C118, C111 and C132 Foxham, Chippenham

Speed Limit Assessment

Wiltshire Council

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1.0 Introduction and background

This assessment has been undertaken at the request of the Wiltshire Council following concerns raised by Bremhill Parish Council.

The Parish Council, with support from their local Council member, has asked Calne Local Highway and Footway Improvement Group (LHFIG) to instruct Wiltshire Council to undertake a review of the speed limit through the village of Foxham. The Parish believe that the village should be covered, or part covered, by a 30mph speed limit. The current posted speed limit is 40mph.

The roads under consideration are C Class roads – C118, C111 and C132. The majority of traffic will be local traffic accessing properties in the area. The roads are not part of the strategic network providing inter-urban links.

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)

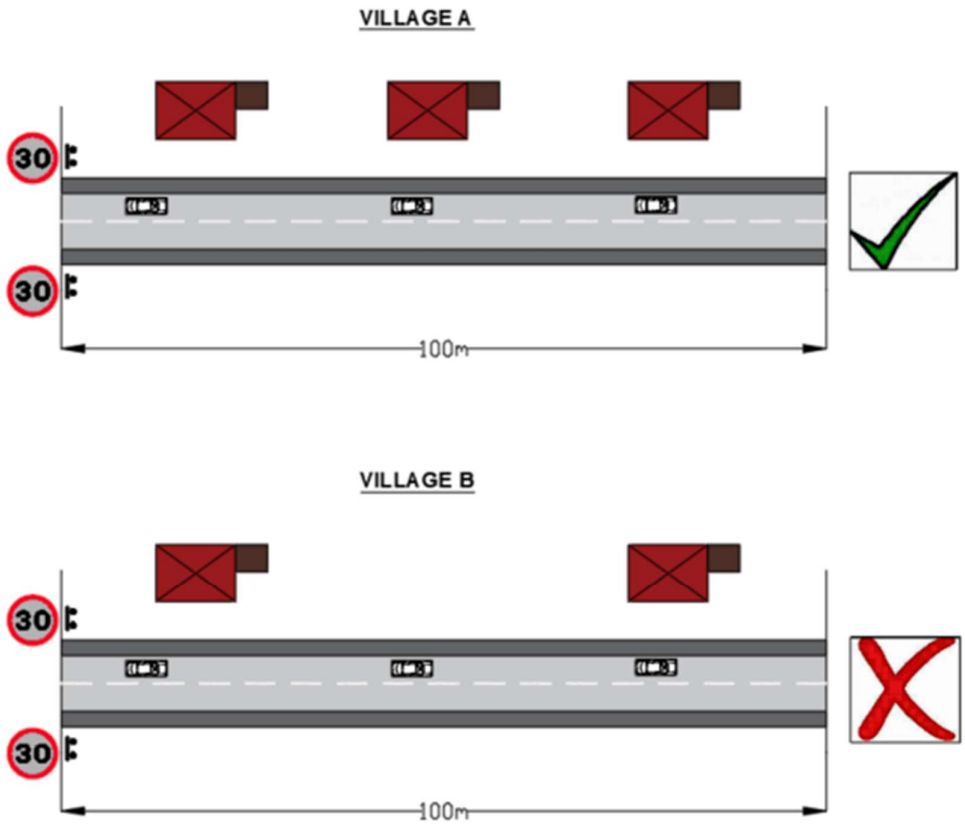

Figure 1 example of measure of density

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 four 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. The nodes have been taken as the speed limit terminals at extremity of the village and the two principal road junctions within the length under consideration

Section 1

This section starts at the 60/40mph terminal sign south-eastwards towards West End and terminates at the Charlcutt / Foxham junction. There are a number of dwellings along its length. Almost all have off road parking. There is also a road surfacing business and farms. Some sections have verges and some have no verges. There are no footways. There are pasture fields between some of the dwellings bordered by hedges. The existing speed limit is 40mph.

Section 2

This section commences at the T-junction, Charlcutt / Christian Malford / Foxham and ends at the junction with the road to Thornend near The Foxham Inn. The carriageway is rather narrow, there are flat grass verges, some of them very wide. There are dwellings along the section but mostly they are spaced out along the length. Between the houses there are pasture fields. The highway boundary is mostly hedges. The existing speed limit is 40mph.

Section 3

This section extends from the junction with the road to Thornend eastwards to the 40/60mph speed limit terminal. Properties on this section include the parish church of St. John the Baptist, the village hall and post office, an antiques furniture shop, dwellings and a farm. The houses are sometimes separated by pasture fields. The carriageway is rather narrow and there are frequently wide grass verges. The existing speed limit is 40mph.

Section 4

This final section commences at the junction with sections 2 and 3 near The Foxham Inn and continues northwards to the 40/60mph speed limit terminal signs. It is a straight section of road with grass verges, some of them very wide. There are some dwellings but also pasture fields. The existing speed limit is 40mph.

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

Journey Run Number	Section 1 60/40mph terminal to T-junction at West End	Section 2 T-junction at West End to The Foxham Inn junction	Section 3 The Foxham Inn Junction to 40/60mph terminal east	Section 4 The Foxham Inn junction north to the 40/60mph terminal
1	54.64	36.70	39.52	20.66
2	52.01	44.02	44.35	21.94
3	55.94	37.80	41.17	21.19
4	57.92	38.93	38.84	20.54
5	56.04	39.62	43.75	22.98
6	106.53	33.89	40.19	20.21
7	51.22	35.33	43.15	20.66
8	46.79	36.35	42.75	19.98
Average Times:	**53.97**	**37.46**	**41.75**	**20.87**

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.

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.

There were two sites used for the radar device. One device was located near West End Stables at Foxham West for a 7 day period in August 2023 recoding an annual daily traffic volume (AADT) of 778 vehicles. The other location was near Gate Farm at West End, Foxham during the same time period recording an AADT of 684 vehicles. This accounts for both directions of travel. These traffic flows are used in the table on the drawing in Appendix A at the end of this report.

Road Sections	Description	Average Journey Time (secs)	Section Length (Metres)	Speed (Metres per Second)	Mean Speed (Miles per Hour)
Section 1	60/40 terminal to T-junction at West End	54.0	690	12.8	28.6
Section 2	T-junction at West End to The Foxham Inn junction	37.4	548	14.6	32.7
Section 3	The Foxham Inn junction eastwards to 40/60mph terminal	41.8	712	17.1	38.1
Section 4	The Foxham Inn junction northwards to 40/60mph terminal	20.9	357	17.1	38.3

Table 2: Mean Vehicle Speeds

2.4 Collision data

An interrogation of the Police collision database indicates there have been no reported personal injury collisions in the 72 months preceding this report in any of the Sections under consideration.

2.5 Local concerns

The Parish Council, with support from their local Council member, has asked Calne LHFIG to instruct Wiltshire Council to undertake a review of the speed limit through the village of Foxham. The Parish believe that the village should be covered, or part covered, by a 30mph speed limit. The current posted speed limit is 40mph.

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 C118, C111 and C132 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 these C roads at Foxham.

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 four sections under consideration meet the descriptors for a 40mph speed limit, both in terms of characteristics and recorded mean speeds. The lack of recorded injury collisions indicate that the speed limits are working satisfactorily. However, Circular 01/13 also has a section on villages (section 7.3), where a 30mph speed limit is recommended. The density of properties and accesses on Section 1 and most of Section 2 suggests than a 30mph would be acceptable.

Sections 3 and 4 have fewer properties and accesses than Sections 1 (and most of Section 2) and there have been no recorded injury collisions in the recent six years. The criteria for a 30mph speed limit on these rural roads, as set out in TAL 1/04 (see pg. 5 of this report), is therefore not met. It is recommended that the existing 40mph speed is acceptable.

These conclusions are shown on the table on the drawing at the end of this report, In Appendix A

The section terminal points on a speed limit review are selected for a number of reasons. They do not have to become the actual speed limit terminals. The team have considered the 30/40mph terminal point in Sections 2. The properties and accesses referred to in Section 2 that led to the recommended 30mph speed limit end with property “Gate Farm”. It is therefore recommended that this becomes the 30mph terminal point (see plan in Appendix A). The northern terminal point for the 30mph speed limit will be the same location as the current 40/60 terminal.

4.0 Recommendation and Costs

The costed recommendation set out in this report is the introduction of a 30mph speed limit in Sections 1 & 2. The likely associated costs for implementation are set out below.

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

Table 4: Cost estimate

5.0 References

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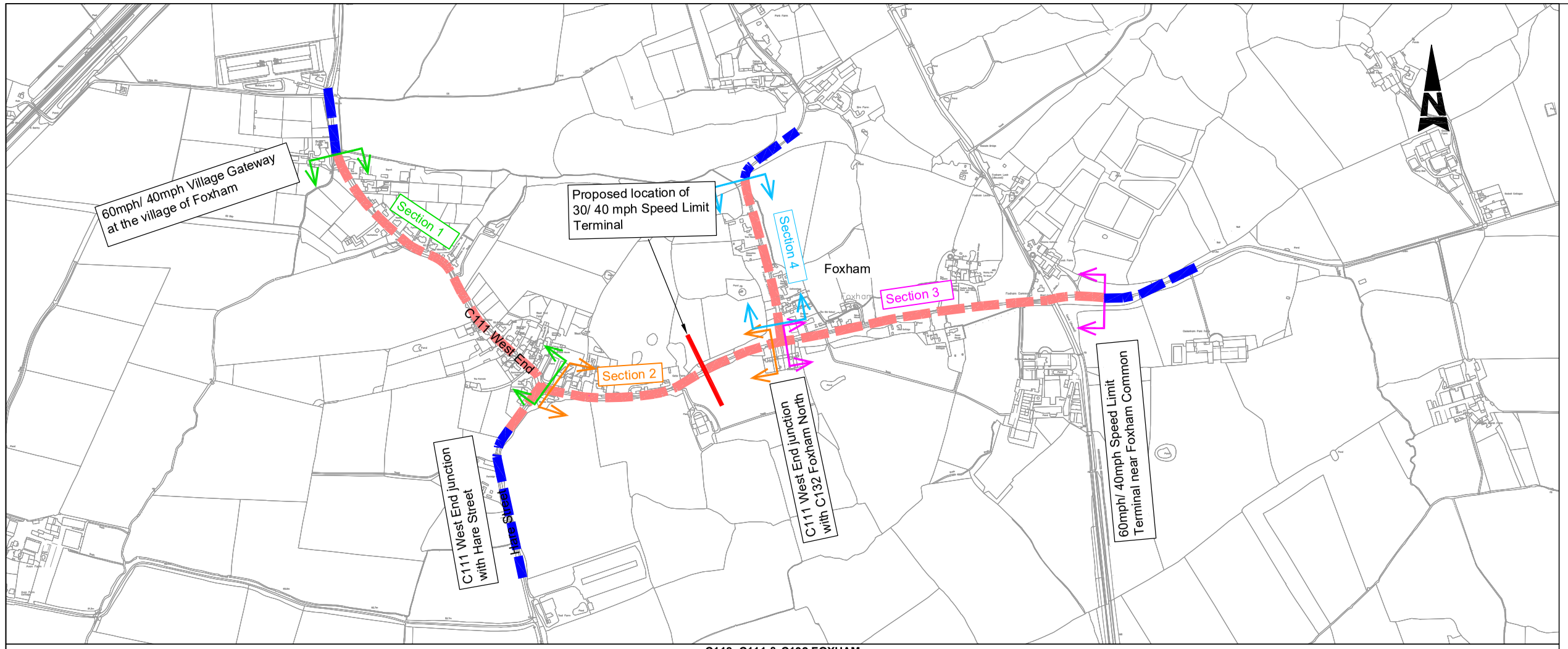
6.0 Appendix A – Speed limit assessment plan



Notes

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

Existing 40mph Speed Limit

Existing 60mph Speed Limit

Section 1

Section 2

Section 3

Section 4

C118, C111 & C132 FOXHAM

Road Sections	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: All	Collisions: KSI (Killed or Seriously Injured) (Fatal or Severe)	Collision Rate (per 100 million vkm)	Mean Speed (Miles per Hour)	Assessed Speed Limit (Miles per Hour)	Recommended Speed Limit (Miles per Hour)	Comments
Section 1 - 3900C118_1/ 00049	60mph / 40mph Village Gateway at Foxham to 40mph / 60mph change of speed limit on C111 West End at the junction with Hare Street	690m	40	778	0	0	0	28.6	60	30	This section meets the requirement of a village in accordance with TAL1–04 and DfT Circular 01–13 131–140. It is therefore recommended that speed limit to reduce to 30mph.
Section 2 – 3900C111_1 / 0004	40mph / 60mph change of speed limit on C111 West End at the junction with Hare Street to junction with C132 Foxham North	548m	40	684	0	0	0	32.7	60	30	This section meets the requirement of a village in accordance with TAL1–04 and DfT Circular 01–13 131–140. It is therefore recommended that speed limit to reduce to 30mph.
Section 3 – 3900C111_1 / 00010	C111 West End junction with C132 Foxham North to 60mph / 40mph Speed Limit Terminal near Foxham Common	712m	40	684	0	0	0	38.1	60	40	The existing speed seems to be working satisfactory so it is recommended that the speed limit remains at 40mph.
Section 4 – 3900C132_1/00001	West End Junction with Foxham north to the 40/50mph speed terminal sign	357m	40	684	0	0	0	38.3	60	40	The existing speed seems to be working satisfactory so it is recommended that the speed limit remains at 40mph.

Postal Area: SN15 4NE to SN15 4NJ
USRN: 44200810 , 44200804 , 44200832
OS Grid Ref: 396628 177696 to 398229 177289
Philips Street Atlas: P72 B7 to E7
Road Speed Limit: 40mph

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)

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Project: Speed Limit Reviews 2023 - 2024

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