A4 Froxfield, Marlborough

Speed Limit Assessment

Wiltshire Council

Document Control Sheet

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Record of issue

Issue	Status	Author	Date	Check	Date	Authorised	Date
1	Issue	AGP	9/23	KB	9/23	KB	9/23

1.0 Introduction and background

This assessment has been undertaken at the request of the Pewsey Local Highway and Footway Improvement Group following concerns raised by Froxfield Parish Council with support from their local council member. They requested that a review is undertaken of the speed limit on the A4, from the County Boundary on the East side of the village, through the village centre, and ending at the commencement of the 50 mph limit (eastbound) on the Western side of the village. Officers have met with Parish representatives, and they have suggested the following changes:

1. Removal of the short length of 50 mph limit on the eastern side of the village.
2. Extension of the 40 mph limit on the eastern side, to the point of the village gateway (nameplates / white gates), located just beyond River View Cottages.

The A4 forms part of the A and B class road network and is classed as '3A – Main Distributor' in the hierarchy of road function. This means that the function of the road is as part of the strategic network, providing an inter-urban link.

The Department for Transport Circular 01/13 Setting Local Speed Limits sets out guidance as a basis for assessments of local speed limits, traffic authorities set local speed limits in situations where local needs and conditions suggest a speed limit which is lower than the national speed limit. Speed limits should be evidence-led and self-explaining and seek to reinforce people's assessment of what is a safe speed to travel. Speed limits should be seen by drivers as the maximum rather than a target speed.

Speed limits should not be used to attempt to solve the problem of isolated hazards, such as a single road junction or reduced forward visibility. The principal aim in determining appropriate speed limits should be to provide a consistent message between speed limits and what the road environments looks like, therefore, changes in speed limit need to be reflective of changes in the road layout and characteristics. This approach will provide consistency across the country for drivers.

The underlying aim should be to achieve a 'safe' distribution of speeds. The key factors that should be considered in any decisions on local speed limits are:

- History of collisions;
- Road geometry and engineering;
- Road function;
- Composition of road users;
- Existing traffic speeds; and
- Road environment.

While these factors need to be considered for all road types, they may be weighted differently in urban or rural areas. The impact on community and environmental outcomes should also be considered.

Circular 01/2013 Setting Local Speed Limits states that whilst traffic authorities should continue to routinely collect and assess both mean and 85th percentile speeds, mean averages should be used as the basis for determining local speed limits.

For clarity, the distinction between the mean and 85th percentile value is:

- Mean speeds are the average speeds that vehicles travel at
- 85th percentile speeds are the speeds at or below which 85% of vehicles are observed to

travel under free-flowing conditions. This is a nationally recognised method of assessing traffic speeds. (Setting local speed limits, 2013).

What is a village?

The criterion for a 30mph limit is detailed in the Department for Transport Traffic Advisory Leaflet 01/04; Village Speed Limits, and is based on the amount of frontage development, with a requirement for 20 or more houses over a minimum length of 600 metres This length may be reduced to 400 metres when the level of development density over this shorter length exceeds the 20 or more houses criterion and in exceptional circumstances a reduction to 300 metres is permissible. If there are just fewer than 20 houses, then the Highway Authority can make extra allowance for key buildings, such as a church, shop, or school. The measurement of frontage development is based only on those houses that front onto the main road. It does not include groups of houses that access the main road from a side road. Frontage development density has to achieve an average of three houses per 100 metres throughout the length but particularly at the entrances to the limit. This ensures appropriate reinforcement of a village environment to the motorist. Please refer to Figure 1 below for an example. (DfT Traffic Advisory Leaflet 01/04 Village Speed Limits, 2004)

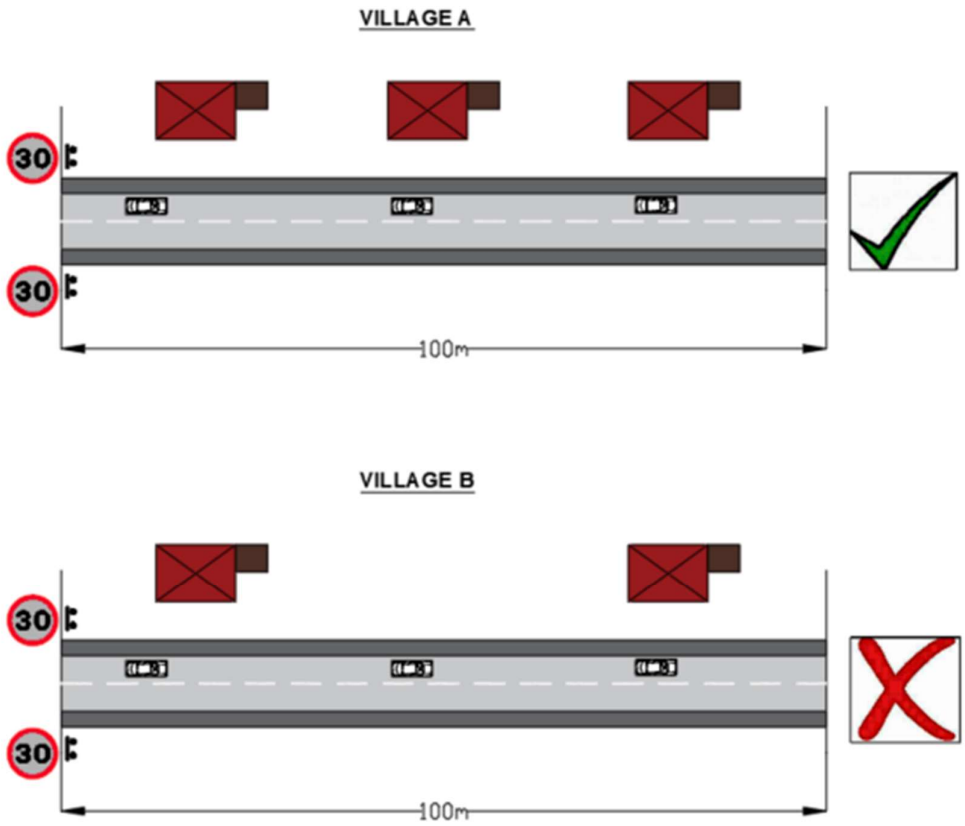

Figure 1 example of measure of density

Method of Analysis

The speed limit assessment process requires the calculation of time over distance to establish an average speed for each section of road being reviewed rather than the use of point speed data at a single location as would be collected by a traffic count survey. Generally, a total of seven journeys in each direction are made for each section of road under review and an average speed calculated from this analysis. The method of journey time analysis is considered a more robust analysis of vehicle speeds over the full length of each section to determine average speeds throughout the route rather than to rely on the use of point speeds which only offer a reading for vehicle speed at a single point of the route. This method ensures data is recorded for free-flowing traffic conditions.

Collision Data

The measurement of collisions is undertaken by establishing the number of recorded collisions that have taken place that have resulted in personal injury. Damage only and unrecorded incidents are not a material consideration. Collision data covering a 6-year period is used for assessment purposes, which is sourced from the Police Stats19 database

The use of personal injury collisions is universal across the United Kingdom not only in the assessment of speed limits but also in identifying schemes to improve highway safety. This accords with the principles set out in the Road Safety Code of Good Practice. (A Road Safety Good Practice Guide for Highway Authorities, 2006)

Legal Traffic Regulation Order Process

There must be a legal basis for any speed limit change, it must meet the required criteria otherwise the restriction can be challenged in court. As a moving vehicle offence, the enforcement authority for speed limits is the Police, therefore agreement and support must be sought from them before any changes are implemented.

The implementation of any new or change to an existing speed limit requires the legal procedure to introduce a Traffic Regulation Order (TRO) to be followed. This process requires formal advertisement and consultation providing members of the public with an opportunity to comment on the proposal. The associated costs with conducting this legal process are in the region of £3,000 (current cost as at October 2022) and it can take between twelve to eighteen months to complete.

2.0 Data Collection

2.1 Site observations

For the purpose of the speed limit review, the assessed route has been divided into three sections. The characteristics of the route varies along its length, therefore reviewing these sections separately allows each section to be assessed based on the most appropriate criteria for the nature and setting of that part of the route.

Section 1

This section starts to the west of Froxfield at the A4 60/50mph speed limit terminal point and continues eastwards towards Froxfield as far as the 50/40mph speed limit terminal point. The latter also includes a village gateway. There are narrow grass verges with hedges forming a boundary to pasture fields. The carriageway is up to 10m wide and has a double white line system. The A4 was a trunk road before the M4 was built. It was the main road between Bristol and London so was constructed to a high standard to take a large volume of traffic. The speed limit on this section is 50mph.

Section 2

This section extends from the 50/40mph speed limit change at the western end of Froxfield through the village to the 40/50mph speed limit change to the eastern side of Froxfield. There are central ladder markings through this section to narrow the width of the carriageway to encourage traffic to slow through the village. There are houses on both sides of the road with footpaths on both sides for part of the length. There are junctions to give access to the rest of the housing where there is a 30mph speed limit. The speed limit on this section of the road is 40mph.

Section 3

This section starts at the 40/50mph speed limit signs eastwards to the 50/60mph speed limit terminal at the east side of Froxfield. The 50/60mph speed limit terminal is just to the west of the junction to Little Bedwyn. The County boundary with West Berkshire is close to the eastern limit of this Section. There are central ladder markings or right turn lanes to narrow the width of the carriageway to encourage traffic to travel slower. There are some dwellings along this section and a popular public house, The Pelican. There is a village gateway sign, including a centre island east of The Pelican. There is a footway on one side, at times on both sides. There are pasture fields in places bounded by hedges. The speed limit is 50mph.

2.2 Journey time data

Journey time data has been collected. The method employed is to follow other vehicles, in free flowing traffic conditions, as they travel the route matching their speed. This gives an insight into how drivers using the route behave in terms of driven speeds.

Each section was driven 8 times in both directions, following a variety of vehicles/drivers, and the journey time for that section recorded in seconds. It should be noted that the length of each section varies.

Journey Run Number	Section 1 60/50mph speed limit change west of Froxfield to 50/40mph speed limit change	Section 2 50/40mph speed limit change west of Froxfield to 40/50mph speed limit change east of Froxfield	Section 3 40/50mph speed limit change east of Froxfield to the 50/60mph speed limit change
1	18.79	51.19	16.58
2	18.54	48.78	13.63
3	18.65	45.96	14.81
4	20.89	47.73	14.18
5	19.04	55.56	14.24
6	19.79	48.35	16.30
7	18.44	47.14	14.50
8	18.22	46.83	15.37
Average Times:	**18.88**	**48.34**	**14.90**

Table 1: Journey Time Data

Note: The fastest & slowest results from each section timing will be disregarded when calculating the average time for that particular section to produce more reliable results by disregarding outliers. The times are in seconds.

2.3 Traffic speeds and volumes

The journey time data shown in section 2.2 is used to calculate mean (average) speeds of vehicles on the route. Table 2 shows the mean speeds for each section and the accompanying calculation data.

Vehicle volumes are recorded using a radar device mounted to street furniture. This device captures the number and classification of vehicles as they pass. The speed data collected by this device is not used for the speed limit assessment process as it gives point speeds only.

The device was located to the west of the Pelican Inn for a 7-day period in July 2023. This recorded an annual average daily traffic (AADT) volume of 6,860 vehicles. This accounts for both directions of travel.

Road Sections	Description	Average Journey Time (Seconds)	Section Length (Metres)	Speed (Metres per Second)	Mean Speed (Miles per Hour)
Section 1	60/50mph speed limit terminal west of Froxfield to 50/40mph speed limit terminal	18.88	493	26.1	58.4
Section 2	50/40mph speed limit terminal to 40/50mph speed limit terminal through Froxfield	48.34	894	18.5	41.1
Section 3	40/50mph speed limit terminal to 50/60mph speed limit terminal east of Froxfield	14.90	317	21.3	47.6

Table 2: Mean Vehicle Speeds

2.4 Collision data

An interrogation of the Police collision database indicates there have been 3 reported personal injury collisions in the 72 months preceding this report, all were in Section 2.

The first collision involved an eastbound car driver losing control on a bend approaching Froxfield and leaving the carriageway on the offside. The collision resulted in slight injury.

The second collision happened when a tractor towing a trailer turned right into a field access. A van leaving Froxfield collided with the trailer, partly due to the diver being dazzled by the sun. This resulted in slight injuries.

The third collision happened following a medical episode. The driver mounted the verge and hit a traffic sign and tree resulting in slight injuries. Although this collision was as the result of a medical episode, it has been included in the data.

2.5 Local concerns

Pewsey Local Highway and Footway Improvement Group has forwarded concerns raised by Froxfield Parish Council with support from their local council member. They consider that a review should be undertaken of the speed limit on the A4, from the County Boundary on the East side of the village, through the village centre, and ending at the commencement of the 50 mph limit (eastbound) on the Western side of the village. Officers have met with Parish representatives, and they have suggested the following changes:

1. Removal of the short length of 50 mph limit on the eastern side of the village.
2. Extension of the 40 mph limit on the eastern side, to the point of the village gateway (nameplates / white gates), located just beyond River View Cottages.

3.0 Analysis

It is set out in Circular 01/13 that 'Drivers are likely to expect and respect lower limits and be influenced when deciding on what is an appropriate speed, where they can see there are potential hazards, for example outside schools, in residential areas or villages and in shopping streets.'. The DfT therefore state that a principal aim for determining appropriate speed limits should be to provide a consistent message between the speed limit and what the road looks like and for changes in speed limit to be reflective of changes in the road layout and character.

The following are important factors when considering what is an appropriate speed limit.

- history of collisions, including frequency, severity, types and causes
- road geometry and engineering (width, sightlines, bends, junctions, accesses and safety barriers and so on)
- road function (strategic, through traffic, local access et cetera)
- composition of road users (including existing and potential levels of vulnerable road users);
- existing traffic speeds
- road environment, including level of road-side development and possible impacts on residents

(e.g. severance, noise, or air quality)

It is recognised within the circular that different road users perceive risks and appropriate speeds differently, with drivers often not having the same perception of the hazards of speeds as people on foot, cycles or horseback. The needs of vulnerable road users must be taken into account.

The guidance does however also state '*Speed limits should not be used to attempt to solve the problem of isolated hazards, for example a single road junction or reduced forward visibility such as at a bend, since speed limits are difficult to enforce over such a short length. Other measures, such as warning signs including vehicle activated signs, carriageway markings, junction improvements, superelevation of bends and new or improved street lighting, are likely to be more effective in addressing such hazards. Similarly, crossings or, in rural areas, the provision of adequate footways can be a more effective means of improving pedestrian safety than lowering a speed limit over a short distance.'*

The guidance also advises that if a speed limit is set unrealistically low for a particular road function and condition, it may be ineffective and drivers may not comply with the speed limit. If many drivers continue to travel at unacceptable speeds, the risk of collisions and injuries would increase.

It may well be that a speed limit need not be changed if the collision rate can be improved or wider quality of life objectives can be achieved through other speed management measures, or other measures. These alternative measures should always be considered before proceeding with a new speed limit.

It is considered that each section of the assessed route on the A4 through Froxfield would be classed as part of the rural road network when considering the criteria set out in the circular.

The following table sets outs the speed limits for single carriageway roads in rural locations as would be applicable to the A4.

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Speed limit (mph)	Where limit should apply:
60	Recommended for most high quality strategic A and B roads with few bends, junctions or accesses.
50	Should be considered for lower quality A and B roads that may have a relatively high number of bends, junctions or accesses. Can also be considered where mean speeds are below 50 mph, so lower limit does not interfere with traffic flow.
40	Should be considered where there are many bends, junctions or accesses, substantial development, a strong environmental or landscape reason, or where there are considerable numbers of vulnerable road users.

Table 3: Rural Speed Limit Criteria - Circular 01/13

In relation to the criteria above, the three sections meet the descriptors for a 50mph speed limit both in terms of characteristics and mean speeds. In addition there is development and more bends in Section 2 which therefore warrants a speed limit of 40mph. The existing mean speed is close to 40mph.

The collision history shows relatively low levels of collisions, with none in sections 1 and 3 and just three slight injury collisions in section 2 over a six-year period.

The eastern 50mph length, section 3, is fairly short at 317 metres. It is not good practice to have changes in speed limit over short lengths of road. The section includes The Pelican Inn and its car park as well as some housing. There is also a side road junction to Oak Hill just to the east of Section 3. Extending the existing 40mph speed limit eastwards as far as the village gateway in Section 3 could be justified. The village gateway would include the revised 40/60 speed limit terminal.

It is therefore recommended that Section 1 remains at 50mph speed limit, Section 2 remains at 40mph and the majority of Section 3 is lowered from 50mph to 40mph. The remaining short part of Section 3 to the east of the village gateway sign would revert to national speed limit

4.0 Recommendation and Costs

The costed recommendation set out in this report is the extension of the existing 40mph up to Froxfield Village Gateway and also the extension of the existing 60mph speed limit up to the Village Gateway. The likely associated costs for implementation are set out below.

Description	**Cost**
Traffic Regulation Order (TRO)	£2,500
Temporary Traffic Management	£1,500
Signing	£3,000
Associated electrical costs	Not applicable
Road Markings	£2,000

Table 4: Cost estimate

5.0 References

GOV.UK. 2013. *Setting local speed limits*. [online] Available at: <https://www.gov.uk/government/publications/setting-local-speed-limits/setting-local-speed-limits> [Accessed 3 August 2022].

Webarchive.nationalarchives.gov.uk. 2004. *DfT Traffic Advisory Leaflet 01/04 Village Speed Limits*. [online] Available at: <https://webarchive.nationalarchives.gov.uk/ukgwa/20120606202850/http://assets.dft.gov.uk/publications/tal-1-04/tal-1-04.pdf> [Accessed 3 August 2022].

Assets.publishing.service.gov.uk. 2013. *DfT The Speed Limit Appraisal Tool: User Guide*. [online] Available at: <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/50262/user-guidance.pdf> [Accessed 3 August 2022].

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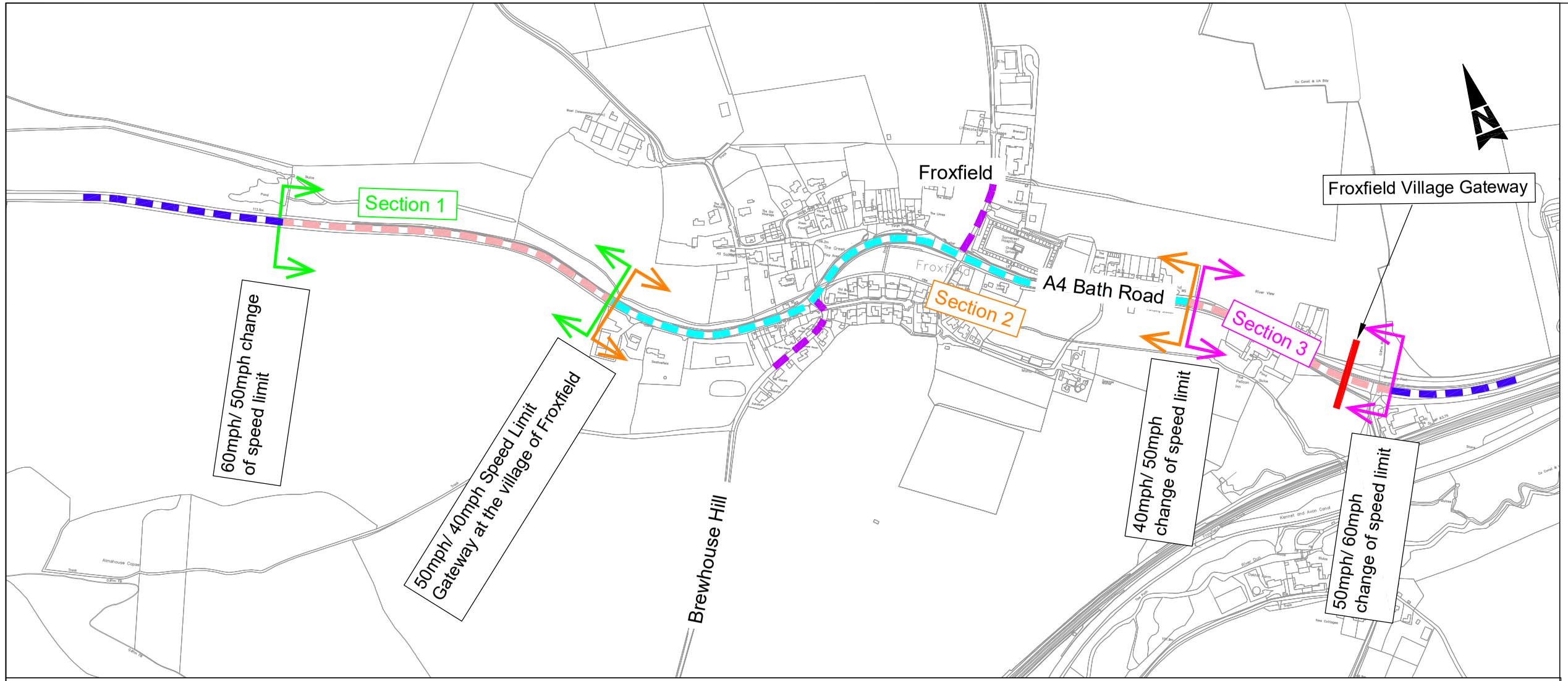
6.0 Appendix A – Speed limit assessment plan



Notes

1. Limits of work are approximate and are to be agreed on site with the Engineer.

- Existing 60mph Speed Limit
- Existing 50mph Speed Limit
- Existing 40mph Speed Limit
- Existing 30mph Speed Limit
- Section 1
- Section 2
- Section 3

A4 Bath Road, Froxfield

Road Sections (Section ID)	Description	Section Length (Metres - Taken from AutoCAD OS Tile)	Existing Speed Limit (Miles per Hour)	AADT (Average Annual Daily Traffic - Taken from Traffic Counts)	Collisions		Collision Rate (per 100 million vkm)	Mean Speed (Miles per Hour)	Assessed Speed Limit (Miles per Hour)	Recommended Speed Limit (Miles per Hour)	Comments
					All	KSI (Killed or Seriously Injured) (Fatal or Severe)					
Section 1 - 3900A4 3 / 00088	60mph/ 50mph change of speed limit to the western side of the village to 50mph/ 40mph speed limit gateway at the village of Froxfield	493	50	6860	0	0	0	58.4	60	50	The existing speed seems to be working satisfactory so it is recommended that the speed limit remains at 50mph.
Section 2 - 3900A4 3 / 00092	50mph/ 40mph speed limit gateway at the village of Froxfield to 40mph/ 50mph change of speed limit	894	40	6860	3	0	22.340	41.4	60	40	The existing speed limit seems to be working satisfactory so it is recommended that the speed limit remains at 40mph. Existing 40mph to be extended eastward up to Froxfield Village Gateway.
Section 3 - 3900A4 3 / 00099	40mph/ 50mph change of speed limit through village of Froxfield to 50mph / 60mph change of speed limit at the eastern side of the village	317	50	6860	0	0	0	48	60	40	A reduction in speed limit to 40mph is recommended on this section. Based on DfT Circular 01/2013 Setting Local Speed Limits a 40mph speed limit is considered appropriate for this section. Existing 60mph to be extended westward up to Froxfield Village Gateway.

Postal Area: SN8 3LA
USRN: 83800024
OS Grid Ref: 428727 168002 to 430534 167934
Philips Street Atlas: P176 C6 to E6
Road Speed Limit: Various

SAFETY, HEALTH AND ENVIRONMENTAL INFORMATION

IN ADDITION TO THE HAZARDS/RISKS NORMALLY ASSOCIATED WITH THE TYPES OF WORK DETAILED ON THIS DRAWING, NOTE THE FOLLOWING SIGNIFICANT RESIDUAL RISKS

CONSTRUCTION
(ENTER "NONE" IF APPLICABLE)
MAINTENANCE/CLEANING
(ENTER "NONE" IF APPLICABLE)
USE
(ENTER "NONE" IF APPLICABLE)
DECOMMISSIONING/DEMOLITION
(ENTER "NONE" IF APPLICABLE)

Stat	Purpose of Issue	Date	Auth	Rev	Description	By	Date	Chk'd	Auth
S2	For Information	06/09/23	KNB	1.0	First Issue	FC	14/08/23	AP	KNB

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Client: Wiltshire Council

Project: Speed Limit Reviews 2023-2024

Title: A4 Bath Road, Froxfield

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