Agenda Item No: 6

TRAFFIC SIGNALS DESIGN AND OPERATIONAL GUIDANCE

To:	**Highways and Community Infrastructure Committee**
Meeting Date:	**10th July 2018**
From:	**Graham Hughes, Executive Director: Place & Economy**
Electoral division(s):	**All**
Forward Plan ref:	**n/a** *Key Decision:* **No**
Purpose:	**The Committee is asked to consider new guidance on traffic signals design and operation set out in Appendix 1.**
Recommendation:	**The Committee is recommended to endorse the new guidance on traffic signals design and operation set out in Appendix 1.**

	Officer contact:		***Member contacts:***
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1. BACKGROUND

1.1 As the balance between travel modes changes towards public transport, cycling and walking, particularly in urban areas, traffic signals may need to be reconfigured to refine the priorities given to pedestrians and cyclists, public transport and other vehicles.

1.2 The Greater Cambridge Partnership (GCP) has recently undertaken an audit of all signal installations in the Greater Cambridge area, working closely with the County Council's traffic signals team. The audit has reviewed current conditions and has assessed the potential for improvement at each site. Further work is being undertaken to prioritise future investment by the GCP on a route / area basis, taking into consideration other planned and anticipated transport infrastructure, again working in collaboration with the traffic signals team.

2. DESIGN AND OPERATIONAL GUIDANCE

2.1 To underpin the review process, a new proposed guidance document on signal design and operation has been jointly prepared by the traffic signals team and the GCP (see Appendix 1). This proposed guidance focuses on improving the movement of people rather than on the management of vehicle queues, which has tended to be the key factor in signals management in the past, although the guidance emphasises that a flexible approach should be adopted to allow a balanced outcome to be achieved that is consistent with transport strategy and other objectives.

2.2 It is intended that this new guidance would inform and influence a future GCP signal upgrade investment plan, as well as other signal infrastructure projects undertaken by the County Council and by developers. Following scrutiny by the GCP Joint Assembly and Executive Board, the Committee is asked to approve the new guidance document as the County Council is the Highway Authority and is responsible for policies and guidance of this nature.

2.3 How the guidance is applied across the wider county highway network will be managed through its network management duties under the Traffic Management Act 2004. As advocated in the guidance note, a flexible approach will be needed to best reflect individual site circumstances, including their role within the road hierarchy and other considerations, such as air quality, to achieve a pragmatic balance between competing movement demands. Therefore, the degree to which sustainable transport mode movements are prioritised over motor vehicle movements could be expected to be more significant on certain routes within city and town centres than at suburban and more rural sites.

2.4 It is intended that the GCP Executive Board will consider a prioritised plan for investment in signal improvements at its July meeting this year. Given its significant network operational implications, further discussions are in hand with the traffic signals team to determine the best mechanisms for delivering an upgrade programme.

3. ALIGNMENT WITH CORPORATE PRIORITIES

Developing the local economy for the benefit of all

3.1 Encouraging and enabling modal shift from car-based transport to more sustainable modes (walking, cycling and public transport) through improved signal technology will reduce

congestion and improve accessibility and the environment, particularly in urban areas, which will benefit economic activity and facilitate planned growth.

Helping people live healthy and independent lives

3.2 Providing greater priority for sustainable forms of transport and improving safety at signalled junctions will encourage healthier travel choices. Better coordination of traffic signals has the potential to reduce vehicle braking and acceleration, which will reduce pollution and improve air quality.

Supporting and protecting vulnerable people

3.3 Improving facilities at signalled junctions will improve road safety, particularly for vulnerable users, such as the young, elderly or particular user types, such as pedestrians and cyclists.

4. SIGNIFICANT IMPLICATIONS

Resource Implications

4.1 The upgrade priorities identified by the GCP will be fully funded from its budget. It is anticipated that the staff resources required to deliver the signal upgrades will be procured from external sources under the guidance of the traffic signals team.

Procurement/Contractual/Council Contract Procedure Rules Implications
Statutory, Legal and Risk Implications
Equality and Diversity Implications
Localism and Local Member Involvement

4.2 No significant implications identified for the above categories.

Engagement and Communications Implications

4.3 The new guidance is consistent with current transport strategy, which has been the subject of public consultation and engagement. Individual site improvements will be subject to consultation and statutory processes where required.

Public Health Implications

4.4 Providing more priority at traffic signals for pedestrians and cyclists will encourage healthier travel choices. Better coordination of traffic signals has the potential to reduce vehicle braking and acceleration, which will reduce pollution and improve air quality.

Implications	**Officer Clearance**
Have the resource implications been cleared by Finance?	Yes Name of Financial Officer: Sarah Heywood
Have the procurement/contractual/ Council Contract Procedure Rules implications been cleared by the LGSS	Yes Name of Officer: Paul White

Head of Procurement?	
Has the impact on statutory, legal and risk implications been cleared by LGSS Law?	Yes Name of Legal Officer: Debbie Carter-Hughes
Have the equality and diversity implications been cleared by your Service Contact?	Yes Name of Officer: Tamar Oviatt-Ham
Have any engagement and communication implications been cleared by Communications?	Yes Name of Officer: Joanna Shilton
Have any localism and Local Member involvement issues been cleared by your Service Contact?	Yes Name of Officer: Tamar Oviett-Ham
Have any Public Health implications been cleared by Public Health	Yes Name of Officer: Stuart Keeble

Source Documents	**Location**
None	

Appendix 1

TRAFFIC SIGNALS DESIGN AND OPERATIONAL GUIDANCE

Purpose

This document sets out guidance on the design and operation of traffic signals within Cambridgeshire. When applying this guidance it is emphasized that a flexible approach should be adopted to allow a balanced outcome to be achieved that is consistent with transport strategy objectives.

This guidance will inform and influence any reviews of existing traffic signal installations and the design of new signal installations including those being delivered by external parties, particularly in respect of new development.

This guidance is intended to complement existing traffic signal best practice and regulation.

General approach

As a first step in any traffic signals review or in the design of new installations, the principle of traffic signal control should be tested with alternative methods of control being considered.

Traffic signals should be configured so that signal stages and timings optimise the movement of people rather than simply the movement of vehicles. Signal timing plans should have flexibility to respond to changing modal demands throughout the day/week/season. In urban areas, traffic signal systems should have the ability to utilize air quality data to influence and inform changes in networked signal timings in response to poor air quality.

Up to date information on people movement and delays at individual junctions and crossings should be collected, to inform and influence the way in which signal control is configured and operated.

Individual transport mode considerations

Pedestrians

Wherever practical and possible pedestrian movements across individual junction arms should be made in a single movement. All red motor vehicle stages (potentially incorporating diagonal crossing facilities) should be considered at junctions where necessary to manage high pedestrian flows.

Pedal cyclists

Wherever practical and possible cycle movements should be:

- Segregated by space or time or both from motor vehicle movements.
- Made in a single movement across individual junction arms.

Public Transport

Local registered public transport service movements should be prioritised over general traffic movements through early detection on junction approaches. At sites where public transport vehicles run on conflicting routes, priority should be given to which ever one is experiencing the greatest delay in punctuality or whichever is carrying the greatest number of passengers (implementation of this aspect will be dictated by the availability of technology to monitor timetabling and passenger levels in real time).

Other motor vehicles

The signal review process should determine whether the retention of all current permitted movements for private motor vehicles is essential or necessary, in consideration of other transport strategies and projects. If considered appropriate, consideration could be given to restricting identified motor vehicle movements if they support and/or achieve strategic transport aims and create more opportunity to prioritise sustainable transport modes. Any proposal to restriction junction movements should be modelled to fully assess and understand the implications for access on the wider road network.

Road safety

To improve road safety, injury accident data should be assessed to:

• Determine the need for any changes in design or operation at existing signal sites

• Inform the design process for new signal installations.

Perceived safety concerns for vulnerable users (pedestrians and pedal cyclists) should also be taken into account.

Technology and Innovation

At all signal controlled junctions/crossings, the use of ‘state of the art’ technology should be considered to address the following key operational aspects:

Pedestrians - on-crossing detection and other aids for those with limited mobility, to optimise pedestrian stage operation.

Pedal cyclists - stop line and approach detection to optimise cycle stage operation.

Public transport - the ability to detect public transport vehicles early to optimise the prioritisation of those movements for registered local services (with the ability to access timetable and real time information and passenger levels to prioritise conflicting movements).

Pollution – the ability to factor in air quality data in real time to influence and inform the optimisation of signal timings.

General traffic - the ability to optimise general traffic movements on a network/ corridor basis.

Whilst traffic signal designs and operations need to be consistent with current Department for Transport (DfT) regulations, the design and/or review process should aspire to test and adopt innovative approaches through DfT approved trials.

Application of guidance

The way in which this guidance is applied to individual junctions and crossings needs to take into account their location and role within the road hierarchy, to ensure consistency with strategic aims and to achieve a pragmatic balance between competing movement demands. Therefore, the degree to which sustainable transport mode movements are prioritised over motor vehicle movements could be expected to be more significant on routes within city and town centres than on the ring roads / arterial routes.