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Delivering our City Deal

Report to: Greater Cambridge Partnership Executive Board

21 March 2018

Lead officer: Peter Blake – GCP Director of Transport

City Access Update, including Achieving Modal Shift and Options for Demand Management

1. Purpose of this paper

- 1.1. This is a discussion only paper and no decisions are being asked of the Executive Board at this time. The Executive Board is asked to comment on the progress to date of the City Access programme and provide any views on the options for achieving modal shift through demand management as outlined in the paper. Subject to the Board's comments, work will be progressed on the City Access programme including analysis and modelling of different blends of demand management measures.
- 1.2. These proposals will be discussed with Cambridgeshire & Peterborough Combined Authority, as the strategic transport authority for the area, before any final proposals are developed. Subject to that, the Joint Assembly and Executive Board would receive a further update in June/July respectively, with the aim to continue the demand management aspects of the 'Big Conversation' with stakeholders and the public later in 2018.

2. Recommendations

- (i) That the Executive Board supports the development of options for managing traffic demand in Cambridge and agrees that proposals which best meet the objectives set out in paragraph 7.7 are prepared for the Executive Board in July 2018 with the aim to continue the demand management aspects of the 'Big Conversation' with stakeholders and the public in Autumn 2018.
- (ii) That the GCP engages with partners, including the Cambridgeshire and Peterborough Combined Authority to ensure alignment with the strategic transport plan, and to provide the opportunity for others to shape/comment on the possible approaches for managing demand and reducing congestion.
- (iii) That the Executive Board supports the principles of an electric bus pilot and delegates approval of the pilot to the Director of Transport in consultation with the Executive Board Chairman.

3. Officer Comments on Technical Issues raised by the Joint Assembly

- 3.1. Given the consultative nature of the report the Joint Assembly did not raise any technical issues, rather they await the outcome of the further work and were generally supportive of evidence being gathered to assist with identifying the best solutions to achieve modal shift.

- 3.2. In response to questions about when any consultation should be, officers did confirm that any formal consultation would not be conducted over the summer period.

4. Context

- 4.1. This paper outlines proposed study work designed to explore and evaluate a number of options for reducing congestion and improving air quality in and around Cambridge. This way of managing demand is predicated on putting in place demonstrable improvements in public transport in order for there to be an effective, reliable and affordable alternative to the car prior to interventions designed to manage demand. In particular this work will look at potential ways to reduce city centre car journeys and describe, in detail, the improvements required in public transport services to support any changes, which will need to be delivered in advance.
- 4.2. No decisions are required at this point. The work outlined in the report consists of the analysis and modelling necessary to provide a detailed understanding of the potential demand management options for the city and the investment needed to improve public transport services.

5. City Access – Purpose and Strategy

- 5.1. The City Access project is designed to support the development of a world class transport system that makes it easy to get into, out of, and around Cambridge in ways that enhance the environment and retain the beauty of the City. The strategy for achieving this includes the following elements:
- Supporting the transition to sustainable transport (public transport, bike, foot) making travel easier especially for those arriving from outside the city.
 - Making public transport vehicles significantly more reliable and attractive including the delivery of a segregated rapid transit system.
 - Developing cycling and walking as significantly more attractive options.
 - Reducing city centre and cross-city vehicular journeys by providing attractive alternatives.
 - Delivering enhancements to the public realm and city centre environment.
 - Providing better information to help travellers make more informed choices.
 - Potential to use funds generated by pricing measures to deliver a step change in public transport provision.
- 5.2. Measures to monitor and track progress of the City Access project include:
- Reduction in numbers of vehicles (10-15% reduction in 2011 figure).
 - Increase in modal shift to public and sustainable forms of transport, including an increase in cycling numbers.
 - Reduction in journey times by public transport to/from key locations.
 - Improved frequency of public transport services.
 - Improved journey reliability across all modes.
 - Public transport which is available to more people through the introduction of new services.
 - Increased patronage of public transport services, creating the opportunity to negotiate a reduction in fares.
 - Enhanced air quality and emission volumes.
 - Improved public realm.

6. Feedback from Our Big Conversation Reinforces the City Access Strategy

- 6.1. The City Access strategy has been further reinforced by the early findings of Our Big Conversation.
- 6.2. Our Big Conversation analysis shows that a vast majority of strategic aims for improving transport are supported or strongly supported.
- 6.3. Improving public transport is identified as the measure which would benefit respondents most (55.9%).
- 6.4. The Systra residents' travel survey revealed that reliability is most frequently cited as the reason for the choice of travel mode (40.6%). In addition, of those who do not use alternative modes, the top three reasons were due to: speed, reliability and price of public transport.
- 6.5. Commuters make up highest proportion of those travelling in/around Cambridge five or more times per week (86.5%). Moreover, 47.7% of commuters cycle compared to 38.7% other respondents.
- 6.6. The biggest transport challenges identified by respondents to Our Big Conversation survey include:
 - Traffic congestion (64.6%).
 - Reliability of public transport (42.5%).
 - The lack of public transport (39.7%).
- 6.7. The findings of Our Big Conversation are being used to refine and revise the City Access strategy to ensure that it remains focused on the priorities of the GCP.

7. Progress Update on Key City Access Initiatives

This section covers four key areas of progress within the City Access project, and further information is contained in **Appendix 1** with specific details of cycling initiatives in **Appendix 2**.

Parking

- 7.1. Parking policy can be used as a policy tool to support wider objectives. It can be a means of demand management that is either physical (in the case of parking restrictions) or price based (in the case of parking charges). It is the intention that City Access parking schemes support the wider aims of the GCP by:
 - Restricting the parking available to commuters and others as a means to encourage modal shift including Residents' Parking Schemes.

Four Residents' Parking Schemes were the subject of a public consultation, run by the County Council and funded by the GCP, between 23 October and 4 December 2017 – these four are Accordia, Staffordshire, Coleridge West and Newnham. The preliminary results show the majority of respondents in all four areas are in favour of their respective schemes: 87% in Accordia, 96% in Staffordshire, 53% in Coleridge West and 66% in Newnham. The new schemes, shaped by informal discussions with local Members and residents to fit the local needs, are in line with the County Council's Parking Policy and the GCP's plans to reduce congestion in Cambridge. The GCP will fund the implementation costs associated with these schemes.

The feedback received during the consultation has been considered to develop final plans that are, at the time of writing, the subject of statutory consultation on Traffic Regulation Orders (TROs). Two of the schemes (Accordia and Staffordshire) are having the TRO advertised shortly and will be going to Cambridge City Joint Area Committee (CJAC) in April 2018 and are expected to be implemented by September 2018 as originally envisaged. Following engagement with local members in Coleridge West and Newnham, a number of changes to the TROs are required and these two scheme will now go to CJAC in June 2018 for implementation later in the year.

- Providing more parking and improved facilities at interchange¹ sites to encourage modal shift. This includes additional spaces at the existing Trumpington Park and Ride and the rollout of contactless payments. It could also include developing the concept of multi-functional hubs, providing a range of transport interchange options, not solely focussing upon arrival by car. It will also include looking at developing hubs as places to access relevant services in their own right, e.g. workspace, meeting place and collection services etc.

Air Quality

- 7.2. Improving air quality is a priority in terms of improving public health outcomes. The health implications of poor air quality have become an issue of increasing public concern in recent years, particularly in cities. A potential pollution and/or intelligent charge, if implemented, would be likely to be one of the major interventions by which necessary air quality improvements could be achieved.
- 7.3. Pollution charges and demand management in other cities have led to a reduction in the number of private vehicles being driven in the city, as well as a shift in the composition of the vehicle fleet towards lower emission models. This also happens naturally over time in response to industry wide vehicle standards and regulatory regimes, but pollution charges in some cases have speeded up the 'greening' of the fleet.
- 7.4. A Clean Air Zone feasibility study is being commissioned by the City Council's Air Quality team on behalf of the GCP. The purpose of this study is to determine the feasibility of and options for the implementation of a Clean Air Zone in Cambridge. A Clean Air Zone defines an area where targeted action is taken to improve air quality and resources are prioritised and coordinated in order to shape the urban environment in a way that delivers improved health benefits and supports economic growth. This could include targeted interventions, for example outside schools.
- 7.5. It is anticipated that a supplier will have been selected by end-April 18 and the report will be available by Sep 18. This work will feed into the detailed plans for a pollution charge should this form part of the demand management measures (see below).
- 7.6. In the short term whilst options for t-charges are being assessed, the focus on encouraging the use of clean vehicles is likely to be targeted at taxi and public transport operators, and providing charging infrastructure to encourage the shift to less polluting vehicles.
- 7.7. The first two charging points for electric taxis are scheduled for installation in Mar 18 and a further 6 points are scheduled for installation by end Dec 18.

¹ In the context of this paper, 'Interchange' refers to any facility designed to facilitate a change of mode to public transport or other form of sustainable transport. At the present time, the key interchanges are 'Park and Ride' sites but recognising that our ambition is for these to be arrived at in the future using a range of transport means, including mobility as a service.

- 7.8. An options review study for Electric Buses is ongoing and will facilitate work with the operators to agree a future roadmap. A full report will be provided at the Jul 18 meeting.
- 7.9. Discussions are underway with the two main bus operators to agree the basis for a pilot scheme to operate electric vehicles on two routes. The pilots would provide a better understanding of the implications of operating electric vehicles across the wider public transport network. GCP would fund the necessary charging infrastructure on both routes and the purchase price difference between the cost of diesel and electric vehicles. To expedite the pilot, the Executive Board is recommended to approve the project in principle and to delegate the approval of the two pilot routes to the Director of Transport in consultation with the Executive Board Chairman.

Signals

- 7.10. As the balance between travel modes changes towards public transport, cycling and walking, signals may need to be reconfigured to refine the priorities given to pedestrians and cyclists, public transport and other vehicles. An audit of all signal installations in the GCP area has been undertaken which has assessed the potential for improvement at each site. Further work will be undertaken to prioritise future investment based on a route / area basis taking into consideration other transport projects and initiatives to inform a future upgrade programme.
- 7.11. With the involvement of the County Council's traffic signals team, a new guidance document on signal design and operation has been prepared that would require the endorsement of the County Council as the Highway Authority. This 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. It is proposed that the guidance would inform and influence a future GCP upgrade investment plan. Members are requested to note and comment on this guidance (**Appendix 3**) prior to its consideration by the County Council.
- 7.12. It is proposed that a further report will be brought to the Board at its July meeting which will set out a prioritised plan for investment in signal improvements. Given its significant network operational implications, further discussions are planned with the Highway Authority to determine the best mechanism for delivering the project.

Improving the Public Realm

- 7.13. As modal shift occurs, road space will be freed up for other uses and this provides opportunities for an improved public realm. A key initiative in this context is the development of a Spaces and Movement Supplementary Planning Document (SPD). This will deliver a 'people centric' strategy that steers and shapes future investment and decision making in a way which puts people and a sense of place at the heart of city life, and prioritises the enhancement of the city's spaces, streets, cycleways and walkways in the context of increased use arising from its phenomenal success and continuing growth.
- 7.14. Procurement of consultancy support to progress this work is underway and we expected to finalise the preferred bidder in the next month. Once appointed, the combined team of city planners and GCP staff will work with the consultants to develop the programme of work, which will also include consideration of how to enhance the economic, social and environmental value of Market Square as a key community asset to support the city's growth.

8. Demand Management

Policy Background

- 8.1. Policy TSCSC 15 in the Cambridgeshire Local Transport Plan approved by Cambridgeshire County Council in July 2015 states that:

'Appropriate measures and interventions will be introduced to manage the demand for general vehicular traffic, and reducing through traffic in Cambridge in line with the strategy approach. Further work is proposed to determine the specific priorities which will be consulted on over time with such as measures expected to include;

- *Reallocation of road space to be used by passenger transport, pedestrians and cyclists*
- *Access restrictions for general vehicular traffic*
- *Parking restrictions'*

- 8.2. This policy was also adopted by the Combined Authority as part of their adoption of the Local Transport Plan on 28 June 2017.

What is meant by demand management?

- 8.3. Demand management encompasses a range of tools, for example:

- Physical controls including closing roads to some or all type of vehicle, either permanently or at certain times.
- Parking controls. This can include a variety of approaches including Residents' Parking Schemes, reducing the number of on and off street parking spaces, increasing parking charges and introducing a Workplace Parking Levy.
- Pollution or toxicity charging whereby the most polluting types of vehicle are charged.
- Intelligent charging where charges are related to road conditions, normally congestion and/or air quality.

- 8.4. Demand management tools are broadly divided into pricing (fiscal) measures or physical interventions. Whereas pricing measures are likely to have a city-level impact and have cost implications for people and businesses, physical measures allow more local, targeted interventions without imposing cost but they do limit choice.

- 8.5. A summary of the key features of Demand Management options is contained in **Appendix 4**.

Demand management in relation to other City Access initiatives

- 8.6. Consideration of managing demand is predicated on putting in place demonstrable improvements in public transport in order for there to be an effective, reliable and affordable alternative to the car prior to interventions designed to manage demand. In particular this work will look at potential ways to reduce city centre car journeys and describe, in detail, the improvements required in public transport services to support any changes, which will need to be delivered in advance. Extensive travel planning, promotion and public communications will also be required in advance of any demand management interventions.

Why demand management is important

- 8.7. Demand management is a means of reducing the number of vehicles in Cambridge, and it has a number of important impacts:
- Reducing congestion in the city centre and around major employment centres.
 - Making public transport significantly more attractive. Specifically, improving the reliability of public transport since public transport vehicles will be less prone to being caught up in congestion. Since speed and reliability were shown by Our Big Conversation to be key influencers of travel mode choice, this is likely to be very positive for encouraging modal shift.
 - Changing the balance away from private vehicles and towards other modes including public transport thus increasing patronage. This has the potential to make routes significantly more viable; encourage operators to open up new routes and increase frequency, and create a downward price pressure.
 - Minimising the time wasted in traffic congestion for people that live and work in Greater Cambridge.
 - Freeing up road space thus creating a more pleasant environment for cyclists and pedestrians which also encourages modal shift to sustainable options.
 - Improving air quality, especially if public transport vehicles use cleaner technologies.
- 8.8. Demand management is particularly relevant in the context of Greater Cambridge where there are predicted to be 33,000 new homes, 44,000 new jobs and a 65,000 increase in population by 2031. If demand management techniques are not used, there is a risk that any reduction in congestion brought about by other means will be temporary because in the absence of such measures, less congested roads tend to attract more vehicles. As a result, demand management is an important means to 'lock-in' hard won benefits and ensure the system is sustainable in the long term.
- 8.9. As described above, there are a number of different types of demand management measures. It is important that a blend of measures is considered which would ensure that GCP realises its objectives in the most optimal way. Taking a holistic approach helps to ensure that the measures are coherent and effective, and allows an informed assessment of the impact on different stakeholder groups and the equity of the proposals. This is likely to mean that using physical and pricing mechanisms in combination would provide the best approach for managing demand.
- 8.10. Pricing means that those who continue to drive when good alternatives are available would be required to pay for the pollution they cause and/or the benefit of using roads which are less congested than previously. If those funds were to be directed to improving public transport, this would be most likely to benefit those who currently have few choices, for example the 44% of the lowest income quintile who have no access to a car (National Travel Survey DfT 2017).
- 8.11. Some methods of managing demand can be used to generate funds to improve public transport further by subsidising: fares, routes, frequency and hours of operation. As well as providing the means to help fund a world class public transport system, it also provides revenue against which borrowing could be secured to part fund major capital works e.g. mass rapid transit. In the longer term this leads to more people having good alternatives to car travel, creating a virtuous cycle.
- 8.12. If there was support to fund public transport improvements in this way, the GCP could consider up-front funding to ensure the public transport alternatives are more attractive for all Greater Cambridge residents, employees and visitors, ahead of any charges being introduced.

What benefits could demand management bring for Greater Cambridge?

8.13. The key public transport service improvements requested in Our Big Conversation were:

- More frequent public transport services to key destinations which, in addition to enhancing service provision, may include the development of new and improved rail links to make the most of the new Cambridge North station and planned Cambridge South station, as well as other stations within the Greater Cambridge area.
- Expansion of the hours of operation, e.g. to give people frequent public transport services until around 8.30pm, instead of 6pm as is often the case at present, and to extend services to key interchange hubs to at least 8.30pm and possibly as late as 11.30pm.
- Improved links between rural communities and the new travel hubs and rural transport hubs that are being proposed within other work streams.
- Reduced public transport fares, including on services to current and future interchanges.

8.14. The estimated cost of these service enhancements is of the order of £20m (this figure excludes the cost of rail enhancement, which could increase the figure significantly).

8.15. Some or all of the above could be met by using funds generated by demand management measures. We are currently assessing which of the above have the greatest potential to support demand management in achieving modal shift.

8.16. In order for demand management to be a driver of modal shift which is the principal objective, there needs to be an available and affordable alternative to using the car at the point at which any charge were it to be introduced so these will need to be prioritised and potentially forward funded by GCP.

Exploring options for demand management

8.17. Option assessment for demand management measures is underway and includes interrogating the evidence from the ANPR survey amongst other sources to support the definition of the optimal package of measures, and ensure that any eventual policy recommendations are evidence based.

8.18. Drawing on the above, an economic model is being developed to estimate the demand response that might be expected using the different price-based options available. It will also allow us to estimate the proposals that would be necessary to achieve the headline 10-15% reduction on 2011 traffic levels target.

8.19. It is intended to model a range of options to provide insight into different alternatives. Work is ongoing on the precise scenarios to be modelled and tested.

8.20. Consideration is being given to how and where physical measures could be used either alone or to support the implementation of a pricing mechanism. This will be informed by the results of the ANPR analysis and a review of the functionality of the city road network in response to planned growth.

8.21. The output of that work will be to estimate the potential impact of intelligent charging, pollution charging, workplace parking levy and physical demand management interventions on the following metrics of success:

- Traffic demand (number of trips in total and by category of vehicle, total vehicle km).
- Emissions.
- In addition a qualitative assessment will be made of the likely impact on the equity implications of each option.

8.22. In parallel, work is underway to deliver tangible improvements in public transport services making them more attractive to potential users. This will include developing greater detail on the costs, revenues and timetable of operation.

- 8.23. Finally, work is being undertaken to:
 - Prioritise those investments according to their ability to deliver against the overall Transport Future Investment Strategy vision and objectives.
 - Consider how any future implementation programme would be organised, in particular the need to provide improved public transport in advance of any pricing or physical measures.
- 8.24. This modelling work will provide an insight into the different options available and how they could be blended to achieve the objectives and measures of the City Access project described in 5.1 and 5.2 above.

Equality considerations

- 8.25. It is extremely important that this work reviews any impact of demand management measures on different stakeholder groups. This work will clearly identify impacts, both positive and negative, of these measures on different groups of people and make explicit the likely equalities impact of any measures introduced. This will consider in particular people with lower incomes, people with mobility concerns and children and older people.
- 8.26. The modelling approach will consider a number of different realistic scenarios or personas, each focused on a different group of stakeholders with different needs and constraints to illustrate the impact of the measures so that equity and fairness can be objectively assessed and considered in the decision making process. This will include a wide range of situations including those less well served by current public transport provision, for example individuals working early, late and split shifts; extended or anti-social hours and those commuting long distances.
- 8.27. In the future, this work could potentially form the basis of engaging, interactive approaches tailored to personal situations which would allow individuals to receive information about their travel options and explore alternatives. This would support travel planning and information provision which will be important elements of this work to ensure that all travellers are in a position to take advantage new and improved transport options.
- 8.28. A full equalities impact assessment will be undertaken as part of any decision to progress with a package of demand management measures.

9. Next steps

- 9.1. This is a discussion only paper and no decisions are being asked of the Executive Board at this time. The Joint Assembly have commented on the progress to date of the City Access programme and their feedback on the options for achieving modal shift through demand management has been reflected in the paper. Subject to the Executive Board's comments, work will be progressed on the City Access programme including analysis and modelling of different blends of demand management measures.
- 9.2. These proposals will be discussed with Cambridgeshire & Peterborough Combined Authority, as the strategic transport authority for the area, before any final proposals are developed. Subject to that, the Joint Assembly and Executive Board would receive a further update in June/July respectively, with the aim to continue the demand management aspects of the 'Big Conversation' with stakeholders and the public later in 2018.

10. Implications

Financial and other resources

- 10.1. The City Access project development is funded by Greater Cambridge Partnership

Legal

- 10.2. No significant legal implications have been identified at this stage. Existing and new schemes need to be engaged with and managed as much as is possible within the current legal framework to minimise any negative effects.

Staffing

- 10.3. Project management is undertaken by Cambridgeshire County Council.

Risk management

- 10.4. Risks are managed with a project risk register.

Equality and diversity

- 10.5. A full equalities impact assessment will be undertaken as part of any decision to progress with a package of demand management measures.

Climate change and environmental

- 10.6 The proposed measures have the potential to reduce congestion and improve air quality in the longer term through encouraging a shift towards sustainable transport modes.

Consultation and communication

- 10.7 The report has been developed based on broad public and stakeholder feedback as part of Our Big Conversation in Autumn 2017. Detailed option proposals will be subject to further engagement and/or consultation at the appropriate time, subject to approval.

Appendix 1 Key City Access Work streams not covered in the main report

Other public transport provision highlights

Initial feedback from the Big Conversation has raised the need to extend public transport service operating hours. An early consideration is the possible extension to existing interchange (Park and Ride) opening hours, and analysis of this has started and will be reported in March 2018.

Investigations of the routes taken by existing P&R and Busway services, and their experience of issues such as non-compliant parking and right-turning traffic, have now been completed and the details logged. Officers are currently exploring potential feasible measures to address some of those issues. Once potential measures have been explored, depending on the outcomes of that work there will either be a proposal put to the Executive Board on a package of short-term measures, or a clear explanation given to Board members of why a work package of short-term measures is not feasible.

New secure cycling lockers have now been installed at six interchange sites (78 lockers in total). There are a further 14 still to be installed at Trumpington Park and Ride and it is anticipated that these will be available around mid-February 2018.

Other Parking provision highlights

The trial of contactless payment at interchange sites is underway and is expected to be rolled out to the five existing Cambridge ring Park & Ride sites by end of April 2018.

Delivery of additional car parking spaces at Trumpington Park and Ride is dependent on a Planning decision expected September 2018. Increased coach/minibus spaces at that site has been delayed by work on a planning amendment (this does not require full planning approval). Delivery is now scheduled for June 2018.

Other Signals highlights

A separate study to evaluate the available ‘state of the art’ technology is expected to be completed by the end of March 2018 and this is focussing on the operational aspects highlighted in the guidance note.

Evidence Base

Some initial analysis of the ANPR was published in October 2017 resulting in a press release. A subsequent press release in November 2017 covered the public release of initial datasets via the Cambridgeshire Insights website. A partial refresh of the data is being undertaken by the supplier.

The data is being or will be analysed by a range of groups including:

- Arup transport consultancy who are analysing the data to identify key information about patterns of travel.
- The University of Cambridge Architecture Department who are enhancing a model for use in policy and planning.
- Mandrel Solutions (one of the finalists in the recent Internet of Things (IoT) Boost programme) who are doing some initial analysis of the data.
- The County Council modelling team who are using the ANPR data to update the paramics model, and this is scheduled to be available in March 2018.

Further arrangements with 3rd party data analysis organisations may be explored to add more capacity or specialist knowledge as required.

Cycling

Cross city cycling routes and the Chisholm Trail are progressing to plan. With respect to the Chisholm Trail, there are a number of planning conditions which are proving challenging to comply with and these pose a potential risk to the delivery timetable.

To complement the wider GCP cycling programme, the City Access team proposes to take forward other cycling initiatives focusing on cycling needs within the central area of Cambridge. **Appendix 2** scopes further work on central area cycling initiatives and budget implications.

Strategic rationale	To increase the modal share of cycling
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1. Background

- 1.1 With just under 31% of Cambridge residents cycling to work and a general modal share of 26%, cycling levels are already very high in Cambridge but in order to manage a predicted population growth of 16% in the city, increasing this level of cycling, particular at peak times, should be a key part of the City Access programme.

2. Key Issues

- 2.1 The wider GCP programme includes improving cycling routes across the city through the cross city cycle schemes, improving routes out to the villages through the Greenways project and providing high quality cycle routes as part of arterial route improvements like the Histon Road and Milton Road schemes. The City Access team will support these schemes as necessary and will also focus on improvements for cycling in the city central area, in terms of route improvements and cycle parking, as well as managing the effects of dockless bike sharing schemes within the city.
- 2.2 As and when traffic management options for managing private car access across the city are developed, there will be the need to ensure that the opportunities to improve routes and junctions for cyclists are exploited, particularly where capacity is freed up.
- 2.3 Cycle parking within the city centre is already inadequate to meet existing demand so unless additional facilities can be provided and existing facilities managed more efficiently this problem will get worse as the number of cyclists increases.
- 2.4 There are no easy solutions in providing additional off-street cycle parking in the city centre but further work into the feasibility of options, such as the expansion of the existing Grand Arcade cycle park into the magistrates car park (if the magistrates court closes in Cambridge) or looking at use of the lower ground floor of the car park, could be undertaken. In the shorter term, parking at the under-used Park Street cycle park could be enhanced through minor refurbishment and better promotion.
- 2.5 Space for additional on-street cycle parking in the historic core area, which does not impinge on access, loading or pedestrian space, is extremely limited although some options for small scale capacity improvements are being considered. On-street student parking adjacent to colleges limits the options for other users. Further out, an audit of cycle parking at civic buildings was undertaken recently by the City Council which has identified a number of places where there is demand and where space is available for the installation of cycle racks. As the numbers of children cycling to school increases there is also demand to improve cycle parking at schools across the city.
- 2.6 There is a high demand for cycle parking in many terrace housing streets where there are no front gardens, garages or easy access to back gardens. As part of the rollout of further residents parking schemes, consideration should be given to the provision of additional cycle parking including for cargo bike parking, where demand exists.
- 2.7 Consideration needs to be given to how best to manage the most popular city centre cycle parking spaces to optimise capacity. Currently little is known about the duration of stay and the purpose for cycle parking. Investigation of current usage and methods to encourage

more short term use of on street spaces, particularly in the historic core, would help optimise access to services by cycle.

- 2.8 The introduction of dockless bike sharing schemes to Cambridge also has implications for the amount of cycle parking available and could potentially make the current situation worse. Existing and new schemes need to be engaged with and managed as much as is possible within the current legal framework to minimise any negative effects, whilst providing the city with a flexible and good quality system which encourages sustainable travel.

3. Next steps

- 3.1 Current work is focusing on:

- Develop an improved evidence base to define the scope and scale of the problem, and identify potential solutions
- Further investigation into the options for increased off-street provision including supporting the Market Square feasibility study.
- Promotion and minor refurbishment of the Park Street Cycle park in liaison with the City Council.
- A survey of existing usage and scoping of options for improved management of existing on-street cycle parking spaces in the historic core area including engagement with city centre colleges to relieve pressure on on-street parking.
- Assessing and consulting on additional small scale on-street cycle parking in the city centre in viable locations.
- Identifying the priorities for funding additional cycle parking at civic buildings and schools.
- Development of a Code of Conduct for dockless bike share schemes in Cambridge.

4. Budget

- 4.1 Within the City Access budget for 2018/19, an allocation of £150,000 is proposed to allow the above recommendations to be taken forward (this will be met from existing City Access funding).

Appendix 3 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 emphasised 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 be flexible to respond to changing modal demands throughout the day/week/season. In urban areas, traffic signal systems should have the ability to utilise 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 junction/crossing 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.

Appendix 4: Key features of Demand Management Options

	Intelligent Charging	Toxicity Charge (T-Charge)	Workplace Parking Levy (WPL)	Parking Controls	Physical measures
Pros: opportunities and benefits	<ul style="list-style-type: none"> Greatest potential to deliver the 10-15% reduction in traffic, modal shift and the other City Access objectives. Charges can be related to a range of factors including when congestion is less of a problem. Significant potential for funding for improved, subsidised public transport and sustainable alternatives which helps to address concerns about low paid workers. Potential modal shift to sustainable transport options. Potential flexibility may allow change over time. This could provide a means of adjustment in response to feedback from those affected. Could be managed in conjunction with the T-charge thus increasing efficiency. 	<ul style="list-style-type: none"> Health benefits and public realm benefits from reduced emissions. Through traffic may avoid the area and thus reduce congestion. Vehicle owners (businesses and individuals) may change their vehicles over time. This may encourage new delivery operations e.g. electric fleet, freight consolidation. Could be managed in conjunction with Intelligent Charging thus increasing efficiency. 	<ul style="list-style-type: none"> The main pro is the potential to impact commuter behaviours including modal shift if businesses choose to pass on the charge. There is also the likelihood that some businesses will be incentivised to release car parks for more productive uses (e.g. housing or employment) providing windfall and infill sites in the city centre and at key employment locations. 	<ul style="list-style-type: none"> Potentially an effective way to achieve modal shift to sustainable transport options. Reduced parking might over time lessen problems caused by queues for car parks if there is sufficient modal shift. Space freed up from parking can be used in ways that contribute to the GCP aims. 	<ul style="list-style-type: none"> Can influence congestion and public realm in specific areas Potential modal shift to sustainable transport options.
Cons	<ul style="list-style-type: none"> There is a perception that this option would negatively impact those travelling from outside the city more than those living in Cambridge. The ANPR survey results show around 90,000 trips (50% of total – 24 hour survey period) are “internal to internal”. This 	<ul style="list-style-type: none"> Risk of displacement rather than behavioural change. 	<ul style="list-style-type: none"> Relatively small potential for funding improvements ('carrots') in comparison to Intelligent Charging. By itself this cannot fund the potential improvements ('carrots') Business opposition For those businesses that don't release land but choose 	<ul style="list-style-type: none"> Effective use of parking controls for demand management would reduce revenues, with a negative impact on City and County Council budgets (particularly significant for City given its relatively high proportion of overall budget). 	<ul style="list-style-type: none"> Risk of displacement rather than behavioural change Strong previous business opposition.

	Intelligent Charging	Toxicity Charge (T-Charge)	Workplace Parking Levy (WPL)	Parking Controls	Physical measures
	suggests that the impact would fall on both groups in almost equal measure.		to pay the Levy, it is not clear what proportion would absorb a Levy as a business overhead (which would be likely to have minimal traffic reduction impact) and what proportion would pass the cost on to individual drivers.		
Feedback from business (as recorded at Big Conversation business briefings unless otherwise stated).	<ul style="list-style-type: none"> Recognition that some form of congestion charging is required and support for it being 'intelligent'. Marked preference for this over WPL. 	<ul style="list-style-type: none"> Some recognition that pollution/emissions need to be tackled. 	<ul style="list-style-type: none"> Some business saw WPL as an opportunity to develop land currently used for parking. Many businesses were opposed to WPL because of the impact on low paid staff. Examples include Colleges with low paid staff working outside office hours who park at the College. 	<ul style="list-style-type: none"> Some support for more parking controls. Some businesses supported expansion/extended hours of existing P&R sites and new P&R sites. 	<ul style="list-style-type: none"> 'Tackling Peak Time congestion' (summer-autumn 2016) resulted in negative feedback from businesses. In particular 'The least popular option was the introduction of the 6 Peak-time Congestion Control Points'.
Big Conversation (Resident feedback from the Systra survey).	<ul style="list-style-type: none"> The Systra residents' survey indicates that this is the highest scoring demand management option (above parking controls and WPL). 	<ul style="list-style-type: none"> The Systra residents' survey indicates that this is the second highest scoring demand management option (well above parking controls and WPL). 	<ul style="list-style-type: none"> The Systra residents' survey indicates that this is a low scoring demand management option (significantly below Intelligent Charging). 	<ul style="list-style-type: none"> The Systra residents' survey indicates that this is a low scoring demand management option (significantly below Intelligent Charging). 	
Main impacted group.	<ul style="list-style-type: none"> All drivers in charging area. 	<ul style="list-style-type: none"> All drivers of vehicles that attract the T-charge. 	<ul style="list-style-type: none"> Businesses in the affected area. People working for businesses in the affected area. 	<ul style="list-style-type: none"> All drivers needing to park. Does not impact through traffic (except potentially where affected by increased queues for car parks caused by limited parking). 	<ul style="list-style-type: none"> All drivers in affected area.