

# Stockton Junction

## Study Report

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## Executive Summary

This report describes the findings of a study by 4way Consulting Ltd, commissioned by Stockton Parish Council into concerns for safety at the junction of the A426 with Napton Road and Stockton Road, near Stockton Village. The junction is part of the Warwickshire County Council road network.

The Parish residents feel very strongly that users of this junction are being put at risk, that there have been many collisions that do not feature in the official accident statistics and consequently took the unusual action of commissioning a detailed study to demonstrate to the Highway Authority (WCC) the issues at this site.

The concerns of residents are exacerbated by the anticipated increased demand coming from housing developments in the immediate vicinity, which will undoubtedly result in an increase in traffic conflicts.

WCC has supplied 5 year Collision records and the local traffic regulation orders (TROs). The Collision data and local observations have allowed an assessment of the hazards. The TROs need review as there appears to be some omissions or discrepancies that could render current speed limits unenforceable.

Photographs are included to help illustrate a number of issues at the junction, mostly related to visibility and signage. However, the speed limit strategy itself is drawn into question along with suggestions for an improvement that would better cater for the increasing traffic demand.

The end of the report details a breakdown of improvements, starting with essential maintenance, ending with a description of a suggested scheme and in between are a number of suggestions for less costly improvements that the Parish Council and residents would like the Highway Authority to consider for implementation and to avoid duplication, the reader is directed to the last section that deals with this.

The Highway Authority is advised to consider this report very carefully in respect of its statutory duties. Some of the issues raised could be used in litigation against the Highway Authority following a future collision, particularly in the unfortunate event of a fatality.

# 1 Introduction

4way Consulting has been approached by Stockton Parish Council over residents' concerns regarding the safety of the A426 Rugby junction with Napton Road leading to Stockton village and Stockton Road from Long Itchington, located in the county of Warwickshire, 3 miles northeast of Southam and 14 miles southeast of Coventry.

The perception of the residents is that there are an excessive number of collisions at the junction and that investigation is warranted in the hope that remedial measures will be identified. Whilst it is not uncommon for residents to complain about perceived risks, in this particular case the level of concern is sufficiently elevated to commission this study. Residents have started to make their own record of collisions at the junction.

The Google Street view photo library provides some views for 2009 showing the speed limits were all national speed limit (60mph) at that time. The only signs at the junction were two give way signs on yellow backing boards. The current 40mph and 50mph speed limits have been implemented from some point after 2009, possibly 2012, however it is difficult to establish a precise chronology from the traffic orders which is confusing.

Historically this junction has been relatively lightly trafficked, mainly by locals, however the new dwellings being constructed in both Long Itchington and Stockton will increase that traffic and unfamiliar drivers will be starting to use the junction as new residents move in and draw visitors.

The following are paragraphs extracted from TA 85/01 GUIDANCE ON MINOR IMPROVEMENTS TO EXISTING ROADS:

## Local Issues

Para 2.51 Local issues may provide the initial identification of the need for an improvement, arising from such sources as:

- parish council representations;
- local action/pressure groups;
- the effect of planning consents for adjacent land.

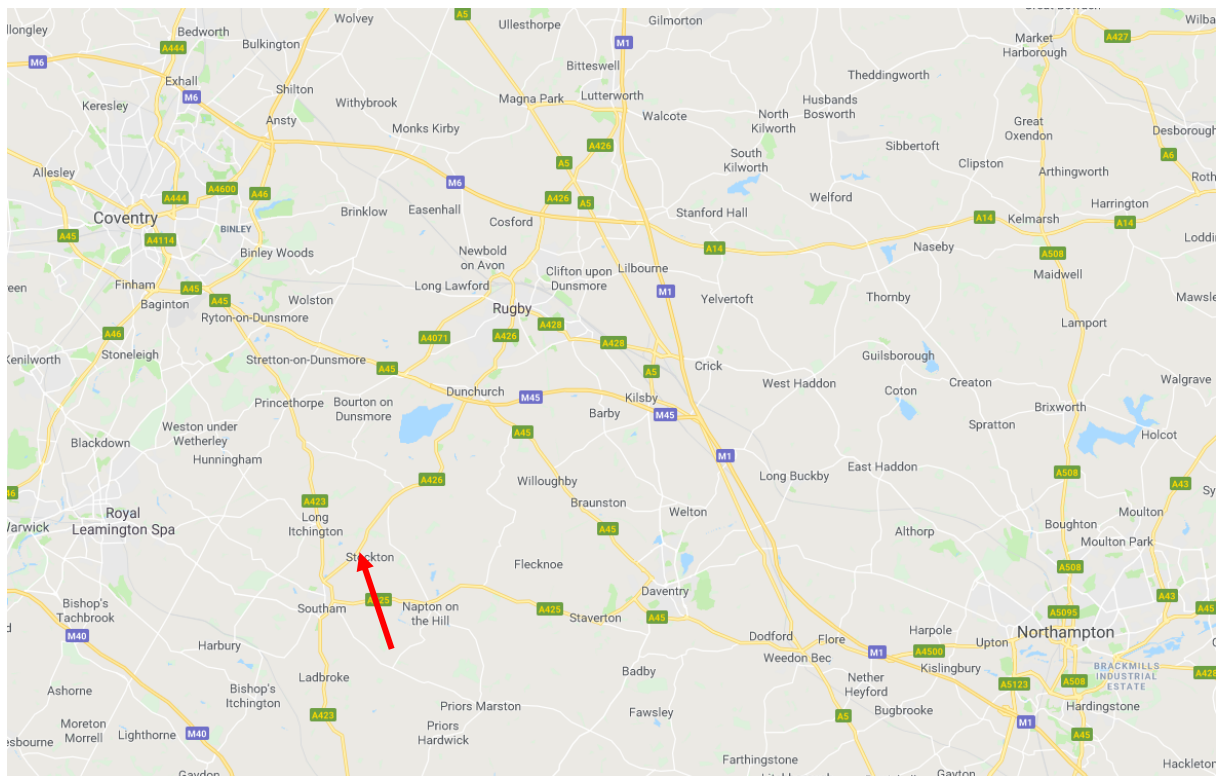
Para 2.52 A physical indication of the potential for a serious accident to occur may be observed and Designers should look for warning features such as:

- skid marks;
- damage to road surfacing or street furniture.

All the above points are relevant here. There has been a considerable amount of planning consent granted for new housing both sides of the A426 and it appears that the opportunity to fund junction improvements via developer contributions has been overlooked.

The commissioning of this report by Stockton Parish Council and the information contained within is intended to assist the Highway Authority, Warwickshire County Council, in its statutory duties and provide a staged response to make most efficient use of available funds.

## 1.1 Location Plan



**Figure 1 – Location relative to adjacent towns**



Figure 2 – Plan of junction

## 2 Collision Analysis

### 2.1 Five year Collision data

Warwickshire County Council has provided STATS19 collision data for the most recent 5 year reporting period; 1 January 2013 to 18 March 2018. In that time there were 4 'Slight Injury' collisions. All collisions occurred in different years. The reported accident rate is 0.8 a year.

If the comparisons were based on traffic volumes rather than time period, then the junction would stand out more prominently in the statistics as well as the experiences of the local residents.

The speed of traffic on the main A426 is high, with a 50mph limit. Collisions between traffic at such high speeds and crossing vehicles are most likely to result in front to side impacts, with serious injuries and fatalities, requiring Police attendance. The Collision data illustrates that in the last 5 years, this worst type of collision has been avoided, possibly due to drivers swerving to avoid impact with vehicles, losing control and colliding with street furniture instead. This 'lucky' trend could be broken at any time as each one of the reported collisions could have been serious or fatal.

All four collisions could be attributed to the junction appearance and sight lines for drivers.

No	Location	Severity	Date	Day	Time	Street Lighting	Road Surface	Weather	Pedestrian Direction	Factors	Involved
1	Road No A426 Grid 443420E Section Ref 264210N	SLIGHT	11/01/2013	6	07:59	L	Frost/Ice	Other		S.VEH	
	A426, Stockton									Stratford-upon-Avon	
	V1 trav NE on A426 lost control and collided with a telegraph pole before entering ditch						Veh1, car, SW -> NE			Casualties 1 Vehicles 1	
2	Road No A426 Grid 443382E Section Ref 264159N	SLIGHT	04/01/2014	7	12:05	L	Wet/Damp	Rain			
	A426 Rugby Rd, at its Junction with C33 Napton Rd, Stockton									Stratford-upon-Avon	
	V1 trav NW failed to give way at x rds and pulled out to go straight ahead. V2 trav NE on main road swerved to n/s to avoid V1 and collided with road sign						Veh1, car, SE -> NW Veh2, car, SW -> NE			Casualties 1 Vehicles 2	
3	Road No A426 Grid 443376E Section Ref 264157N	SLIGHT	29/02/2016	2	07:30	L	Dry	Fine			
	STOCKTON A426 AT JN WITH NAPTON ROAD									Stratford-upon-Avon	
	V002 WAS TRAVELLING ALONG THE A426 TOWARDS DUNCHURCH WHEN V001 PULLED OUT OF THE JUNCTION WITH NAPTON ROAD & STOCKTON ROAD HITTING V002 ON THE DRIVERS SIDE SPINNING V002 ACROSS THE ROAD.						Veh1, car, SE -> NW Veh2, car, SW -> NE			Casualties 1 Vehicles 2	
4	Road No A426 Grid 443377E Section Ref 264154N	SLIGHT	05/02/2018	2	16:26	L	Dry	Fine			
	STOCKTON ROAD A426 AT JN WITH NAPTON ROAD									Stratford-upon-Avon	
	V1 HAS PULLED OUT OF JUNCTION INTO THE PATH OF V2 WHO ON IMPACT HAS COLLIDED WITH V3						Veh1, car, NW -> SE Veh2, car, NE -> SW Veh3, car, SW -> NE			Casualties 2 Vehicles 3	

Figure 3 – Summary of 5 year collision data

Considering the circumstances of each collision in turn:

1. It seems most likely that the driver swerved to avoid a vehicle emerging from Stockton Road, in which case the report summary does not provide the full picture.
2. Caused by driver emerging from Napton Road to go across to Stockton Road. If the vehicles had collided with each other, the severity could have been worsened. It is possible that the driver on Napton Road emerged whilst forming a second lane at the wide junction bellmouth, because a left turning vehicle would obstruct the view between the two drivers that collided.
3. Possibly similar cause to collision 2, above.
4. Caused by vehicle emerging from Stockton Road into path of southbound vehicle and the resulting collision also involved a northbound vehicle. That double collision could have been much more severe with very slightly different circumstances.

## 2.2 Anecdotal non-reported collision evidence

It is the position of the Parish Council that more accidents are occurring at this junction than are being reported in the STATS19 data. Assuming that there is no under-reporting of accidents that result in injury, then it would seem that damage-only accidents, which tend not to result in Police attendance, are occurring with sufficient frequency to alarm residents. This is supported by the prevalence of vehicle debris on site; a bumper, coloured light plastics, a rear-view mirror. See Figure 4, Figure 5, Figure 6 and Figure 7.

Near miss reporting is essential in Health and Safety Management to establish trends and foresee hazards and mitigate the risks. There is a correlation between near misses, slight accidents, serious accidents and fatal accidents. **Relying on the reported injury accidents does not give the full measure of risk at this junction.** Any of the accidents reported could have been much more serious, in which case there would be an urgency to instigate remedial works.

This study seeks to illustrate where problems currently lie, to facilitate an improvement before the inevitable serious or fatal collisions occur; just as would be the procedure with Health and Safety at work.

The site was visited on Friday 18<sup>th</sup> May 2018 and again on Wednesday 10<sup>th</sup> October 2018. Some verge maintenance had been performed between the two visits.





**Figure 4 - bumper section on verge**



**Figure 5 - broken light lens debris**



**Figure 6 - car bumper debris**



**Figure 7 - more car bumper debris**

## 2.3 Speculative cause of non-reported damage-only collisions

Collisions at the crossroads could be divided into two groups:

1. High Speed collisions between main road through-traffic and vehicles emerging from the side roads
2. Low Speed collisions between vehicles turning or emerging from the side roads

Expanding further:

1. High Speed:
  - i. Whilst a high-speed collision would normally feature in the STATS19 Collision statistics by virtue of the resulting injuries, it is still possible for high speed vehicles to collide with other vehicles in a glancing blow, causing damage but not enough to cause injury. Such damage might result in a front panel being torn off a vehicle overlapping a give way line, or other protrusions such as mirrors.
  - ii. Or as in the case of some accidents recorded at this site, drivers may avoid the collision with another vehicle by leaving the carriageway and colliding with the driving environment; not necessarily by intention.
2. Low Speed:
  - i Two simultaneous movements from opposing non-priority arms can be confusing for drivers, with neither having right of way over the other, so it is not difficult to imagine that drivers on the side roads, concentrating on finding a gap in the main road traffic, occasionally emerge simultaneously from the side roads to collide in the centre.
  - ii Similarly, vehicles turning right off the main road can be in conflict with drivers from the side roads who emerge as they approach. These emerging drivers can also collide with obscured undertaking traffic bypassing the waiting vehicle.



## 3 Accident Causation Factors

### 3.1 Main road traffic speed

As recently as 2009, the A426 was subject to the national speed limit, (single carriageway - 60mph for cars, HGVs 40mph) and continues to bear all the hallmarks of the higher restriction due to the road appearance and environment. The speed of traffic is high, by inspection the 85<sup>th</sup> percentile speed is close to the 50mph limit, but unless there is a vehicle turning off the main road into the minor roads, drivers do not slow down for the junction.

On the day of the site survey, a considerable number of HGVs passed through the junction at around 50mph whilst vehicles were waiting to emerge from the side roads. This high speed appears excessive for HGVs considering the circumstances. Prior to the scheme to introduce the lower 50mph speed limit, HGVs were restricted to 40mph. So, the scheme to reduce speeds has actually had the undesirable effect of increasing the speed limit for the largest and potentially most dangerous vehicles. When standing at the junction waiting to cross, a HGV passing through at 50mph is quite alarming.

### 3.2 Seeking gaps in main road traffic

There is evidence of scoring of the road surface and tyre marks at the junction that suggests drivers are performing abrupt right turn manoeuvres from both Stockton Road and Napton Road. This was apparent during the site survey with several vehicles observed wheel-spinning.

Whilst to some extent this simply could be impatient drivers, the extent of it seemed more prevalent and is probably connected to the difficulty in finding safe gaps. Drivers emerging abruptly are taking risks whereby they may have failed to notice an oncoming vehicle which then has less time to react. Judging the speed and distance of oncoming traffic in opposing directions simultaneously is an onerous task in itself and yet at a crossroads, drivers also have to observe the constantly changing actions of drivers on the opposing give way approach.



Figure 8 - wheelspin marks Stockton Road approach



Figure 9 - multiple spin marks



Figure 10 - skid mark on A426; evidence of a near miss or a damage only collision

### 3.3 Junction Visibility splays

The visibility from Stockton Road along the main A426 is compromised. This is also true but to a lesser extent for Napton Road.

The Design Manual for Roads and Bridges (DMRB), standard TD 42/95, Geometric Design of Major/Minor Priority Junctions defines an X distance. The X distance is the distance back from the give way line (in this instance), along the centreline of the minor road from which visibility along the main road is measured.

Another defining factor is the Design Speed. This is described in standard TD 9/93 Highway Link Design.

The visibility requirement is based on the design speed of the major road, which in this case is still 60mph (100km/hr) as the reduction of speed limit to 50mph did not change the road environment factors that determine design speed. Most drivers would obey

the 50mph limit. However, without additional physical constraints some drivers will continue to drive closer to the design speed and it is important to consider the risk to drivers emerging from the side roads.

The visibility distance, 'Y', is 215m for a 100 km/h design speed and no relaxations are permitted approaching a junction. (The Y value for a 50mph (80km/hr) design speed would be 160m). At an X distance of 9 metres, the visibility distance along the A426 should be 215m.

Para. 7.10 of TD 42/95 states: "These visibility standards apply to new junctions and to improvements to existing junctions". The reduction of the speed limit to 50mph, whenever that was undertaken, involved placing four new speed limit signs around the junction, could be considered a scheme to improve an existing junction, in which case it might also be argued that the visibility standards should be fully applied.

The overgrown verges noted at the time of the first site visit compromise the visibility splays, but even with the verge foliage maintained, sight lines remain a problem.

It is not difficult to imagine that drivers on the side roads, faced with poor visibility of approaching traffic, are concentrating so much on finding a safe gap in the main road traffic that occasionally they emerge simultaneously from the side roads and collide. Two simultaneous right turns from opposing arms can be confusing for drivers with neither having right of way over the other and there is no way to manage this without installing traffic signals.

### 3.3.1 *Visibility from Stockton Road (Western approach)*

In both directions, visibility, to a distance of 160m (only sufficient for a 50mph design speed), appears achievable by extensive cutting back of the vegetation and repositioning of the direction signs to the right, but it is unlikely that the required 210m could be achieved because the end point is around the bend to the south.

To the north, the alignment is straight for well over 210m, but slightly undulating creating partially hidden dips which require drivers emerging from Napton Road in particular and Stockton Road to look carefully and for longer in order to recognise a vehicle shape.

Another consequence of the particularly bad visibility from Stockton Road is that some drivers may be stopping just over the give way line in order to observe to the right, thereby placing the front of their vehicle in the main road traffic stream at risk of collision with passing vehicles.

There were several bumper sections littered around which could have been knocked off by this sort of collision. This might not result in injury, in which case such a collision might not be reported, but demonstrates the potential for a much more serious side impact if the drivers pull out a little too far. This could also explain any rolling-back collisions as drivers realise they have stopped too far forward and roll backwards.



Additionally, having to stop so close to the give way line could result in the windscreen pillar of some vehicles masking approaching vehicles at a critical point and could be contributing to collisions in this way too.

The following figures show the driver's eye view at the specified 'X' distances.



**Figure 11- visibility to the left at 9m back from channel line**



**Figure 12 - visibility to the right at 9m back from channel line**

Figure 11 and Figure 12 show the visibility distance is not achieved at the 9m 'X' distance. The standard then relaxes the 'X' distance of 9m to 4.5 in 'difficult circumstances' for lightly trafficked junctions but does not define what constitutes light traffic. Certainly, recent housing development on both sides of the junction will have increased traffic and not all units are occupied yet, so traffic levels will undoubtedly increase further, thereby strengthening the case for an improvement in current visibility. Traffic flows could certainly be considered more than 'light' for the short peak periods.



**Figure 13 – visibility to the left at 4.5m back from channel line**



**Figure 14 – visibility to the right at 4.5m back from channel line**

In any case Figure 13 and Figure 14 show the visibility distance is also not achieved at the 'relaxed' 4.5m 'X' distance.

An X distance of 2.4m, is the final relaxation for 'exceptionally difficult circumstances'. This is only partially achieved as shown in Figure 15 and Figure 16 and even with the verges maintained, 160m visibility to the right is unlikely to be achieved. Recall that the required visibility point 210m to the right, for the design speed is around the bend to the south.





Figure 15 - looking left from Stockton Road at 2.4m x distance



Figure 16 – looking right from Stockton Road at 2.4m x distance

### 3.3.2 *Visibility from Napton Road (Western Approach)*

The following figures show the driver's eye view at the specified distances.





Figure 17 - visibility to the left at x=9m



Figure 18 - visibility to the right at x=9m



Figure 19 - visibility to the left at x=4.5m



Figure 20 - visibility to the right at x=4.5m

At an X distance of 4.5m the visibility to the right is still substandard and exacerbated by advertising boards for new houses. Such multi-coloured boards in the driver's eye line can make approaching motorcyclists very difficult to notice. Visibility to the left is acceptable at 4.5, 'X' distance.



Even at an X distance of 2.4m the required visibility distance of 210m to the right is still compromised by the undulating vertical alignment.



Figure 21 - visibility to the right from Napton Road at x distance of 2.4m



Figure 22 - visibility to the left from Napton Road at x distance of 4.5m



### 3.3.3 Signs in line of driver's sight



Figure 23 - new housing development sign blocks view from HGV cab



Figure 24 - new homes sign partially obstruct view at critical point

## 3.4 Junction Appearance

Approaching from Long Itchington on Stockton Road, the lie of the land and the channelling effect of the trees and bushes masks the junction with the A426 and makes the road appear to just continue uninterrupted into Stockton village. The white centre lines practically line up to emphasise this illusion. This appearance can confuse



unfamiliar drivers and result in them not realising there is a junction and driving straight across, as has been observed by a local resident and a braking skid mark observed on site suggests a driver noticed the junction at the last moment despite the advanced warning signs of a 'Give Way' ahead. This is exacerbated by the single nearside Give Way sign having deteriorated and being partly obscured by foliage and the painted Give Way triangle marking being partially eroded.



**Figure 25 - looking at junction from Stockton Road start of approach**



**Figure 26 - looking at junction from Stockton Road final approach**

### **3.5 Gradient**

The approach from Long Itchington is steeply inclined for the last few metres and drivers rev their engines to overcome the gradient to avoid stalling. Some vehicles were observed spinning their wheels when turning right and the photographic evidence shows several wheelspin tracks from vehicles emerging on the gradient. The difficulty with the gradient is supported by observation of collision detritus (broken light lens glass) suggesting shunts and vehicles rolling backwards into a vehicle behind.



Figure 27 – Stockton Road approach from Long Itchington rises abruptly to meet the A426



Figure 28 - evidence of aggressive right turning

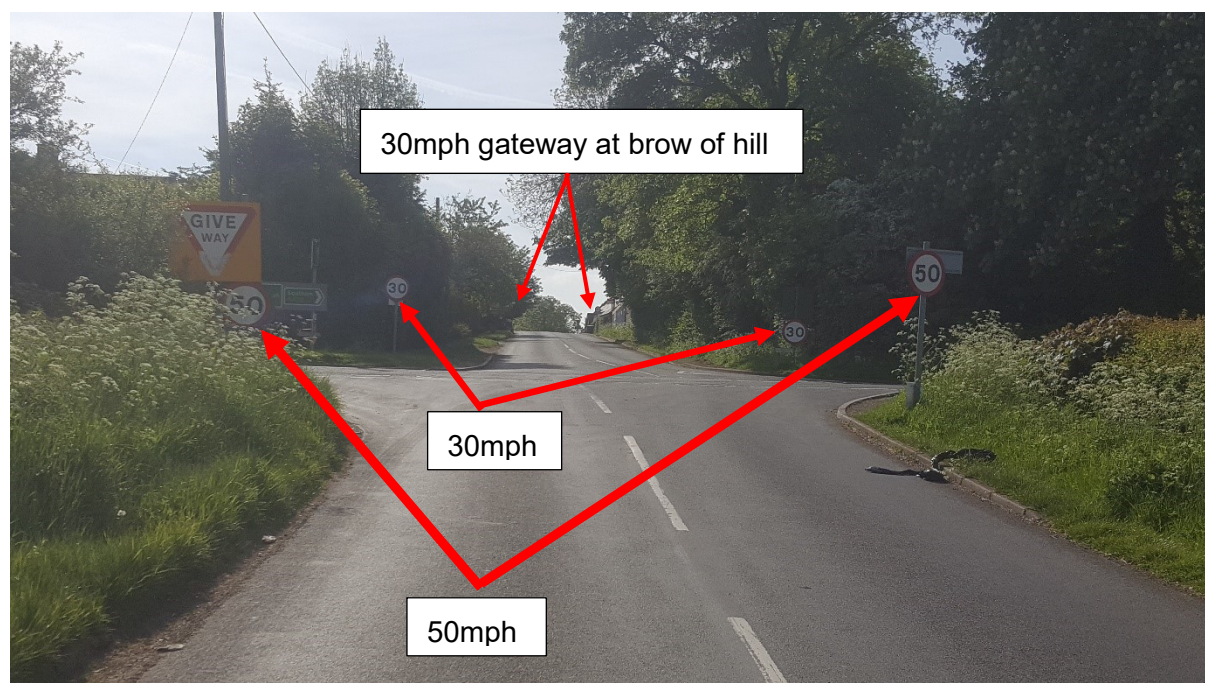


## 4 Speed Limits

### 4.1 Signing

The speed limit signing at the junction is confusing to drivers. The difficulty is that three different speed limits come together; 30mph for the Napton Road to Stockton, 40mph for Stockton Road from Long Itchington and 50mph on the A426. Originally, prior to the speed limit reduction scheme, the A426 and Stockton Road were subject to the National Speed Limit, (60mph for light vehicles and 40mph for heavy) and it would appear that Stockton village had its 30mph speed limit gateway some 100m away from the junction at the brow of the hill on the outskirts of the village where the gateway signs are still present.

**Note that the permissible speed for HGVs has effectively been increased from 40mph to 50mph as a result of the speed limit reduction scheme!**



**Figure 29 – view from Stockton Road, confusing speed limit signing detracts from give way sign**

The signing strategy employed at the junction is actually the recommended arrangement for a signal-controlled crossroads junction of a main road with a minor road, with different speed limits and not recommended for a priority-controlled crossroads.

As a result, the implied change from 40mph to 50mph to 30mph in about 8 metres when travelling from Long Itchington to Stockton, (and 30mph to 50mph to 40mph in the reverse direction) is confusing.

The 30mph gateway to Stockton Village on the brow of the hill, duplicates the 30mph gateway at the junction bellmouth creating a degree of ambiguity as to where the enforceable 30mph limit actually starts.

It also creates a degree of information overload with the plethora of signs which thereby distract from the most important one - the Give Way sign, which should not be co-located with a speed limit sign as shown in Figure 29 and Figure 30.



**Figure 30 – view from Napton Road, confusing speed limit signing detracts from give way sign**

The Traffic Signs Manual, Chapter 3, states under the subheading SIGN MOUNTING, para 14.60: “Research has shown that the greater the number of signs that drivers are presented with simultaneously, the greater the difficulty they are likely to have in assimilating all the information. The problem of dealing with information overload increases with age, so that older drivers suffer disproportionately. **Terminal speed limit signs should not therefore normally be co-located with other signs**”.





**Figure 31 - speed limit sign should not be co-located with give way sign**

The currently placed 50mph signs at the end of Stockton Road combined with the appearance of the junction, in a worst-case scenario could completely detract from the presence of the junction and cause unfamiliar drivers to increase speed towards Stockton instead of stopping at the give way line. That would result in high speed side impact collisions.

There can only be one gateway to a speed limit with signs on both nearside and offside, and that has to be clearly described by traffic order or the presence of a street lighting system.

The recommended signing strategy in this case, with reference to Traffic Signs Manual, Chapter 3, should follow figure 14-5 of that document, so that the four confusing 50mph terminal signs could be removed on both sides and replaced with 50mph repeater signs within 100m of the junction. (TSRGD Direction 9 (5)), as shown in Figure 32 below, (which is Figure 14-5 in the original document), albeit with different speed limit values.

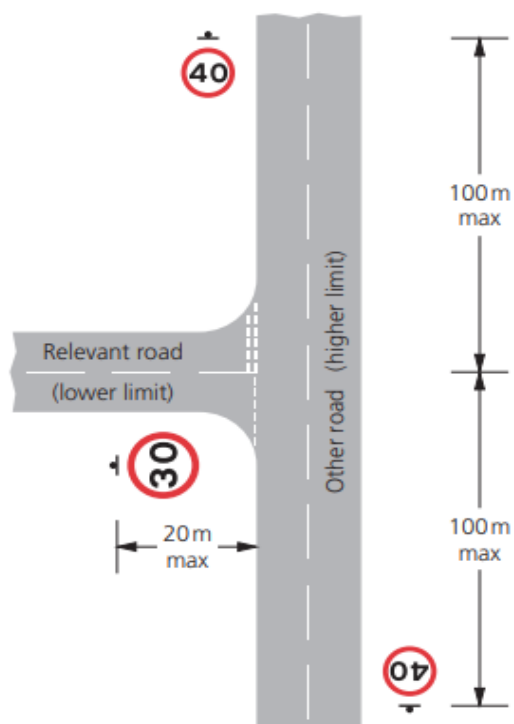


Figure 14-5 Terminal signs at a road junction where the side road (relevant road) has a lower speed limit than the major road

Figure 32 – drawing layout extracted from Traffic Signs Manual chapter 3

Paragraph 14.18 of Traffic Signs Manual chapter 3 states: The placing of terminal signs at junctions as specified in directions 9 and 10 (see paras 14.10 to 14.17) applies generally to simple priority junctions, including crossroads.

The logic behind such a signing strategy is that it is safer if drivers don't notice the repeater signs and believe they are still subject to a lower limit, rather than seeing signs that confuse them.

The 30mph speed limit for Stockton village does not need to start at the A426 junction bellmouth as vehicles at that point will likely be travelling below 15mph, having just turned or stopped to give way before heading uphill towards the 30mph gateway. This would allow the current gateway signs at the top of the hill to be prominent and a more effective arrangement overall. However, any relocation of the speed limit threshold should consider the effect in the westbound direction towards the junction.

Whatever arrangement prevails, the traffic orders should be reviewed to ensure they are worded appropriately.

The 40mph sign at the start of Stockton Road must be relocated to the nearside post to be fully visible and enforceable.



Figure 33 - 40mph sign on wrong side of Stockton Road and partly hidden

## 4.2 Traffic Regulation Orders (TROs)

At the request of Stockton Parish Council, WCC has provided three TROs for the area. This did not include a TRO for the 50mph limit on the A426. Without a TRO, such a speed limit would not be enforceable.

The TROs that were supplied are included in Appendix A of this report. There needs to be a careful review of the descriptions for the start and end of the restrictions as some of the locations could not be interpreted using maps. Any errors in such documents could render the speed limit unenforceable in law.

## 5 Crossroads Warning Signs

### 5.1 Vehicle Actuated Warning Sign (VAS)

South of the junction, on the A426, there is a speed triggered vehicle actuated sign warning of the crossroads ahead with a 'Slow Down' message, placed at 101.6m from the junction. It has not been working for many years according to the Parish Council.

The Westcotec sign, (serial number TWJ1870), was installed by WCC. It is solar and wind powered, however the location of the installation is shaded from wind by the adjacent mature trees and the solar panel is too small to generate sufficient power from the available sunlight. This would explain the power failure. It is likely that the battery is now unusable.

A replacement sign is likely to be required and should be mains powered. The amount of power consumed is almost negligible. A full inspection by Westcotec would determine if anything is reusable.

The cost for a new sign is £2,750 + vat in addition to power supply and installation and associated traffic management. Compared to a solar and wind powered sign, conventional mains power saves £1,155 + vat per sign and does not require such a tall post. But this has to be offset against the cost of an electricity supply.

### 5.2 Fixed Signs

On the opposite side to the VAS sign, in the offside verge, there is a fixed sign warning of a crossroads ahead.

Signing requirements state that:

1. VAS signs should be used only to supplement fixed signing.
2. Warning signs should normally be placed on the left-hand side of the road (Traffic Signs Manual, Chapter 4, para 1.21).

A fixed warning sign only on the offside, which could be masked by on-coming vehicles, does not meet the requirement. Warning signs should normally be placed on the nearside (or both sides as a pair). Currently there is no warning on the nearside and even if the VAS were repaired and reliable, only vehicles travelling at or above the trigger speed would receive the warning if the offside fixed sign is masked by oncoming large vehicles.

There is a short distance between the warning signs for the upstream bend to the left and the crossroads warning signs. This is presumably the reason for the fixed sign being placed on the opposite side; there just isn't sufficient distance for longitudinal



spacing of cross-roads warning signs without sign clutter or placing one too close to the junction itself.

In order to improve the advance warning, a fixed crossroads warning sign could be added to the lattice post that supports the VAS. This would ensure that all motorists receive the warning.



Figure 34 - VAS in shade and shelter from trees



Figure 35 - VAS would be effective if it worked



Figure 36 – cross-roads warning sign on offside



Figure 37 - offside cross-roads warning sign masked by bus

## 6 Suggestions for Improvement

### 6.1 Essential Maintenance

1. Regularly maintain all undergrowth to optimise sight lines
2. Remove/reposition advertising signs interfering with sight lines
3. Cut back foliage obscuring the 30mph village gateway signs on Stockton Road
4. Renew VAS with mains power and preferably including an internal recorder for speed measuring

### 6.2 Corrections to Existing

1. 40mph sign at Stockton Road entry to be moved to nearside
2. A426 southern approach: Move crossroads warning sign from offside to nearside
3. Remove the four 50mph limit signs at the minor road approaches to the A426 and replace with repeater signs on the main carriageway close to the junction to the north and south, close to the junction so drivers who turn onto the A426 are aware of the speed limit of the road they have turned on to.
4. All relevant Traffic Regulation Orders to be reviewed to rationalise and correct apparent errors, particularly with respect to road names.

### 6.3 Further improvements in conjunction with the above measures

1. Double up on the give way signs, or preferably consider replacing with Stop signs and stop lines. (Note: Changing from 'Give Way' to 'Stop' would entail the replacement of several sign plates for advance warning signs on the approaches). Drivers need to stop to be able to take full and proper observation at this junction, with the difficult sight lines, particularly when the undergrowth requires cutting. The approach from Long Itchington is directly into the sun in the morning peak and the octagonal shape of a Stop sign is intended to make the requirement to come to a complete stop very clear, even when a silhouette.
2. Rationalise the 30mph speed limit threshold signs on Stockton Road heading into the village in consultation with Police and residents. Traffic Regulation Orders will need review.
3. Use white lining and possibly an island to narrow the approach from Stockton village so only one vehicle can emerge from the junction at a time. This will improve visibility between vehicles and may effectively offset the centres of the two approaches to reduce the see-through problem from the Long Itchington approach as seen in Figure 25 and Figure 26.

#### **6.4 Preferred Option for Improvement – in addition to the above measures**

1. Revert the A426 to National Speed Limit, revoking the 50mph limit, at least to the south of the junction back to the A423 roundabout and installing a more localised 40mph speed limit in the vicinity of the junction, extending to approximately 200m either side of the junction. This would limit HGVs over 7.5 tonnes to 40mph for the whole length until the next 50mph section and all vehicles to 40mph for the junction approaches. Safety would be improved by reducing the speeds for all vehicles at the main conflict points, including the Wigley Group HQ building which is expanding in use. The changes of speed limit at the junction would reduce to just one; the 30mph limit in Stockton village, which could realistically be implemented at the top of the hill on Napton Road. Effectively this would result in an intermediate speed limit of 40mph past the dwellings that lie between the A426 and the Stockton Village gateway, but having just negotiated the junction and with a 30mph limit visible ahead, few vehicles will exceed 30mph. Overall link travel time would be largely preserved. The length of 40mph speed limit may be as short as 400 metres, but the latest advice in TAL 1/04 suggests that this is a workable solution. Very short lower limits are quite normal at high risk junctions in other European countries.
2. Reposition or replace the existing speed camera to enforce the new 40mph limit in the northbound direction if compliance is poor.

## Appendix A - Speed Limit Traffic Regulation Orders

## Appendix B - Quotation from Westcotec for replacement VAS