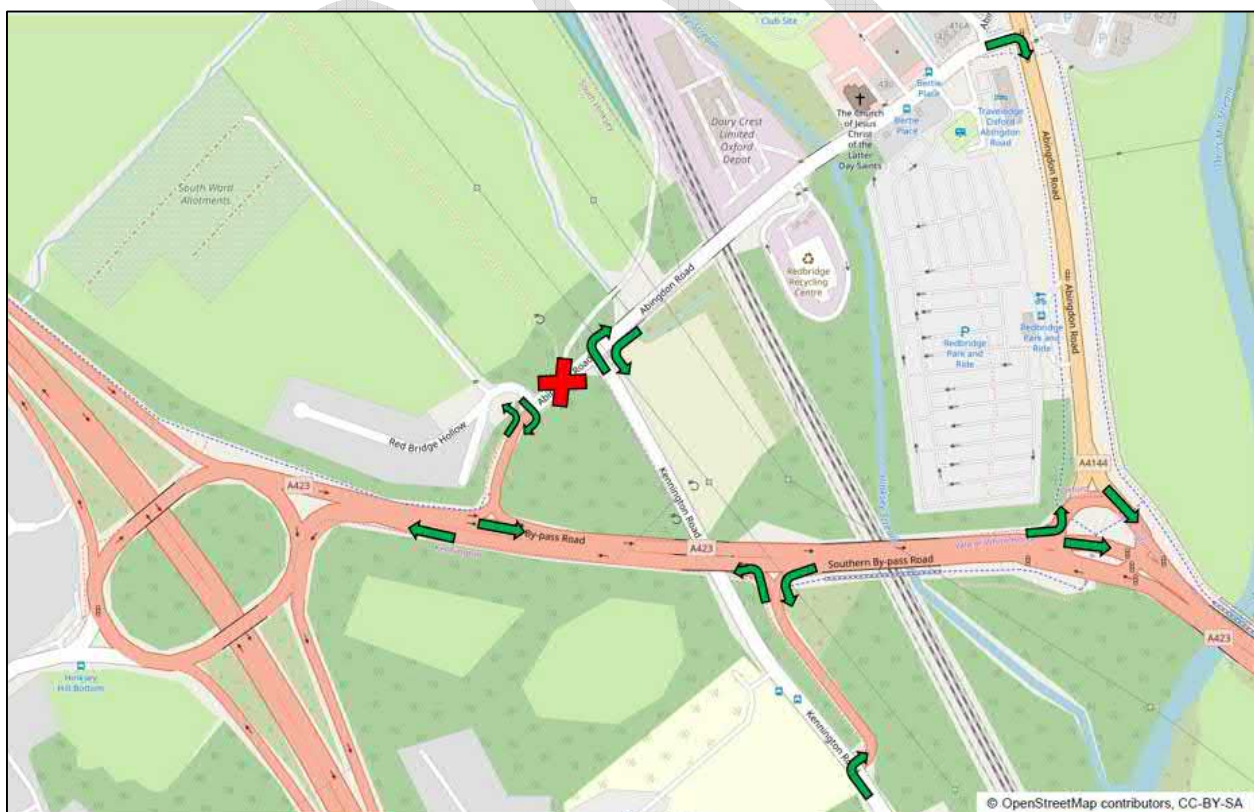


Figure 3.1 – Scenario 1 Closure of a section of Old Abingdon Road between Red Bridge Hollow and Kennington Road junction

3.2. 2019 Scenario 2

The second proposal consists of the closure of Kennington Road with Old Abingdon Road only. Old Abingdon Road remains open with the A423. The following routing assumptions have been made for this scenario:

- Kennington Road traffic is now diverted onto the slip to join A423 westbound to Hinksey Hill.
- Vehicles that were originally travelling along Old Abingdon Road from Kennington Road will u-turn at Hinksey Hill and travel up Old Abingdon Road from A423 eastbound;
- Vehicles that were bound for Kennington Roundabout and A423 to Heyford Hill will now u-turn at Hinksey Hill and continue along A423 to Kennington Roundabout;
- Vehicles turning right into Kennington Road from the west via A423 / Old Abingdon Road will continue to Kennington Roundabout, u-turn to travel back along A423 westbound and access the slip;
- Vehicles from the A4144 north that travel south along Old Abingdon Road, will continue along A4144 to Kennington Roundabout, turn right to A423 westbound and enter via the slip; and,
- Bus services have been re-routed accordingly.

Figure 3.2 provides a visual of this Scenario along with the re-routing assumptions.

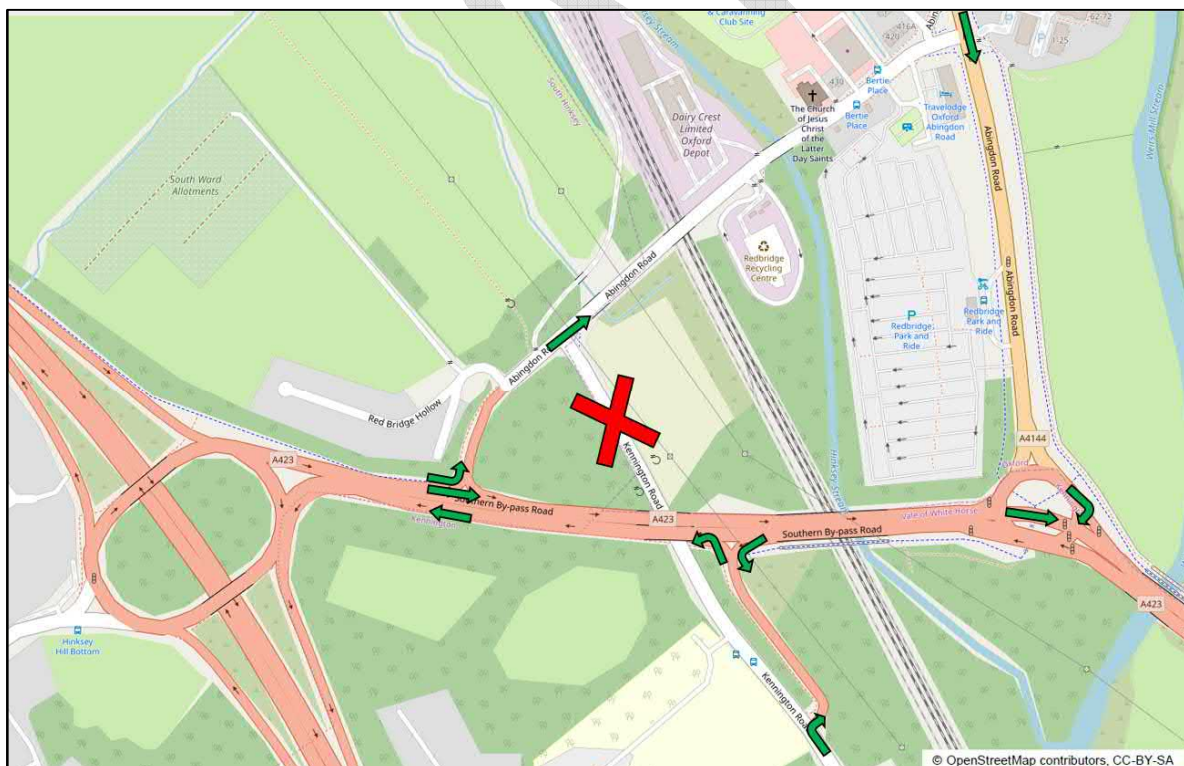


Figure 3.2 – Scenario 2 Closure of Kennington Road with Old Abingdon Road only

3.3. 2019 Scenario 3

The third scenario that was considered is a combination of the above two scenarios which closes Kennington Road and the section of Old Abingdon Road between Red Bridge Hollow and Kennington Road junction.

No vehicles will be routed along Old Abingdon Road in this scenario, with the exception of the trips from the Park and Ride exit which will all be re-routed right to the A4144 junction and local trips to/from Red Bridge Hollow, which remains open.

A combination of the above two scenario re-routing assumptions has been used for this scenario and a visual is provided in Figure 3.3.

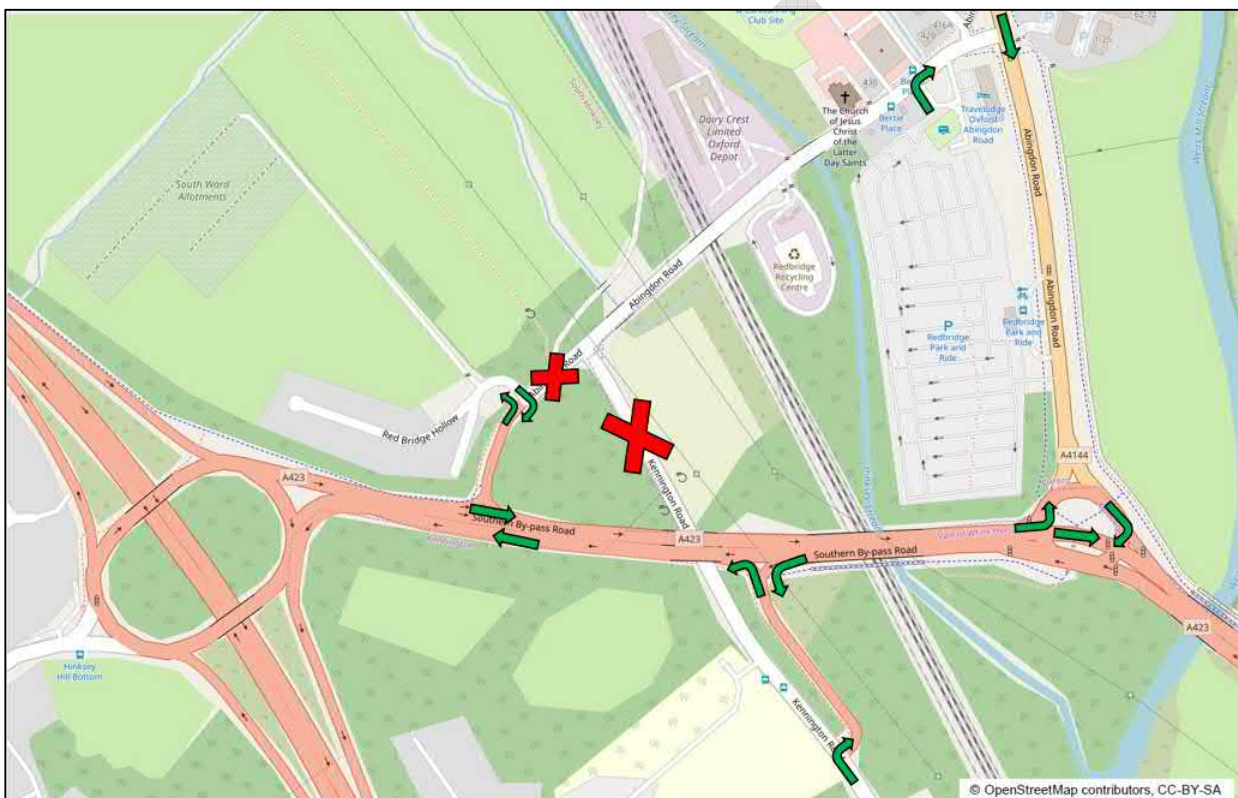


Figure 3.3 – Scenario 3 Closure of Kennington Road and Old Abingdon Road

- 3.4. While the modelling of this scenario was being finalised, Atkins were advised that this scenario will no longer be required and does not form part of the planned work arrangements. However, the results have been provided in the appendices, for information purposes only, should this scenario be required once works commence.
- 3.5. The traffic flows for each scenario have been provided in Appendix B.

4. Model Results

The 2017 base year results for the AM and PM peak periods have been compared to the 2019 Do Minimum (DM) results in terms of delays (s), flow, maximum queue lengths (m) and journey times (s) for each approach at the following key junctions within the model:

- Hinksey Hill Interchange;
- Kennington Roundabout;
- A4144 / Old Abingdon Road junction; and,
- A4144 / Weirs Lane junction.

Each individual scenario has then been compared to the 2019 DM results, with the 2017 results shown for information purposes, for each of the junctions listed above.

For this report, only the Hinksey Hill Interchange results has been presented in tabular form, with the remainder of the results provided in the Appendices.

4.1. Do Minimum

4.1.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 4.1 forecasts increases in queues and delays for all approaches, in both peak hours with the growth in traffic to 2019.

The observed queuing along the A423 towards Kennington Roundabout in the 2017 model is exacerbated with the growth leading to longer queues and delays for the A34 and Hinksey Hill approaches.

Extending the A34 northbound link has captured a longer queue compared with the 2017 base model.

Table 4.1 2019 AM Peak DM Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume		Max Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1689.3	2071.5	171.6	211.5
		A423 Southern By-Pass (E)	2389	2427	680.2	139.9	5.4	5.5
		A34 NB Off Slip	1012	993	2959.3	3505.2	146.2	245.4
		Hinksey Hill	582	580	774.5	1031.7	285.5	409.5
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1741.1	2956.8	221.1	315.2
		A423 Southern By-Pass (E)	2107	2188	434.7	441.0	5.3	6.3
		A34 NB Off Slip	900	853	2954.5	3513.0	287.2	669.8
		Hinksey Hill	488	486	691.6	1038.5	222.5	447.3

**The blue cells represent the optimum performer*

Table 4.2 2019 AM Peak DM Hinksey Hill Interchange Journey Times (s) Comparison

		Description			Average Journey Times (s) (excl. Buses)			
		From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line		Southbound	217	255	38	18%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line		Westbound	65	71	6	9%
	A34 S	A34 Hinksey Hill Rbt Stop line		Northbound	165	241	76	46%
	Hinksey Hill	Hinksey Hill Rbt Approach		Eastbound	280	373	93	33%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line		Southbound	226	285	59	26%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line		Westbound	52	58	6	12%
	A34 S	A34 Hinksey Hill Rbt Stop line		Northbound	246	369	123	50%
	Hinksey Hill	Hinksey Hill Rbt Approach		Eastbound	191	386	195	102%

Table 4.2 shows that all approaches experience an increase in journey times. The hour of 0815-0915 is forecasting the biggest increase along the Hinksey Hill approach as congestion on the circulatory of the Hinksey Hill Interchange prevents vehicles from exiting.

Kennington Roundabout

The results for Kennington Roundabout forecast the largest increase in delays and queues to be along the A423 Eastern Bypass travelling north towards Kennington Roundabout during 0815-0915. Maximum queues have increased to over 2km whilst delays for the left turn have doubled to 68 seconds and for the ahead movement have increased by 40 seconds to 174 seconds.

With more traffic in the network, queuing along the A4144 extends back to Kennington Roundabout more frequently than in 2017. At times, this traffic is blocking access from the south and west arms, leading to longer queues and delays, especially for the south arm (A423 Eastern Bypass). This is shown in more detail in Figure 4.1.

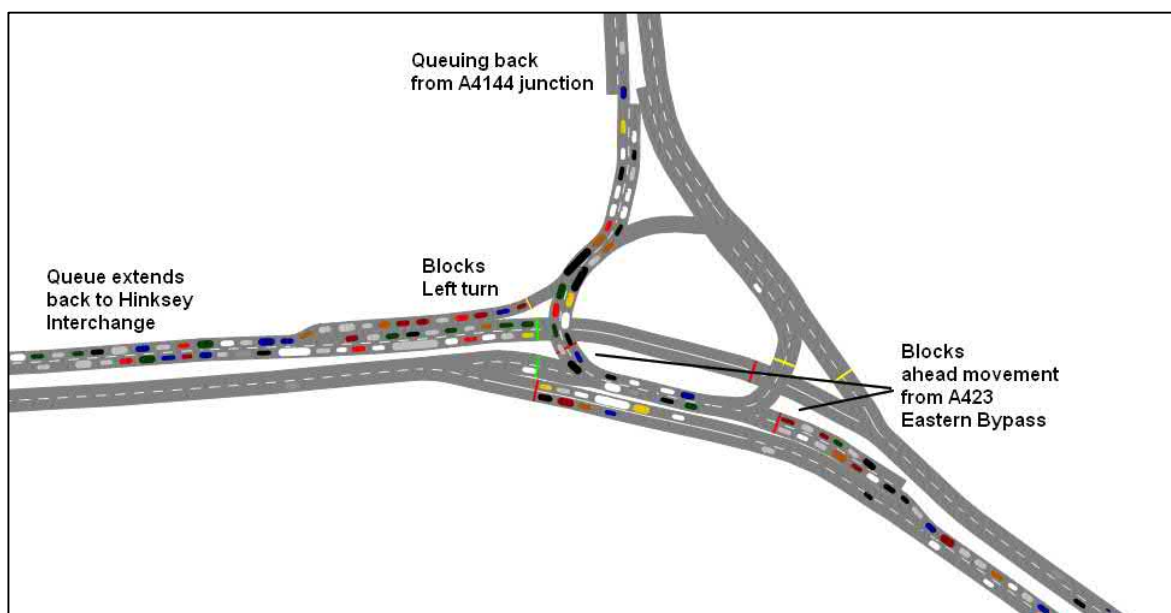


Figure 4.1 – 2019 DM AM Peak Kennington Rbt Congestion

The main increase to journey times is experienced along the A423 Eastern Bypass. This is consistent with the increase in queues and delays predicted with the increase in traffic and the occasional blocking back observed along the A4144.

The remainder of journey times remain close to the 2017 times.

A4144 / Old Abingdon Road Junction

The results for this junction show that although the majority of queues and delays are predicted to increase as a result of the growth in traffic from 2017 to 2019, the increases are nominal and results are similar to those in 2017.

The largest increase in journey times is experienced along Old Abingdon Road northbound during 0715-0815 and is predicted to increase by 26 seconds to an overall time of 266 seconds. Minor changes in journey times are seen for the other approaches at the junction.

A4144 / Weirs Lane Junction

In 2019, Weirs Lane junction will experience marginal increases to queue lengths and delays. The most notable increase is at the Weirs Lane approach with delays forecast to rise by 45 seconds. Congestion highlighted from the 2017 modelling has been exacerbated with the growth in traffic to 2019.

The south approach shows a slight decrease, which could be as a result of traffic being held back elsewhere in the network, or the additional demand could be running the south signals to their maximums more frequently and not gapping out as often as in 2017.

As with the approach performance, the largest increase in journey times is predicted along Weirs Lane westbound during 0715-0815 and has risen by 28 seconds to an overall journey time of 135 seconds.

The south approach experiences marginal differences as the green time is being extended more frequently.

4.1.2. Comparison of PM Peak Results

Hinksey Hill Roundabout

Table 4.3 forecasts increases in delays for all approaches, in both peak hours with the growth in traffic to 2019.

The maximum queue observed for the northbound slip and A423 are much longer than 2017 and extends to approx. 2 km.

Table 4.3 2019 PM Peak DM Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume		Max Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	143.9	136.0	17.9	19.6
		A423 Southern By-Pass (E)	3033	3079	1597.0	2044.2	5.8	5.9
		A34 NB Off Slip	763	780	264.2	2102.8	50.6	71.6
		Hinksey Hill	544	559	133.8	139.3	27.5	28.8
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	207.2	293.7	26.6	32.3
		A423 Southern By-Pass (E)	2900	2999	776.8	1815.3	6.1	6.5
		A34 NB Off Slip	863	890	238.3	1029.8	54.7	97.2
		Hinksey Hill	586	602	187.3	159.0	26.3	27.5

Table 4.4 2019 PM Peak DM Hinksey Hill Rbt Journey Times (s) Comparison

	Description			Average Journey Times (s) excl. Buses			
	From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	1	2%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	0	0%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	19	28%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	-	-
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	5	9%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	5	9%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	41	58%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	-	-

Table 4.4 shows that the south slip approach is experiencing the largest increase to travel times.

The remaining approach journey times are consistent with the 2017 base times, except the Hinksey Hill approach where 2017 data was unavailable.

Kennington Roundabout

The results for Kennington Roundabout forecast the largest increase in delays and queues to be along the A423 Eastern Bypass northbound throughout the PM peak. In 2017, this approach is already operating over capacity so the growth in traffic has exacerbated the delays and queues.

With the increase in traffic, journey times have also increased.

A4144 / Old Abingdon Road Junction

The results for this junction show that the A4144 south and Old Abingdon Road approaches experience gradual increases in queues and delays as congestion builds during 1715-1815.

The journey times increase slightly along the northbound along the A4144 from Kennington Roundabout and along Old Abingdon Road.

A4144 / Weirs Lane Junction

All approaches to the Weirs lane junction are above capacity with the growth in 2019 in the PM peak.

The largest increases in journey times are seen along Weirs Lane westbound and during 1715-1815 they have increased by 44 seconds to an overall travel time of 222 seconds.

From site observations during 2017, it was evident that this junction experiences congestion resulting from vehicles trying to enter/exit the Tesco store, the bus stop and volume of traffic in the area. Therefore, the growth in traffic has exacerbated the issues, preventing vehicles from being able to exit Weirs Lane onto the A4144 freely.

4.2. Scenario 1

4.2.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 4.5 forecasts significant increases in queues and delays for all approaches during the AM peak with the closure of Old Abingdon Road.

Vehicles are unable to use the alternative route to travel into Oxford and are forced along the A423 southern Bypass to Kennington Roundabout which equates to 676 vehicles during the AM peak period. The congestion observed in the existing conditions is exacerbated by the additional traffic at Kennington Roundabout and travelling north along A4144.

Queuing back to Kennington Roundabout is occurring more frequently, causing more blockages for left turning traffic, which queues back to Hinksey Hill Interchange, blocking the A34 slips. This can be seen in Figures 4.2 and 4.3 below.

Vehicles are also struggling to exit Kennington Road and longer queues, and delays are forecast for this approach as seen in Figure 4.4.

Table 4.5 2019 AM Peak Scenario 1 Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	872	1689.3	2071.5	3502.4	171.6	211.5	444.2
		A423 Southern By-Pass (E)	2389	2427	2467	680.2	139.9	2768.7	5.4	5.5	6.4
		A34 NB Off Slip	1012	993	802	2959.3	3505.2	3511.0	146.2	245.4	490.2
		Hinksey Hill	582	580	518	774.5	1031.7	1674.6	285.5	409.5	600.4
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1071	1741.1	2956.8	3515.9	221.1	315.2	610.3
		A423 Southern By-Pass (E)	2107	2188	2300	434.7	441.0	3021.7	5.3	6.3	9.5
		A34 NB Off Slip	900	853	732	2954.5	3513.0	3515.9	287.2	669.8	1397.1
		Hinksey Hill	488	486	483	691.6	1038.5	1969.5	222.5	447.3	901.3

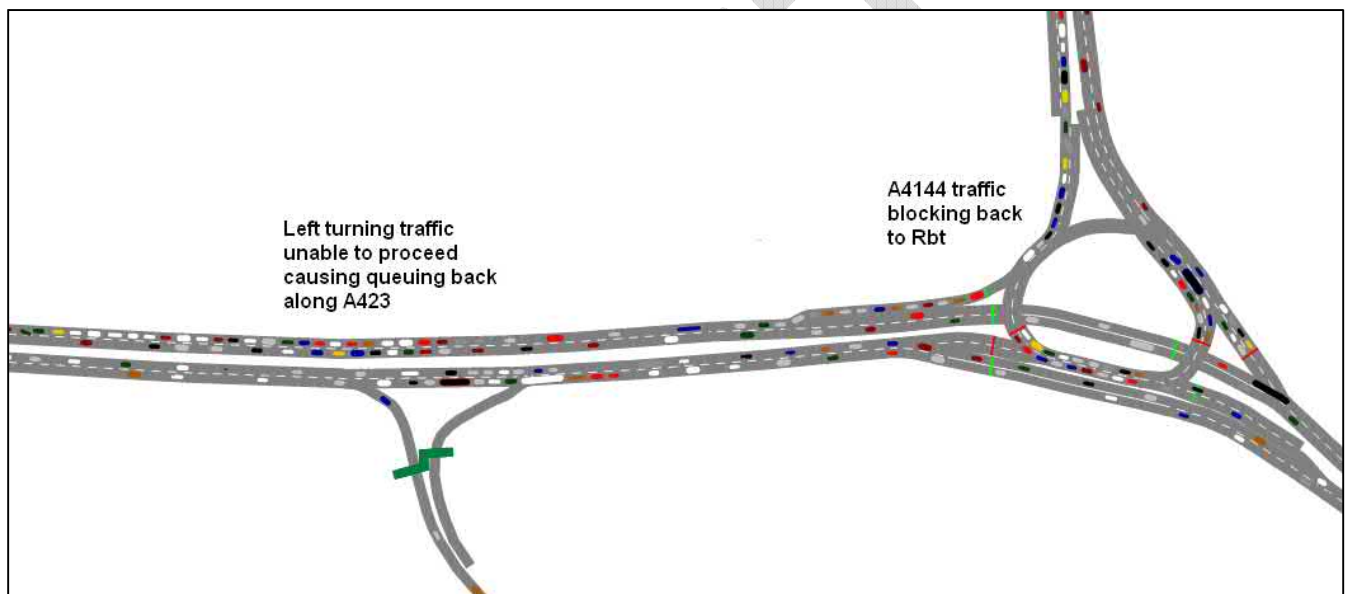


Figure 4.2 – 2019 Scenario 1 AM Peak A4144 / A423 Congestion

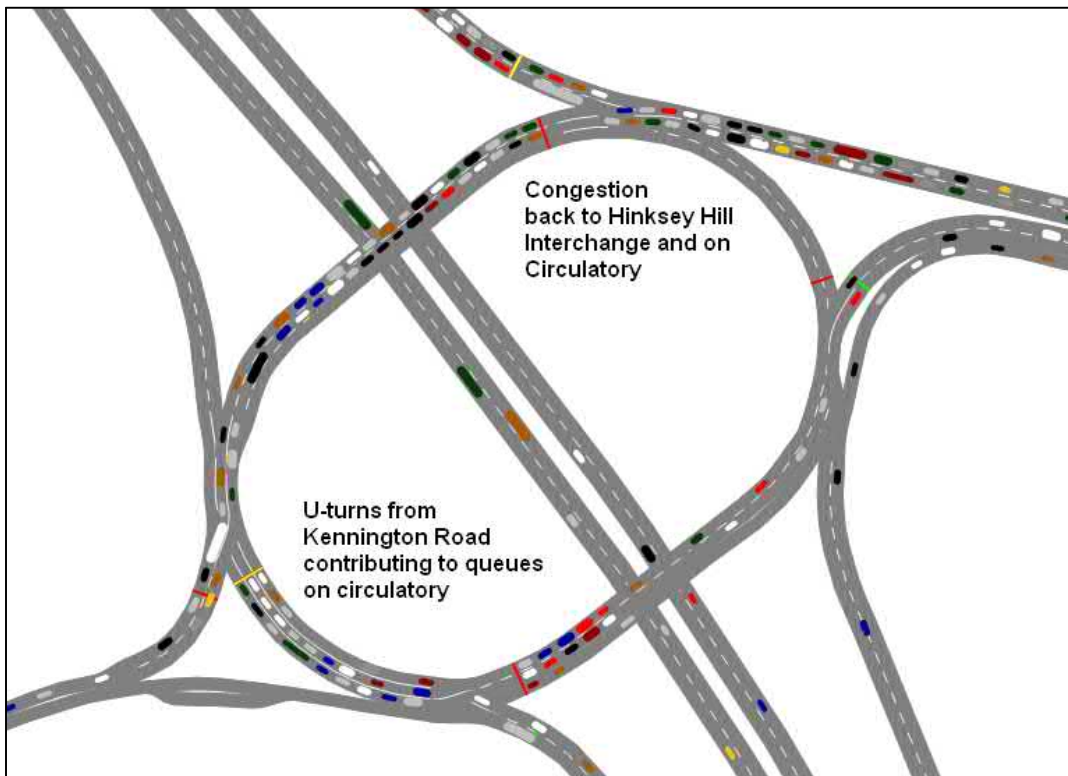


Figure 4.3 – 2019 Scenario 1 AM Peak Hinksey Hill Interchange Congestion

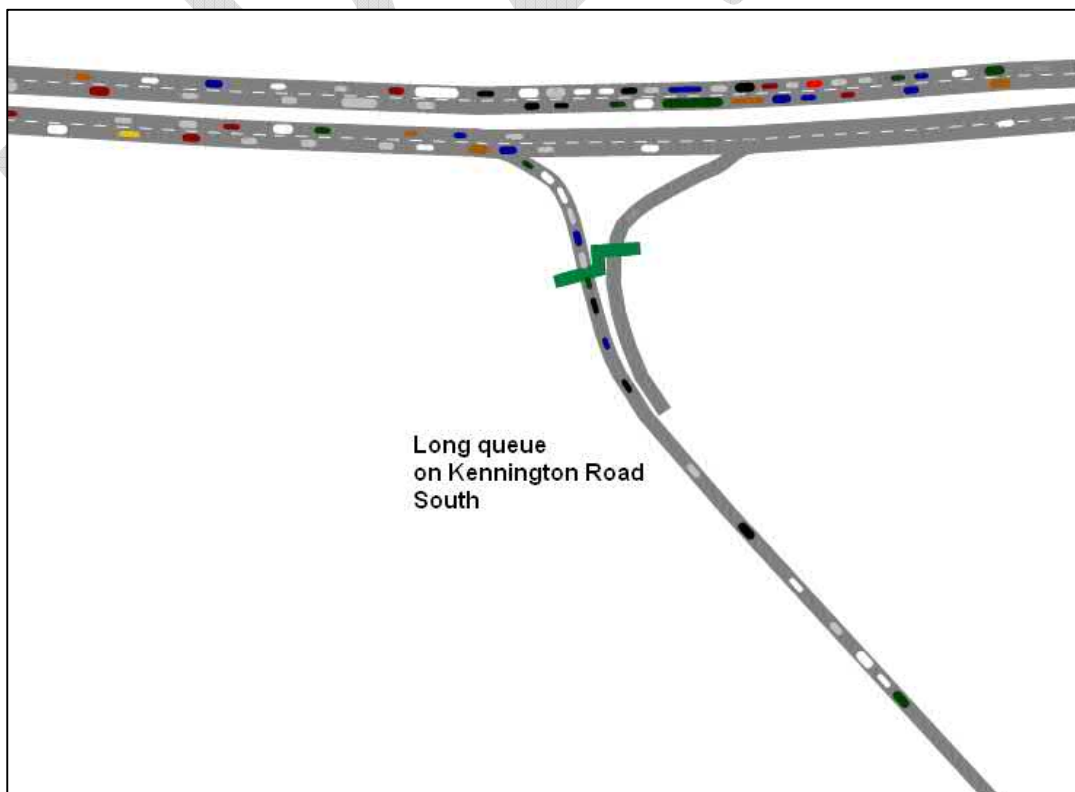


Figure 4.4 – 2019 Scenario 1 AM Peak Kennington Road South Queuing

Table 4.6 2019 AM Peak Scenario 1 Hinksey Hill Interchange Journey Times (s) Comparison

Description			Average Journey Times (s) All Vehicles excl. Buses					
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	406	151	59%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	62	-9	-13%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	394	153	63%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	469	96	26%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	337	52	18%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	56	-2	-3%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	468	99	27%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	517	131	34%

Table 4.6 shows that both A34 slips are forecast to experience much higher travel times as a result of the congestion travelling eastbound along the A423 to Kennington Roundabout.

During 0715-0815 the A34 northbound slip journey time increases by 153 seconds, with the southbound slip increasing by 151 seconds.

During 0815-0915 the Hinksey Hill approach journey time is predicted to increase by 131 seconds due to the congestion on the circulatory.

Kennington Roundabout

The results for Kennington Roundabout show the issues identified from the DM modelling (shown in Figure 4.1) are exacerbated with the additional traffic from Hinksey Interchange using the A4144 northbound to travel into Oxford.

The A423 Eastern Bypass approach to Kennington Roundabout journey times has increased by 34 seconds during 0815-0915.

A4144 / Old Abingdon Road Junction

The junction results show benefits to the A4144 north and south approaches as a result of green time being extended as there is less demand from Old Abingdon Road.

The southbound journey time along the A4144 from Weirs Lane has reduced with the green time being extended.

The A4144 northbound approach journey time has increased by 24 seconds during 0715-0815 with the increase in traffic using this route.

A4144 / Weirs Lane Junction

During the AM peak all approaches at the Weirs Lane junction are forecast to improve over the DM results. Delays and queues have reduced, especially for the A4144 south approach.

The decrease in delays and queues is also due to vehicles and buses being held up in congestion at Hinksey Hill Interchange and along the A423 eastbound.

The journey times are comparable with the junction performance and show a decrease in journey times for all approaches during 0715-0815, but a nominal increase for the Weirs Lane westbound journey time during 0815-0915.

4.2.2. Comparison of PM Peak Results

Hinksey Hill Interchange

Table 4.7 forecasts significant increases in queues and delays for all approaches during 1715-1815 and flow throughput is lower than the DM.

The same issue highlighted in the AM peak is also occurring in the PM peak as a result of the additional trips travelling along the A423 Southern Bypass to Kennington Roundabout and north into Oxford along the A4144. Queues are observed to extend back to Kennington Roundabout, blocking access for the left turns from the A423 Southern Bypass. The queuing extends back to Hinksey Hill Interchange and blocks access for the A34 slips and the Hinksey Hill approach. This is shown in Figure 4.5.

U-turning traffic at Kennington Roundabout are also contributing to the queuing along the A423 eastbound.

The arrangement at Kennington Roundabout means u-turners are required to give way to the A4144 southbound traffic. Therefore, when a queue is present from the A4144, u-turning vehicles wait and with the higher volume travelling to Kennington Road south from the west, eventually cause blocking back to the A423 approach and to Hinksey Hill Interchange.

Table 4.7 2019 PM Peak Scenario 1 Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1022	143.9	136.0	219.5	17.9	19.6	23.6
		A423 Southern By-Pass (E)	3033	3079	3034	1597.0	2044.2	724.6	5.8	5.9	5.9
		A34 NB Off Slip	763	780	786	264.2	2102.8	321.1	50.6	71.6	49.7
		Hinksey Hill	544	559	560	133.8	139.3	120.1	27.5	28.8	27.3
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	723	207.2	293.7	3508.7	26.6	32.3	417.2
		A423 Southern By-Pass (E)	2900	2999	2633	776.8	1815.3	3028.0	6.1	6.5	15.2
		A34 NB Off Slip	863	890	611	238.3	1029.8	3515.8	54.7	97.2	344.6
		Hinksey Hill	586	602	536	187.3	159.0	2109.5	26.3	27.5	114.8

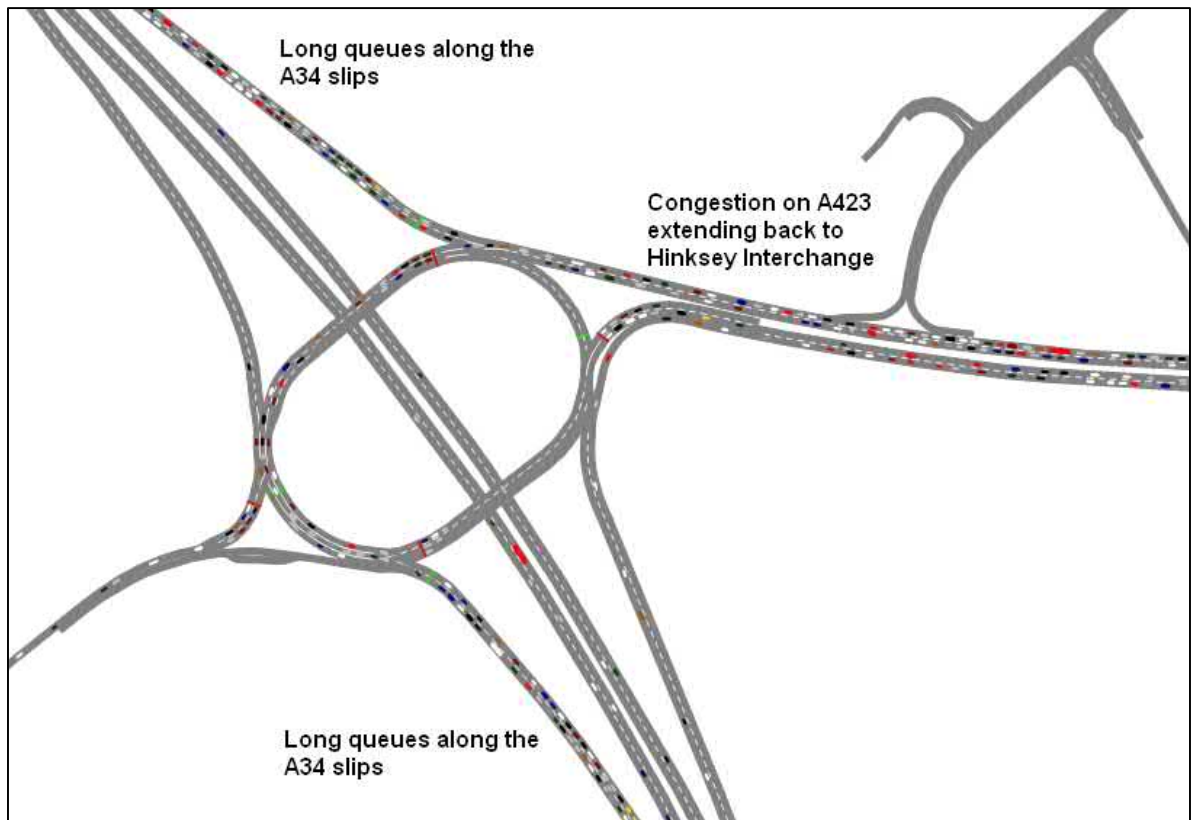


Figure 4.5 – 2019 Scenario 1 PM Peak Hinksey Hill Interchange Congestion

Table 4.8 2019 PM Peak Scenario 1 Hinksey Hill Interchange Journey Times (s) Comparison

Description			Average Journey Times (s) All Vehicles excl. Buses					
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	53	4	8%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	-1	-2%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	65	-21	-24%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	37	-1	-3%
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	380	319	523%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	70	10	17%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	308	196	175%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	105	67	176%

Table 4.8 shows journey times for each of the slips during 1715-1815 have increased to over 300 seconds as a result of the congestion along the A423 eastbound.

The Hinksey Hill approach times have increased from 38 seconds in the Do Minimum to 105 seconds as a result of the congestion.

Kennington Roundabout

The results for Kennington Roundabout forecast large increases in queue lengths and delays along both approaches of the A423 as a result of the queuing back along the A4144 northbound.

During 1715-1815 the journey time along the A423 northbound to Kennington Roundabout has increased by 52 seconds.

The journey time from Hinksey Hill Interchange to Kennington Roundabout increases by 118 seconds during 1715-1815

A4144 / Old Abingdon Road Junction

Queues and delays for the A4144 north approach are improved, as a result of less traffic at Old Abingdon Road demanding the signals, as detailed in the AM peak results.

The A4144 south approach is performing worse, as an additional 200 vehicles per hour are routed into Oxford via this road.

The A4144 southbound journey time from Weirs Lane has reduced in both hours.

The A4144 northbound approach journey time from Kennington Roundabout has increased with an additional 70 seconds during 1715-1815.

A4144 / Weirs Lane Junction

During the PM peak the A4144 south approach experiences the largest decrease in queues and delays, which could be as a result of traffic being held back at Kennington Roundabout and Hinksey Hill Interchange.

Journey times through the junction are expected to decrease during the entire PM peak period.

4.3. Scenario 2

All existing trips have been assumed to use Kennington Road south from their current origins / destinations. When running the AM and PM peak models using this assumption, gridlock was occurring, and no usable results were being created.

The main cause of the gridlock was noted to originate from the u-turns at Kennington Roundabout, trying to enter Kennington Road south from the west of the network. This was highlighted as an issue in Scenario 1, but as part of Scenario 2, Kennington Road north is closed, so vehicles from the north of the network are required to continue south along A4144 and also enter Kennington Road south.

In the AM peak another issue contributing to congestion was the large demand of vehicles attempting to exit onto the A423 westbound and u-turn at Hinksey Interchange. Queues along Kennington Road extended out of the network, as vehicles were unable to access the A423.

Figures 4.6 and 4.7 show this in more detail.

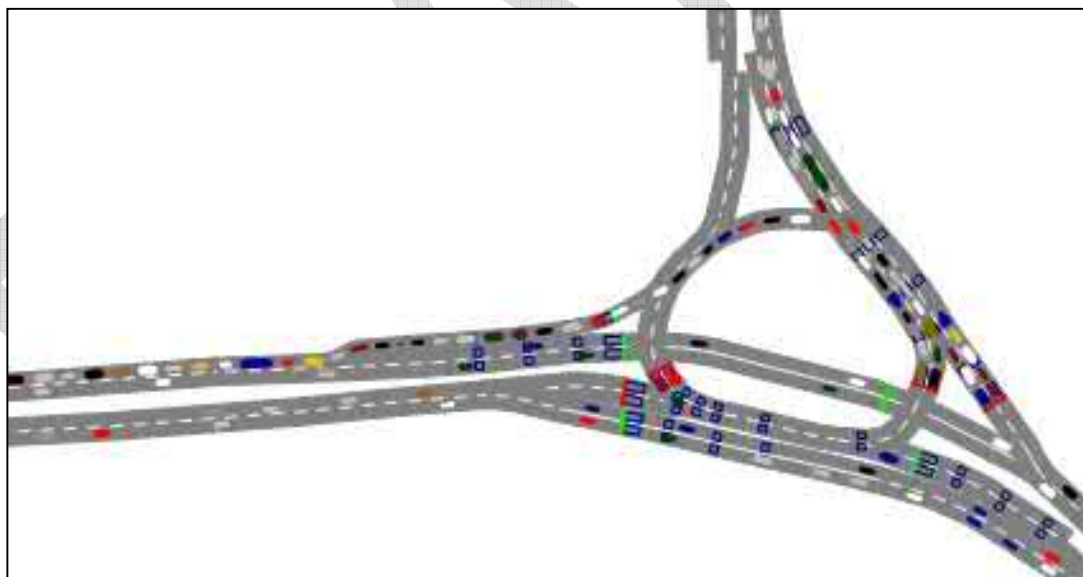


Figure 4.6 – 2019 Scenario 2 Kennington Roundabout U-turners Blocking



Figure 4.7 – 2019 Scenario 2 Kennington Road South Queuing

Upon reviewing the area, it was identified that other routes into the network were possible from the south of Kennington Road. These alternative routes are as follows and shown in Figure 4.8 for inbound routes:

- Westbound along Bagley Wood Road or Sugworth Lane, to join Oxford Road and Hinksey Hill. Vehicles have been added onto the Hinksey Hill approach at the Interchange, and;
- Continue south, join Twelve Acre Drive in Northcourt and join the A34 northbound from Oxford Road. Vehicles have been added onto the A34 Northbound slip.

The traffic was split so that a 1/3 of vehicles would use each route. The same split was also used for traffic travelling into Kennington Road south from the west of the network, to reduce the number of u-turns at Kennington Roundabout. This was deemed acceptable as it would be unlikely that drivers would remain in congestion and not find other routes to make their trip.

It is important to note that the model does not cover these alternative routes, so it is unknown if these are already congested or if they are suitable for a diversion.

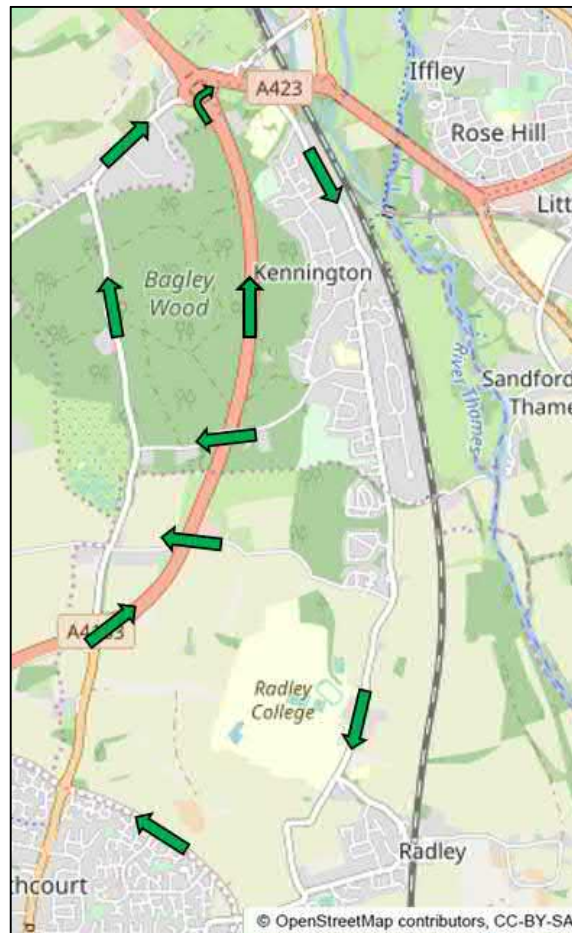


Figure 4.8 – 2019 Scenario 2 Alternative Routes

4.3.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 4.9 forecasts significant decreases in queues and delays for the A34 southbound off slip in during the AM peak.

This is due to traffic along the A423 eastbound being relatively free flowing and not queuing back as far back as the Hinksey Hill Interchange, as shown in Figure 4.9.

With no queuing back, the A34 southbound off slip traffic can free flow away from the signals every cycle, removing the queuing that is currently present in both the 2017 and 2019 DM models.

Queues and delays have increased for all other approaches at the Interchange as a result of the re-routed traffic.

Therefore, the free-flowing traffic along the A423 could also be as a result of traffic being held up in the longer queues along Hinksey Hill and A34 northbound slip.

Table 4.9 2019 AM Peak Scenario 2 Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1041	1689.3	2071.5	698.1	171.6	211.5	79.2
		A423 Southern By-Pass (E)	2389	2427	2635	680.2	139.9	376.9	5.4	5.5	6.0
		A34 NB Off Slip	1012	993	991	2959.3	3505.2	3514.6	146.2	245.4	614.9
		Hinksey Hill	582	580	638	774.5	1031.7	2117.3	285.5	409.5	867.7
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1041	1741.1	2956.8	962.8	221.1	315.2	36.5
		A423 Southern By-Pass (E)	2107	2188	2360	434.7	441.0	512.3	5.3	6.3	5.7
		A34 NB Off Slip	900	853	1017	2954.5	3513.0	3516.0	287.2	669.8	835.0
		Hinksey Hill	488	486	609	691.6	1038.5	2119.8	222.5	447.3	1281.0

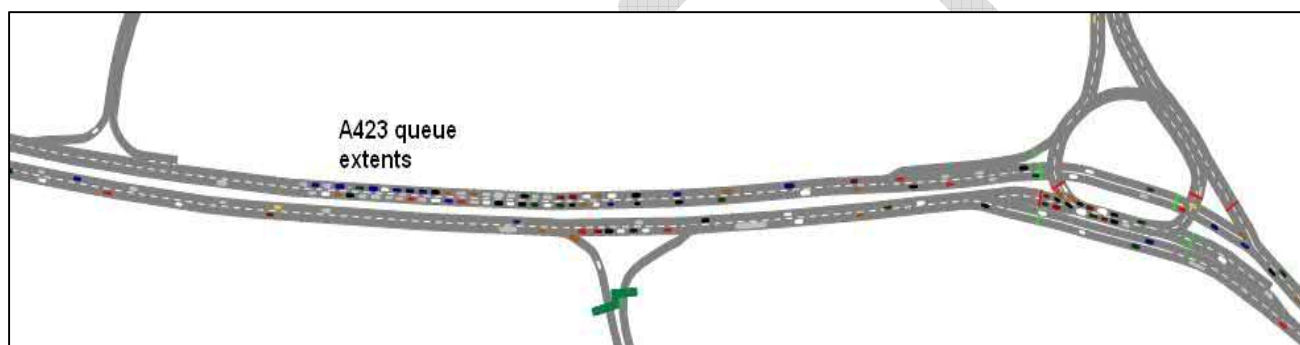


Figure 4.9 – 2019 Scenario 2 AM Peak A423

Table 4.10 2019 AM Peak Scenario 2 Hinksey Hill Interchange Journey Times (s) Comparison

Description			Average Journey Times (s) All Vehicles excl. Buses					
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	107	-148	-58%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	72	1	1%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	300	59	24%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	355	-18	-5%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	64	-221	-78%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	58	0	0%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	295	-74	-20%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	365	-21	-5%

Table 4.10 shows the decrease in journey times along the A34 southbound slip as a result of the improvement along the A423.

All other journey times are predicted to decrease compared to the 2019 DM during 0815-0915.

Kennington Roundabout

The results for Kennington Roundabout predict a decrease in queues during 0715-0815 along the A423 eastbound as observed in Figure 4.9.

The A4144 southbound has also forecast increases as more vehicles are using this to travel into Kennington Road south.

Journey times are consistent with the approach summary and forecast decreases eastbound from Hinksey Hill Interchange. During 0715-0815 a 57 second saving is predicted.

The other approaches show marginal increases to journey times.

A4144 / Old Abingdon Road Junction

The junction results forecast benefits to all approaches during 0815-0915.

The A4144 northbound journey time from Kennington Roundabout has decreased by 40 seconds, while the Old Abingdon Road time has decreased by 125 seconds during 0715-0815.

A4144 / Weirs Lane Junction

During the AM peak hour of 0715-0815 delays at all approaches at the Weirs Lane junction are forecast to improve over the 2019 DM results.

During 0815-0915 delays have increased for all approaches. The most significant increase is southbound and as a result of vehicles being re-routed along the A4144 and queuing in one lane at the signals to the Old Abingdon Road junction. This queue extends back to Weirs Lane blocking vehicles wishing to travel south.

The journey times are consistent with the junction performance and show decreases during 0715-0815 and increases to journey times during 0815-0915.

4.3.2. Comparison of PM Peak Results

Hinksey Hill Interchange

Table 4.11 forecasts increases in queues for the A423 and Hinksey Hill approaches. The A34 northbound off slip sees improvements in queues and delays during the PM peak, although they are still higher than in 2017.

Journey times, as shown in Table 4.12, are consistent with the junction performance and show small decreases for the A423 approach and A34 northbound off slip during 1715-1815.

Table 4.11 2019 PM Peak Scenario 2 Hinksey Hill Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1009	143.9	136.0	113.7	17.9	19.6	19.9
		A423 Southern By-Pass (E)	3033	3079	2962	1597.0	2044.2	3016.0	5.8	5.9	6.4
		A34 NB Off Slip	763	780	833	264.2	2102.8	1525.6	50.6	71.6	71.3
		Hinksey Hill	544	559	617	133.8	139.3	168.8	27.5	28.8	31.2
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1121	207.2	293.7	562.5	26.6	32.3	37.9
		A423 Southern By-Pass (E)	2900	2999	2940	776.8	1815.3	3021.4	6.1	6.5	6.6
		A34 NB Off Slip	863	890	923	238.3	1029.8	656.0	54.7	97.2	89.5
		Hinksey Hill	586	602	643	187.3	159.0	196.4	26.3	27.5	30.0

Table 4.12 2019 PM Peak Scenario 2 Hinksey Hill Interchange Journey Times (s) Comparison

Description			Average Journey Times (s) All Vehicles excl. Buses					
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	-1	-2%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	86	0	0%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	2	5%
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	67	6	10%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	56	-4	-7%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	104	-8	-7%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	2	5%

Kennington Roundabout

The results for Kennington Roundabout forecast large increases in queue lengths and delays along the A423 Eastern Bypass in both peak hours as a result of the queuing along the A423 Southern Bypass westbound towards Hinksey Hill Interchange. More vehicles are slowing to gain entry to Kennington Road South, which causes localised congestion and queue build up. Delays have risen to over 400 seconds during 1715-1815.

There are also more vehicles travelling south along the A4144 extending the green time of the circulatory, which is holding back the A423 Eastern Bypass traffic.

The remainder of the approaches to Kennington Roundabout experience slight increases to delays.

The journey times show slight increases to the A4144 southbound route with the higher volume of traffic.

The largest increases to journey times are along the A423 Eastern Bypass which have increased by 40 seconds during 1715-1815.

A4144 / Old Abingdon Road Junction

The junction results forecast nominal differences for all approaches to the junction, although during 1715-1815, Old Abingdon Road experiences very long queues.

Vehicles travelling out of the Park & Ride onto Old Abingdon Road are no longer able to turn left to Kennington Road. They are required to turn right and join the queue for the signals. These vehicles are adding to the queuing at the junction and equate to an extra 150 vehicles over the PM peak, along with the additional 160 vehicles re-routed from Kennington Road north.

The Journey times are consistent with the junction results and show that during 1715-1815 travel times along Old Abingdon Road have increased by 147 seconds.

The journey times from Kennington Roundabout along the A4144 northbound have decreased as a result of the A4144 southbound right turn stage not being called and traffic being held up elsewhere in the network.

A4144 / Weirs Lane Junction

The A4144 southbound and Weirs Lane approaches at the Weirs Lane junction are forecast to experience large increases to queues and delays in both hours of the PM peak. 250 vehicles are unable to travel into Old Abingdon Road and are therefore using the ahead movement at the Old Abingdon Road junction signals. These vehicles are adding to the queues along the A4144 and the queue extends back, preventing the free-flowing of vehicles out of Weirs Lane or southbound.

Journey times are consistent and show increases for both the A4144 southbound and Weirs Lane approaches, but nominal decreases for the A4144 northbound approach.

5. Mitigation Results

5.1. Scenario 1

The Scenario 1 results forecasted that closing a section of Old Abingdon Road is causing a lot of congestion along the A423 and A4144.

The A4144 was struggling with the increase in demand, especially in the PM peak and queues would extend back to Kennington Roundabout and block access for the A423 approaches.

Therefore, it was necessary to increase the green time for the A4144 northbound approach to enable the extra traffic to be processed through the junction and prevent the queuing back that was being observed.

In the AM peak, the maximum green time of Phase A was increased from 60 seconds to 65 seconds for the duration of the simulation. In the PM peak the maximum green time of phase A was increased from 31 seconds to 45 seconds from 1645, when queuing was observed to commence.

This scenario showed only marginal benefits, and congestion still remained. Therefore, the assumption of a 50/50 split in trips using both Kennington Road accesses would be a little unrealistic as those using the south would want to avoid being caught in it.

Vehicles bound for the A423 Eastern Bypass (Heyford Hill) may decide to continue to use Kennington Road north and turn right at the Old Abingdon Road onto A4144 southbound to avoid the congestion around Hinksey Hill Interchange, as this route was observed to be free flowing within the model.

Therefore, the trips that were re-routed to use Kennington Road south have been routed back onto the right turn of Kennington Road north. This represents no split in vehicles using an alternate route.

The other issue that was identified were the u-turns at Kennington Roundabout. To be consistent with Scenario 2 and as part of another mitigation measure, 2/3 of the vehicles bound for Kennington Road south from the A34 southbound slip were re-routed to continue along the A34 southbound or to travel right at the Interchange into Hinksey Hill. The other trips u-turning at Kennington Roundabout from Hinksey Hill and A34 northbound slip were retained.

The mitigation measures have been run in isolation to understand any benefits of that measure. The results are shown in the appendices for all tests and have been compared back to the 2019 Scenario 1 results.

The mitigation measures are as follows:

- Scenario 1a – Change to signal timings at the Old Abingdon Road / A4144 junction only;
- Scenario 1b – Existing signal timings used but assume no vehicles re-route to Kennington Road south due to congestion;
- Scenario 1c – Combination of Scenario 1a & Scenario 1b; and,
- Scenario 1d – Scenario 1c with the removal of 2/3 u-turns at Kennington Roundabout from A34 southbound slip.

For the purpose of this report, Scenario 1d is discussed as this provided the greatest benefits to the network in the PM peak.

5.1.1. Comparison of AM Peak Results

The results for the mitigation have shown that observed congestion already within the AM peak is still contributing to very long queues and delays throughout the network, especially for Hinksey Hill Interchange. By removing access to Old Abingdon Road pushes the additional trips along the A423 to Kennington Roundabout and along the A4144.

Despite increasing the maximum green time for the south approach of the A4144, traffic still queues back to Kennington Roundabout and blocks the Hinksey Hill Interchange.

By adding 100% vehicles back onto Kennington Road north increases delays along Old Abingdon Road and queuing extends back through Kennington Road, as vehicles are held up at the signalised junction with the A4144.

Although congestion is still present in the model, the journey times for the A34 northbound slip have decreased from the previous Scenario 1 times, but the A34 southbound slip experiences increases as a result of the slight improvement northbound.

The majority of other journey times in the model have also increased.

Due to the amount of existing congestion within the AM peak, it is deemed that other mitigation measures may need to be considered should a section of Old Abingdon Road be closed. This assessment has not considered re-routing of vehicles away from the network during the works, nor any impacts on the surrounding area should re-routing take place.

The Congestion within the model is shown in Figures 5.1 and 5.2.

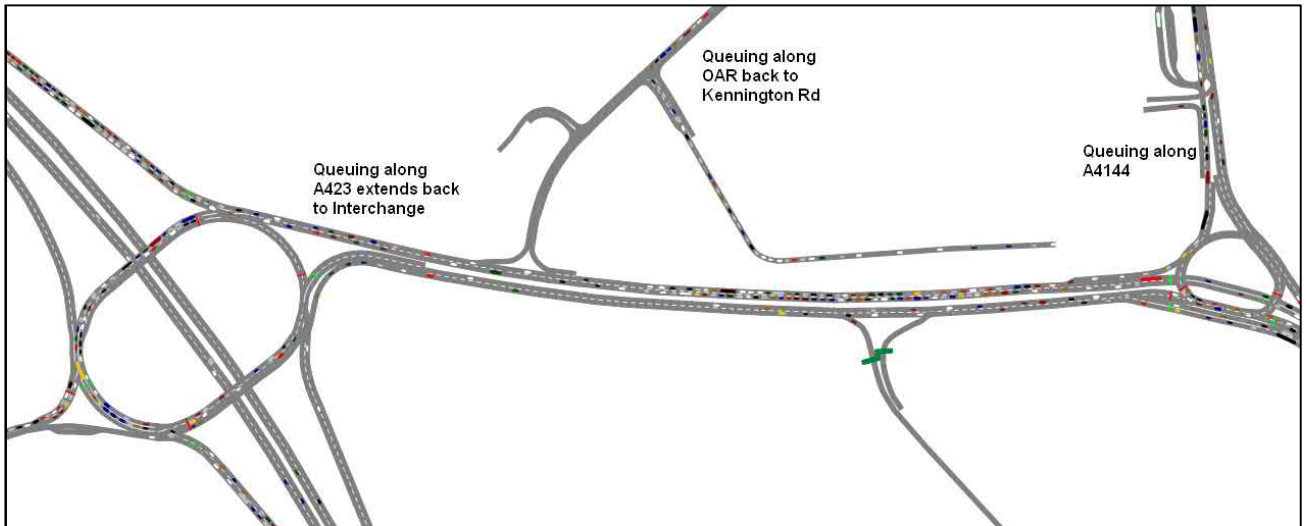


Figure 5.1 – 2019 Scenario 1d AM Peak A423

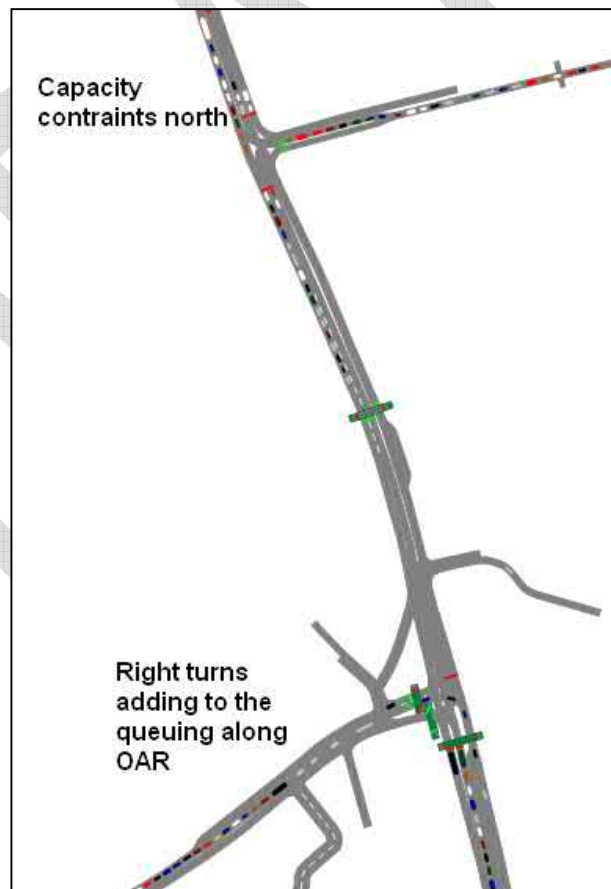


Figure 5.2 – 2019 Scenario 1d AM Peak A4114

5.1.2. Comparison of PM Peak Results

The main cause of congestion in the Scenario 1 PM peak model was the queuing along the A4144 northbound which extended back to Kennington Roundabout blocking the A423.

By increasing the green time for the A4144 south approach has removed this queuing, and it is now mostly contained within the A4144 and rarely extends back to Kennington Roundabout.

The increased volume of traffic using the A423 eastbound to Kennington Roundabout is still causing some congestion which at times reaches back to the A34 southbound slip during 1715-1815 and causes queuing back onto the A34 mainline, shown in Figure 5.3. However, the average queues for this slip have reduced from 1700m in Scenario 1 to 361m in Scenario 1d.

With the exception of the southbound slip, all other approaches see dramatic reductions in queues and delays at Hinksey Hill Interchange.

Journey times for the two A34 slips have reduced by 200 seconds during 1715-1815 while the Hinksey Hill approach has been reduced by 60 seconds.

The remainder of the network also experiences decreases in delays and queues compared with Scenario 1, although Old Abingdon Road is forecast to see a slight increase to delays.

Journey times have decreased at all junctions, with the exception of the Weirs Lane junction, as more traffic is processed through the network to this junction. The most notable decreases are seen along the A423 eastbound towards Kennington Roundabout and northbound along the A4144 as a result of increasing the green time.

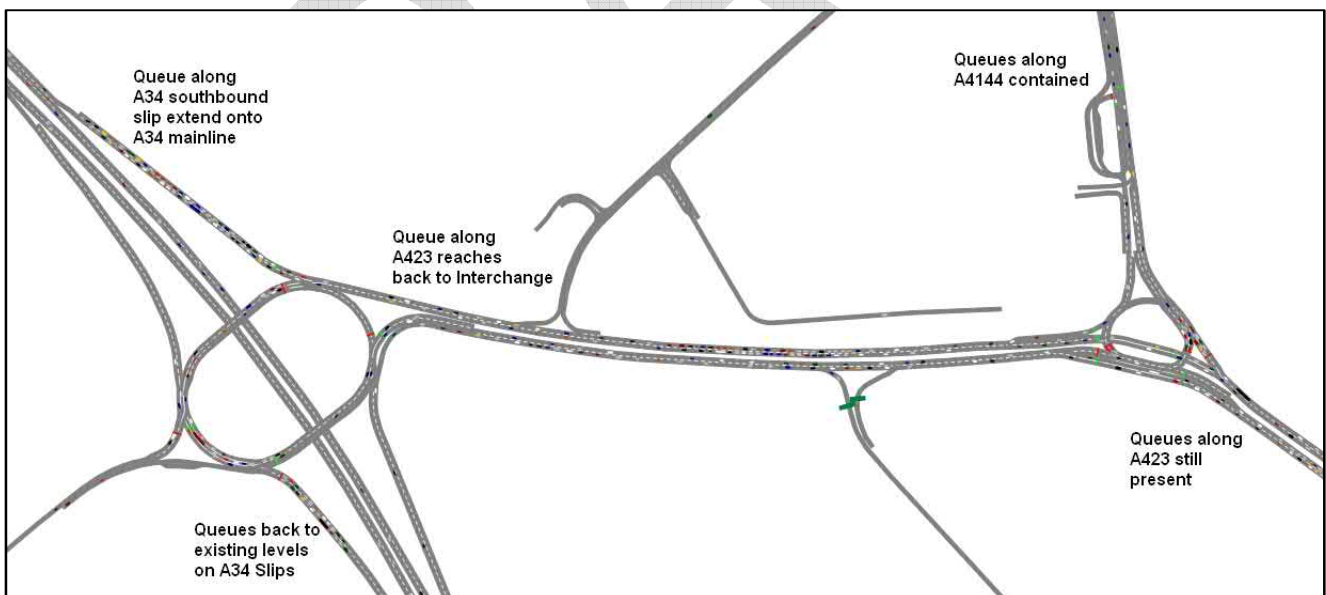


Figure 5.3 – 2019 Scenario 1d PM Peak A423

5.2. Scenario 2

The Scenario 2 results forecast that the re-routing of traffic away from Kennington Road south and onto the identified alternate routes of the A34 northbound or Hinksey Hill only added to the existing queues and delays at these approaches, making it unlikely that these diversions would be used.

Therefore, the mitigation tested for Scenario 2 put 100% of the re-routed traffic back onto Kennington Road south (entering the network).

The results of the mitigation have been compared back to the Scenario 2 results and provided in the Appendices. For the purpose of this reporting, the Scenario 2 mitigation has been named Scenario 2a.

5.2.1. Comparison of AM Peak Results

The results for the mitigation have shown that putting vehicles back onto Kennington Road south increases queues and delays along the A423 westbound and the A34 northbound slip as a result of the high volume of u-turning vehicles at Hinksey Hill Interchange from Kennington Road south.

Delays for the A34 northbound slip have increased to 1100 seconds by 0815-0915. These delays are higher than the original Scenario 2. Journey times have increased by 110 seconds compared with Scenario 2.

As a result of the congestion around the southern circulatory and on the northbound slip, traffic along Hinksey Hill is able to free flow away. Queues and delays have decreased significantly for this approach compared to both the 2017 and original Scenario 2.

The benefits observed in the previous Scenario 2 for the A34 southbound slip is still occurring in Scenario 2a as the queuing along A423 eastbound rarely extends back to the Interchange.

By re-routing the vehicles back onto Kennington Road south, causes long queues and vehicles struggle to exit onto the A423 westbound. 300 fewer vehicles are being processed. During 0715-0815.

Figure 5.4 shows the main section of the network of Scenario 2a in more detail and where the congestion areas are.

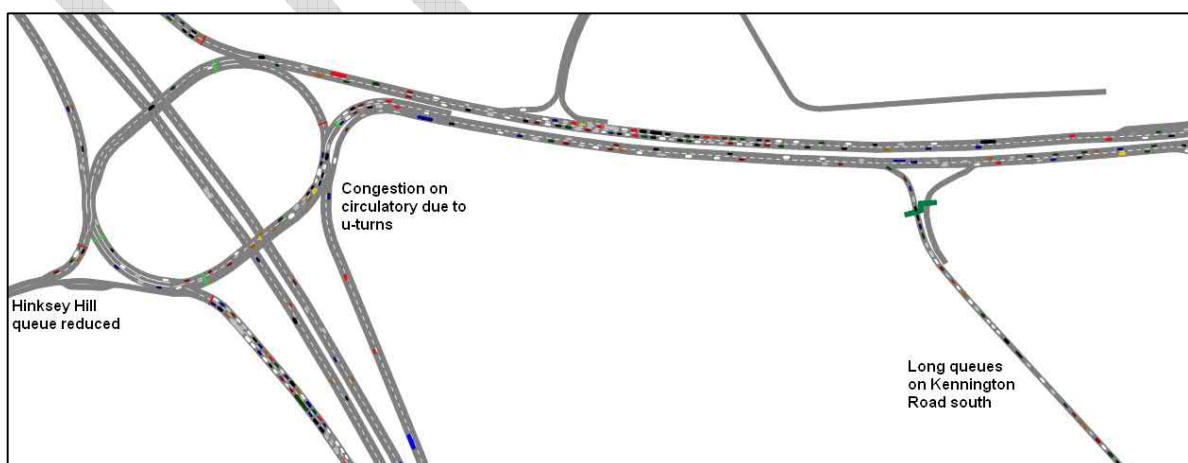


Figure 5.4 – 2019 Scenario 2a AM Peak A423

5.2.2. Comparison of PM Peak Results

The main cause of congestion in the Scenario 2 PM peak model was the queuing along the A34 northbound slip. By removing the re-routed vehicles back on to enter via Kennington Road south has decreased queues and delays and is now performing better than those shown for 2017. The journey times are also back to 2017 levels.

The Hinksey Hill approach is also predicted to perform better than 2017.

The A423 westbound approach at the Interchange is performing worse as a result of the additional trips from Kennington Road south contributing to the queues, and vehicles merging over to the offside lane to u-turn as shown in Figure 5.5.

The remainder of the junctions in the network are performing marginally worse than Scenario 2, which is as a function of the improvements for the A34 northbound slip and vehicles being processed through the Interchange into the network.



Figure 5.5 – 2019 Scenario 2a PM Peak A423

6. Summary and Conclusions

Atkins has been commissioned by the Environment Agency (EA), to evaluate the impact on the A34 Hinksey Hill Interchange due to the closure of Old Abingdon Road and Kennington Road, during the construction of the Oxford Flood Alleviation scheme.

In order to assess the impact of the closures, the Oxfordshire Hinksey Hill VISSIM model will be used, which has been previously developed for Oxfordshire County Council.

The Hinksey Hill VISSIM model uses 2017 survey data and is a static model, using fixed routes from the survey flows.

For the Flood Alleviation scheme assessment, the flows have been factored to 2019, to ensure the most recent flows are used.

Three scenarios have been assessed and are as follows:

- Scenario 1 – Closure of Old Abingdon Road between Red Bridge Hollow and Kennington Road;
- Scenario 2 – Closure of Kennington Road at the junction with Old Abingdon Road; and,
- Scenario 3 – Closures of Old Abingdon Road and Kennington Road.

Assumptions were made for vehicles required to re-route based on the road closures, however, as the model is static, no re-assignment of traffic away from the network to other areas has been considered while the works are carried out.

A Do Minimum model was developed, which just applied growth to the flows, which formed a 2019 reference case to see how the network coped with the additional growth.

The AM peak network is currently operating over capacity with congestion along the A423 Southern Bypass eastbound to Kennington Roundabout. This congestion extends back to Hinksey Hill Interchange preventing the A34 slips from free flowing, resulting in queuing back onto the A34 mainline.

The PM peak network is relatively free flowing, with the main congestion observed along the A423 Eastern Bypass to Kennington Roundabout.

The Scenario 1 AM results forecasted significant congestion along the A423 Southern Bypass towards Kennington Roundabout as a result of trips being unable to use Old Abingdon Road to travel into Oxford. Queuing was also observed along the A4144 northbound, which extended back onto Kennington Roundabout blocking access for the A423 approaches, exacerbating the already congested Hinksey Interchange. Long queues are predicted for both slips with queues consistently extending onto the A34 mainline.

The Scenario 1 PM peak results identified a similar issue with queuing along the A4144 back to Kennington Roundabout and blocking the A423. This blocking resulted in heavy congestion along the A423 back to Hinksey Hill Interchange, causing significant queues for Hinksey Hill, and the A34 slips.

Various mitigation measures were tested to try to limit the queuing back to Kennington Roundabout.

The mitigation measures did not have much impact on the AM peak due to the network already operating over capacity.

In the PM peak, increasing the green time for the south approach and having all vehicles using Kennington Road north, helped to ease the queueing along A4144 northbound, and no blocking back to Kennington Roundabout was observed. The A423 eastbound is predicted to still be congested as a result of the closure of Old Abingdon Road. However, all approaches to the Interchange experienced dramatic reductions to queues and journey times with the mitigation measures.

The Scenario 2 AM peak results showed that long queues and delays were still predicted for the A34 northbound slip and Hinksey Hill.

However, significant improvements for the A34 southbound slip were predicted, as the congestion along the A423 eastbound to Kennington Roundabout never extended back to the Interchange.

The Scenario 2 PM peak results identified that the A34 northbound slip queues and delays were increased as a result of growth, added trips and more u-turns on the Interchange. The Old Abingdon Road queues were increased as vehicles leaving the P&R are required to turn right into Old Abingdon Road and A4144.

One mitigation measure was assessed for Scenario 2 and assumed no re-routing from Kennington Road south to enter the network.

The AM peak results showed long queues along Kennington Road south, as vehicles struggled to exit into the A423 westbound to the Interchange.

The A34 northbound slip queues and delays were longer than in Scenario 2 as more u-tuning traffic caused congestion on the circulatory. However, with the increase in congestion on the A34 northbound slip, the Hinksey Hill approach is predicted to perform significantly better than Scenario 2.

The PM peak results showed that removing the additional trips from the A34 northbound slip and Hinksey Hill approaches helped to return performance to back to 2017 levels.

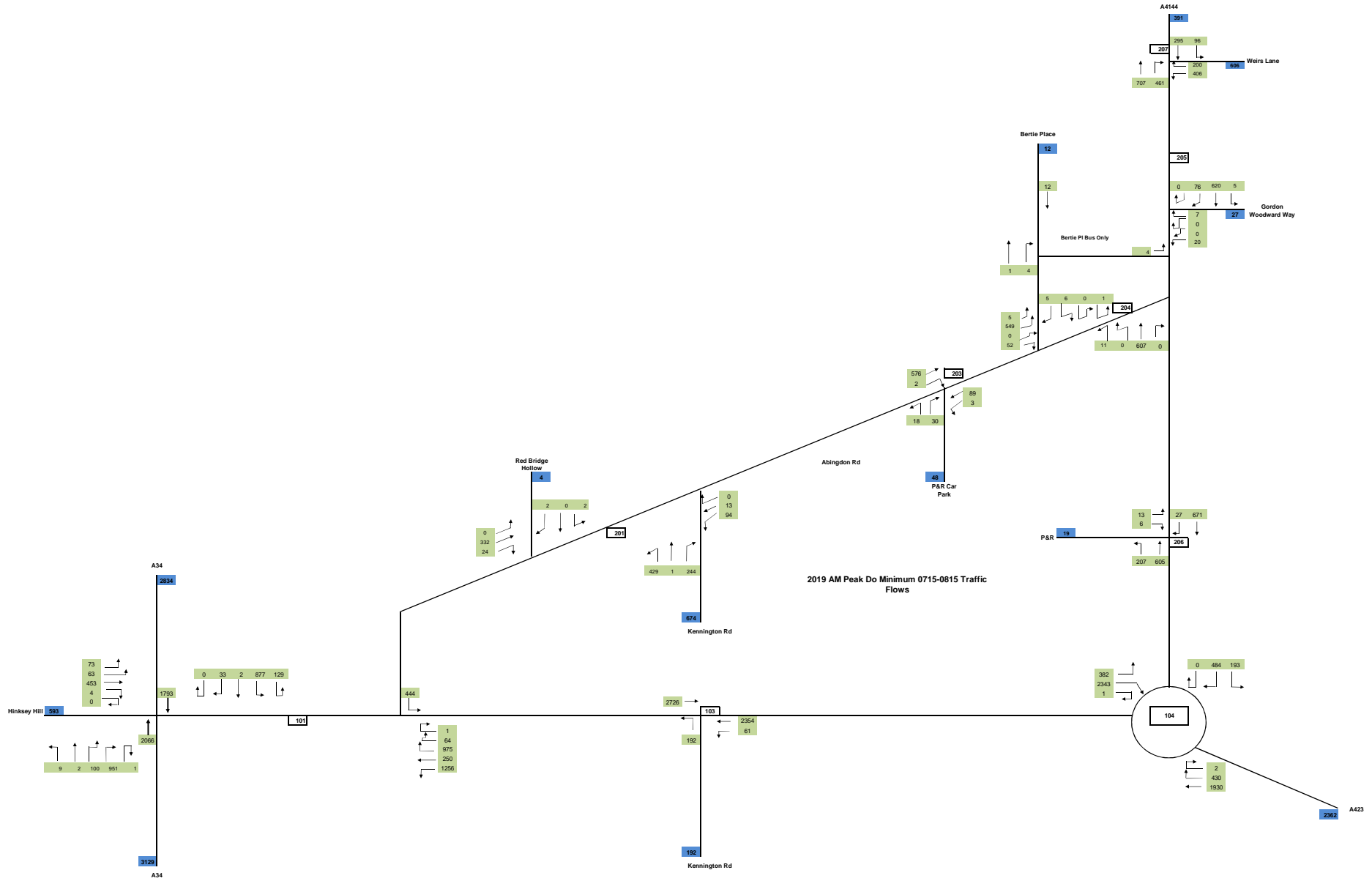
The remainder of the network performed marginally worse as a result of vehicles arriving earlier on in the PM peak, rather than being held back at the Interchange on the northbound slip.

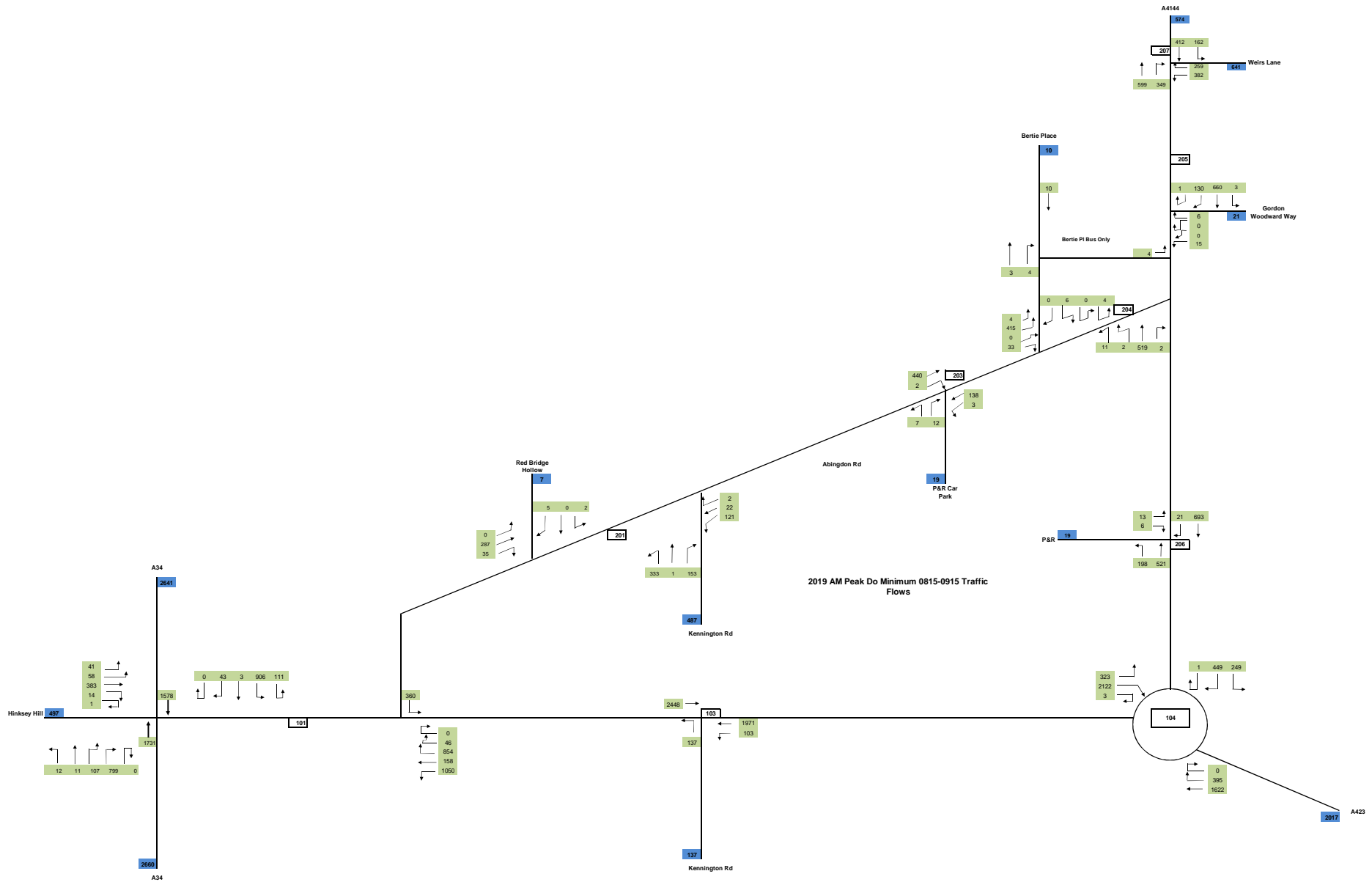
Overall, the modelling has shown that during the congested AM peak, not much can be done to the network to mitigate any disbenefits the road closures will have, but various measures can be achieved in the less congested PM peak to mitigate any disruption to drivers.

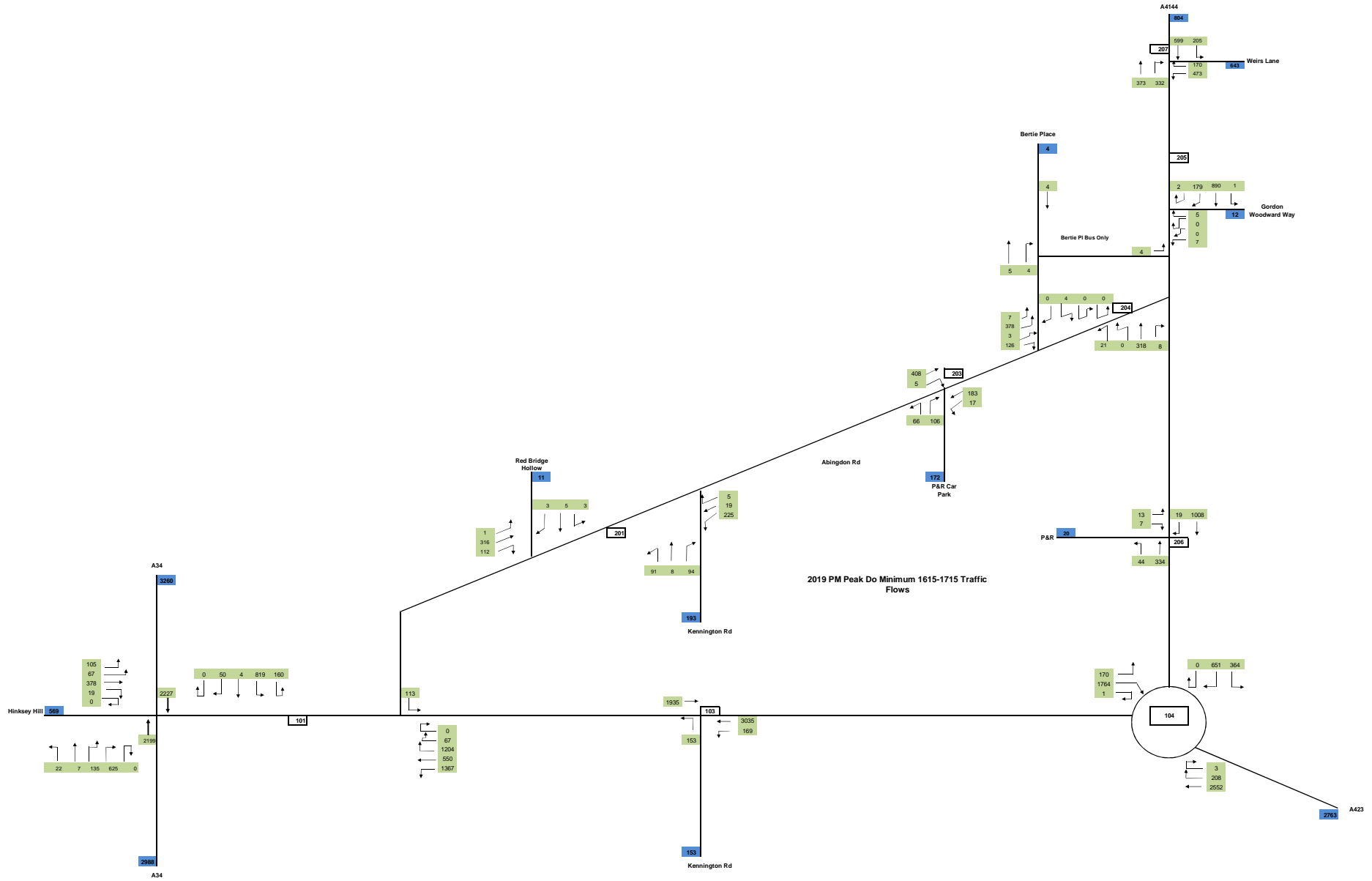
The modelling has only considered network amendments, such as signalisation and re-routing of vehicles for the mitigation. It has not taken into account changes in travel patterns as a result of physical road signage or the information to be provided to forewarn road users of disruption, to give them opportunity to change their time, mode or route of travel, which could potentially mitigate the modelled congestion further.

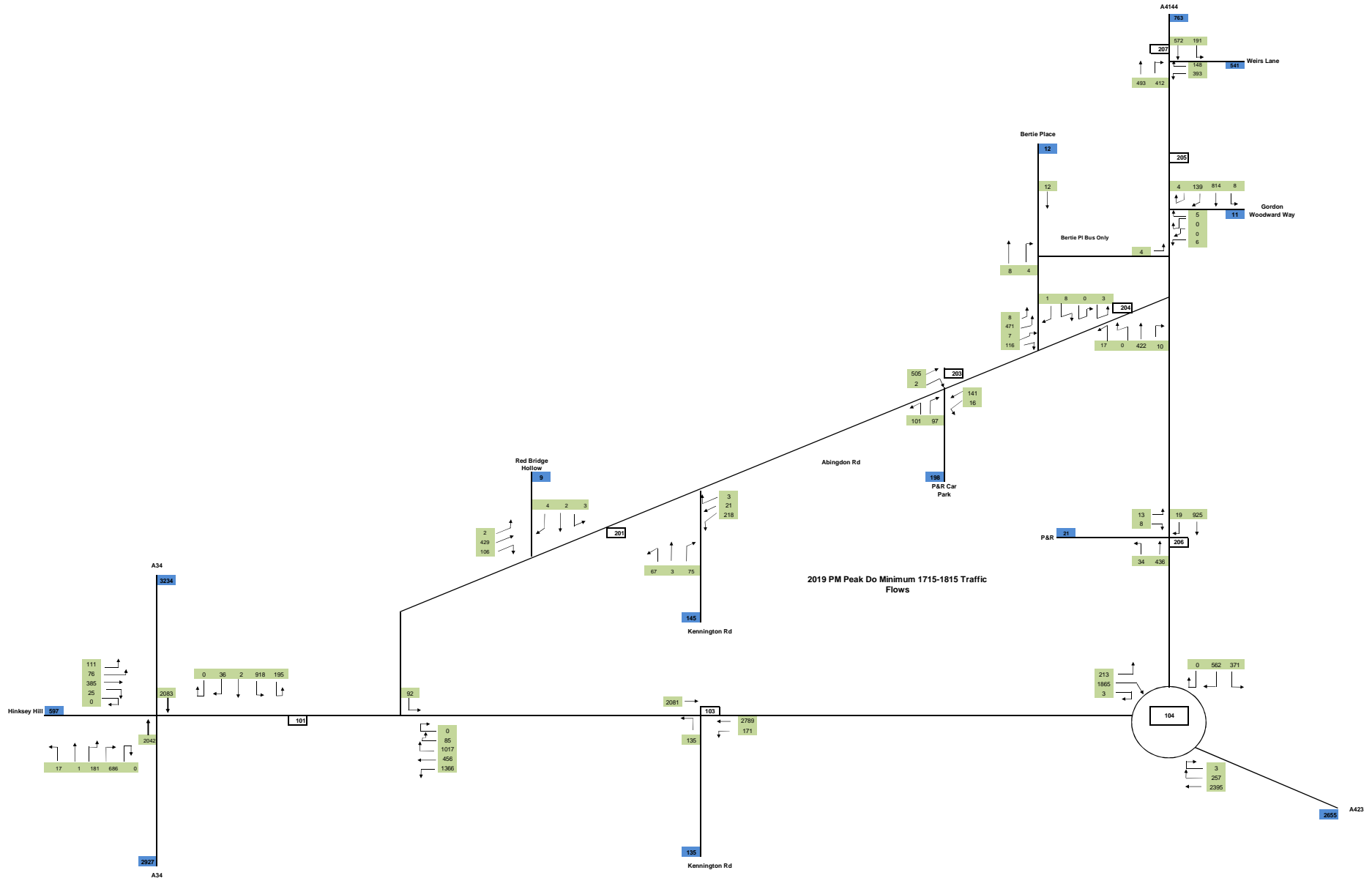
Appendices

Appendix A. 2019 DM Traffic Flows

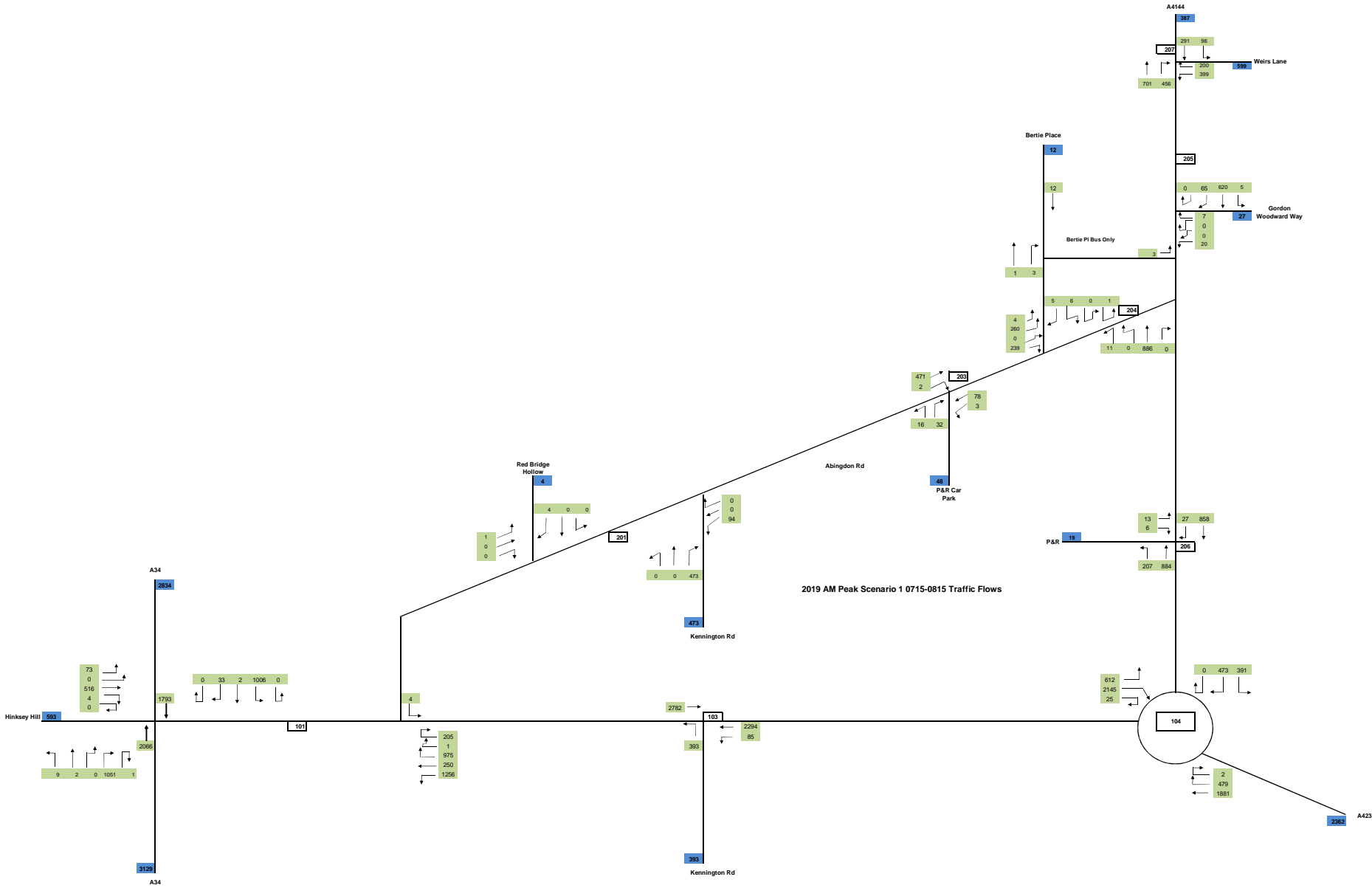


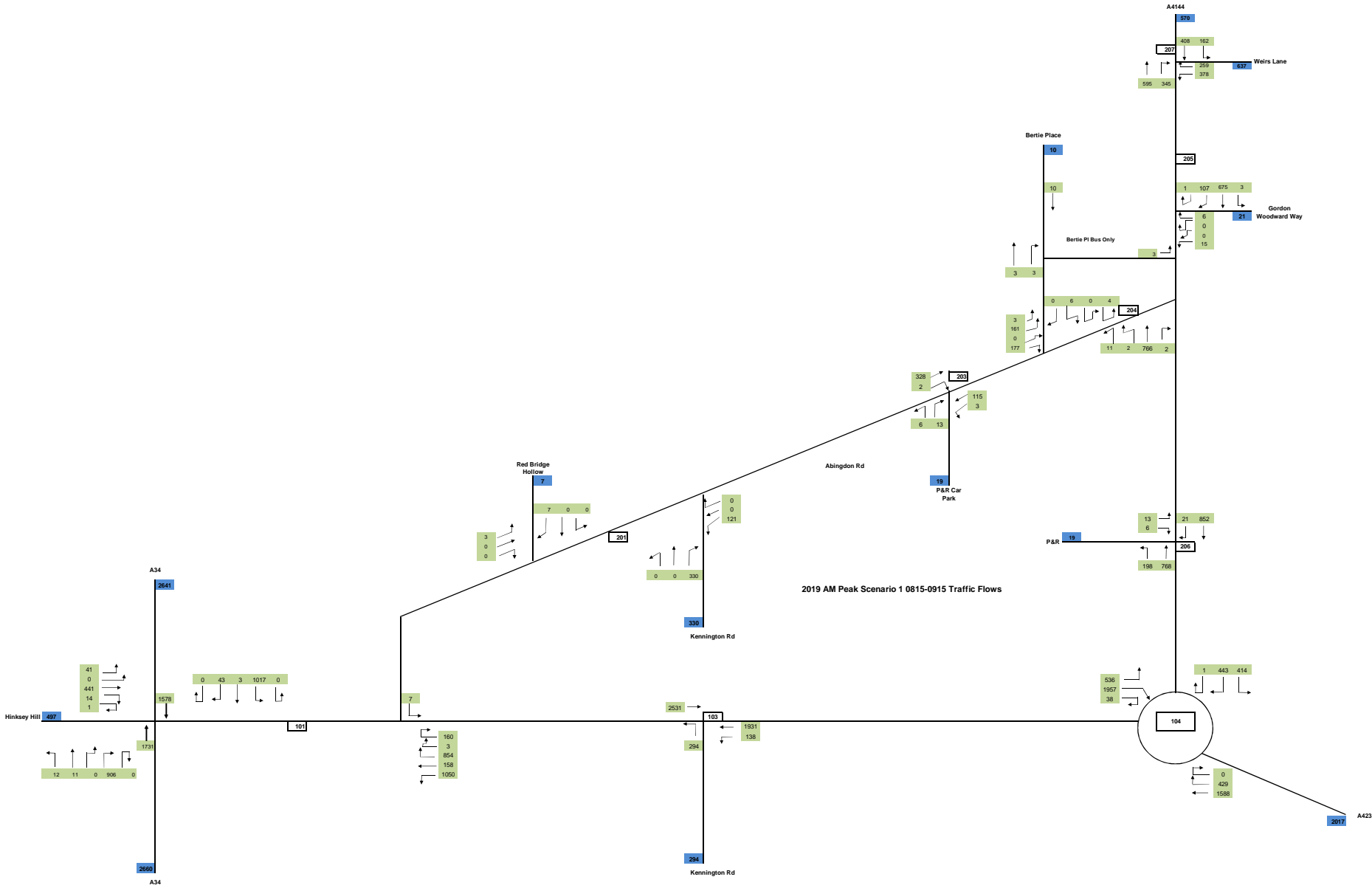




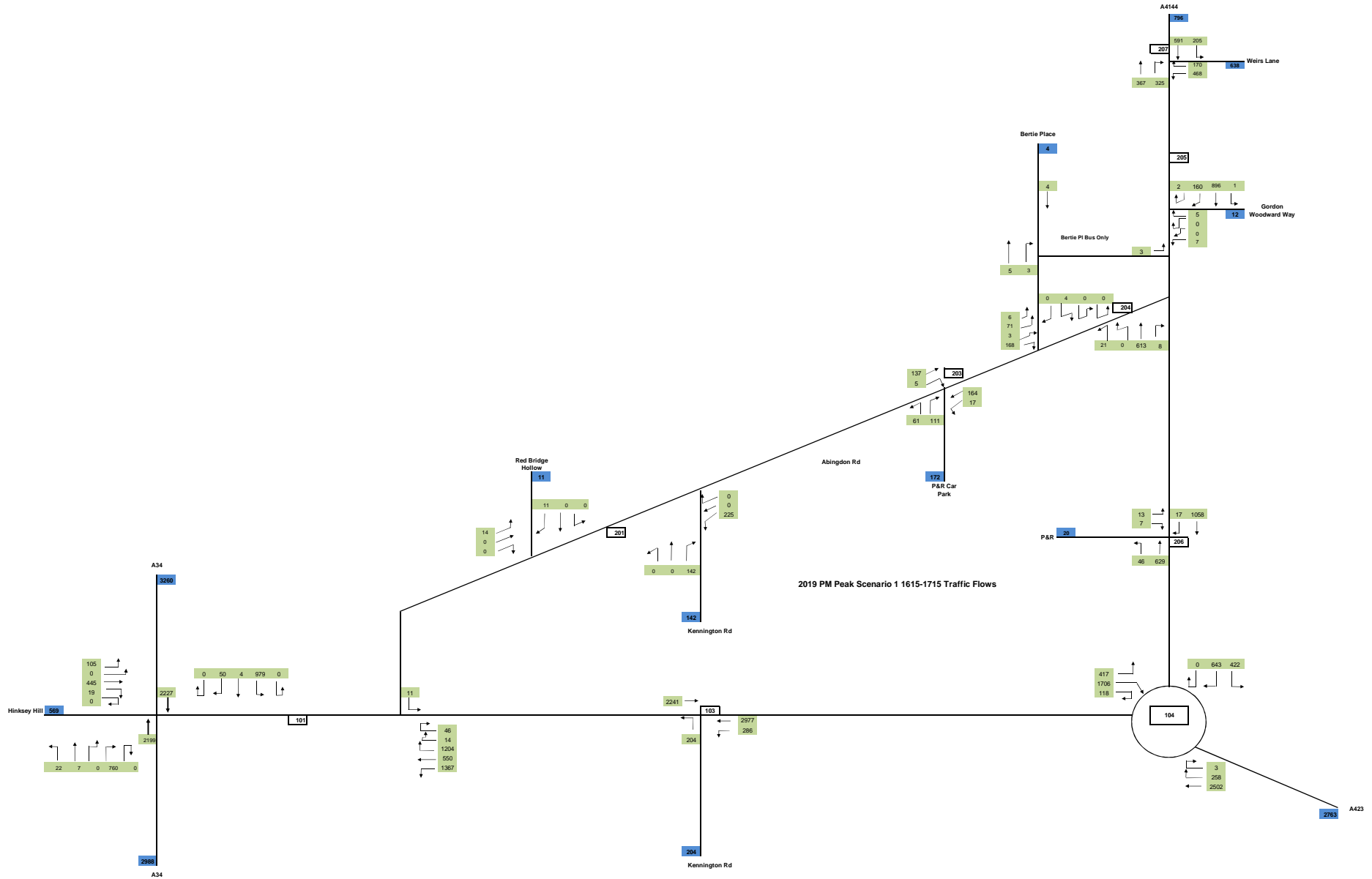


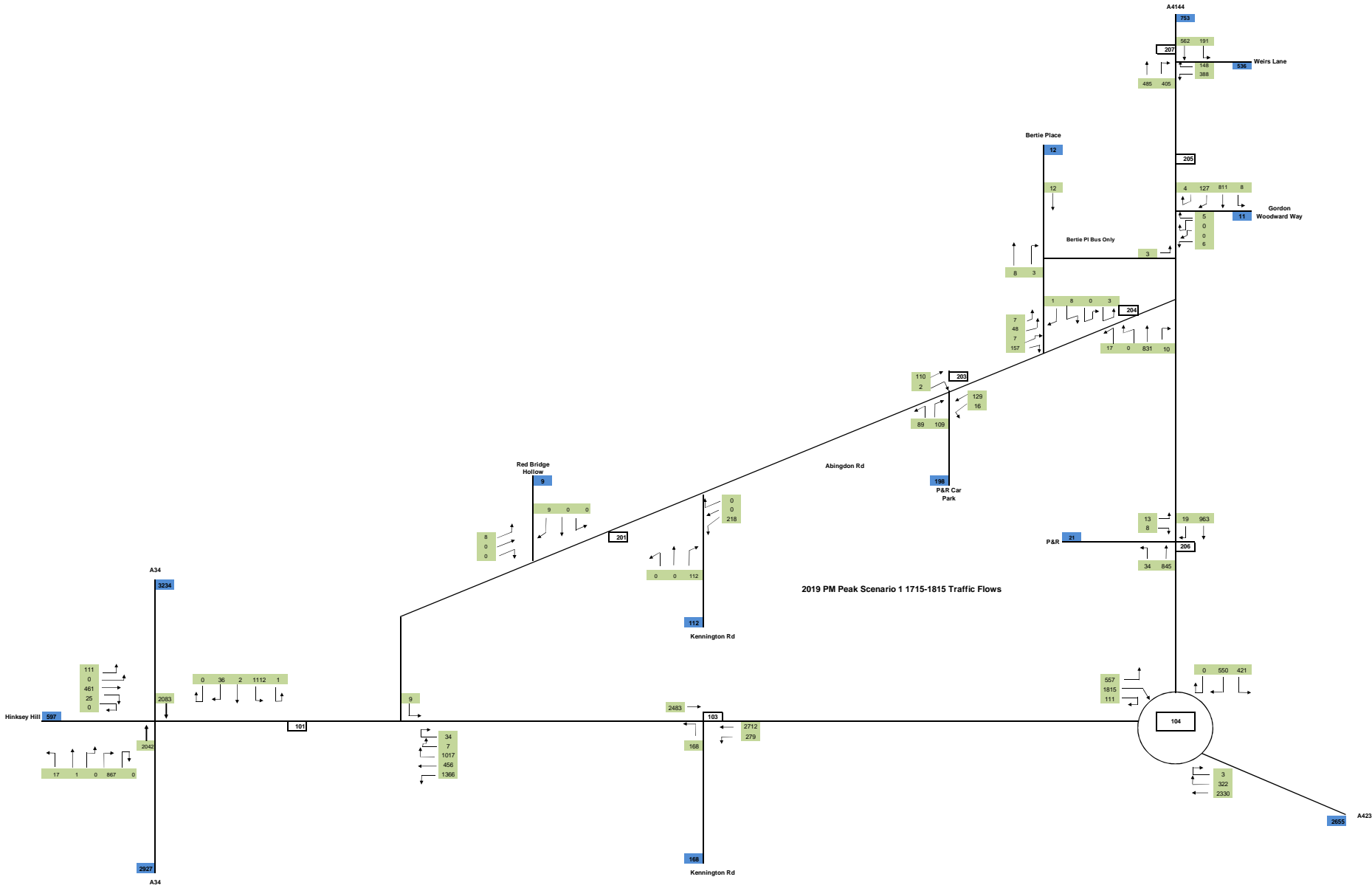
Appendix B. 2019 Scenario Traffic Flows



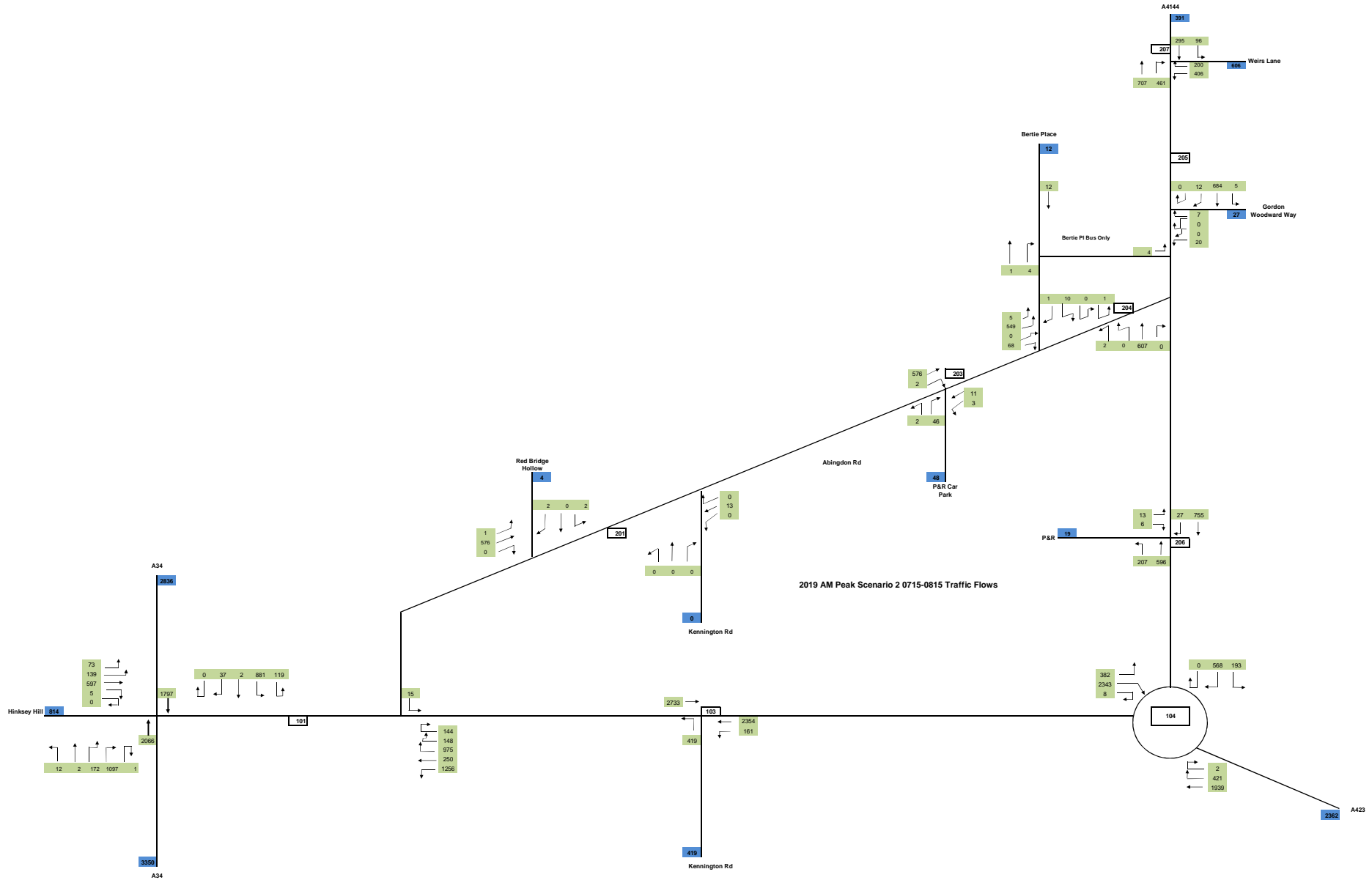


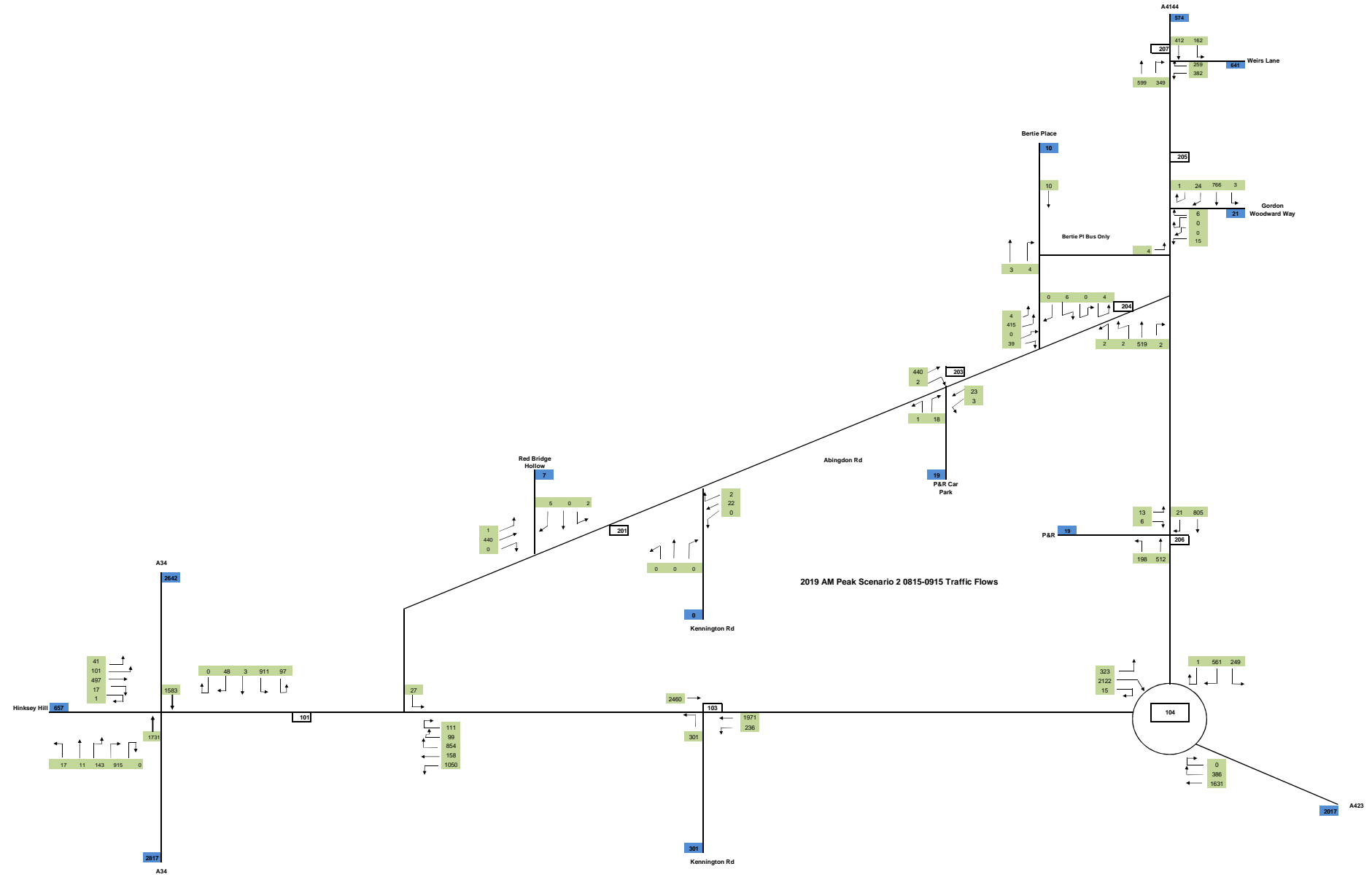
2019 PM Peak Scenario 1 1615-1715 Traffic Flows

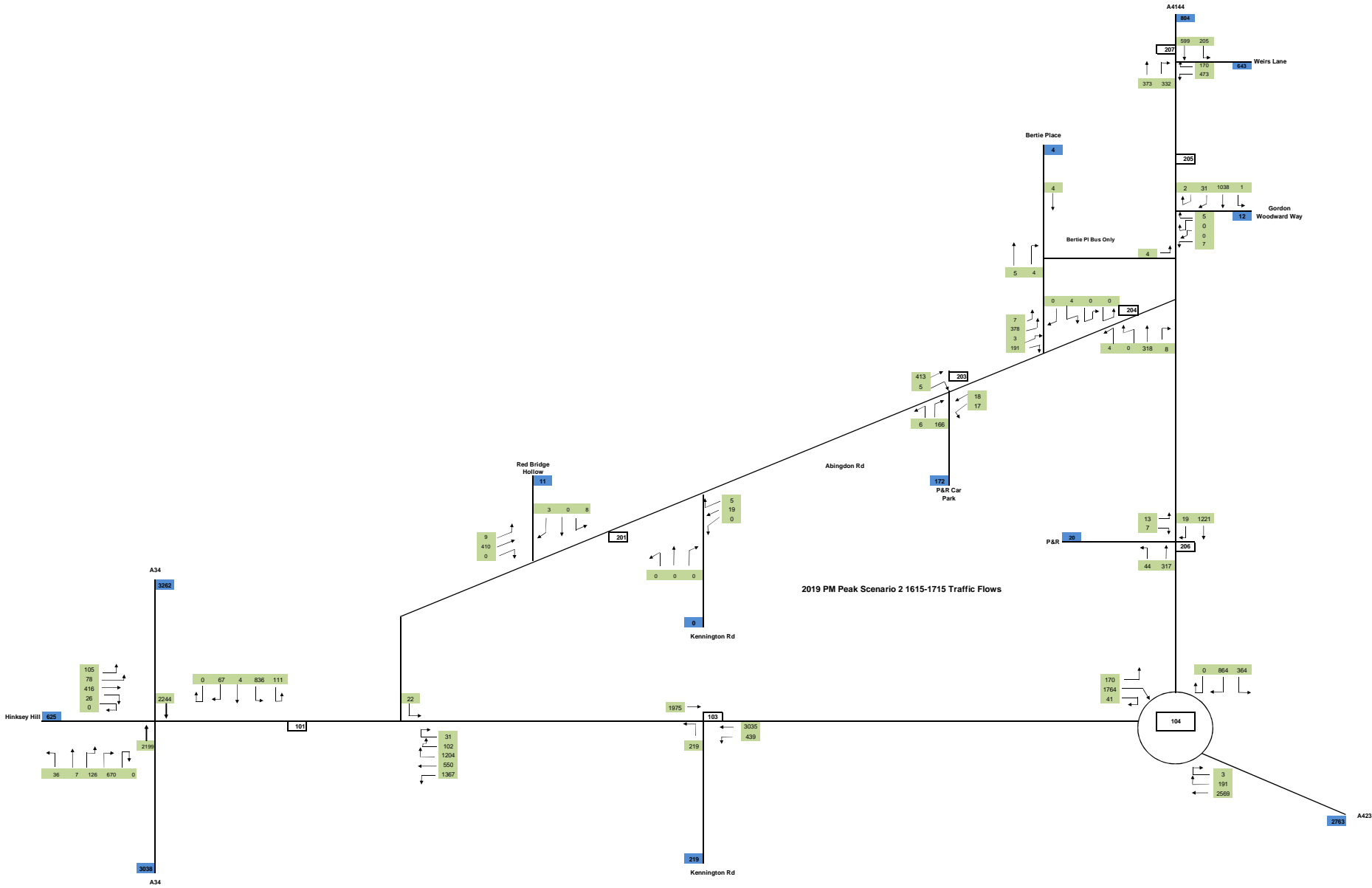


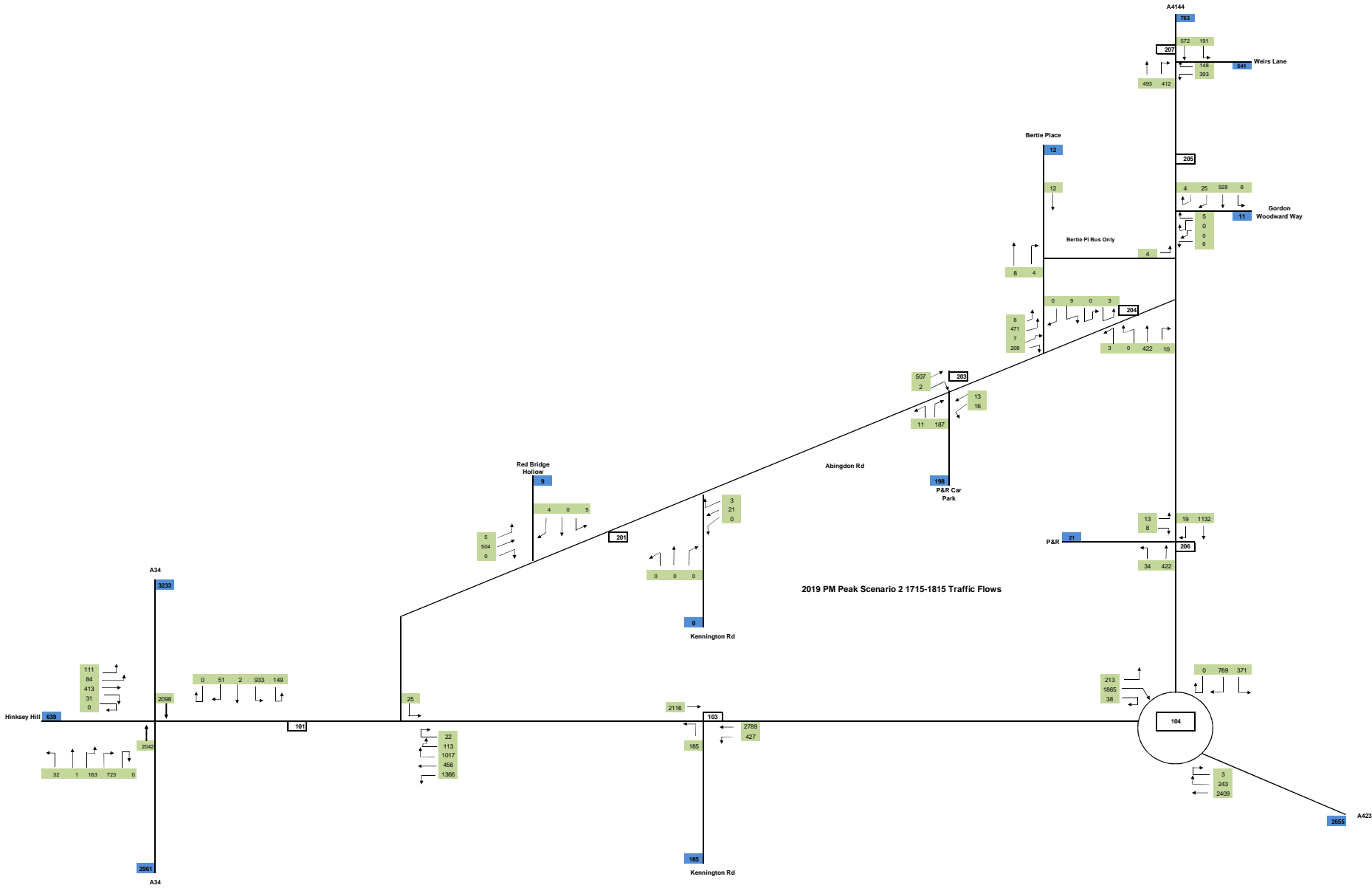


2019 AM Peak Scenario 2 0715-0815 Traffic Flows

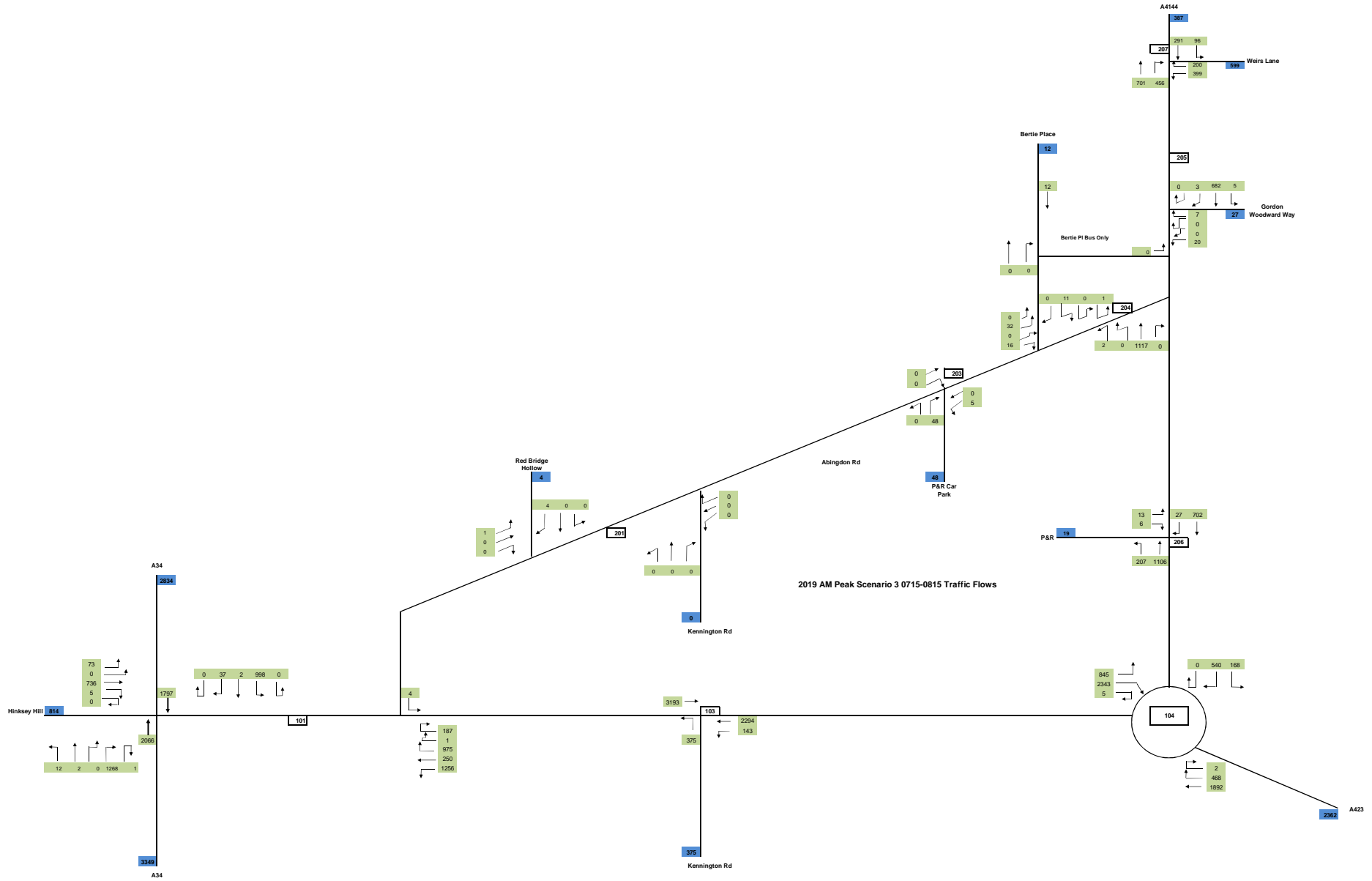




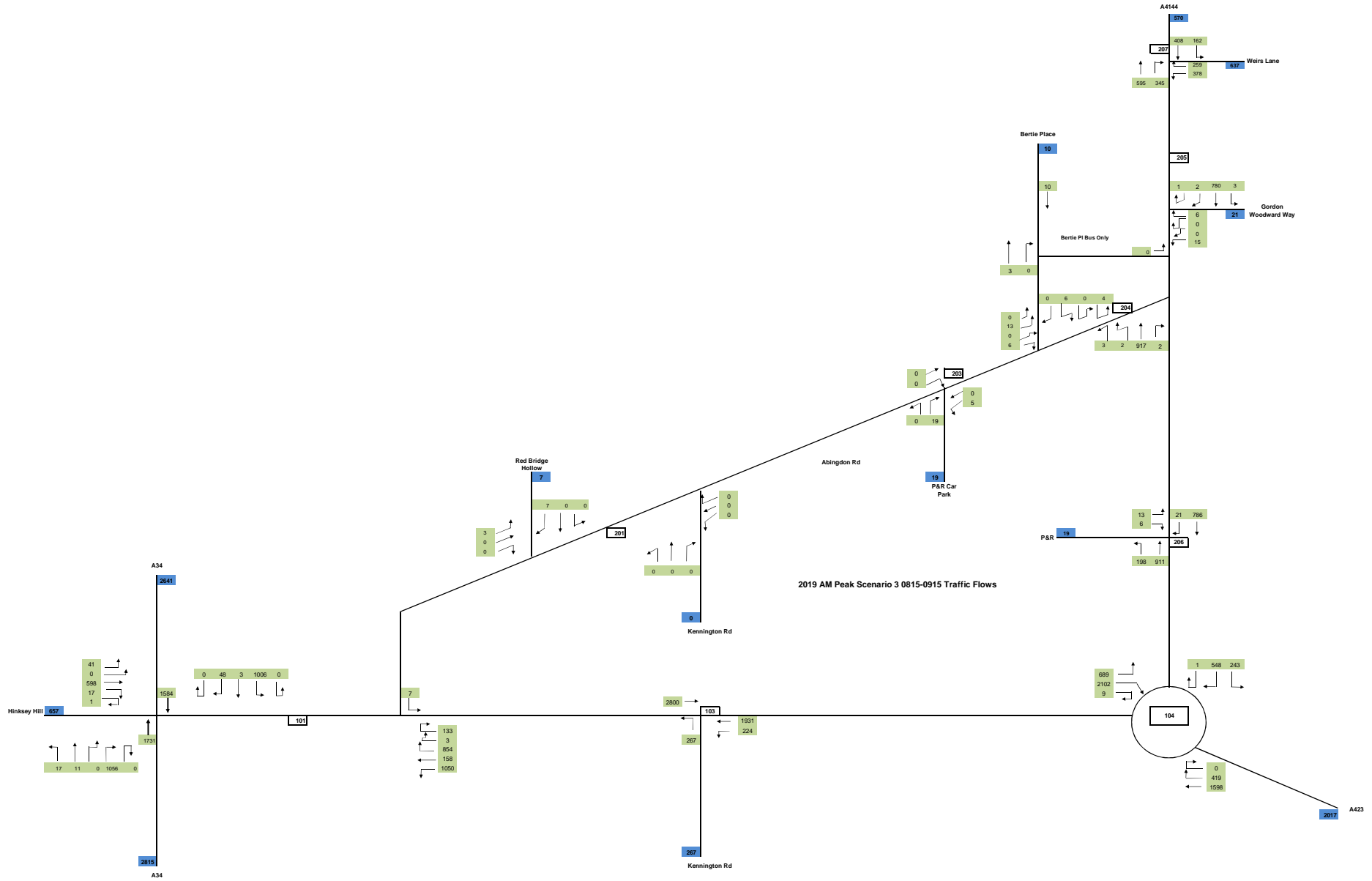


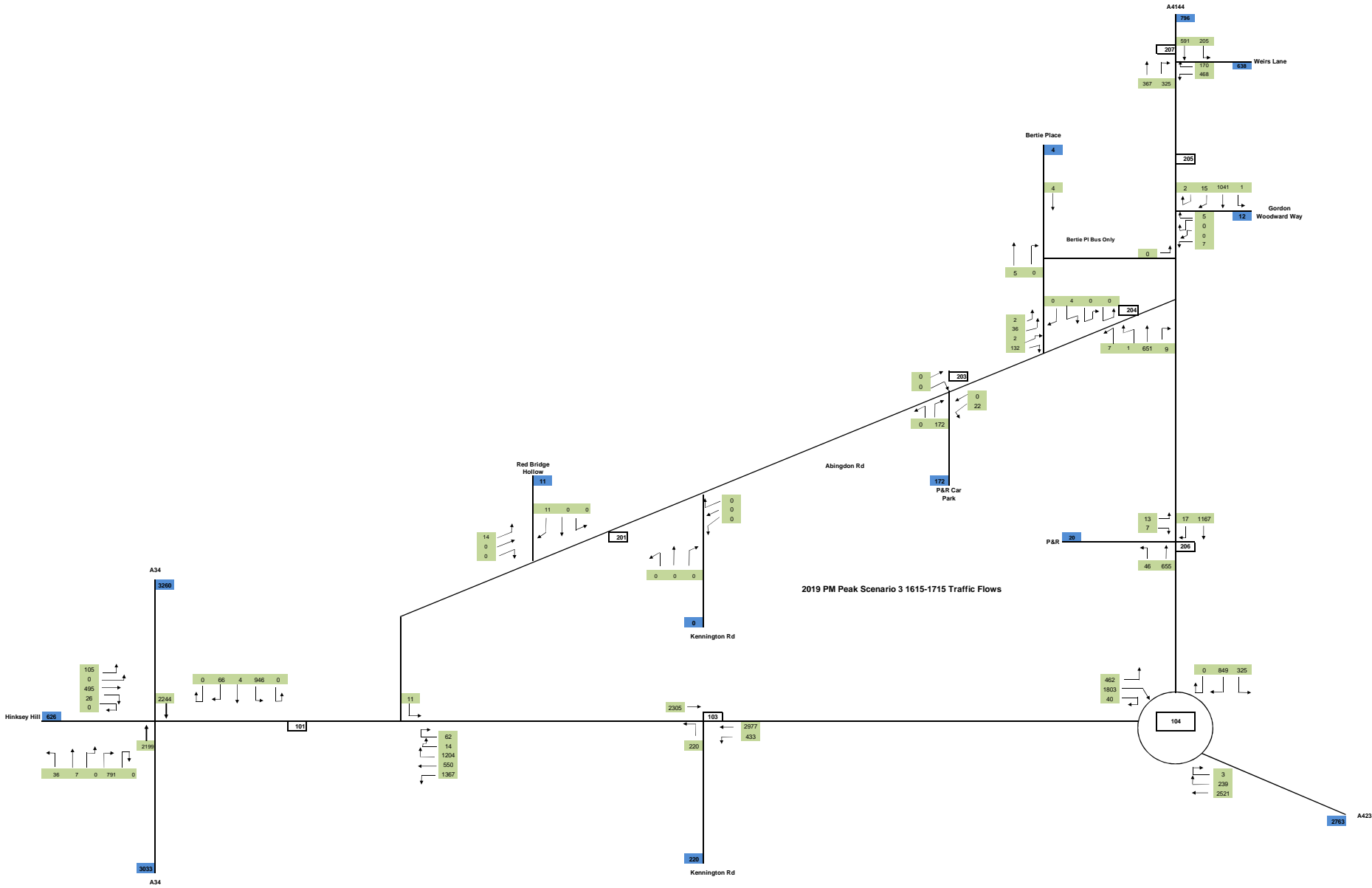


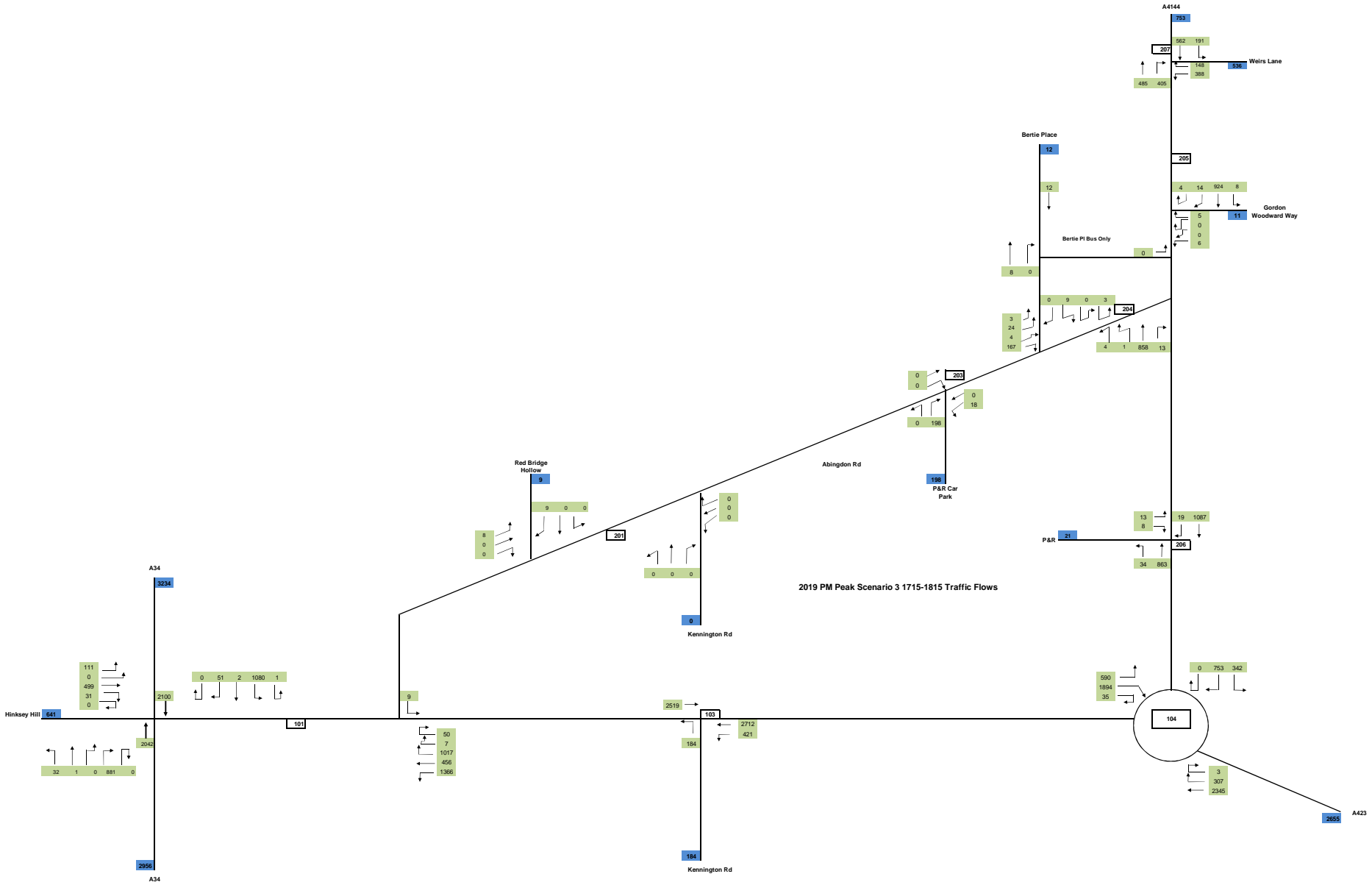
2019 AM Peak Scenario 3 0715-0815 Traffic Flows



2019 AM Peak Scenario 3 0815-0915 Traffic Flows







Appendix C. 2019 DM Results

2019 Hinksey Hill AM Peak Comparison

Approach Average

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1689.3	2071.5	208.9	318.9	171.6	211.5
		A423 Southern By-Pass (E)	2389	2427	680.2	139.9	4.9	4.0	5.4	5.5
		A34 NB Off Slip	1012	993	2959.3	3505.2	220.7	651.5	146.2	245.4
		Hinksey Hill	582	580	774.5	1031.7	368.4	567.6	285.5	409.5
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1741.1	2956.8	356.6	699.0	221.1	315.2
		A423 Southern By-Pass (E)	2107	2188	434.7	441.0	4.7	6.7	5.3	6.3
		A34 NB Off Slip	900	853	2954.5	3513.0	480.8	2026.4	287.2	669.8
		Hinksey Hill	488	486	691.6	1038.5	193.2	448.9	222.5	447.3

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	213.7	214.8	24.7	25.8	45.5	48.2
		A423 Eastern By-Pass Left	1844	1881	947.7	1573.1	33.6	76.6	25.1	36.6
		A423 Eastern By-Pass	408	417	931.2	1556.6	67.3	130.8	114.3	127.3
		A423 Southern By-Pass Left	374	377	1126.8	1121.0	428.1	494.2	25.1	24.7
		A423 Southern By-Pass	2111	2108	1128.0	1122.1	585.5	603.9	24.8	25.1
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	222.6	229.4	26.5	30.7	44.5	47.5
		A423 Eastern By-Pass Left	1597	1661	1833.5	2391.2	45.8	238.5	35.8	68.9
		A423 Eastern By-Pass	398	410	1889.3	2374.6	146.9	341.0	134.0	174.5
		A423 Southern By-Pass Left	306	298	1132.8	1127.6	830.2	896.9	28.2	30.9
		A423 Southern By-Pass	2116	2105	1134.0	1128.8	860.8	918.1	27.6	28.0

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
0715-0815	Abingdon Road/ A4144	A4144 North	590	601	276.5	276.4	31.1	32.7	9.3	9.1
		A4144 South Bus Lane	17	17	41.4	53.8	1.0	1.0	24.6	25.3
		A4144 South	566	587	503.7	504.3	114.6	111.7	68.6	66.3
		Old Abingdon Road Bus Lane	4	4	42.3	42.3	0.5	0.5	35.2	40.2
		Old Abingdon Road	557	567	1177.3	1207.4	227.4	329.2	28.9	28.3
		Bertie Place	11	13	17.5	16.8	0.2	0.1	51.6	47.0
0815-0915	Abingdon Road/ A4144	A4144 North	662	675	277.4	281.9	46.7	50.0	8.9	8.9
		A4144 South Bus Lane	16	15	28.3	28.4	1.0	1.0	25.4	27.9
		A4144 South	513	511	504.2	510.6	105.0	111.8	73.2	76.0
		Old Abingdon Road Bus Lane	3	3	14.0	14.1	0.3	0.4	31.8	40.0
		Old Abingdon Road	446	452	1254.4	1248.3	122.0	285.8	33.5	34.7
		Bertie Place	10	10	18.6	21.5	0.1	0.1	49.3	56.8

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	455.8	397.4	64.2	67.7	91.2	92.8
		A4144 North LT	95	98	245.2	290.9	7.0	8.8	82.5	86.2
		Weirs Lane	558	555	804.4	981.4	99.4	183.0	72.0	116.8
		A4144 South	654	667	1427.8	1457.8	367.5	477.7	46.4	44.3
		A4144 South RT	430	438	1427.8	1457.9	319.4	312.7	27.5	26.5
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	827.1	1083.2	245.6	307.5	167.4	196.0
		A4144 North LT	145	143	687.1	1083.5	56.4	82.4	170.6	202.9
		Weirs Lane	651	680	862.6	984.9	339.0	464.7	172.8	217.7
		A4144 South	590	598	1504.9	1498.8	253.1	454.1	59.4	62.2
		A4144 South RT	345	347	1504.9	1498.8	229.0	430.0	59.5	62.6

2019 Hinksey Hill PM Peak Comparison

Approach Average

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	143.9	136.0	13.3	14.7	17.9	19.6
		A423 Southern By-Pass (E)	3033	3079	1597.0	2044.2	48.1	78.8	5.8	5.9
		A34 NB Off Slip	763	780	264.2	2102.8	36.3	68.8	50.6	71.6
		Hinksey Hill	544	559	133.8	139.3	12.7	14.0	27.5	28.8
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	207.2	293.7	25.7	33.3	26.6	32.3
		A423 Southern By-Pass (E)	2900	2999	776.8	1815.3	16.8	77.5	6.1	6.5
		A34 NB Off Slip	863	890	238.3	1029.8	45.1	93.6	54.7	97.2
		Hinksey Hill	586	602	187.3	159.0	12.6	14.2	26.3	27.5

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	135.4	212.8	27.4	28.0	36.7	37.2
		A423 Eastern By-Pass Left	2453	2486	1195.0	1981.5	288.1	591.1	56.4	97.6
		A423 Eastern By-Pass	194	196	154.7	1293.9	5.2	13.7	113.3	156.0
		A423 Southern By-Pass Left	164	169	127.0	57.7	2.6	2.7	14.1	15.1
		A423 Southern By-Pass	1703	1745	378.6	368.9	39.1	42.8	19.7	20.0
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	305.5	223.7	30.1	30.5	39.1	38.4
		A423 Eastern By-Pass Left	2354	2454	1121.5	2113.1	113.3	443.4	29.8	77.1
		A423 Eastern By-Pass	258	265	313.1	1050.7	10.3	19.1	87.7	136.4
		A423 Southern By-Pass Left	208	211	129.5	829.1	3.2	10.7	15.0	20.3
		A423 Southern By-Pass	1825	1880	527.0	830.3	51.0	64.1	19.5	20.6

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
1615-1715	Abingdon Road/ A4144	A4144 North	826	826	282.1	289.2	100.4	101.1	8.7	8.7
		A4144 South Bus Lane	15	15	36.0	41.1	0.9	1.0	26.1	27.7
		A4144 South	309	317	152.4	176.8	17.4	19.1	33.4	35.3
		Old Abingdon Road Bus Lane	4	4	14.1	13.9	0.1	0.1	0.0	6.8
		Old Abingdon Road	492	502	202.9	210.3	21.4	24.9	21.2	21.8
		Bertie Place	4	4	12.0	12.0	0.0	0.0	35.6	37.8
1715-1815	Abingdon Road/ A4144	A4144 North	845	851	279.1	281.9	87.3	98.9	7.9	8.0
		A4144 South Bus Lane	20	20	40.9	41.1	1.3	1.2	26.0	25.7
		A4144 South	416	417	413.0	502.8	51.3	79.7	58.4	75.6
		Old Abingdon Road Bus Lane	4	4	43.4	43.5	0.1	0.1	0.0	10.8
		Old Abingdon Road	574	588	424.1	643.1	57.8	87.7	24.7	26.0
		Bertie Place	12	12	18.0	18.3	0.1	0.1	33.8	37.1

Time	Junction	Approach	Volume		Max Queue (m)		Avg Queue (m)		Delay (s)	
			2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM	2017 Base	2019 DM
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	832.7	1080.3	310.3	432.2	142.9	188.7
		A4144 North LT	199	199	828.1	1077.2	63.0	119.2	131.5	178.1
		Weirs Lane	593	593	861.2	982.4	360.8	486.0	194.9	255.0
		A4144 South	359	368	268.7	408.8	7.7	10.1	15.5	16.5
		A4144 South RT	312	316	367.7	408.8	33.7	37.3	59.7	60.3
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	834.8	1083.2	537.6	835.5	236.9	358.3
		A4144 North LT	182	178	835.1	1083.5	171.2	416.0	232.9	352.1
		Weirs Lane	573	587	863.7	988.7	304.7	579.8	204.3	357.8
		A4144 South	476	481	674.6	893.5	39.8	85.1	19.4	21.5
		A4144 South RT	390	393	674.6	893.6	94.3	156.8	83.9	93.6

Journey Time Comparison - AM Peak

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	38	18%	976	998	22
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	6	9%	1101	1122	21
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	76	46%	1021	1022	1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	93	33%	581	592	11
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	59	26%	931	937	6
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	6	12%	952	987	35
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	123	50%	826	756	-70
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	195	102%	451	426	-25

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	1	2%	560	571	11
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	6	17%	1859	1903	44
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	2	2%	1804	1798	-6
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	0	0%	627	641	14
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	10	22%	1573	1629	56
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	5	3%	1720	1698	-22

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	0	0%	560	569	9
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	-3	-2%	576	587	11
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	26	11%	304	307	3
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	1	2%	617	633	16
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	3	2%	470	473	3
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	15	7%	264	262	-2

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	1	1%	262	271	9
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	28	26%	576	580	4
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	-1	-2%	532	547	15
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	4	4%	351	354	3
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	7	5%	620	642	22
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	3	4%	445	447	3

Journey Time Comparison - PM Peak

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	1	2%	950	974	24
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	0	0%	1241	1255	14
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	19	28%	759	780	21
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	-	-	-	564	-
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	5	9%	1068	1094	26
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	5	9%	1273	1313	40
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	41	58%	840	862	22
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	-	-	-	596	-

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	1	2%	806	806	0
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	20	29%	2475	2524	49
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	0	0%	1607	1646	39
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	0	0%	813	819	6
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	24	52%	2309	2395	86
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	2	4%	1718	1768	50

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	1	2%	809	808	-1
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	2	3%	293	300	7
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	4	4%	301	306	5
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	2	3%	802	809	7
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	25	25%	391	394	3
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	21	17%	398	405	7

Description			Average Journey Times (s) All Vehicles excl. Buses				Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	Abs Diff DM	% Diff DM	2017 Base	2019 DM	Abs Diff DM	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	1	1%	535	532	-3
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	18	9%	603	600	-3
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	1	2%	325	332	7
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	2	3%	540	541	1
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	44	25%	534	546	12
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	7	9%	414	417	3

Appendix D. 2019 Scenario 1 Results

2019 Hinksey Hill AM Peak Comparison Scenario 1

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	872	1689.3	2071.5	3502.4	208.9	318.9	1042.2	171.6	211.5	444.2
		A423 Southern By-Pass (E)	2389	2427	2467	680.2	139.9	2768.7	4.9	4.0	5.4	5.4	5.5	6.4
		A34 NB Off Slip	1012	993	802	2959.3	3505.2	3511.0	220.7	651.5	1844.6	146.2	245.4	490.2
		Hinksey Hill	582	580	518	774.5	1031.7	1674.6	368.4	567.6	807.4	285.5	409.5	600.4
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1071	1741.1	2956.8	3515.9	356.6	699.0	2163.3	221.1	315.2	610.3
		A423 Southern By-Pass (E)	2107	2188	2300	434.7	441.0	3021.7	4.7	6.7	400.9	5.3	6.3	9.5
		A34 NB Off Slip	900	853	732	2954.5	3513.0	3515.9	480.8	2026.4	3306.7	287.2	669.8	1397.1
		Hinksey Hill	488	486	483	691.6	1038.5	1969.5	193.2	448.9	961.3	222.5	447.3	901.3

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	828	213.7	214.8	428.7	24.7	25.8	50.4	45.5	48.2	54.5
		A423 Eastern By-Pass Left	1844	1881	1713	947.7	1573.1	2381.4	33.6	76.6	162.2	25.1	36.6	100.8
		A423 Eastern By-Pass	408	417	435	931.2	1556.6	2376.5	67.3	130.8	738.5	114.3	127.3	249.7
		A423 Southern By-Pass Left	374	377	554	1126.8	1121.0	1126.0	428.1	494.2	865.0	25.1	24.7	66.5
		A423 Southern By-Pass	2111	2108	1696	1128.0	1122.1	1127.1	585.5	603.9	866.1	24.8	25.1	28.0
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	852	222.6	229.4	314.2	26.5	30.7	42.8	44.5	47.5	51.4
		A423 Eastern By-Pass Left	1597	1661	1644	1833.5	2391.2	2394.6	45.8	238.5	1361.1	35.8	68.9	277.4
		A423 Eastern By-Pass	398	410	433	1889.3	2374.6	2379.1	146.9	341.0	1768.5	134.0	174.5	443.0
		A423 Southern By-Pass Left	306	298	497	1132.8	1127.6	1144.2	830.2	896.9	972.4	28.2	30.9	47.6
		A423 Southern By-Pass	2116	2105	1850	1134.0	1128.8	1145.4	860.8	918.1	973.6	27.6	28.0	29.3

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
0715-0815	Abingdon Road/A4144	A4144 North	590	601	613	276.5	276.4	275.3	31.1	32.7	26.2	9.3	9.1	8.0
		A4144 South Bus Lane	17	17	15	41.4	53.8	41.7	1.0	1.0	0.8	24.6	25.3	23.9
		A4144 South	566	587	780	503.7	504.3	510.5	114.6	111.7	258.9	68.6	66.3	63.1
		Old Abingdon Road Bus Lane	4	4	3	42.3	42.3	13.9	0.5	0.5	0.1	35.2	40.2	14.9
		Bertie Place	11	13	13	17.5	16.8	14.0	0.2	0.1	0.1	51.6	47.0	45.7
0815-0915	Abingdon Road/A4144	A4144 North	662	675	688	277.4	281.9	280.2	46.7	50.0	33.2	8.9	8.9	6.8
		A4144 South Bus Lane	16	15	17	28.3	28.4	42.2	1.0	1.0	0.8	25.4	27.9	22.0
		A4144 South	513	511	706	504.2	510.6	510.4	105.0	111.8	188.9	73.2	76.0	64.8
		Old Abingdon Road Bus Lane	3	3	3	14.0	14.1	14.1	0.3	0.4	0.1	31.8	40.0	11.8
		Bertie Place	446	452	342	1254.4	1248.3	170.5	122.0	285.8	30.5	33.5	34.7	40.4

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	282	455.8	397.4	331.1	64.2	67.7	44.7	91.2	92.8	73.8
		A4144 North LT	95	98	98	245.2	290.9	193.1	7.0	8.8	6.8	82.5	86.2	66.3
		Weirs Lane	558	555	573	804.4	981.4	650.0	99.4	183.0	76.5	72.0	116.8	58.2
		A4144 South	654	667	634	1427.8	1457.8	491.5	367.5	477.7	59.8	46.4	44.3	35.7
		A4144 South RT	430	438	415	1427.8	1457.9	396.0	319.4	312.7	27.1	27.5	26.5	25.1
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	385	827.1	1083.2	809.9	245.6	307.5	232.8	167.4	196.0	156.2
		A4144 North LT	145	143	147	687.1	1083.5	723.6	56.4	82.4	62.6	170.6	202.9	161.7
		Weirs Lane	651	680	656	862.6	984.9	982.4	339.0	464.7	370.8	172.8	217.7	187.1
		A4144 South	590	598	567	1504.9	1498.8	421.0	253.1	454.1	105.9	59.4	62.2	59.0
		A4144 South RT	345	347	324	1504.9	1498.8	421.0	229.0	430.0	72.1	59.5	62.6	57.5

2019 Hinksey Hill PM Peak Comparison Scenario 1

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1022	143.9	136.0	219.5	13.3	14.7	19.5	17.9	19.6	23.6
		A423 Southern By-Pass (E)	3033	3079	3034	1597.0	2044.2	724.6	48.1	78.8	23.2	5.8	5.9	5.9
		A34 NB Off Slip	763	780	786	264.2	2102.8	321.1	36.3	68.8	34.4	50.6	71.6	49.7
		Hinksey Hill	544	559	560	133.8	139.3	120.1	12.7	14.0	12.0	27.5	28.8	27.3
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	723	207.2	293.7	3508.7	25.7	33.3	1721.6	26.6	32.3	417.2
		A423 Southern By-Pass (E)	2900	2999	2633	776.8	1815.3	3028.0	16.8	77.5	765.4	6.1	6.5	15.2
		A34 NB Off Slip	863	890	611	238.3	1029.8	3515.8	45.1	93.6	973.8	54.7	97.2	344.6
		Hinksey Hill	586	602	536	187.3	159.0	2109.5	12.6	14.2	159.4	26.3	27.5	114.8

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	1018	135.4	212.8	362.1	27.4	28.0	64.9	36.7	37.2	44.2
		A423 Eastern By-Pass Left	2453	2486	2369	1195.0	1981.5	2179.9	288.1	591.1	860.5	56.4	97.6	145.5
		A423 Eastern By-Pass	194	196	235	154.7	1293.9	1656.9	5.2	13.7	84.4	113.3	156.0	216.2
		A423 Southern By-Pass Left	164	169	502	127.0	57.7	1077.1	2.6	2.7	110.7	14.1	15.1	64.4
		A423 Southern By-Pass	1703	1745	1665	378.6	368.9	1078.3	39.1	42.8	140.7	19.7	20.0	24.1
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	976	305.5	223.7	492.6	30.1	30.5	120.6	39.1	38.4	70.4
		A423 Eastern By-Pass Left	2354	2454	2149	1121.5	2113.1	2394.6	113.3	443.4	1508.9	29.8	77.1	257.7
		A423 Eastern By-Pass	258	265	299	313.1	1050.7	2371.1	10.3	19.1	525.7	87.7	136.4	344.1
		A423 Southern By-Pass Left	208	211	388	129.5	829.1	1144.5	3.2	10.7	899.4	15.0	20.3	183.5
		A423 Southern By-Pass	1825	1880	1259	527.0	830.3	1145.6	51.0	64.1	903.6	19.5	20.6	31.1

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
1615-1715	Abingdon Road/A4144	A4144 North	826	826	866	282.1	289.2	279.5	100.4	101.1	78.0	8.7	8.7	7.1
		A4144 South Bus Lane	15	15	15	36.0	41.1	28.3	0.9	1.0	0.8	26.1	27.7	23.7
		A4144 South	309	317	560	152.4	176.8	503.3	17.4	19.1	131.4	33.4	35.3	64.6
		Old Abingdon Road Bus Lane	4	4	3	14.1	13.9	0.0	0.1	0.1	0.0	4.8	6.8	0.1
		Old Abingdon Road	492	502	244	202.9	210.3	92.1	21.4	24.9	11.8	21.2	21.8	33.5
		Bertie Place	4	4	4	12.0	12.0	11.3	0.0	0.0	0.0	35.6	37.8	39.3
1715-1815	Abingdon Road/A4144	A4144 North	845	851	845	279.1	281.9	289.9	87.3	98.9	69.5	7.9	8.0	7.0
		A4144 South Bus Lane	20	20	15	40.9	41.1	28.2	1.3	1.2	0.8	26.0	25.7	21.9
		A4144 South	416	417	605	413.0	502.8	510.5	51.3	79.7	329.9	58.4	75.6	85.0
		Old Abingdon Road Bus Lane	4	4	3	43.4	43.5	13.7	0.1	0.1	0.0	7.2	10.8	1.2
		Old Abingdon Road	574	588	215	424.1	643.1	271.9	57.8	87.7	14.0	24.7	26.0	33.7
		Bertie Place	12	12	12	18.0	18.3	15.8	0.1	0.1	0.1	33.8	37.1	36.8

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1	2017 Base	2019 DM	2019 SCN 1
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	559	832.7	1080.3	868.6	310.3	432.2	276.6	142.9	188.7	126.9
		A4144 North LT	199	199	205	828.1	1077.2	865.2	63.0	119.2	50.8	131.5	178.1	118.9
		Weirs Lane	593	593	608	861.2	982.4	982.1	360.8	486.0	376.3	194.9	255.0	197.4
		A4144 South	359	368	334	268.7	408.8	176.0	7.7	10.1	4.9	15.5	16.5	14.5
		A4144 South RT	312	316	293	367.7	408.8	176.0	33.7	37.3	23.7	59.7	60.3	51.1
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	571	834.8	1083.2	1076.9	537.6	835.5	337.6	236.9	358.3	148.8
		A4144 North LT	182	178	189	835.1	1083.5	1077.2	171.2	416.0	98.5	232.9	352.1	147.2
		Weirs Lane	573	587	570	863.7	988.7	986.0	304.7	579.8	364.7	204.3	357.8	226.8
		A4144 South	476	481	360	674.6	893.5	214.8	39.8	85.1	5.2	19.4	21.5	13.7
		A4144 South RT	390	393	305	674.6	893.6	214.8	94.3	156.8	25.4	83.9	93.6	52.1

Journey Time Comparison - AM Peak Scenario 1

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	406	151	59%	976	998	923	-75
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	62	-9	-13%	1101	1122	1065	-57
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	394	153	63%	1021	1022	832	-190
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	469	96	26%	581	592	541	-51
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	337	52	18%	931	937	921	-16
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	56	-2	-3%	952	987	997	10
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	468	99	27%	826	756	627	-129
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	517	131	34%	451	426	412	-14

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	47	4	9%	560	571	586	15
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	63	21	50%	1859	1903	1751	-152
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	152	29	24%	1804	1798	1715	-83
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	44	3	7%	627	641	653	12
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	89	34	62%	1573	1629	1595	-34
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	149	1	1%	1720	1698	1764	66

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	42	-4	-9%	560	569	582	13
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	146	24	20%	576	587	781	194
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	0	-	-	304	307	0	-
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	46	-8	-15%	617	633	645	12
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	131	5	4%	470	473	666	193
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	0	-	-	264	262	0	-

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	79	-11	-12%	262	271	267	-4
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	95	-40	-30%	576	580	589	9
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	53	-8	-13%	532	547	516	-31
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	96	-5	-5%	351	354	359	5
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	157	1	1%	620	642	626	-16
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	83	-6	-7%	445	447	423	-24

Journey Time Comparison - PM Peak Scenario 1

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	53	4	8%	950	974	971	-3
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	-1	-2%	1241	1255	1240	-15
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	65	-21	-24%	759	780	780	0
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	37	-1	-3%	-	564	564	0
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	380	319	523%	1068	1094	682	-412
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	70	10	17%	1273	1313	1174	-139
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	308	196	175%	840	862	592	-270
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	105	67	176%	-	596	540	-56

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	48	6	14%	806	806	847	41
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	101	12	13%	2475	2524	2421	-103
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	73	17	30%	1607	1646	1688	42
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	64	22	52%	813	819	797	-22
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	122	52	74%	2309	2395	2085	-310
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	177	118	200%	1718	1768	1203	-565

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	57	-8	-12%	809	808	843	35
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	131	61	87%	293	300	566	266
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	0	-	-	301	306	0	-
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	54	-7	-11%	802	809	807	-2
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	194	70	56%	391	394	559	165
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	0	-	-	398	405	0	-

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	% Diff SCN 1	2017 Base	2019 DM	2019 SCN 1	Abs Diff SCN 1	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	67	-6	-8%	535	532	550	18
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	186	-22	-11%	603	600	613	13
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	54	-6	-10%	325	332	303	-29
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	59	-11	-16%	540	541	539	-2
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	181	-41	-18%	534	546	532	-14
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	53	-29	-35%	414	417	316	-101

Appendix E. 2019 Scenario 2 Results

2019 Hinksey Hill AM Peak Comparison Scenario 2

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1041	1689.3	2071.5	698.1	208.9	318.9	87.7	171.6	211.5	79.2
		A423 Southern By-Pass (E)	2389	2427	2635	680.2	139.9	376.9	4.9	4.0	7.3	5.4	5.5	6.0
		A34 NB Off Slip	1012	993	991	2959.3	3505.2	3514.6	220.7	651.5	2591.7	146.2	245.4	614.9
		Hinksey Hill	582	580	638	774.5	1031.7	2117.3	368.4	567.6	1761.2	285.5	409.5	867.7
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1041	1741.1	2956.8	962.8	356.6	699.0	30.7	221.1	315.2	36.5
		A423 Southern By-Pass (E)	2107	2188	2360	434.7	441.0	512.3	4.7	6.7	5.7	5.3	6.3	5.7
		A34 NB Off Slip	900	853	1017	2954.5	3513.0	3516.0	480.8	2026.4	3150.2	287.2	669.8	835.0
		Hinksey Hill	488	486	609	691.6	1038.5	2119.8	193.2	448.9	2083.3	222.5	447.3	1281.0

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	713	213.7	214.8	361.9	24.7	25.8	34.3	45.5	48.2	49.9
		A423 Eastern By-Pass Left	1844	1881	1878	947.7	1573.1	1919.6	33.6	76.6	126.1	25.1	36.6	41.6
		A423 Eastern By-Pass	408	417	407	931.2	1556.6	1587.1	67.3	130.8	97.4	114.3	127.3	120.1
		A423 Southern By-Pass Left	374	377	362	1126.8	1121.0	430.9	428.1	494.2	11.5	25.1	24.7	19.3
		A423 Southern By-Pass	2111	2108	1962	1128.0	1122.1	669.1	585.5	603.9	102.2	24.8	25.1	21.6
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	792	222.6	229.4	334.8	26.5	30.7	42.7	44.5	47.5	53.5
		A423 Eastern By-Pass Left	1597	1661	1686	1833.5	2391.2	2385.9	45.8	238.5	387.2	35.8	68.9	87.5
		A423 Eastern By-Pass	398	410	402	1889.3	2374.6	2369.4	146.9	341.0	432.5	134.0	174.5	189.5
		A423 Southern By-Pass Left	306	298	291	1132.8	1127.6	1136.5	830.2	896.9	70.9	28.2	30.9	32.2
		A423 Southern By-Pass	2116	2105	2040	1134.0	1128.8	1137.6	860.8	918.1	414.0	27.6	28.0	28.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
0715-0815	Abingdon Road/A4144	A4144 North	590	601	671	276.5	276.4	276.7	31.1	32.7	35.5	9.3	9.1	8.5
		A4144 South Bus Lane	17	17	16	41.4	53.8	36.7	1.0	1.0	1.0	24.6	25.3	25.9
		A4144 South	566	587	574	503.7	504.3	392.9	114.6	111.7	56.7	68.6	66.3	43.5
		Old Abingdon Road Bus Lane	4	4	4	42.3	42.3	14.1	0.5	0.5	0.2	35.2	40.2	16.1
		Old Abingdon Road	557	567	554	1177.3	1207.4	500.5	227.4	329.2	83.1	28.9	28.3	23.8
		Bertie Place	11	13	12	17.5	16.8	18.8	0.2	0.1	0.2	51.6	47.0	46.1
0815-0915	Abingdon Road/A4144	A4144 North	662	675	759	277.4	281.9	281.0	46.7	50.0	57.9	8.9	8.9	8.6
		A4144 South Bus Lane	16	15	16	28.3	28.4	28.2	1.0	1.0	0.9	25.4	27.9	23.5
		A4144 South	513	511	481	504.2	510.6	504.2	105.0	111.8	89.0	73.2	76.0	66.5
		Old Abingdon Road Bus Lane	3	3	3	14.0	14.1	14.0	0.3	0.4	0.3	31.8	40.0	24.9
		Old Abingdon Road	446	452	437	1254.4	1248.3	1175.2	122.0	285.8	134.6	33.5	34.7	34.1
		Bertie Place	10	10	10	18.6	21.5	16.7	0.1	0.1	0.2	49.3	56.8	60.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	287	455.8	397.4	411.3	64.2	67.7	58.5	91.2	92.8	84.7
		A4144 North LT	95	98	98	245.2	290.9	304.4	7.0	8.8	8.6	82.5	86.2	79.4
		Weirs Lane	558	555	575	804.4	981.4	808.2	99.4	183.0	93.2	72.0	116.8	66.1
		A4144 South	654	667	656	1427.8	1457.8	751.0	367.5	477.7	123.7	46.4	44.3	34.2
		A4144 South RT	430	438	426	1427.8	1457.9	751.0	319.4	312.7	66.9	27.5	26.5	25.4
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	377	827.1	1083.2	1080.5	245.6	307.5	389.8	167.4	196.0	250.2
		A4144 North LT	145	143	141	687.1	1083.5	1077.2	56.4	82.4	123.8	170.6	202.9	258.1
		Weirs Lane	651	680	654	862.6	984.9	987.3	339.0	464.7	510.5	172.8	217.7	253.0
		A4144 South	590	598	572	1504.9	1498.8	1425.7	253.1	454.1	286.2	59.4	62.2	65.4
		A4144 South RT	345	347	331	1504.9	1498.8	1425.7	229.0	430.0	240.5	59.5	62.6	63.4

2019 Hinksey Hill PM Peak Comparison Scenario 2

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
16:15-17:15	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1009	143.9	136.0	113.7	13.3	14.7	14.9	17.9	19.6	19.9
		A423 Southern By-Pass (E)	3033	3079	2962	1597.0	2044.2	3016.0	48.1	78.8	118.7	5.8	5.9	6.4
		A34 NB Off Slip	763	780	833	264.2	2102.8	1525.6	36.3	68.8	65.4	50.6	71.6	71.3
		Hinksey Hill	544	559	617	133.8	139.3	168.8	12.7	14.0	17.3	27.5	28.8	31.2
17:15-18:15	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1121	207.2	293.7	562.5	25.7	33.3	40.9	26.6	32.3	37.9
		A423 Southern By-Pass (E)	2900	2999	2940	776.8	1815.3	3021.4	16.8	77.5	161.6	6.1	6.5	6.6
		A34 NB Off Slip	863	890	923	238.3	1029.8	656.0	45.1	93.6	87.1	54.7	97.2	89.5
		Hinksey Hill	586	602	643	187.3	159.0	196.4	12.6	14.2	17.6	26.3	27.5	30.0

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
16:15-17:15	A423 Kennington Roundabout	A4144 North	939	942	1081	135.4	212.8	492.9	27.4	28.0	58.8	36.7	37.2	44.0
		A423 Eastern By-Pass Left	2453	2486	2331	1195.0	1981.5	2388.3	288.1	591.1	1258.3	56.4	97.6	211.6
		A423 Eastern By-Pass	194	196	167	154.7	1293.9	1847.0	5.2	13.7	78.2	113.3	156.0	270.7
		A423 Southern By-Pass Left	164	169	207	127.0	57.7	365.8	2.6	2.7	4.9	14.1	15.1	38.2
		A423 Southern By-Pass	1703	1745	1747	378.6	368.9	401.7	39.1	42.8	50.4	19.7	20.0	22.1
17:15-18:15	A423 Kennington Roundabout	A4144 North	956	966	1120	305.5	223.7	492.2	30.1	30.5	69.9	39.1	38.4	47.7
		A423 Eastern By-Pass Left	2354	2454	2389	1121.5	2113.1	2398.9	113.3	443.4	2221.6	29.8	77.1	371.5
		A423 Eastern By-Pass	258	265	240	313.1	1050.7	1677.0	10.3	19.1	27.2	87.7	136.4	433.6
		A423 Southern By-Pass Left	208	211	244	129.5	829.1	686.1	3.2	10.7	9.7	15.0	20.3	39.5
		A423 Southern By-Pass	1825	1880	1868	527.0	830.3	687.2	51.0	64.1	66.7	19.5	20.6	21.3

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
16:15-17:15	Abingdon Road/A4144	A4144 North	826	826	905	282.1	289.2	282.1	100.4	101.1	144.3	8.7	8.7	9.3
		A4144 South Bus Lane	15	15	14	36.0	41.1	28.2	0.9	1.0	1.0	26.1	27.7	27.7
		A4144 South	309	317	289	152.4	176.8	135.7	17.4	19.1	16.0	33.4	35.3	32.9
		Old Abingdon Road Bus Lane	4	4	4	14.1	13.9	13.9	0.1	0.1	0.1	4.8	6.8	8.8
		Old Abingdon Road	492	502	551	202.9	210.3	320.5	21.4	24.9	36.8	21.2	21.8	22.0
		Bertie Place	4	4	4	12.0	12.0	12.0	0.0	0.0	0.0	35.6	37.8	28.8
17:15-18:15	Abingdon Road/A4144	A4144 North	845	851	923	279.1	281.9	282.0	87.3	98.9	137.1	7.9	8.0	8.8
		A4144 South Bus Lane	20	20	19	40.9	41.1	40.8	1.3	1.2	1.0	26.0	25.7	22.9
		A4144 South	416	417	402	413.0	502.8	355.5	51.3	79.7	40.5	58.4	75.6	52.5
		Old Abingdon Road Bus Lane	4	4	4	43.4	43.5	20.6	0.1	0.1	0.1	7.2	10.8	10.3
		Old Abingdon Road	574	588	656	424.1	643.1	1189.0	57.8	87.7	271.8	24.7	26.0	26.6
		Bertie Place	12	12	12	18.0	18.3	18.3	0.1	0.1	0.1	33.8	37.1	35.5

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2	2017 Base	2019 DM	2019 SCN 2
16:15-17:15	A4144/ Weirs Lane	A4144 North	547	543	511	832.7	1080.3	1087.6	310.3	432.2	724.6	142.9	188.7	323.1
		A4144 North LT	199	199	190	828.1	1077.2	1083.5	63.0	119.2	215.8	131.5	178.1	310.7
		Weirs Lane	593	593	552	861.2	982.4	983.8	360.8	486.0	743.4	194.9	255.0	424.0
		A4144 South	359	368	356	268.7	408.8	179.8	7.7	10.1	5.9	15.5	16.5	15.0
		A4144 South RT	312	316	310	367.7	408.8	571.0	33.7	37.3	33.7	59.7	60.3	57.4
17:15-18:15	A4144/ Weirs Lane	A4144 North	562	556	507	834.8	1083.2	1087.6	537.6	835.5	1018.6	236.9	358.3	478.2
		A4144 North LT	182	178	162	835.1	1083.5	1087.8	171.2	416.0	566.3	232.9	352.1	468.4
		Weirs Lane	573	587	563	863.7	988.7	988.7	304.7	579.8	907.9	204.3	357.8	566.1
		A4144 South	476	481	470	674.6	893.5	1001.4	39.8	85.1	112.1	19.4	21.5	20.3
		A4144 South RT	390	393	382	674.6	893.6	1439.5	94.3	156.8	218.8	83.9	93.6	85.5

Journey Time Comparison - AM Peak Scenario 2

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	107	-148	-58%	976	998	1003	5
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	72	1	1%	1101	1122	1119	-3
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	300	59	24%	1021	1022	997	-25
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	355	-18	-5%	581	592	630	38
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	64	-221	-78%	931	937	981	44
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	58	0	0%	952	987	993	6
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	295	-74	-20%	826	756	922	166
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	365	-21	-5%	451	426	568	142

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	48	5	12%	560	571	640	69
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	45	3	7%	1859	1903	1907	4
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	66	-57	-46%	1804	1798	1976	178
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	48	7	17%	627	641	720	79
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	62	7	13%	1573	1629	1643	14
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	107	-41	-28%	1720	1698	1965	267

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	46	0	0%	560	569	640	71
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	82	-40	-33%	576	587	573	-14
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	141	-125	-47%	304	307	498	191
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	55	1	2%	617	633	711	78
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	117	-9	-7%	470	473	465	-8
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	212	-18	-8%	264	262	403	141

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	86	-4	-4%	262	271	271	0
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	104	-31	-23%	576	580	595	15
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	53	-8	-13%	532	547	533	-14
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	106	5	5%	351	354	351	-3
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	175	19	12%	620	642	622	-20
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	91	3	3%	445	447	428	-20

Journey Time Comparison - PM Peak Scenario 2

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	950	974	940	-34
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	-1	-2%	1241	1255	1178	-77
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	86	0	0%	759	780	828	48
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	2	5%	-	564	620	56
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	67	6	10%	1068	1094	1055	-39
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	56	-4	-7%	1273	1313	1255	-58
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	104	-8	-7%	840	862	897	35
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	2	5%	-	596	637	41

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	51	9	21%	806	806	884	78
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	110	21	24%	2475	2524	2384	-140
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	59	3	5%	1607	1646	1731	85
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	54	12	29%	813	819	886	67
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	110	40	57%	2309	2395	2321	-74
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	61	2	3%	1718	1768	1822	54

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	78	13	20%	809	808	884	76
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	68	-2	-3%	293	300	288	-12
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	110	11	11%	301	306	388	82
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	73	12	20%	802	809	874	65
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	87	-37	-30%	391	394	390	-4
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	289	147	104%	398	405	440	35

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	% Diff SCN 2	2017 Base	2019 DM	2019 SCN 2	Abs Diff SCN 2	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	84	11	15%	535	532	499	-33
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	251	43	21%	603	600	555	-45
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	57	-3	-4%	325	332	322	-10
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	77	7	10%	540	541	510	-31
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	250	28	13%	534	546	521	-25
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	75	-7	-8%	414	417	408	-9

Appendix F. 2019 Scenario 3 Results

2019 Hinksey Hill AM Peak Comparison Scenario 3

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	943	1689.3	2071.5	3042.2	208.9	318.9	740.5	171.6	211.5	354.6
		A423 Southern By-Pass (E)	2389	2427	2513	680.2	139.9	338.2	4.9	4.0	6.3	5.4	5.5	6.0
		A34 NB Off Slip	1012	993	896	2959.3	3505.2	3516.0	220.7	651.5	2617.5	146.2	245.4	678.8
		Hinksey Hill	582	580	563	774.5	1031.7	2119.8	368.4	567.6	1760.0	285.5	409.5	948.5
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1071	1741.1	2956.8	3087.9	356.6	699.0	867.3	221.1	315.2	344.3
		A423 Southern By-Pass (E)	2107	2188	2294	434.7	441.0	2085.5	4.7	6.7	35.6	5.3	6.3	8.1
		A34 NB Off Slip	900	853	777	2954.5	3513.0	3516.0	480.8	2026.4	3352.1	287.2	669.8	1448.5
		Hinksey Hill	488	486	477	691.6	1038.5	2118.4	193.2	448.9	2088.0	222.5	447.3	1801.1

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	675	213.7	214.8	289.0	24.7	25.8	37.9	45.5	48.2	57.0
		A423 Eastern By-Pass Left	1844	1881	1792	947.7	1573.1	2386.2	33.6	76.6	125.9	25.1	36.6	59.8
		A423 Eastern By-Pass	408	417	438	931.2	1556.6	2371.7	67.3	130.8	360.9	114.3	127.3	173.1
		A423 Southern By-Pass Left	374	377	717	1126.8	1121.0	1124.8	428.1	494.2	789.7	25.1	24.7	32.9
		A423 Southern By-Pass	2111	2108	1751	1128.0	1122.1	1125.9	585.5	603.9	790.4	24.8	25.1	25.6
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	790	222.6	229.4	299.9	26.5	30.7	42.3	44.5	47.5	54.3
		A423 Eastern By-Pass Left	1597	1661	1665	1833.5	2391.2	2396.7	45.8	238.5	927.7	35.8	68.9	180.1
		A423 Eastern By-Pass	398	410	433	1889.3	2374.6	2380.1	146.9	341.0	1154.5	134.0	174.5	318.5
		A423 Southern By-Pass Left	306	298	567	1132.8	1127.6	1149.3	830.2	896.9	957.2	28.2	30.9	38.8
		A423 Southern By-Pass	2116	2105	1803	1134.0	1128.8	1150.5	860.8	918.1	958.4	27.6	28.0	28.8

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
0715-0815	Abingdon Road/A4144	A4144 North	590	601	676	276.5	276.4	275.7	31.1	32.7	9.5	9.3	9.1	3.7
		A4144 South Bus Lane	17	17	17	41.4	53.8	28.3	1.0	1.0	0.4	24.6	25.3	14.1
		A4144 South	566	587	973	503.7	504.3	504.3	114.6	111.7	115.3	68.6	66.3	31.5
		Old Abingdon Road Bus Lane	4	4	0	42.3	42.3	0.0	0.5	0.5	0.0	35.2	40.2	0.0
		Old Abingdon Road	557	567	48	1177.3	1207.4	48.6	227.4	329.2	3.0	28.9	28.3	49.5
		Bertie Place	11	13	12	17.5	16.8	13.1	0.2	0.1	0.0	51.6	47.0	52.8
0815-0915	Abingdon Road/A4144	A4144 North	662	675	793	277.4	281.9	275.2	46.7	50.0	16.8	8.9	8.9	4.3
		A4144 South Bus Lane	16	15	20	28.3	28.4	28.2	1.0	1.0	0.7	25.4	27.9	16.3
		A4144 South	513	511	793	504.2	510.6	510.5	105.0	111.8	131.9	73.2	76.0	43.5
		Old Abingdon Road Bus Lane	3	3	0	14.0	14.1	0.0	0.3	0.4	0.0	31.8	40.0	0.0
		Old Abingdon Road	446	452	18	1254.4	1248.3	47.4	122.0	285.8	1.4	33.5	34.7	51.7
		Bertie Place	10	10	10	18.6	21.5	11.6	0.1	0.1	0.0	49.3	56.8	58.2

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	283	455.8	397.4	396.3	64.2	67.7	48.7	91.2	92.8	75.3
		A4144 North LT	95	98	97	245.2	290.9	217.8	7.0	8.8	6.5	82.5	86.2	69.6
		Weirs Lane	558	555	576	804.4	981.4	867.4	99.4	183.0	99.2	72.0	116.8	70.8
		A4144 South	654	667	621	1427.8	1457.8	284.3	367.5	477.7	40.4	46.4	44.3	30.7
		A4144 South RT	430	438	403	1427.8	1457.9	284.3	319.4	312.7	21.8	27.5	26.5	23.9
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	388	827.1	1083.2	706.5	245.6	307.5	206.0	167.4	196.0	142.0
		A4144 North LT	145	143	149	687.1	1083.5	649.7	56.4	82.4	47.0	170.6	202.9	144.2
		Weirs Lane	651	680	656	862.6	984.9	922.7	339.0	464.7	219.6	172.8	217.7	114.9
		A4144 South	590	598	522	1504.9	1498.8	287.0	253.1	454.1	89.7	59.4	62.2	59.7
		A4144 South RT	345	347	302	1504.9	1498.8	287.1	229.0	430.0	63.6	59.5	62.6	59.3

2019 Hinksey Hill PM Peak Comparison Scenario 3

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
16:15-17:15	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	999	143.9	136.0	2270.7	13.3	14.7	36.1	17.9	19.6	28.7
		A423 Southern By-Pass (E)	3033	3079	2967	1597.0	2044.2	788.2	48.1	78.8	25.9	5.8	5.9	6.4
		A34 NB Off Slip	763	780	817	264.2	2102.8	2297.8	36.3	68.8	79.2	50.6	71.6	77.2
		Hinksey Hill	544	559	617	133.8	139.3	261.0	12.7	14.0	16.5	27.5	28.8	31.0
17:15-18:15	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	837	207.2	293.7	3515.9	25.7	33.3	1232.3	26.6	32.3	304.5
		A423 Southern By-Pass (E)	2900	2999	2726	776.8	1815.3	3028.0	16.8	77.5	551.8	6.1	6.5	10.3
		A34 NB Off Slip	863	890	717	238.3	1029.8	3515.9	45.1	93.6	865.5	54.7	97.2	317.8
		Hinksey Hill	586	602	599	187.3	159.0	2113.5	12.6	14.2	148.6	26.3	27.5	86.4

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
16:15-17:15	A423 Kennington Roundabout	A4144 North	939	942	1100	135.4	212.8	528.7	27.4	28.0	118.6	36.7	37.2	59.1
		A423 Eastern By-Pass Left	2453	2486	2312	1195.0	1981.5	2387.4	288.1	591.1	1179.8	56.4	97.6	200.5
		A423 Eastern By-Pass	194	196	207	154.7	1293.9	1920.5	5.2	13.7	149.6	113.3	156.0	267.6
		A423 Southern By-Pass Left	164	169	481	127.0	57.7	1125.9	2.6	2.7	109.9	14.1	15.1	48.2
		A423 Southern By-Pass	1703	1745	1758	378.6	368.9	1127.0	39.1	42.8	167.7	19.7	20.0	24.9
17:15-18:15	A423 Kennington Roundabout	A4144 North	956	966	1065	305.5	223.7	583.9	30.1	30.5	199.4	39.1	38.4	75.0
		A423 Eastern By-Pass Left	2354	2454	2227	1121.5	2113.1	2397.6	113.3	443.4	2171.4	29.8	77.1	369.1
		A423 Eastern By-Pass	258	265	288	313.1	1050.7	2374.4	10.3	19.1	463.4	87.7	136.4	453.5
		A423 Southern By-Pass Left	208	211	432	129.5	829.1	1150.0	3.2	10.7	762.0	15.0	20.3	148.4
		A423 Southern By-Pass	1825	1880	1488	527.0	830.3	1151.1	51.0	64.1	799.4	19.5	20.6	28.1

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
16:15-17:15	Abingdon Road/A4144	A4144 North	826	826	989	282.1	289.2	288.5	100.4	101.1	96.3	8.7	8.7	7.0
		A4144 South Bus Lane	15	15	18	36.0	41.1	28.3	0.9	1.0	0.8	26.1	27.7	20.3
		A4144 South	309	317	583	152.4	176.8	503.7	17.4	19.1	74.8	33.4	35.3	46.5
		Old Abingdon Road Bus Lane	4	4	0	14.1	13.9	0.0	0.1	0.1	0.0	4.8	6.8	0.0
		Old Abingdon Road	492	502	171	202.9	210.3	96.4	21.4	24.9	7.6	21.2	21.8	32.8
		Bertie Place	4	4	4	12.0	12.0	11.5	0.0	0.0	0.0	35.6	37.8	41.2
17:15-18:15	Abingdon Road/A4144	A4144 North	845	851	911	279.1	281.9	283.6	87.3	98.9	119.2	7.9	8.0	8.7
		A4144 South Bus Lane	20	20	19	40.9	41.1	28.3	1.3	1.2	0.7	26.0	25.7	18.6
		A4144 South	416	417	657	413.0	502.8	504.5	51.3	79.7	289.6	58.4	75.6	74.9
		Old Abingdon Road Bus Lane	4	4	0	43.4	43.5	0.0	0.1	0.1	0.0	7.2	10.8	0.0
		Old Abingdon Road	574	588	193	424.1	643.1	274.1	57.8	87.7	16.4	24.7	26.0	36.9
		Bertie Place	12	12	12	18.0	18.3	53.7	0.1	0.1	0.5	33.8	37.1	40.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3	2017 Base	2019 DM	2019 SCN 3
16:15-17:15	A4144/ Weirs Lane	A4144 North	547	543	556	832.7	1080.3	1083.2	310.3	432.2	378.0	142.9	188.7	165.8
		A4144 North LT	199	199	204	828.1	1077.2	1083.5	63.0	119.2	81.2	131.5	178.1	158.4
		Weirs Lane	593	593	597	861.2	982.4	983.7	360.8	486.0	430.7	194.9	255.0	226.7
		A4144 South	359	368	335	268.7	408.8	280.7	7.7	10.1	6.1	15.5	16.5	15.3
		A4144 South RT	312	316	291	367.7	408.8	284.3	33.7	37.3	24.5	59.7	60.3	52.3
17:15-18:15	A4144/ Weirs Lane	A4144 North	562	556	536	834.8	1083.2	1083.2	537.6	835.5	598.6	236.9	358.3	262.5
		A4144 North LT	182	178	180	835.1	1083.5	1083.5	171.2	416.0	279.6	232.9	352.1	252.9
		Weirs Lane	573	587	537	863.7	988.7	987.3	304.7	579.8	553.1	204.3	357.8	346.7
		A4144 South	476	481	378	674.6	893.5	185.8	39.8	85.1	5.7	19.4	21.5	13.9
		A4144 South RT	390	393	317	674.6	893.6	240.1	94.3	156.8	31.2	83.9	93.6	57.7

Journey Time Comparison - AM Peak Scenario 3

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	350	95	37%	976	998	974	-24
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	68	-3	-4%	1101	1122	1100	-22
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	350	109	45%	1021	1022	904	-118
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	427	54	14%	581	592	565	-27
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	292	7	2%	931	937	925	-12
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	56	-2	-3%	952	987	1002	15
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	433	64	17%	826	756	679	-77
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	519	133	34%	451	426	423	-3

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	48	5	12%	560	571	642	71
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	51	9	21%	1859	1903	1825	-78
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	129	6	5%	1804	1798	1763	-35
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	48	7	17%	627	641	754	113
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	81	26	47%	1573	1629	1619	-10
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	145	-3	-2%	1720	1698	1726	28

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	30	-16	-35%	560	569	642	73
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	78	-44	-36%	576	587	965	378
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	0	-	-	304	307	0	-
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	36	-18	-33%	617	633	747	114
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	95	-31	-25%	470	473	773	300
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	0	-	-	264	262	0	-

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	77	-13	-14%	262	271	267	-4
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	101	-34	-25%	576	580	590	10
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	49	-12	-19%	532	547	502	-45
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	91	-10	-10%	351	354	362	8
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	129	-27	-17%	620	642	631	-11
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	85	-4	-5%	445	447	392	-55

Journey Time Comparison - PM Peak Scenario 3

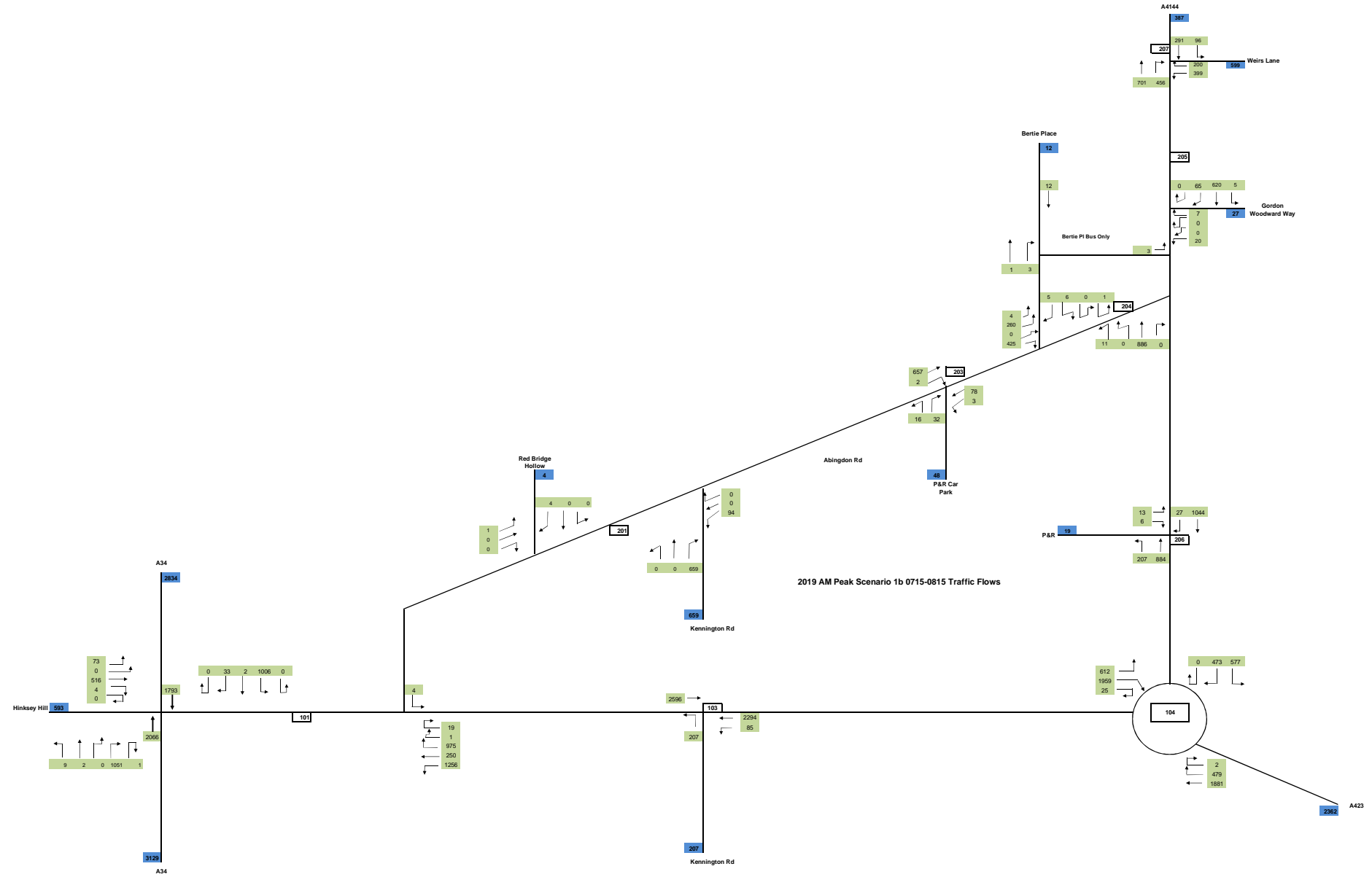
Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	59	10	20%	950	974	938	-36
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	51	-3	-6%	1241	1255	1203	-52
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	93	7	8%	759	780	821	41
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	2	5%	-	564	621	57
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	286	225	369%	1068	1094	781	-313
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	57	-3	-5%	1273	1313	1202	-111
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	270	158	141%	840	862	687	-175
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	79	41	108%	-	596	598	2

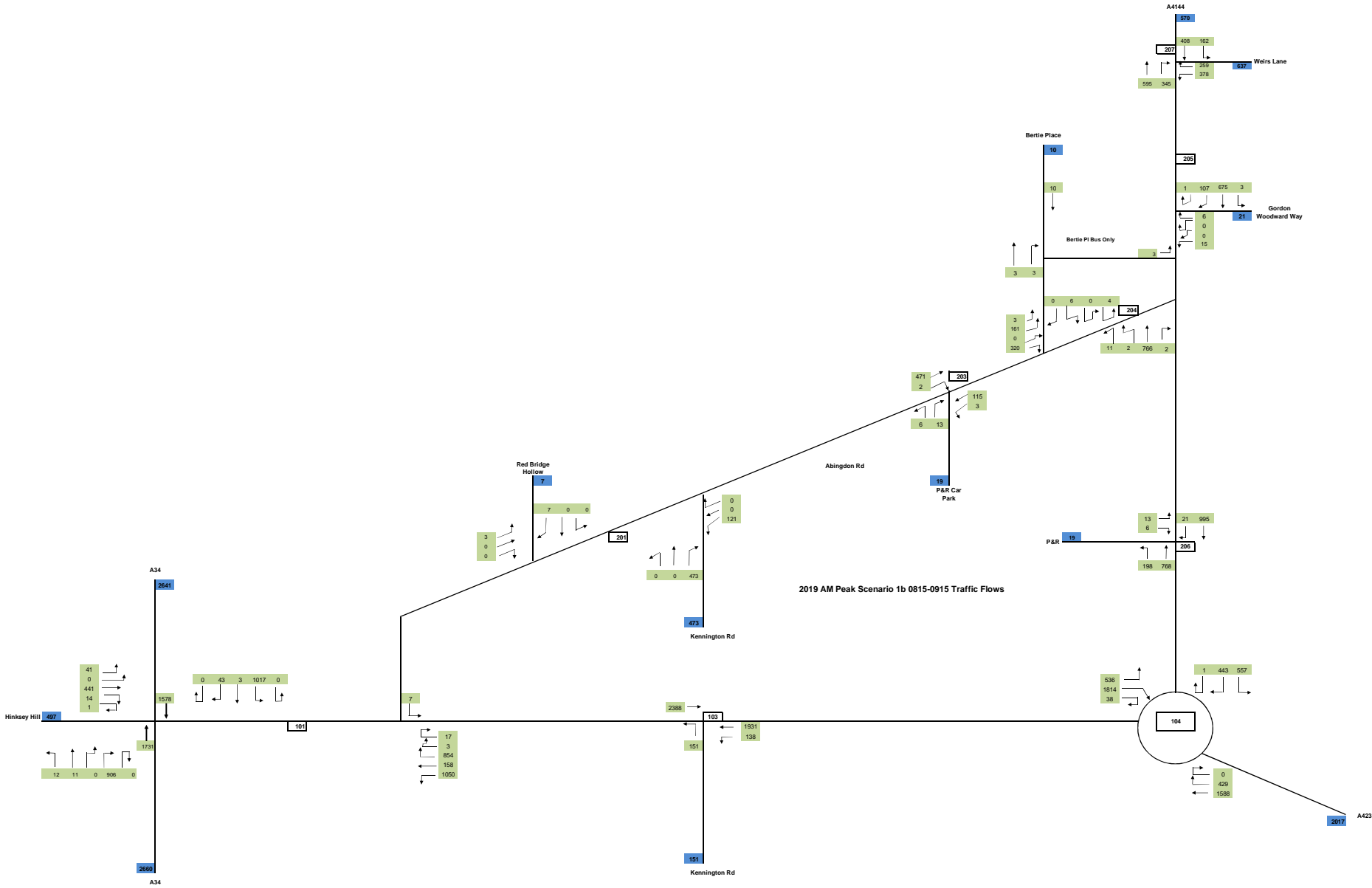
Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	70	28	67%	806	806	967	161
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	110	21	24%	2475	2524	2364	-160
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	75	19	34%	1607	1646	1773	127
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	90	48	114%	813	819	861	42
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	115	45	64%	2309	2395	2153	-242
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	145	86	146%	1718	1768	1440	-328

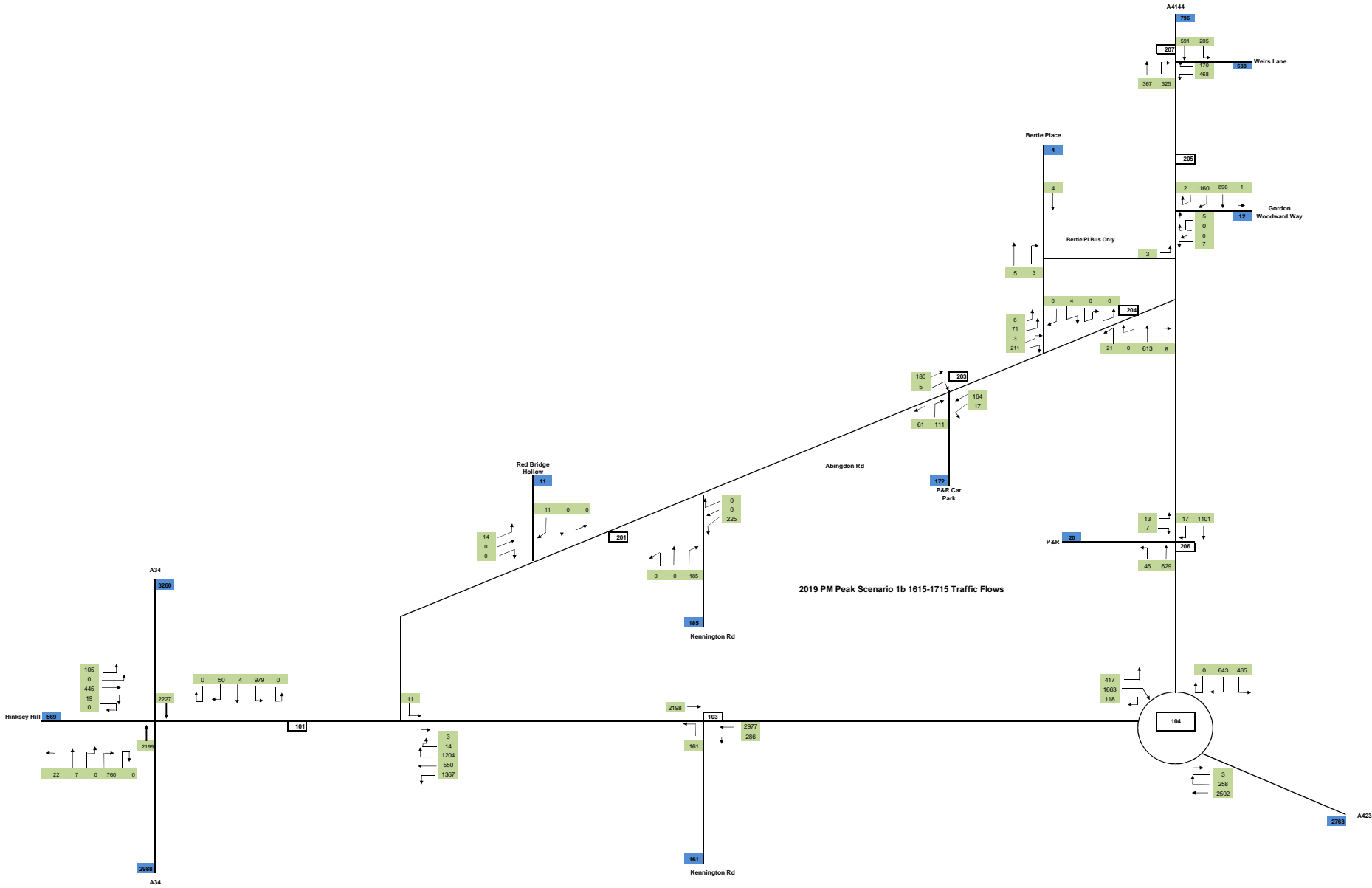
Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	60	-5	-8%	809	808	966	158
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	93	23	33%	293	300	595	295
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	0	-	-	301	306	0	-
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	68	7	11%	802	809	868	59
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	169	45	36%	391	394	626	232
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	0	-	-	398	405	0	-

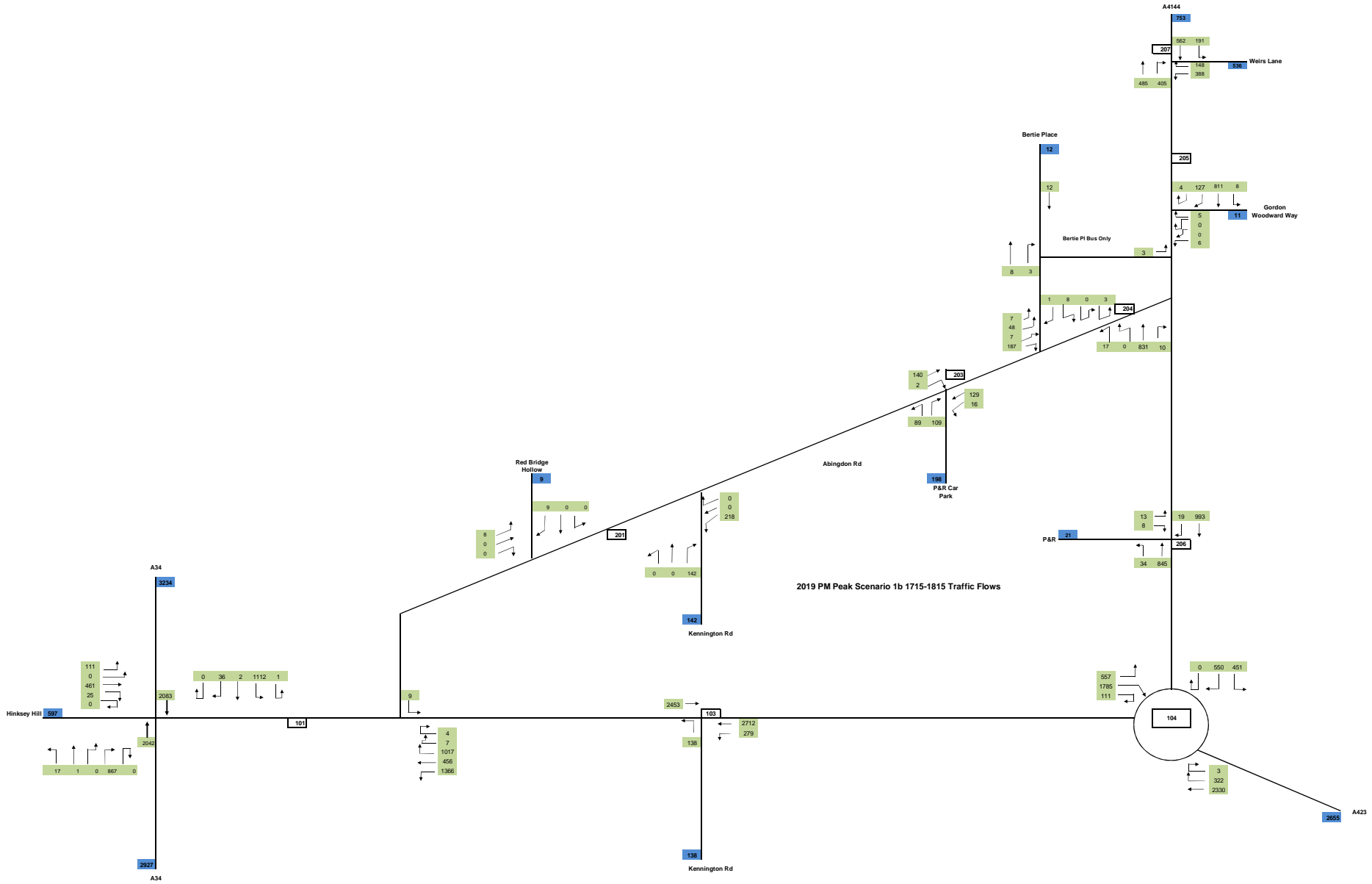
Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	% Diff SCN 3	2017 Base	2019 DM	2019 SCN 3	Abs Diff SCN 3	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	72	-1	-1%	535	532	542	10
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	199	-9	-4%	603	600	603	3
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	54	-6	-9%	325	332	303	-29
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	70	0	0%	540	541	510	-31
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	239	17	8%	534	546	498	-48
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	56	-26	-31%	414	417	331	-86

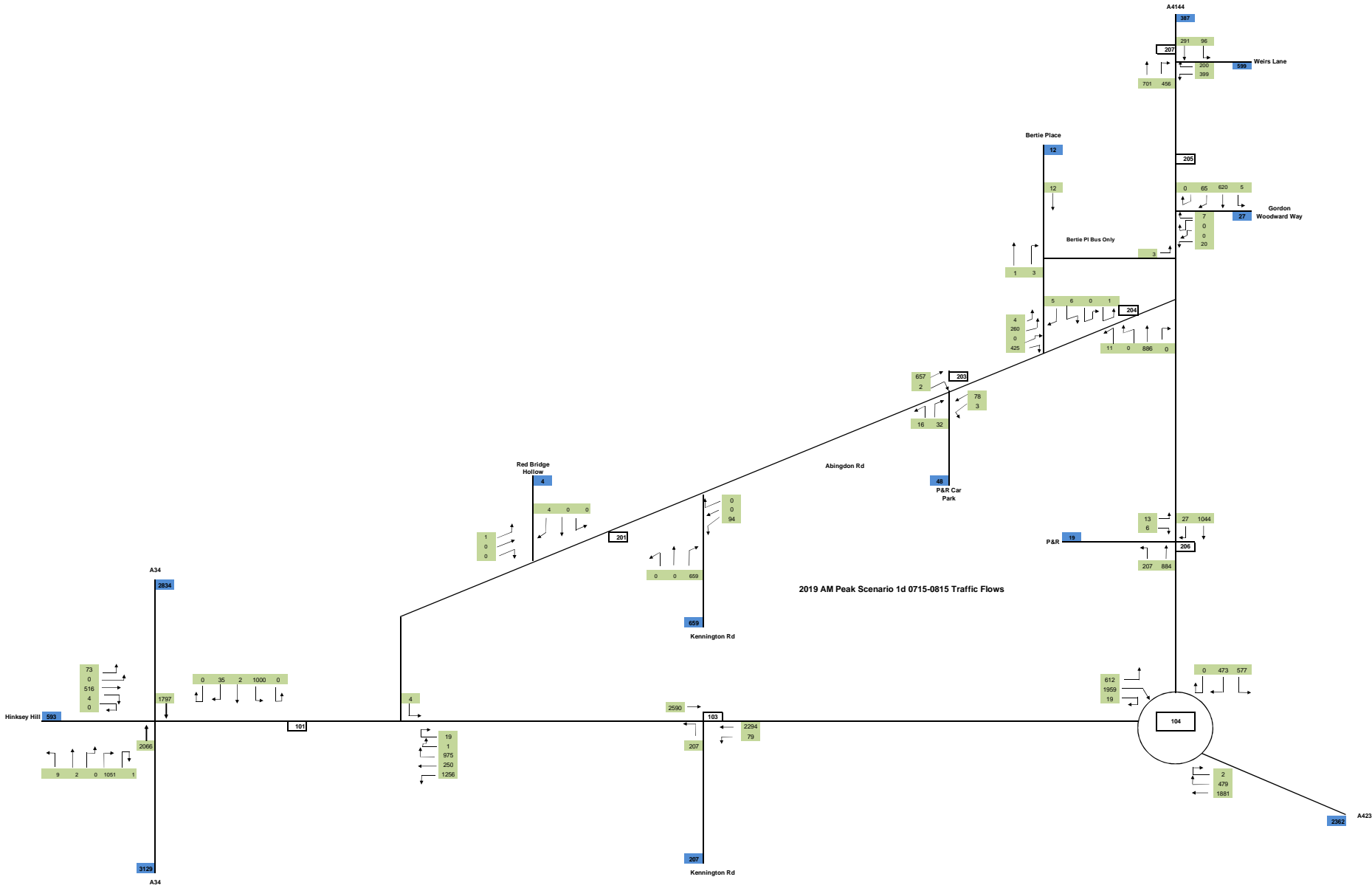
Appendix G. 2019 Scenario 1 Mitigation Results



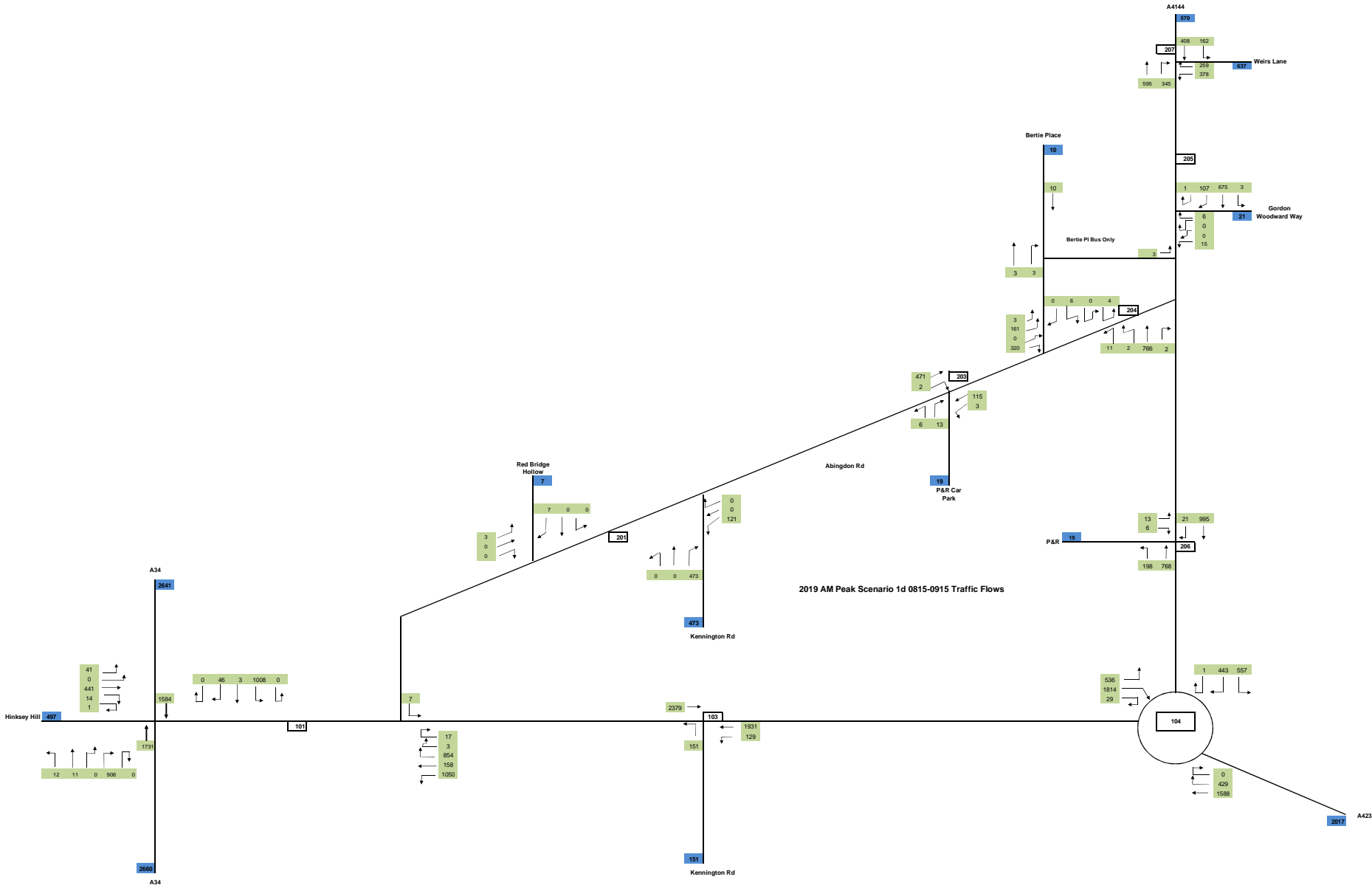


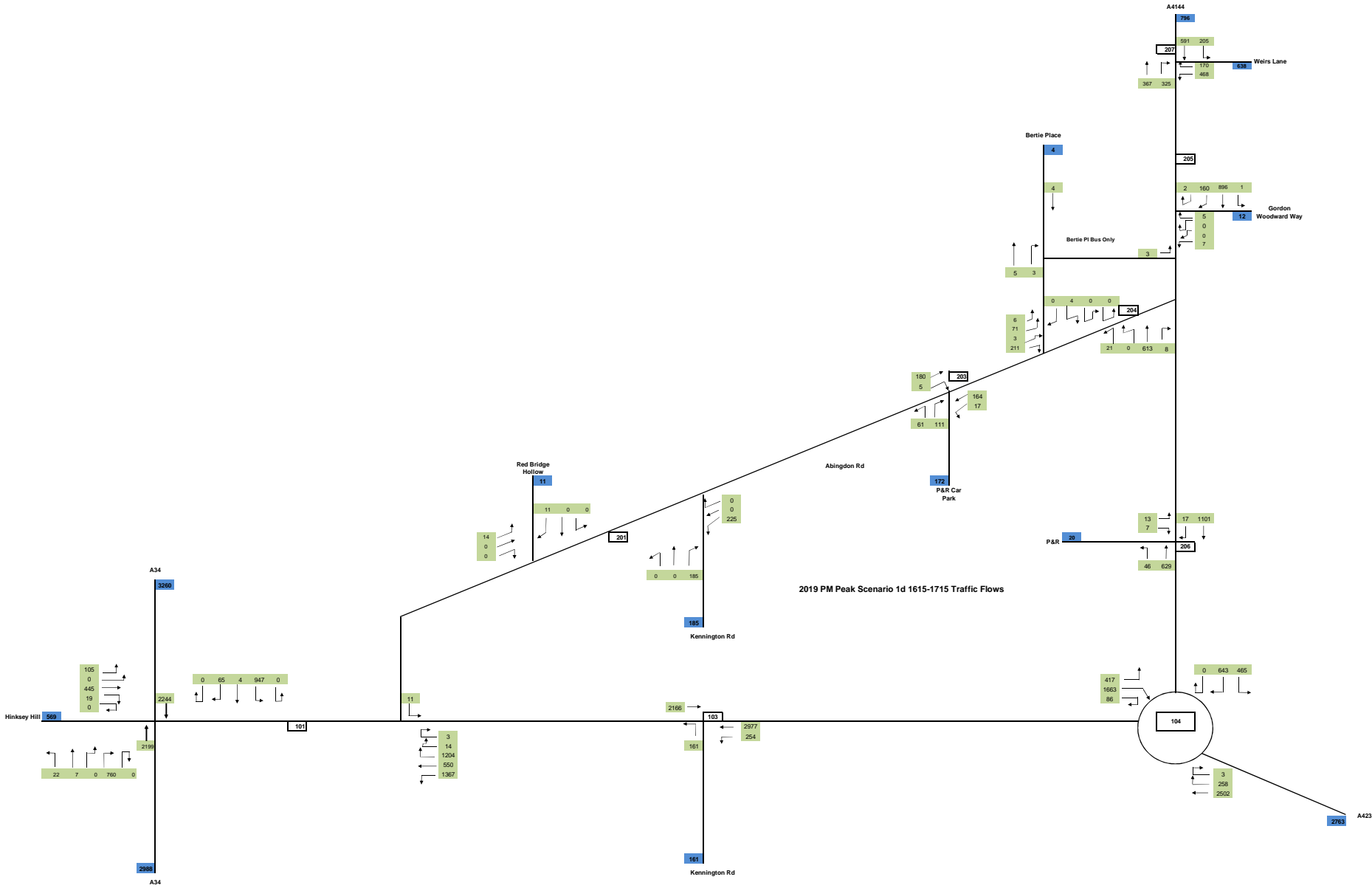


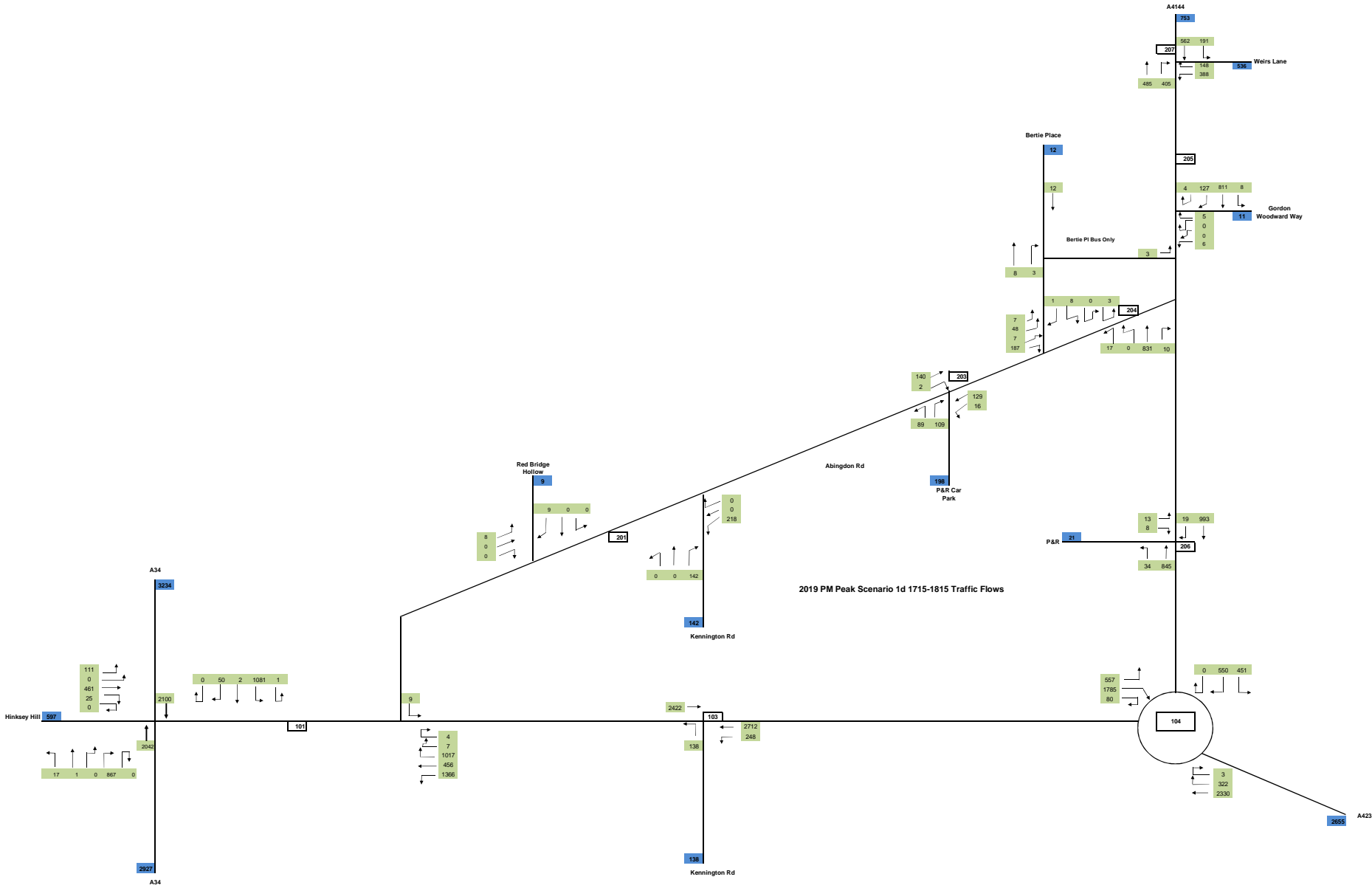




2019 AM Peak Scenario 1d 0815-0915 Traffic Flows







2019 Hinksey Hill AM Peak Comparison - Scenario 1 Mitigation

Approach Average

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d
07/15-08/15	Hinksey Hill Interchange	A34 SB Off Slip	937	946	872	887	819	841	840	1689.3	2071.5	3502.4	3327.2	3509.4	3506.6	3508.4	208.9	318.9	1042.2	1032.5	1267.6	1142.0	1127.2	171.6	211.5	444.2	441.2	524.9	485.7	479.4
		A423 Southern By-Pass (E)	2389	2427	2467	2466	2265	2264	2251	680.2	139.9	2768.7	3017.4	744.4	2686.3	103.0	4.9	4.0	51.4	55.1	7.0	22.2	3.7	5.4	5.5	6.4	6.1	5.5	5.6	5.2
		A34 NB Off Slip	1012	993	802	819	855	867	879	2959.3	3505.2	3511.0	3515.9	3510.2	3516.0	3511.3	220.7	651.5	1844.6	1824.3	1711.3	1577.1	1612.8	146.2	245.4	490.2	484.0	460.2	428.5	416.2
		Hinksey Hill	582	580	518	525	501	513	513	774.5	1031.7	1674.6	1375.8	1759.9	1758.0	1393.9	368.4	567.6	807.4	782.9	838.1	797.0	758.7	285.5	409.5	600.4	580.8	625.9	595.3	568.3
08/15-09/15	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1071	1068	941	937	960	1741.1	2956.8	3515.9	3515.9	3515.9	3515.9	356.6	699.0	2163.3	1973.4	2983.5	2815.8	2797.1	221.1	315.2	610.3	561.4	957.0	900.0	856.3	
		A423 Southern By-Pass (E)	2107	2188	2300	2310	2107	2120	2094	434.7	441.0	3021.7	3021.8	513.5	3028.0	644.0	4.7	6.7	400.9	161.7	8.0	191.9	9.5	5.3	6.3	9.5	9.3	7.0	6.8	6.9
		A34 NB Off Slip	900	853	732	733	713	704	726	2954.5	3513.0	3515.9	3516.0	3516.0	3516.0	480.8	2026.4	3306.7	3288.4	3242.5	3119.1	3201.2	287.2	669.8	1397.1	1317.9	1239.4	1218.9	1129.9	
		Hinksey Hill	488	486	483	471	419	425	445	691.6	1038.5	1969.5	1756.4	2117.2	2113.5	2106.2	193.2	448.9	961.3	919.1	1254.3	1144.3	1067.9	222.5	447.3	901.3	864.9	1197.9	1092.3	1012.7

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d
07/15-08/15	A423 Kennington Roundabout	A4144 North	620	632	828	816	932	924	923	213.7	214.8	428.7	492.9	438.4	308.7	281.7	24.7	25.8	50.4	54.0	54.9	56.3	56.4	45.5	48.2	54.5	55.8	52.7	53.1	55.1
		A423 Eastern By-Pass Left	1844	1881	1713	1717	1712	1712	1699	947.7	1573.1	2381.4	2387.6	2387.5	2389.3	2393.9	33.6	76.6	162.2	189.1	175.0	152.4	107.5	25.1	36.6	100.8	100.4	100.1	96.4	108.2
		A423 Eastern By-Pass	408	417	435	432	431	431	429	931.2	1556.6	2376.5	2376.6	2377.7	2378.5	2379.5	67.3	130.8	738.5	723.7	747.6	735.3	781.8	114.3	127.3	249.7	248.5	252.2	246.4	262.9
		A423 Southern By-Pass Left	374	377	554	563	537	548	544	1126.8	1121.0	1126.0	1126.6	1127.0	1126.9	1120.2	428.1	494.2	865.0	847.4	850.5	831.4	836.5	25.1	24.7	66.5	58.7	93.7	85.9	85.2
		A423 Southern By-Pass	2111	2108	1696	1735	1513	1545	1550	1128.0	1122.1	1127.1	1127.7	1128.1	1128.1	1121.4	585.5	603.9	866.1	849.1	853.3	833.7	840.1	24.8	25.1	28.0	28.2	27.1	27.4	28.0
08/15-09/15	A423 Kennington Roundabout	A4144 North	688	703	852	861	1011	1014	1009	222.6	229.4	314.2	223.1	490.6	333.0	304.0	26.5	30.7	42.8	40.0	78.7	74.6	74.8	44.5	47.5	51.4	49.9	61.7	61.3	60.3
		A423 Eastern By-Pass Left	1597	1661	1644	1661	1596	1606	1590	1833.5	2391.2	2394.6	2396.6	2397.9	2395.7	2397.1	45.8	238.5	1361.1	1375.1	1733.7	1789.2	1759.7	35.8	68.9	277.4	260.3	329.6	326.2	323.7
		A423 Eastern By-Pass	398	410	433	440	418	422	414	1889.3	2374.6	2379.1	2380.1	2381.3	2379.1	2380.6	146.9	341.0	1768.5	1742.2	1968.5	1972.1	1907.7	134.0	174.5	443.0	427.6	519.5	525.1	510.9
		A423 Southern By-Pass Left	306	298	497	492	436	434	450	1132.8	1127.6	1144.2	1157.2	1132.3	1130.2	1135.8	830.2	896.9	972.4	965.8	970.4	966.2	956.1	28.2	30.9	47.6	49.8	117.0	119.3	100.6
A423 Southern By-Pass	2116	2105	1850	1831	1550	1540	1592	1134.0	1128.8	1145.4	1158.4	1133.5	1131.4	1136.9	860.8	918.1	973.6	967.0	971.5	967.4	957.2	27.6	28.0	29.3	29.3	31.5	31.6	31.7		

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d
07/15-08/15	Abingdon Road/A4144	A4144 North	590	601	613	611	615	615	615	276.5	276.4	275.3	276.3	276.2	277.3	275.2	31.1	32.7	26.2	26.2	28.4	28.1	28.5	9.3	9.1	8.0	7.6	8.7	8.3	8.5
		A4144 South Bus Lane	17	17	15	15	15	15	15	41.4	53.8	41.7	41.7	40.2	42.0	41.8	1.0	1.0	0.8	0.9	0.9	0.9	0.9	24.6	25.3	23.9	24.4	26.2	24.6	25.3
		A4144 South	566	587	780	791	762	769	707	503.7	504.3	510.5	510.6	510.5	510.5	514.9	114.6	111.7	258.9	247.0	295.1	283.0	300.6	68.6	66.3	63.1	61.1	68.1	66.1	66.7
		Old Abingdon Road Bus Lane	4	4	3	3	3	3	3	42.3	42.3	13.9	13.9	13.9	13.8	13.9	0.5	0.5	0.1	0.1	0.1	0.1	0.1	35.2	40.2	14.9	13.9	17.8	17.5	12.3
		Old Abingdon Road	557	567	493	492	556	545	541	1177.3	1207.4	281.0	341.2	1255.1	1248.2	1248.3	227.4	329.2	58.9	64.3	546.9	554.3	566.2	28.9	28.3	31.4	31.5	30.1	31.1	31.0
		Bertie Place	11	13	13	12	11	13	12	11.7	16.8	14.0	12.3	13.1	13.1	13.1	0.2	0.1	0.1	0.1	0.1	0.1	0.1	51.6	47.0	45.7	48.3	45.7	50.0	44.0
08/15-09/15	Abingdon Road/A4144	A4144 North	662	675	688	688	687	685	688	277.4	281.9	280.2	277.3	281.0	280.9	282.0	46.7	50.0	33.2	38.0	50.8	55.0	49.9	8.9	8.9	6.8	7.1	8.6	8.8	8.6
		A4144 South Bus Lane	16	15	17	16	16	16	16	28.3	28.4	42.2	28.4	42.0	41.5	41.3	1.0	1.0	0.8	0.9	1.1	1.2	1.2	25.4	27.9	22.0	23.9	28.4	29.3	29.5
		A4144 South	513	511	706	703	650	647	661	504.2	510.6	510.4	513.7	510.6	510.4	510.6	105.0	111.8	188.9	191.4	331.3	329.1	322.2	73.2	76.0	64.8	65.6	92.4	93.6	89.4
		Old Abingdon Road Bus Lane	3	3	3	3	2	2	2	14.0	14.1	14.1	14.1	13.9	14.0	13.7	0.3	0.4	0.1	0.1	0.1	0.1	0.1	31.8	40.0	11.8	10.2	17.3	25.1	13.0
		Old Abingdon Road	446	452	342	343	512	513	512	1254.4	1248.3	170.5	177.7	1260.4	1258.3	1263.9	122.0	285.8	30.5	31.4	1091.0	1084.8	1063.1	33.5	34.7	40.4	41.3	36.6	37.0	37.5
		Bertie Place	10	10	10	10	10	10	10	18.6	21.5	15.4	20.9	18.3	16.8	16.8	0.1	0.1	0.1	0.1	0.1	0.1	0.1	49.3	56.8	59.7	52.2	51.3	52.9	49.5

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d
07/15-08/15	A4144/ Weirs Lane	A4144 North	277	286	282	284	282	282	283	455.8	397.4	331.1	379.7	395.8	359.8	305.2	64.2	67.7	44.7	47.2	46.3	41.9	38.8	91.2	92.8	73.8				

2019 Hinksey Hill PM Peak Comparison - Scenario 1 Mitigation

Approach Average

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d
16:15-17:15	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1022	1023	1012	1020	1010	143.9	136.0	219.5	194.7	2009.5	2007.5	129.1	13.3	14.7	19.5	17.3	33.9	32.4	13.5	17.9	19.6	23.6	22.0	28.8	25.8	18.7
		A423 Southern By-Pass (E)	3033	3079	3034	3036	2993	2997	2997	1597.0	2044.2	724.6	714.5	2386.2	575.1	628.6	48.1	78.8	23.2	20.0	87.3	16.1	21.0	5.8	5.9	5.9	6.0	5.8	5.8	6.2
		A34 NB Off Slip	763	780	786	784	783	784	785	264.2	2102.8	321.1	322.9	289.4	206.5	240.0	36.3	68.8	34.4	39.0	38.0	34.6	37.2	50.6	71.6	49.7	54.8	53.4	49.7	52.7
		Hinksey Hill	544	559	560	559	558	559	560	133.8	139.3	120.1	103.6	252.2	98.5	122.7	12.7	14.0	12.0	12.0	12.7	12.1	11.9	27.5	28.8	27.3	27.4	27.9	27.7	27.1
17:15-18:15	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	723	962	728	942	996	207.2	293.7	3508.7	3506.7	3507.3	3508.3	3505.2	25.7	33.3	1721.6	604.7	1850.7	661.7	361.0	26.6	32.3	417.2	184.4	474.5	194.1	144.3
		A423 Southern By-Pass (E)	2900	2999	2633	2894	2689	2851	2926	776.8	1815.3	3028.0	3019.7	3021.4	3021.0	2068.1	16.8	77.5	765.4	176.9	860.1	272.3	57.1	6.1	6.5	15.2	7.2	11.7	7.5	7.7
		A34 NB Off Slip	863	890	611	805	619	806	842	238.3	1029.8	3515.8	3031.2	3505.2	3504.3	1760.0	45.1	93.6	973.8	247.9	1016.6	272.5	100.0	54.7	97.2	344.6	131.3	373.1	142.7	91.8
		Hinksey Hill	586	602	536	582	552	581	595	187.3	159.0	2109.5	1290.2	1062.9	903.1	557.3	12.6	14.2	159.4	40.3	127.5	24.2	24.2	26.3	27.5	114.8	41.4	107.3	40.2	38.3

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d
16:15-17:15	A423 Kennington Roundabout	A4144 North	939	942	1018	1014	1065	1060	1063	135.4	212.8	362.1	313.6	270.2	270.2	303.3	27.4	28.0	64.9	61.4	62.6	61.6	49.6	36.7	37.2	44.2	43.4	42.7	42.9	41.4
		A423 Eastern By-Pass Left	2453	2486	2369	2374	2366	2372	2377	1195.0	1981.5	2179.9	2308.0	2380.8	2247.5	2214.9	288.1	591.1	860.5	846.3	875.1	859.2	835.6	56.4	97.6	145.5	141.8	145.7	142.2	138.9
		A423 Eastern By-Pass	194	196	235	237	235	238	239	154.7	1293.9	1656.9	1671.8	1536.4	1844.8	1525.9	5.2	13.7	84.4	85.4	64.7	64.4	56.5	113.3	156.0	216.2	210.9	214.9	210.3	203.4
		A423 Southern By-Pass Left	164	169	502	516	498	514	488	127.0	57.7	1077.1	1097.7	1069.3	1075.1	718.2	2.6	2.7	110.7	89.3	123.2	74.7	30.1	14.1	15.1	64.4	54.7	65.0	53.6	38.3
		A423 Southern By-Pass	1703	1745	1665	1681	1614	1637	1642	378.6	368.9	1078.3	1098.9	1070.4	1076.3	719.4	39.1	42.8	140.7	128.7	153.6	106.0	63.5	19.7	20.0	24.1	23.7	24.2	23.0	22.2
17:15-18:15	A423 Kennington Roundabout	A4144 North	956	966	976	1011	1015	1034	1054	305.5	223.7	492.6	492.2	492.4	503.7	492.7	30.1	30.5	120.6	94.8	106.3	93.9	71.2	39.1	38.4	70.4	56.3	62.5	57.6	52.3
		A423 Eastern By-Pass Left	2354	2454	2149	2357	2230	2353	2401	1121.5	2113.1	2394.6	2388.3	2388.0	2387.6	2377.3	113.3	443.4	1508.9	1243.3	1433.2	1275.6	1116.7	29.8	77.1	257.7	195.0	234.0	201.8	176.4
		A423 Eastern By-Pass	258	265	299	325	308	323	329	313.1	1050.7	2371.1	2366.5	2370.5	2371.0	2360.7	10.3	19.1	525.7	491.3	591.8	406.7	387.0	87.7	136.4	344.1	278.6	330.4	289.2	262.6
		A423 Southern By-Pass Left	208	211	388	533	404	524	533	129.5	829.1	1144.5	1132.6	1143.9	1137.6	1127.4	3.2	10.7	899.4	619.0	902.1	608.2	567.4	15.0	20.3	183.5	90.7	165.4	97.4	89.4
		A423 Southern By-Pass	1825	1880	1259	1588	1255	1545	1624	527.0	830.3	1145.6	1133.8	1145.0	1138.8	1128.5	51.0	64.1	903.6	643.8	905.4	631.9	591.4	19.5	20.6	31.1	27.9	28.6	27.4	27.7

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d
16:15-17:15	Abingdon Road/ A4144	A4144 North	826	826	866	861	865	864	866	282.1	289.2	279.5	281.4	280.8	282.1	281.9	100.4	101.1	78.0	75.0	82.3	79.7	81.3	8.7	8.7	7.1	6.9	7.3	7.1	7.1
		A4144 South Bus Lane	15	15	15	15	15	16	16	36.0	41.1	28.3	28.3	28.1	28.5	28.2	0.9	1.0	0.8	0.8	0.8	0.9	0.9	26.1	27.7	23.7	23.4	23.2	24.6	25.0
		A4144 South	309	317	560	587	556	582	587	152.4	176.8	503.3	503.1	504.3	503.4	443.6	17.4	19.1	131.4	73.1	130.0	87.1	78.2	33.4	35.3	64.6	50.3	66.9	55.0	52.4
		Old Abingdon Road Bus Lane	4	4	3	3	3	3	3	14.1	13.9	0.0	13.9	0.0	0.0	44.6	0.1	0.1	0.0	0.0	0.0	0.0	0.0	4.8	6.8	0.1	0.6	0.2	0.5	0.5
		Old Abingdon Road	492	502	244	242	286	285	284	202.9	210.3	92.1	99.3	107.0	113.5	125.0	21.4	24.9	11.8	13.3	17.1	19.1	20.4	21.2	21.8	33.5	36.6	34.3	36.6	38.1
		Bertie Place	4	4	4	4	4	4	4	12.0	12.0	11.3	11.3	11.4	12.0	5.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	35.6	37.8	39.3	44.2	36.3	45.6	45.3
17:15-18:15	Abingdon Road/ A4144	A4144 North	845	851	845	863	853	861	870	279.1	281.9	289.9	282.3	282.0	278.1	282.1	87.3	98.9	69.5	56.3	75.7	60.3	58.6	7.9	8.0	7.0	5.7	7.1	6.0	5.8
		A4144 South Bus Lane	20	20	15	18	16	18	19	40.9	41.1	28.2	41.5	41.6	28.1	41.0	1.3	1.2	0.8	0.8	0.9	0.9	26.0	25.7	21.9	21.3	23.7	21.7	22.2	
		A4144 South	416	417	605	726	623	720	745	413.0	502.8	510.5	504.3	504.2	507.8	510.5	51.3	79.7	329.9	213.8	360.4	254.7	256.5	58.4	75.6	85.0	59.7	89.4	65.2	67.1
		Old Abingdon Road Bus Lane	4	4	3	3	3	3	3	43.4	43.5	13.7	13.5	0.0	13.7	0.0	0.1	0.1	0.1	0.0	0.0	0.0	0.0	7.2	10.8	1.2	2.2	0.9	3.9	2.5
		Old Abingdon Road	574	588	215	217	246	248	249	424.1	643.1	271.9	219.7	124.4	124.9	122.3	57.8	87.7	14.0	18.0	15.5	21.4	20.8	24.7	26.0	33.7	43.6	35.1	44.5	44.7
		Bertie Place	12	12	12	12	12	12	12	18.0	18.3	15.8	18.3	18.3	12.3	18.3	0.1	0.1	0.1	0.1	0.1	0.1	33.8	37.0	36.8	51.1	40.6	49.6	42.6	

Time	Junction	Approach	Volume							Max Queue (m)							Avg Queue (m)							Delay (s)						
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN1d
16:15-17:15	A4144/ Weirs Lane	A4144 North	547	543	559	555	557	555	561	832.7	1080.3	868.6	969.2	1077.0	1083.2	962.2	310.3	432.2	276.6	302.6	328.0	358.8	323.9	142.9	188.7	126.9	139.1	146.6	160.6	144.8
		A4144 North LT	199	199	205	204	205	204	205	828.1	1077.2	865.2	814.0	965.0	1083.5	825.0	63.0	119.2	50.8	53.7	49.6	97.9	49.0	131.5	178.1	118.9	129.1	139.1	152.4	137.3
		Weirs Lane	593	593	608	609	611	613	605	861.2	982.4	982.4	982.4	982.4	900.9	986.0	360.8	486.0	376.3	363.3	347.0	337.1	403.8	194.9	255.0	197.4	191.8	182.3	175.3	210.3
		A4144 South	359	368	334	349	331	347	346	268.7	408.8	176.0	245.2	189.4	244.7	209.2	7.7	10.1	4.9	6.9	5.1	6.8	6.3	15.5	16.5	14.5	16.1	14.3	16.4	16.0
		A4144 South RT	312	316	293	303	289	300	303	367.7	408.8	176.0	271.5	225.7	247.7	209.2	33.7	37.3	23.7	27.6	26.1	28.8	28.3	59.7	60.3	51.1	54.6	54.7	56.4	56.8
17:15-18:15	A4144/ Weirs Lane	A4144 North	562	556	571	583	576	581	582	834.8	1083.2	1076.9	1083.2	1083.2	1077.4	1077.4	537.6	835.5	337.6	446.7	383.7	481.2	360.5	236.9	358.3	148.8	191.4	170.3	207.2	

2019 Hinksey Hill AM Peak Comparison - Scenario 1d Mitigation

Approach Average

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	872	840	1689.3	2071.5	3502.4	3508.4	208.9	318.9	1042.2	1127.2	171.6	211.5	444.2	479.4
		A423 Southern By-Pass (E)	2389	2427	2467	2251	680.2	139.9	2768.7	103.0	4.9	4.0	51.4	3.7	5.4	5.5	6.4	5.2
		A34 NB Off Slip	1012	993	802	879	2959.3	3505.2	3511.0	3511.3	220.7	651.5	1844.6	1612.8	146.2	245.4	490.2	416.2
0815-0915	Hinksey Hill Interchange	Hinksey Hill	582	580	518	513	774.5	1031.7	1674.6	1393.9	368.4	567.6	807.4	758.7	285.5	409.5	600.4	568.3
		A34 SB Off Slip	1057	1077	1071	960	1741.1	2956.8	3515.9	3515.9	356.6	699.0	2163.3	2797.1	221.1	315.2	610.3	856.3
		A423 Southern By-Pass (E)	2107	2188	2300	2094	434.7	441.0	3021.7	644.0	4.7	6.7	400.9	9.5	5.3	6.3	9.5	6.9
		A34 NB Off Slip	900	853	732	726	2954.5	3513.0	3515.9	3516.0	480.8	2026.4	3306.7	3201.2	287.2	669.8	1397.1	1129.9
		Hinksey Hill	488	486	483	445	691.6	1038.5	1969.5	2106.2	193.2	448.9	961.3	1067.9	222.5	447.3	901.3	1012.7

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	828	923	213.7	214.8	428.7	281.7	24.7	25.8	50.4	56.4	45.5	48.2	54.5	55.1
		A423 Eastern By-Pass Left	1844	1881	1713	1699	947.7	1573.1	2381.4	2393.9	33.6	76.6	162.2	107.5	25.1	36.6	100.8	108.2
		A423 Eastern By-Pass	408	417	435	429	931.2	1556.6	2376.5	2379.5	67.3	130.8	738.5	781.8	114.3	127.3	249.7	262.9
		A423 Southern By-Pass Left	374	377	554	544	1126.8	1121.0	1126.0	1120.2	428.1	494.2	865.0	836.5	25.1	24.7	66.5	85.2
		A423 Southern By-Pass	2111	2108	1696	1550	1128.0	1122.1	1127.1	1121.4	585.5	603.9	866.1	840.1	24.8	25.1	28.0	28.0
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	852	1009	222.6	229.4	314.2	304.0	26.5	30.7	42.8	74.8	44.5	47.5	51.4	60.3
		A423 Eastern By-Pass Left	1597	1661	1644	1590	1833.5	2391.2	2394.6	2397.1	45.8	238.5	1361.1	1759.7	35.8	68.9	277.4	323.7
		A423 Eastern By-Pass	398	410	433	414	1889.3	2374.6	2379.1	2380.6	146.9	341.0	1768.5	1907.7	134.0	174.5	443.0	510.9
		A423 Southern By-Pass Left	306	298	497	450	1132.8	1127.6	1144.2	1135.8	830.2	896.9	972.4	956.1	28.2	30.9	47.6	100.6
		A423 Southern By-Pass	2116	2105	1850	1592	1134.0	1128.8	1145.4	1136.9	860.8	918.1	973.6	957.2	27.6	28.0	29.3	31.7

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d
0715-0815	Abingdon Road/A4144	A4144 North	590	601	613	615	276.5	276.4	275.3	275.2	31.1	32.7	26.2	28.5	9.3	9.1	8.0	8.5
		A4144 South Bus Lane	17	17	15	15	41.4	53.8	41.7	41.8	1.0	1.0	0.8	0.9	24.6	25.3	23.9	25.3
		A4144 South	566	587	780	770	503.7	504.3	510.5	514.9	114.6	111.7	258.9	300.6	68.6	66.3	63.1	66.7
		Old Abingdon Road Bus Lane	4	4	3	3	42.3	42.3	13.9	13.9	0.5	0.5	0.1	0.1	35.2	40.2	14.9	12.3
		Old Abingdon Road	557	567	493	541	1177.3	1207.4	281.0	1248.3	227.4	329.2	58.9	566.2	28.9	28.3	31.4	31.0
		Bertie Place	11	13	13	12	17.5	16.8	14.0	13.1	0.2	0.1	0.1	51.6	47.0	45.7	44.0	
0815-0915	Abingdon Road/A4144	A4144 North	662	675	688	688	277.4	281.9	280.2	282.0	46.7	50.0	33.2	49.9	8.9	8.9	6.8	8.6
		A4144 South Bus Lane	16	15	17	16	28.3	28.4	42.2	41.3	1.0	1.0	0.8	1.2	25.4	27.9	22.0	29.5
		A4144 South	513	511	706	661	504.2	510.6	510.4	510.6	105.0	111.8	188.9	322.2	73.2	76.0	64.8	89.4
		Old Abingdon Road Bus Lane	3	3	3	2	14.0	14.1	14.1	13.7	0.3	0.4	0.1	0.1	31.8	40.0	11.8	13.0
		Old Abingdon Road	446	452	342	512	1254.4	1248.3	170.5	1263.9	122.0	285.8	30.5	1063.1	33.5	34.7	40.4	37.5
		Bertie Place	10	10	10	10	18.6	21.5	15.4	16.8	0.1	0.1	0.1	49.3	56.8	59.7	49.5	

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN 1d
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	282	283	455.8	397.4	331.1	305.2	64.2	67.7	44.7	38.8	91.2	92.8	73.8	67.4
		A4144 North LT	95	98	98	98	245.2	290.9	193.1	277.0	7.0	8.8	6.8	6.5	82.5	86.2	66.3	59.3
		Weirs Lane	558	555	573	578	804.4	981.4	650.0	565.7	99.4	183.0	76.5	60.9	72.0	116.8	58.2	50.0
		A4144 South	654	667	634	599	1427.8	1457.8	491.5	1481.8	367.5	477.7	59.8	152.2	46.4	44.3	35.7	29.2
0815-0915	A4144/ Weirs Lane	A4144 South RT	430	438	415	391	1427.8	1457.9	396.0	1481.8	319.4	312.7	27.1	67.4	27.5	26.5	25.1	23.9
		A4144 North	378	380	385	382	827.1	1083.2	809.9	948.2	245.6	307.5	232.8	285.7	167.4	196.0	156.2	187.5
		A4144 North LT	145	143	147	147	687.1	1083.5	723.6	710.3	56.4	82.4	62.6	77.3	170.6	202.9	161.7	191.6
		Weirs Lane	651	680	656	658	862.6	984.9	982.4	982.1	339.0	464.7	370.8	263.9	172.8	217.7	187.1	130.9
		A4144 South	590	598	567	546	1504.9	1498.8	421.0	1514.4	253.1	454.1	105.9	1186.1	59.4	62.2	59.0	56.7
		A4144 South RT	345	347	324	310	1504.9	1498.8	421.0	1514.4	229.0	430.0	72.1	825.9	59.5	62.6	57.5	54.4

2019 Hinksey Hill PM Peak Comparison - Scenario 1d Mitigation

Approach Average

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d
16:15-17:15	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1022	1010	143.9	136.0	219.5	129.1	13.3	14.7	19.5	13.5	17.9	19.6	23.6	18.7
		A423 Southern By-Pass (E)	3033	3079	3034	2997	1597.0	2044.2	724.6	628.6	48.1	78.8	23.2	21.0	5.8	5.9	5.9	6.2
		A34 NB Off Slip	763	780	786	785	264.2	2102.8	321.1	240.0	36.3	68.8	34.4	37.2	50.6	71.6	49.7	52.7
17:15-18:15	Hinksey Hill Interchange	Hinksey Hill	544	559	560	560	133.8	139.3	120.1	122.7	12.7	14.0	12.0	11.9	27.5	28.8	27.3	27.1
		A34 SB Off Slip	1119	1144	723	996	207.2	293.7	3508.7	3505.2	25.7	33.3	1721.6	361.0	26.6	32.3	417.2	144.3
		A423 Southern By-Pass (E)	2900	2999	2633	2926	776.8	1815.3	3028.0	2068.1	16.8	77.5	765.4	57.1	6.1	6.5	15.2	7.7
		A34 NB Off Slip	863	890	611	842	238.3	1029.8	3515.8	1760.0	45.1	93.6	973.8	100.0	54.7	97.2	344.6	91.8
		Hinksey Hill	586	602	536	595	187.3	159.0	2109.5	557.3	12.6	14.2	159.4	24.2	26.3	27.5	114.8	38.3

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d
16:15-17:15	A423 Kennington Roundabout	A4144 North	939	942	1018	1063	135.4	212.8	362.1	303.3	27.4	28.0	64.9	49.6	36.7	37.2	44.2	41.4
		A423 Eastern By-Pass Left	2453	2486	2369	2377	1195.0	1981.5	2179.9	2214.9	288.1	591.1	860.5	835.6	56.4	97.6	145.5	138.9
		A423 Eastern By-Pass	194	196	235	239	154.7	1293.9	1656.9	1525.9	5.2	13.7	84.4	56.5	113.3	156.0	216.2	203.4
		A423 Southern By-Pass Left	164	169	502	488	127.0	57.7	1077.1	718.2	2.6	2.7	110.7	30.1	14.1	15.1	64.4	38.3
		A423 Southern By-Pass	1703	1745	1665	1642	378.6	368.9	1078.3	719.4	39.1	42.8	140.7	63.5	19.7	20.0	24.1	22.2
17:15-18:15	A423 Kennington Roundabout	A4144 North	956	966	976	1054	305.5	223.7	492.6	492.7	30.1	30.5	120.6	71.2	39.1	38.4	70.4	52.3
		A423 Eastern By-Pass Left	2354	2454	2149	2401	1121.5	2113.1	2394.6	2377.3	113.3	443.4	1508.9	1116.7	29.8	77.1	257.7	176.4
		A423 Eastern By-Pass	258	265	299	329	313.1	1050.7	2371.1	2360.7	10.3	19.1	525.7	387.0	87.7	136.4	344.1	262.6
		A423 Southern By-Pass Left	208	211	388	533	129.5	829.1	1144.5	1127.4	3.2	10.7	899.4	567.4	15.0	20.3	183.5	89.4
		A423 Southern By-Pass	1825	1880	1259	1624	527.0	830.3	1145.6	1128.5	51.0	64.1	903.6	591.4	19.5	20.6	31.1	27.7

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d
16:15-17:15	Abingdon Road/A4144	A4144 North	826	826	866	866	282.1	289.2	279.5	281.9	100.4	101.1	78.0	81.3	8.7	8.7	7.1	7.1
		A4144 South Bus Lane	15	15	15	16	36.0	41.1	28.3	28.2	0.9	1.0	0.8	0.9	26.1	27.7	23.7	25.0
		A4144 South	309	317	560	587	152.4	176.8	503.3	443.6	17.4	19.1	131.4	78.2	33.4	35.3	64.6	52.4
		Old Abingdon Road Bus Lane	4	4	3	3	14.1	13.9	0.0	0.0	0.1	0.1	0.0	0.0	4.8	6.8	0.1	0.5
		Old Abingdon Road	492	502	244	284	202.9	210.3	92.1	125.0	21.4	24.9	11.8	20.4	21.2	21.8	33.5	38.1
		Bertie Place	4	4	4	4	12.0	12.0	11.3	5.6	0.0	0.0	0.0	0.0	35.6	37.8	39.3	45.3
17:15-18:15	Abingdon Road/A4144	A4144 North	845	851	845	870	279.1	281.9	289.9	282.1	87.3	98.9	69.5	58.6	7.9	8.0	7.0	5.8
		A4144 South Bus Lane	20	20	15	19	40.9	41.1	28.2	41.0	1.3	1.2	0.8	0.9	26.0	25.7	21.9	22.2
		A4144 South	416	417	605	745	413.0	502.8	510.5	510.5	51.3	79.7	329.9	256.5	58.4	75.6	85.0	67.1
		Old Abingdon Road Bus Lane	4	4	3	3	43.4	43.5	13.7	0.0	0.1	0.1	0.0	0.0	7.2	10.8	1.2	2.5
		Old Abingdon Road	574	588	215	249	424.1	643.1	271.9	122.3	57.8	87.7	14.0	20.8	24.7	26.0	33.7	44.7
		Bertie Place	12	12	12	12	18.0	18.3	15.8	18.3	0.1	0.1	0.1	0.1	33.8	37.1	36.8	42.6

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d	2017 Base	2019 DM	2019 SCN 1	2019 SCN1d
16:15-17:15	A4144/ Weirs Lane	A4144 North	547	543	559	561	832.7	1080.3	868.6	962.2	310.3	432.2	276.6	323.9	142.9	188.7	126.9	144.8
		A4144 North LT	199	199	205	205	828.1	1077.2	865.2	825.0	63.0	119.2	50.8	49.0	131.5	178.1	118.9	137.3
		Weirs Lane	593	593	608	605	861.2	982.4	982.1	986.0	360.8	486.0	376.3	403.8	194.9	255.0	197.4	210.3
		A4144 South	359	368	334	346	268.7	408.8	176.0	209.2	7.7	10.1	4.9	6.3	15.5	16.5	14.5	16.0
		A4144 South RT	312	316	293	303	367.7	408.8	176.0	209.2	33.7	37.3	23.7	28.3	59.7	60.3	51.1	56.8
17:15-18:15	A4144/ Weirs Lane	A4144 North	562	556	571	582	834.8	1083.2	1076.9	1077.4	537.6	835.5	337.6	360.5	236.9	358.3	148.8	160.7
		A4144 North LT	182	178	189	191	835.1	1083.5	1077.2	1077.6	171.2	416.0	98.5	148.8	232.9	352.1	147.2	161.2
		Weirs Lane	573	587	570	592	863.7	988.7	986.0	982.4	304.7	579.8	364.7	353.6	204.3	357.8	226.8	226.0
		A4144 South	476	481	360	441	674.6	893.5	214.8	287.8	39.8	85.1	5.2	12.7	19.4	21.5	13.7	17.6
		A4144 South RT	390	393	305	362	674.6	893.6	214.8	309.5	94.3	156.8	25.4	41.8	83.9	93.6	52.1	62.4

Journey Time Comparison - AM Peak Scenario 1 Mitigation

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	406	394	454	437	432	151	59%	-12	-3%	31	8%	31	8%	26	6%	976	998	923	935	877	897	895
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	62	62	60	57	57	-9	-13%	0	0%	-5	-8%	-5	-8%	-5	-8%	1101	1122	1065	1062	1050	1049	1042
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	394	383	351	341	336	153	63%	-11	-3%	-53	-13%	-53	-13%	-58	-15%	1021	1022	832	847	881	895	911
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	469	456	492	475	470	96	26%	-13	-3%	6	1%	6	1%	1	0%	581	592	541	545	526	538	540
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	337	330	429	431	412	52	18%	-7	-2%	94	28%	94	28%	75	22%	931	937	921	919	793	792	809
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	56	57	52	53	52	-2	-3%	1	2%	-3	-5%	-3	-5%	-4	-7%	952	987	997	1009	977	987	976
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	468	464	472	487	461	99	27%	-4	-1%	19	4%	19	4%	-7	-1%	826	756	627	630	612	605	624
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	517	516	620	611	573	131	34%	-1	0%	94	18%	94	18%	56	11%	451	426	412	407	348	357	375

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses							
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	47	47	47	47	4	9%	0	0%	0	0%	0	0%	0	0%	560	571	586	583	589	590	589
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	63	63	65	63	21	50%	0	0%	0	0%	0	0%	2	3%	1859	1903	1751	1750	1746	1747	1736
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	152	149	161	160	161	29	24%	-3	-2%	8	5%	8	5%	9	6%	1804	1798	1715	1746	1531	1565
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	44	43	53	52	3	7%	-1	-2%	8	18%	8	18%	5	11%	627	641	653	654	652	649	651
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	89	85	98	96	34	62%	-4	-4%	7	8%	7	8%	10	11%	1573	1629	1595	1615	1550	1561	1541
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	149	151	183	184	178	1	1%	2	1%	35	23%	35	23%	29	19%	1720	1698	1764	1752	1466	1456

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	42	42	44	43	-4	-9%	0	0%	1	2%	1	2%	1	2%	560	569	582	579	583	585	584	
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	146	141	165	161	162	24	20%	-5	-3%	15	10%	15	10%	16	11%	576	587	781	788	769	776	774
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	304	307	0	0	0	0	0
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	46	48	53	55	53	-8	-15%	2	4%	9	20%	9	20%	7	15%	617	633	645	647	645	643	645
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	131	134	206	211	199	5	4%	3	2%	80	61%	80	61%	68	52%	470	473	666	668	603	600	617
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	264	262	0	0	0	0	0

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	79	79	76	77	73	-11	-12%	0	0%	-2	-3%	-2	-3%	-6	-8%	262	271	267	268	268	267	267
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	95	104	87	86	87	-40	-30%	9	9%	-9	-9%	-9	-9%	-8	-8%	576	580	589	586	591	591	589
0815-0915	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	53	52	48	50	49	-8	-13%	-1	-2%	-3	-6%	-3	-6%	-4	-8%	532	547	516	520	486	487	487
	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	96	97	97	96	97	-5	-5%	1	1%	0	0%	0	0%	1	1%	351	354	359	357	358	360	357
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	157	156	144	137	136	1	1%	-1	-1%	-20	-13%	-20	-13%	-21	-13%	620	642	626	631	629	628	633
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	83	83	80	82	79	-6	-7%	0	0%	-1	-1%	-1	-1%	-4	-4%	445	447	423	421	401	400	406

Journey Time Comparison - PM Peak Scenario 1 Mitigation

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
16:15-17:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	53	51	60	55	48	4	8%	-2	-4%	2	4%	2	4%	-5	-9%	950	974	971	971	970	971	940
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	54	52	51	52	-1	-2%	1	2%	-2	-4%	-2	-4%	-1	-2%	1241	1255	1240	1240	1240	1241	1244
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	65	70	69	66	68	-21	-24%	5	8%	1	2%	1	2%	3	5%	759	780	780	780	780	780	780
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	37	37	37	37	37	-1	-3%	0	0%	0	0%	0	0%	0	0%	-	564	564	564	564	564	564
17:15-18:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	380	189	393	199	165	319	523%	-191	-50%	-181	-48%	-181	-48%	-215	-57%	1068	1094	682	915	678	893	941
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	70	61	64	61	62	10	17%	-9	-13%	-9	-13%	-9	-13%	-8	-11%	1273	1313	1174	1289	1213	1280	1312
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	308	135	313	144	107	196	175%	-173	-56%	-164	-53%	-164	-53%	-201	-65%	840	862	592	783	597	781	821
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	105	46	98	45	44	67	176%	-59	-56%	-60	-57%	-60	-57%	-61	-58%	-	596	540	578	551	578	590

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
16:15-17:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	48	48	48	46	6	14%	0	0%	0	0%	0	0%	-2	-4%	806	806	847	842	846	845	847	
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	101	101	102	100	99	12	13%	0	0%	-1	-1%	-1	-1%	-2	-2%	2475	2524	2421	2424	2418	2423	2430
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	73	70	75	66	61	17	30%	-3	-4%	-7	-10%	-7	-10%	-12	-16%	1607	1646	1688	1689	1636	1646	1649
17:15-18:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	64	55	60	57	51	22	52%	-9	-14%	-7	-11%	-7	-11%	-13	-20%	813	819	797	823	810	817	832
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	122	100	109	104	99	52	74%	-22	-18%	-18	-15%	-18	-15%	-23	-19%	2309	2395	2085	2290	2164	2283	2327
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	177	123	164	124	123	118	200%	-54	-31%	-53	-30%	-53	-30%	-54	-31%	1718	1788	1203	1548	1206	1507	1587

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
16:15-17:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	57	56	58	58	57	-8	-12%	-1	-2%	1	2%	1	2%	0	0%	809	808	843	840	842	842	842
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	131	92	134	101	96	61	87%	-39	-30%	-30	-23%	-30	-23%	-35	-27%	293	300	566	578	563	577	580
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	301	306	0	0	0	0	0
17:15-18:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	54	50	55	51	50	-7	-11%	-4	-7%	-3	-6%	-3	-6%	-4	-7%	802	809	807	823	814	821	832
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	194	127	211	142	149	70	56%	-67	-35%	-52	-27%	-52	-27%	-45	-23%	391	394	559	691	572	680	708
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	398	405	0	0	0	0	0

Description			Average Journey Times (s) All Vehicles excl. Buses																Total Vehicles All Vehicles excl. Buses								
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	Abs Diff SCN 1	% Diff SCN 1	Abs Diff SCN 1a	% Diff SCN 1a	Abs Diff SCN 1b	% Diff SCN 1b	Abs Diff SCN 1c	% Diff SCN 1c	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1a	2019 SCN 1b	2019 SCN 1c	2019 SCN 1d	
16:15-17:15	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	67	69	68	69	69	-6	-8%	2	3%	2	3%	2	3%	2	3%	535	532	550	543	547	541	551
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	186	183	181	182	193	-22	-11%	-3	-2%	-4	-2%	-4	-2%	7	4%	603	600	613	613	621	623	612
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	54	57	56	57	58	-6	-10%	3	6%	4	7%	4	7%	4	7%	325	332	303	316	301	314	316
17:15-18:15	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	59	60	59	61	59	-11	-16%	1	2%	2	3%	2	3%	0	0%	540	541	539	553	544	552	549
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	181	175	169	180	180	-41	-18%	-6	-3%	-1	-1%	-1	-1%	-1	-1%	534	546	532	538	534	534	551
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	53	60	52	60	61	-29	-35%	7	13%	7	12%	7	12%	8	14%	414	417	316	372	325	370	381

Journey Time Comparison - AM Peak Scenario 1d Mitigation

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	406	432	26	6%	976	998	923	895
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	62	57	-5	-8%	1101	1122	1065	1042
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	394	336	-58	-15%	1021	1022	832	911
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	469	470	1	0%	581	592	541	540
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	337	412	75	22%	931	937	921	809
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	56	52	-4	-7%	952	987	997	976
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	468	461	-7	-1%	826	756	627	624
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	517	573	56	11%	451	426	412	375

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	47	47	0	0%	560	571	586	589
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	63	65	2	3%	1859	1903	1751	1736
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	152	161	9	6%	1804	1798	1715	1572
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	44	49	5	11%	627	641	653	651
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	89	99	10	11%	1573	1629	1595	1541
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	149	178	29	19%	1720	1698	1764	1510

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	42	43	1	2%	560	569	582	584
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	146	162	16	11%	576	587	781	774
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	-	-	-	-	-	304	307	0	0
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	46	53	7	15%	617	633	645	645
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	131	199	68	52%	470	473	666	617
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	-	-	-	-	-	264	262	0	0

Description				Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	79	73	-6	-8%	262	271	267	267
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	95	87	-8	-8%	576	580	589	589
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	53	49	-4	-8%	532	547	516	487
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	96	97	1	1%	351	354	359	357
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	157	136	-21	-13%	620	642	626	633
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	83	79	-4	-4%	445	447	423	406

Journey Time Comparison - PM Peak Scenario 1d Mitigation

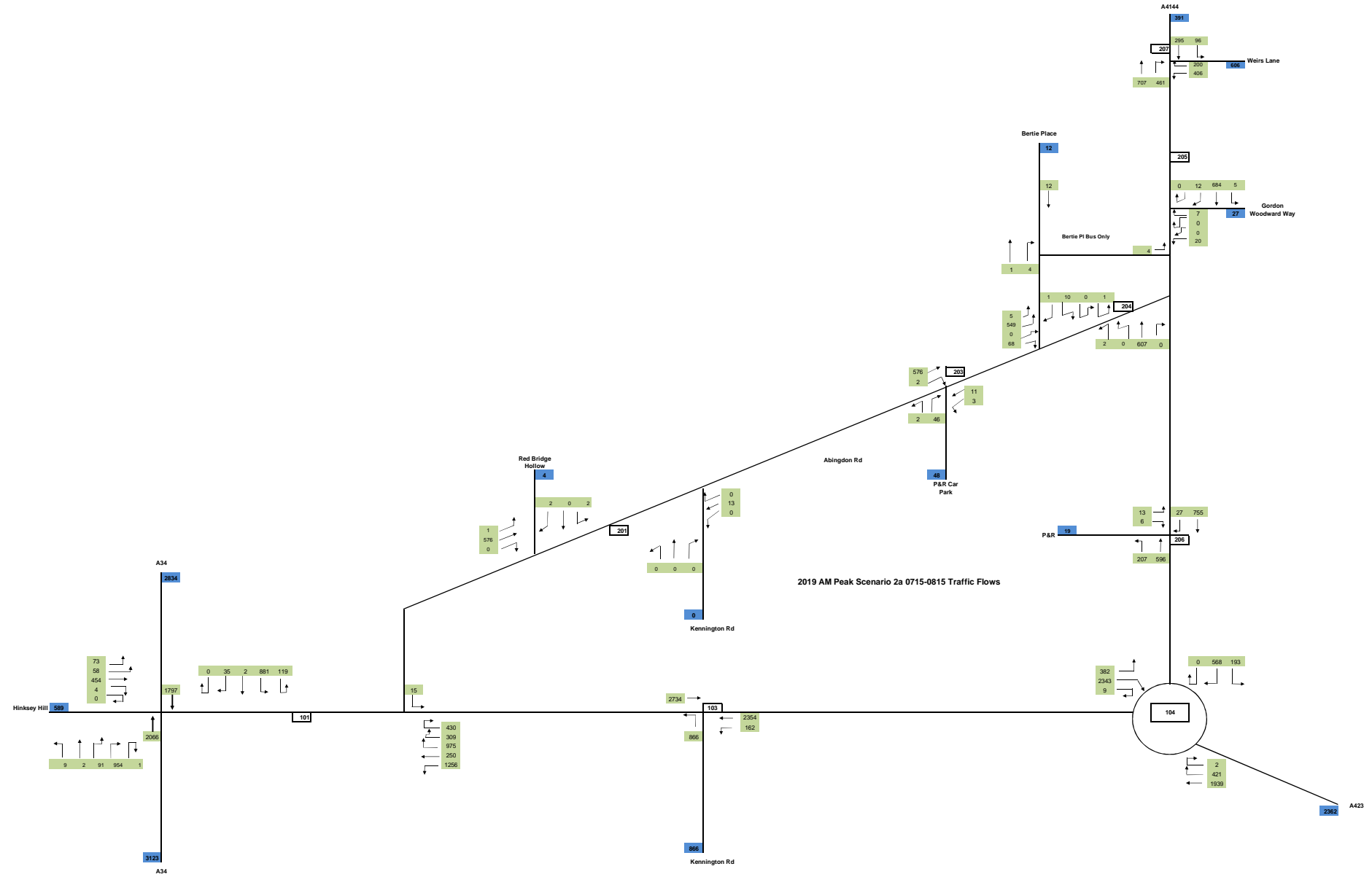
Description				Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
16:15-17:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	53	48	-5	-9%	950	974	971	940
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	52	-1	-2%	1241	1255	1240	1244
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	65	68	3	5%	759	780	780	780
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	37	37	0	0%	-	564	564	564
17:15-18:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	380	165	-215	-57%	1068	1094	682	941
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	70	62	-8	-11%	1273	1313	1174	1312
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	308	107	-201	-65%	840	862	592	821
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	105	44	-61	-58%	-	596	540	590

Description				Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
16:15-17:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	48	46	-2	-4%	806	806	847	847
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	101	99	-2	-2%	2475	2524	2421	2430
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	73	61	-12	-16%	1607	1646	1688	1649
17:15-18:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	64	51	-13	-20%	813	819	797	832
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	122	99	-23	-19%	2309	2395	2085	2327
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	177	123	-54	-31%	1718	1788	1203	1587

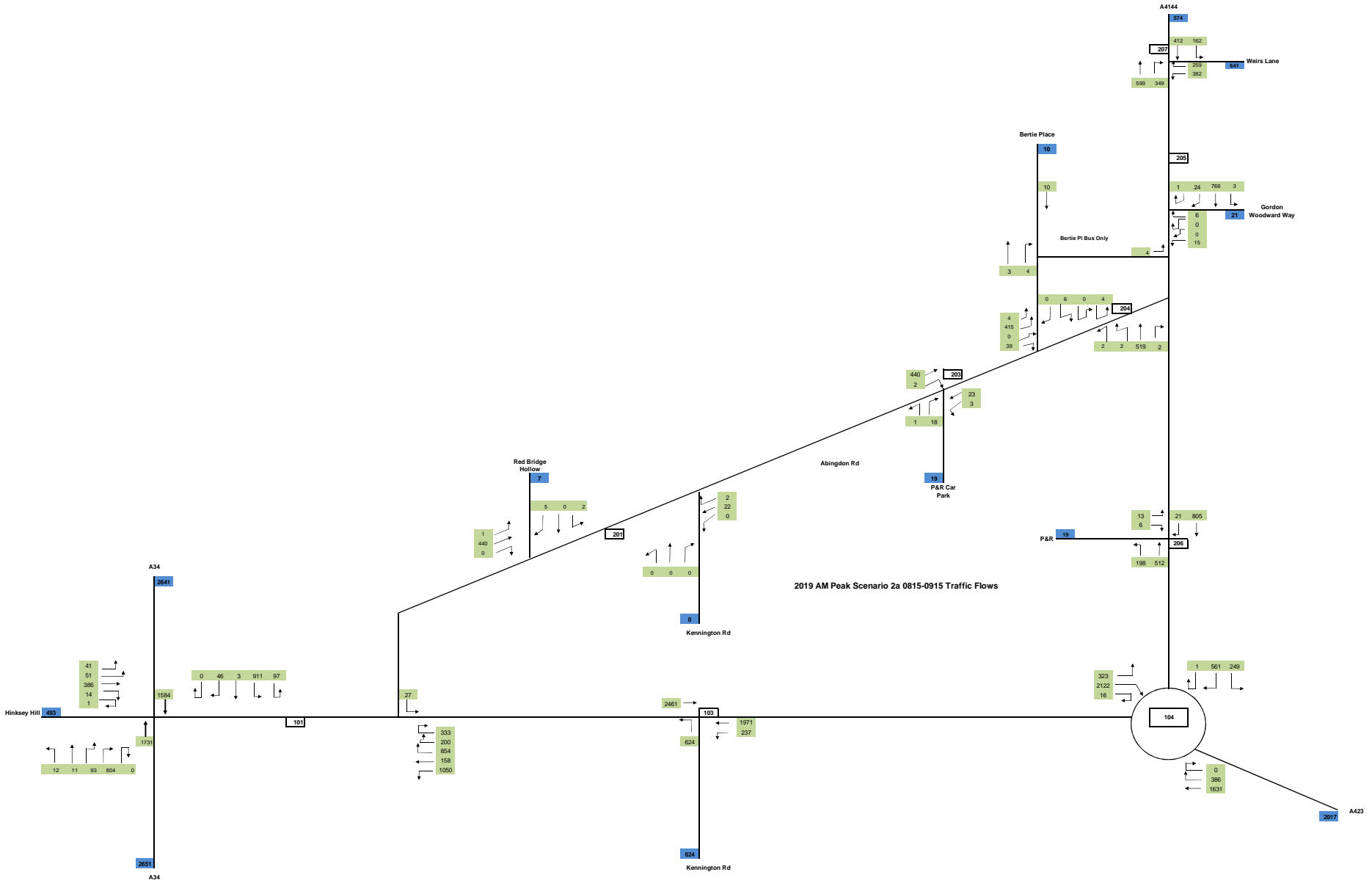
Description				Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
16:15-17:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	57	57	0	0%	809	808	843	842
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	131	96	-35	-27%	293	300	566	580
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	-	-	-	-	-	301	306	0	0
17:15-18:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	54	50	-4	-7%	802	809	807	832
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	194	149	-45	-23%	391	394	559	708
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	-	-	-	-	-	398	405	0	0

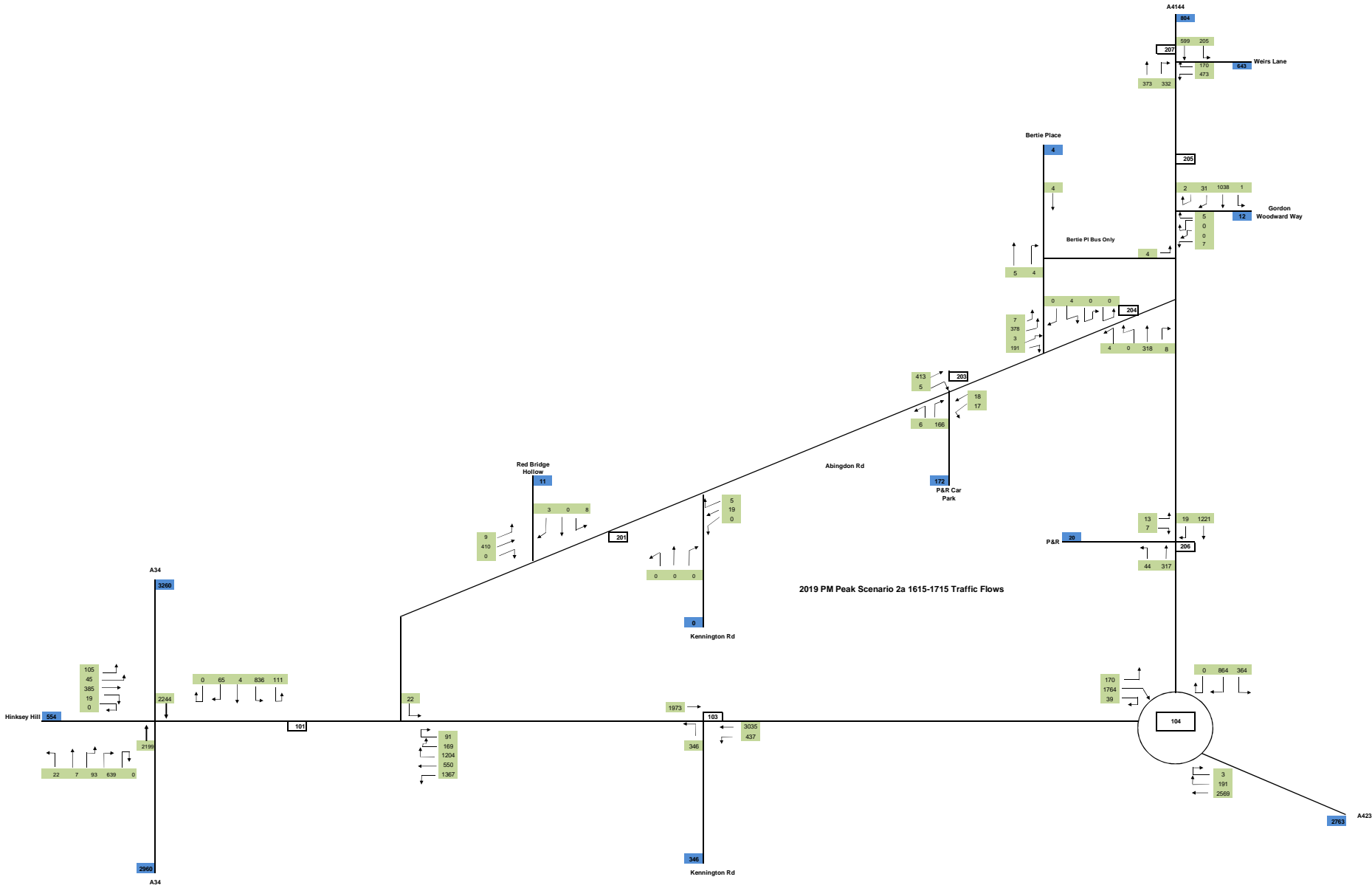
Description				Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	Abs Diff SCN 1d	% Diff SCN 1d	2017 Base	2019 DM	2019 SCN1	2019 SCN 1d	
16:15-17:15	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	67	69	2	3%	535	532	550	551
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	186	193	7	4%	603	600	613	612
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	54	58	4	7%	325	332	303	316
17:15-18:15	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	59	59	0	0%	540	541	539	549
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	181	180	-1	-1%	534	546	532	551
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	53	61	8	14%	414	417	316	381

Appendix H. 2019 Scenario 2 Mitigation Results

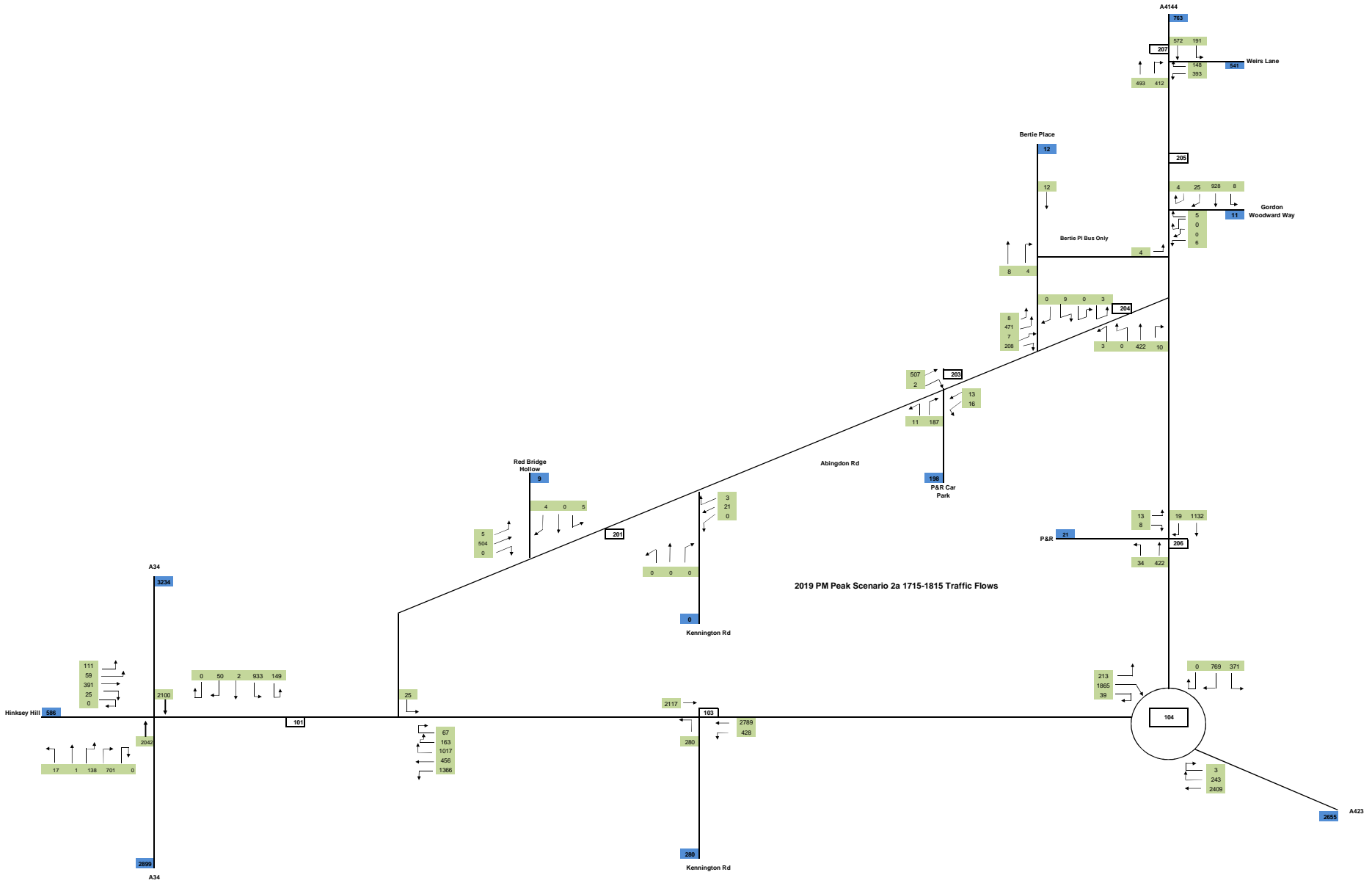


2019 AM Peak Scenario 2a 0815-0915 Traffic Flows





2019 PM Peak Scenario 2a 1715-1815 Traffic Flows



2019 Hinksey Hill AM Peak Comparison - Scenario 2 Mitigation

Approach Average

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
0715-0915	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1041	1038	1689.3	2071.5	698.1	700.6	208.9	318.9	87.7	84.4	171.6	211.5	79.2	76.9
		A423 Southern By-Pass (E)	2389	2427	2635	2785	680.2	139.9	376.9	1063.5	4.9	4.0	7.3	98.7	5.4	5.5	6.0	6.8
		A34 NB Off Slip	1012	993	991	796	2959.3	3505.2	3514.6	3514.9	220.7	651.5	2591.7	2741.4	146.2	245.4	614.9	910.1
		Hinksey Hill	582	580	638	641	774.5	1031.7	2117.3	1158.0	368.4	567.6	1761.2	440.4	285.5	409.5	867.7	303.1
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1041	1044	1741.1	2956.8	962.8	535.3	356.6	699.0	30.7	31.1	221.1	315.2	36.5	37.1
		A423 Southern By-Pass (E)	2107	2188	2360	2558	434.7	441.0	512.3	3021.4	4.7	6.7	5.7	571.0	5.3	6.3	5.7	15.0
		A34 NB Off Slip	900	853	1017	819	2954.5	3513.0	3516.0	3516.0	480.8	2026.4	3150.2	3265.8	287.2	669.8	835.0	1172.5
		Hinksey Hill	488	486	609	486	691.6	1038.5	2119.8	435.6	193.2	448.9	2083.3	36.2	222.5	447.3	1281.0	60.2

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
0715-0915	A423 Kennington Roundabout	A4144 North	620	632	713	719	213.7	214.8	361.9	496.3	24.7	25.8	34.3	39.0	45.5	48.2	49.9	51.8
		A423 Eastern By-Pass Left	1844	1881	1878	1876	947.7	1573.1	1919.6	1694.0	33.6	76.6	126.1	99.5	25.1	36.6	41.6	37.8
		A423 Eastern By-Pass	408	417	407	405	931.2	1556.6	1587.1	1417.4	67.3	130.8	97.4	109.5	114.3	127.3	120.1	118.0
		A423 Southern By-Pass Left	374	377	362	361	1126.8	1121.0	430.9	665.3	428.1	494.2	11.5	13.3	25.1	24.7	19.3	19.6
		A423 Southern By-Pass	2111	2108	1962	1969	1128.0	1122.1	669.1	843.7	585.5	603.9	102.2	124.5	24.8	25.1	21.6	22.3
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	792	779	222.6	229.4	334.8	556.5	26.5	30.7	42.7	52.5	44.5	47.5	53.5	61.1
		A423 Eastern By-Pass Left	1597	1661	1686	1640	1833.5	2391.2	2385.9	2388.0	45.8	238.5	387.2	551.7	35.8	68.9	87.5	115.7
		A423 Eastern By-Pass	398	410	402	393	1889.3	2374.6	2369.4	2371.4	146.9	341.0	432.5	588.0	134.0	174.5	189.5	217.1
		A423 Southern By-Pass Left	306	298	291	302	1132.8	1127.6	1136.5	1131.5	830.2	896.9	70.9	58.7	28.2	30.9	32.2	27.8
		A423 Southern By-Pass	2116	2105	2040	2043	1134.0	1128.8	1137.6	1155.3	860.8	918.1	414.0	417.7	27.6	28.0	28.9	28.8

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
0715-0815	Abingdon Road/ A4144	A4144 North	590	601	671	679	276.5	276.4	276.7	280.7	31.1	32.7	35.5	32.5	9.3	9.1	8.5	8.4
		A4144 South Bus Lane	17	17	16	15	41.4	53.8	36.7	28.1	1.0	1.0	1.0	0.8	24.6	25.3	25.9	24.6
		A4144 South	566	587	574	574	503.7	504.3	392.9	396.1	114.6	111.7	56.7	52.6	68.6	66.3	43.5	43.4
		Old Abingdon Road Bus Lane	4	4	4	4	42.3	42.3	14.1	20.1	0.5	0.5	0.2	0.2	35.2	40.2	16.1	14.7
		Bertie Place	11	13	12	12	17.5	16.8	18.8	16.7	0.2	0.1	0.2	0.2	51.6	47.0	46.1	46.6
0815-0915	Abingdon Road/ A4144	A4144 North	662	675	759	760	277.4	281.9	281.0	277.1	46.7	50.0	57.9	53.0	8.9	8.9	8.6	8.1
		A4144 South Bus Lane	16	15	16	17	28.3	28.4	28.2	41.3	1.0	1.0	0.9	1.1	25.4	27.9	23.5	26.2
		A4144 South	513	511	481	480	504.2	510.6	504.2	494.5	105.0	111.8	89.0	62.2	73.2	76.0	66.5	54.7
		Old Abingdon Road Bus Lane	3	3	3	3	14.0	14.1	14.0	13.9	0.3	0.4	0.3	0.3	31.8	40.0	24.9	26.9
		Bertie Place	446	452	437	413	1254.4	1248.3	1175.2	798.0	122.0	285.8	134.6	83.9	33.5	34.7	34.1	32.0
			10	10	10	10	18.6	21.5	16.7	16.8	0.1	0.1	0.2	0.1	49.3	56.8	60.9	49.3

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	287	287	455.8	397.4	411.3	415.2	64.2	67.7	58.5	61.4	91.2	92.8	87.4	87.4
		A4144 North LT	95	98	98	98	245.2	290.9	304.4	290.9	7.0	8.8	8.6	7.7	82.5	86.2	79.4	79.6
		Weirs Lane	558	555	575	588	804.4	981.4	808.2	654.5	99.4	183.0	93.2	76.6	72.0	116.8	66.1	57.0
		A4144 South	654	667	656	647	1427.8	1457.8	751.0	734.7	367.5	477.7	123.7	101.8	46.4	44.3	34.2	33.1
		A4144 South RT	430	438	426	425	1427.8	1457.9	751.0	653.3	319.4	312.7	66.9	54.7	27.5	26.5	25.4	26.1
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	377	381	827.1	1083.2	1080.5	933.6	245.6	307.5	389.8	278.5	167.4	196.0	250.2	181.0
		A4144 North LT	145	143	141	145	687.1	1083.5	1077.2	933.9	56.4	82.4	123.8	78.1	170.6	202.9	258.1	189.8
		Weirs Lane	651	680	654	647	862.6	984.9	987.3	986.0	339.0	464.7	510.5	390.0	172.8	217.7	253.0	197.3
		A4144 South	590	598	572	557	1504.9	1498.8	1425.7	1048.5	253.1	454.1	286.2	207.5	59.4	62.2	65.4	64.1
		A4144 South RT	345	347	331	321	1504.9	1498.8	1425.7	1048.5	229.0	430.0	240.5	174.6	59.5	62.6	63.4	61.7

2019 Hinksey Hill PM Peak Comparison - Scenario 2 Mitigation

Approach Average

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1009	1009	143.9	136.0	113.7	145.9	13.3	14.7	14.9	15.1	17.9	19.6	19.9	20.2
		A423 Southern By-Pass (E)	3033	3079	2962	3041	1597.0	2044.2	3016.0	3021.4	48.1	78.8	118.7	329.4	5.8	5.9	6.4	6.5
		A34 NB Off Slip	763	780	833	758	264.2	2102.8	1525.6	233.6	36.3	68.8	65.4	32.4	50.6	71.6	71.3	48.0
		Hinksey Hill	544	559	617	547	133.8	139.3	168.8	127.9	12.7	14.0	17.3	12.0	27.5	28.8	31.2	27.1
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1121	1117	207.2	293.7	562.5	902.2	25.7	33.3	40.9	45.2	26.6	32.3	37.9	40.0
		A423 Southern By-Pass (E)	2900	2999	2940	3027	776.8	1815.3	3021.4	3029.5	16.8	77.5	161.6	1221.6	6.1	6.5	6.6	6.9
		A34 NB Off Slip	863	890	923	852	238.3	1029.8	656.0	244.0	45.1	93.6	87.1	43.3	54.7	97.2	89.5	55.5
		Hinksey Hill	586	602	643	590	187.3	159.0	196.4	142.8	12.6	14.2	17.6	12.5	26.3	27.5	30.0	26.4

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	1081	1081	135.4	212.8	492.9	492.2	27.4	28.0	58.8	56.5	36.7	37.2	44.0	44.3
		A423 Eastern By-Pass Left	2453	2486	2331	2288	1195.0	1981.5	2388.3	2393.3	288.1	591.1	1258.3	1420.0	56.4	97.6	211.6	248.2
		A423 Eastern By-Pass	194	196	167	163	154.7	1293.9	1847.0	2371.8	5.2	13.7	78.2	245.4	113.3	156.0	270.7	302.3
		A423 Southern By-Pass Left	164	169	207	204	127.0	57.7	365.8	113.5	2.6	2.7	4.9	3.8	14.1	15.1	38.2	36.7
		A423 Southern By-Pass	1703	1745	1747	1750	378.6	368.9	401.7	416.9	39.1	42.8	50.4	51.4	19.7	20.0	22.1	22.3
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	1120	1105	305.5	223.7	492.2	503.6	30.1	30.5	69.9	78.1	39.1	38.4	47.7	49.8
		A423 Eastern By-Pass Left	2354	2454	2389	2390	1121.5	2113.1	2398.9	2398.9	113.3	443.4	2221.6	2253.7	29.8	77.1	371.5	386.0
		A423 Eastern By-Pass	258	265	240	238	313.1	1050.7	1677.0	2371.9	10.3	19.1	27.2	122.9	87.7	136.4	433.6	449.6
		A423 Southern By-Pass Left	208	211	244	246	129.5	829.1	686.1	304.5	3.2	10.7	9.7	5.7	15.0	20.3	39.5	39.8
		A423 Southern By-Pass	1825	1880	1868	1852	527.0	830.3	687.2	650.9	51.0	64.1	66.7	69.4	19.5	20.6	21.3	21.3

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
1615-1715	Abingdon Road/A4144	A4144 North	826	826	905	904	282.1	289.2	282.1	289.2	100.4	101.1	144.3	151.0	8.7	8.7	9.3	9.4
		A4144 South Bus Lane	15	15	14	15	36.0	41.1	28.2	28.2	0.9	1.0	1.0	1.0	26.1	27.7	27.7	28.4
		A4144 South	309	317	289	285	152.4	176.8	135.7	166.2	17.4	19.1	16.0	16.2	33.4	35.3	32.9	33.8
		Old Abingdon Road Bus Lane	4	4	4	4	14.1	13.9	13.9	14.0	0.1	0.1	0.1	0.1	4.8	6.8	8.8	7.2
		Old Abingdon Road	492	502	551	552	202.9	210.3	320.5	281.5	21.4	24.9	36.8	34.8	21.2	21.8	22.0	22.0
1715-1815	Abingdon Road/A4144	Bertie Place	4	4	4	4	12.0	12.0	11.4	12.0	0.0	0.0	0.0	0.0	35.6	37.8	28.8	32.2
		A4144 North	845	851	923	910	279.1	281.9	282.0	283.5	87.3	98.9	137.1	142.2	7.9	8.0	8.8	9.1
		A4144 South Bus Lane	20	20	19	19	40.9	41.1	40.8	28.2	1.3	1.2	1.0	1.1	26.0	25.7	22.9	24.4
		A4144 South	416	417	402	400	413.0	502.8	355.5	302.0	51.3	79.7	40.5	40.6	58.4	75.6	52.5	54.1
		Old Abingdon Road Bus Lane	4	4	4	4	43.4	43.5	20.6	42.2	0.1	0.1	0.1	0.1	7.2	10.8	10.3	11.4
1715-1815	Abingdon Road/A4144	Old Abingdon Road	574	588	656	653	424.1	643.1	1189.0	1253.4	57.8	87.7	271.8	284.4	24.7	26.0	26.6	26.6
		Bertie Place	12	12	12	12	18.0	18.3	18.3	18.3	0.1	0.1	0.1	0.1	33.8	37.1	35.5	34.7

Time	Junction	Approach	Volume				Max Queue (m)				Avg Queue (m)				Delay (s)			
			2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	511	505	832.7	1080.3	1087.6	1087.6	310.3	432.2	724.6	717.7	142.9	188.7	323.1	320.5
		A4144 North LT	199	199	190	188	828.1	1077.2	1083.5	1083.5	63.0	119.2	215.8	251.6	131.5	178.1	310.7	308.9
		Weirs Lane	593	593	552	559	861.2	982.4	983.8	988.6	360.8	486.0	743.4	738.8	194.9	255.0	424.0	422.0
		A4144 South	359	368	356	355	268.7	408.8	179.8	213.9	7.7	10.1	5.9	6.5	15.5	16.5	15.0	14.9
		A4144 South RT	312	316	310	308	367.7	408.8	571.0	386.5	33.7	37.3	31.4	31.4	59.7	60.3	57.4	58.0
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	507	499	834.8	1083.2	1087.6	1086.2	537.6	835.5	1018.6	1018.4	236.9	358.3	478.2	492.0
		A4144 North LT	182	178	162	161	835.1	1083.5	1087.8	1086.5	171.2	416.0	566.3	590.6	232.9	352.1	468.4	475.5
		Weirs Lane	573	587	563	551	863.7	988.7	988.7	988.7	304.7	579.8	907.9	893.4	204.3	357.8	566.1	565.0
		A4144 South	476	481	470	469	674.6	893.5	1001.4	1503.9	39.8	85.1	112.1	90.7	19.4	21.5	20.3	19.2
		A4144 South RT	390	393	382	380	674.6	893.6	1439.5	1503.9	94.3	156.8	218.8	215.1	83.9	93.6	85.5	85.1

Journey Time Comparison - AM Peak Scenario 2 Mitigation

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	107	105	-148	-58%	-2	-2%	976	998	1003	1004
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	72	74	1	1%	2	3%	1101	1122	1119	1120
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	300	413	59	24%	113	38%	1021	1022	997	795
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	355	264	-18	-5%	-91	-26%	581	592	630	593
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	64	64	-221	-78%	0	0%	931	937	981	982
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	58	79	0	0%	21	36%	952	987	993	950
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	295	405	-74	-20%	110	37%	826	756	922	722
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	365	55	-21	-5%	-310	-85%	451	426	568	482

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	48	50	5	12%	2	4%	560	571	640	647
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	45	43	3	7%	-2	-4%	1859	1903	1907	1912
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	66	71	-57	-46%	5	8%	1804	1798	1976	1993
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	48	54	7	17%	6	13%	627	641	720	715
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	62	75	7	13%	13	21%	1573	1629	1643	1602
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	107	104	-41	-28%	-3	-3%	1720	1698	1965	1951

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	46	45	0	0%	-1	-2%	560	569	640	648
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	82	80	-40	-33%	-2	-2%	576	587	573	568
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	141	136	-125	-47%	-5	-4%	304	307	498	481
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	55	53	1	2%	-2	-4%	617	633	711	711
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	117	96	-9	-7%	-21	-18%	470	473	465	468
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	212	167	-18	-8%	-45	-21%	264	262	403	382

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	86	86	-4	-4%	0	0%	262	271	271	271
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	104	92	-31	-23%	-12	-12%	576	580	595	598
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	53	53	-8	-13%	0	0%	532	547	533	527
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	106	98	5	5%	-8	-8%	351	354	351	356
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	175	166	19	12%	-9	-5%	620	642	622	624
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	91	88	3	3%	-3	-3%	445	447	428	417

Journey Time Comparison - PM Peak Sceanrio 2 Mitigation

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
16:15-17:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	49	0	0%	0	0%	950	974	940	941
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	53	59	-1	-2%	6	11%	1241	1255	1178	1160
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	86	63	0	0%	-23	-27%	759	780	828	751
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	37	2	5%	-3	-8%	-	564	620	549
17:15-18:15	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	67	69	6	10%	2	3%	1068	1094	1055	1053
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	56	57	-4	-7%	1	2%	1273	1313	1255	1250
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	104	41	-8	-7%	-63	-61%	840	862	897	832
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	40	37	2	5%	-3	-8%	-	596	637	585

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
16:15-17:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	51	51	9	21%	0	0%	806	806	884	883
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	110	115	21	24%	5	5%	2475	2524	2384	2339
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	59	59	3	5%	0	0%	1607	1646	1731	1737
17:15-18:15	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	54	57	12	29%	3	6%	813	819	886	872
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	110	110	40	57%	0	0%	2309	2395	2321	2313
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	61	62	2	3%	1	2%	1718	1768	1822	1807

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
16:15-17:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	78	79	13	20%	1	1%	809	808	884	885
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	68	68	-2	-3%	0	0%	293	300	288	284
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	110	107	11	11%	-3	-3%	301	306	388	387
17:15-18:15	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	73	76	12	20%	3	4%	802	809	874	861
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	87	89	-37	-30%	2	2%	391	394	390	389
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	289	296	147	104%	7	2%	398	405	440	441

Description			Average Journey Times (s) All Vehicles excl. Buses								Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	Abs Diff SCN 2	% Diff SCN 2	Abs Diff SCN 2a	% Diff SCN 2a	2017 Base	2019 DM	2019 SCN 2	2019 SCN 2a	
16:15-17:15	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	84	85	11	15%	1	1%	535	532	499	494
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	251	246	43	21%	-5	-2%	603	600	555	564
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	57	57	-3	-4%	0	0%	325	332	322	321
17:15-18:15	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	77	80	7	10%	3	4%	540	541	510	503
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	250	259	28	13%	9	4%	534	546	521	509
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	75	75	-7	-8%	0	0%	414	417	408	406

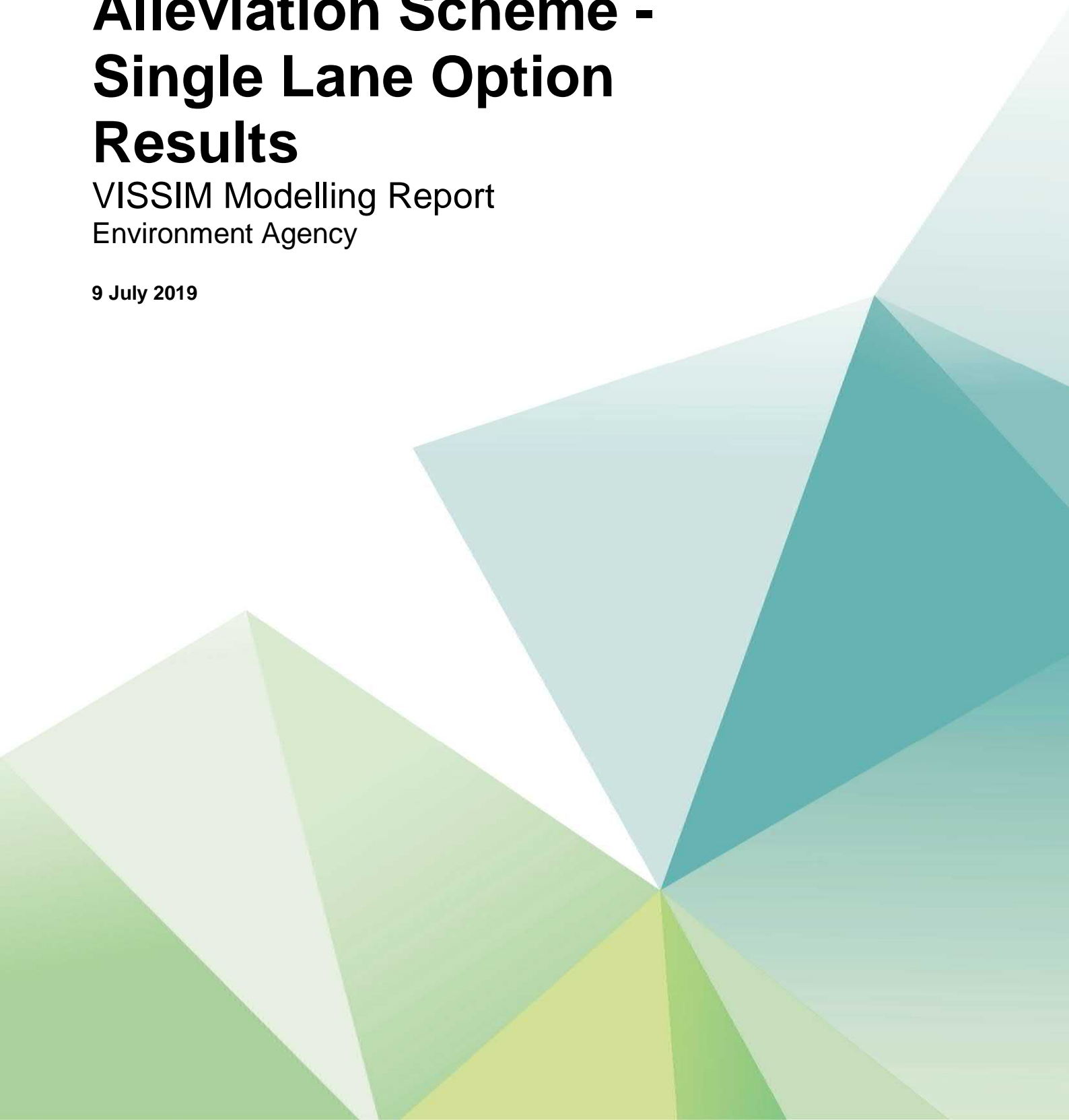
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Oxfordshire Flood Alleviation Scheme - Single Lane Option Results

VISSIM Modelling Report
Environment Agency

9 July 2019



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1. Introduction

1.1. Background

Atkins has been commissioned by the Environment Agency (EA) to evaluate the impact on the A34 Hinksey Hill Interchange during the construction of the Oxford Flood Alleviation scheme.

In 2017, Atkins developed base year VISSIM models of the area for Oxfordshire County Council (OCC) and they have been used for this assessment. Details of the modelling and validation results can be found in the 'Hinksey Hill VISSIM Model LMVR' which was submitted to OCC in April 2018.

In early 2019, Atkins were approached by the Environment Agency to utilise the 2017 base year model to assess various schemes involving partial closures of Old Abingdon Road and Kennington Road during the construction of the scheme. The 2017 base year flows were factored to 2019 traffic flows for this assessment. Details on the findings and impacts to the highway network of these schemes can be located in the 'Oxfordshire Flood Alleviation Scheme Assessment Report' submitted in March 2019.

The main outcome of the modelling identified increases in queues and delays along the A34, which are unacceptable to Highways England (HE) and therefore, further schemes have been developed by the Environment Agency to mitigate any disruption to the A34 and surrounding network. These are to be assessed using the 2019 VISSIM models developed for the first phase of assessment.

1.2. Traffic Modelling

The models have been developed using VISSIM software, which is part of the PTV Vision Transport modelling suite and is a microscopic traffic flow simulation model based on car following and lane change logic. VISSIM can analyse vehicular traffic including bus / tram, pedestrian and bicycle operations under constraints such as lane configuration, traffic composition, traffic signals, and bus/tram stops. VISSIM does not follow the conventional link / node modelling system but utilises a link / connector system that enables complex highway geometry to be modelled. The link / connector system also permits different traffic controls (signal, give way or stop) to be utilised anywhere in the model. VISSIM is also capable of modelling vehicle actuation traffic control utilising the Vehicle Actuated Programming (VAP) module, as well as MOVA using the PCMOVA module from TRL. Therefore, it is an appropriate tool for the evaluation of the combination of complex geometry and traffic controls (give way and traffic signal) operations that will be assessed within the study area.

The study area is shown below, in Figure 1-1, while Figure 1-2 shows the extent of the VISSIM network. The area includes five signalised junctions, Hinksey Hill roundabout, A423 Kennington roundabout, the A4144/Abingdon Road junction, A4144/Weirs Lane junction and the Redbridge Park and Ride bus signal.

The models have been constructed using static assignment from 2017 junction turning count data and updated to 2019 flows using growth factors from the National Roads Traffic Forecast (NRTF) and the Trip End Model Presentation Program (TEMPO). As the model was originally based on static assignment, no potential re-routing due to congestion or modal shift has been assumed for this assessment.

The alternative design scenarios to be assessed in this report are based on single lane running on Old Abingdon Road and Kennington Road and introducing signal controlled traffic management to enable the roads to remain open during the construction stage.

Some of the designs that have been provided to Atkins are variations of the same design, or variations to designs that have already been modelled under the first assessment in March 2019. For these, Atkins have been asked to provide some commentary based on previous modelling results, rather than modelling them again.

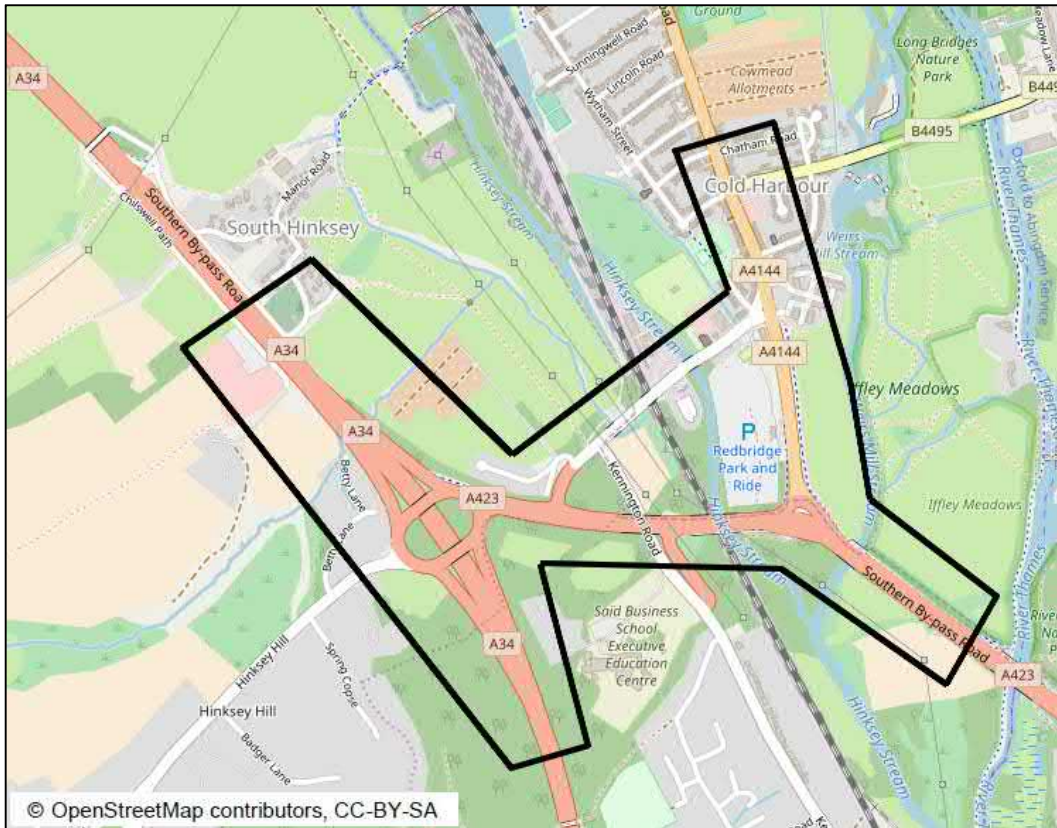


Figure 1-1 Network Extents

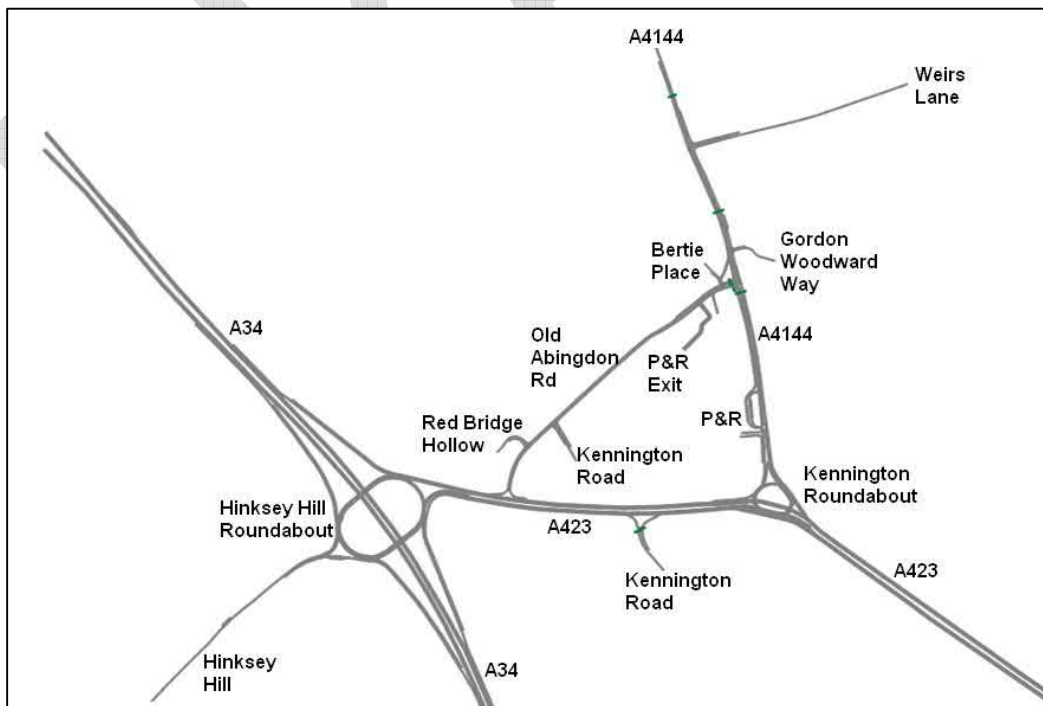


Figure 1-2 VISSIM Network Extents

The models have been built for the morning peak period from 07:15 to 09:15 and an evening peak period from 16:15 to 18:15. A 30 minute warm-up period has been added prior to each peak to populate the network with vehicles and create representative peak period traffic conditions for undertaking model output data analysis.

1.3. Report Structure

The report is set out as follows:

- Section 2 – Action 1 Scenario 1a & 1b;
- Section 3 – Action 2 Scenario 1a & 1b;
- Section 4 – Action 2 Scenario 2a & 2b;
- Section 5 – Commentary on Other Scenarios; and,
- Section 6 – Summary and Conclusions.

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2. Action 1 Scenario 1a & 1b – Kennington Road Single Lane

The first design to be assessed is to understand the impacts to traffic by reducing Kennington Road to a single lane at the junction with Old Abingdon Road and introducing signals through the construction site. The key features of this option are as follows and shown in Figure 2-1:

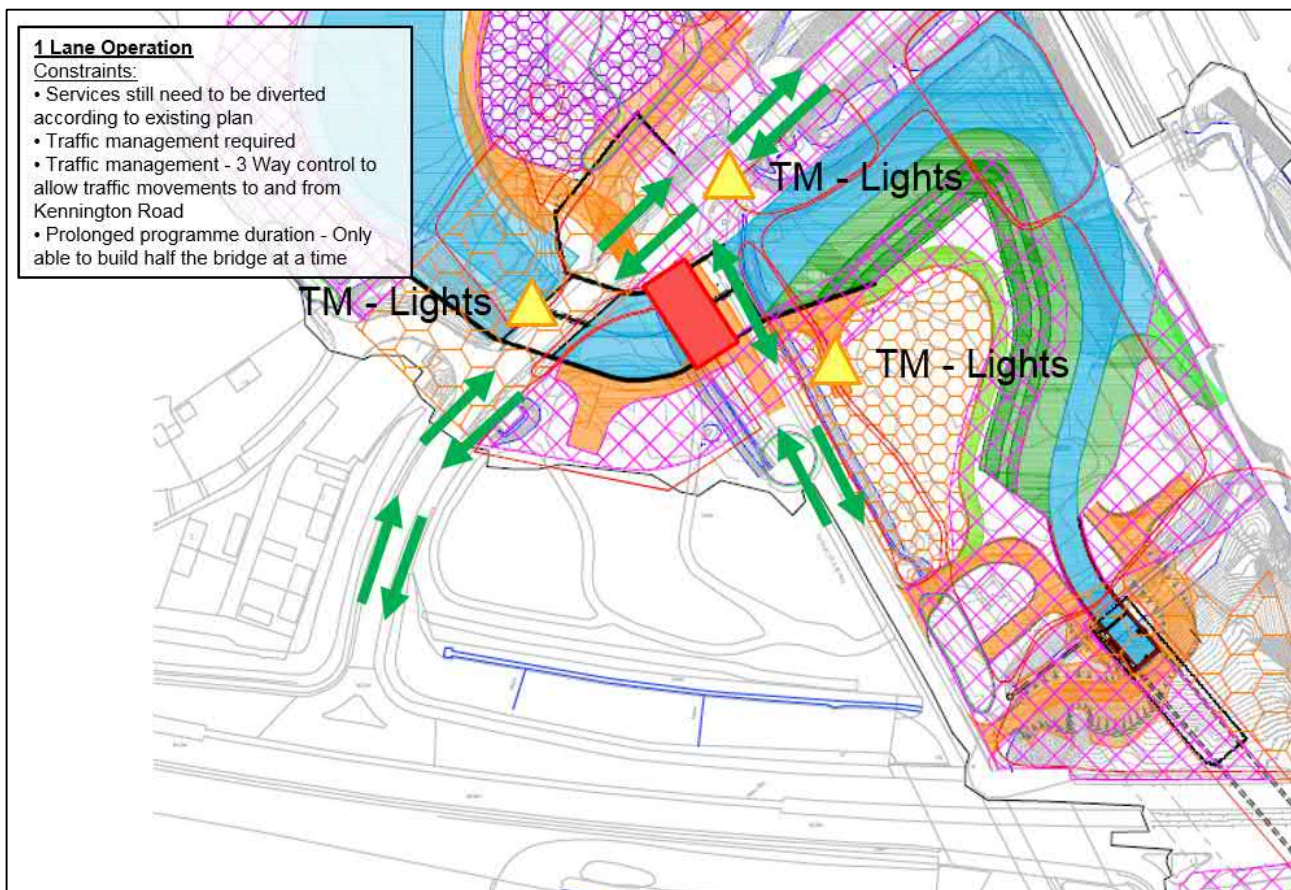
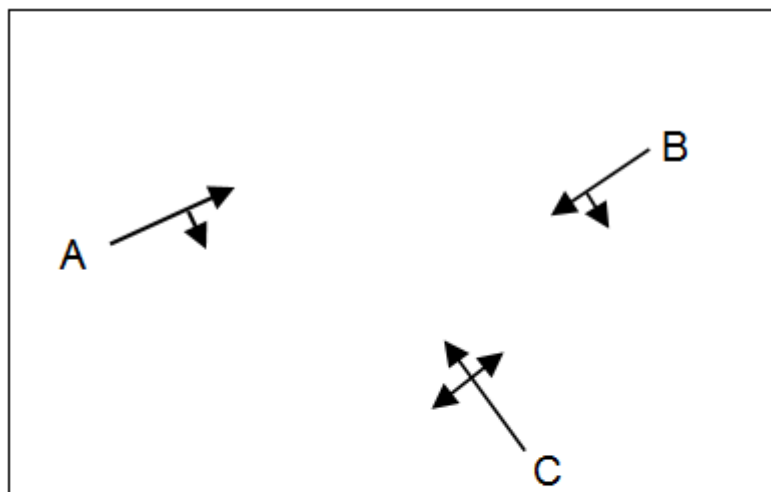


Figure 2-1 Action 1 Scenario 1a – Kennington Road single lane

- Kennington Road single lane for entry / exit traffic;
- Old Abingdon Road remains fully open in both directions and ;
- Traffic Management is required and will be controlled by 3 way signals;
- Stop line of Kennington Road set back from junction to allow traffic to use single lane;

Within VISSIM, the 2019 Do Minimum model has been updated to include the signals on Old Abingdon Road and Kennington Road with the following phasing, staging and timings as shown in Figure 2-2. Phases A & B represent Old Abingdon Road while Phase C represents Kennington Road.

Atkins have been provided with two designs for this scenario, 1a & 1b. 1a is shown above while 1b moves the construction area (shown by the red box) to the right. Both scenarios are provided in Appendix A. In terms of modelling and for the purpose of this assessment, the placement of the construction site will not alter the results of the modelling and so only 1a has been modelled, but the results will represent both scenarios.



Stage	Phase	Green Time	
		AM	PM
1	A	50	50
2	B	20	30
3	C	35	30

Figure 2-2 Action 1 Scenario 1a – Kennington Road single lane signal phasing and timings

The traffic management signals have been coded to operate on Vehicle Actuated (VA) with the timings shown above being the maximum green time for each stage. Should there not be any demand for a stage it will be skipped, and the next stage called, or it will remain on the active stage until demand is detected on any other approach. The signals will also gap out before the maximum time has been run if no demand is detected during the stage. This allows a more re-active way of controlling the traffic flows through the junction.

The green times shown have been based on observations of the model and optimised to prevent long queues forming, especially northbound along Old Abingdon Road to minimise queuing back to the A423.

The intergreen times between stages have been calculated based on the position of the signals within the model, which have been placed as per the design in Figure 2-1. Due to the location of the Kennington Road signal and the single lane running, a relatively long intergreen is required between Old Abingdon Road and Kennington Road stages allow traffic to clear.

Should any deviation to the design occur on site, then changes to the intergreen times will be required. If longer intergreen times are implemented, this could impact on the waiting times for the northbound traffic and lead to longer queues, potentially reaching back to the A423.

Within the model area, a side road, Red Bridge Hollow, is located along Old Abingdon Road to the south of the proposed signals. Within the model, a yellow box has been coded to prevent stationary vehicles blocking this junction. Atkins are unsure if this junction has been considered when designing this option, and what will be implemented on site to prevent blocking while vehicles are queuing at the south signals.

2.1. Action 1 Scenario 1a Results

The results for the Action 1 Scenario 1a AM and PM peak periods have been compared to the 2019 Do Minimum (DM) results in terms of delays (s), flow, maximum queue lengths (m) and journey times (s) for each approach at the following key junctions within the model;

- Hinksey Hill Interchange;
- Kennington Roundabout;
- A4144 / Old Abingdon Road junction; and,
- A4144 / Weirs Lane junction.

The 2017 results have been shown for information purposes and only the Hinksey Hill Interchange results have been presented in tabular form, with the remainder of the results provided in Appendix A.

2.1.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 2-1 forecasts that the A34 southbound off slip maximum queues have reduced as a result of introducing traffic management signals along Old Abingdon Road. The signals are preventing the continuous stream of traffic arriving at the A423 merge from Kennington Road. The holding back of these vehicles is allowing more gaps at the merge and preventing the congestion along the A423 mainline. The queues and delays along Kennington Road are worse with the TM.

By keeping the A423 mainline moving more regularly is allowing vehicles to exit the A34 slip and continue along the A423, rather than entering onto the back of the congestion.

Congestion back to Hinksey Interchange is still visible within the model, although it does not extend back to the interchange as frequently as observed in the 2019 Do Minimum network.

The A34 northbound off slip queues are consistent with the DM queuing, although delays have increased.

Table 2-1 2019 AM Peak Action 1 Scenario 1a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	950	1689.3	2071.5	1892.7	171.6	211.5	199.2
		A423 Southern By-Pass (E)	2389	2427	2432	680.2	139.9	599.2	5.4	5.5	5.6
		A34 NB Off Slip	1012	993	991	2959.3	3505.2	3507.9	146.2	245.4	255.8
		Hinksey Hill	582	580	582	774.5	1031.7	1037.3	285.5	409.5	405.3
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1076	1741.1	2956.8	2816.0	221.1	315.2	323.4
		A423 Southern By-Pass (E)	2107	2188	2179	434.7	441.0	2616.6	5.3	6.3	6.3
		A34 NB Off Slip	900	853	841	2954.5	3513.0	3515.9	287.2	669.8	727.6
		Hinksey Hill	488	486	496	691.6	1038.5	1124.3	222.5	447.3	405.6

From observations of the model in operation, there are times when the queuing back from the A4144 / Old Abingdon Road junction extends to the Kennington Road junction. This has been observed to occur in the 2019 DM model.

Vehicles travelling north along Old Abingdon Road will block the Kennington Road exit, meaning the Kennington Road vehicles will not be able to exit onto Old Abingdon Road until that queue clears, and could result in waiting within the single lane section, causing safety concerns and the potential to block this area of the network.

Therefore, within the model, yellow boxes have been coded to prevent Old Abingdon Road traffic from proceeding should queuing back occur, and for Kennington Road traffic not to proceed if they are unable to

enter Old Abingdon Road without blocking the single lane section. However, it is noted, that the location of the signal on Kennington Road would make visibility of this queuing back impossible, so vehicles would automatically proceed when the signal turned green.

A similar concern is also raised for left turning vehicles out of Kennington Road, as there are occasions when the traffic trying to merge onto the A423 extends back to Kennington Road. Again, the lack of visibility for vehicles waiting at the Kennington Road signal would cause some queuing on the single lane section.

Figures 2-3 and 2-4 highlight these potential safety concerns in more detail.

Atkins recommends that further consideration of these potential issues be undertaken before the designs are implemented on site to try to mitigate vehicles blocking on Old Abingdon Road and for vehicles leaving Kennington Road and blocking on the single lane section.

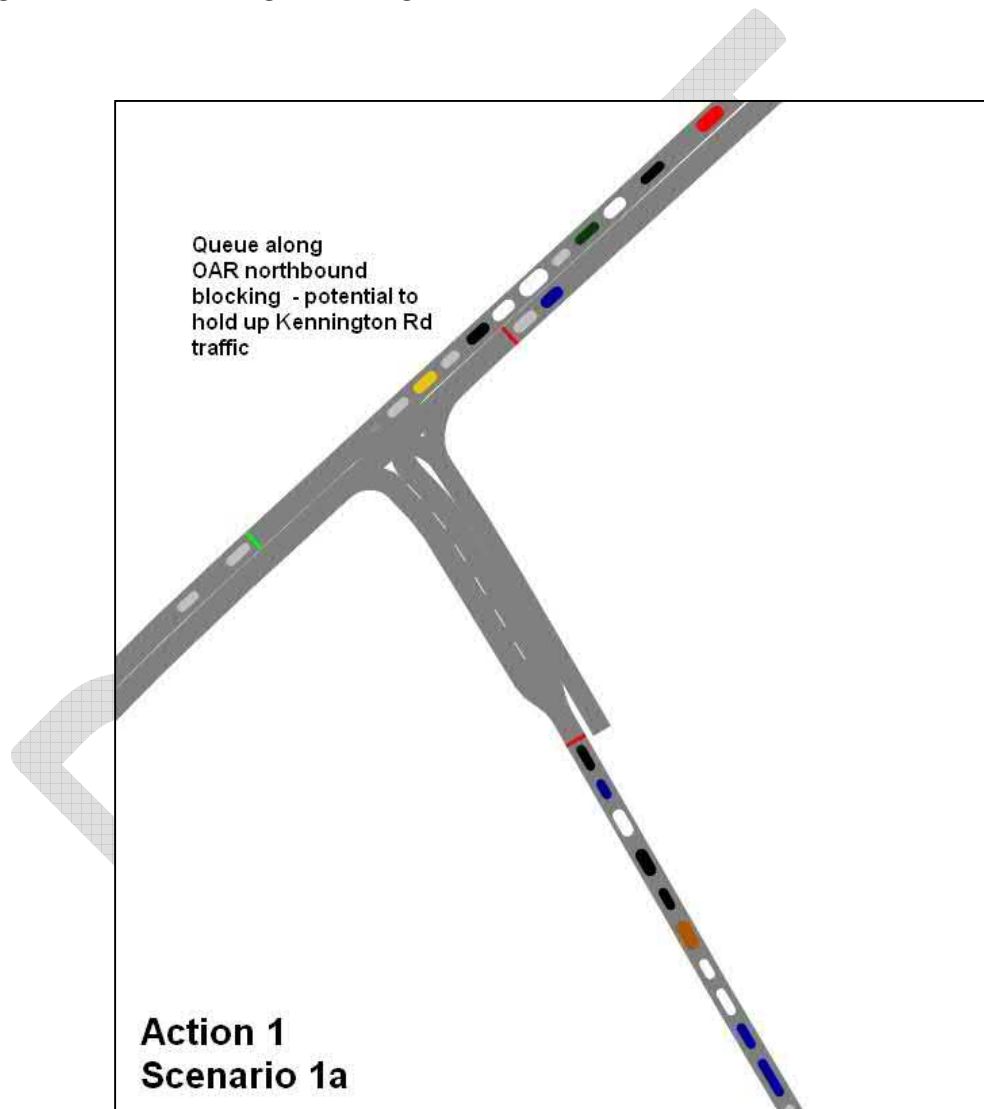


Figure 2-3 Old Abingdon Road queuing from A4144 junction to Kennington Road

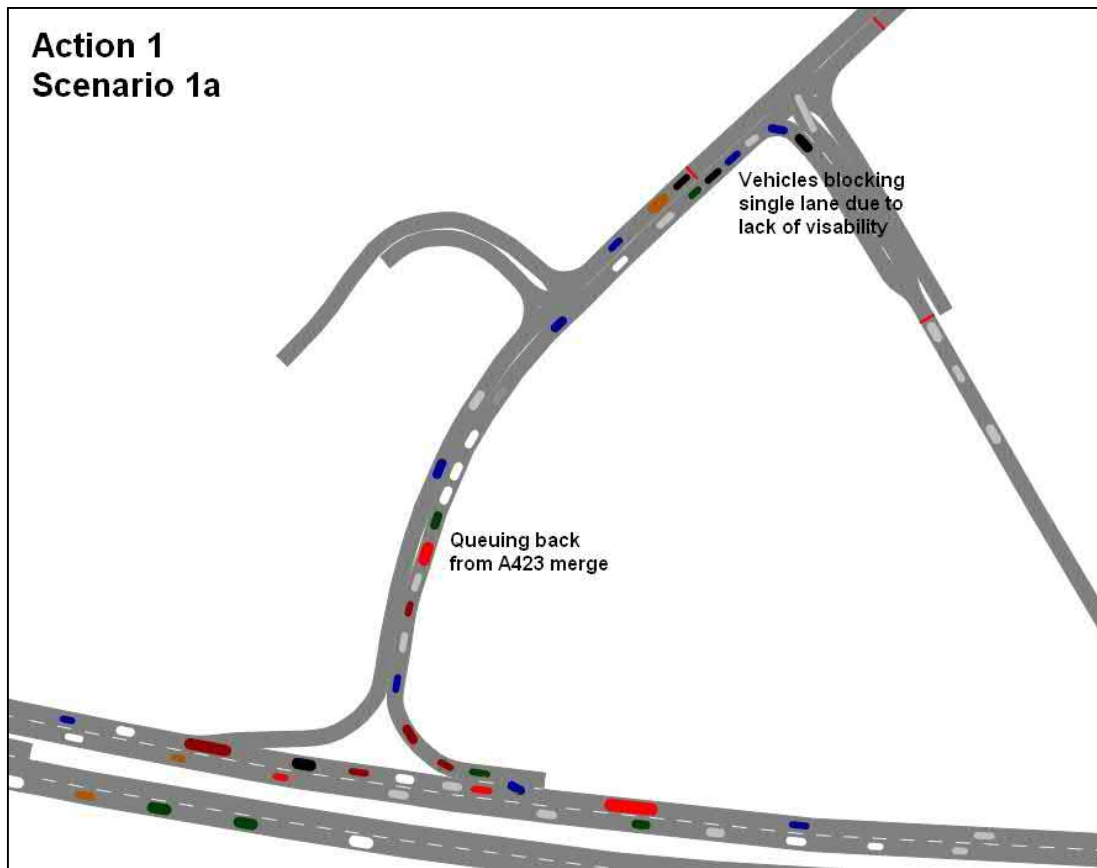


Figure 2-4 Old Abingdon Road queuing from A423 merge to Kennington Road

Table 2-2 shows that travel times for each approach to the Hinksey Hill Interchange have remained consistent with the 2019 DM, with the exception of the Hinksey Hill approach during 0815-0915 which has decreased by 59 seconds.

The A34 off slips show little change, with the southbound off slip decreasing by 11 seconds during 0715-0815 as a result of holding back traffic that wishes to merge with the A423.

Table 2-2 2019 AM Peak Action 1 Scenario 1a Hinksey Interchange Journey Time (s) Comparison

		Description			Average Journey Times (s) All Vehicles excl. Buses			
	From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	244	-11	-4%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	71	0	0%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	252	11	5%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	374	1	0%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	288	3	1%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	58	0	0%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	373	4	1%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	327	-59	-15%

Kennington Roundabout

The junction results forecast marginal decreases to queues and delays at Kennington Roundabout from the 2019 DM results with the proposed traffic management scheme.

Travel Times are consistent with the 2019 DM network, with very slight decreases to times observed.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction, although the maximum queues along Old Abingdon Road have decreased by approximately 800m with the scheme.

The signals are delaying traffic from reaching the junction, which allows the queue along Old Abingdon Road to dissipate before the signals release more northbound traffic. With no signals in the DM, a continuous flow of traffic is arriving to the back of the queue, which gradually keeps extending.

By introducing the traffic management along Old Abingdon Road only increases travel times along the route by a maximum of 11 seconds during the hour of 0815-0915. All other travel times to the junction remain consistent with the DM times.

The southbound travel time along Old Abingdon Road to the A423 has increased by over 30 seconds throughout the AM peak (38 seconds during 0715-0815), although no major queuing has been observed for this movement.

A4144 / Weirs Lane Junction

The junction results forecast decreases to queues and delays for this junction, which could be as a result of the lower queues forecast along Old Abingdon Road and arrival profile of them to this junction.

The travel times forecast slight reductions during 0715-0815 and marginal increases during 0815-0915 compared with the DM travel times for each approach to this junction.

2.1.2. Comparison of PM Peak Results

Hinksey Hill Interchange

Table 2-3 forecasts that all maximum queues at the Interchange are lower than the 2019 DM network throughout the PM peak period.

Delays are also lower during 1615-1715, although the A34 southbound off slip and Hinksey Hill approaches experience marginal increases to delays in the 1715-1815 time period.

Table 2-3 2019 PM Peak Action 1 Scenario 1a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 SCN 1a	2017 Base	2019 DM	2019 SCN 1a	2017 Base	2019 DM	2019 SCN 1a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1025	143.9	136.0	124.9	17.9	19.6	19.3
		A423 Southern By-Pass (E)	3033	3079	3072	1597.0	2044.2	590.4	5.8	5.9	5.9
		A34 NB Off Slip	763	780	785	264.2	2102.8	445.6	50.6	71.6	67.6
		Hinksey Hill	544	559	560	133.8	139.3	130.5	27.5	28.8	28.2
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1144	207.2	293.7	280.1	26.6	32.3	33.2
		A423 Southern By-Pass (E)	2900	2999	3003	776.8	1815.3	900.9	6.1	6.5	6.4
		A34 NB Off Slip	863	890	887	238.3	1029.8	381.1	54.7	97.2	84.1
		Hinksey Hill	586	602	603	187.3	159.0	158.7	26.3	27.5	27.6

Table 2-4 shows no change to travel times during 1615-1715.

During 1715-1815 the travel time for the A34 northbound off slip has decreased, with nominal changes for the other approaches.

As the PM peak network is relatively un congested, the proposed traffic management scheme on Old Abingdon Road is forecast to not have any impact on the Hinksey Hill Interchange.

Table 2-4 2019 PM Peak Action 1 Scenario 1a Hinksey Interchange Journey Time (s) Comparison

		Description			Average Journey Times (s) All Vehicles excl. Buses				
		From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	54	0	0%	
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	86	0	0%	
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	62	1	2%	
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	59	-1	-2%	
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	103	-9	-8%	
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	

Kennington Roundabout

The results show that no major changes to queues or delays are forecast for the roundabout, with slight increases to delays observed.

Travel Times are consistent with the 2019 DM network, with very nominal changes to each approach recorded.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction, although the maximum queues along Old Abingdon Road have decreased by approximately 200m during 1715-1815 with the traffic management scheme.

As identified in the AM peak, the signals are delaying traffic from reaching the junction in one continuous flow, resulting in a lower maximum queue.

Travel times for this junction show no major change, with the exception of the northbound route along Old Abingdon Road. This time has seen increases of up to 24 seconds during 1615-1715, as vehicles are held up at the traffic management.

The southbound travel time along Old Abingdon Road to the A423 has increased by just under 30 seconds throughout the PM peak (29 seconds during 1715-1815), although no major queuing has been observed for this movement.

A4144 / Weirs Lane Junction

The junction results forecast no major changes to queues and delays for this junction, and the results are similar to the 2019 DM results.

The travel times forecast minor increases during 1615-1715 and marginal decreases (with the exception of the Weirs Lane approach which has a marginal increase) during 1715-1815 compared with the DM travel times for this junction.

DRAFT

3. Action 2 Scenario 1a & 1b – Old Abingdon Road Single Lane

The second design to be assessed is to understand the impacts to traffic by reducing Old Abingdon Road to a single lane at the junction with Kennington Road and introducing signals through the construction site. The key features of this option are as follows and shown in Figure 3-1:

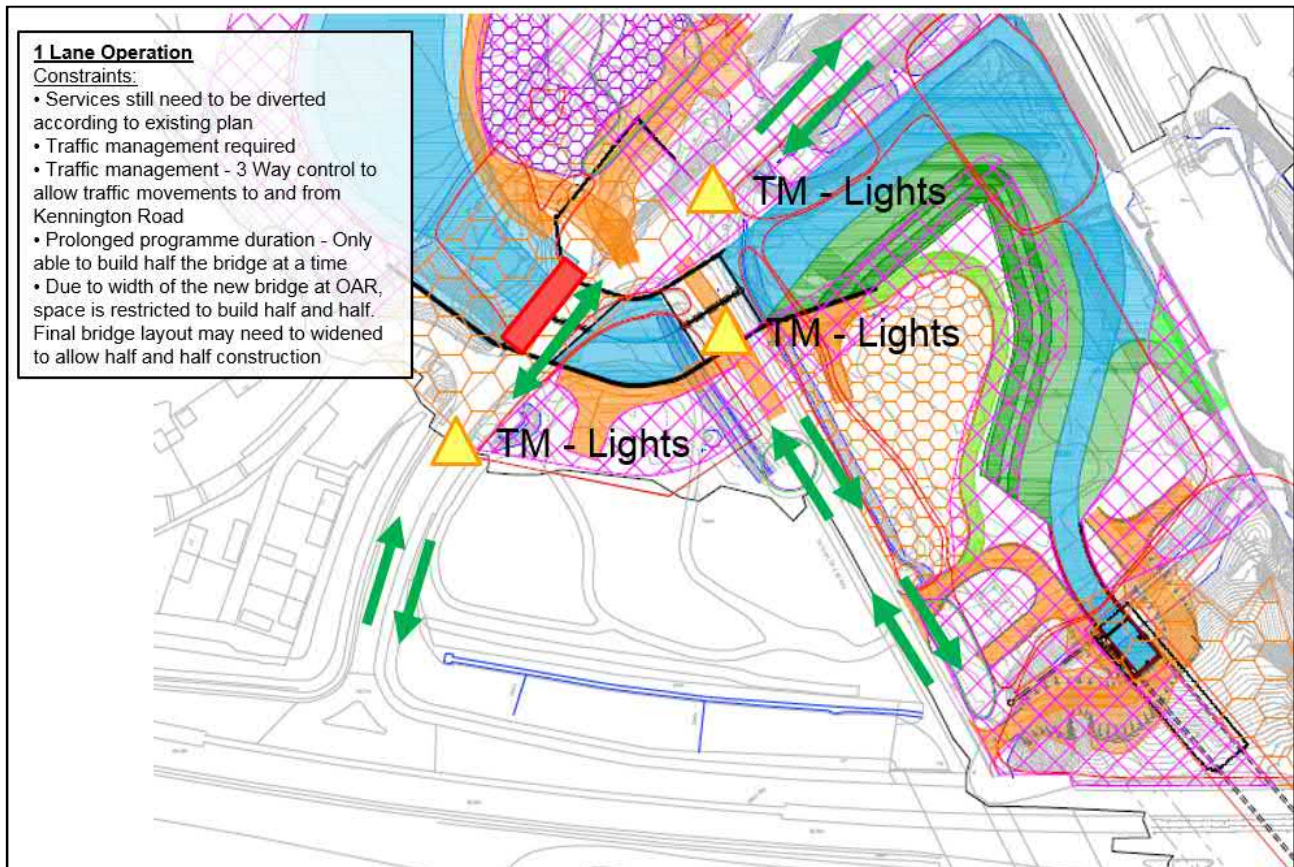
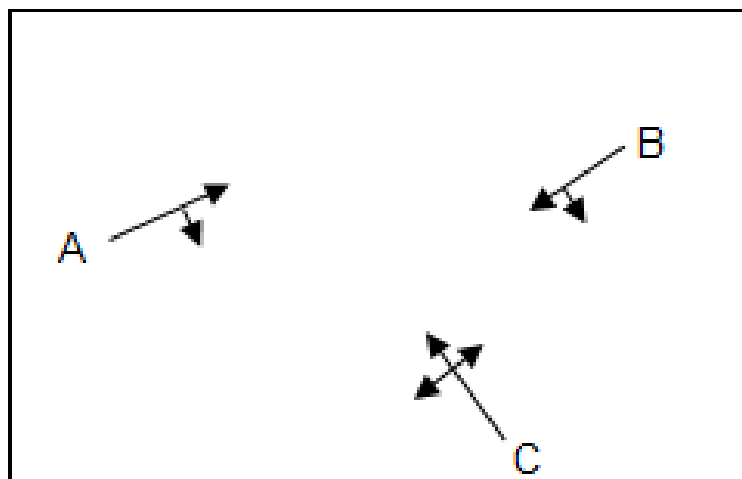


Figure 3-1 Action 2 Scenario 1a – Old Abingdon Road single lane

- Old Abingdon Road single lane section by the Kennington Road junction;
- Traffic Management is required and will be controlled by 3 way signals;
- Kennington Road returns to current operation, with signals required for both turning lanes; and,
- Stop line of Old Abingdon Road northbound moved further south towards A423 compared with Action 1 Scenario 1a to allow traffic to use single lane;

Within VISSIM, the 2019 Do Minimum model has been updated to include the signals on Old Abingdon Road and Kennington Road with the following phasing, staging and timings as shown in Figure 3-2. Phases A & B represent Old Abingdon Road while Phase C represents Kennington Road.

Atkins have been provided with two designs for this scenario, 1a & 1b. 1a is shown above while 1b moves the construction area (shown by the red box) to the right of Old Abingdon Road. Both scenarios are provided in Appendix B. In terms of modelling and for the purpose of this assessment, the placement of the construction site will not alter the results of the modelling and so only 1a has been modelled, but the results will represent traffic conditions for both scenarios.



Stage	Phase	Green Time	
		AM	PM
1	A	60	50
2	B	22	30
3	C	35	30

Figure 3-2 Action 2 Scenario 1a – Old Abingdon Road single lane signal phasing and timings

The traffic management signals have been coded to operate as Vehicle Actuated (VA) with the timings shown above being the maximum green time for each stage. Should there not be any demand for a stage it will be skipped, and the next stage called, or it will remain on the active stage until demand is detected on any other approach. The signals will also gap out before the maximum time has been run if no demand is detected during the stage. This allows a more re-active way of controlling the traffic flows through the junction.

The green times shown have been based on observations of the model and optimised to prevent long queues forming, especially northbound along Old Abingdon Road to minimise disruption to the A423.

The intergreen times between stages have been calculated based on the position of the signals within the model, which have been placed as per the design in Figure 3-1. Due to the location of the Old Abingdon Road signal and the single lane running, a relatively long intergreen is required between the northbound approach and other arms to allow traffic to clear.

Should any deviation to the design occur on site, then changes to the intergreen times will be required. If longer intergreen times are implemented, this could impact on the waiting times for the northbound traffic and lead to longer queues, potentially reaching back to the A423.

Within the model area, a side road, Red Bridge Hollow, is located along Old Abingdon Road to the south of the proposed signals. The design, shown in Figure 3-1 shows that the signals would be placed to the south of this junction, meaning some conflicts with traffic entering / exiting here with the signals. Atkins have therefore placed the signals to the north of this junction to prevent vehicles from exiting and colliding with oncoming traffic through the single lane section.

Atkins are unsure if this junction has been considered when designing this option, and what will be implemented on site regarding the safety of Red Bridge Hollow traffic.

3.1. Action 2 Scenario 1a Results

The results for the Action 2 Scenario 1a AM and PM peak periods have been compared to the 2019 Do Minimum (DM) results in terms of delays (s), flow, maximum queue lengths (m) and journey times (s) for each approach at the following key junctions within the model;

- Hinksey Hill Interchange;
- Kennington Roundabout;
- A4144 / Old Abingdon Road junction; and,
- A4144 / Weirs Lane junction.

The 2017 results have been shown for information purposes and only the Hinksey Hill Interchange results have been presented in tabular form, with the remainder of the results provided in Appendix B.

3.1.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 3-1 forecasts that the A34 southbound off slip maximum queues increased from the DM scenario, as a result of having Old Abingdon Road with single lane running, and the traffic lights closer to the A423.

Observations of the model show that queuing back onto the A423 is occurring, which causes additional congestion to this approach of the Interchange and can be seen in Figure 3-3.

The A34 northbound off slip queues and delays are consistent with the DM queuing.

Table 3-1 2019 AM Peak Action 2 Scenario 1a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	952	1689.3	2071.5	2570.1	171.6	211.5	200.9
		A423 Southern By-Pass (E)	2389	2427	2431	680.2	139.9	506.2	5.4	5.5	5.6
		A34 NB Off Slip	1012	993	1001	2959.3	3505.2	3507.2	146.2	245.4	256.8
		Hinksey Hill	582	580	579	774.5	1031.7	1058.4	285.5	409.5	413.8
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1064	1741.1	2956.8	3512.6	221.1	315.2	331.3
		A423 Southern By-Pass (E)	2107	2188	2178	434.7	441.0	253.4	5.3	6.3	6.2
		A34 NB Off Slip	900	853	850	2954.5	3513.0	3515.2	287.2	669.8	660.8
		Hinksey Hill	488	486	485	691.6	1038.5	1149.2	222.5	447.3	479.7

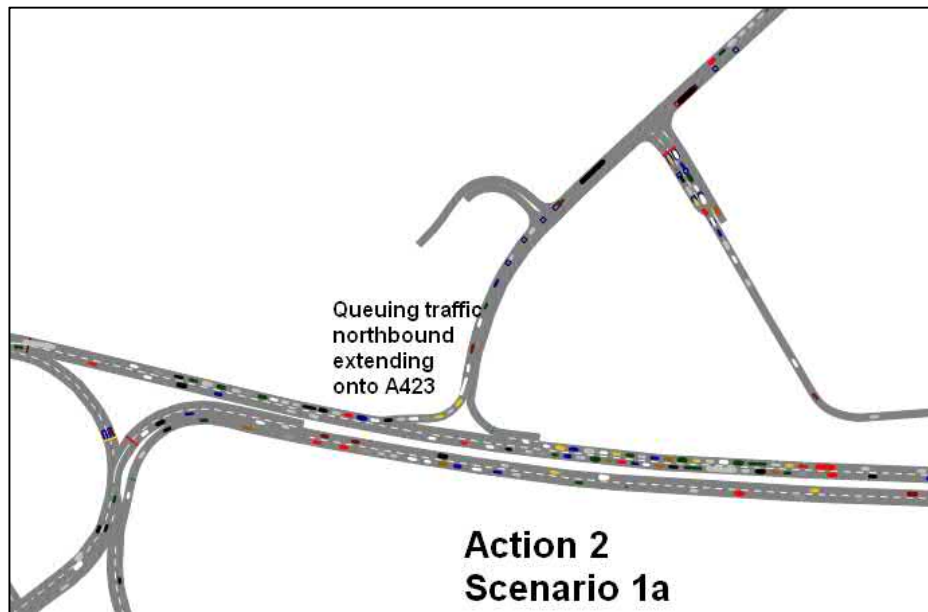


Figure 3-3 AM Queuing back traffic from Old Abingdon Road onto A423

From observations of the model in operation, as per the 2019 DM model, there are times when the queuing from the A4144 / Old Abingdon Road junction extends back to the Kennington Road junction.

Vehicles travelling north along Old Abingdon Road could extend back and block the single lane section along Old Abingdon Road, causing safety concerns and the potential to block this area of the network.

The placement of the signal stop line is also key to this scenario, as if it will be placed further south, the queuing back to the A423 will occur more frequently and lead to more congestion along the A423 and to the Interchange.

Therefore, within the model, yellow boxes have been coded to prevent Old Abingdon Road traffic from proceeding should queuing back through the single lane section occur, and for Kennington Road traffic not to proceed if they are unable to enter Old Abingdon Road northbound due to queuing (as they would be blocking both the Old Abingdon Road movements).

A similar concern is also raised for left turning vehicles out of Kennington Road, as there are occasions when the traffic trying to merge onto the A423 extends back to Kennington Road. The lack of visibility for vehicles waiting at the Kennington Road signal would cause some queuing on the single lane section.

Figures 3-4 and 3-5 highlight these potential safety concerns in more detail.

Atkins recommends that further consideration of these potential issues be undertaken, and mitigation measures agreed before the designs are taken forward and implemented on site.

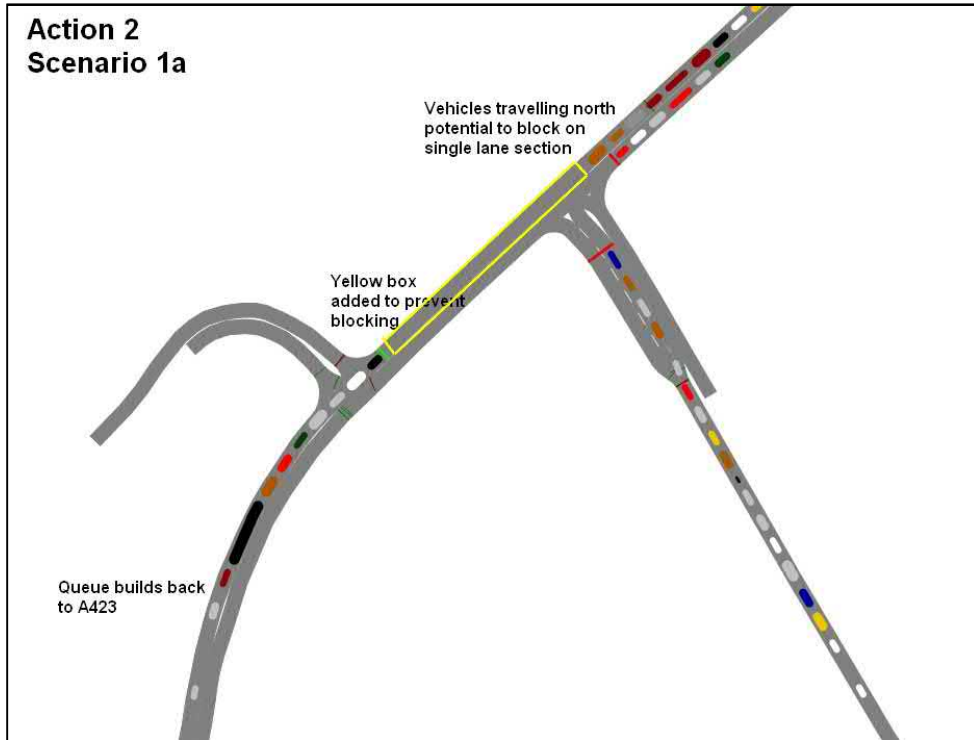


Figure 3-4 Old Abingdon Road queuing potentially blocking single lane

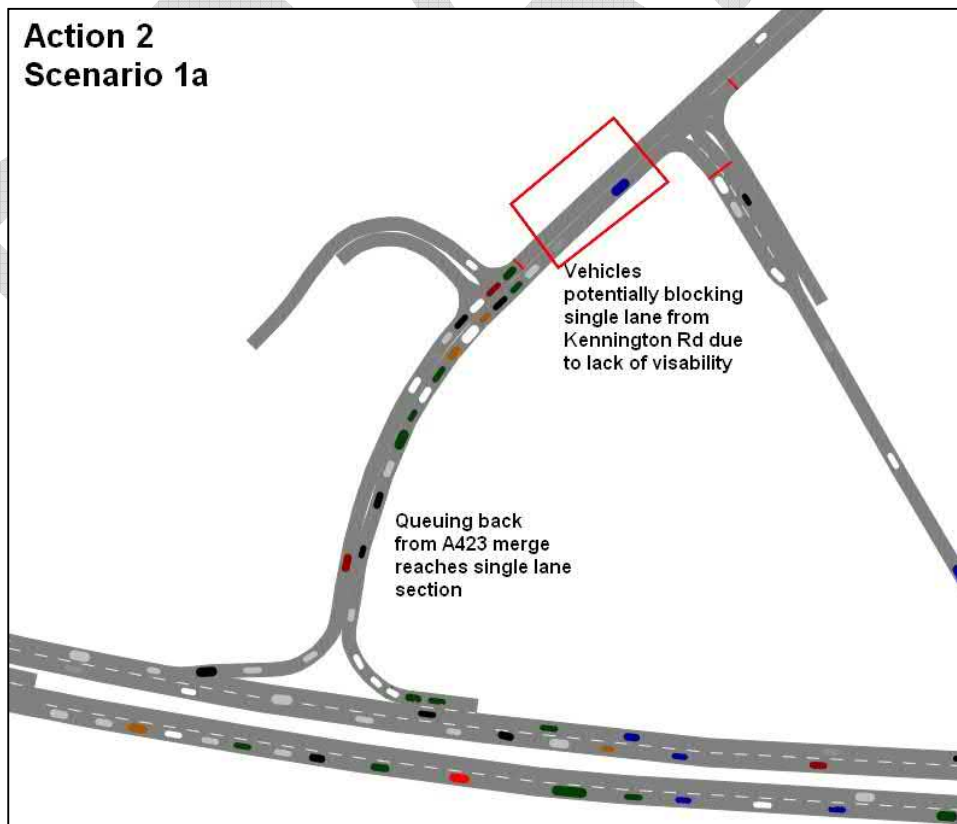


Figure 3-5 A423 merge traffic blocking single lane on Old Abingdon Road

Table 3-2 2019 AM Peak Action 2 Scenario 1a Hinksey Interchange Journey Time (s) Comparison

	Description			Average Journey Times (s) All Vehicles excl. Buses				
	From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	241	-14	-5%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	71	0	0%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	241	0	0%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	379	6	2%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	297	12	4%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	57	-1	-2%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	365	-4	-1%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	401	15	4%

Table 3-2 shows that during 0715-0815, the travel time for the A34 southbound off slip has decreased by 14 seconds but increased by 12 seconds during 0815-0915 compared with the 2019 DM times. This fluctuation is because of the queuing back from the Old Abingdon Road signals onto the A423 during the latter part of 0715-0815 and into 0815-0915 as shown in Figure 3-3.

However, at the start of 0715-0815 the signals are helping to prevent a constant flow of vehicles merging onto the A423, which is allowing more free flowing traffic along the mainline and queuing back to the Interchange is not occurring as early on as per the DM.

The remainder of travel times are consistent with the DM model, although the Hinksey Hill time has increased by 15 seconds during 0815-0915.

Kennington Roundabout

The junction results forecast marginal decreases to queues and delays throughout the AM peak period at Kennington Roundabout from the 2019 DM results with the proposed traffic management scheme.

Travel Times are consistent with the 2019 DM network, with very slight decreases to times observed.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction, with queues and delays similar to the DM model results.

By introducing the traffic management along Old Abingdon Road increases travel times along the route by a maximum of 28 seconds during the hour of 0815-0915, as the yellow box for northbound traffic is much larger than Action 1. All other travel times to the junction remain consistent with the DM times.

The southbound travel time along Old Abingdon Road to the A423 has increased by over 30 seconds throughout the AM peak (38 seconds during 0715-0815), although no major queuing has been observed for this movement.

A4144 / Weirs Lane Junction

The junction results forecast nominal increases to queues and delays for the majority of approaches to this junction.

The travel times forecast slight reductions during 0715-0815 and marginal increases during 0815-0915 compared with the DM travel times for the Weirs Lane approach to this junction.

3.1.2. Comparison of PM Peak Results

Hinksey Hill Interchange

Table 3-3 2019 PM Peak Action 2 Scenario 1a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1024	143.9	136.0	129.0	17.9	19.6	19.4
		A423 Southern By-Pass (E)	3033	3079	3078	1597.0	2044.2	1936.2	5.8	5.9	6.0
		A34 NB Off Slip	763	780	783	264.2	2102.8	241.8	50.6	71.6	63.6
		Hinksey Hill	544	559	561	133.8	139.3	121.3	27.5	28.8	28.6
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1140	207.2	293.7	887.4	26.6	32.3	34.9
		A423 Southern By-Pass (E)	2900	2999	3005	776.8	1815.3	2038.6	6.1	6.5	6.4
		A34 NB Off Slip	863	890	887	238.3	1029.8	407.9	54.7	97.2	89.1
		Hinksey Hill	586	602	601	187.3	159.0	163.2	26.3	27.5	27.1

Table 3-3 forecasts that all maximum queues at the Interchange are lower than the 2019 DM network during 1615-1715.

During 1715-1815 the A34 southbound off slip queues and delays have increased. This is as a result of intermittent queuing back from the traffic management signals on Old Abingdon Road, onto the A423, which causes congestion for the Interchange circulatory as shown in Figure 3-6.

Congestion around the Weirs Lane junction causing queuing back along Old Abingdon Road, as vehicles are unable to proceed away from the junction, resulting in queuing back to the Kennington Road junction. Due to the single lane for the construction, vehicles are not proceeding in case they block the single lane for oncoming traffic.

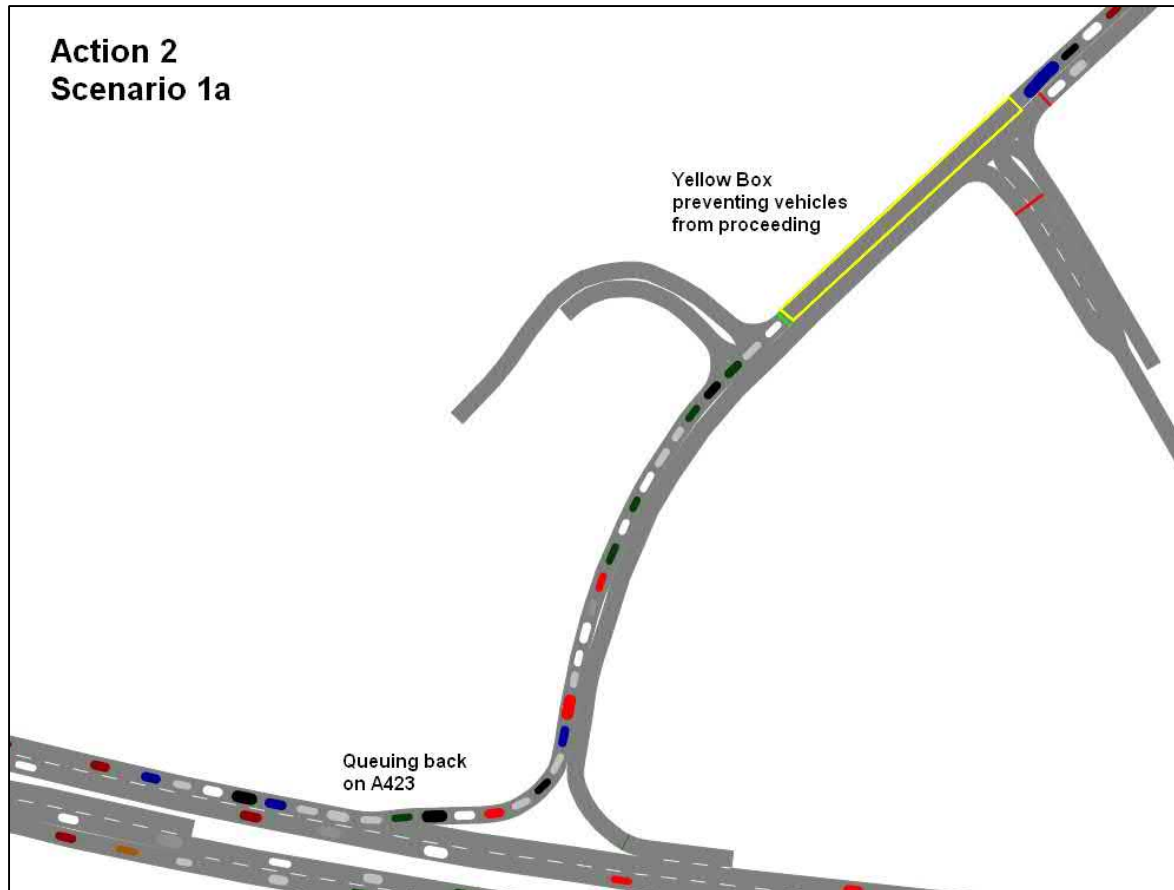


Figure 3-6 Old Abingdon Road queue extending back to A423

Table 3-4 2019 PM Peak Action 2 Scenario 1a Hinksey Interchange Journey Time (s) Comparison

		Description			Average Journey Times (s) All Vehicles excl. Buses				
		From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	54	0	0%	
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	79	-7	-8%	
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	64	3	5%	
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	62	2	3%	
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	104	-8	-7%	
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	

Table 3-4 shows no change to travel times during 1615-1715, with the exception of the northbound off slip which sees a 7 second decrease from the DM scenario.

During 1715-1815 travel times have increased slightly for the southbound off slip, but the northbound off slip maintains a nominal decrease.

Kennington Roundabout

The results show that no major changes to queues or delays are forecast for the roundabout, and the results are similar to that for the 2019 DM results.

Travel Times are consistent with the 2019 DM network, with very nominal changes to each approach recorded.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction, although the maximum queues along Old Abingdon Road have increased by just under 300m during 1715-1815. As shown in Figure 3.6, there are occasions where the queuing back from this junction along reaches back to the Kennington Road junction, causing delays to vehicles wishing to travel north.

This is further confirmed by the increase to travel times for northbound traffic of 23 seconds and 18 seconds during 1615-1715 and 1715-1815 respectively, although the traffic management is contributing to the increase in times.

The southbound travel time along Old Abingdon Road to the A423 has increased by just under 30 seconds throughout the PM peak (28 seconds during 1715-1815), although no major queuing has been observed for this movement.

A4144 / Weirs Lane Junction

The junction results forecast no major changes to queues and delays for this junction, and the results are similar to the 2019 DM results.

The travel times forecast minor increases during 1615-1715 and marginal decreases (with the exception of the Weirs Lane approach which has a marginal increase) during 1715-1815 compared with the DM travel times for this junction.

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4. Action 2 Scenario 2a & 2b – Old Abingdon Road One Way

The third design to be modelled to understand the impacts to traffic is to ban southbound traffic along Old Abingdon Road after the Kennington Road junction. The key features of this option are as follows and shown in Figure 4-1:

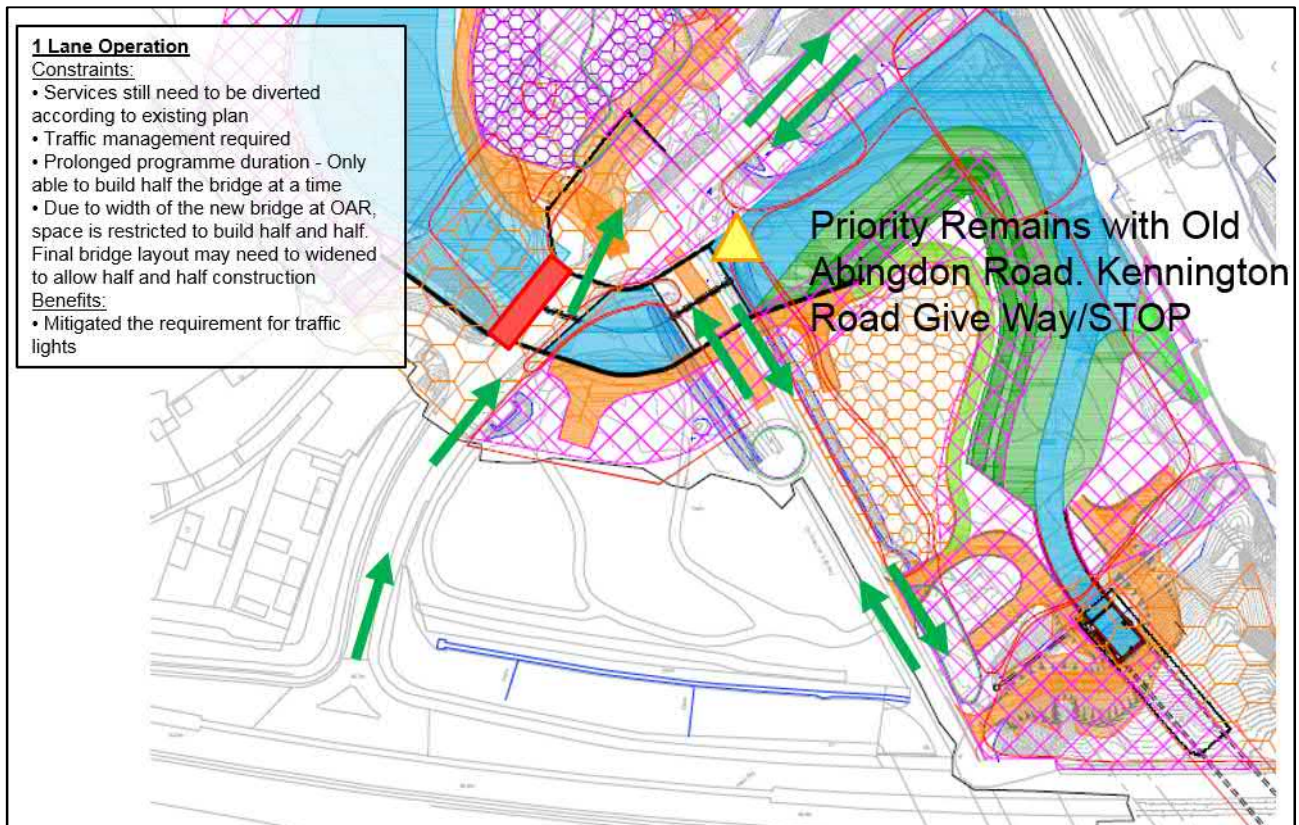


Figure 4-1 Action 2 Scenario 2a – Old Abingdon Road one way

- Old Abingdon Road one way northbound between A423 and Kennington Road junction;
- Maintain priority control on Kennington Road;
- Kennington Road left turns are banned; and,
- Old Abingdon Road southbound ahead movement to A423 is banned.

Due to the banned movements, traffic within the static routing VISSIM model was required to be manually re-assigned with the following assumptions;

- Left turning traffic from Kennington Road has been assumed to use the south Kennington Road access to travel to the Hinksey Hill Interchange. Here they will u-turn and travel back along the A423 to Kennington Roundabout; and,
- Ahead traffic from Old Abingdon Road will now use A4144 to Kennington Roundabout.

It is noted that this scenario is similar to the previous Scenario 1 Atkins modelled in phase 1 of the modelling, although the northbound movement of Old Abingdon Road remains open.

Atkins have been provided with two designs for this scenario, 2a & 2b. 2a is shown above while 2b moves the construction area (shown by the red box) to the right of Old Abingdon Road. Both scenarios are provided in

Appendix C. In terms of modelling and for the purpose of this assessment, the placement of the construction site will not alter the results of the modelling and so only 1a has been modelled, but the results will represent both scenarios.

4.1. Action 2 Scenario 2a Results

The results for the Action 2 Scenario 2a AM and PM peak periods have been compared to the 2019 Do Minimum (DM) results in terms of delays (s), flow, maximum queue lengths (m) and journey times (s) for each approach at the following key junctions within the model;

- Hinksey Hill Interchange;
- Kennington Roundabout;
- A4144 / Old Abingdon Road junction; and,
- A4144 / Weirs Lane junction.

The 2017 results have been shown for information purposes and only the Hinksey Hill Interchange results have been presented in tabular form, with the remainder of the results provided in Appendix B.

4.1.1. Comparison of AM Peak Results

Hinksey Hill Interchange

Table 4-1 forecasts that the A34 northbound off slip delays have doubled during 0715-0815 and increased by 220s during 0815-0915. However, the maximum queues have not increased due to already extending to the edge of the network in all scenarios.

The re-assigned traffic that is u-turning at the Interchange is impacting on the southern circulatory, with less gaps available for the slip road traffic to exit, as the additional circulatory traffic is filling the available space at the Hinksey Hill circulatory signals when red, as shown in Figure 4-2. The slip road traffic is always proceeding onto the back of the queue at the lights, meaning fewer vehicles are released from the slip road each cycle.

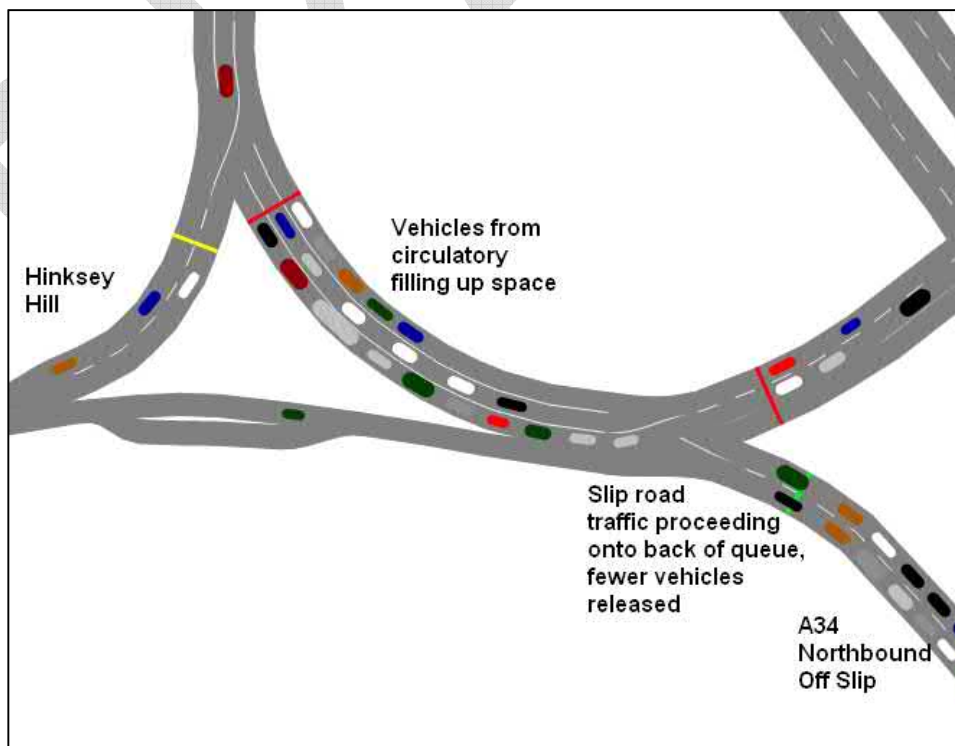


Figure 4-2 Circulatory traffic blocking A34 northbound off slip

A34 southbound off slip maximum queues and delays have decreased significantly from the 2019 DM results for the entire AM peak period

By holding back the northbound slip traffic along with the removal of traffic merging from Old Abingdon Road onto the A423, is allowing the southbound slip traffic to free flow away from the Interchange as the congestion along the A423 is not reaching back to the Interchange, as shown in Figure 4-3.

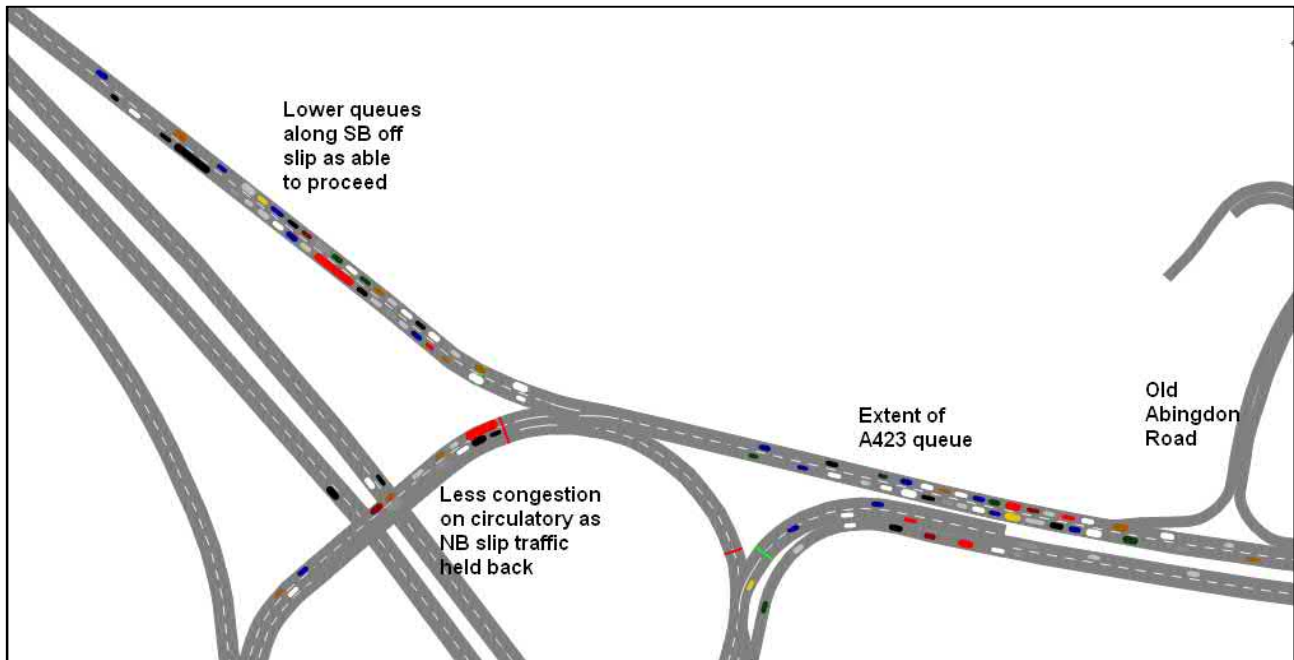


Figure 4-3 A34 southbound off slip queues

The lack of congestion heading eastbound towards the A423 is also benefiting the Hinksey Hill approach with 356s second reduction to delays forecast during 0815-0915.

The A423 westbound approach is performing worse due to the extra trips that have been re-assigned and making a U-turn at the junction.

Table 4-1 2019 AM Peak Action 2 Scenario 2a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1040	1689.3	2071.5	712.1	171.6	211.5	92.8
		A423 Southern By-Pass (E)	2389	2427	2716	680.2	139.9	1063.5	5.4	5.5	6.2
		A34 NB Off Slip	1012	993	897	2959.3	3505.2	3515.9	146.2	245.4	480.9
		Hinksey Hill	582	580	634	774.5	1031.7	941.0	285.5	409.5	317.8
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1042	1741.1	2956.8	863.4	221.1	315.2	46.5
		A423 Southern By-Pass (E)	2107	2188	2536	434.7	441.0	1720.6	5.3	6.3	14.6
		A34 NB Off Slip	900	853	836	2954.5	3513.0	3515.9	287.2	669.8	892.5
		Hinksey Hill	488	486	493	691.6	1038.5	575.9	222.5	447.3	91.7

Although some benefits have been identified with the re-assignment, it is worth noting that the Kennington Road south approach is now experience long queues and delays as vehicles are struggling to exit onto A423 westbound merge. This has previously been identified with the previous Scenario 1 modelling.

Table 4-2 2019 AM Peak Action 2 Scenario 2a Hinksey Interchange Journey Time (s) Comparison

Description				Average Journey Times (s) All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	121	-134	-53%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	74	3	4%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	336	95	39%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	281	-92	-25%
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	73	-212	-74%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	83	25	43%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	389	20	5%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	81	-305	-79%

Table 4-2 shows that during 0715-0815, the travel time for the A34 southbound off slip has decreased by 134 seconds and by 0815-0915 decreases further by 212 seconds.

The A34 northbound off slip increases by 95 seconds during 0715-0815 and by 20 seconds during 0815-0915.

The most notable change is seen along the Hinksey Hill approach with a 305 second reduction during 0815-0915.

Kennington Roundabout

The junction results forecast marginal decreases to queues and delays throughout the AM peak period at Kennington Roundabout from the 2019 DM results.

Travel Times are consistent with the 2019 DM network, with the exception of the eastbound time from Hinksey Interchange to the roundabout which has decreased by 35 seconds.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction, with queues and delays similar to the DM model results, with the exception of the Old Abingdon Road approach, which is forecast to have a 400m reduction in queue length.

The travel times show marginal benefits during 0715-0815 and some increases to travel times during 0815-0915.

A4144 / Weirs Lane Junction

The junction results forecast nominal increases to queues and delays for the majority of approaches to this junction.

The travel times forecast reductions during 0715-0815 and marginal increases during 0815-0915 compared with the DM travel times for the Weirs Lane approach to this junction.

4.1.2. Comparison of PM Peak Results

Hinksey Hill Interchange

Table 4-3 2019 PM Peak Action 2 Scenario 2a Hinksey Interchange Approach Comparison

Time	Junction	Approach	Volume			Max Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1025	143.9	136.0	124.9	17.9	19.6	19.8
		A423 Southern By-Pass (E)	3033	3079	3142	1597.0	2044.2	2839.0	5.8	5.9	6.3
		A34 NB Off Slip	763	780	783	264.2	2102.8	282.7	50.6	71.6	62.5
		Hinksey Hill	544	559	560	133.8	139.3	139.9	27.5	28.8	28.8
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1143	207.2	293.7	337.9	26.6	32.3	34.3
		A423 Southern By-Pass (E)	2900	2999	3095	776.8	1815.3	3021.0	6.1	6.5	6.7
		A34 NB Off Slip	863	890	887	238.3	1029.8	388.2	54.7	97.2	88.3
		Hinksey Hill	586	602	602	187.3	159.0	145.1	26.3	27.5	27.3

Table 4-3 forecasts that delays at the junction are fairly consistent with the DM scenario, although queues along the A423 have increased, especially during 1715-1815.

From observations of the model, the re-assigned vehicles are exiting Kennington Road south and are required to swiftly merge and weave across into the offside lane upstream of the Interchange, in readiness for the U-turn. This is creating fluctuations in congestion and resulting in a longer queue along the A423.

Table 4-4 shows no significant changes to travel times throughout the PM peak, with only marginal decreases to the A34 northbound off slip and marginal increases for the A423 travel times.

Table 4-4 2019 PM Peak Action 2 Scenario 2a Hinksey Interchange Journey Time (s) Comparison

	Description			Average Journey Times (s) All Vehicles excl. Buses				
	From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	59	5	9%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	78	-8	-9%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	64	3	5%
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	64	4	7%
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	103	-9	-8%
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%

Kennington Roundabout

The results forecast some increases to delays and queues for the Eastern Bypass left turn towards the Interchange, which is consistent with the longer queues that extend back along the A423 through Kennington Roundabout. Therefore, the queuing back from the Interchange is impacting on traffic beyond the network.

The travel times are consistent with the 2019 DM network, with very nominal changes to each approach recorded, except for the Eastern Bypass approach which is forecast to increase by 21 seconds during 1715-1815.

A4144 / Old Abingdon Road Junction

The results show no major changes to approach performance for this junction nor travel times and the results are consistent with the 2019 DM results.

A4144 / Weirs Lane Junction

The junction results forecast no major changes to queues and delays for this junction, and the results are similar to the 2019 DM results, although the A4144 southbound is experiencing longer delays of around 40 seconds throughout the PM peak.

The travel times forecast nominal changes during the PM peak period.

5. Commentary on Other Scenarios

5.1. Action 1 – Kennington Road Temporary Diversions

Three scenarios for this design have been provided to Atkins for commentary rather than modelling, as it retains the current junction arrangement, although Kennington Road will be temporarily diverted, with a temporary carriageway being built to accommodate the diversions.

The designs are provided in Appendix D and are shown below in Figure 5-1.

The first design represents only a minor change to the current operation of the junction, with Kennington Road being diverted to the east of its current location and therefore, is predicted to not have any significant impacts on the Interchange or surrounding network.

The second design moves Kennington Road to the west and closer to the A423 junction. When undertaking site visits and from footage of the area, visibility is poor along this section of Old Abingdon Road due to the bend and northbound vehicles can be travelling at speed in this section as it is designated as national speed limit, rather than 30mph.

Therefore, Atkins have concerns over the safety of right turning traffic pulling out of Kennington Road and being unable to clearly see with the potential risk of colliding with oncoming traffic.

The third design shown in Figure 5-1 sees Kennington Road re-located to the south and joins Old Abingdon Road very close to the A423 junction. As observed from the model, traffic trying to merge onto the A423 in the AM peak often queues back towards the current Kennington Road junction. Therefore, with the temporary access being so close, Atkins can foresee potential issues for left turning traffic trying to exit onto Old Abingdon Road.

The location is very close to the A423 junction, which would mean traffic from Old Abingdon Road turning right into Kennington Road would be required to make a sudden stop and turn, which again could be an issue if southbound traffic is queuing. This could again lead to collisions and congestion while vehicles wait to turn.

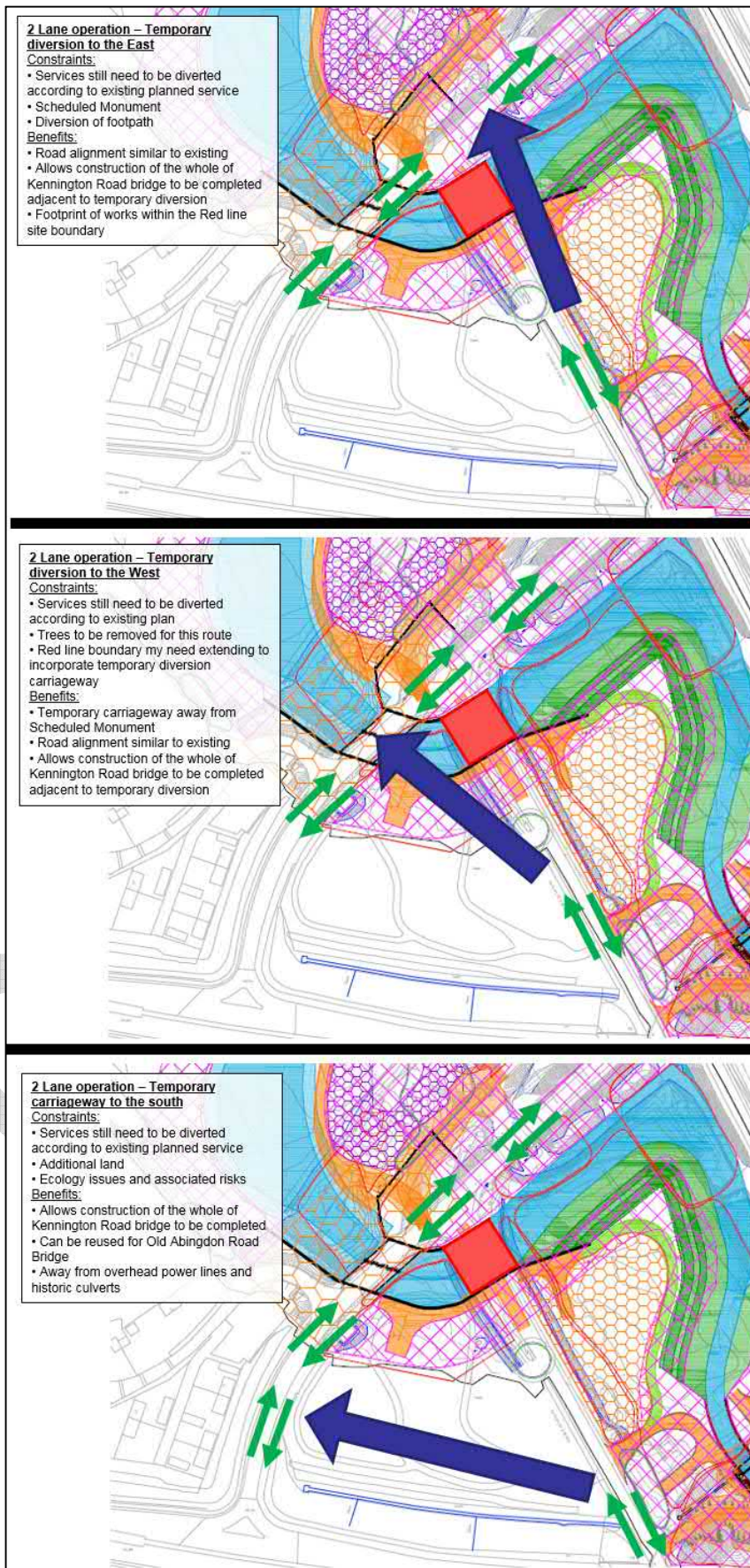


Figure 5-1 Action 1 – Temporary Kennington Road diversions

5.2. Action 1 Scenario 2a & 2b – Kennington Road – Single Lane, No Traffic Management

The final design that has been provided to Atkins would see Kennington Road remain open one way for Northbound trips but closed for southbound trips. Old Abingdon Road remains open in both directions and maintains priority. The design has been provided in Appendix D and shown in Figure 5-2.

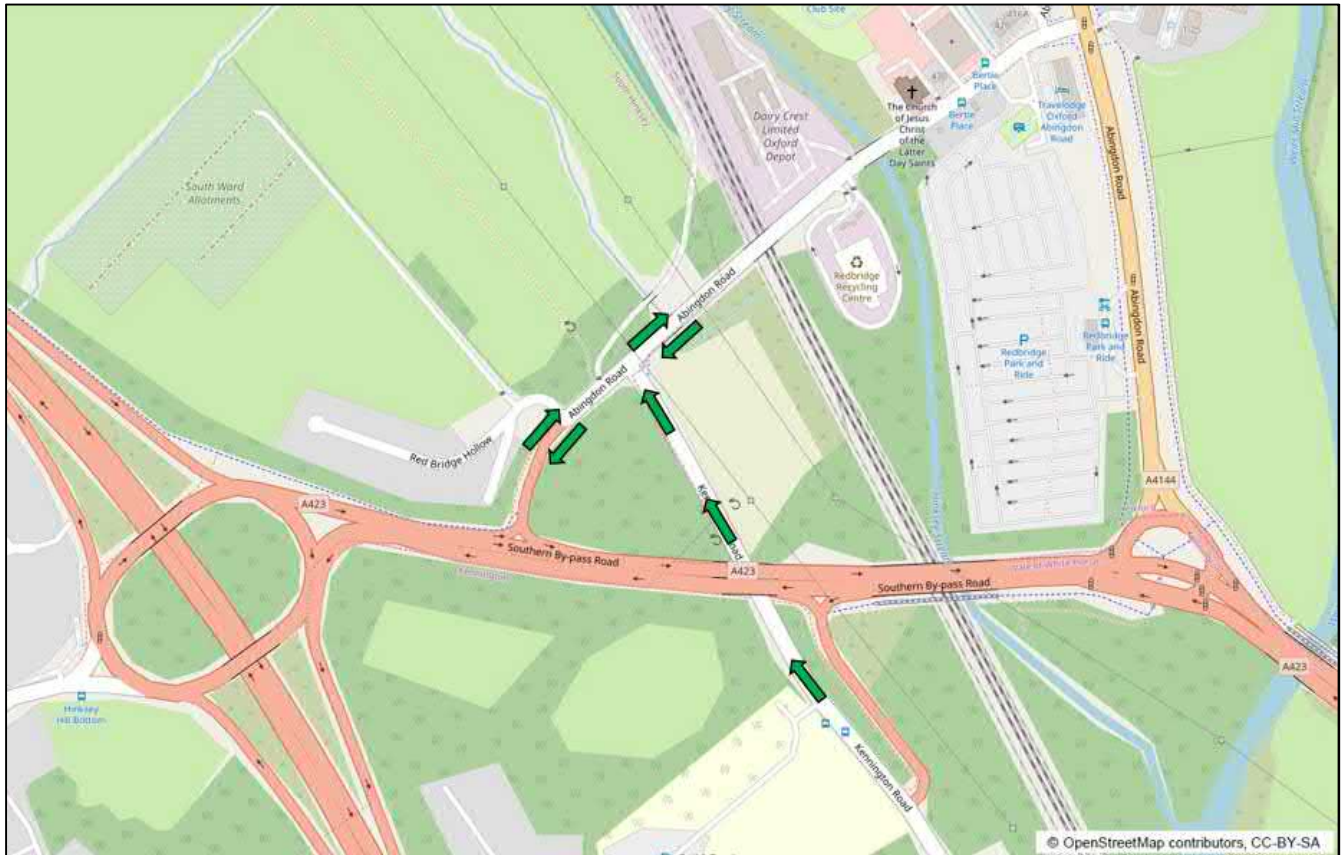


Figure 5-2 Action 1 Scenario 2a & 2b design

Atkins have already modelled the complete closure of Kennington Road under the previous Scenario 2 assessment in phase 1. Therefore, the findings from that modelling will be used to inform the potential impact to the Interchange performance.

Whilst vehicles can still use Kennington Road to access onto Old Abingdon Road, vehicles wishing to turn into Kennington Road will be required to use the following diversions:

- Vehicles from the west of Hinksey Interchange and the A34 will be required to travel to Kennington Roundabout, make a u-turn and travel down the southern access of Kennington Road off the A423; and,
- Vehicles from the north of the network will be required to continue travelling south along the A4144, turn right at Kennington Roundabout and access the south of Kennington Road off A423.

The previous modelling identified an issue with u-turns at Kennington Roundabout. The arrangement at Kennington Roundabout means u-turners are required to give way to the A4144 southbound traffic. Therefore, when a queue is present from the A4144, u-turning vehicles wait. With the higher flow travelling south along A4144 to Kennington Road south as a result of closing Kennington Road north access, the u-turners never get gaps to proceed. This queuing eventually causes blocking back along the A423 approach and back to the Interchange, with significant increases to queues and delays for all approaches.

This is shown in more detail in Figure 5-3.

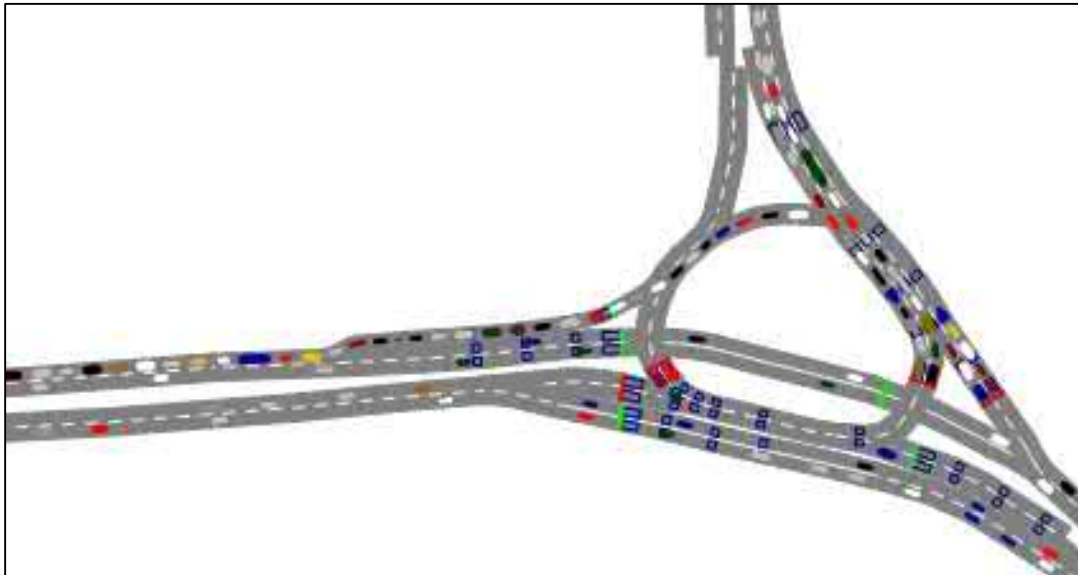


Figure 5-3 Kennington Roundabout u-turns blocking

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6. Summary and Conclusions

Atkins has been commissioned by the Environment Agency (EA) to evaluate the impact on the A34 Hinksey Hill Interchange during the construction of the Oxford Flood Alleviation scheme.

In early 2019, Atkins utilised the 2017 base year model to assess various schemes involving partial closures of Old Abingdon Road and Kennington Road during the construction of the scheme. The main outcome of the modelling identified increases in queues and delays along the A34, which are unacceptable to Highways England (HE).

Further schemes have been developed by the Environment Agency in an attempt to mitigate any disruption to the A34 and surrounding network. These have been assessed using the 2019 VISSIM models developed for the first phase of assessment.

The first scheme to be modelled, Action 1 Scenario 1a & 1b involved implementing traffic management signals on all arms of the Old Abingdon Road / Kennington Road junction to allow Kennington Road to operate as a single lane on entry/exit.

The AM peak results of this scenario forecasted some benefits to the A34 southbound slip and the Hinksey Hill approaches, but marginal increases to delays along the A34 northbound off slip. The PM Peak results were largely unchanged from the DM results.

It would appear that introducing the traffic management is preventing the continuous stream of traffic arriving at the A423 merge from Kennington Road during 0715-0815. The holding back of these vehicles is allowing more gaps at the merge and preventing the congestion along the A423 mainline from building during 0715-0815. By keeping the A423 mainline moving more regularly allow vehicles to exit the A34 slip rather than entering onto the back of the congestion.

However, congestion did still build during 0815-0915 causing a nominal increase in delays and travel times for the southbound off-slip, although the maximum queue was lower than the 2019 DM scenario.

From observations of the model for this scenario, there are times when the queuing back from the A4144 / Old Abingdon Road junction extends to the Kennington Road junction. Vehicles travelling north along Old Abingdon Road will block the Kennington Road exit, meaning the Kennington Road vehicles will not be able to exit onto Old Abingdon Road until that queue clears, but due to the location of the traffic management for this arm and poor visibility, drivers would not be aware this queue was occurring which could result in waiting within the single lane section, causing safety concerns and the potential to block this area of the network.

A similar concern is also raised for left turning vehicles out of Kennington Road, as there are occasions when the traffic trying to merge onto the A423 extends back to Kennington Road. Again, the lack of visibility for vehicles waiting at the Kennington Road signal would cause some queuing on the single lane section.

Atkins recommends that further consideration of these potential issues be undertaken before the designs are implemented on site to try to mitigate vehicles blocking on Old Abingdon Road and for vehicles leaving Kennington Road and blocking on the single lane section.

The second design to be modelled was Action 2 1a & 1b. This was similar to the first design by retaining the traffic management for all approaches to the junction but saw the south section of Old Abingdon Road under single lane running instead of Kennington Road. The northbound signal was moved closer to the A423, resulting in less queuing capacity for vehicles travelling north along Old Abingdon Road when waiting at the signal.

The results of this scenario for the AM peak showed queues to be longer for the A34 southbound slip throughout, as a result of queuing back from the signals onto the A423 during the latter part of 0715-0815 and into 0815-0915. This also occurred in the PM peak.

As with the first scenario, Atkins noticed that traffic would queue along Old Abingdon Road northbound and southbound which would extend back to the Kennington Road junction. As Old Abingdon Road has been

reduced to single lane running, vehicles have the potential to block if they do not leave gaps when the queue is present. Similarly, left turns from Kennington Road can block the single lane when queuing for the A423 merge.

The location of the northbound signal is also very close to the side road of Red Bridge Hollow, which could mean vehicles can exit directly onto the single lane running and potentially collide with oncoming vehicles.

Again, Atkins recommends that further consideration to these safety issues is undertaken before being implemented on site.

Although the signals have been optimised within each of these scenarios, if any variation to location of the restrictions is actioned, then this could mean longer intergreen times between stages for vehicles to clear through the single lane running and have the potential to worsen any congestion already observed.

The final design modelled, was Action 2 2a & 2b, which removes the need for traffic management and returns Kennington Road to priority control. The southern section of Old Abingdon Road is one way northbound, banning vehicles travelling south to the A423. Within the model, vehicles have been re-assigned based on the following assumptions:

- Left turning traffic from Kennington Road has been assumed to use the south Kennington Road access to travel to the Interchange. Here they will u-turn and travel back along the A423 to Kennington Roundabout; and,
- Ahead traffic from Old Abingdon Road will now use A4144 to Kennington Roundabout.

The results of this assessment forecasted significant benefits for the A34 southbound off slip and the Hinksey Hill approach, as the queue along A423 never reached back to the Interchange causing little or no congestion.

However, delays increased significantly for the A34 northbound off slip as a result of the additional trips that had been re-assigned to u-turn at the Interchange. These vehicles would fill up the available space on the circulatory when the signal was red, meaning the northbound slip traffic would always proceed onto the back of queue minimising the number of vehicles that could exit during each cycle.

The results for the PM peak identified much longer queues westbound along the A423 from Kennington Roundabout to the Interchange, as the re-assigned traffic leaving Kennington Road south, would try to merge across into the offside lane, slowing vehicles behind them and causing intermittent queues.

Other designs are also provided to Atkins but were not required to be modelled, although Atkins have provided commentary on them.

Action 1 – Kennington Road Diversions. Three designs have been considered which see Kennington Road temporarily diverted from the current location. One design would be the most suitable and cause the minimal impact to the network, which is to move the junction with Old Abingdon Road slightly East. The remaining two designs saw the junction move west and south, which causes safety concerns over visibility and close proximity to the A423 junction.

Action 1 Scenario 2a & 2b sees Kennington Road operating as one way for northbound vehicles only. Southbound vehicles are banned, meaning they would be required to travel to the south part of Kennington Road off the A423. Atkins have already modelled the complete closure of Kennington Road under the previous Scenario 2 assessment in phase 1. This identified extensive queuing back from Kennington Roundabout from the u-turning vehicles, as they have to give way to the A4144 traffic. Queues would build back to the Interchange in both peaks, causing significant queuing for all approaches, especially the slips.

Overall, from the phase 2 modelling of the latest scenarios, it would appear that Action 1 Scenario 1a & 1b is forecast to have the minimum impact on the Interchange, although concerns have been raised over the potential of the single lane becoming blocked, due to queuing traffic along Old Abingdon Road, and mitigation would be required to ensure this does not occur.

Appendices

Appendix A. Action 1 1a& 1b Design and Results

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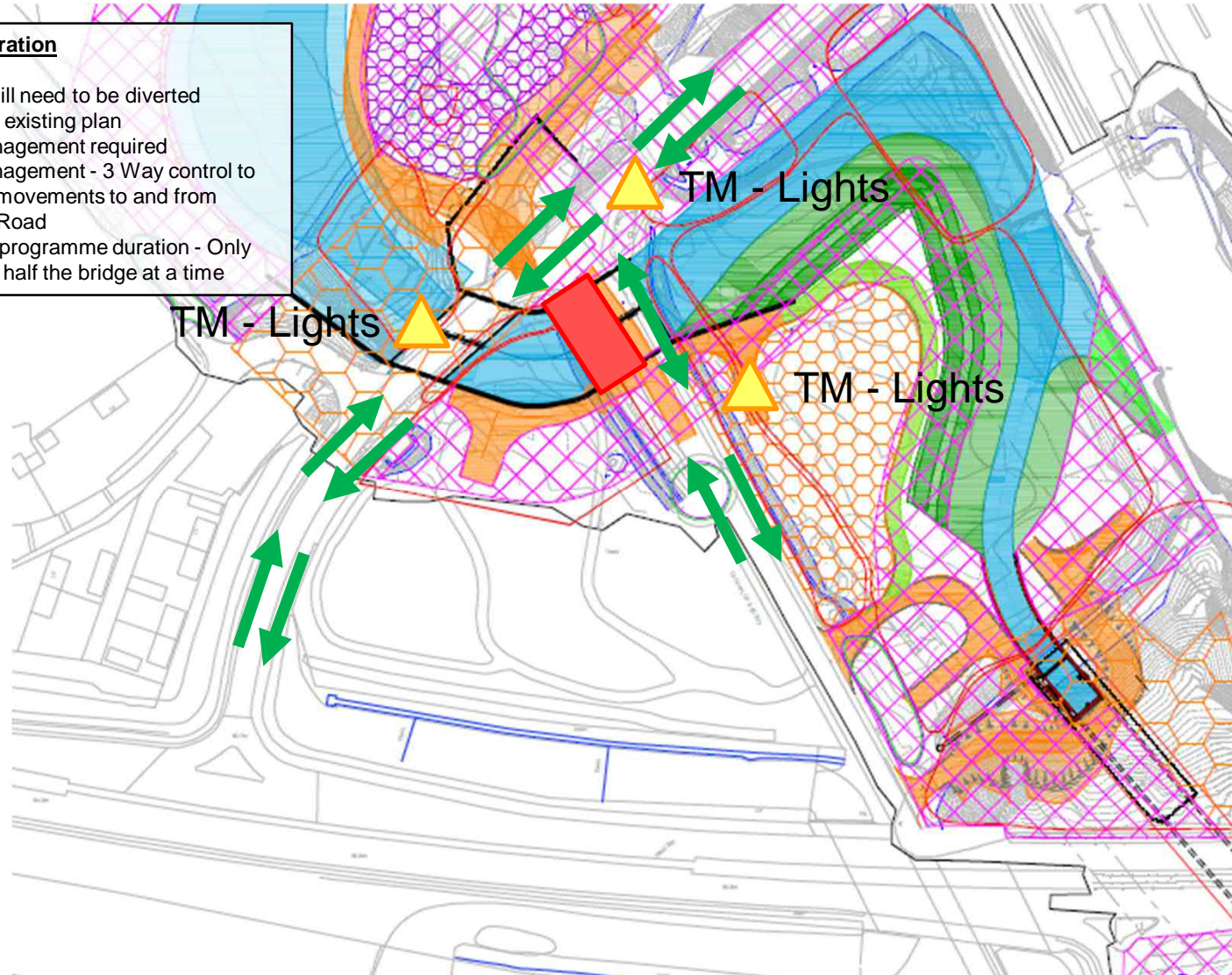
Action 1 – Kennington Road

Single Lane Options – 1a) Bridge ½ & ½ under TM

1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Traffic management - 3 Way control to allow traffic movements to and from Kennington Road
- Prolonged programme duration - Only able to build half the bridge at a time



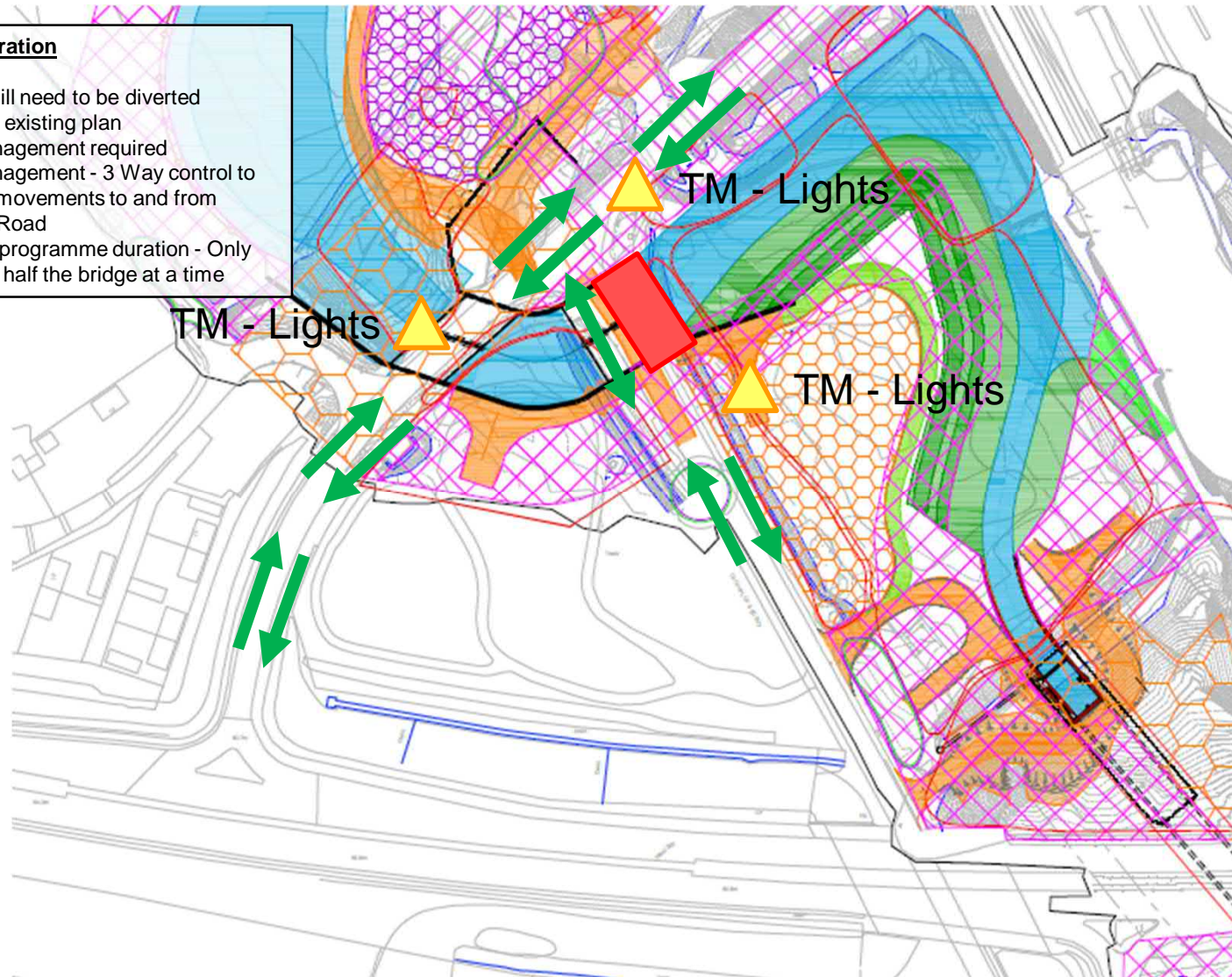
Action 1 – Kennington Road

Single Lane Options – 1b) Bridge ½ & ½ under TM

1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Traffic management - 3 Way control to allow traffic movements to and from Kennington Road
- Prolonged programme duration - Only able to build half the bridge at a time



2019 Hinksey Hill AM Peak Comparison Action 1 Scenario 1a & 1b

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	950	1689.3	2071.5	1892.7	208.9	318.9	291.2	171.6	211.5	199.2
		A423 Southern By-Pass (E)	2389	2427	2432	680.2	139.9	599.2	4.9	4.0	6.1	5.4	5.5	5.6
		A34 NB Off Slip	1012	993	991	2959.3	3505.2	3507.9	220.7	651.5	724.2	146.2	245.4	255.8
		Hinksey Hill	582	580	582	774.5	1031.7	1037.3	368.4	567.6	564.1	285.5	409.5	405.3
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1076	1741.1	2956.8	2816.0	356.6	699.0	748.0	221.1	315.2	323.4
		A423 Southern By-Pass (E)	2107	2188	2179	434.7	441.0	2616.6	4.7	6.7	51.2	5.3	6.3	6.3
		A34 NB Off Slip	900	853	841	2954.5	3513.0	3515.9	480.8	2026.4	2260.9	287.2	669.8	727.6
		Hinksey Hill	488	486	496	691.6	1038.5	1124.3	193.2	448.9	402.2	222.5	447.3	405.6

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	638	213.7	214.8	294.9	24.7	25.8	27.6	45.5	48.2	46.9
		A423 Eastern By-Pass Left	1844	1881	1881	947.7	1573.1	1090.7	33.6	76.6	62.3	25.1	36.6	35.0
		A423 Eastern By-Pass	408	417	416	931.2	1556.6	1192.9	67.3	130.8	119.3	114.3	127.3	127.3
		A423 Southern By-Pass Left	374	377	374	1126.8	1121.0	1119.1	428.1	494.2	375.1	25.1	24.7	23.8
0815-0915	A423 Kennington Roundabout	A423 Southern By-Pass	2111	2108	2100	1128.0	1122.1	1122.2	585.5	603.9	608.4	24.8	25.1	25.5
		A4144 North	688	703	693	222.6	229.4	224.5	26.5	30.7	29.9	44.5	47.5	46.9
		A423 Eastern By-Pass Left	1597	1661	1664	1833.5	2391.2	2007.4	45.8	238.5	209.2	35.8	68.9	61.7
		A423 Eastern By-Pass	398	410	411	1889.3	2374.6	2367.1	146.9	341.0	315.0	134.0	174.5	166.4
0815-0915	A423 Kennington Roundabout	A423 Southern By-Pass Left	306	298	302	1132.8	1127.6	1130.4	830.2	896.9	824.6	28.2	30.9	29.8
		A423 Southern By-Pass	2116	2105	2118	1134.0	1128.8	1131.5	860.8	918.1	910.6	27.6	28.0	27.4

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
0715-0815	Abingdon Road/ A4144	A4144 North	590	601	606	276.5	276.4	276.5	31.1	32.7	32.4	9.3	9.1	9.0
		A4144 South Bus Lane	17	17	17	41.4	53.8	53.8	1.0	1.0	1.2	24.6	25.3	28.3
		A4144 South	566	587	580	503.7	504.3	504.3	114.6	111.7	111.9	68.6	66.3	66.5
		Old Abingdon Road Bus Lane	4	4	4	42.3	42.3	43.5	0.5	0.5	0.5	35.2	40.2	36.1
		Old Abingdon Road	557	567	555	1177.3	1207.4	592.8	227.4	329.2	173.6	28.9	28.3	28.5
		Bertie Place	11	13	11	17.5	16.8	20.9	0.2	0.1	0.2	51.6	47.0	49.7
0815-0915	Abingdon Road/ A4144	A4144 North	662	675	669	277.4	281.9	280.9	46.7	50.0	50.5	8.9	8.9	8.4
		A4144 South Bus Lane	16	15	15	28.3	28.4	28.1	1.0	1.0	0.9	25.4	27.9	24.6
		A4144 South	513	511	519	504.2	510.6	510.6	105.0	111.8	102.4	73.2	76.0	70.1
		Old Abingdon Road Bus Lane	3	3	3	14.0	14.1	19.1	0.3	0.4	0.4	31.8	40.0	36.0
		Old Abingdon Road	446	452	457	1254.4	1248.3	440.6	122.0	285.8	108.8	33.5	34.7	32.9
		Bertie Place	10	10	10	18.6	21.5	20.9	0.1	0.1	0.1	49.3	56.8	49.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	285	455.8	397.4	394.4	64.2	67.7	59.3	91.2	92.8	85.0
		A4144 North LT	95	98	98	245.2	290.9	172.1	7.0	8.8	6.8	82.5	86.2	77.6
		Weirs Lane	558	555	567	804.4	981.4	952.8	99.4	183.0	127.7	72.0	116.8	86.0
		A4144 South	654	667	659	1427.8	1457.8	843.3	367.5	477.7	274.0	46.4	44.3	44.7
0815-0915	A4144/ Weirs Lane	A4144 South RT	430	438	434	1427.8	1457.9	843.3	319.4	312.7	191.0	27.5	26.5	26.3
		A4144 North	378	380	381	827.1	1083.2	868.6	245.6	307.5	329.1	167.4	196.0	209.7
		A4144 North LT	145	143	144	687.1	1083.5	868.9	56.4	82.4	82.1	170.6	202.9	217.0
		Weirs Lane	651	680	665	862.6	984.9	986.0	339.0	464.7	507.1	172.8	217.7	245.7
		A4144 South	590	598	606	1504.9	1498.8	691.1	253.1	454.1	239.9	59.4	62.2	56.4
0815-0915	A4144 South RT	345	347	350	1504.9	1498.8	691.1	229.0	430.0	209.4	59.5	62.6	61.8	

2019 Hinksey Hill PM Peak Comparison Action 1 Scenario 1a & 1b

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1025	143.9	136.0	124.9	13.3	14.7	14.3	17.9	19.6	19.3
		A423 Southern By-Pass (E)	3033	3079	3072	1597.0	2044.2	590.4	48.1	78.8	20.4	5.8	5.9	5.9
		A34 NB Off Slip	763	780	785	264.2	2102.8	445.6	36.3	68.8	52.5	50.6	71.6	67.6
		Hinksey Hill	544	559	560	133.8	139.3	130.5	12.7	14.0	13.3	27.5	28.8	28.2
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1144	207.2	293.7	280.1	25.7	33.3	34.3	26.6	32.3	33.2
		A423 Southern By-Pass (E)	2900	2999	3003	776.8	1815.3	900.9	16.8	77.5	21.0	6.1	6.5	6.4
		A34 NB Off Slip	863	890	887	238.3	1029.8	381.1	45.1	93.6	76.3	54.7	97.2	84.1
		Hinksey Hill	586	602	603	187.3	159.0	158.7	12.6	14.2	14.2	26.3	27.5	27.6

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	946	135.4	212.8	162.1	27.4	28.0	28.5	36.7	37.2	37.6
		A423 Eastern By-Pass Left	2453	2486	2479	1195.0	1981.5	1843.2	288.1	591.1	572.7	56.4	97.6	95.8
		A423 Eastern By-Pass	194	196	196	154.7	1293.9	1089.0	5.2	13.7	15.3	113.3	156.0	153.2
		A423 Southern By-Pass Left	164	169	170	127.0	57.7	153.6	2.6	2.7	2.7	14.1	15.1	14.2
		A423 Southern By-Pass	1703	1745	1751	378.6	368.9	351.2	39.1	42.8	42.4	19.7	20.0	20.1
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	970	305.5	223.7	212.6	30.1	30.5	31.3	39.1	38.4	39.3
		A423 Eastern By-Pass Left	2354	2454	2458	1121.5	2113.1	2173.9	113.3	443.4	492.2	29.8	77.1	84.5
		A423 Eastern By-Pass	258	265	264	313.1	1050.7	953.9	10.3	19.1	32.9	87.7	136.4	146.0
		A423 Southern By-Pass Left	208	211	210	129.5	829.1	984.6	3.2	10.7	15.4	15.0	20.3	21.3
		A423 Southern By-Pass	1825	1880	1872	527.0	830.3	985.7	51.0	64.1	72.3	19.5	20.6	20.7

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
1615-1715	Abingdon Road/ A4144	A4144 North	826	826	830	282.1	289.2	283.6	100.4	101.1	101.8	8.7	8.7	8.5
		A4144 South Bus Lane	15	15	15	36.0	41.1	41.0	0.9	1.0	1.0	26.1	27.7	28.3
		A4144 South	309	317	316	152.4	176.8	135.4	17.4	19.1	19.2	33.4	35.3	35.7
		Old Abingdon Road Bus Lane	4	4	4	14.1	13.9	14.1	0.1	0.1	0.1	4.8	6.8	8.5
		Old Abingdon Road	492	502	504	202.9	210.3	214.7	21.4	24.9	25.4	21.2	21.8	20.9
		Bertie Place	4	4	4	12.0	12.0	12.0	0.0	0.0	0.0	35.6	37.8	34.9
				A4144 North	845	851	858	279.1	281.9	278.6	87.3	98.9	91.7	7.9
1715-1815	Abingdon Road/ A4144	A4144 South Bus Lane	20	20	20	40.9	41.1	28.6	1.3	1.2	1.3	26.0	25.7	26.4
		A4144 South	416	417	420	413.0	502.8	503.5	51.3	79.7	65.4	58.4	75.6	68.4
		Old Abingdon Road Bus Lane	4	4	4	43.4	43.5	43.4	0.1	0.1	0.2	7.2	10.8	16.5
		Old Abingdon Road	574	588	586	424.1	643.1	435.1	57.8	87.7	74.3	24.7	26.0	25.3
		Bertie Place	12	12	12	18.0	18.3	11.9	0.1	0.1	0.1	33.8	37.1	38.0
				A4144 North	845	851	858	279.1	281.9	278.6	87.3	98.9	91.7	7.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	547	832.7	1080.3	1083.2	310.3	432.2	408.5	142.9	188.7	177.5
		A4144 North LT	199	199	200	828.1	1077.2	1083.5	63.0	119.2	122.8	131.5	178.1	167.6
		Weirs Lane	593	593	595	861.2	982.4	982.4	360.8	486.0	548.7	194.9	255.0	288.8
		A4144 South	359	368	366	268.7	408.8	256.6	7.7	10.1	8.3	15.5	16.5	16.5
		A4144 South RT	312	316	317	367.7	408.8	314.7	33.7	37.3	34.1	59.7	60.3	60.5
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	566	834.8	1083.2	1083.2	537.6	835.5	813.3	236.9	358.3	343.4
		A4144 North LT	182	178	184	835.1	1083.5	1083.5	171.2	416.0	424.0	232.9	352.1	340.6
		Weirs Lane	573	587	590	863.7	988.7	982.4	304.7	579.8	586.5	204.3	357.8	356.3
		A4144 South	476	481	482	674.6	893.5	685.6	39.8	85.1	82.7	19.4	21.5	21.6
		A4144 South RT	390	393	393	674.6	893.6	685.6	94.3	156.8	134.5	83.9	93.6	96.1

Journey Time Comparison - AM Peak Action 1 Scenario 1a & 1b

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	244	-11	-4%	976	998	998	0
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	71	0	0%	1101	1122	1125	3
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	252	11	5%	1021	1022	1021	-1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	374	1	0%	581	592	593	1
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	288	3	1%	931	937	940	3
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	58	0	0%	952	987	985	-2
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	373	4	1%	826	756	740	-16
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	327	-59	-15%	451	426	436	10

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	43	0	0%	560	571	576	5
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	41	-1	-2%	1859	1903	1903	0
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	124	1	1%	1804	1798	1795	-3
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	41	0	0%	627	641	634	-7
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	53	-2	-4%	1573	1629	1630	1
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	146	-2	-1%	1720	1698	1703	5

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	47	1	2%	560	569	575	6
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	123	1	1%	576	587	585	-2
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	272	6	2%	304	307	307	0
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	54	0	0%	617	633	626	-7
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	119	-7	-6%	470	473	478	5
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	241	11	5%	264	262	258	-4

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	87	-3	-3%	262	271	270	-1
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	116	-19	-14%	576	580	590	10
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	60	-1	-1%	532	547	539	-8
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	102	1	1%	351	354	355	1
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	177	21	13%	620	642	630	-12
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	85	-4	-5%	445	447	454	7

Journey Time Comparison - PM Peak Action 1 Scenario 1a & 1b

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	950	974	974	0
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	54	0	0%	1241	1255	1255	0
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	86	0	0%	759	780	780	0
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	564	564	0
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	62	1	2%	1068	1094	1093	-1
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	59	-1	-2%	1273	1313	1311	-2
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	103	-9	-8%	840	862	861	-1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	596	596	0

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	42	0	0%	806	806	809	3
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	87	-2	-2%	2475	2524	2521	-3
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	56	0	0%	1607	1646	1645	-1
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	42	0	0%	813	819	816	-3
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	73	3	4%	2309	2395	2397	2
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	58	-1	-2%	1718	1768	1768	0

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	65	0	0%	809	808	812	4
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	72	2	3%	293	300	300	0
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	123	24	24%	301	306	306	0
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	61	0	0%	802	809	808	-1
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	113	-11	-9%	391	394	396	2
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	153	11	8%	398	405	403	-2

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	% Diff Act 1 Scn 1a	2017 Base	2019 DM	2019 Act 1 Scn 1a	Abs Diff Act 1 Scn 1a	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	74	1	1%	535	532	537	5
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	210	2	1%	603	600	600	0
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	61	1	2%	325	332	332	0
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	69	-1	-1%	540	541	543	2
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	230	8	4%	534	546	540	-6
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	79	-3	-4%	414	417	420	3

Appendix B. Action 2 1a& 1b Design and Results

DRAFT

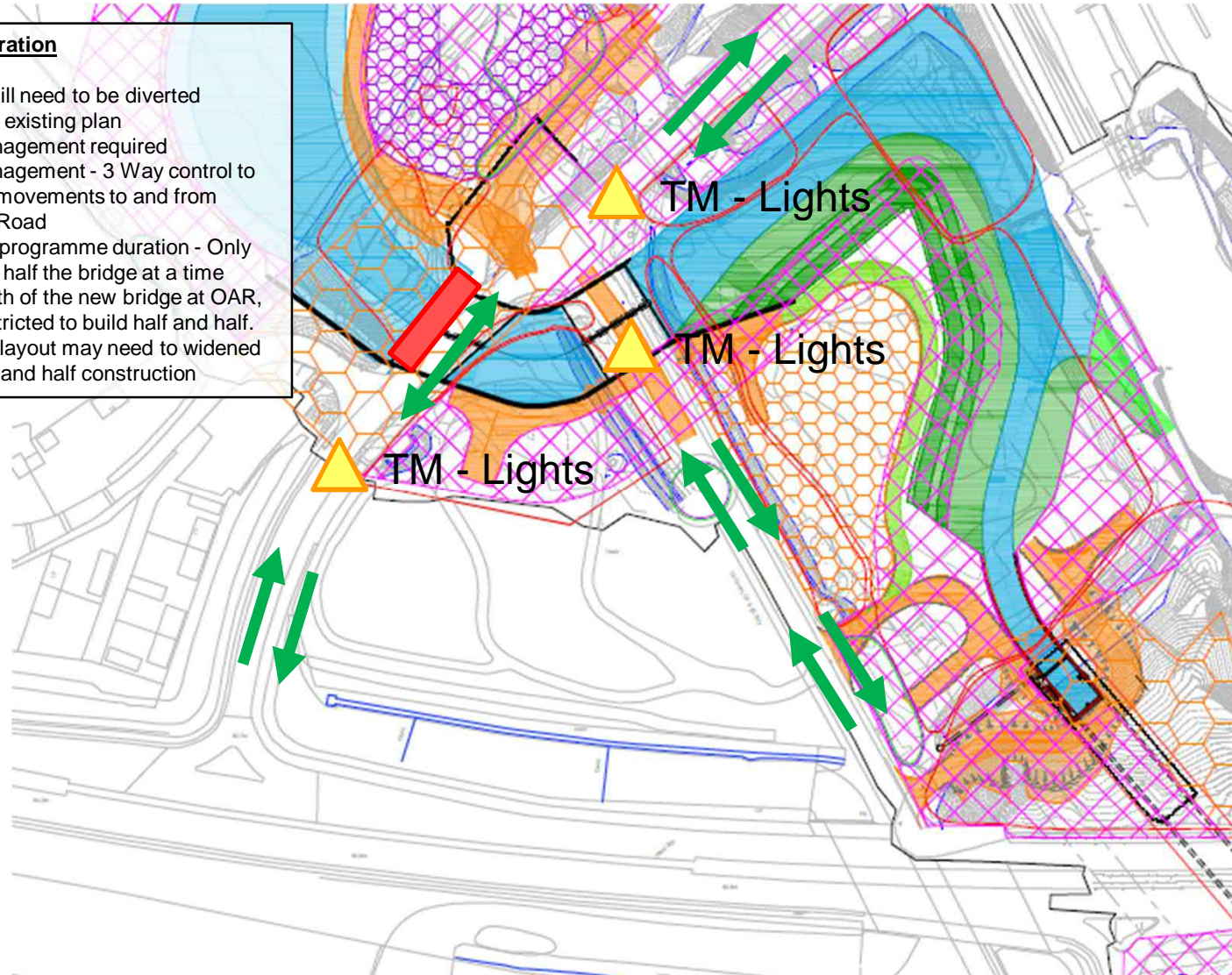
Action 2 – Old Abingdon Road

Single Lane Options – 1a) Bridge ½ & ½ under TM

1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Traffic management - 3 Way control to allow traffic movements to and from Kennington Road
- Prolonged programme duration - Only able to build half the bridge at a time
- Due to width of the new bridge at OAR, space is restricted to build half and half. Final bridge layout may need to be widened to allow half and half construction



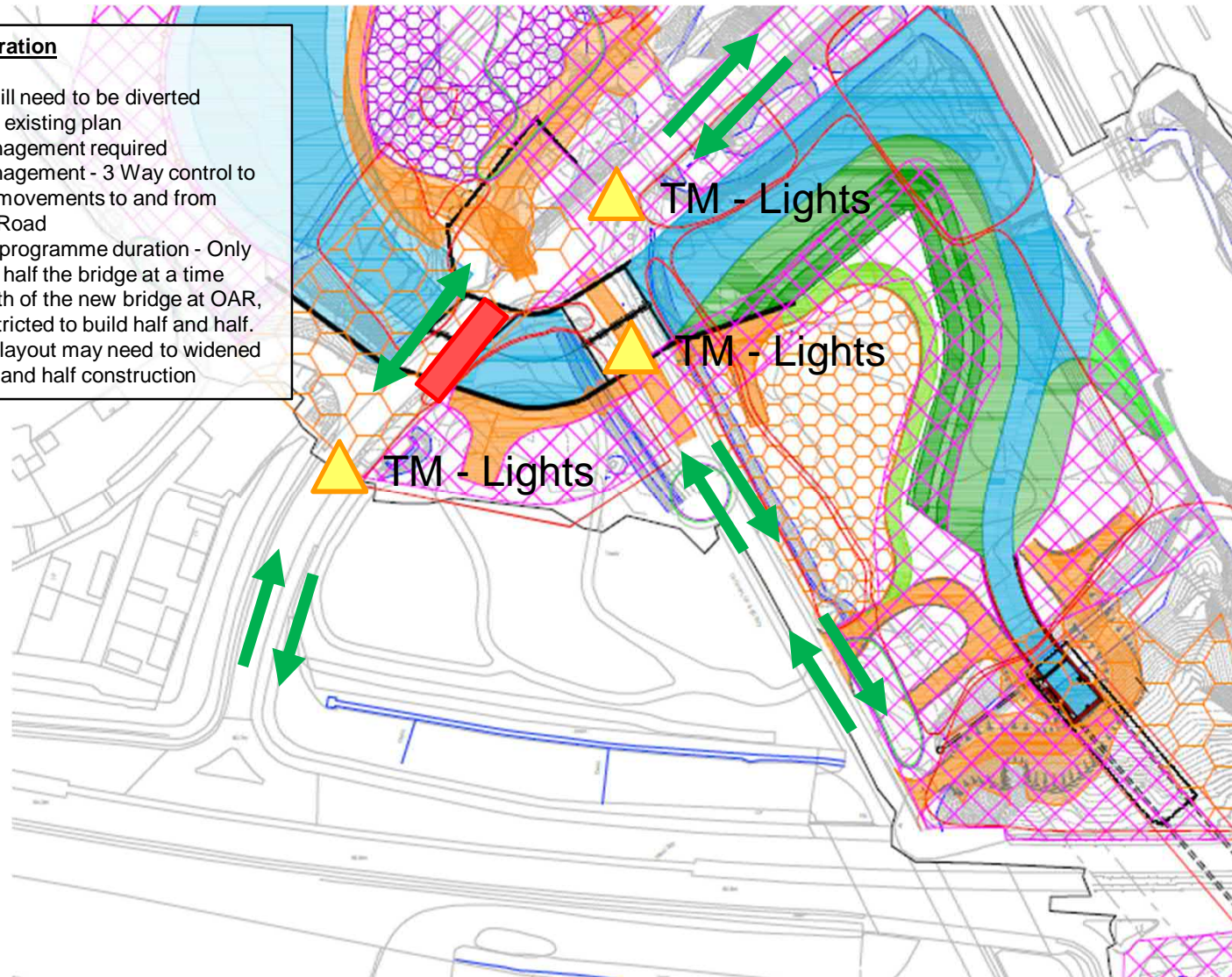
Action 2 – Old Abingdon Road

Single Lane Options – 1b) Bridge ½ & ½ under TM

1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Traffic management - 3 Way control to allow traffic movements to and from Kennington Road
- Prolonged programme duration - Only able to build half the bridge at a time
- Due to width of the new bridge at OAR, space is restricted to build half and half. Final bridge layout may need to be widened to allow half and half construction



2019 Hinksey Hill AM Peak Comparison Action 2 Scenario 1a

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	952	1689.3	2071.5	2570.1	208.9	318.9	304.2	171.6	211.5	200.9
		A423 Southern By-Pass (E)	2389	2427	2431	680.2	139.9	506.2	4.9	4.0	5.3	5.4	5.5	5.6
		A34 NB Off Slip	1012	993	1001	2959.3	3505.2	3507.2	220.7	651.5	755.1	146.2	245.4	256.8
		Hinksey Hill	582	580	579	774.5	1031.7	1058.4	368.4	567.6	576.7	285.5	409.5	413.8
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1064	1741.1	2956.8	3512.6	356.6	699.0	759.4	221.1	315.2	331.3
		A423 Southern By-Pass (E)	2107	2188	2178	434.7	441.0	253.4	4.7	6.7	5.1	5.3	6.3	6.2
		A34 NB Off Slip	900	853	850	2954.5	3513.0	3515.2	480.8	2026.4	2030.5	287.2	669.8	660.8
		Hinksey Hill	488	486	485	691.6	1038.5	1149.2	193.2	448.9	484.8	222.5	447.3	479.7

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
0715-0815	A423 Kennington Roundabout	A4144 North	620	632	635	213.7	214.8	229.2	24.7	25.8	26.6	45.5	48.2	47.7
		A423 Eastern By-Pass Left	1844	1881	1882	947.7	1573.1	1293.6	33.6	76.6	63.0	25.1	36.6	33.8
		A423 Eastern By-Pass	408	417	419	931.2	1556.6	1218.4	67.3	130.8	103.2	114.3	127.3	124.0
		A423 Southern By-Pass Left	374	377	376	1126.8	1121.0	1124.8	428.1	494.2	419.5	25.1	24.7	23.6
0815-0915	A423 Kennington Roundabout	A423 Southern By-Pass	2111	2108	2098	1128.0	1122.1	1126.0	585.5	603.9	589.7	24.8	25.1	25.2
		A4144 North	688	703	693	222.6	229.4	236.8	26.5	30.7	28.6	44.5	47.5	46.0
		A423 Eastern By-Pass Left	1597	1661	1664	1833.5	2391.2	2386.7	45.8	238.5	185.1	35.8	68.9	61.8
		A423 Eastern By-Pass	398	410	408	1889.3	2374.6	2370.2	146.9	341.0	285.3	134.0	174.5	166.6
0815-0915	A423 Kennington Roundabout	A423 Southern By-Pass Left	306	298	298	1132.8	1127.6	1125.5	830.2	896.9	875.6	28.2	30.9	30.9
		A423 Southern By-Pass	2116	2105	2115	1134.0	1128.8	1126.6	860.8	918.1	900.9	27.6	28.0	27.6

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
0715-0815	Abingdon Road/A4144	A4144 North	590	601	604	276.5	276.4	276.5	31.1	32.7	32.1	9.3	9.1	9.0
		A4144 South Bus Lane	17	17	17	41.4	53.8	40.5	1.0	1.0	1.1	24.6	25.3	25.8
		A4144 South	566	587	589	503.7	504.3	504.2	114.6	111.7	109.6	68.6	66.3	65.2
		Old Abingdon Road Bus Lane	4	4	4	42.3	42.3	43.2	0.5	0.5	0.5	35.2	40.2	31.6
		Old Abingdon Road	557	567	556	1177.3	1207.4	1225.5	227.4	329.2	329.1	28.9	28.3	28.3
		Bertie Place	11	13	11	17.5	16.8	18.8	0.2	0.1	0.3	51.6	47.0	53.1
0815-0915	Abingdon Road/A4144	A4144 North	662	675	669	277.4	281.9	277.7	46.7	50.0	48.0	8.9	8.9	8.7
		A4144 South Bus Lane	16	15	15	28.3	28.4	27.8	1.0	1.0	0.8	25.4	27.9	24.0
		A4144 South	513	511	509	504.2	510.6	510.5	105.0	111.8	118.1	73.2	76.0	75.0
		Old Abingdon Road Bus Lane	3	3	3	14.0	14.1	14.0	0.3	0.4	0.3	31.8	40.0	35.8
		Old Abingdon Road	446	452	457	1254.4	1248.3	1253.6	122.0	285.8	374.6	33.5	34.7	33.6
		Bertie Place	10	10	10	18.6	21.5	18.6	0.1	0.1	0.2	49.3	56.8	58.0

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
0715-0815	A4144/ Weirs Lane	A4144 North	277	286	286	455.8	397.4	481.9	64.2	67.7	71.3	91.2	92.8	95.7
		A4144 North LT	95	98	98	245.2	290.9	465.9	7.0	8.8	14.6	82.5	86.2	90.0
		Weirs Lane	558	555	567	804.4	981.4	879.2	99.4	183.0	124.3	72.0	116.8	82.6
		A4144 South	654	667	665	1427.8	1457.8	1476.0	367.5	477.7	474.5	46.4	44.3	44.6
0815-0915	A4144/ Weirs Lane	A4144 South RT	430	438	436	1427.8	1457.9	1459.5	319.4	312.7	414.0	27.5	26.5	27.1
		A4144 North	378	380	379	827.1	1083.2	904.9	245.6	307.5	345.1	167.4	196.0	219.2
		A4144 North LT	145	143	144	687.1	1083.5	905.2	56.4	82.4	129.9	170.6	202.9	229.2
		Weirs Lane	651	680	666	862.6	984.9	988.7	339.0	464.7	515.8	172.8	217.7	246.9
0815-0915	A4144/ Weirs Lane	A4144 South	590	598	599	1504.9	1498.8	1504.9	253.1	454.1	539.0	59.4	62.2	58.4
		A4144 South RT	345	347	347	1504.9	1498.8	1504.1	229.0	430.0	524.4	59.5	62.6	60.8

2019 Hinksey Hill PM Peak Comparison Action 2 Scenario 1a

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1024	143.9	136.0	129.0	13.3	14.7	14.6	17.9	19.6	19.4
		A423 Southern By-Pass (E)	3033	3079	3078	1597.0	2044.2	1936.2	48.1	78.8	110.1	5.8	5.9	6.0
		A34 NB Off Slip	763	780	783	264.2	2102.8	241.8	36.3	68.8	48.0	50.6	71.6	63.6
		Hinksey Hill	544	559	561	133.8	139.3	121.3	12.7	14.0	13.6	27.5	28.8	28.6
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1140	207.2	293.7	887.4	25.7	33.3	38.5	26.6	32.3	34.9
		A423 Southern By-Pass (E)	2900	2999	3005	776.8	1815.3	2038.6	16.8	77.5	197.4	6.1	6.5	6.4
		A34 NB Off Slip	863	890	887	238.3	1029.8	407.9	45.1	93.6	82.3	54.7	97.2	89.1
		Hinksey Hill	586	602	601	187.3	159.0	163.2	12.6	14.2	13.8	26.3	27.5	27.1

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	939	135.4	212.8	213.9	27.4	28.0	27.7	36.7	37.2	37.2
		A423 Eastern By-Pass Left	2453	2486	2491	1195.0	1981.5	1977.9	288.1	591.1	585.4	56.4	97.6	96.4
		A423 Eastern By-Pass	194	196	198	154.7	1293.9	1437.3	5.2	13.7	43.1	113.3	156.0	156.9
		A423 Southern By-Pass Left	164	169	169	127.0	57.7	126.2	2.6	2.7	2.6	14.1	15.1	14.2
		A423 Southern By-Pass	1703	1745	1746	378.6	368.9	418.4	39.1	42.8	43.1	19.7	20.0	20.1
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	968	305.5	223.7	222.4	30.1	30.5	31.9	39.1	38.4	40.2
		A423 Eastern By-Pass Left	2354	2454	2454	1121.5	2113.1	1966.2	113.3	443.4	418.7	29.8	77.1	73.9
		A423 Eastern By-Pass	258	265	263	313.1	1050.7	715.4	10.3	19.1	22.1	87.7	136.4	134.7
		A423 Southern By-Pass Left	208	211	211	129.5	829.1	977.5	3.2	10.7	16.3	15.0	20.3	22.3
		A423 Southern By-Pass	1825	1880	1877	527.0	830.3	978.7	51.0	64.1	76.1	19.5	20.6	20.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
1615-1715	Abingdon Road/ A4144	A4144 North	826	826	826	282.1	289.2	291.0	100.4	101.1	107.6	8.7	8.7	8.8
		A4144 South Bus Lane	15	15	15	36.0	41.1	41.2	0.9	1.0	1.0	26.1	27.7	27.0
		A4144 South	309	317	318	152.4	176.8	184.1	17.4	19.1	20.1	33.4	35.3	37.0
		Old Abingdon Road Bus Lane	4	4	4	14.1	13.9	17.9	0.1	0.1	0.1	4.8	6.8	5.1
		Old Abingdon Road	492	502	502	202.9	210.3	214.3	21.4	24.9	25.5	21.2	21.8	21.9
		Bertie Place	4	4	4	12.0	12.0	12.0	0.0	0.0	0.0	35.6	37.8	35.7
		A4144 North	845	851	854	279.1	281.9	279.9	87.3	98.9	91.7	7.9	8.0	7.8
1715-1815	Abingdon Road/ A4144	A4144 South Bus Lane	20	20	20	40.9	41.1	28.3	1.3	1.2	1.1	26.0	25.7	23.8
		A4144 South	416	417	419	413.0	502.8	503.6	51.3	79.7	75.1	58.4	75.6	73.6
		Old Abingdon Road Bus Lane	4	4	4	43.4	43.5	43.5	0.1	0.1	0.2	7.2	10.8	11.3
		Old Abingdon Road	574	588	585	424.1	643.1	901.5	57.8	87.7	80.6	24.7	26.0	25.7
		Bertie Place	12	12	12	18.0	18.3	15.7	0.1	0.1	0.1	33.8	37.1	38.7

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	543	832.7	1080.3	1083.2	310.3	432.2	457.7	142.9	188.7	196.2
		A4144 North LT	199	199	199	828.1	1077.2	1083.5	63.0	119.2	167.4	131.5	178.1	185.1
		Weirs Lane	593	593	591	861.2	982.4	988.7	360.8	486.0	518.9	194.9	255.0	272.0
		A4144 South	359	368	368	268.7	408.8	421.0	7.7	10.1	10.7	15.5	16.5	15.8
		A4144 South RT	312	316	318	367.7	408.8	421.0	33.7	37.3	37.6	59.7	60.3	62.4
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	563	834.8	1083.2	1083.2	537.6	835.5	884.0	236.9	358.3	368.7
		A4144 North LT	182	178	183	835.1	1083.5	1083.5	171.2	416.0	519.6	232.9	352.1	365.4
		Weirs Lane	573	587	585	863.7	988.7	988.7	304.7	579.8	624.6	204.3	357.8	382.8
		A4144 South	476	481	481	674.6	893.5	1152.0	39.8	85.1	66.6	19.4	21.5	21.1
		A4144 South RT	390	393	392	674.6	893.6	1152.0	94.3	156.8	131.0	83.9	93.6	91.7

Journey Time Comparison - AM Peak Action 2 Scenario 1a

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	241	-14	-5%	976	998	996	-2
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	71	0	0%	1101	1122	1124	2
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	241	0	0%	1021	1022	1022	0
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	379	6	2%	581	592	589	-3
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	297	12	4%	931	937	931	-6
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	57	-1	-2%	952	987	985	-2
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	365	-4	-1%	826	756	757	1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	401	15	4%	451	426	425	-1

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	43	0	0%	560	571	574	3
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	40	-2	-5%	1859	1903	1907	4
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	121	-2	-2%	1804	1798	1805	7
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	41	0	0%	627	641	633	-8
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	55	0	0%	1573	1629	1626	-3
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	145	-3	-2%	1720	1698	1692	-6

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	46	0	0%	560	569	574	5
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	120	-2	-2%	576	587	587	0
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	280	14	5%	304	307	310	-
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	52	-2	-4%	617	633	625	-8
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	130	4	3%	470	473	472	-1
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	258	28	12%	264	262	254	-

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	91	1	1%	262	271	271	0
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	116	-19	-14%	576	580	590	10
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	61	1	1%	532	547	543	-4
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	101	0	0%	351	354	353	-1
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	177	21	13%	620	642	628	-14
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	86	-3	-3%	445	447	448	1

Journey Time Comparison - PM Peak Action 2 Scenario 1a

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	950	974	974	0
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	54	0	0%	1241	1255	1256	1
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	79	-7	-8%	759	780	780	0
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	564	564	0
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	64	3	5%	1068	1094	1089	-5
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	62	2	3%	1273	1313	1314	1
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	104	-8	-7%	840	862	862	0
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	596	596	0

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	42	0	0%	806	806	805	-1
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	87	-2	-2%	2475	2524	2529	5
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	56	0	0%	1607	1646	1648	2
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	42	0	0%	813	819	820	1
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	72	2	3%	2309	2395	2393	-2
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	62	3	5%	1718	1768	1764	-4

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	66	1	2%	809	808	807	-1
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	71	1	1%	293	300	301	1
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	122	23	23%	301	306	307	-
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	60	-1	-2%	802	809	813	4
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	121	-3	-2%	391	394	395	1
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	160	18	13%	398	405	399	-

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	% Diff Act 2 Scn 1a	2017 Base	2019 DM	2019 Act 2 Scn 1a	Abs Diff Act 2 Scn 1a	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	74	1	1%	535	532	532	0
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	209	1	0%	603	600	598	-2
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	61	1	2%	325	332	333	1
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	69	-1	-1%	540	541	546	5
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	230	8	4%	534	546	544	-2
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	80	-2	-2%	414	417	416	-1

Appendix C. Action 2 2a & 2b Design and Results

DRAFT

Action 2 – Old Abingdon Road

Single Lane Options – 2a) Bridge ½ & ½ Right Turn Only

1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Prolonged programme duration - Only able to build half the bridge at a time
- Due to width of the new bridge at OAR, space is restricted to build half and half. Final bridge layout may need to be widened to allow half and half construction

Benefits:

- Mitigated the requirement for traffic lights



Priority Remains with Old Abingdon Road. Kennington Road Give Way/STOP

Action 2 – Old Abingdon Road

Single Lane Options – 2b) Bridge ½ & ½ Right Turn Only

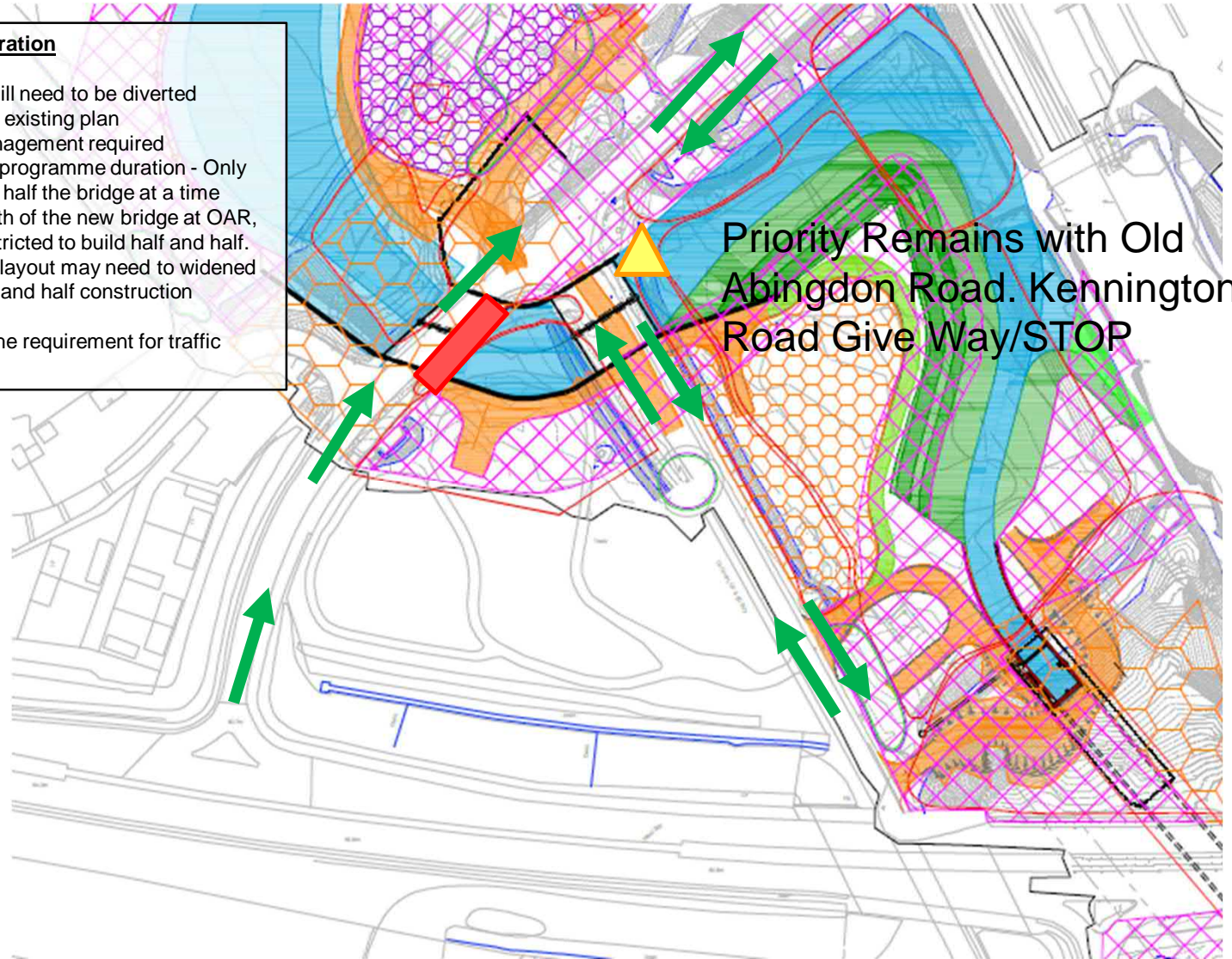
1 Lane Operation

Constraints:

- Services still need to be diverted according to existing plan
- Traffic management required
- Prolonged programme duration - Only able to build half the bridge at a time
- Due to width of the new bridge at OAR, space is restricted to build half and half. Final bridge layout may need to be widened to allow half and half construction

Benefits:

- Mitigated the requirement for traffic lights



Priority Remains with Old Abingdon Road. Kennington Road Give Way/STOP

2019 Hinksey Hill AM Peak Comparison Action 2 Scenario 2a

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
			0715-0815	Hinksey Hill Interchange	A34 SB Off Slip	937	946	1040	1689.3	2071.5	712.1	208.9	318.9	106.0
A423 Southern By-Pass (E)	2389	2427			2716	680.2	139.9	1063.5	4.9	4.0	57.7	5.4	5.5	6.2
A34 NB Off Slip	1012	993			897	2959.3	3505.2	3515.9	220.7	651.5	1850.7	146.2	245.4	480.9
Hinksey Hill	582	580			634	774.5	1031.7	941.0	368.4	567.6	458.3	285.5	409.5	317.8
0815-0915	Hinksey Hill Interchange	A34 SB Off Slip	1057	1077	1042	1741.1	2956.8	863.4	356.6	699.0	44.4	221.1	315.2	46.5
		A423 Southern By-Pass (E)	2107	2188	2536	434.7	441.0	1720.6	4.7	6.7	457.5	5.3	6.3	14.6
		A34 NB Off Slip	900	853	836	2954.5	3513.0	3515.9	480.8	2026.4	3085.1	287.2	669.8	892.5
		Hinksey Hill	488	486	493	691.6	1038.5	575.9	193.2	448.9	68.3	222.5	447.3	91.7

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
			0715-0815	A423 Kennington Roundabout	A4144 North	620	632	642	213.7	214.8	222.5	24.7	25.8	26.5
A423 Eastern By-Pass Left	1844	1881			1878	947.7	1573.1	2075.0	33.6	76.6	73.6	25.1	36.6	37.8
A423 Southern By-Pass Left	374	377			374	1126.8	1121.0	1118.2	428.1	494.2	114.4	25.1	24.7	24.3
A423 Southern By-Pass	2111	2108			2076	1128.0	1122.1	1119.3	585.5	603.9	264.3	24.8	25.1	24.1
0815-0915	A423 Kennington Roundabout	A4144 North	688	703	708	222.6	229.4	309.1	26.5	30.7	30.3	44.5	47.5	50.9
		A423 Eastern By-Pass Left	1597	1661	1621	1833.5	2391.2	2389.8	45.8	238.5	280.4	35.8	68.9	82.8
		A423 Eastern By-Pass	398	410	400	1889.3	2374.6	2373.3	146.9	341.0	377.4	134.0	174.5	186.0
		A423 Southern By-Pass Left	306	298	296	1132.8	1127.6	1145.9	830.2	896.9	313.5	28.2	30.9	33.6
		A423 Southern By-Pass	2116	2105	2069	1134.0	1128.8	1147.1	860.8	918.1	553.2	27.6	28.0	27.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
			0715-0815	Abingdon Road/ A4144	A4144 North	590	601	612	276.5	276.4	276.5	31.1	32.7	34.2
A4144 South Bus Lane	17	17			16	41.4	53.8	42.2	1.0	1.0	1.1	24.6	25.3	27.8
A4144 South	566	587			587	503.7	504.3	503.8	114.6	111.7	107.5	68.6	66.3	63.0
Old Abingdon Road Bus Lane	4	4			4	42.3	42.3	43.3	0.5	0.5	0.5	35.2	40.2	36.2
Old Abingdon Road	557	567			576	1177.3	1207.4	863.0	227.4	329.2	258.7	28.9	28.3	27.9
Bertie Place	11	13			11	17.5	16.8	15.6	0.2	0.1	0.3	51.6	47.0	55.0
		A4144 North			662	675	693	277.4	281.9	282.3	46.7	50.0	50.9	8.9
0815-0915	Abingdon Road/ A4144	A4144 South Bus Lane	16	15	16	28.3	28.4	28.3	1.0	1.0	1.0	25.4	27.9	27.1
		A4144 South	513	511	501	504.2	510.6	504.8	105.0	111.8	132.3	73.2	76.0	82.4
		Old Abingdon Road Bus Lane	3	3	4	14.0	14.1	43.1	0.3	0.4	0.4	31.8	40.0	31.9
		Old Abingdon Road	446	452	444	1254.4	1248.3	782.3	122.0	285.8	167.5	33.5	34.7	36.0
		Bertie Place	10	10	10	18.6	21.5	16.7	0.1	0.1	0.2	49.3	56.8	61.9

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
			0715-0815	A4144/ Weirs Lane	A4144 North	277	286	286	455.8	397.4	707.8	64.2	67.7	85.9
A4144 North LT	95	98			98	245.2	290.9	288.9	7.0	8.8	8.4	82.5	86.2	104.0
Weirs Lane	558	555			570	804.4	981.4	981.4	99.4	183.0	115.1	72.0	116.8	78.7
A4144 South	654	667			678	1427.8	1457.8	1113.5	367.5	477.7	407.0	46.4	44.3	41.7
		A4144 South RT	430	438	442	1427.8	1457.9	1113.5	319.4	312.7	321.5	27.5	26.5	28.0
0815-0915	A4144/ Weirs Lane	A4144 North	378	380	385	827.1	1083.2	931.5	245.6	307.5	296.8	167.4	196.0	191.1
		A4144 North LT	145	143	146	687.1	1083.5	931.8	56.4	82.4	76.1	170.6	202.9	197.5
		Weirs Lane	651	680	669	862.6	984.9	983.6	339.0	464.7	486.9	172.8	217.7	231.0
		A4144 South	590	598	581	1504.9	1498.8	1032.8	253.1	454.1	340.3	59.4	62.2	66.7
		A4144 South RT	345	347	341	1504.9	1498.8	1032.8	229.0	430.0	321.2	59.5	62.6	63.7

2019 Hinksey Hill PM Peak Comparison Action 2 Scenario 2a

Approach Average

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
1615-1715	Hinksey Hill Interchange	A34 SB Off Slip	998	1025	1025	143.9	136.0	124.9	13.3	14.7	15.0	17.9	19.6	19.8
		A423 Southern By-Pass (E)	3033	3079	3142	1597.0	2044.2	2839.0	48.1	78.8	227.7	5.8	5.9	6.3
		A34 NB Off Slip	763	780	783	264.2	2102.8	282.7	36.3	68.8	47.0	50.6	71.6	62.5
		Hinksey Hill	544	559	560	133.8	139.3	139.9	12.7	14.0	14.0	27.5	28.8	28.8
1715-1815	Hinksey Hill Interchange	A34 SB Off Slip	1119	1144	1143	207.2	293.7	337.9	25.7	33.3	36.5	26.6	32.3	34.3
		A423 Southern By-Pass (E)	2900	2999	3095	776.8	1815.3	3021.0	16.8	77.5	678.3	6.1	6.5	6.7
		A34 NB Off Slip	863	890	887	238.3	1029.8	388.2	45.1	93.6	80.9	54.7	97.2	88.3
		Hinksey Hill	586	602	602	187.3	159.0	145.1	12.6	14.2	13.9	26.3	27.5	27.3

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
1615-1715	A423 Kennington Roundabout	A4144 North	939	942	948	135.4	212.8	156.5	27.4	28.0	27.4	36.7	37.2	36.5
		A423 Eastern By-Pass Left	2453	2486	2448	1195.0	1981.5	2205.6	288.1	591.1	761.6	56.4	97.6	123.7
		A423 Eastern By-Pass	194	196	193	154.7	1293.9	943.9	5.2	13.7	8.8	113.3	156.0	177.5
		A423 Southern By-Pass Left	164	169	168	127.0	57.7	56.5	2.6	2.7	2.7	14.1	15.1	14.3
		A423 Southern By-Pass	1703	1745	1724	378.6	368.9	362.5	39.1	42.8	40.2	19.7	20.0	19.8
1715-1815	A423 Kennington Roundabout	A4144 North	956	966	975	305.5	223.7	243.7	30.1	30.5	31.1	39.1	38.4	38.9
		A423 Eastern By-Pass Left	2354	2454	2477	1121.5	2113.1	2387.6	113.3	443.4	914.8	29.8	77.1	144.4
		A423 Eastern By-Pass	258	265	265	313.1	1050.7	695.4	10.3	19.1	14.5	87.7	136.4	206.6
		A423 Southern By-Pass Left	208	211	209	129.5	829.1	730.9	3.2	10.7	10.1	15.0	20.3	20.6
		A423 Southern By-Pass	1825	1880	1854	527.0	830.3	732.0	51.0	64.1	58.9	19.5	20.6	20.2

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
1615-1715	Abingdon Road/ A4144	A4144 North	826	826	837	282.1	289.2	279.3	100.4	101.1	105.8	8.7	8.7	8.8
		A4144 South Bus Lane	15	15	15	36.0	41.1	27.8	0.9	1.0	1.0	26.1	27.7	28.2
		A4144 South	309	317	313	152.4	176.8	264.8	17.4	19.1	20.2	33.4	35.3	37.1
		Old Abingdon Road Bus Lane	4	4	4	14.1	13.9	14.0	0.1	0.1	0.1	4.8	6.8	7.2
		Old Abingdon Road	492	502	506	202.9	210.3	165.9	21.4	24.9	24.7	21.2	21.8	21.7
		Bertie Place	4	4	4	12.0	12.0	12.0	0.0	0.0	0.0	35.6	37.8	38.3
		A4144 North	845	851	858	279.1	281.9	281.9	87.3	98.9	100.2	7.9	8.0	8.1
1715-1815	Abingdon Road/ A4144	A4144 South Bus Lane	20	20	19	40.9	41.1	41.8	1.3	1.2	1.2	26.0	25.7	25.6
		A4144 South	416	417	417	413.0	502.8	495.2	51.3	79.7	76.1	58.4	75.6	73.9
		Old Abingdon Road Bus Lane	4	4	4	43.4	43.5	43.4	0.1	0.1	0.2	7.2	10.8	15.1
		Old Abingdon Road	574	588	596	424.1	643.1	859.0	57.8	87.7	98.9	24.7	26.0	26.3
		Bertie Place	12	12	12	18.0	18.3	17.8	0.1	0.1	0.1	33.8	37.1	38.4

Time	Junction	Approach	Volume			Max Queue (m)			Avg Queue (m)			Delay (s)		
			2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a
1615-1715	A4144/ Weirs Lane	A4144 North	547	543	534	832.7	1080.3	1083.2	310.3	432.2	526.3	142.9	188.7	224.0
		A4144 North LT	199	199	197	828.1	1077.2	1083.5	63.0	119.2	161.4	131.5	178.1	217.3
		Weirs Lane	593	593	599	861.2	982.4	982.4	360.8	486.0	514.2	194.9	255.0	268.4
		A4144 South	359	368	367	268.7	408.8	403.7	7.7	10.1	13.8	15.5	16.5	15.9
		A4144 South RT	312	316	319	367.7	408.8	406.0	33.7	37.3	41.2	59.7	60.3	64.0
1715-1815	A4144/ Weirs Lane	A4144 North	562	556	551	834.8	1083.2	1083.2	537.6	835.5	932.5	236.9	358.3	399.9
		A4144 North LT	182	178	177	835.1	1083.5	1083.5	171.2	416.0	640.8	232.9	352.1	395.0
		Weirs Lane	573	587	581	863.7	988.7	986.0	304.7	579.8	580.5	204.3	357.8	360.1
		A4144 South	476	481	484	674.6	893.5	1109.5	39.8	85.1	109.2	19.4	21.5	21.5
		A4144 South RT	390	393	394	674.6	893.6	1109.5	94.3	156.8	163.2	83.9	93.6	94.8

Journey Time Comparison - AM Peak Action 2 Scenario 2a

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
0715-0815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	217	255	121	-134	-53%	976	998	1009	11
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	65	71	74	3	4%	1101	1122	1124	2
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	165	241	336	95	39%	1021	1022	917	-105
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	280	373	281	-92	-25%	581	592	597	5
0815-0915	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	226	285	73	-212	-74%	931	937	982	45
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	52	58	83	25	43%	952	987	955	-32
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	246	369	389	20	5%	826	756	736	-20
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	191	386	81	-305	-79%	451	426	480	54

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
0715-0815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	43	43	0	0%	560	571	581	10
	A423	A423 Kennington Rbt Stop line	Westbound	36	42	41	-1	-2%	1859	1903	1900	-3
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	121	123	88	-35	-28%	1804	1798	2111	313
0815-0915	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	41	43	2	5%	627	641	654	13
	A423	A423 Kennington Rbt Stop line	Westbound	45	55	58	3	5%	1573	1629	1596	-33
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	143	148	112	-36	-24%	1720	1698	2002	304

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
0715-0815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	46	46	47	1	2%	560	569	584	15
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	125	122	116	-6	-5%	576	587	585	-2
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	240	266	249	-17	-6%	304	307	319	-
0815-0915	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	53	54	53	-1	-2%	617	633	646	13
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	123	126	146	20	16%	470	473	469	-4
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	215	230	245	15	7%	264	262	249	-

Description			Average Journey Times (s) All Vehicles excl. Buses						Total Vehicles All Vehicles excl. Buses			
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
0715-0815	North of Weirs Lane	Weirs Lane Jct	Southbound	89	90	95	5	6%	262	271	271	0
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	107	135	111	-24	-18%	576	580	587	7
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	62	61	60	-1	-1%	532	547	552	5
0815-0915	North of Weirs Lane	Weirs Lane Jct	Southbound	97	101	98	-3	-3%	351	354	358	4
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	149	156	169	13	8%	620	642	638	-4
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	86	89	93	4	5%	445	447	437	-10

Journey Time Comparison - PM Peak Action 2 Scenario 2a

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
1615-1715	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	48	49	49	0	0%	950	974	974	0
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	54	54	59	5	9%	1241	1255	1241	-14
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	67	86	78	-8	-9%	759	780	781	1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	564	564	0
1715-1815	A34 N	A34 Hinksey Hill Rbt Stop line	Southbound	56	61	64	3	5%	1068	1094	1092	-2
	A423 Kennington Rbt	A34 Hinksey Hill Rbt Left Stop line	Westbound	55	60	64	4	7%	1273	1313	1321	8
	A34 S	A34 Hinksey Hill Rbt Stop line	Northbound	71	112	103	-9	-8%	840	862	863	1
	Hinksey Hill	Hinksey Hill Rbt Approach	Eastbound	-	38	38	0	0%	-	596	596	0

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
1615-1715	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	41	42	42	0	0%	806	806	817	11
	A423	A423 Kennington Rbt Stop line	Westbound	69	89	94	5	6%	2475	2524	2494	-30
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	56	56	56	0	0%	1607	1646	1732	86
1715-1815	Abingdon Road/A4144 Jct	A423 Kennington Rbt Stop line	Southbound	42	42	42	0	0%	813	819	826	7
	A423	A423 Kennington Rbt Stop line	Westbound	46	70	91	21	30%	2309	2395	2406	11
	A34 Hinksey Hill Rbt	A423 Kennington Rbt Stop line	Eastbound	57	59	58	-1	-2%	1718	1768	1824	56

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
1615-1715	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	64	65	65	0	0%	809	808	816	8
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	68	70	72	2	3%	293	300	297	-3
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	95	99	98	-1	-1%	301	306	305	-
1715-1815	Weirs Lane Jct	Abingdon Road/ A4144 Jct	Southbound	59	61	62	1	2%	802	809	817	8
	A423 Kennington Rbt	Abingdon Road/ A4144 Jct	Northbound	99	124	121	-3	-2%	391	394	394	0
	A34 Hinksey Hill Rbt	Abingdon Road/ A4144 Jct	Northbound	121	142	150	8	6%	398	405	401	-

Description			Average Journey Times (s) All Vehicles excl. Buses					Total Vehicles All Vehicles excl. Buses				
From	To	Direction	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	% Diff Act 2 Scn 2a	2017 Base	2019 DM	2019 Act 2 Scn 2a	Abs Diff Act 2 Scn 2a	
1615-1715	North of Weirs Lane	Weirs Lane Jct	Southbound	72	73	77	4	5%	535	532	524	-8
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	190	208	211	3	1%	603	600	605	5
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	59	60	62	2	3%	325	332	333	1
1715-1815	North of Weirs Lane	Weirs Lane Jct	Southbound	68	70	70	0	0%	540	541	538	-3
	Weirs Lane	Weirs Lane / Abingdon Rd Jct	Westbound	178	222	221	-1	0%	534	546	541	-5
	Abingdon Road/ A4144 Jct	Weirs Lane Jct	Northbound	75	82	82	1	1%	414	417	420	4

Appendix D. Action 1 2a & 2b Design and Action 1 – Kennington Road Diversion Designs

DRAFT

Action 1 – Kennington Road

Two Lane Open – 1) Temporary diversion East

2 Lane operation – Temporary diversion to the East

Constraints:

- Services still need to be diverted according to existing planned service
- Scheduled Monument
- Diversion of footpath

Benefits:

- Road alignment similar to existing
- Allows construction of the whole of Kennington Road bridge to be completed adjacent to temporary diversion
- Footprint of works within the Red line site boundary



Action 1 – Kennington Road

Two Lane Open – 2) Temporary diversion West

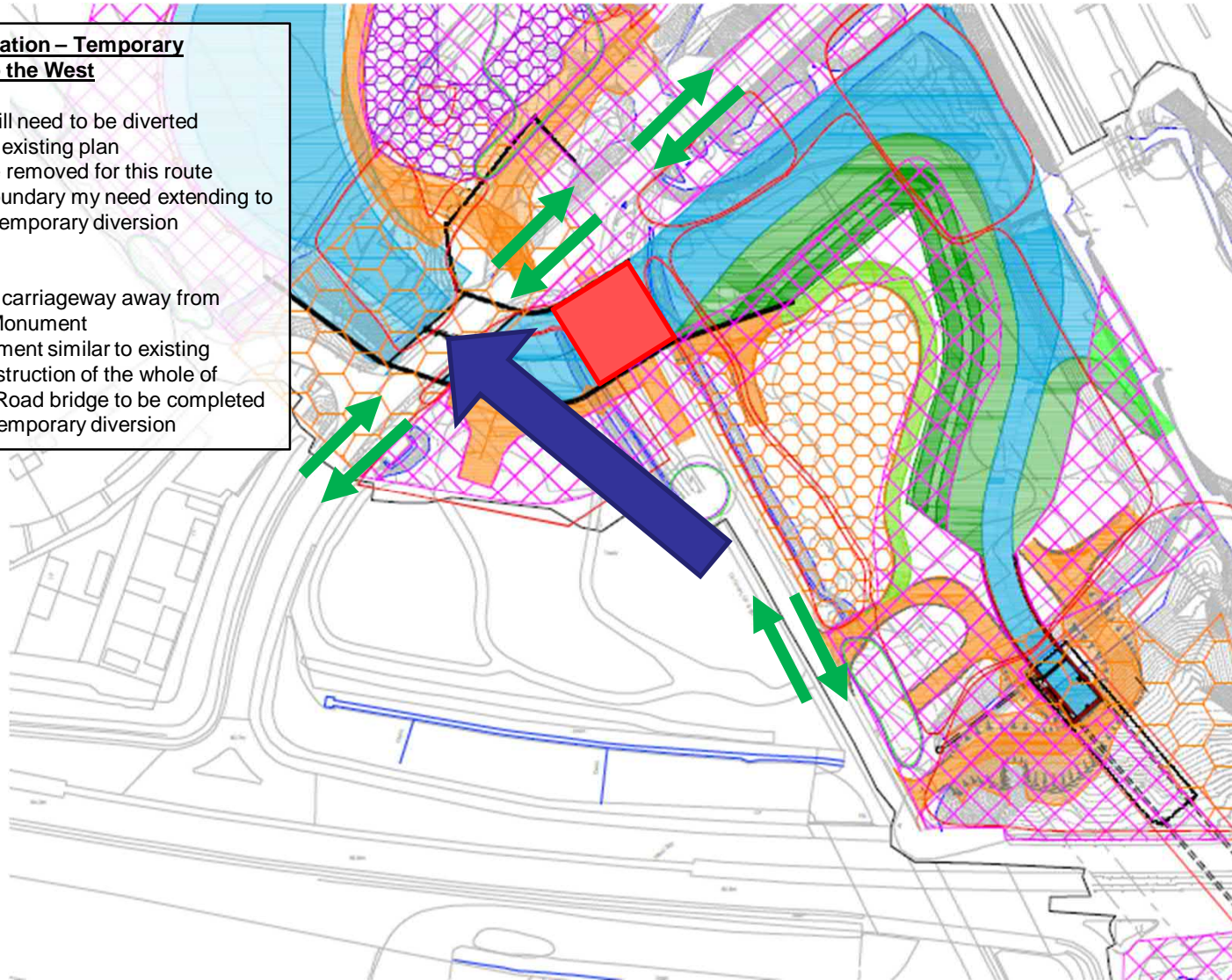
2 Lane operation – Temporary diversion to the West

Constraints:

- Services still need to be diverted according to existing plan
- Trees to be removed for this route
- Red line boundary may need extending to incorporate temporary diversion carriageway

Benefits:

- Temporary carriageway away from Scheduled Monument
- Road alignment similar to existing
- Allows construction of the whole of Kennington Road bridge to be completed adjacent to temporary diversion



Action 1 – Kennington Road

Two Lane Options – 3) Temporary Carriageway South

2 Lane operation – Temporary carriageway to the south

Constraints:

- Services still need to be diverted according to existing planned service
- Additional land
- Ecology issues and associated risks

Benefits:

- Allows construction of the whole of Kennington Road bridge to be completed
- Can be reused for Old Abingdon Road Bridge
- Away from overhead power lines and historic culverts

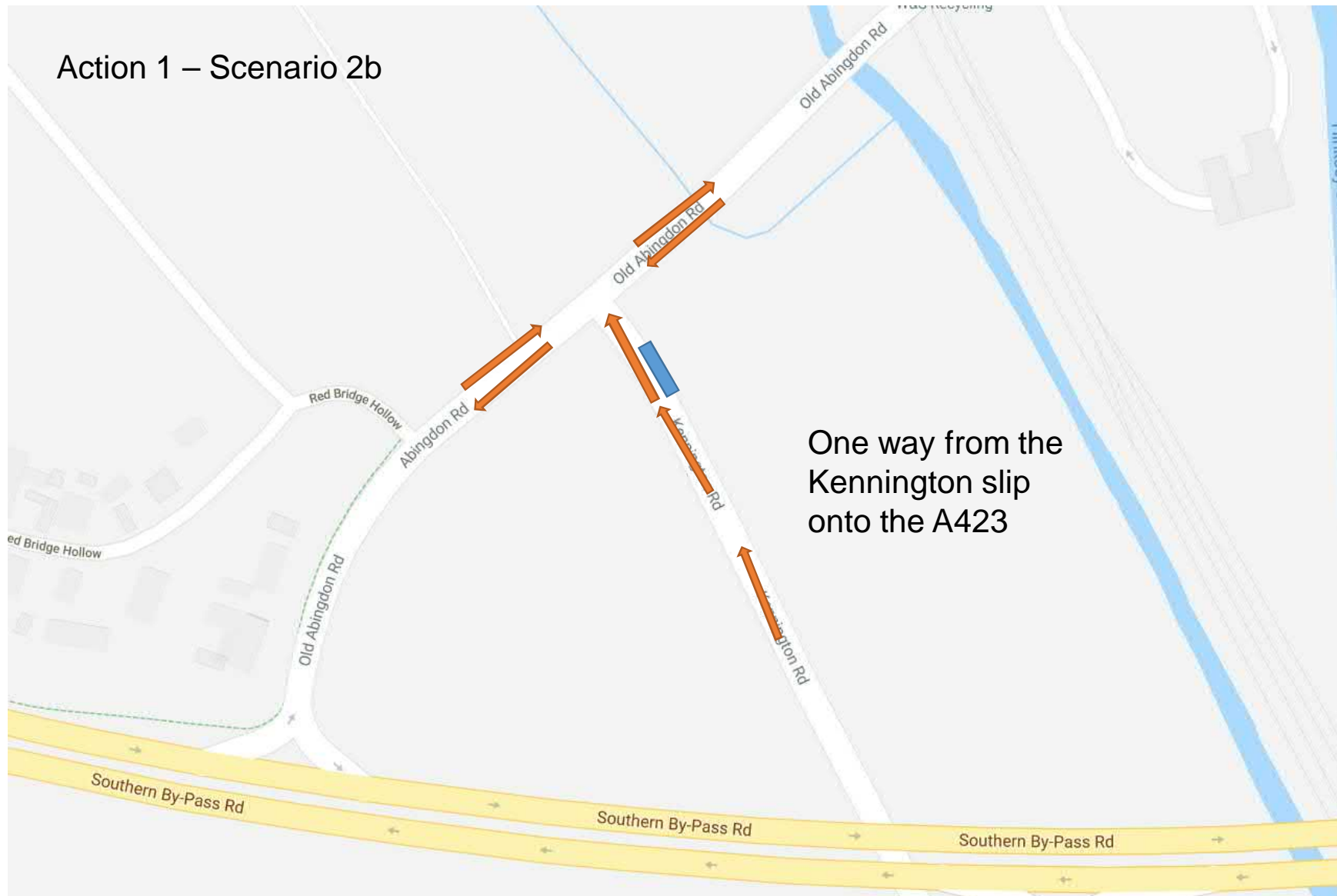


Action 1 – Scenario 2a



One way from the
Kennington slip
onto the A423

Action 1 – Scenario 2b



One way from the
Kennington slip
onto the A423

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