C55 Kilmington, Warminster

Speed Limit Assessment

Wiltshire Council

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1.0 Introduction and background

This assessment has been undertaken at the request of the South West Wiltshire Local Highway and Footway Improvement Group (SWW LHFIG) following concerns raised by Kilmington Parish Council.

The Council has requested a speed limit assessment on the C55 (New Road and Stourton Lane). Concerns have been raised regarding the speed at which vehicles, particularly HGVs, travel along the C55 subject to a 40mph speed limit.

The C55 is a 'C' class road that runs through the Parish of Kilmington and the neighbouring parish of Stourton with Gasper and provides a local route through the aforementioned parishes.

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, self-explanatory 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)

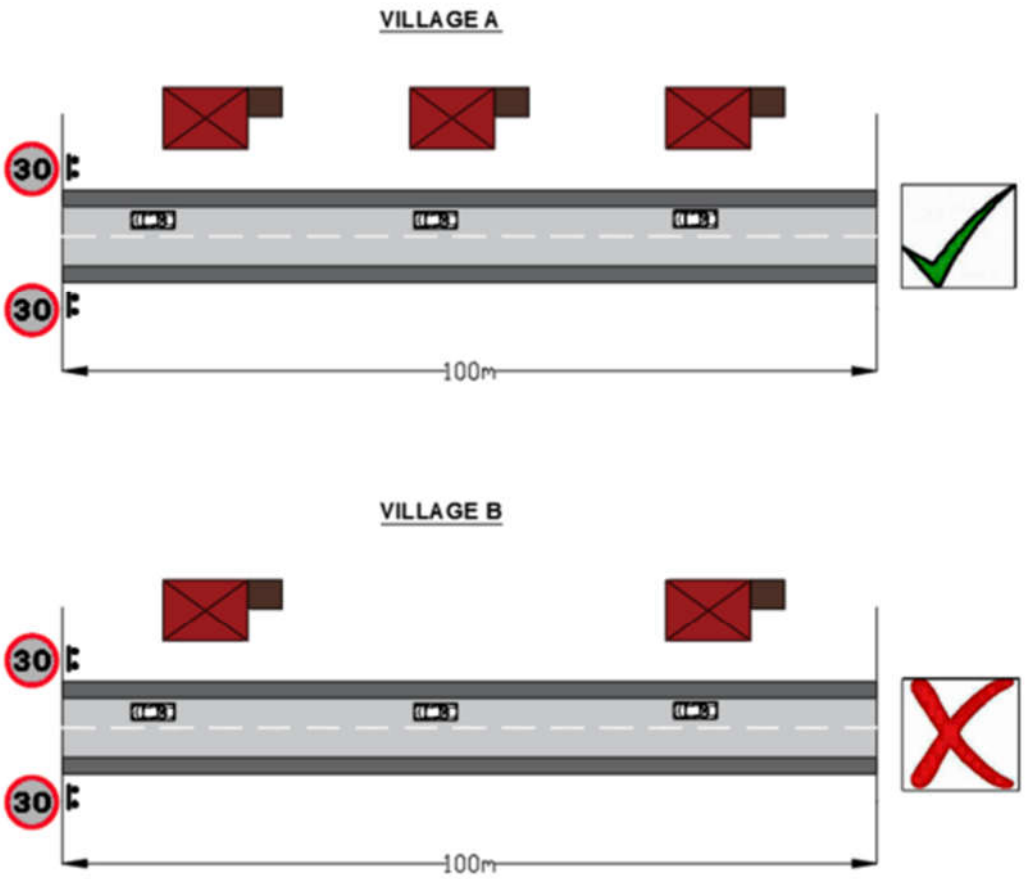

Figure 1 example of measure of density

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 covers the C55 from the junction between Druley Hill and New Road to the Butts Lane junction. The route passes through mostly open countryside with hedges and verges on either side of the road. The alignment is fairly straight and level and there are few properties. There is currently a national (60mph) speed limit in place.

Section 2

This section covers the length of New Road from Butts Lane to Cote Lane crossroads and then southwards on Stourton Lane to Home Farm. Travelling southwards the start continues with hedges and verges but after a while the number of properties increases. There is a footway on the east side of the road for most of its length. Most properties are also on the east side of the road. The footway disappears at the southern end and is replaced by grass verges. There is a currently a 40mph speed limit in place.

Section 3

This section covers Stourton Lane from Home Farm to the 40/60mph speed limit sign in the south. There is currently a 40mph speed limit in place.

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 Druley Hill to Butts Lane junction	Section 2 Butts Lane to Home Farm	Section 3 Home Farm to the 40/60 speed limit terminal
1	01:11	00:54	00:58
2	01:11	00:56	00:57
3	01:02	00:49	00:55
4	01:03	00:52	00:56
5	01:02	00:51	00:56
6	00:57	00:52	00:58
7	01:05	00:49	00:54
Average Times:	**01:04**	**00:51**	**00:56**

Table 1: Journey Time Data

Note: The fastest & slowest results from each section timing are 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.

The device was located north of the junction with Cote Lane in Section 2 for a 7-day period in June 2022. This recorded an annual average daily traffic (AADT) volume of 1,077 vehicles. This accounts for both directions of travel.

A second device was located south of the junction with Cote Lane for Section 2 & 3, for a 7-day period in February 2023. This recorded an annual average daily traffic (AADT) volume of 1,011 vehicles. This accounts for both directions of travel.

Road Sections	Description	Average Journey Time	Section Length (Metres)	Speed (Metres per Second)	Mean Speed (Miles per Hour)
Section 1	Druley Hill to Butts Lane crossroads	01:04	1442	22.3	49.9
Section 2	Butts Lane crossroads to Home Farm	00:51	1097	21.3	46.3
Section 3	Home Farm to 40/60 speed limit terminal	00:56	780	13.8	30.9

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.

At the start of Section 1, a collision occurred at the junction between Druley Hill and New Road when one car failed to give way and collided with another car. This resulted in two slight casualties.

Within Section 2, two collisions took place. One was at the junction with Butts Lane where a car driver failed to give way and two cars collided. This resulted in one slight casualty. The second took place at the Cotes Lane crossroads where an 83-year-old driver failed to stop causing two cars to collide, leading to four slight casualties.

Speeding was not listed as a potential contributory factor in the Police collision record in the aforementioned collisions. There were no reported personal injuries recorded in Section 3.

2.5 Local concerns

The C55 is currently subject to two different speed limits. On the approaches to Kilmington (and Kilmington Common) the C55 is subject to the national speed limit of 60mph. A 40mph speed limit exists through the more built-up area of Kilmington (and Kilmington Common).

Local residents, Kilmington Parish Council and the local Wiltshire Council member have longstanding safety concerns about the speed at which vehicles, particularly HGVs, are travelling along the length of the road subject to a 40mph speed limit.

Kilmington Parish Council have requested that a speed limit review is undertaken to determine whether the 40mph speed limit can be reduced to a 30mph speed limit.

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 C55 New Road and Stourton Lane 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 C55.

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, Section 1, although not a high quality road, it is a C class road which meets the descriptors for a 60mph speed limit – "few bends, junctions or accesses". The only recorded personal injury collision in the latest 72 months took place at the extremity of the section at the junction. There appears no reason to reduce the existing speed limit of 60mph. The mean speed measured was 49.9mph.

Section 2 meets the descriptors for a 40mph speed limit, both in terms of characteristics and recorded mean speeds, in the table above. However, Circular 01/13 also has a section on villages (paragraph 7.3) where a 30mph speed limit is recommended. The density of properties and accesses on Section 2 suggests that 30mph would be acceptable. The measured speed of traffic is rather higher, but the movement of pedestrians and vehicles at the accesses suggest a limit of 30mph would be a benefit.

Section 3 has fewer properties and accesses than Section 2 and there have been no recorded injury collisions in the recent six years. The criteria for a 30mph speed limit on this rural road, as set out in TAL 1/04 (see p5 of this report), is therefore not met. It is recommended that the existing 40mph speed limit is acceptable.

It should be noted that there is a narrow length of carriageway within Section 3 where vehicles sometimes have to give way to each other. This reduces the overall mean speed of vehicles in this section.

The speed limit recommendation plan is shown 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 30/40 mph terminal point between Sections 2 and 3. The properties and accesses referred to in Section 2 above that led to the recommended 30mph speed limit end with the row of 4 dwellings on Stourton Lane immediately to the south of Tower Road and 190 metres north of Home 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 Section 2. The likely associated costs for implementation are set out below.

Description	**Cost**
Traffic Regulation Order (TRO)	£3,000
Temporary Traffic Management	£2,000
Signing	£3,000
Associated electrical costs	Not applicable
Road Markings	£4,000
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

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