Title:	**TRAFFIC SIGNAL 'SWITCH-OFF': REVIEW PROGRESS REPORT**
Date:	31 March 2011
Member Reporting:	**Councillor Rayner, Lead Member for Highways and Streetcare**
Contact Officer(s):	**Stephen Brown Head of Highways and Engineering** **Ben Smith, Highway Services Manager**
Wards Affected:	This report will have direct, or indirect impact on all Wards within the Royal Borough.

1. SUMMARY

This report sets out the current situation regarding existing traffic signals within the Royal Borough and reports progress towards opportunities to 'switch-off' or modify traffic signals to reduce congestion; improve journey times and contribute to 'decluttering' the highway without detriment to road safety.

The report includes preliminary reviews of sites (Appendix B), and makes some initial technical suggestions based on visual inspections, where there may be opportunities to upgrade; 'switch-off' on a trial basis (full or part-time); remove or retain traffic signals.

In addition to these visual assessments it is critical to engage with the community and obtain local opinion and the Lead member for Highways & Streetcare has written to all Ward Councillors/Parish Councils and a number of representatives / stakeholders seeking their views. This consultation runs until the end of April.

The views of Members are being sought in order to formulate a 'way forward' with regards to further work on this review on traffic signals within the Royal Borough.

2. RECOMMENDATION:

A. Cabinet notes the initial progress on this review but that no action will be taken until the results of the consultation have been received and analysed.

B. That the future introduction of traffic signals will only be progressed where no other practical alternative exists

C. That a further report will be brought forward on completion of the further analysis set out in this report.

What will be different for residents as a result of this decision?

This preliminary review of traffic signals has identified a number of locations where either traffic signal switch-off or traffic signal equipment upgrades may result in improved traffic flows and reduced delay for drivers, without compromising road safety.

3. SUPPORTING INFORMATION

Background

This report has been prepared to update Members on progress of the review of traffic signals across the Royal Borough seeking opportunities to reduce congestion; improve journey times and contribute to 'decluttering' the highway without compromising road safety.

This initial review is based on visual inspections and technical judgements. Besides this visual survey, a consultation with other stakeholders is in progress and will influence the review. Also, some traffic modelling is recommended, where appropriate, to assess the impact of the proposed changes in advance of implementation.

There are presently 58 sets of traffic signals across the Borough:

- 30 dedicated signal controlled crossings for pedestrians, cyclists or horse riders.
- 14 signal control junctions that control conflicting traffic movements
- 14 signal control junctions that control conflicting traffic movements and pedestrian crossing facilities.

Current approved budgets (2010/11) include an allocation of £95k per annum for maintenance and minor upgrades to traffic signals and the management system. In addition capital funding of £25k is allocated within the 'Intelligent Transport Systems' programme for traffic signal upgrades.

Recent investment has been primarily focussed on small-scale upgrades as part of maintenance schemes although major improvements have been introduced at key locations, such as Clarence Road roundabout.

Traffic signals are installed for the following primary reasons:

- traffic flows mean that side road traffic is unable to exit onto a main route at a give-way junction
- for road safety reasons
- to provide safe crossing points for pedestrians and cyclists

When reviewing traffic signals it is important to consider the following issues:

In a majority of circumstances 'highway' land is limited and traffic signal controlled junctions can often be contained within existing highway boundaries which may constrain other options, such as large roundabouts.

Give way or priority based junctions rely on drivers making judgements and decisions. Whilst in most situations this works well, in difficult or complex situations this can result in hesitation and delay which can limit a junction's capacity but also at times such misjudgement leads to accidents. Traffic signals remove the decision making element which in the majority of situations promotes a positive movement of vehicles that can result in greatly increased capacity over alternative priority measures as well as reduced accident risk.

In situations where there are a number of adjacent signal controlled junctions, the operation of such junctions can be linked and co-ordinated in order to provide maximum throughput of traffic with the minimum of overall traffic delay (For example: the A308 adjacent to the railway station in Maidenhead town centre and on the Arthur Road approach to Windsor town centre)

Selective detection of buses, allows bus priority measures to be introduced without the need to introduce physical measures such as bus lanes. In particular, 'smart' technology allows priority to be applied selectively rather than to all bus services (For example: to buses that were running late, rather than to buses that were early or were running empty back to a depot).

For individual junctions, modern technology along with much improved traffic detection techniques have enabled junctions to operate far more responsively to changing traffic demands.

Sometimes traffic signal control can also be used to deliberately introduce traffic delays to control or limit traffic movements or change driver behaviour on a particular route or corridor. This approach is <u>not</u> used currently in the Royal Borough.

In situations where traffic problems exist at particular times of the day, part-time signal control can be introduced, usually at peak times only. Whilst in theory the introduction of part-time signal control should address the traffic congestion, road safety issues can be created related to driver understanding. Additionally, duplicate road markings and signage will be required increasing highway 'clutter'.

Traffic signals can be removed and there is a view that traffic often flows better when traffic signals are switched off or fail. It is likely that traffic will travel more slowly and drivers will be more cautious in the short-term. However, this does diminish over time reducing some of the benefits and potentially increasing safety risks.

Short-term trials to simply switch off traffic signals and monitor the effects could be achieved relatively inexpensively and quickly. However, there would be significant costs associated with permanent removal of traffic signals which would increase further if an alternative form of control or pedestrian crossing is necessary.

Traffic signals can be unpopular with drivers, as the fundamental principle of traffic signal control is that drivers lose priority at certain times and have to stop and wait. This is compounded where there are no obvious reasons for the delay. However, modern vehicle detection systems reduce the problem.

Both ‘Transport for London’ (TfL) and Reading Borough Council have recently undertaken a review of traffic signals and a summary of the outcomes is set out in Appendix A.

The Royal Borough’s Traffic and Road Safety Team have started a similar visual review of all traffic signals across the Royal Borough and categorised sites in terms of the following:

a) sites recommended for retention, but where modifications to signal timings and/or upgraded traffic signal technology and improved detection would reduce delays presently experienced by drivers;

b) sites where removal of traffic signals or replacement with other forms of junction control could be considered;

c) sites recommended for retention for road safety/traffic reasons.

In addition, it should be noted that at sites where traffic signal equipment is upgraded, the opportunity is taken to ensure that ‘de-cluttering’ principles are applied. Existing lamps are also replaced with LED’s which provides benefits in reducing energy consumption and reduces the frequency of maintenance visits due to their longer-life expectancy.

Results of the consultation will further inform this review.

Summary of Work to Date

Appendix B sets out details of all the traffic signals. Below is a brief summary of sites where there appears to be potential to make changes based on the visual surveys.

A. The following sites are at this stage identified for probable retention and modification to improve traffic conditions:-

- *A4 Bath Road/All Saints Ave/Boyn Hill Rd, Maidenhead*
- *Forlease Road / Moorbridge Road / Bridge Street, Maidenhead*
- *B3022 High Street/Keats Lane, Eton*

The estimated costs are circa. £25k per junction to upgrade the traffic signal controller, with associated engineering works. If additional functionality was included (for example; introduction of pedestrian facilities) or the junctions were redesigned costs could increase to circa. £80k (dependant upon the extent of works required).

There is currently no budget allocation to undertake these works.

B. At this stage the following site might be considered for trial conversion to part-time operation and the effect monitored and reported to Lead Member for Highways & Streetcare.

- *A4 St Cloud Way/Sainsbury's Access, Maidenhead*

The cost of undertaking the trial would be in the order of £5k which could be contained within existing budgets.

C. The feasibility (incl. costs) of 'switching-off' the traffic signals at the following sites should be further assessed together with feedback from the consultation with the results reported to the Lead Member for Highways & Streetcare.

The feasibility study will include a technical evaluation together with a further site specific consultation of interested parties (For example, adjacent schools)

- *B470 Thames St/Datchet Road/Thames Avenue, Windsor*
- *Maidenhead Road / Sports Centre, Windsor*
- *Windsor & Eton Relief Road (northbound on-slip road)*

The feasibility studies can be undertaken predominantly by in-house resources and costs can be contained within existing budgets.

D. The initial survey indicates that there may be traffic benefits at the following 2 sets of traffic signals if they are removed. However further investigation and site specific consultation is required.

- *B3024 Dedworth Road, Windsor - crossing near Smith's Lane*
- *B3024 Dedworth Road, Windsor - crossing near Vale Road*

The costs to remove the existing traffic signals and replace with a 'zebra' crossing would be circa. £20k per site.

There is currently no budget allocation for this work.

E. At present the visual surveys indicate all other sites should be retained for road safety/traffic reasons but every available opportunity be taken to 'declutter' and upgrade with energy efficient equipment as funding allows.

4. OPTIONS AVAILABLE AND RISK ASSESSMENT

4.1 Options

	Option	Comments	Financial Implications
1.	Do-Nothing – retain all existing traffic signal	This is not recommended as this would not meet the	No additional financial implications.

	Option	Comments	Financial Implications
	sites.	'Residents First' objectives to minimise congestion and reduce vehicle journey times.	
2.	Undertake further analysis informed by results of the consultation and bring a further report.	**Recommended** as there is insufficient evident to make firm decisions at this stage.	Consultation / analysis etc can be contained within existing budgets and resources.
3.	To make changes to signals based on the results of the visual surveys	**Not Recommended** at this stage until consultation exercise completed.	Some minor changes can be contained within existing budgets. However additional funding will be required in most cases.

4.2 Risk assessment

The following significant risks and opportunities have been identified:

Opportunities

- The removal of traffic signal sites may reduce congestion and remove unnecessary delay from the Borough's road network.
- Any sites that are removed will represent a cost saving opportunity in terms of future maintenance costs. In addition the removal of sites will generate a stock of spare parts which can be used to maintain the remaining sites which will further reduce costs.
- Reducing the number of sites will minimise the amount of time Borough engineers need to spend on maintenance which will allow more time to be spent on maximising efficiency and minimising faults at the remaining sites.
- The removal of traffic signal sites may generate support from motorists and local residents.
- Where traffic signals have historically been installed to minimise conflict and accident risk, replacement with alternative forms of junction control may result in a decrease in the number and severity of casualties.
- The removal of traffic signals will contribute to an improvement of the street scene

Risks

- Where traffic signals have been installed to minimise conflict and accident risk, replacement with alternative forms of junction control may result in an increase in the number and severity of casualties.
- Where traffic signals have been installed to co-ordinate opposing traffic streams, replacement with alternative forms of junction control **may** result in an increase in traffic congestion on some, if not all, approaches to the junction.
- If adequate alternative measures are not implemented it **may** result in significant traffic congestion

- If a site is removed that forms part of a network of linked junctions, it **may** have a knock on effect on the entire network
- A safety audit should be undertaken in advance of modification to signal controlled junctions. There is a risk that the safety audit may recommend retention (purely in safety terms)
- Where traffic signal controlled crossings are removed, this may negatively affect visually impaired pedestrians
- Where traffic signals are removed, which have been provided as part of a development under the planning process and the developer has paid commuted sums, the developer may be eligible for a refund of those monies (current costs are £11k per signal head which covers maintenance over a 20 year period)
- A risk of claims from motorists if signals are removed and an accident occurs

5. CONSULTATIONS CARRIED OUT

In addition to the technical assessment undertaken in this report it is critical to engage with the community and obtain local opinion.

Therefore, the Lead member for Highways & Streetcare has written to all Ward Councillors, Parish/Town Councils and a number of representatives and stakeholders seeking their views. This consultation was due to end on 31st March. However, due to initial interest, it has recently been extended to the end of April to enable more time for constructive feedback.
No firm actions are recommended until the results of the consultation have been analysed.

6. COMMENTS FROM OVERVIEW AND SCRUTINY PANEL

The Planning & Environment Scrutiny Panel considered this report on Monday 14 March 2011 and resolved the following:

********** ***Comments to be added*** **********

7. IMPLICATIONS

The following implications have been addressed where indicated below.

Financial	Legal	Human Rights Act	Planning	Sustainable Development	Diversity & Equality
Yes	Yes	Yes	Yes	Yes	Yes

Background Papers:
None

Appendix A: Review of Traffic Signals

This report considers issues primarily related to reducing congestion and improving journey times and similar issues have been raised elsewhere.

As part of the Mayor of London's commitment to smoothing traffic flow, ***Transport for London (TfL)*** has been reviewing traffic signal operation at over 1000 signal controlled junctions to ensure that traffic signals operate as efficiently as possible for all road users, including vehicles and pedestrians.

At the majority of sites, modifications to signal timings have been introduced in order to reduce stop-start traffic delays. At around 100 further sites, intelligent technology has been introduced to enable traffic signals to be far more responsive to changes in traffic flows. The study also identified 145 sites where signal control was causing unnecessary delay and signal control could be removed to help smooth traffic flow. In a majority of cases this involves replacement with a mini-roundabout and/or adjacent zebra crossings.

http://www.tfl.gov.uk/corporate/projectsandschemes/11351.aspx

Reading Borough Council undertook a similar review of traffic light controlled junctions earlier this year. Based on a review of locations where traffic patterns had changed either as a result of development or changes to the road network, twenty junctions were identified where it may be possible to introduce changes or even remove traffic signals in order to speed up journey times. To date, traffic signals have been switched off on an experimental basis at one junction.

http://www.reading.gov.uk/latest/mediareleases/pressarticle.asp?id=SX9452-A7855E87

Appendix B - Traffic Signal Preliminary Review (Existing Site Details)

Note: These comments are based on initial visual surveys and further analysis is recommended

Maidenhead (Grenfell Island Site)

TM004 - King Street/Queen Street, Maidenhead
TM020 - Frascati Way/Broadway, Maidenhead
TM022 - Grenfell Road/Grenfell Place, Maidenhead
TM027 - Braywick Road/Shoppenhangers Road, Maidenhead
(PM105 - The Broadway, Maidenhead)

The above sites are centrally controlled by the Borough's Urban Traffic Control (UTC) system and manage the flow of traffic into and out of Maidenhead from the south. Alternative give-way based junction layouts could be considered in some locations. However, since the A308 is dual carriageway, it is likely that the alternatives would only be practical if this involved reduced traffic movements (i.e. banned right turns). It is also likely that the reduced traffic capacity and adverse effect on operation of the traffic network in the area would preclude the implementation of any alternatives.

In many locations inadequate space is available to provide a suitable configuration of roundabouts and zebra crossings that could accommodate the necessary vehicular and pedestrian movements. Due to the volume of traffic at the above junctions and the requirement for pedestrian facilities at a number of the sites it is recommended that they are all retained as centrally operated traffic signal controlled junctions. The sites are generally in good condition, although some ongoing maintenance and refurbishment work is required to keep the sites in good working order. Also improvements to the operation of various junctions is required in order to optimise the performance of the network as a whole.

These linked signals have the flexibility to adapt to the change in traffic flows associated with the PRoM redevelopment.

South-West Windsor

TM005 - Dedworth Road/Hatch Lane, Windsor
TM006 - Clarence Road Roundabout, Windsor
TM011 - Clarence Road/Alma Road, Windsor
TM013 - Arthur Road/Vansittart Road, Windsor
TM014 - Arthur Road/Alma Road, Windsor
TM015 - Victoria Street/William Street, Windsor
TM017 - Sheet Street/Victoria Street, Windsor

TM023 - Maidenhead Road/Sport Centre, Windsor (Assess feasibility for 'switch-off' subject to consultation with stakeholders)

TM028 - Clarence Road/Vansittart Road, Windsor
(PM109 - Victoria Street, Windsor)

The above sites can be centrally controlled by the Borough's Urban Traffic Control (UTC) system and manage traffic movements on the Maidenhead Road/Arthur Road and Clarence Road/Victoria Street corridors. Due to longstanding faults and outdated timing plans a number of the sites are not operated via the UTC system and are run in isolation to allow improved performance. Alternative priority based measures could be considered in some locations. However it is likely that the cost, reduced capacity and effect on overall network control that isolated junction replacement would have within this type of network would prevent the implementation of any alternatives.

In many locations inadequate space is available to allow a suitable configuration of non-signalised junctions and zebra crossings that could safely accommodate the necessary vehicular and pedestrian movements. Due to the volume of traffic at the above junctions and the requirement for pedestrian facilities at a number of the sites it is strongly recommended that all sites are all retained as traffic signal junctions.

Equipment upgrades and improvements at a number of sites would optimise the performance of individual junctions and the network as a whole.

Priority Working Shuttle Sites

TM007 - Highfield Lane Railway Bridge, Maidenhead
TM008 - Cannon Lane Railway Bridge, Maidenhead
TM009 - Nordon Road Railway Bridge, Maidenhead
TM012 - Station Road, Wraysbury
TM025 - Cookham Bridge, Cookham
TM026 - Welley Road, Wraysbury

These sites provide shuttle working priority operation on or below bridges where insufficient carriageway width exists to allow two way traffic movements. Due to the length of the narrow sections at these sites and the overall lack of visibility, there are no safe alternatives other than the use of traffic signals in these locations. There are a number of sites where the long length of narrow road between signals can result in long vehicle delays, due to the need to allow sufficient time for slow moving vehicles to clear, but the installation of upgraded signal controllers and additional vehicle detectors could reduce traffic delays to a practical minimum.

These sites are strongly recommended for retention on a road safety basis.

Isolated Junctions

TM001 – A4 St Cloud Way/Sainsbury's Access, Maidenhead (Assess feasibility for 'switch-off' subject to consultation with stakeholders)

This set of signals controls conflicting vehicle movements onto and off of the A4 dual carriageway at the northern Sainsbury's car park entrance. No pedestrian facilities are provided. Whilst this would appear an ideal site to consider removal of traffic signals, there are a number of practical issues that would need to be addressed. Firstly, the right-turn movements into and out of the car park would need to be banned, and barriers installed on the central reserve to prevent these traffic movements. The impact of the additional u-turning traffic at both roundabouts would need to be assessed as this is likely to cause additional traffic delay at each roundabout. In addition due to the gradient on the Sainsbury's car park exit a dedicated left turn exit lane would need to be provided to allow vehicles to safely pull out onto the A4, especially for HGV delivery lorries exiting from Sainsbury's. This would therefore reduce the A4 to one lane for through movements westbound in this location, which is likely to have an adverse impact upon traffic flows on the A4. Nevertheless, it would be feasible to undertake a signal switch off at this location on a trial basis. The cost of undertaking this trial would be in the order of £10,000, in order to implement the alternative traffic management works.

TM002 – Winkfield Road/Clewer Hill Road

TM003 – Imperial Road/St Leonard's Road, Windsor

These are two important junctions on the Windsor road network, providing access to Windsor town centre and the M4 motorway from the south-west, as well as forming the main route for traffic to and from Legoland. After a prolonged settling-in period, these two junctions are effectively managing the varying traffic flows experienced in the area. Both junctions operate using MOVA traffic signal control, which features improved vehicle detection and advanced signal control, enabling both junctions to respond quickly to changes in traffic flows, and seeks to minimise traffic delays during the off-peak and maximise capacity during peak periods. These junctions operate independently but are linked at certain times and in certain traffic conditions in order to adapt to varying traffic levels experienced in this location.

CCTV cameras are now in place at this junction, which enables traffic movements through the junction to be monitored.

If the traffic signals were removed the only alternative would be to introduce mini roundabouts at each junction and 3-4 zebra crossings across both junctions. The cost of removing the traffic signals and implementing this type of alternative scheme is likely to cost in the region of £100-120K. Due to the congestion, safety and cost issues associated with any non-signalised alternatives, it is recommended that these sites are retained.

TM010 - Bath Road/All Saints Avenue/Boyn Hill Road, Maidenhead (Prioritise for upgrade)

This junction controls the movement of traffic to the A4 from All Saints Avenue and Boyn Hill Road, both of which are busy residential roads. If the signals were removed in favour of a crossroads, it is unlikely that traffic on All Saints Avenue would be able to find sufficient gaps in traffic to safely join A4, which would lead to congestion on these approaches. In addition, there is insufficient land available to accommodate a roundabout which could provide a suitable a suitable level of traffic capacity. It is therefore recommended that this site is retained.

The site is also on a key pedestrian desire line and whilst no pedestrian facilities are provided at present.

TM016 - High Street/Keats Lane, Eton (Prioritise for upgrade)

This junction controls the movement of traffic between Keats Lane, which is very narrow, and the High Street in Eton. No controlled pedestrian facilities are provided. The visibility when emerging from Keats Lane is poor and therefore traffic signals were installed in order to allow the safe movement of traffic at this junction. Due to land constraints in this location it would not be possible to implement a non-signalised alternative and therefore it is recommended that this site is retained. The site also experiences high pedestrian flows and the introduction of improved pedestrian facilities is currently being investigated.

TM018 - Forlease Road/Moorbridge Road/Bridge Street, Maidenhead (Prioritise for upgrade)

This junction controls several major traffic movements including the flow of traffic to and from the Waitrose store and a large proportion of traffic exiting from the eastern Sainsbury's car park exit. One controlled crossing in provided to the south of the junction. If the signals were removed in favour of a priority based crossroads it is unlikely that traffic on Moorbridge Road or Bridge Street would be able to find sufficient gaps to join Forlease Road which would lead to congestion on these approaches. In addition there is insufficient land available to accommodate a roundabout with a suitable level of traffic capacity and therefore it is recommended that this site is retained. Although there are a number of issues with the operation of the junction following the re-development of the adjoining Waitrose site, capital funding is currently allocated for improvements at this junction.

TM019 - Windsor and Eton Relief Road Northbound On Slip, Windsor (Assess feasibility for 'switch-off' subject to consultation with stakeholders)

This junction controls the flow of traffic from the Maidenhead Road roundabout onto the Windsor and Eton Relief Road Northbound carriageway. The traffic signals were installed as the slip road is far steeper and shorter than normal, and there is insufficient merging length on the main carriageway to allow vehicles to safely accelerate up to speed to join the main carriageway. If the traffic signals were removed the layout of the existing carriageway would require modification.

TM021 - Furze Platt Road/Switchback Road South, Maidenhead

This junction controls traffic movements to and from Furze Platt Road onto Switchback Road South, a busy side road which leads to large residential and industrial areas. Pedestrian facilities are provided at the junction and are heavily used by schoolchildren from the Furze Platt School. If the signals were removed in favour of a give-way junction it is unlikely that traffic from Switchback Road South would be able to easily turn onto Furze Platt Road which would lead to congestion and safety issues on this approach. Whist sufficient space would appear to be available to provide a roundabout with a suitable level of traffic capacity along with zebra crossings; this would require third party land acquisition. Scheme cost estimates would be in excess of £200,000, excluding the cost of land acquisition. Therefore it is recommended that this site is retained. Layout and operations improvements are due to be introduced at the site during this financial year.

TM024 - Thames Street/Datchet Road/Thames Avenue, Windsor (Assess feasibility for 'switch-off' subject to consultation with stakeholders)

This junction controls the movement of traffic to and from Datchet Road onto Thames Street, a busy side road which leads to the High Street and Town Centre. Pedestrian facilities are provided at the junction and are heavily used, especially by tourists. If the signals were removed in favour of a priority based junction, there would be visibility issues that would raise road safety concerns. In addition it is unlikely that traffic on Thames Street would be able to find sufficient gaps to safely join traffic on Datchet Road which would lead to congestion on this approach. Finally, there are very heavy pedestrian flows across Thames Avenue which would need to be accommodated.

This site could though be considered for a trial traffic signal removal, provided the visibility and traffic issues could be overcome, and an alternative form of pedestrian crossing facility could be identified. Further investigation of this possible option is therefore recommended.

Pedestrian Crossings

Pedestrian crossing assessment is more straightforward that junction assessment. The reasons for crossing implementation and in this case retention still fall into several well defined categories. However there are only two alternatives to a signalised crossing which are an uncontrolled crossing point or a zebra crossing. It would cost between £5-10K to remove a signalised pedestrian crossing and reinstate the site. It would then cost a further £15-20K to install a zebra crossing in its place.

Residential Areas and Local Facilities

PM101 - A308 Straight Road near Church Road, Old Windsor

PM102 - A30 near Level Crossing, Sunningdale

PM104 - Bridge Road, Maidenhead

PM112 - Cookham Road near Kidwell's Close, Maidenhead

PM114 - Osborne Road near Frances Avenue, Windsor

PM115 - Bath Road near Grenfell Road, Maidenhead

PM117 - Straight Road near Newton Lane, Old Windsor

The above sites provide safe crossing points on key pedestrian desire lines and link large residential areas with other local facilities. They are all sited on busy roads and are subject to heavy pedestrian flows. Due to the volume of traffic and pedestrians at these sites it is unlikely that a zebra crossing would be considered a safe alternative and at times could cause congestion issues. As a result it is not recommended that these sites are removed or replaced with zebra crossings.

Schools

PM103 - Bath Road near Wootton Way, Maidenhead

PM113 - Furze Platt Road near Linden Avenue, Maidenhead

PM126 - Cookham Road, near Sandringham Road, Maidenhead

The above crossings are adjacent to schools and are therefore heavily used by school children. Due to the volume of traffic using the roads where these crossings are located it is unlikely that a zebra crossing would be considered a safe alternative and at times could cause congestion issues. As a result it is not recommended that these sites are removed or replaced with zebra crossings.

Retail and Tourist Areas

PM105 - The Broadway, Maidenhead

PM106 - Barry Avenue, Windsor

PM107 - Goswell Road, Windsor

PM108 - High Street, Windsor

PM109 - Victoria Street, Windsor

The above crossings are adjacent to or within busy retail and tourist area and are therefore subject to heavy pedestrian flows. Due to the volume of pedestrians using these sites it is unlikely that a zebra crossing would be considered a safe alternative and at times could cause congestion issues. As a result it is not recommended that these sites are removed or replaced with zebra crossings.

Cycle and Pedestrian Routes

PM116 - Osborne Road near St Leonard's Road, Windsor

PM118 - Imperial Road, Windsor

PM119 - Alma Road near St Leonard's Road, Windsor

PM121 - Maidenhead Road, Windsor

PM122 - Datchet Road near The Myrke, Datchet

PM127 - Bath Road near Newlands Drive, Maidenhead

PM128 - Bath Road near Highway Road, Maidenhead

PM129 - Albert Road, Windsor (Previously TM001)

PM130 - Albert Road, Old Windsor (Previously TM002)

The above sites provide safe crossing points for pedestrians as well as cyclists. They are located on busy cycle routes including a number of sections of the national cycle network, as well as pedestrian crossing 'desire lines'. Due to the volume of traffic using the roads where these crossings are located it is unlikely that a zebra crossing would be considered a safe alternative and at times could cause congestion issues. It is also the case that cyclists are not legally permitted to use a zebra crossing. Therefore it is not recommended that these sites are removed or replaced with zebra crossings.

PM125 - Pococks Lane, Eton

This crossing was implemented in order to provide a safe crossing point for Eton College students accessing playing fields to the north. Whilst the number of pedestrians crossing at this location would suggest that a zebra crossing would be an appropriate at this location, the relatively high speed of traffic on Pococks Lane means that it is an unsuitable location for a zebra crossing on safety grounds.

PM110 - Dedworth Road near Smith's Lane, Windsor (Potential to Replace with 'Zebra' Crossing)

PM111 - Dedworth Road near Vale Road, Windsor (Potential to Replace with 'Zebra' crossing)

The above sites provide safe crossing points and link residential areas with other local facilities. Due to the other informal crossing facilities and traffic calming measures provided along Dedworth Road these may be suitable locations for zebra crossings. The equipment at these sites is reaching the end of its life span and they are likely to require a full refurbishment within the next few years. As a result it is recommended that a further costed analysis is undertaken to identify the cost of replacement of the traffic signals with zebra crossings.

Equestrian, Cycle and Pedestrian Routes

PM120 - Rangers Gate, Windsor Great Park

The above site is the Borough's only full Pegasus crossing, intended for use by horse riders, cyclists and pedestrians. It is also the only form of crossing that is

suitable for these user groups. Therefore it is not recommended that this site is removed.

PM123 - High Street, Ascot (Western Crossing)

PM124 - High Street, Ascot (Eastern Crossing)

The above crossings are subject to heavy pedestrian flows during Royal Ascot race days and it is understood that the western crossing is also used by the racecourse to cross horses. In addition the western crossing also provides an important link with Heatherwood Hospital.

Therefore a zebra crossing is not considered suitable and it is recommended that these sites are retained.