



**GREATER
CAMBRIDGE
PARTNERSHIP**

Growing and sharing prosperity

Delivering our City Deal

Report to: Greater Cambridge Partnership Executive Board

4 July 2018

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City Access

1. Purpose

- 1.1. This paper updates the Assembly on work to explore a number of options for reducing congestion and improving air quality in and around Cambridge. The work is based on the requirement to make demonstrable improvements in public transport to provide an effective, reliable and affordable alternative to the car, prior to interventions designed to manage demand. It considers the extent to which modal shift might be achieved and whether a sequenced programme of demand management might be necessary to free up road space that can be more equitably and efficiently used for public transport and, if necessary, provide financial support to the operation of that public transport system. The improvements required in public transport services to support any changes will need to be delivered in advance of any significant demand management measures.
- 1.2. These proposals will be discussed during June and July with Cambridgeshire and Peterborough Combined Authority, as the strategic transport authority, as part of developing final City Access proposals. The planned discussions between the GCP and Combined Authority as agreed at the CPCA meeting on 30th May 2018 will focus on aligning short, medium and long term policies and future work programme, including a review of the Combined Authority evidential basis and delivery strategies. The City Access proposals will be adapted to reflect the outcome of these discussions.

2. Recommendations

- 2.1. The Executive Board is recommended to:
 - Note the work to date on the potential options for achieving modal shift through demand management.
 - Agree to continue to review the demand management options available to meet the objectives of the GCP's transport strategy.
 - Agree to work with the Combined Authority, as the designated strategic transport authority for the Greater Cambridge area to further review proposals for managing demand.

3. **Officer comment on Joint Assembly recommendations and issues raised**

- 3.1. The Joint Assembly reflected on the pace at which this project had been progressing and hoped that a further paper on City Access would be with them soon.
- 3.2. There was a large amount of discussion about the impact that any Toxicity/intelligent charging mechanism could have on those of lower income and commuters. Members felt that prior to any charging mechanism being implemented, the reliability of the public transport network needed to improve significantly. Officers reassured Members that work is underway to ensure this is the case.
- 3.3. Members asked officers to also look at the impact of school traffic as a factor which officers agreed to take away and work on.

4. **Key issues and considerations**

Context

- 4.1. Greater Cambridge is a national economic success story, an important contributor to UK PLC and host to some of the most productive and innovative parts of the UK economy. The role of the Greater Cambridge Partnership is to support the continued economic success of the Greater Cambridge area, to ensure that this growth is supported and that everyone in Greater Cambridge is able to access the opportunities offered by that growth.
- 4.2. In doing so, the GCP is working, and will continue to work, closely with the Mayor and Combined Authority of Cambridgeshire and Peterborough.
- 4.3. The GCP must ensure that the benefits that draw people to Greater Cambridge including beautiful landscape, historic environment, good high quality jobs, educational offer, and character are not allowed to be offset by the costs that can come with growth for example increasingly unaffordable housing, traffic congestion, and poorer air quality.
- 4.4. Congestion is a major problem. People are spending too much of their time in traffic jams; congestion has an impact on people's quality of life, on the local environment and on business productivity.

City Access – Purpose and Strategy

- 4.5. 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 coming in regularly from outside the city.
 - Making public transport vehicles significantly more reliable and attractive including the delivery of a segregated rapid transit system to avoid public transport queuing behind cars.
 - 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.
- Potentially generating funds through pricing measures to deliver a step change in public transport provision.

4.1. Measures to monitor and track progress of the City Access project include:

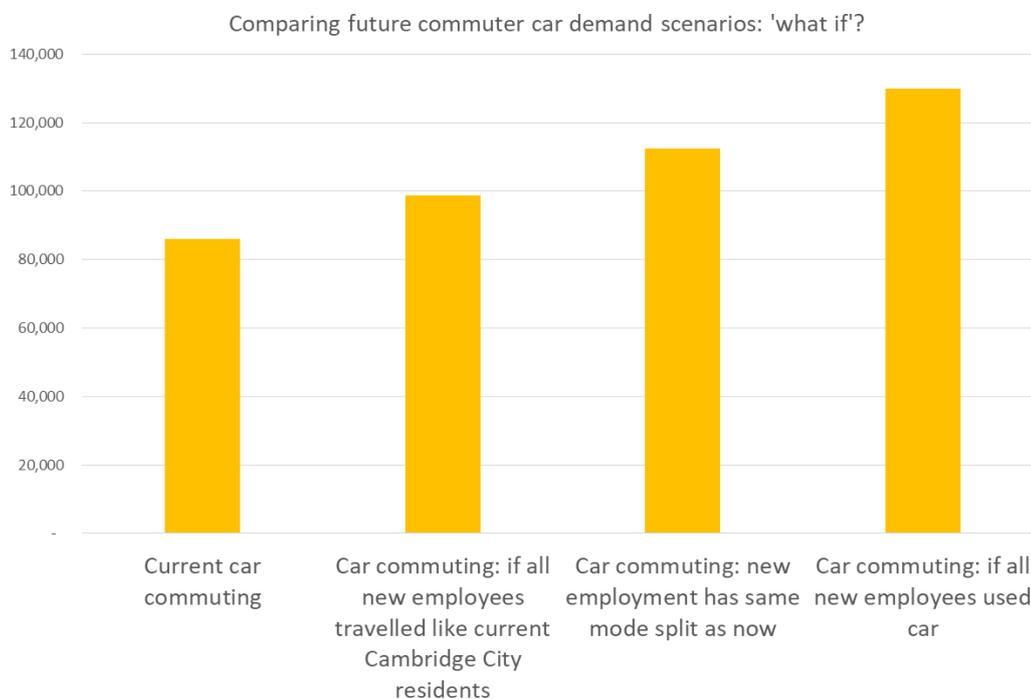
- Reduction in numbers of vehicles (10-15% reduction in 2011 figure).
- Increase in modal shift to public and sustainable forms of transport, including an increase in cycling numbers.
- Reduction in journey times by public transport to/from key locations.
- Improved frequency of public transport services.
- 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.

Impacts of future growth on network performance

- 4.6. Census data shows that of the total 144,000 Greater Cambridge workers, 86,000 (60%) say their main mode of transport to work is driving themselves to work¹. Key road links on the network are already operating with vehicle flows above their design capacity and the impacts of this congestion delay on people's quality of life and on business competitiveness is felt by many locally to be unacceptable.
- 4.7. Addressing network pinch points and providing targeted additional capacity can be an effective way of reducing delays caused by congestion, and GCP are developing plans for highways capacity improvements including working with DfT to secure investment in the M11 and at Girton Interchange to address local challenges. Works to upgrade the A14 have begun and the Mayor and Combined Authority and the County Council are developing proposals for strategic road network improvements in the wider area.

¹ This does not include people that travel to work as car passengers. Note that is likely to include many peak hour park & ride users, as the Census asks people to categorise their mode of travel by longest leg of journey which in most cases is likely to be car where P&R is used as a 'last mile'.

- 4.8. However, evidence also suggests that provision of additional capacity, especially within urban areas, is not a long term solution for congestion. New road capacity often fills up shortly after it is provided and efforts to encourage modal shift are the only way to support cities to grow sustainably in a way that limits urban sprawl and maintains quality of life for those that live in and around them.
- 4.9. Given the planned scale of employment growth (44,000 new jobs to 2031), if all new workers had the travel behaviours of today’s workers, there would be an additional 26,000 commuting trips to be accommodated on the road network.
- 4.10. For most residents west of the M11 or north of the A14, Addenbrooke’s/ Cambridge Biomedical Campus and other employment locations to the south are an impractically long (more than one hour) public transport commute. There are some 30,000 new homes planned to the north and west of Cambridge, and around 20,000 new jobs at CBC, Babraham Research Campus and Granta Park. Without investment in cross city connectivity, new residents of those areas are very unlikely to travel to work by public transport, and the increase in car commuting trips could be higher still.



- 4.11. The network cannot sustain this ‘business as usual’ level of car demand growth. Preliminary modelling analysis underpinning the Cambridgeshire and Peterborough Independent Economic Review (CPIER) suggests that Greater Cambridge will be unable to maintain its current rate of growth and success given current infrastructure and housing plans. Reducing congestion is therefore a priority to ensure the continued success of Greater Cambridge economy, an analysis which is supported by business voices from around the GCP area.
- 4.12. GCP is developing plans for investment in public transport provision that targets locations for growth and addresses gaps in the current provision where they arise in terms of journey time, accessibility, frequency and cost.

- 4.13. However, competitiveness analysis of public transport on key routes suggests that for many locations, public transport journey time improvements and demand management measures may be need to be used in combination, rather than separately, to make public transport competitive with car travel within the City and immediate surrounding areas. When implemented in combination, scenario testing indicates that public transport could become the most attractive option for 80-90% of zones tested.

Feedback from Our Big Conversation Reinforces the City Access Strategy

- 4.14. Our Big Conversation analysis shows that a vast majority of strategic aims for improving transport are supported or strongly supported.
- 4.15. Improving public transport is identified as the measure which would benefit respondents most (55.9 %).
- 4.16. 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.
- 4.17. 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.
- 4.18. 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%).

5. Demand Management

Policy Background

- 5.1. Policy TSCSC 15 in the Cambridgeshire Local Transport Plan approved by Cambridgeshire County Council in July 2015 states that:
- 5.2. *'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'*

- 5.3. 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?

- 5.4. 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 charge for employer-owned spaces currently offering free parking to employees (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.
- 5.5. Demand management tools are broadly divided into physical interventions or pricing (fiscal) measures. 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 and may displace congestion problems from one location to another.
- 5.6. A summary of the key features of Demand Management options is contained in **Appendix 1**.

Demand management in relation to other City Access initiatives

- 5.7. Consideration of managing demand is predicated on first 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. The principles of this system are set out in the Transport Strategy paper.

Why demand management is important

- 5.8. 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.
 - 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.
- 5.9. Demand management is particularly relevant in the context of Greater Cambridge where growth and an increase in population is predicted. 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.
- 5.10. As described above, there are a number of different types of demand management measures. It is important that a range of measures is considered which would ensure that GCP realises its objectives as fairly and efficiently as possible. Taking an 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 may mean that using physical and pricing mechanisms in combination would provide the best approach for managing demand.
- 5.11. 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 into 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).
- 5.12. 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, funds also provide 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.
- 5.13. If there was support for the funding of public transport improvements in this way, the GCP could consider up-front funding from the City Deal transport allocation to ensure the public transport alternatives are more attractive for all Greater Cambridge residents, employees and visitors, ahead of any charges being introduced.
- 5.14. 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.

Assessing demand management interventions: metrics for success

- 5.15. The primary metric against which interventions have been assessed is their ability to achieve the headline target of a 10-15% reduction on 2011 traffic levels target by 2030.

- 5.16. Because traffic volumes have grown considerably since 2011, this translates to a 24% reduction on 2017 traffic levels, to be achieved over a period during which the population in Cambridgeshire is forecast to grow by 11% (2017-2030).
- 5.17. In addition to the traffic reduction target, scenarios can also be compared using a preliminary assessment of:
- likely equalities impacts (including household income and deprivation);
 - number of additional public transport passengers implied;
 - likely net revenue surplus that could be used to cross-subsidise public transport improvements.

Sequencing of Demand Management Measures

- 5.18. Different demand management measures clearly have different impacts, as is outlined in more detail below. The size and scale of impact for example on traffic volumes, accessibility or equality issues will be a key consideration when considering the sequencing of any implementation. A gradual ramping up of measures may be more desirable and deliverable, moving to the next option only if the desired impacts are not achieved.

Physical demand management interventions

- 5.19. Work has been commissioned to establish whether there is a credible set of physical interventions (e.g. road closures, limited access and similar) that could achieve or contribute to the desired traffic reduction outcome without causing significant problems elsewhere on the network. This work is due to conclude in July and will be presented to a future Joint Assembly and Executive Board.
- 5.20. Other physical measures include enhancing traffic signals and the management of on-street parking such as residents parking schemes. Whilst the impact of such schemes on traffic volumes is more marginal, work continues to quantify the benefits and will be presented to a future meeting.

Price-based demand management interventions

- 5.21. A model has been developed to estimate the impact that might be expected using the different price-based options available.
- 5.22. The model is an economic model predicting the overall demand response level to different prices and circumstances. It does not consider implications for traffic assignment and re-routing. If a decision is taken to proceed with more detailed impact modelling, it will be necessary to also undertake traffic modelling to establish how specific parts of the network might be affected.
- 5.23. The work also outlines, in general terms the revenue that might be raised by any fiscal charges which would support delivery of an enhanced public transport network.

- 5.24. To date, a preliminary series of scenarios have been tested, with the potential to test more in response to Joint Assembly and Executive Board member queries or in response to views expressed through any future public consultation.

6. Options

Off-street parking charges

- 6.1. The results of the economic modelling suggest that raising prices for public sector controlled off-street parking alone is unlikely to achieve the demand reduction target. This is primarily because only a small proportion of journeys use off street paid parking.
- 6.2. An increase in the average hourly charge by £2 on all council held on and off street parking is expected to generate additional gross annual revenues of approximately £18m by 2030 and reduce baseline road traffic demand by ~4%. This reduction misses the target of 15% below 2011 traffic levels by 31% or 35,000 daily journeys.

Workplace Parking Levy

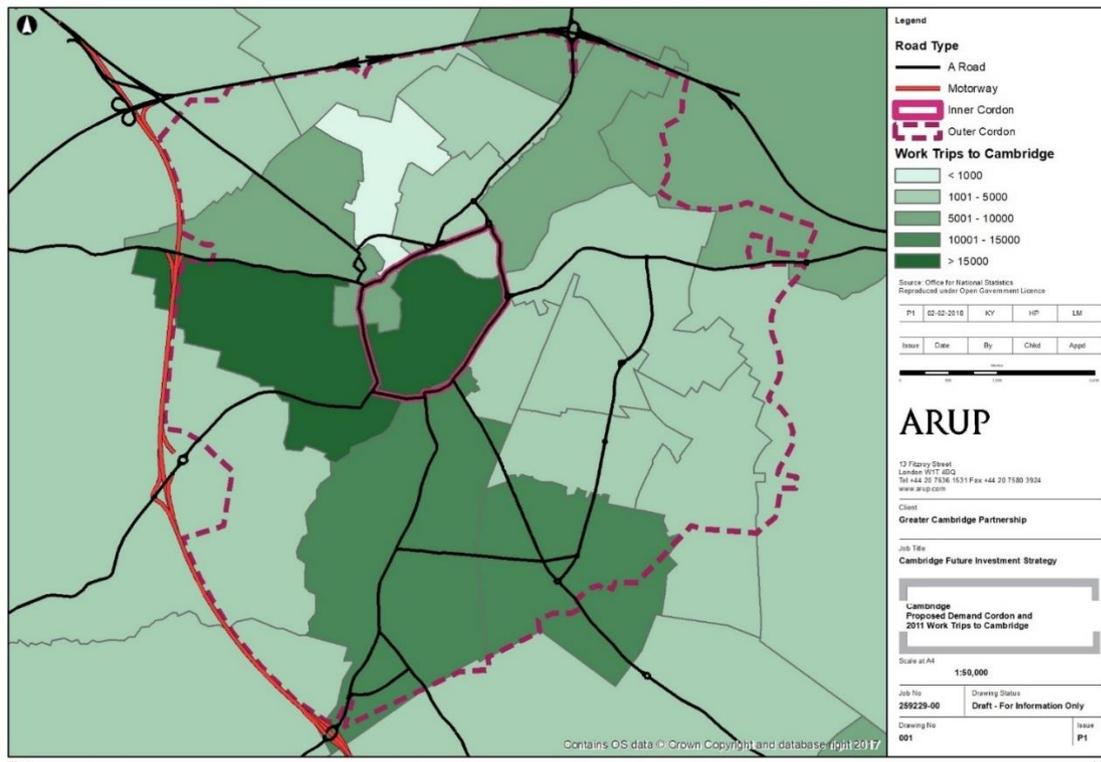
- 6.3. The results of the modelling suggests that Workplace Parking Levy alone is unlikely to be able to achieve the demand reduction target. However if implemented at a rate of £400 per year it could generate £6m-£7.5m per annum in gross revenues to reinvest in delivering public transport solutions.
- 6.4. This finding is primarily driven by two factors, first, evidence from Nottingham suggests that only around 40% of employers pass on the charge to their employees that use the spaces. For the majority, the Workplace Parking Levy is absorbed by the employers, effectively becoming a local business tax. Second, for those that do pass on the charge to individual drivers, the rate that has previously been discussed (around £400 per annum) equates to a relatively modest daily charge of around £1.50. A charge at that level affecting a minority of drivers is unlikely to be able to achieve the scale of demand reduction targeted; it is expected to only reduce demand below the baseline by 1% in 2030, with traffic levels remaining 35% above target levels.
- 6.5. It may be possible to deliver a greater demand reduction impact by substantially increasing the annual charge of a Workplace Parking Levy, but this would mean the financial and behavioural burden of demand reduction being borne heavily by a relatively small proportion of car drivers. The revenue of Nottingham's Workplace Parking Levy is ring-fenced to support public transport but it appears more effective as a revenue raising measure than a demand management measure.

Pollution charging

- 6.6. For the purposes of pollution charging and intelligent charging, the model considers two potential charging zones, which could operate separately or in combination. The zone boundaries are illustrative at this stage to allow for testing of potential impacts. Further work would be needed on the feasibility and traffic implications to establish a precise definition if this option were to be taken forward.

- 6.7. The 'outer zone' has been defined to sit inside the ring of park & ride sites around the city (it does not cross the A14, M11 or A11). This zone effectively covers the whole City of Cambridge, including the key satellite employment sites. Up to 80% of current jobs locations in the GCP area would be inside the zone and a substantial proportion of planned employment growth. Drivers would have the option to park & ride to complete their journey, or to drive on and incur a charge.
- 6.8. The 'inner zone' has been defined by the inner ring road and effectively covers the city centre only. A substantial proportion of jobs in the GCP area would fall outside of this inner zone, but it is where congestion is generally most acute.

Figure 1 Illustrative inner and outer charge zones, compared with work trip destinations in Cambridge



- 6.9. Results of the modelling of a Pollution Charge (sometimes referred to as an emissions charge, toxicity charge or T-charge) suggest that asking the drivers of the most polluting vehicles to pay a charge when driving in the city could be an effective way to meet demand reduction targets in the short to medium term. Gross annual revenues could be greater than £25m in the peak year of impact (2021). In the longer term, as fleet mix changes and all vehicles become 'cleaner', the effect would be likely to diminish rapidly, generating less than £5m in gross revenue per annum by the year 2027.
- 6.10. The economic model estimates that a charge of £4 daily, which applies to all diesel vehicles below Euro-6 standard, and all petrol vehicles below Euro-5 standard (equivalent to the recently introduced London T-charge) could reduce traffic below the baseline in the city by 6% (~9,000 journeys daily).
- 6.11. The environmental requirements for exemption from a pollution charge would need to be enhanced over time to have the same level of impact on congestion whilst at the same time improving air quality.

- 6.12. If the primary objective of a pollution charge is air quality improvement, it is possible that banning only the most polluting vehicles (LGVs and HGVs) and transitioning to a fully electric bus fleet may be a more efficient way to meet that objective than charging all vehicles. This is being explored through the Clean Air Zone feasibility study that is being undertaken in parallel with this study. Banning only HGVs and LGVs could potentially address issues of air quality but would be unlikely to significantly improve city centre traffic levels or contribute to the demand reduction target.

Intelligent charging

- 6.13. The principle of an Intelligent Charging mechanism is that drivers are required to pay a charge for entering a zone that would vary according to prevailing traffic conditions and is set to zero when there is no congestion.
- 6.14. Preliminary estimates suggest that an Intelligent Charging regime could be an effective way of achieving traffic demand reduction targets.
- 6.15. The model that has been developed to date allows various scenarios to be tested, including different hours of operation, the level at which the charge is set, and to vary the charge between 'inner' and 'outer' zones or keep it constant across the city. It is possible in the model to test the impacts of having a low city-wide charge with a premium for journeys that pass through the inner (city centre) zone.
- 6.16. Two illustrative examples are provided of Intelligent Charge scenarios that are expected to achieve demand reduction objectives. These correspond broadly to either a relatively high charge focused on the city centre, or a lower charge which applies to the whole city. In both scenarios, there is no charge for vehicles travelling before 7am or after 7pm. Additionally, in both scenarios, charges are first implemented as a pollution charge in 2021 only on the most polluting vehicles, before being converted to an intelligent charge on all vehicles around 2025 and only if other interventions have not achieved the desired demand reduction.
- 6.17. In a balanced charging scenario where the inner and outer zones are charged the same peak rate of £4 per day (i.e. no city centre 'premium'), there is a reduction of 27% below baseline traffic levels by 2030, meeting the target traffic level of 15% below 2011 levels.
- 6.18. In a targeted charging scenario where the inner and outer zones are charged different peak rates of £10 and £1 per day respectively, there remains a reduction of 27% below baseline levels by 2030, meeting the target traffic level of 15% below 2011 levels.

7. Phasing of Options

- 7.1. It is important that the total impact be considered in terms of the City Access package as a whole, not just the impact of demand management, but of the public transport system that it enables.
- 7.2. The Big Conversation travel survey last year, carried out by Travel for Cambridgeshire, found clearly that journey times (relative to car) were the single most important factor in people using cars rather than public transport. Analysis of the competitiveness of public transport to key employment locations bears this out and suggests that for some areas with significant commuter flows to Cambridge, only public transport journey time improvements and demand management in combination are likely to make public transport competitive with car.

- 7.3. GCP are working closely with the Mayor and the Combined Authority to push forward the development of the proposed Mass Transit solution (the Cambridgeshire Autonomous Metro, or CAM). A Strategic Outline Business Case development is underway which will test different scheme options.
- 7.4. GCP is developing proposals to deliver elements of the Cambridgeshire Autonomous Metro (CAM) early: the Cambourne to Cambridge and South East Cambridge busways, which stand alone as schemes in their own right but which ultimately could be incorporated into the wider CAM network. The full system, and in particular the proposed city centre off-road or tunnelled sections, are unlikely to be operational for some time. Action must be taken before then to make public transport more attractive and more viable.
- 7.5. The analysis in the Public Transport paper clearly sets out that without one or more measures of demand management, and until such time as fully offline public transport solutions can be delivered, it is unlikely that the necessary congestion reduction will occur to improve bus journey times, and make walking and cycling more attractive without supporting measures.
- 7.6. To deliver the significant improvement to the public transport network set out in Paper 1 requires either or both of:
 - a very substantial increase in demand for public transport (to provide the additional fare revenues to justify new commercially provided services);
 - ongoing public subsidies for services that are not commercially viable, but are considered socially desirable.

8. Next steps and milestones

- 8.1. Work continues on the evidence base for options to manage traffic demand and a further paper will be brought to the Board later in the year.

9. Implications

Equality and diversity

- 9.1. In addition to the congestion reduction, mode shift and revenue raising impacts estimated through the modelling work, careful consideration has been given to how any demand management measures may affect different people.
- 9.2. It is expected that demand management to support public transport network improvement will have both positive and negative impacts on different groups of people but it is important to consider whether those impacts fall disproportionately on any one group, and in particular those of lower incomes, people with mobility concerns, children and older people.
- 9.3. An equalities impact screening assessment has been carried out based on the demand management measures set out above. This has considered not just the impact of any demand management measures, but the impact of the improved public transport network that it enables, either by reducing journey times or by providing financial cross-subsidy.

- 9.4. Given the emerging nature of proposals this is a preliminary exercise, intended to inform a discussion of the relative merits of the different measures, but will be updated as proposals are developed. A full equalities impact assessment will be undertaken as part of any decision to progress with a package of demand management measures.

List of appendices

Appendix 1	Key Features of Demand Management Options
Appendix 2	

Appendix 1: Key features of Demand Management Options

	Physical measures	Parking Controls	Workplace Parking Levy (WPL)	Toxicity Charge (T-Charge)	Intelligent Charging
Pros: opportunities and benefits	<ul style="list-style-type: none"> • Can influence congestion and public realm in specific areas • Can allow public transport to be more reliable and faster • Can allow cycling/walking to be safer and more attractive • Can encourage modal shift as sustainable transport has more freedom than private vehicles 	<ul style="list-style-type: none"> • Fewer parking spaces may reduce traffic coming in towards those parking spaces – provided supply is known to be limited • 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. • Can be monitored by digital means 	<ul style="list-style-type: none"> • Raises funding for other transport options • Potential to impact commuter behaviours including modal shift. • There is also the possibility 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"> • Can deliver the 10-15% reduction in traffic, modal shift and the other City Access objectives (but emissions standards would need to be tightened over time to maintain congestion impacts) • Health benefits and public realm benefits from reduced emissions. 	<ul style="list-style-type: none"> • Can influence behaviours to change time and/or route of travel if other options are available • Can be equitable if designed well • Gives positive feedback – doesn't need to charge if there is no congestion/pollution • Can deliver the 10-15% reduction in traffic, modal shift and the other City Access objectives.
Cons	<ul style="list-style-type: none"> • Reduces freedom of private vehicles for access • Restricts access for deliveries to businesses as well as residences • Potential modal shift to sustainable transport options. 	<ul style="list-style-type: none"> • There is no affordable alternative for many people coming in from outside the city at the moment, including key workers and sixth form students 	<ul style="list-style-type: none"> • Little impact on congestion • This cannot by itself fund the potential improvements ('carrots') • Some business opposition – needs to be fair • For those businesses that don't release land but choose 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. 	<ul style="list-style-type: none"> • May not be seen as equitable if older cars are owned by poorer residents 	<ul style="list-style-type: none"> • Political concerns based on historic public reaction, offset by recent positive reaction in The Big Conversation findings • More expensive to install and trial than other measures
Feedback from business (as recorded at Big Conversation)	<ul style="list-style-type: none"> • Risk of displacement rather than behavioural change • Very poor communication from City Deal last time this 	<ul style="list-style-type: none"> • Space freed up from parking can be used in ways that contribute to the GCP aims. 	<ul style="list-style-type: none"> • Some business saw WPL as an opportunity to develop land currently used for parking. Some businesses were 	<ul style="list-style-type: none"> • Through traffic may avoid the area and thus reduce congestion. 	<ul style="list-style-type: none"> • Significant potential for funding for improved, subsidised public transport and

	Physical measures	Parking Controls	Workplace Parking Levy (WPL)	Toxicity Charge (T-Charge)	Intelligent Charging
business briefings unless otherwise stated).	was raised		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.		sustainable alternatives which helps to address concerns about low paid workers.
Big Conversation (Resident feedback from the Systra survey).	<ul style="list-style-type: none"> Strong previous business opposition. 	<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"> The Systra residents' survey indicates that this is a low scoring demand management option (significantly below Intelligent Charging). 	<ul style="list-style-type: none"> Vehicle owners (businesses and individuals) may change their vehicles over time. 	Potential modal shift to sustainable transport options.
Main impacted group.	<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'. 	<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"> Businesses in the affected area. People working for businesses in the affected area. 	<ul style="list-style-type: none"> This may encourage new delivery operations e.g. electric fleet, freight consolidation. 	<ul style="list-style-type: none"> Potential flexibility may allow change over time. This could provide a means of adjustment in response to feedback from those affected.