A47 Wansford to Sutton – The Wansford Western Roundabout

A Submission to the Planning Inspectorate - Scheme Ref:TR010039

February 2022

Wansford Parish Council

A47 Wansford to Sutton – The Wansford Western Roundabout

A Submission to the Planning Inspectorate -Scheme Ref:TR010039

Contents

1 Introduction

1.1 Purpose of this Document

This document has been produced by Wansford Parish Council to suggest to the Planning Inspectorate that the decision to make no significant modifications to the Wansford Western Roundabout as part of the A47 Wansford to Sutton Dualling is a mistake that will remove many of the benefits resulting from the rest of the scheme.

1.2 Why This Document is Needed

When the project was first publicized in late 2016, Highways England (now National Highways (NH)) stated that the Wansford Western Roundabout was outside the scope of the project. Wansford Parish Council (WPC) pointed out at the launch meeting that this made no sense and NH said that they would look at this again.

Later NH introduced various modifications to the western roundabout but the main one, an additional lane on the A1 northbound exit slip road was illogical and was later found to be the result of an error in the traffic modelling. Since then, NH have reduced the changes to the western roundabout to the provision of an extra exit lane on the eastbound A47.

In 2020 and 2021 NH published a series of traffic projections and models that show that the roundabout is already overloaded. The most recent traffic study, published as TR010039-Volume 7 7.3 Transport Assessment is based on a set of traffic projections which show the traffic joining the A47 from Old North Road Wansford halving from its 2015 volume. This came up earlier and WPC pointed out that this was an error but NH have continued to use these numbers. Traffic volume measurements taken recently have shown that the traffic on Old North Road has not declined.

This document attempts to correct these errors and suggest an alternative solution.

2 Traffic Data and Projections

In 2015, NH carried out a series of traffic measurements in Wansford and these were followed by some measurements in 2019. In September 2019 NH published a set of traffic figures that are reproduced below as Table 1.

These figures show a growth in most traffic flows between the base year (2015) and 2022 of between 15 and 25%. The flow off the A1 northbound to head east on the A47 was show as increasing by 63% but discussion with NH showed that this figure was based on all traffic coming north up the A1 using this junction to access the A47. This ignored the shorter route for this traffic via the eastern section of the Peterborough Parkway system.

For the traffic on Old North Road Wansford (described by NH as the A6118 even thought it was downgraded to be the C340 in 2017) the traffic was shown reducing by 45% and even by 2037, it is still shown as 38% below the 2015 figure. The two way flow in 2015 was 4400 vehicles per day. The projections showed that in 2022 the flow would be 2400 vehicles per day and in 3037 it would be 2700 vehicles per day

When they were first released, WPC queried the Old North Road figures and we were told that the reduction was because of the introduction of a 20mph limit in the centre of the village. The 20 mph limit was introduced the 2017 and in autumn 2021 WPC placed a vehicle counting camera on Old North Road. This showed a typical vehicle count of 3900 vehicles per day. At this time, government advice was to work from home as a result of the COVID-19 pandemic. It is not known how much difference that has made but at very least, traffic levels on Old North Road have remained at 2015 levels. They certainly have not reduced by 45%. The detailed vehicle counts from the camera have been given to NH and can be supplied to the Inspectorate if required.

Site Number	Site Name	2 WAY AADT BASE	2 WAY AADT 2022 DM	2022 DM-Base	Difference	2 WAY AADT 2022 DS	2 WAY AADT 2022 DIFF	2 WAY AADT 2037 DM	2 WAY AADT 2037 DS	2 WAY AADT 2037 DIFF	2037 DS - Base	Difference as %
1	A1 North	51400	59400	8000	16%	61100	1700	70800	72200	1400	20,800	40.47%
2	A47 main line west	11500	15000	3500	30%	16500	1500	17700	20400	2700	8,900	77.39%
3	A6118 (Old North	4400	2400	2000	-45%	1900	-500	3100	2700	-400	-1,700	-38.64%
4	A1 South	44000	54700	10700	24%	53500	-1200	66600	65900	-700	21,900	49.77%
5	Sacrewell	400	500	100	25%	500	0	500	500	0	100	25.00%
6	A47 main line east of Sacrewell and	23300	25600	2300	10%	31500	5900	30000	37500	7500	14,200	60.94%
7	Sutton Heath Road,	2200	2500	300	14%	2100	-400	2800	2400	-400	200	9.09%
8	Langley Bush	800	900	100	13%	600	-300	900	700	-200	-100	-12.50%
9	A47 main line east	22600	24900	2300	10%	30900	6000	29200	36500	7300	13,900	61.50%
10	Nene Way	500	500	0	0%	700	200	600	800	200	300	60.00%
11	Sutton Heath Road,	1400	1600	200	14%	1500	-100	2000	1800	-200	400	28.57%
12	A47/A1 western interchange	8500	10100	1600	19%	10200	100	11400	10400	-1000	1,900	22.35%
13	A1 NB Off Slip	2400	3900	1500	63%	4700	800	4900	5800	900	3,400	141.67%
14	A47/A1 interchange	20400	22900	2500	12%	27100	4200	26500	32000	5500	11,600	56.86%
15	A47/A1 interchange	20400	22900	2500	12%	24300	1400	26500	28500	2000	8,100	39.71%
16	A47/A1 eastern interchange	9400	9800	400	4%	4800	-5000	11000	5900	-5100	-3,500	-37.23%
17	A47/A1 eastern	23500	25600	2100	9%	24100	-1500	30000	28700	-1300	5,200	22.13%
18	Peterborough Road,	1300	1400	100	8%	1900	500	1700	2300	600	1,000	76.92%
19	A47 main line west	23100	25600	2500	11%	31500	5900	30100	37500	7400	14,400	62.34%
20	A47/A1 western interchange	0	0	0		2800	2800	0	3500	3500	3,500	
21	A47/A1 eastern interchange	0	0	0		7200	7200	0	8500	8500	8,500	
22	Upton, Sutton	400	500	100	25%	2600	2100	500	2900	2400	2,500	625.00%
23	A47 main line west	23500	25600	2100	9%	31300	5700	30000	37200	7200	13,700	58.30%
24	A1 southbound off	6500	6100	400	-6%	800	-5300	6700	700	-6000	-5,800	-89.23%
25	A1 southbound on	2800	3700	900	32%	4000	300	4200	5200	1000	2,400	85.71%
26	A1 main line intra-	38800	47100	8300	21%	44800	-2300	57500	54900	-2600	16,100	41.49%
27	A1 northbound on	6100	6200	100	2%	8300	2100	6600	8100	1500	2,000	32.79%

Table 1 – Highways England Traffic projections for the A47 Wansford to Sutton

Another reason given NH for the traffic reduction is that traffic would leave Wansford along Peterborough Road, join the A1 northbound and then leave again to on the northbound off slip to head east or west along the A47. To do this, vehicles would have to join a high speed trunk road from an access road that has no acceleration lane only to leave the trunk road some 275m later. This is an incredibly dangerous manoeuvre which should be discouraged. WPC has suggested closing off the A1 access at from Peterborough Road.

The traffic volumes forecast to take this route are apparently based on the theoretical journey time but this shows the issues of modelling a situation which has not been reviewed on the ground.

Figure 1 – Peterborough Road access onto the A1 Northbound.

The volume of traffic leaving Old North Road is a cross stream to the main easterly flows on the A47 and hence any increase in volume will have a major effect on that flow if it is going north up the A1 or east towards Peterborough.

Because NH has used incorrect data in their junction modelling, the results of the modelling are wrong. The delays on the A47 eastbound and out of Old North Road will be greater than the modelling has shown.

As soon as we were aware of the issues with the input data, WPC consulted an experienced traffic modeler and their suggestion was that any modelling should include a sensitivity check to cover incorrect inputs. The suggestion was to take present day traffic flows and increase them all by 50% from 2015 to 2037. This suggestion was passed on to NH but from the modelling report it appears that only a single scenario was tested with no sensitivity tests.

3 An Alternative Approach to the Wansford Western Roundabout

3.1 The Existing Roundabout

The existing Wansford western roundabout has an internal diameter of 25m and an external diameter of 45m. This means that any vehicle not going in a straight line occupies the whole width of the road within the roundabout. A normal roundabout for this level of traffic has an internal diameter of 40m and an external diameter of 60m. This size of roundabout cannot fit into the village without purchasing a number of expensive properties.

The traffic modelling report states that the western roundabout is already operating beyond its design traffic levels and this can only get worse with time.

3.2 An Alternative Approach

Knowing that there is a problem with the capacity of the existing roundabout, WPC took expert advice from a specialist in urban traffic junction design. After looking at the traffic flows, the advice was that a signalled junction would have a higher capacity than a roundabout of this size with or without signals on the roundabout. The traffic lights should be intelligent so that they adjust their periods depending on the length of the queue in each lane.

An important part of this plan is to have the longest possible queuing length for vehicles doing each manoeuvre so that the signal periods can be quite long. That would particularly apply to the A47 eastbound and westbound entries into the junction.

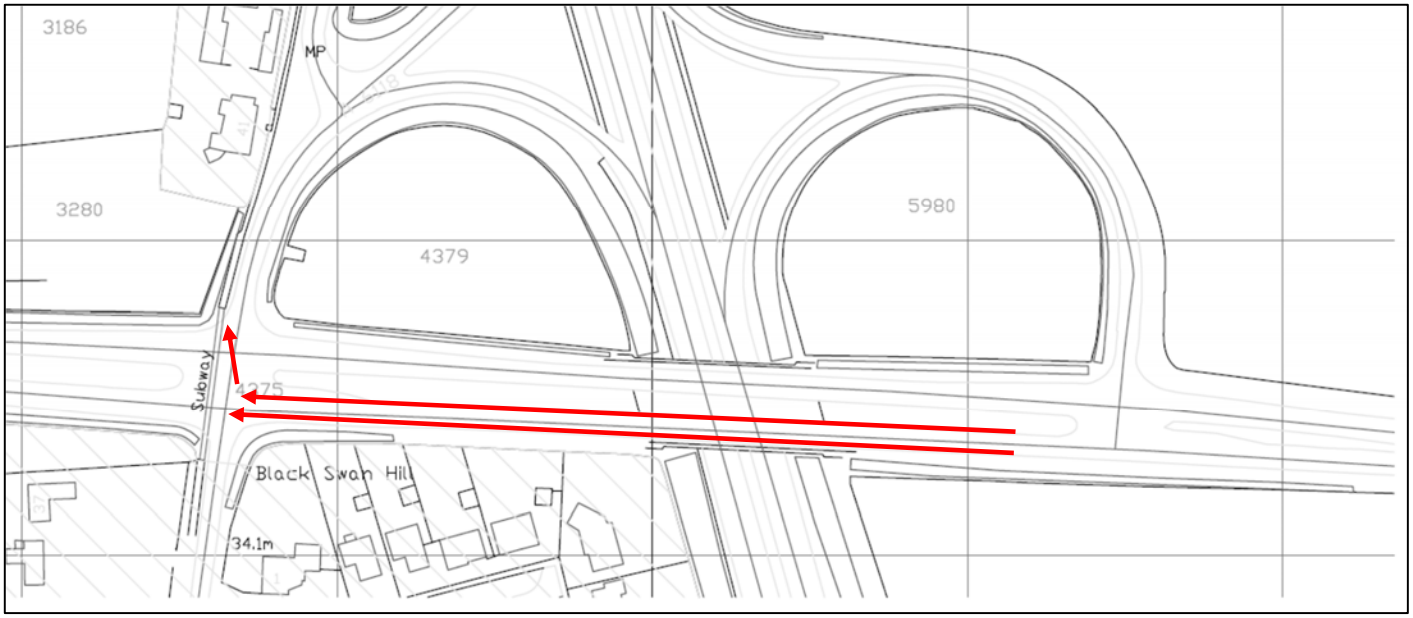

Figure 2 – The Original A1/A47 junction before the roundabouts.

Figure 2 shows the original layout of the A1/A47 junction before the roundabouts were installed in the late 1990s. This road layout has two lanes of traffic each way across the A1 bridge allowing a long queuing length for vehicles making the right turn onto the A1 northbound in the evening peak.

The reason that a signalled junction can handle greater traffic volumes than a small roundabout when there is a lot of turning traffic is that the vehicles can move with closer spacing than a series of individual vehicles on a roundabout.

WPC suggested that NH model this junction to see its capacity. NH agreed to this but instead of modelling the suggested signalling system they modelled fixed interval traffic lights with no intelligence. Even this showed a better performance than the roundabout.

Certainly, the signalled junction will be much safer than an overloaded roundabout.

4 The Long Term Solution

The only long term solution to the problems of the A1/A47 junction is to realign the A1 with a completely new junction. This was planned in 1994 but never happened. This realignment could also include a new bridge over the Nene as the existing southbound bridge has structural problems.

An important outcome of this DCO process could be a recommendation that the upgrading of this stretch of the A1 is brought forward in the national roads programme.