

A Strategy for East Farleigh Bridge

Ensuring the Safety of Pedestrians, Improved Traffic
Management and the Preservation of the Bridge
East Farleigh Parish Council

May 2017

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Introduction

This report has been created on behalf of East Farleigh Parish Council to inform Kent County Council of the issues present with the East Farleigh Bridge and provide a clear method of ameliorating them through a single package of measures which are required.

The village of East Farleigh lies approximately 4km to the south west of Maidstone, to the south of the River Medway. The main vehicular access routes to East Farleigh are via Farleigh Lane to the north which crosses East Farleigh Bridge, the B2010 Lower Road to the north east, and the B2163 Heath Road to the south.

The purpose of this study is to highlight and address the principal issues regarding the safety of pedestrians crossing the bridge and the use and preservation of East Farleigh Bridge in response to concerns raised by local residents and parishioners about its regular abuse by Heavy Goods Vehicles (HGVs) in particular. In addition the study will review potential traffic management strategies to aid traffic flows. The bridge is a Grade I listed building and a scheduled ancient monument and is narrow in width. Consequently, traffic is able to travel in only one direction at a time.

The bridge has been dated back to the 14th century. It is historically important for its use in the English Civil War when Cromwell's army, led by General Fairfax, crossed it on 1 June 1648 on-route to Maidstone where they fought the Royalists in the Battle of Penenden Heath.

It is recognised that the geometry and size of the bridge creates difficulties in its crossing for pedestrians and other vulnerable users, particularly the disabled. The bridge only measures between 3.4m and 3.6m. Observation of the bridge and its use, particularly in the morning and evening peak hours, has identified that pedestrian safety is often compromised by its restricted width and the lack of formal pedestrian facilities. Technical work previously undertaken by DHA Transport to inform the East Farleigh Village Plan in 2012 highlighted that four serious and three slight road accidents had occurred within the ten year period 2002 - 2012 and that of these, 70% involved vulnerable road users such as pedestrians and cyclists. In view of this, means of improving the safety of vulnerable road users on the bridge will also be explored within this report.



Above: Location Plan of East Farleigh Parish (Courtesy Openstreetmap.org)

Introduction Continued...

Issues with the volume of traffic that uses the bridge and the problems created by HGVs are well known and widely documented within the Parish and have been acknowledged by Kent County Council (KCC) as the Local Highway Authority.

There is an existing vehicle width restriction through the village that begins on Farleigh Lane (adjacent to Rectory Lane) to the north and on Station Hill (adjacent to the Bull Inn and Lower Road) to the south. The restriction prohibits vehicles greater than 2.0 metres (6'6") in width using the roads except for access. Forewarning of the restriction is provided in advance of the restrictions. In addition, signage in foreign languages has been provided to prevent the misinterpretation of the signage by foreign drivers. **However, it is considered that this existing signage is ineffective with no reasonable means of enforcing the restriction.**

HGVs are a serious concern for local residents, causing significant damage on numerous occasions to the medieval bridge structure, which in turn can create lengthy traffic delays following each incident. Due to the bridge being a Grade 1 listed monument of national importance repair of the structure is expensive and can take long periods of time, extending and exacerbating the problems caused by conflict with the structure.

The environmental, safety and amenity issues caused by HGVs is recognised within Objective 4 of KCC's Freight Action Plan (2012-2016) which is **'to take steps to address problems caused by freight traffic to communities'**. The updated action plan, the consultation for which has ended recently, also contains this objective, highlighting its continued importance.

Indeed, the issue of HGVs in rural locations and on unsuitable roads is not specific to the Parish and the Freight Action Plan acknowledges these issues as being county-wide in their scope and impact, primarily due to Kent's location as the gateway between Europe and the U.K. Furthermore, Kent has developed as a county with a series of medium sized towns; thus creating a need for complex delivery routes which often seek to avoid busy and congested urban areas during peak periods. It is nevertheless recognised that HGV journeys are extremely important in contributing to the success of local businesses and the wider economy and as such, HGV mitigation cannot be draconian in nature and must recognise the needs of some users whilst preventing the activities that cause most damage and delay.

The village of East Farleigh has a small number of local businesses which are located within the vehicle width restriction and will therefore require access in perpetuity to ensure no adverse impacts are created. Additionally, any measures implemented must ensure that continued access for emergency service vehicles is retained as well.



Left: View across the East Farleigh Bridge
Below: Signage to prevent foreign HGV drivers located on Farleigh Lane



Introduction Continued...

However, despite the increasing and varying signage present, it is evident that the problem persists and as such, potential new methods of control will be investigated within this report. It is considered that the existing signage is largely ineffective and detracts from the rural character of East Farleigh. Any potential solutions will therefore require a sensitive and innovative approach in comparison to what is already present.

Although it is generally acknowledged that HGVs have the greatest impact on East Farleigh Bridge and its environs, it should be noted that the width restriction imposed to protect the bridge is also frequently ignored by other vehicle classes. The maximum width of 2.0 metres means that the maximum size of vehicles permitted should not exceed the dimensions of large commercial vans (Ford Transits for example). Many medium sized goods vehicles are in fact wider than 2.0 metres, including supermarket home delivery vehicles which are becoming increasingly numerous due to changing shopping habits; particularly in rural areas such as East Farleigh.

Although these vehicles are permitted if they are gaining access to a specific address within the width restriction, many are not and are therefore in contravention of the Traffic Regulation Order. Whilst it is unlikely that these vehicles are responsible for much of the damage caused to the bridge in recent years, the fact remains that an increasing number of vehicles regularly infringe the restrictions imposed to protect the historic landmark. Despite numerous efforts over many years to restrict access to the bridge by oversized vehicles, they have consistently failed to be effective, posing a daily risk to the wellbeing of pedestrians and the structure of the bridge.

In addition, traffic volumes and flows over the bridge result in congestion and conflict most notably during the peak periods. This often results in significant periods of queuing and delay for vehicles, leading to conflict issues as drivers lose patience, forcing their way onto the bridge and impeding opposing traffic flows.

In light of each of the above elements, the need for a long-term solution to secure the preservation of the bridge is becoming an increasingly urgent priority for the Parish Council and local residents. A petition to the Joint Transportation Board has been created to seek to protect the bridge by means of a package of measures which are explored within this document. In excess of 600 signatures had been collected in support by local residents. This confirms and accentuates the need for the protection of the bridge and those who cross it. The East Farleigh Village Plan recorded that 46% of those who responded to the residents' survey stated that the most important overall priority for the community was controlling traffic over the bridge.



Above: Tesco deliver van crossing the bridge
Below: Large HGV crossing the bridge



Objectives and Methodology

This report seeks to provide KCC with practical means to address a single key objective raised by East Farleigh Parish. This objective will be achieved through three distinctive strata; these are outlined as follows:

Implement a single package of works to provide a safe means for pedestrians crossing the bridge, protect its historic structure from the damage caused by oversized vehicles and improve traffic flows across the bridge.

1. Provide safer crossing for pedestrians using the bridge which has no footpath.
2. Enabling residents and those visiting the village to witness the original architecture and construction of this Grade I Listed monument. The bridge and its history both locally and nationally should be preserved for future generations to appreciate and enjoy.
3. Eliminate damage to vehicles that are too wide to safely cross the bridge
4. Improve traffic flow over the bridge so to reduce congestion and conflict.

To achieve each of the above objectives a complete package of measures is presented within this report to Kent County Council.

This report utilises video survey methodology to review the existing highways issues present at the bridge. The surveys were undertaken on 10th November 2016. It is noted that the survey was undertaken during school term time on a neutral weekday. Weather conditions were fine and dry, reducing the opportunity for enhanced vehicle flows due to adverse weather conditions. It is understood that a crash occurred on the A229 Royal Engineers Way in Maidstone after 17:30; however given the distance of this incident from East Farleigh, it is unlikely to have had a material impact on the vehicle flows recorded. As such, it is considered that the video survey provides a representative assessment of a typical weekday period.



Above and Below: Repaired damage to north and south western corners of bridge. Example of how new stonework is unsympathetic to historical masonry.



Video Survey Results

Key:

A = Farleigh Lane, B = Station Hill, C = The Priory, TOT = Sum of 15-minute Increment
HR = Cumulative Hourly Sum

TIME	MOVEMENT: ALL IN TO JUNCTION					MOVEMENT: ALL OUT OF JUNCTION				
	A	B	C	TOT	HR	A	B	C	TOT	HR
07:00-07:15	41	51	1	93	558	52	41	0	93	558
07:15-07:30	61	70	1	132	719	71	61	0	132	719
07:30-07:45	59	110	3	172	716	110	60	2	172	716
07:45-08:00	47	113	1	161	766	113	47	1	161	766
08:00-08:15	86	168	0	254	823	168	86	0	254	823
08:15-08:30	26	101	2	129	752	102	27	0	129	752
08:30-08:45	89	133	0	222	721	133	88	1	222	721
08:45-09:00	69	148	1	218	620	145	70	3	218	620
09:00-09:15	105	76	2	183	550	76	106	1	183	550
09:15-09:30	31	66	1	98		66	32	0	98	
09:30-09:45	54	66	1	121		66	55	0	121	
09:45-10:00	70	77	1	148		75	70	3	148	
3 HR TOTAL	738	1179	14	1931		1177	743	11	1931	
AM PEAK HOUR	270	550	3	823		548	271	4	823	

Table 0-1: AM Peak Movements - East Farleigh Bridge

TIME	MOVEMENT: ALL IN TO JUNCTION					MOVEMENT: ALL OUT OF JUNCTION				
	A	B	C	TOT	HR	A	B	C	TOT	HR
16:00-16:15	109	67	4	180	666	67	112	1	180	666
16:15-16:30	76	39	1	116	676	37	77	2	116	676
16:30-16:45	93	69	3	165	722	71	92	2	165	722
16:45-17:00	110	93	2	205	669	92	112	1	205	669
17:00-17:15	90	96	4	190	640	97	91	2	190	640
17:15-17:30	77	82	3	162	605	82	80	0	162	605
17:30-17:45	67	44	1	112	583	45	65	2	112	583
17:45-18:00	60	116	0	176	699	116	60	0	176	699
18:00-18:15	79	76	0	155	696	76	79	0	155	696
18:15-18:30	79	61	0	140		61	78	1	140	
18:30-18:45	130	97	1	228		98	130	0	228	
18:45-19:00	85	88	0	173		88	85	0	173	
3 HR TOTAL	1055	928	19	2002		930	1061	11	2002	
PM PEAK HOUR	370	340	12	722		342	375	5	722	

Table 0-2: PM Peak Movements - East Farleigh Bridge

Vehicle Movements

Table 0 1 and Table 0 2 below summarise the surveyed vehicle movements during the morning and afternoon peak traffic periods, with the peak hour highlighted. For information, A refers to Farleigh Lane, B refers to Station Hill and C refers to The Priory. HR refers to the cumulative sum of the corresponding hour in the time column. During the morning peak hour (08:00-09:00), a total of 823 movements were recorded entering and egressing the bridge. During the afternoon peak hour (16:30-17:30), slightly fewer vehicle movements were recorded, totalling 722.

It is evident that the dominant traffic flow direction is south to north (from East Farleigh to Barming) in the morning peak and north to south (from Barming to East Farleigh) in the evening peak. In terms of movement characteristics, it is noted that vehicles tend to move in distinct platoons, which temporarily halt the movements of those travelling in the opposite direction. These platoons are most pronounced when the railway crossing is down, which acts to give priority to those travelling northbound across the bridge.

For example, during the morning peak hour, the crossing was closed at 08:20:55 and reopened at 08:28:47. However, it was not until 08:32:54 that the northbound movements had eased sufficiently for the southbound vehicles to cross the bridge; a total wait time of 11 minutes and 59 seconds. The northbound vehicles that had accumulated during this period then proceeded to dominate the vehicle flow across the bridge for the next 2 minutes, before the southbound vehicle flow resumed and prevented any other northbound movements until 08:39:54. All in all, vehicle flows were impacted for some 19 minutes as a result of this closure, resulting in significant impacts to journey times.

Given the length of time that vehicles were stationary for, it is likely that queuing on Station Hill will have blocked back to the B2010 Lower Road during this period, with associated implications for drivers seeking to enter Station Hill from both directions. This is known to cause congestion on Lower Road itself, which impacts drivers on a number of alternative routes in the area.

Video Survey Results

Vehicle Movements Continued

It was not uncommon for vehicles to fail to give way to oncoming vehicles, either through lack of visibility or impatience. This resulted in two opposing vehicles on the bridge creating a 'stalemate' situation whereby neither could progress. During the peak periods of 07:00-10:00 and 16:00-19:00, a total of 11 and 12 incidents of this nature were recorded respectively.

In the majority of instances, the vehicles travelling northbound subsequently reversed to make way for the southbound drivers. This was primarily due to fewer northbound vehicles having entered the bridge, due to the enhanced forward visibility in this direction. In addition, on the southern side of the bridge there is a greater area for manoeuvres to be undertaken, although in many cases, reversing drivers failed to position themselves within the correct side of the carriageway, often constraining the movements of oncoming traffic, as shown in Figure 0-1.

It is evident that the majority of northbound vehicles seeking to cross the bridge waited behind Camera 1, within the vicinity of the informal layby approximately 40 metres to the south, when opposing vehicles were crossing. Vehicles edged forward from this location when a break was observed in the oncoming vehicle flow, which occasionally resulted in conflict as outlined above, as their forward movement constrained visibility of oncoming traffic.

During the evening peak, 'blocking back' was observed to significantly impact vehicle movements. Due to the high volume of vehicles travelling southbound, lengthy queues formed at the B2010 Lower Road / Station Hill junction, which in turn resulted in stationary traffic on the bridge itself and the obstruction of northbound movements. At approximately 17:30, it was noted that northbound vehicles remained stationary for almost 10 minutes.



Figure 0-1: Vehicle Conflict- Reversing Vehicle Movements (Camera 1)

Video Survey Results

Vehicle Movements Continued

Egressing vehicles from The Priory also interact with vehicles travelling northbound across the bridge. Due to the width and alignment of the southern approach to the bridge, northbound vehicles tend to utilise the opposite side of the carriageway at this location. On one occasion, this resulted in a near miss involving a vehicle exiting The Priory.

On the northern side of the bridge, it was observed that due to the restricted forward visibility for southbound traffic, a number of 'false starts' occurred, whereby vehicles moved from their waiting point, only to be forced back by oncoming vehicles which they had failed to observe. The space constraints in this area mean that southbound vehicles tend to wait close together and therefore when a vehicle makes a false start, there is limited opportunity for them to reverse. This results in vehicles passing in very close proximity to one another, with a number of near misses observed, as shown in Figure 0 2 below. Vehicles also pass exceptionally close to the houses on the western side of Farleigh Lane, often overrunning the footway in this location.

Vehicles leaving Riverside Park are also impacted by queueing traffic. Drivers wishing to turn left and head northbound are constrained in terms of their turning movement, as waiting vehicles tend to stop within the vicinity of the junction, leaving little space.



Figure 0-2: Vehicle Conflict- Farleigh Lane



Figure 0-3: Vehicle Conflict- LGV Movements



Figure 0-4: Vehicle Conflict- OGV Movement

Video Survey Results

Vehicle Types

Table 0 3 highlights the vehicle types that were recorded across the three-hour AM and PM peak periods.

Vehicle Type	AM (07:00-10:00)		PM (16:00-19:00)	
	Total	%	Total	%
Car	1654	85.6%	1758	87.8%
LGV	270	14.0%	233	11.6%
OGV	2	0.1%	2	0.1%
Motorcycle	5	0.3%	9	0.5%
Bicycle	2	0.1%	1	0.1%

Table 0 3: Vehicle Types – AM and PM Peak Assessment

It is noted that the majority of vehicles crossing the bridge were cars, although a significant proportion were LGV movements such as supermarket delivery vehicles and vans. LGVs accessing the bridge have to utilise the full width of the carriageway, which can cause issues of obstruction, particularly where two LGVs meet, as shown in Figure 0 3.

Whilst only 0.1 per cent of the total vehicle flows were OGVs – which are prohibited from crossing the bridge by the 2.0m width restriction – it is noted that these vehicles caused significant issues of obstruction. At 18:03, an OGV attempted to cross the bridge southbound. The driver was apparently unaware of the restricted width of the bridge, as the vehicle remained stationary for a number of minutes before proceeding. In this time, vehicles travelling northbound entered the bridge and were subsequently forced to reverse to make way for the OGV. As Figure 0 4 depicts, on exiting the bridge the OGV had limited room to manoeuvre, due to queueing traffic in the opposing direction. This resulted in the OGV passing close to the Grade 1 Listed bridge wall.

Despite the existing width restriction, which is subject to an enforceable Traffic Regulation Order and is accompanied by warning signs on all approaches, it is evident that transgressions by larger vehicles occur on a daily basis, leading to conflict with opposing vehicles, potential structural damage to the bridge and a significant hazard to pedestrian safety. The lack of enforcement of the TRO by the appropriate authorities means that there is little deterrent to this activity at present.

Video Survey Results

Pedestrian Movements

A total of 22 pedestrians crossed the bridge during the morning peak period (07:00 to 10:00) and 31 pedestrians crossed during the evening peak period (16:00 to 19:00). Due to the restricted width of the bridge, all of the pedestrians came into close contact with vehicles. This was particularly notable when a van crossed the bridge, as shown in Figure 0-5 and Figure 0-6.

To the north of the bridge, pedestrian movements are similarly constrained. As has been noted, when stationary vehicles are present in this location, this can impede the movement of northbound traffic, resulting in the overrunning of the footway. This represents a further hazard to pedestrians.

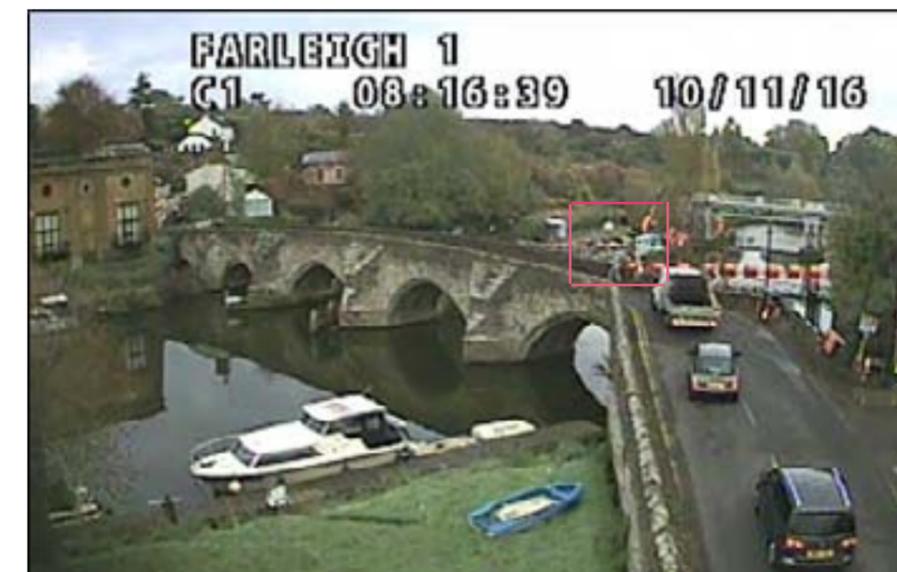


Figure 0-5: Pedestrian / Vehicle Conflict- Van Approaching



Figure 0-6: Pedestrian / Vehicle Conflict- Van Overtaking

Solutions Considered and Dismissed

Teston and East Farleigh One-Way System

The viability of a one-way system encompassing the bridges at Teston and East Farleigh has been considered. For the purposes of this exercise, a clockwise arrangement has been assumed in order to provide the greatest length of queueing space for vehicles waiting at the two railway crossings.

The one-way arrangement would result in a 6.3km detour, taking approximately 9 minutes by car, compared to the existing 1.6km northbound route via East Farleigh Bridge, which takes an average of 4 minutes.

In addition, a considerable number of residential dwellings are located on Farleigh Lane and Station Hill. Enforcing a one-way system for these residents would limit access to their homes, with the potential for a significant number of objections to be raised as a result.

In view of these issues and constraints, the implementation of a one-way system is not considered to be feasible.

Traffic Signals

Following earlier discussions between East Farleigh Parish Council, Kent County Council Highways and Transportation (KCC H&T) and Network Rail with regard to the potential implementation of traffic signals to aid vehicle flow across the bridge, the Parish Council was advised that such a solution could not be implemented safely in this location due to the proximity of the railway level crossing.

Vehicle Activated Sign (VAS)

Consideration has been given to the possible implementation of a 'Give Way' Vehicle Activated Sign (VAS) on the northern side of the bridge. The sign would be triggered by vehicle movements on the southern side of the bridge, thereby highlighting any breaks in oncoming vehicle movements that would allow waiting vehicles to proceed.

Whilst VAS technology is proven and effective in appropriate situations, it is noted that during peak periods, there are limited breaks in vehicle flows crossing and the bridge. As such, any sign is likely to be active for lengthy periods of time.



Example of Vehicle Activated Sign

Potential Solutions - Pedestrian Safety

Pedestrian Safety

As highlighted by the video surveys, the narrow width of the bridge creates a hazardous environment for vulnerable users, including pedestrians and cyclists and particularly the disabled. Vehicles crossing the bridge leave very little space for pedestrians to cross, as can be seen in the image opposite where a pedestrian (although obscured) has been required to stand side-on so that they are not clipped by the large vehicle attempting to cross.

The bridge provides the only opportunity for the residents and visitors to the village to cross the Medway and reach East Farleigh / Barming (depending on direction of travel). It is therefore necessary to ensure the safety of those who wish to cross so as to create a means of crossing the river without needing to travel by car.

In addition, there is no dedicated area for pedestrians on the bridge at present, requiring them to walk on the carriageway and as there are so few pedestrians crossing each day - due to the risk to safety - vehicles could well perceive there to be no need to consider the needs of pedestrians.

As has been noted, work previously undertaken by DHA Transport to inform the East Farleigh Village Plan in 2012 highlighted that four serious and three slight road accidents occurred on the bridge within the ten year period (2002 - 2012) and of these, 70% involved vulnerable road users such as pedestrians and cyclists.

The above therefore clearly displays the inadequacy of the bridge in providing a suitable and safe means of crossing for pedestrians and other vulnerable users. It is necessary to provide a package of work to be undertaken at the bridge to address the problem.



Above: A pedestrian is located to the left of the small lorry crossing the bridge behind the vegetation, highlighting the little room between the two.

Below: An image of another small lorry crossing the bridge highlights the significant lack of room available to pedestrians when over sized vehicles cross



Potential Solutions - Pedestrian Safety



Above: Concept view of proposed change in colour of carriageway surface

Below: Example of the solution within a Bluewater Shopping Centre car park



Protecting Pedestrians

As the width of the bridge cannot be altered, surface treatment works are considered to represent the only feasible option for providing a distinctive area that pedestrians and cyclists can use which is obvious to drivers and promotes better lane discipline. It is considered that simple line markings and surface treatments should be used, as these would not impact upon the construction or design of the bridge and would simply alter the colour of the asphalt surfacing across it. The colour of this surfacing could reflect the colour used for bus and cycle lanes, which drivers are familiar with negotiating in the course of their daily journeys.

This distinct separation of users should provide greater security to pedestrians and may act to reduce vehicle speeds across the bridge even when pedestrians and cyclists are not crossing. It is noted that as a consequence of the limited width of the bridge, vehicles are likely to drive across the pedestrian area when it is not in use. However, the designated pedestrian area will accentuate the fact that pedestrians do use it and improve the perception of safety for vulnerable users.

A concept plan of the bridge with the change in surfacing, in addition to examples of other such treatments, can be seen in the images opposite. Examples of this treatment are normally only witnessed within private car parks, such as the example at Bluewater Shopping Centre (below left). However, as a consequence of the constrained size of the bridge and the lack of opportunity to construct a separate pedestrian footway; it is considered that this proposal is likely to have the greatest benefit to the safety of those crossing.

Potential Solutions - Pedestrian Safety



Protecting Pedestrians

In addition to the hazards facing pedestrians crossing the bridge, it is apparent that a number of vehicles also over-run the footway on Farleigh Lane, adjacent to the junction with Riverside Park, as is evidenced in the images opposite. This issue is of understandable concern to local residents as they cannot walk on dedicated footways without the risk of coming in to conflict with passing vehicles.

These incidents are understood to occur as a consequence of northbound motorists manoeuvring around opposing vehicles waiting to cross the bridge in a southerly direction and is compounded by the worn lining on the carriageway. It is also considered that the height and colour of the footway are not sufficiently different to the carriageway to dissuade drivers from attempting these manoeuvres. The culmination of each of these factors further exacerbates the safety implications presented to pedestrians in this part of the village, particularly for vulnerable users such as parents with small children and the disabled, who may be obscured from the drivers' view.

In an attempt to address this issue, it is proposed that new markings on the local roads are provided to more prominently demarcate the carriageway and the footway. It is unfortunate that the limited availability of highway land in this location currently prevents the relocation of the footway.



Potential Solutions - HGV Prevention



Above: View looking east on Lower Road showing school pedestrian crossing sign which is becoming hidden by vegetation
Below: View looking south along Farleigh Lane showing a hidden HGV sign on the left and a twisted sign on the right



Short-Term Management Solution

As an initial stage in the long term management and prevention of HGV movements across the bridge, it is proposed that all vegetation that encroaches onto highway land is regularly maintained to ensure that it does not obscure or cover any existing signage that seeks to prevent access by unsuitable vehicles. It has been noted that a number of advance warning signs were poorly maintained and were consequently not clearly visible to passing motorists, as can be seen in the images opposite.

It is noted that this is not exclusive to HGV restriction signage, as is illustrated in respect to the advance signage warning of the school pedestrian crossing of Lower Road.

It is noted that this is not a long-term strategy as the existing signage has done very little in protecting the bridge thus far. However, in the interim period until further measures are provided, this is a necessary step. It is plausible that HGV drivers may have missed other signage providing forewarning of the vehicle width restriction, and this would at least ensure that the signage that is already present can be as effective as possible.

To ensure that signage is properly maintained, the Parish Council are committed to informing Kent County Council via its online fault reporting tool so that they can be rectified in the first instance. However, the varying demands of the Council are recognised and the Parish are committed to rectifying the issue themselves where possible in liaison with KCC.

In similar vein, the Parish Council are committed to engaging with local delivery companies operating over-size vehicles in order to raise awareness of the width restriction and to ensure that their drivers do not seek to cross the bridge during the course of their operations. It is recognised that the issue may be borne of misunderstanding and a lack of information and consequently, this should assist in further preventing damage and protecting the safety of pedestrians crossing.

Potential Solutions - HGV Prevention



Above: Existing signage on Farleigh Lane
Below: Views on the approach to Station Hill along Lower Road showing no signage on the eastern approach and very little signage on the western approach.



Long-Term Signage Solution

Aligned to the previous recommendations, it is proposed that the existing signage that forewarns drivers of the width restriction should be replaced with newer, more visible signage as has been achieved in other villages within the Borough of Maidstone, including Harrietsham and Lenham. The existing signage is not sufficient in preventing HGVs and it is therefore necessary to find an appropriate long-term solution.

Some of the instances in which HGVs have flouted the width restriction may be a consequence of the small size of the existing restriction signs. As such, a new conceptual signage strategy is proposed, with the details to be refined through consultation with KCC.

It is proposed that a series of HGV interactive signs and newer, larger signs outlining the existing width restriction are installed. It is considered that the use of interactive signage will form a key element in prevention and awareness whilst more conventional signage can be used in greater quantities to forewarn and reinforce the restriction.

If signage is improved along the A26 Tonbridge Road and Lower Road, it could reduce the number of drivers of over-size vehicles progressing as far as the approaches to the bridge before recognising that the route is unsuitable for them. Once drivers get as far as the bridge, they may feel the need to continue as there are limited opportunities for them to turn around safely at this point.

It is recognised that new signage of this scale may not be entirely in keeping with the rural setting of East Farleigh. However, it is considered that their likely benefits in reducing HGV traffic through the width restriction would outweigh these considerations. There is an existing clutter of smaller signage which has done little to prevent the abuse of the bridge thus far in any regard.

Greater detail of the two types of signage that are considered within this proposal is provided overleaf.

Potential Solutions - HGV Prevention

Long-Term Signage Solution Continued...

The core element of a long term strategy is the investment and implementation of vehicle interactive signage. These signs are electronically controlled and only activate when a vehicle approaches which is beyond a set maximum width or height. These signs are commonly seen at the approach to Victorian railway bridges which cannot accommodate the height of modern large vehicles and have generally been successful at reducing bridge strike incidents. Local examples include the approaches to the railway bridge on the A20 Ashford Road at Harrietsham. These are considered to represent the most visible type of signage that could be introduced into the local area and are likely to provide the greatest benefit.

Although East Farleigh Bridge is subject to a vehicle width restriction, interactive signage is largely unproven in relation to the detection of vehicle widths. Consequently, it is recommended that signage equipment which detects vehicle height is installed in the first instance, as it is considered that vehicle height detection is generally an effective proxy for vehicle width. The exact type of signage and method of detection will be determined through consultation with KCC and signage companies.

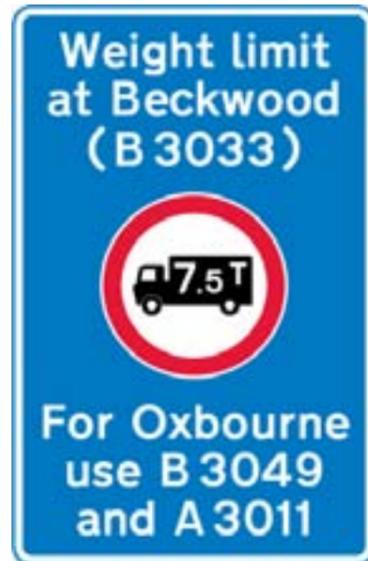
Although this signage will require new sign posts to be installed, the detection equipment can be installed onto existing posts and should not require any work to be undertaken to local roads. Therefore the installation of the equipment should cause little or no disruption to local residents.

This equipment could be installed on the A26 Tonbridge Road, the B2246 Fountain Lane and Lower Road to prevent oversized vehicles from approaching the bridge or on Farleigh Lane and Station Hill at selected areas where HGVs could safely turn before they reach the bridge itself.

It is proposed that the interactive signage is complemented by the replacement of existing width restriction signage with newer, larger signage. This newer HGV signage has been recently installed across other parishes in Maidstone Borough including Harrietsham.



Above: Existing HGV interactive signage on Ashford Road, Harrietsham
 Below Right: Example of HGV interactive signage (courtesy of Westcotec Signage)
 Below Left: Example HGV restriction Signage that could be implemented along Lower Road and the A26 Tonbridge Road and amended to reflect the weight restriction and propose an alternative route (courtesy of TSRGD)



Potential Solutions - HGV Prevention

Physical Prevention of HGVs

As it is known that the existing signage has regularly failed to prevent over-size vehicles from crossing the bridge in isolation, it is considered that that more robust mitigation measures are required to physically prevent these vehicle types from entering the restricted area. It is possible that some commercial vehicle drivers may not be aware that their vehicles exceed the width restriction, possibly due to their belief that it applies solely to HGVs rather than smaller vehicles such as supermarket delivery vans. It is recommended that there is a long term strategy for implementing physical width restrictions on the approaches to East Farleigh Bridge:

So as to prevent these vehicles from travelling as far as the bridge, preventative structures would be installed which would mean that vehicles can only pass a barrier if they make an unnatural manoeuvre and therefore they cannot simply travel to the bridge by accident.

The mitigation option would be to install two traffic islands within the highway along Station Hill and Farleigh Lane adjacent to a suitable side road which would allow over-size vehicles to turn around safely. The traffic island would act to reduce the width of the road to 2.0 metres to prevent large vehicles from continuing towards the bridge.

To ensure that access was retained for larger vehicles with a legitimate requirement to service residential and commercial properties within the restricted area, the carriageway width for vehicles travelling in the opposite direction would remain sufficiently wide to accommodate for them. As such, if an HGV required access to properties within the restricted area of the village, they would be required to enter the opposite side of the carriageway. This unnatural movement should act to dissuade drivers from continuing unless they considered it absolutely necessary.



Above: Example of HGV prevention traffic island
 Below: Prospective locations of the islands within the village



Potential Solutions - HGV Prevention



Above: Approach to River Close along Station Hill where HGV prevention measures are proposed to be installed
Below: Approach to Rectory Lane along Farleigh Lane where HGV prevention measures are proposed to be installed

Physical Prevention of HGVs Continued...

This arrangement has recently been introduced on several residential streets within the London Borough of Islington and is depicted in the image in the previous page. Although located in an urban setting, it is apparent that this concept has been installed successfully and therefore provides a valuable example of how it might operate in East Farleigh, subject to detailed design considerations.

A review of the local area has been undertaken and it is considered that the most suitable locations in which this arrangement could potentially be introduced are on Station Hill adjacent to River Close and on Farleigh Lane adjacent to Rectory Lane. These have been identified on the local map on the previous page and in the images opposite.

The use of existing side roads (River Close and Rectory Lane) to accommodate for turning vehicles would ensure that additional land for vehicle turning would not be required.

It is acknowledged that detailed design and public consultations would be required to deliver this measure; however, the Council should consider the positive response that would be received from local residents and the potentially significant cost for repairs to the bridge. Local residents have been consulted on various concepts relating to HGV prevention and indicative proposals have been welcomed which will give confidence to their successful implementation.



Potential Solutions - Traffic Management

Give Way Signage and Markings

The video surveys demonstrate that the majority of northbound vehicles seeking to cross the bridge wait approximately 40 metres to the south, leaving ample room for those travelling southbound to pass. However, as has been noted, drivers tend to edge forward when a break in the oncoming traffic flow is observed, which can result in conflict.

Yellow hatching could be implemented within the vicinity of the bridge. This would aim to discourage drivers creeping forwards and impeding the movements of opposing vehicles. It is considered that this would reduce opportunities for vehicle conflict resulting in "stale mate" situations where by neither vehicle can progress. Furthermore, it is believed that the use of the yellow hatching will provide drivers with an indication as to the best possible location to wait for oncoming vehicles to pass.

On the northern side of the bridge, a 'Give Way' sign could be implemented to guide drivers to the most effective location for assessing oncoming vehicle movements whilst also leaving sufficient space for opposing vehicles to pass.



Left: Indicative hatched markings
Right: Indicative give way location



Indicative Costs



DHA Planning is not a professional cost consultancy service and therefore no liability is accepted with regard to the accuracy of any financial data. However, to provide indicative costs for the strategy proposed, the cost of similar projects has been sought and exhibited below.

It is noted that all fees are presumed to be exempt from the costs associated with the design and implementation, or the cost of any legal procedures that may or may not be necessary. It is therefore advised that the advice of a cost consultant or quantity surveyor is sought in the first instance.

The indicative costs associated with the implementation of these works should be considered against the costs associated with the continued repair of the bridge and the cost to the community associated with road traffic collisions resulting in injury which will continue to rise if no steps are taken to address the issues outlined in this report.

Object	Cost	Quantity	Total
Trimming highway vegetation to ensure existing signs are visible to motorists	~£200.00	1	~£200.00
Yellow hatched road surface treatment on southern side of East Farleigh bridge	~£400.00	1	~£400.00
New road markings on Farleigh Lane side of the bridge to prevent vehicle over-run over the footway.	~£500.00	1	~£500.00
Traffic Management (closure for surfacing, sign installation and markings)	~£1,000.00	1	~£1,000.00
Replace existing signage with new, larger and more prominent conventional signage	£150-£500 per sign	Approx 6	~£3,000.00
Resurfacing East Farleigh Bridge to provide pedestrian refuge on the bridge	~£7,000.00	1	~£7,000.00
Implementation of interactive HGV prevention signage (subject to detailed design and power supply considerations)	~£5,000.00	Approx 2	~£10,000.00
Construction of HGV prevention build-outs at junctions of River Close and Station Hill and Rectory Lane and Farleigh Lane.	~£20,000.00	2	~£40,000.00
Approximate Total Cost			£62,100

Conclusion

This report has been created to provide Kent County Council with a clear method of protecting the East Farleigh Bridge and those who wish to cross it, in addition to managing existing traffic flow issues. The existing bridge geometry means that it is not wide enough to create a separate footpath and it is vulnerable to damage caused by large vehicles, particularly HGVs. Furthermore the signage on the approach to the bridge is considered insufficient and has had little or no benefit in ensuring over-sized vehicles do not cross.

A single package of measures has been prepared with a clear short and long term strategy which should alleviate the existing problems as far as is reasonably possible and comprises the following elements:

- Surface treatment of the bridge
- Clearer demarcation the carriageway and the footway on on Farleigh Lane, adjacent to the junction with Riverside Park
- Highway vegetation maintenance improvements
- Signage upgrades and improvements (including interactive signage)
- Construction of a HGV preventative structure along Station Hill and Farleigh Lane
- Give Way signage and surface markings.

It is requested that Kent County Council acknowledges the issues that the community of East Farleigh face on a daily basis and seeks to resolve them through the package of work presented. The existing signage and infrastructure in the village does not prevent large vehicles sufficiently nor does it protect vulnerable users crossing and it is necessary to address these issues as a matter of urgency.

