

Strategic Highways



A47 Middleton Speed Limit Review

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NOTE: The statistical accident data referred to in this document was not entirely derived from the National validated accident statistics but was sourced from HA local partner datasets. As this data has not been validated by Department for Transport it cannot be assumed to be a complete data set as it may be found to be incomplete or contain inaccuracies. The requirement for up to date information for operational purposes was a consideration in the decision to use this data

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1 Introduction

The Highways Agency commissioned Amey to undertake a speed limit study for the village of Middleton and the area west to the junction with Hill Road. The Parish Council supported by their MP, Henry Bellingham, and local County Councillors made a request for the 40mph speed limit to be extended to the west of the village to include the junction with Hill Road and whether the existing limit could be reduced. The purpose of the study is to ascertain if either or both measures are justified under the current guidance (Department for Transport Circular 01/2013 – Setting Local Speed Limits).

The following tasks have been carried out as part of the study in order to provide the conclusions and recommendations:

- Site observations
- Collision analysis
- Speed surveys

Key points from Circular 01/2013 are given below for reference;

- Speed limits should be evidence led and self-explaining and should encourage self-compliance. It is important when setting a speed limit to take into account what the road looks like to the road users.
- The key factors that should be taken into account in any decisions on local speed limits are;
 - i. History of collisions
 - ii. Road geometry and engineering
 - iii. Road function
 - iv. Composition of road users
 - v. Existing traffic speeds
 - vi. Road environment

2 Description of site and observations

Attention is drawn to the Reference Plan in Appendix A which indicates some of the notable features along the study area.

The A47 is an east-west route extending between Kings Lynn the east coast, bypassing Norwich. The village of Middleton is approximately 3.5 miles from Kings Lynn. A traffic counter situated between Middleton and East Winch indicated in 2013 an Annual Average Daily Total (24hours) of 14,267. It can be noted that the volumes derived from the speed survey are higher than this figure. This is likely due to seasonal variation, the speed survey was carried out in the July holiday period, and being a 5 day count rather than an annual one.

The section from the junction with Hill Road to the village extent on the west side of Middleton is approximately 1400 metres and is a single carriageway subject to a 60mph speed limit. It is a typical rural road and has a series of relatively gentle curves in the horizontal alignment and a does not differ greatly in the vertical alignment. There is a farm, two lodges and nine other residential properties along this section. The road markings appear to be in reasonable condition and there is an extent of hatched central markings between West Hall Cottages and the start of the village. There is an 'initial' single village nameplate a short distance to the west of Westhall cottages at the end of a layby (as can be seen in the photograph below). This sign is somewhat inconspicuous, is midway through the 60mph section and does not lead the road user into thinking a residential area is reached.



The A47, subject to a 40mph speed limit and equipped with street lighting, effectively divides the village in half with the Crown Inn Public House and St Mary's Church being the most prominent buildings adjacent to the carriageway. The horizontal alignment is somewhat sinuous upon passing through the main body of the village and has a series of hatched and double solid white line central markings. The photograph below was taken looking west from the junction with School Road, adjacent to the Crown Inn Public House.



The terminal points of the village have 'dragons teeth' markings and red surfacing. The west terminal point is shown in the photograph below.



A visual inspection of the markings indicated a level of wear in places. There are two junctions with the A47, Station Road and School Road, which are only approximately 30 metres apart. A signal controlled pedestrian crossing on the A47 was installed in August 2013 a short distance to the east of Station Road. The photograph below was taken looking east from the junction with School Road and indicates the position of the signal controlled crossing.



A visit to the study area was made in cloudy but dry conditions and extended from mid-morning through the lunchtime period. There was a consistent traffic flow which appeared to be adhering to the speed limits which, when driving through the area several times felt appropriate to the layout. It was apparent from the various features discussed earlier in this section that previous treatments to attempt traffic speed reduction had been carried out. There are two; one in each direction, speed activated electronic warning signs within the 40mph section. These were operational but seldom triggered during the visit.

3 Collision analysis

Reference is to be made to the drawing in Appendix A for collision locations. It is to be noted that the collision references run from west to east along the site. The statistical accident data referred to in this document was not derived from the National validated accident statistics but was sourced from HA local partner datasets. As this data has not been validated by DfT it cannot be assumed to be a complete data set as it may be found to be incomplete or contain inaccuracies.

The requirement for up to date information for operational purposes was a consideration in the decision to use this data.

5 years and 5 months (to include 5 full calendar years and the latest data from this year) personal injury collision data from 01/01/2009 – 01/06/2014 was used for the analysis from west of the junction with New Road to beyond the speed limit terminal signing east of Middleton

The data contained 8 collisions, 1.47/year equating to 21 collisions per billion vehicle kilometres per year, which can be viewed as low especially when compared with the 'A Road' rate of 306 per billion vehicle kilometres per year sourced from the Department for Transport publication 'Road Casualties Great Britain 2012'.

COLLISION DESCRIPTIONS

Collision 1 – Occurred in dry, daylight conditions at 17:50 hrs on Monday 19/04/2010 when a car turning right onto the A47 from Hill Road pulled out into the path of two vehicles proceeding along the A47. The collision resulted in one slight casualty.

Collision 2 – Occurred in wet/damp, darkness (no street lighting) conditions at 18:30 hrs on Friday 08/11/2013 when a motorcycle lost control on the A47 while proceeding from northwest to southeast. The collision resulted in one slight casualty.

Collision 3 – Occurred in wet/damp, darkness (street lighting present) conditions at 17:10 hrs on Thursday 12/12/2013 when a car which was waiting to go ahead but was held up was struck from behind by another vehicle which was then struck by the vehicle following it. Following too closely behind was given as a contributory factor. The collision resulted in three slight casualties.

Collision 4 – Occurred in dry, daylight conditions at 13:00 hrs on Friday 05/07/2013 when the driver of a car exiting Middleton suffered from fatigue and, it is assumed lost control; no other vehicle was involved in the collision. The collision resulted in one slight casualty.

Collision 5 – Occurred in wet/damp, daylight conditions at 15:15 hrs on Monday 27/12/2010 when a car which was waiting to go ahead but was held up was struck from behind by another vehicle. Failed to judge other person's path or speed was given as a contributory factor. The collision resulted in one slight casualty.

Collision 6 – Occurred in snow, daylight conditions at 09:30 hrs on Thursday 24/01/2013 when a car which was waiting to go ahead but was held up was struck from behind by another vehicle which was then struck by the vehicle following it. Careless/reckless or in a hurry was given as a contributory factor. It may be supposed that the snow conditions may have had an affect also. The collision resulted in one slight casualty.

Collision 7 – Occurred in dry, daylight conditions at 20:50 hrs on Tuesday 29/06/2010 when a car turning right from the A47 into School Road was stuck by one vehicle travelling in the opposite direction and by one from behind. Failed to look properly and poor turn were given as contributory factors. The collision resulted in one slight casualty.

Collision 8 – Occurred in wet/damp, darkness (street lighting present) conditions at 05:35 hrs on Sunday 18/09/2011 when a car entering Middleton, within the 40mph limit, was exceeding the speed limit and, it is assumed, lost control; no other vehicle was involved. The collision resulted in one serious casualty.

It is to be noted that all of the collisions could be deemed to be as a result of driver error and that any engineering measures may not be effective or appropriate.

COLLISIONS BY WEATHER CONDITIONS

Weather Conditions	No. of Collisions and %	RCGB 2012%
Fine	4 – 50%	76
Rain	1 – 12.5%	18
Snow/Ice	1 – 12.5%	1
Fog	1 – 12.5%	1
Unknown	1 – 12.5%	4
Total	8 – 100%	100

These results do not indicate any excessive patterns

COLLISIONS BY ROAD SURFACE CONDITION

Road Surface Conditions	No. of Collisions and %	RCGB 2012%
Dry	3 – 37.5%	56
Wet/damp	4 – 50%	39
Snow/Ice	1 – 12.5%	5
Unknown	0	0
Total	8 – 100%	100

These results indicate higher than average patterns when the road surface was not dry however with the small number analysed any conclusions drawn could be unreliable.

COLLISIONS BY DAYLIGHT/DARKNESS

Light Conditions	No. of Collisions and %	RCGB 2012%
		%
Daylight	5-62.5%	73
Darkness	3-37.5%	27
Total	8 – 100%	100

These results indicate higher than average patterns during the hours of darkness however with the small number analysed any conclusions drawn could be unreliable. It is to be noted that two of the 'Darkness' collisions occurred in areas of street lighting.

COLLISIONS BY STATED CONTRIBUTORY FACTOR

Contributory Factor	No. of Collisions
Loss of control	1
Fatigue	1
Travelling too fast for conditions	1 - Speeding
Failed to judge other persons path or speed	2
Careless, reckless or in a hurry	1
Poor turn or manoeuvre	2

It can be noted that only one of the eight collisions made reference to speeding as a contributory factor.

COLLISIONS BY YEAR

Year	No. of collisions
2009	0
2010	3
2011	1
2012	0
2013	4
01/01/14 to 01/06/14	0

It is notable, but probably coincidental following analysis, that four of the eight collisions occurred in 2013. These were collision numbers 2, 3, 4 and 6 discussed previously in this report. This could be a factor in the public concern.

COLLISIONS BY DAY OF WEEK

Day of week	No. of collisions
Sunday	1
Monday	2
Tuesday	1
Wednesday	0
Thursday	2
Friday	2
Saturday	0

These results indicate a relatively even spread between days of the week.

COLLISIONS BY TIME OF DAY

Hour beginning	No. of collisions
00.00	
01.00	
02.00	
03.00	
04.00	
05.00	1 - Speeding
06.00	
07.00	
08.00	
09.00	1
10.00	
11.00	
12.00	
13.00	1
14.00	
15.00	1
16.00	
17.00	2
18.00	1
19.00	
20.00	1
21.00	
22.00	
23.00	

As previously noted only one of the eight collisions gave 'speeding' as a contributory factor.

COLLISIONS BY MONTH

Month	No. of collisions
January	1
February	
March	
April	1
May	
June	1
July	1
August	
September	1
October	
November	1
December	2

These results indicate that three of the collisions occurred during 'Winter' months however with the small number analysed any conclusions drawn could be unreliable.

COLLISIONS BY SEVERITY

Severity	No. Collisions %	of and	RCGB 2012%
Fatal	0		3
Serious	1 – 12.5%		18
Slight	7 – 87.5%		79
Total	100		100

Speed is often a factor in the severity of the injury and the one serious collision occurred in the one incident where exceeding the speed limit was given as a contributory factor.

4 Speed survey results

Radar speed surveys were carried out at two locations as shown on the drawing in Appendix A. It is to be noted that there are differences in daily flows in the same direction for example;

- Site 1 – Friday eastbound flow = 9357
- Site 2 – Friday eastbound flow = 6522

The reason for the difference can be explained by the fact that Radar units are always more accurate for the primary lane (the flows nearest to the counter). They can count two direction flows but if the unit is blocked from “seeing” the secondary lane it would be unable to record what passed. For this project, Site 1’s primary lane was Eastbound and Westbound was the secondary flow. Site 2’s Primary Lane was Westbound and Eastbound was the secondary flow. The volume of flow is considered significant enough, despite the aforementioned differences, to provide robust speed data.

The results are summarised below;

SITE 1 (60mph speed limit):

EASTBOUND

Day/Date	Friday 18/07/14	Saturday 19/07/14	Sunday 20/07/14	Monday 21/07/14	Tuesday 22/07/14
Volume 24hrs	9357	7916	5974	8812	8314
85%ile speed 24 hrs	60.3	62.5	65.1	61.4	61.9

Average 85%ile = 62.24mph

WESTBOUND

Day/Date	Friday 18/07/14	Saturday 19/07/14	Sunday 20/07/14	Monday 21/07/14	Tuesday 22/07/14
Volume 24hrs	7252	6269	6099	8122	7585
85%ile speed 24 hrs	59.2	61.8	63.3	59.8	59.8

Average 85%ile = 60.78mph

SITE 2 (40mph speed limit):

EASTBOUND

Day/Date	Friday 18/07/14	Saturday 19/07/14	Sunday 20/07/14	Monday 21/07/14	Tuesday 22/07/14
Volume 24hrs	6522	6958	5334	7712	7305
85%ile speed 24 hrs	43.6	44.3	45.1	44	44.1

Average 85%ile = 44.22mph

WESTBOUND

Day/Date	Friday 18/07/14	Saturday 19/07/14	Sunday 20/07/14	Monday 21/07/14	Tuesday 22/07/14
Volume 24hrs	7371	6453	6003	8206	7471
85%ile speed 24 hrs	44.6	45.4	45.9	45.1	45.3

Average 85%ile = 45.26mph

The speed survey results indicate that there is a general compliance with the speed limit through the 60mph section. In the village, however, the 40mph limit is being exceeded by approximately 10%. While this is of concern, especially to the residents, it has not manifested itself in the collision history discussed in Section 3.

5 Conclusion and recommendations

The Highways Agency commissioned Amey to undertake a speed limit study for the village of Middleton and the area west to the junction with Hill Road. The Parish Council made a request for the 40mph speed limit to be extended to the west of the village to include the junction with Hill Road and whether the existing limit could be reduced. The purpose of the study was to ascertain if either or both measures are justified under the current guidance (Department for Transport Circular 01/2013 – Setting Local Speed Limits).

In summary the site observations, collision analysis and results of the speed surveys are as follows:

- There was a consistent traffic flow which appeared to be adhering to the speed limits which, when driving through the area several times felt appropriate to the layout.
- The data contained 8 collisions, 1.47/year equating to 21 collisions per billion vehicle kilometres per year, which can be viewed as low especially when compared with the 'A Road' rate of 306 per billion vehicle kilometres per year sourced from RCGB 2012. It is to be noted that all of the collisions could be deemed to be as a result of driver error and that any engineering measures may not be effective or appropriate. Only one of the eight collisions made reference to speeding as a contributory factor.
- The speed survey results indicate that there is a general compliance with the speed limit through the 60mph section. In the village, however, the 40mph limit is being exceeded by approximately 10%. While this is of concern, especially to the residents, it has not manifested itself in the collision history discussed in Section 3.

The Conclusions and Recommendations of this study are as follows:

- **The 60mph section should remain as existing.** To quote from Circular 01/2013 'It is important when setting a speed limit to take into account what the road looks like to the road users'. This is applicable through this area.
- Again to quote from Circular 01/2013 'Fear of traffic can affect people's quality of life in villages and it is self-evident that villages should have comparable speed limits to similar roads in urban areas. It is therefore government policy that a 30mph speed limit should be the norm through villages'. It goes on to say, however, that 'where there is a lesser degree of development. or where engineering measures are not practicable or cost-effective to achieve a 30mph limit, but a reduction from the national 60mph speed limit is considered appropriate traffic authorities should consider alternative lower limits of 40 or 50mph'. The section through the village where development is adjacent to the A47 is approximately 250 metres.

To achieve a self-enforcing 30mph speed limit through the village would require, for example, the installation of measures such as vertical or horizontal deflection or safety cameras. It is not considered that, given the route is the A47 and the associated traffic using it, this would be appropriate or justifiable. The collision rate is low and contains only one incident where speeding was named as a contributory factor. **It is therefore considered that the existing 40mph speed limit should be retained.**

Norfolk Constabulary were consulted to canvass their opinions and the following was received from the Road Policing section

'Norfolk Constabulary and Norfolk County Council work under the conditions set out in a speed Management for Norfolk Document which allowed some flexibility from Circular Roads 01/93, and set out criteria for the introduction of Speed Limits on County Roads, Middleton would not

meet the criteria for a reduced speed limit on County Roads, due to the lack of frontage and shops etc.

Norfolk Constabulary would not support a reduction in speed on the main arterial route through the County, as this would require additional engineering work to gain the compliance levels necessary for a reduction in speed to be effective.

A reduction in speed would likely cause additional congestion which could create more collisions as the likely impact, would have vehicular stop/start effect on traffic movement, causing tail end shunts.

The number of injury collisions is small for the volume of traffic travelling through Middleton and as highlighted only one was attributed to speed.'

Appendix A Reference Plans

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