

TRAFFIC CALMING - THE OPTIONS;

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| Suggestion | Traffic calming – Four Elms & Crossroads -  **Evidence / reasoning;** |
| Traffic calming through physical road narrowing or height obstructions e.g. Chicanes, slalom gates, central islands, sleeping policemen. | * **It is KCC policy not to place any physical traffic calming features on any ‘A’ or ‘B’ class roads.**   Any physical traffic calming needs a system of street lighting so that drivers can see physical obstructions, unless it is already a 20mph *zone*.  Systems of priority working are often poorly observed and can result in increased crashes within the site.  Chicanes will only work to slow drivers down where there is opposing traffic (continuous flow of traffic in both directions all of the time).  Traffic calming features cannot be placed close to junctions. Vehicles must be on the correct side of the road and drivers must be able to position themselves within the junction to gain the best visibility onto the main road. This means that the area adjacent to the crossroads will not have traffic calming, and speeds may increase at this conflict point.  A traffic management system with chicanes would need sufficient room provide between the chicanes to allow for larger articulated vehicles, tractors and agricultural machinery to pass. This would mean that smaller vehicles such as cars and vans could travel through these almost unhindered, therefore speeds would not be uniformly reduced.  Central islands have only a limited effect on reducing speeds unless combined with another measures such as a chicane.  There must be sufficient carriageway width within which to construct the island. A minimum of an 8.8m wide road is needed to avoid the need to widen the road.  There needs to be sufficient visibility of the crossing and pedestrians for approaching traffic.  There needs to be a suitable footway on either side of the road for pedestrians to use. If the kerbs are not dropped and tactile paving (to assist blind or partially sighted pedestrians) in place, this will need to be included in the project work.  The island should be on, or close to the ‘desire line’ for pedestrians wishing to cross the road.  The island must be sited so that it doesn’t obstruct the turn in and out of junctions or private accesses, impact on residents on noise and vibration, loss of car parking, congestion at peak times, road rage.   * **KCC no longer install full width road humps or ‘sleeping policemen’.** * **KCC no longer installs rumble strips** for the following reasons; they will wear out very quickly on a busy ‘B’ class road, they require constant maintenance to refresh and they can generate noise and vibration, particularly at night which may be an issue to the occupants of any residential properties close by. |
| **Roundabout** at crossroads | * **Kent County Council no longer install 4 arm mini roundabouts in Kent as they result in a significant number of crashes.**   If a mini roundabout was installed, the current STOP junctions would be replaced with give way junctions onto the roundabout which will not meet the required visibility for a roundabout to operate safely.  In order to accommodate the required gyratory for a small (non mini) roundabout at the centre of the crossroads, the demolition of property will be required and removal of gardens for residences fronting the crossroads. A compulsory purchase order would also be required to do this.  Roundabouts are generally unsafe for cyclists and pedestrians to negotiate. |
| Traffic lights | * High approach speeds may result in incidents of red light jumping which would reduce any crash saving. * The effectiveness of lights is highly questionable as drivers soon become aware of the phasing and, as a consequence, will 'run' the phasing as it changes against them. Crashes at traffic signal junctions involving red light jumping is an increasing trend in Kent at traffic signal junctions. * There is no room to provide right turning lanes into Pootings Road and Clinton Lane, which will mean that “ahead” traffic may have to sit behind turning traffic, this will lead to times of congestion through the village and may result in more incidents of red light jumping. * There is not have sufficient room to install traffic signal equipment in Pootings Road due to the narrowness of the section. This would require land purchase and a major realignment of Pootings Road on the junction approach. * There would also be a negative noise consequence for local residents as vehicles accelerate away on the green light, a particular problem in the evening and in the early hours of the morning. |
| **Change speed limit** | * 20 mph *zones* cannot usually be provided on A or B class roads as physical traffic calming measures are not permitted (see above).   20mph *zones* use traffic calming measures to reduce the adverse impact of motor vehicles in built up areas. Measures can to be introduced to both physically and visually reinforce the nature of the road (this has already been done where possible within the current 30mph).   * 20mph speed *limits* are appropriate only for road when average speeds are already low (below 24mph) or along with   traffic calming measures. The layout and use of the road must also give clear impression that a 20mph speed or below is the most appropriate. Note any speed limit is not a target speed and drivers have a duty of care and should proceed at an appropriate speed for the conditions. Simply lowering a limit does not guarantee a reduction in actual speed. DoT research shows that almost 9 out of 10 drivers ignore speed limits. Some areas have found death rates rise in 20mph areas. It is better to have lower limits in new settlements, that come with accompanying physical traffic calming measures and required lighting. 20mph speed limits need to be self-enforcing.   * Govt. road safety strategy states that a standard speed limit of 30mph should be the norm in villages. |
| **Reduce parking on road.** | * Residents would be significantly affected as parking would have to be found elsewhere to accommodate resident / visitor parking. * Travelling cars may go faster on the road as clear from “natural” traffic calming measures / obstruction. |
| Speed cameras | * **Fixed safety camera**sites are located where three or more people have been killed or seriously injured in speed-related crashes, over a 1.5km stretch of road, in the three years prior to installation. This is not the case in Four Elms. * The use of safety cameras should be seen as a last resort measure, once all other justifiable solutions have been exhausted. Cost £20,000 - £40,000 to install. * Some studies have reported that while red light cameras reduce front-into-side collisions and overall injury crashes, they can increase rear-end crashes. |
| Pedestrian crossing | Zebra crossings, puffin crossings and toucan crossings are formal crossing points to control traffic and allow pedestrians to cross the road in a safer environment **(this has not been identified as the major concern here).** Typical starting costs are:  Zebra Crossing = £17,000 Puffin crossing = £40,000  Toucan crossing = £45,000. All of the above costs can increase significantly depending on site conditions. It should be noted that although formal crossing points are seen to be safer, collisions do still occur between pedestrians and vehicles. These are only suitable where traffic speeds are reasonably low and pedestrian flows are medium to high throughout the day (a signal controlled crossing is usually preferable for high or very high pedestrian flows to reduce delays to traffic by grouping pedestrians and where traffic speeds are higher).  Street lighting must be in place to illuminate the crossing at night.  Must be footways on both sides of the road, usually at least 1.8m wide.  Good visibility for drivers and pedestrians (i.e. not on or near a bend, obscured by trees etc.).  Away from junctions (absolute minimum 5m from side roads and well away from signal junctions) and clear of private driveways. |
| Signs for locals to erect after accident. | * No accident signs will be issued by the Police.   The main use of these signs by patrols is to let the public know police are dealing, as well as protecting the scene and the officers in it. The officers have also been trained to protect that scene in the safest way possible. |
| Traffic islands. | * Due to the tight geometry of the junction, installation of traffic islands would prohibit HGV traffic from making right or left turns out of either side road without over-running the islands or opposite footway. This would be unsafe. |
| Changing the junction priority | * Changing the junction priority will not reduce collisions at the junction due to restricted visibility splays in all directions. |
| Bollards at crossroads to protect pedestrians / raised kerbs | * The protection of private property is not the responsibility of KCC. There haven’t been any pedestrian collisions at the junction and there may not be sufficient room to install high containment kerbs as the footways are fairly narrow. * Bollards are often requested as a means of stopping vehicles parking or driving on the footway or verge. KCC are sympathetic towards these requests, however, bollards where installed are frequently damaged, are costly to maintain and they add to general street clutter. Bollards can also cause problems for the partially sighted and restrict the available footway width for pedestrians particularly those with pushchairs, wheelchairs and mobility scooters. |
| Village gateways | * Four Elms village has enhanced gateway treatments on all four approaches at the change of speed limit, e.g. dragon’s teeth, red surface treatment, yellow backed speed limit signs incorporating the village sign and “please drive carefully” and speed limit roundel road markings. See below for the comprehensive works done in 2012/13. |

**Traffic speeds (2012) Traffic survey to be repeated in 2019.**

Four Elms Crossroads – Speed limit 30mph

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| **Survey Site** | **Mean speed (mph)** | |
|  | Westbound | Eastbound |
| B269 Pootings Road | 32.1 | 34.3 |
| B2042 Ide Hill Road | 35.1 | 31.3 |
| B2027 Clinton Lane | 30.3 | 30.3 |
| B2027 Four Elms Road | 31.6 | 33.2 |

Four Elms Road near Polands Farm – Derestricted (60mph) speed limit

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| **Survey Site** | **Mean speed (mph)** | |
|  | Westbound | Eastbound |
| B2027 Four Elms Road | 38.6 | 39.0 |

The latest data available for the last three years is up to 30th September 2018. There were 5 injury collisions, details as follows:

1. 17:30 on 14/08/16, 2 vehicles slight injury – Vehicle 2 travelling on Pootings Road approaching the crossroads. Vehicle 1 travelling along Ide Hill Road, turned right into Pootings Road cutting the corner and on the wrong side of the road, collided with vehicle 2.
2. 15:38 on 10/12/16, 2 vehicles slight injury – Vehicle 2 travelling on Ide Hill Road approaching the crossroads. Vehicle 1 travelling along Bough Beech Road and stopped at the junction, moved out but failed to see vehicle 2 and collided with vehicle 2.
3. 16:50 on 10/12/17, 2 vehicles slight injury – Vehicle 2 travelling on Four Elms Road approaching the crossroads. Vehicle 1 travelling along Bough Beech Road, failed to stop at the junction and collided with vehicle 2.
4. 10:45 on 17/02/18, 2 vehicles slight injury – Vehicle 2 travelling on Four Elms Road approaching the crossroads. Vehicle 1 travelling along Bough Beech Road, failed to stop at the junction and collided with vehicle 2 and then with a property causing extensive damage.
5. 14:41 on 24/09/18, 2 vehicles serious injury – Vehicle 2 travelling on Four Elms Road approaching the crossroads. Vehicle 1 travelling along Bough Beech Road, failed to stop at the junction and collided with vehicle 2.

**Funding from the KCC Safety Critical Budget**

KCC uses a priority funding system in order to allocate much reduced and limited funding towards those crash sites where the most number of recorded injury crashes have occurred in the latest 3-year period. The search criteria for collision sites is 4 or more collisions in urban areas *and 6 or more collisions in rural areas.* All of the sites are carefully analysed to identify if improvements to the highway could reduce the number of crashes. \*A recorded injury crash is a crash which has resulted in slight, serious or fatal injury which is reportable by the Police.

**2012 Historical KCC Member Highway Fund scheme – Four Elms Scheme works already completed.**

B2027 Four Elms Road between Edenbridge and the centre of Four Elms

* Edge of carriageway markings marked on both sides of the road between the Edenbridge boundary and the gateway into the 30 mph speed limit. They are intended to make the road appear slightly narrower and to help drivers to be aware of the edge of the carriageway, particularly in dark or dull conditions. At junctions and the entrances to driveways the edge of the carriageway marked by the appropriate broken line markings.
* On either side of the double bend near Blunts Brook and Little Broxham, new ‘double bend ahead’ warning signs installed, with the word ‘SLOW’ marked on the road next to them to reinforce the need for careful driving. At the bend, six new verge marker posts installed in the verge on each side of the road. Verge markers are plastic posts with red reflective panels and black and white bands, and are intended to mark the edge of the road, so helping drivers to take bends safely. New verge marker posts provided on the bends near The Granary and Broxham Cottages.
* On either side of the bend near the junction of Five Fields Lane, the ‘side road ahead’ warning signs replaced with new ‘junction on bend ahead’ signs to make drivers aware of both the bend and the junction. Both signs have the present ‘SLOW’ road marking re-marked and the ‘give way’ markings at the junction re-marked.
* Approaching the gateway into the Four Elms 30 mph speed limit, the word ‘SLOW’ marked on the road next to the present ‘road narrows ahead’ warning sign to emphasise the need to reduce speed.
* At the gateway, red high-friction surfacing laid and the ‘dragon’s teeth’ markings, edge of carriageway markings and ’30’ speed limit roundel re-marked, the aim being to make the gateway as visually distinctive as possible so drivers are aware that they entering a village and should drive with care.
* Throughout the 30 mph speed limit in Four Elms village centre, the present road centre lines, junction and lay-by markings re-marked to help drivers position their cars appropriately and give way where necessary.
* On the approach to the crossroads at the centre of Four Elms, the vehicle-activated sign, was replaced with a new vehicle-activated sign which will light up to show the ‘crossroads ahead’ triangular warning symbol with the word ‘SLOW’ below it. The new sign is activated by vehicle sensors which will detect traffic approaching the crossroads from either Pootings Road or Bough Beech Road. The aim of this is to make drivers on the priority route aware that they are approaching a crossroads and should slow down in case other vehicles pull out into their path.
* The small signs reminding drivers of the 30 mph speed limit, which share the post with the vehicle-activated sign, will stay in place, and the ’SLOW’ road marking next to them removed and replaced with two ’30’ speed limit roundels, one facing drivers travelling in each direction. These pairs of roundels will be smaller than the roundels at the gateways, and will work with the signs to remind drivers to keep within the legal speed limit.

**The crossroads in the centre of Four Elms village**

* This crossroads, where the B2027 Four Elms Road/ B2042 Ide Hill Road meets the B269 Pootings Road/B2027 Bough Beech Road, formed the key part of the proposals to improve traffic safety in Four Elms. On each of the four approaches red high-friction surfacing laid for a distance of 50 metres (approximately 55 yards) back from the junction, warning approaching drivers that a change in the road layout is ahead. The high-friction surfacing continues across the centre of the junction, and also has the practical benefit of providing a skid-resistant surface should drivers need to brake quickly.
* To make the approaches to the crossroads still more noticeable, two bands of granite setts, each one metre (approx. 39 inches) wide, and one metre apart, laid just before the start of the red surfacing, with a pair of white arrow markings between them. Granite setts are cubes of natural granite, generally light grey in colour and about 100 mm (4 inches) square on each side, which are laid on a mortar bed and the joint filled with mortar. They thus form a band which looks quite different from the black asphalt or red high-friction surfacing and which has a slightly uneven surface so that drivers will feel a slight vibration as they drive over them. The use of two bands of setts with arrow markings between them is intended to give drivers the impression that they may be approaching a raised table, encouraging them to slow down. These were not installed by the garage due to concerns about noise.
* Granite setts used to make the entrances to the four roads appear narrower without physically obstructing the turning movements of lorries and other large vehicles. The appearance and slightly irregular surface of these areas cause many drivers to avoid them and to behave as if the junction had been made narrower, keeping their speed down and making tighter turns. In addition, road markings at the crossroads are re-marked, hatched areas in the centre of Pootings Road and of Bough Beech Road, emphasising the junction and further visually reducing the width of the road.

**B2042 Ide Hill Road between the centre of Four Elms and the Toys Hill Road junction**

* Near Chapel House, the ‘SLOW’ road marking near the direction sign, and the lay-by edge markings re-marked. Two ’30’ speed limit roundels, one facing drivers travelling in each direction marked on the road next to the small 30 mph signs, which remains in place.
* Outside Oak Cottages the vehicle-activated sign, which lights up to show ’30’ as vehicles approach at or above the speed limit, replaced with a new vehicle-activated sign which lights up to show the ‘crossroads ahead’ triangular warning symbol with the word ‘SLOW’ below it. Like the sign on the opposite approach to the crossroads, this sign will be activated by vehicle sensors which detect traffic approaching the crossroads from the side roads.
* At the gateway into the 30 mph speed limit, red high-friction surfacing laid and the ‘dragon’s teeth’ markings, edge of carriageway markings and ’30’ speed limit roundel re-marked.
* On the approach to the gateway from the Toys Hill direction, the word ‘SLOW’ marked on the road next to the ‘road narrows ahead’ warning sign to emphasise the need to reduce speed.
* At the Toys Hill junction, signs and road markings improved to help drivers to negotiate the tight bend safely. Advance ‘junction on bend ahead’ warning signs put up on either side of the bend. These signs have yellow backgrounds to catch the attention of drivers, and include the message ‘Max speed 30‘. This is not a legally enforceable speed limit, but advises drivers of the maximum speed at which they can safely approach a bend or other hazard. For further emphasis, the word ‘SLOW’ marked on the road next to each sign.
* On either side of Toys Hill, the chevron signs replaced with six new chevron signs with yellow borders, ensuring drivers are aware of the bend in the road even in dark or dull conditions. Carriageway edge markings marked for fifty metres (approximately 55 yards) either side of the bend, and the road centre line re-marked to guide drivers following the main route, whilst the ‘give way’ road markings at the end of Toys Hill re-marked so that drivers approaching from this direction can see clearly that then need to give way to traffic on the main road.

**B269 Pootings Road between the centre of Four Elms and the 30 mph speed limit gateway**

* A vehicle sensor installed near No. 1 The Square to detect traffic approaching the crossroads from Pootings Road. This communicates wirelessly with the two new vehicle-activated signs in Four Elms Road and Ide Hill Road.
* Near Furze Bank two ’30’ speed limit roundels, one facing drivers travelling in each direction, marked on the road next to each pair of small 30 mph repeater signs.
* At the end of the small lay-by in front of No. 3 Furze Bank, a new vehicle-activated sign installed. This shows the triangle symbol used to warn drivers of the need to stop or give way ahead, together with the words ‘STOP 65 yds’, and lights up when an approaching vehicle is detected so the driver is aware of the need to slow down and prepare to stop.
* At the gateway into the 30 mph speed limit, red high-friction surfacing laid and the ‘dragon’s teeth’ markings, edge of carriageway markings and ’30’ speed limit roundel re-marked.
* On the approach to the gateway from the Crockham Hill direction, the word ‘SLOW’ marked on the road next to the ‘road narrows ahead’ warning sign to emphasise the need to reduce speed.

**B2027 Bough Beech Road between the centre of Four Elms and the 30 mph speed limit gateway**

* A vehicle sensor installed near Elm House to detect traffic approaching the crossroads from Bough Beech Road. Like the sensor opposite, this will communicate wirelessly with the two new vehicle-activated signs in Four Elms Road and Ide Hill Road.
* Near Woodlea, the vehicle-activated sign will remains in place and continues to warn approaching drivers of the requirement to stop ahead. The other advance warning signs, at 100 yards and 150 yards from the junction, also remains in place.
* Pairs of ’30’ speed limit roundels, one facing drivers travelling in each direction, marked on the road next to the pairs of small 30 mph signs near Woodlea and The Four Elms Public House.
* On either side of Four Elms Primary School, the word “SLOW’ next to the ‘bends in road ahead’ and ‘children crossing’ sign re-marked. New “SLOW’ road markings marked next to the ‘road narrows ahead’ signs on either side of the gateway to the 30 mph speed limit, the aim being to emphasise to drivers the need to maintain low speeds in this area, where children are likely to be travelling to and from school.
* At the gateway into the 30 mph speed limit, red high-friction surfacing laid and the ‘dragon’s teeth’ markings, edge of carriageway markings and ’30’ speed limit roundel re-marked.
* On the approach to the gateway from the Bough Beech direction, the word ‘SLOW’ marked on the road next to the ‘road narrows ahead’ warning sign to emphasise the need to reduce speed.