

Report to: Greater Cambridge Partnership Joint Assembly

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CAMBRIDGE BIOMEDICAL CAMPUS TRANSPORT NEEDS REVIEW

1. Purpose

- 1.1 In 2017, The Greater Cambridge Partnership (GCP) Executive Board identified the need to establish a robust evidence base for the campus area to help inform future investment and planning decisions for the Campus partners, the GCP and other key stakeholders including Local Authority partners. The Joint Assembly is asked to consider and comment on the emerging outputs and proposals from the resulting Cambridge Biomedical Campus (CBC) Transport Needs Review. The full report and supporting documents have been published on-line and are accessible via the links on the covering agenda.

2. Key Issues and Considerations

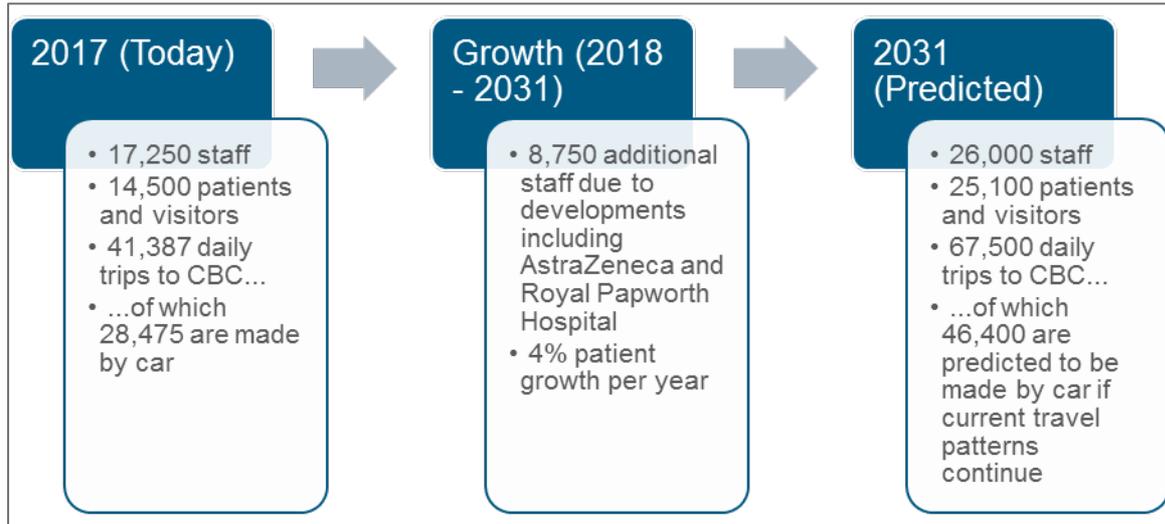
Background

- 2.1. The CBC on the southern edge of Cambridge, is a major asset in the development of the UK's life science research, teaching and healthcare industries. It contributes to Greater Cambridge's position as one of the UK's most successful cities in terms of economic indicators, such as productivity and knowledge-based jobs. This success is attributed to being a networked and connected city region, characterised by world-leading innovation. AstraZeneca will shortly move into its new corporate headquarters and global research centre at CBC. Royal Papworth Hospital and the life-science company Abcam will also be relocating to CBC in the near future. Further growth is anticipated to 2031 and beyond, with this development serving to increase the number of staff and visitors to the site. Economic success to date has been widely celebrated in the Greater Cambridge Region, but it is now contributing to transport congestion that threatens to choke further economic growth and compromise high quality of life. The CBC is a key part of this. There are already concerns about access to, and congestion around, the site. The level of near-term and long-term growth will lead to significantly increased travel demands from patients, visitors and employees. It is critically important that transport access to this site meets demand, so that this investment and economic growth is supported.
- 2.2 The CBC Transport Needs Study has been developed with key partners and the level of stakeholder involvement in this study has been incredibly positive, with full involvement from partners at CBC including Cambridge University Hospitals Trust and the University of Cambridge, as well as South Cambridgeshire District and Cambridge City Councils.

- 2.3 The focus of the study has been on the impacts of the significant, larger infrastructure proposals being brought forward by the GCP and the Cambridgeshire and Peterborough Combined Authority (CPCA), on the CBC area. The study has assessed the likely impacts of these interventions and undertaken an evaluation as to what they mean for the Campus going forward and when any benefits may be realised. It has also looked at the strategic fit of a proposed new station at Cambridge South adjacent to the CBC, options for this new station, the forecast passenger demand, potential economic benefits and what other local transport measures are likely to be required to ensure that it functions most efficiently, whilst also maintaining the CBC aim of being a sustainable travel campus.
- 2.4 The study itself is split into 3 parts:
- 2.5 **Part 1** of this Study looks at the evidence on transport demand and supply, to build up a picture of what travel to CBC looks like now and what it could look like in 2022 with the planned growth. It identifies Potential Interventions to help manage growth in the short term, including improving access via foot and cycle, improved wayfinding, and addressing gaps in current bus service provision.
- 2.6 **Part 2** looks at transport demand and supply from 2022 to 2031 and how this could change as a result of the proposed Cambridge South Station. It also identifies additional Potential Interventions in the longer term, and Measures that could help to support access to the proposed Station.
- 2.7 **Part 3** assesses the impact of planned measures being taken forward by the GCP and CPCA (including Cambridge South Station) as well as the other Potential Interventions identified in Parts 1 and 2, in terms of highway access to CBC. Part 3 also assesses the impact of current, proposed phasing for these schemes on the level of highway trips to the CBC site and the subsequent impact on the car parking both on and off street for the Campus.
- 2.8 The planned GCP schemes assessed and tested through this study include:
- Cambridge South East Transport Study – CAM Phase 1;
 - Greenways (Fulbourn, Linton, Sawston, Melbourn);
 - Chisholm Trail;
 - Cambourne to Cambridge – CAM Phase 1;
 - West of Cambridge Package;
 - Cambridge South West Park and Ride (near to j11 of M11);
 - Expansion of Trumpington Park and Ride;
 - Cambridgeshire Autonomous Metro (CAM);
 - Cambridge South Station;
 - The other Potential Interventions identified in this Study; and
 - Demand management measures to encourage use of sustainable modes of transport.
- 2.9 In terms of the ‘other potential interventions’ proposed through this study, these have focussed on sustainable forms of transport, such as Walking, Cycling and Public Transport, as well as Behavioural Change programmes, and closely tie into the aims and objectives of the CBC’s own Transport Strategy. Where the evidence has suggested potential for a need for larger, so called ‘big ticket’ interventions for the Campus area, these have aligned with the list of planned schemes mentioned above.

Growth

2.10 The growth proposed on site is set to substantially increase the demand for travel to the site, exacerbating the existing transport issues, such as congestion on the surrounding road network, car and cycle parking availability on site, displaced car parking on surrounding streets, gaps in Public Transport provision and low levels of walking as a mode share. Some of the key figures are shown in the figure below:

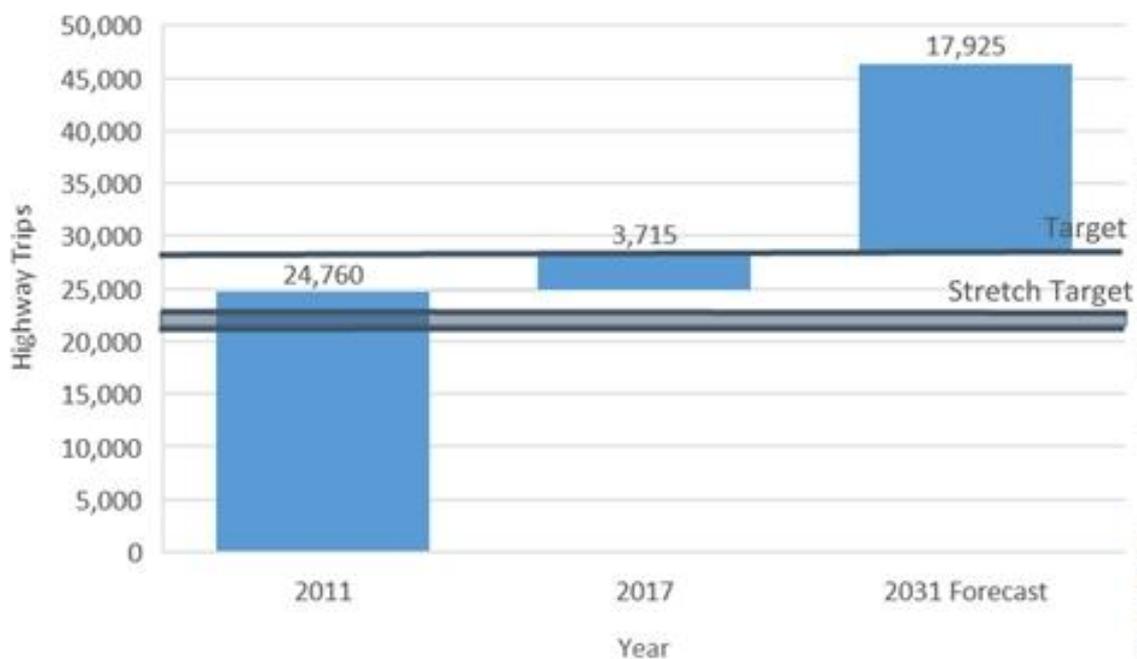


Targets

2.11 In order to helpfully assess the impacts of any proposed interventions on the Campus area, the study has assumed two key targets for highway trip reduction:

- **Baseline Target:** Maintaining traffic at 2011 (current) levels up to 2031; and
- **Stretch Target:** A 10% to 15% reduction in traffic from 2011 levels, which is aligned with the GCP City Access Strategy.

Target for Highway Trip Reduction



- 2.12 The graph above shows the number of highway trips in 2011 was 24,760, it also highlights that the subsequent increase to 2017 (the study baseline) was an additional 3,715 trips and that the forecast is for a further increase of 17,925 trips to 2031. In order to maintain traffic at the 2017 (baseline) levels **Target**, the additional 17925 car trips forecast to 2031 will need to be removed from the network and replaced with trips made by sustainable modes of travel.
- 2.13 To hit the **Stretch Target** of the 10-15% further reduction on baseline levels, the number of car trips to remove is even higher, up to 25,354 to remove/replace with sustainable modes. This would deliver a mode share of Car:Non-car of 31%:69%.
- 2.14 Although these are challenging targets, it should be noted that most of the growth is yet to happen, and will also happen incrementally over the next 12 years in line with development coming forward. It is also important to state that there is a window of opportunity to provide sustainable alternatives before car-based travel patterns are established.

3. Options and Emerging Recommendations

- 3.1 As the Campus grows, highway trips are expected to continue to grow up to 2031. Much of the growth is happening in the first 5 years, with the likes of Royal Papworth Hospital, Astra Zenica and Abcam due to move into the Campus from 2019.

Short Term Proposed Interventions

- 3.2 In advance of some of the larger GCP and CPCA schemes coming online, the study has proposed some short term measures to help deal with the initial growth in the years to 2022. These have focussed on sustainable modes of travel and are closely aligned with projects already proposed within the CBC's own Transport Strategy. There is a need to carry out further scheme development work in the near future to turn these from high level, 'long list' interventions, into worked up and costed proposals. Appendix A covers these in more detail. These include:
- Walking and cycling measures.
 - Public Transport and Park and Ride measures.
 - Behavioural change and incentivised travel measures.
- 3.3 The study also identified an urgent need for a direct bus or shuttle bus from the Papworth area specifically for the transition of staff moving across to the Campus as Papworth moves on to site. Likewise, increased Park and Ride capacity for staff accessing the Campus is identified in the study as needed in the first 5 years (to 2022) which supports ongoing work by the GCP. The study highlighted three areas where increased Park and Ride capacity could and should come forward:
- At the existing Trumpington site.
 - At the existing Babraham Road site.
 - A need for a new, large Park and Ride site to the south-west of the Campus.

Longer Term Proposed Interventions (without Cambridge South Station)

- 3.4 As well as supporting and assessing the impacts of the larger infrastructure proposals being taken forward by the GCP and CPCA, the CBC study has also assessed gaps in the current and future travel supply and demand to come up with high level, potential interventions to

support movement to, from and within the Campus, in the event of no new station at Cambridge South.

- 3.5 These potential interventions are covered in more detail in Appendix B and range from Public Transport Proposals, such as bus and Park and Ride improvements, to options for altering car parking, altering work and shift patterns and also 'softer measures' such as behavioural change initiatives, car clubs, lift sharing and journey planning tools. There are also more walking and cycling proposals, building on those covered for the short term need.
- 3.6 These schemes will need further scheme development work in the near future to turn these from high level, 'long list' interventions, into worked up and costed proposals. There may also be a requirement to carry out a prioritisation exercise to identify which of these potential schemes can best support the related GCP and CPCA schemes, including Cambridge Autonomous Metro (CAM), and therefore deliver the most benefit. These schemes should also be considered as part of the WITH station scenario package of measures, and be developed accordingly.

Cambridge South Station

- 3.7 One of the key aims of the CBC study was to analyse the strategic fit of the proposed new Cambridge South Station, along with its likely impact on the Campus area and what local transport measures may be required in order to help it operate to its full efficiency. The actual development of the station is work being carried out separately to this study, by Network Rail, the Department for Transport (DfT), Combined Authority (CPCA) and GCP.
- 3.8 Rail as a mode share for CBC staff is currently low. The rail trips generated by Cambridge South Station will be a combination of abstraction from other stations, modal shift from alternative modes and entirely new trip making.
- 3.9 The study highlights the significant impact a station at Cambridge South could have on trip generation to the area. The forecasting estimates that 5,800 return trips are predicted to use Cambridge South Station daily. This is broadly equivalent to the total demand for Ely and Royston Stations combined, and would make the station the third busiest in Cambridgeshire, after Cambridge station and Peterborough station.
- 3.10 The Study lists numerous potential transport measures that could come forward as part of a package to complement the new station. Appendix C covers these in more detail. These include:
- Potential designs and layouts for the station building.
 - Preferential access arrangements for the new station (for all modes) taking into account key locations on Campus, desire lines and requirements for mobility impaired users.
 - Pedestrian and cycle measures, such as cycle parking and pedestrian crossings, cycle hire and the need to transport cycles on trains.
 - Links to the existing public transport network including any requirements to alter public transport routing, the potential for new services, interchange options, plus any timetable and ticketing alignment.
- 3.11 The study has highlighted a wide range of factors that will need to be managed both in terms of Station design, layout, development and transport infrastructure beyond the

Station. The GCP could consider further scheme development work, alongside Cambridge City Council as local planning authority, to set out the requirements and aspirations in more detail.

Impacts of Proposed Measures

- 3.12 The potential impact of the proposed measures has been estimated using data from the GCP projects, case studies of similar schemes, the available demand information as well as mode split and census data. The impact of Cambridge South Station and CAM have been measured using two scenarios for both schemes, a 'basic' level of demand and a 'maximum' level of demand. The approach to calculating the impact of CAM on highway trips to CBC is based on the Greater Cambridge Mass Transit Options Assessment Report (OAR) (January 2018):
- **Basic demand for the Station:** based on previous forecasts using standard rail industry methods, updated to reflect growth on Campus.
 - **Maximum Station Demand:** a bottom-up approach using CBC staff and patient catchment data based on the assumption that all who could reasonably travel to CBC by rail would do so.
 - **Baseline demand for CAM:** a 35% increase in public transport demand, compared to 2015 levels, to represent a modal shift delivered by an improved transit system.
 - **Maximum CAM Demand:** a 40% capture of relevant highway demand to represent 40% of all existing highway trips to CBC transferring to public transport. The CAM Study noted that this level of mode shift "*would be unprecedented*" and represented "*the very upper end of what any scheme could realistically achieve*"¹.
- 3.13 The headline outcomes for the impacts of the various proposed measures are:
- A package of measures is required to help hit the targets for traffic reduction. The measures proposed for the longer term in the event of no Cambridge South Station, should also form part of the package of measures to help deliver the growth and mitigate the traffic impact in the WITH Cambridge South Station scenario.
 - The planned GCP schemes, Cambridge South Station and 'other' proposed interventions to complement these (which have arisen through this study) go some way towards achieving the baseline target of keeping traffic levels as they are (a reduction of 17,925 car trips by 2031) from around 2022. Though it should be noted that initial growth on site such as Astro Zeneca, Papworth and Abcam will occur in advance of this, meaning an increase in traffic until 2022.
 - Cambridge South Station and a new Park and Ride to the South-West of the city (close to j11 of the M11) are shown to be the first related 'major' schemes to begin to have a significant impact on highway demand.
 - However, in order to fully meet the baseline target throughout the period until 2031, accompanying demand management measures are required.
 - To reach the stretch target, of a reduction on today's traffic levels of 10-15%, the 'maximum' CAM and 'maximum' Cambridge South station schemes are required (including demand management measures).
- 3.14 It should be noted that the demand management measures assumed within the CBC study relate to restricting car parking availability on Campus. Other options for demand management measures were considered but have not been assessed.

¹The Greater Cambridge Mass Transit Options Assessment Report (OAR) (January 2018)

Timeline of Impacts

- 3.15 The analysis within the study looks at 2031 as an end-point, in line with the current Local Plan horizon for growth. However, between now and 2031, there will be an on-going cycle of growth coming forward at the Campus, to be delivered in different phases and on different timescales. Simultaneously over this time frame, numerous transport schemes are also scheduled to come forward for delivery intermittently, which will impact upon trips to the Campus area.
- 3.16 Part 3 of the CBC study has used a spreadsheet model to understand the impact of the proposed transport schemes, listed above in section 2.7, mapping this against the current timeline for the growth, in order to highlight when the individual and cumulative benefits of these schemes will be realised.
- 3.17 This analysis shows that Highway trips to CBC will rise until 2022, with the schemes scheduled to be delivered earliest, such as the South East Cambridge Study, new Park and Ride capacity to the south-west and any focussed walking and cycling interventions partly mitigating the impact of growth (though not quite hitting the baseline target of maintaining traffic at 2017 levels. The graph in Appendix D covers this.
- 3.18 The highlights are that from around 2022/2023, when some of the largest impact schemes, including Chisholm Trail, Cambridge South Station, a new Park and Ride site close to J11 of the M11, and Cambourne to Cambridge (CAM Phase 1)etc. are in operation, the baseline car trip reduction target is achieved for a period of time. However, the cumulative impact of further growth on site in the mid 2020's is predicted to once again cause traffic to exceed the Target level from around 2027.
- 3.19 The study also shows that in a scenario where 'maximum' CAM occurs alongside a 'maximum' Cambridge South Station with accompanying parking restraint, these have potential to further reduce highway demand and meet the Stretch Target towards the end of the period (2031).
- 3.20 The timing of any parking measures is critical to ensuring the greatest impact of Cambridge South Station and CAM.

Impact on Car Parking

- 3.21 Restricting the availability of car parking on Campus has been tested as a potential demand management measure. A reduction in highway trips leads to a reduction in parking demand at CBC, and creates headroom in the parking supply, which should negate the need to construct future planned car parks on the Campus. The analysis shows that measures such as Cambridge South Station and a new Park and Ride to the South-West of Cambridge (near M11 J11) have a significant, positive impact in the parking demand and supply on-Campus.
- 3.22 The study also discusses the need to align onsite car parking with measures and policies to tackle off-site ("on-street") parking. Plans for on-street parking controls, throughout the city, including in the CBC area, are being taken forward by Cambridgeshire County Council (CCC) with input and funding from the GCP. These will need to be phased accordingly with any potential transport interventions, especially any on-site parking reductions, to limit the

displacement of those who park on site currently, on to the surrounding streets. The sustainable travel alternatives to parking will also need to be in place prior to reductions in any parking capacity in order to maintain accessibility to the Campus. Without these measures, the availability of on-street parking will limit the effectiveness of other interventions in encouraging modal shift away from private car.

Emerging Recommendations

1. It is critical that the GCP schemes identified as having an impact on the CBC are kept to programme to address short-term continued highway traffic growth, mitigating negative impacts on Campus operation and quality of life.
2. Key stakeholders, including the GCP, the CPCA, CCC, the District Councils, the Rail Industry and partners at the CBC should collaborate to coordinate phasing of planned schemes, growth and any demand management measures, in order to have the maximum impact in the right timescales.
3. Carry out further scheme development work on the proposed measures identified to inform the development of the Cambridge South Station, building on the requirements and opportunities identified in this Study. This should focus on maximising the success of the Station in encouraging sustainable travel to CBC.
4. Further Scheme Development work on the other Potential Interventions identified in this Study is required. This could include an exercise to identify possible 'quick wins' to help address the initial highway growth, and also a prioritisation exercise to identify which of these potential schemes can support the related GCP and CPCA schemes and therefore deliver the most benefit. This should commence as soon as possible.
5. There is a need to do a piece of work to understand how and when on-street parking controls in the vicinity of CBC can be introduced, and to prioritise them as appropriate. The timing and phasing of any controls to on-street car parking needs to be very carefully considered, to avoid spreading the parking problem elsewhere and to ensure that accessibility to the CBC, particularly the hospitals located there, is not negatively impacted.

4. Next Steps and Milestones

- 4.1. This report is to brief Members of the Joint Assembly on the emerging outputs from the CBC Transport Needs Review, and to provide an evidence base for future investment and planning decisions in the CBC area and to help make the case for Cambridge South Station.
- 4.2. It is essential that plans to improve transport across the wider CBC are delivered. The GCP will continue the dialogue with the CBC partnership, at a senior level, to cement joint working and secure delivery of robust planning and implementation of the recommendations of the CBC Transport Needs Review Study.

Appendix A

Part 1 Potential Interventions (short term)

These are high level solutions and should be treated as a recommendation for further development and assessment of benefits and costs from Part 1 of the Study.

Within each of the categories below, the Potential Interventions have been listed in a broad priority order (1 being the highest priority). Nevertheless, all Potential Interventions are seen as providing benefit within the next five years, irrespective of their ranking. The rankings are indicative and would need to be reviewed in the light of further development and assessment. The schemes likely to have the biggest benefit in the immediate short term are listed in section 3.5.

A.1. Potential Walking Interventions

The potential walking interventions are as follows:

1. An audit of existing pedestrian and cycling routes and connectivity requirements within CBC, leading to a strategy for improving the consistency, continuity and quality of these routes. On-site observations found that these routes are currently inconsistent and at times difficult to navigate. Observations also found some footways on site are narrow and uneven in places;
2. Review pedestrian and cycle wayfinding in the light of current routes and those proposed in the strategy described above. This should include the potential for 'best in class' solutions and tying in with current wayfinding strategy elsewhere in Cambridge;
3. Not all junctions have pedestrian crossings, such as the eastern side of the Long Road/Hills Road junction. Ensuring all crossings with pedestrian desire lines have pedestrian crossing provision would help to accommodate future pedestrian trips; and
4. Reviewing lighting levels and perceived security on pedestrian routes within and around CBC. This is because stakeholders expressed concerns about inconsistent lighting levels.

A.2. Potential Cycling Interventions

The potential cycling interventions are as follows:

1. An audit of the pedestrian and cycling routes, and subsequent strategy, as described above;
2. Providing an extensive cycle network to encourage cycling to CBC. The GCP Greenways cycleway scheme will connect local villages to the site and provide cyclists with a safer route into the site;
3. Develop a scheme to provide an attractive cycling route to CBC from the east (Cherry Hinton, Fulbourn and nearby villages), via Nightingale Avenue and the recently-upgraded cycle entrance at Red Cross Lane. For those originating from Fulbourn, access to CBC from the Fulbourn Greenway would involve cycling to Cambridge Railway Station and then along the recently improved cycling facilities on Hills Road or leaving the Greenway early and travelling down Wulfstan Way and Nightingale Avenue. Neither of these routes have dedicated cycle provision at present. Cycle improvements along these routes have the potential to improve access to CBC by cycle from the east;
4. Keep the capacity and condition of cycle lanes under review, to ensure they are in adequate condition to accommodate the additional demand;
5. Enhancements to the existing cycle/pedestrian cut-through via Car Park H and its linkage to Puddicombe Way and onwards to Main Drive. Building on the recently-implemented Hills Road cycling scheme which leads to this cut-through, it could become a high-quality and highly visible pedestrian/cycle access with good links into the rest of the campus;
6. Provide for cyclists to turn right out of Adrian Way into Long Road (an intervention previously identified by the Cambridge Cycling Campaign); and
7. Review the scope for cycle access directly between cycle routes and adjoining buildings, such as future developments between Dame Mary Archer Way and the cycle route to Shelford, and incorporate this into site design briefs.

A.3. Potential Public Transport Interventions

The potential public transport interventions are as follows:

1. Engage with bus operators to identify potential additional direct services to CBC. There are large gaps in direct services to the east, north east and west Cambridgeshire, which may deter users and reduce patronage. Gaps to address would include:
 - a. Papworth, especially after the relocation of the Royal Papworth Hospital to CBC;
 - b. Ely and Newmarket; and
 - c. New developments such as Cambourne West, Bourn, Northstowe and Waterbeach;
2. Consider the potential for dedicated staff shuttle buses to support key specific flows (e.g. Waterbeach Barracks, Eddington and Northstowe) if commercial bus services cannot provide adequately for these;
3. Engage with bus operators to identify improved off-peak services. Consider extending the duration of high frequency service periods to cover more of the pre-AM peak and post-PM peak periods which are particularly used by shift workers. This was one of the key issues identified by stakeholders. If not viable on a purely commercial basis, these may require a degree of financial support;
4. Review the impact of visiting hours and consider interventions to either increase bus capacity at relevant times or encourage visiting at off-peak times;
5. Consider fare promotions for staff, to further increase the attractiveness of public transport;
6. Further promotion of the existing patient courtesy bus through media campaigns and on-site promotional activities. Stakeholders commented that this is a useful service but under-used and under-promoted;
7. Measures to improve the attractiveness and awareness of existing bus services, including additional Real Time Passenger Information displays, amendment of timetables in line with actual journey times, off-bus ticket purchasing opportunities, further promotion and publicity such as face-to-face engagement on-site, and maintaining the condition of the buses and bus stops. These were identified by stakeholders as potentially valuable. This should include additional 'where to catch your bus' information, both to assist bus users and to promote the range of services available, given the complexity of existing bus stopping arrangements;
8. Carry out further work to understand the most desirable medium-term strategy for bus stop location and bus routing within CBC. This should consider and balance the goals of:
 - a. Offering passengers convenient access to all parts of CBC, from all bus routes;
 - b. Making the service offer comprehensible and 'marketable' as part of encouraging bus use;
 - c. Minimising bus journey times and mileage; and
 - d. Maximising connectivity to/from a future Cambridge South station;
9. This may ultimately point to a central bus station at the heart of CBC, a central bus spine route through CBC, or another solution, and might require a frequent campus shuttle bus to provide very local connectivity and reduce walking journey times; and
10. Use of EURO6 buses and provision of rapid charge electric vehicle points for use by Taxis only in order to contribute to improving air quality in the area.

A.4. Potential Parking Interventions

The potential car parking interventions are as follows:

1. CCC are considering the extension of the on-street parking controls. This would restrict on-street parking in the streets surrounding CBC. Although this may put additional pressure on parking within CBC, it could encourage individuals to take more sustainable forms of transport;
2. Review existing small pockets of parking, particularly those at the heart of the campus, to identify those where users could be relocated to vacate space for pedestrian, cycling or public realm enhancements, as well as potentially reducing traffic volumes and conflicts in those areas; and
3. Review the management of staff parking demand for existing and future occupiers across CBC, including potential adjustments to pricing structures or eligibility criteria, with the aim of:

4. Maintaining the correct level of parking demand within the available supply, bearing in mind that growing patient and visitor demand will need to get priority; and
5. Evening-out the issues with some parking areas being over-popular and others not fully used.

The potential cycle parking interventions are as follows:

1. Continuation/formalisation of the cycle clearing scheme which removes abandoned cycles, with a potential need to increase frequency if required. On-site observations found significant numbers of cycles that appeared to be abandoned;
2. Work closely with CBC to provide the additional cycle spaces recommended in the 2015 Access to Addenbrooke's Modal Choice Document and identify further areas where cycle parking on-site can be increased an intensified Stakeholders also highlighted the closure of an area, including cycle parking, near the Frank Lee Centre which could be re-opened to provide additional parking quickly;
3. Work with CBC Partners to identify possible funding sources for cycle parking improvements; and
4. Consider whether, as part of a sustainable transport focus, existing car parking spaces could be converted into cycle parking spaces (especially as one car parking space converts into multiple cycle parking spaces). See also recommendation above concerning existing small pockets of car parking that could be converted into cycle parking.

1.2. Potential Park and Ride/Park and Cycle Interventions

The potential Park and Ride/Park and Cycle Interventions are as follows:

1. Increase nearby Park and Ride capacity to encourage those who use/visit CBC to use this as a mode as opposed to parking on-site or on nearby residential streets. Possible interventions include:
 - a. Investigate the possibility of increasing the capacity at Trumpington Park and Ride in the immediate short term (by the end of 2019) to help provide capacity for the staff from Papworth travelling on to the site. Any proposals should also investigate if additional bus capacity from the Park and Ride sites is required;
 - b. Increased Park and Ride capacity to the south-west of Cambridge, such as that proposed by the GCP, is recommended for years 1-5, to help provide capacity for sustainable mode choice for those using CBC;
 - c. Investigate the possibility of increasing the parking capacity at Babraham Park and Ride in years 1-5. Any proposals should also investigate if additional bus capacity from the Park and Ride sites is required; and
 - d. Investigate the possibility of having dedicated CBC parking spaces at Park and Ride sites; and
 - e. Explore the possibility of moving a proportion of the contractor parking to Babraham Park and Ride, where evidence suggests that there is some available capacity whilst also complimenting this by providing a dedicated shuttle into the development sites as a short-term measure.
2. Provision of a Park and Cycle site outside CBC, to reduce congestion near the site and promote sustainable transport. Cambridge has a very large propensity to travel by cycle, as evidenced by mode share figures. Park and Cycle capacity may also come in the form of a bike hire scheme to and from Trumpington Park and Ride and Babraham Park and Ride, or a bike share scheme throughout the city (such as the existing Ofo scheme), as suggested by stakeholders. This could include formalisation of facilities at the existing Park and Ride sites, including measures such as dedicated areas for parking adjacent to cycle storage locations, with greater numbers and quality of storage facilities for cycles and associated equipment;
3. It is suggested that a Park and Ride for CBC only could be investigated closer to the site to relieve pressure from Trumpington and Babraham Park and Ride whilst providing a prioritised service for those using the site; and

4. Investigate the possibility of provision for dedicated/formalised Park and Cycle facilities from Park and Ride sites. This should include dedicating specific areas of the sites for 'Park and Cycle only', with accompanying facilities such as lockers, cycle parking stands and links to the nearby cycle network.

A.1. Potential Local Highway Interventions

The potential local highway interventions are as follows:

1. Stakeholders suggested improved traffic signals on Addenbrooke's Road could reduce the chance of traffic queues reaching the M11 Junction 11 bridge, which has been observed to be congested due to right turning on traffic on the northbound side of Hauxton Road;
2. Continue to support sustainable travel to reduce dependence on private car modes;
3. Stakeholders suggested the need to review signal timings at the Hills Road access to optimise traffic flow within the immediate vicinity of CBC. This is being monitored by CCC; and
4. Provision of additional electric vehicle charging points on Campus to encourage use of these vehicles to access the Campus.

A.2. Other Potential Interventions

Other Potential Interventions are as follows:

1. Reviewing the attractiveness and promotion of existing car-share options (including the Camshare county-wide platform and the specific arrangements at Cambridge University Hospitals, which include a dedicated parking area for car-sharers). It may be possible to enhance the range of benefits available for car-sharing, such as extending a dedicated/priority parking offer across CBC;
2. Set up mechanisms for staff of new occupiers, such as relocated Royal Papworth Hospital staff, to receive travel planning advice and support prior to relocation, to promote knowledge of their options when accessing CBC and ensure that sustainable travel patterns are established from the start. This could be in the form of an online travel plan through which the business provides incentives for employees to undertake. Through this, employees could request face-to-face guidance if required;
3. Annual surveys should continue for monitoring purposes, with a view to implementing new strategies should the existing proposals be ineffective;
4. Control of HGVs entering the Campus through an off-site freight consolidation point. This would reduce the number of HGVs accessing the site and contribute to improving air quality in the area; and
5. Inclusion of rapid electric charging points for taxis to encourage taxi fleets to include these vehicles and help improve air quality in the area.

Appendix B

Ref	Potential Intervention	Description	Benefit	Dependency
Potential Bus Interventions				
1	CBC Bus Strategy	A coordinated bus strategy for CBC developed by all stakeholders and bus operators.	Effective bus management, potentially including timetable coordination (through a Qualifying Agreement) where operators overlap, to encourage more use of bus to access the Campus.	Commercial buy-in from Bus Operators and/or suitable subsidies.
2	Season Ticket Loans for Staff	Providing a loan to employees to buy bus season tickets.	Encourage bus travel by making it a more financially attractive alternative to the private car.	Commercial buy-in from Bus Operators and/or suitable subsidies.
3	Subsidised Ticketing for Staff	A contribution toward bus tickets provided to staff.		
4	Free Bus Pass for New / Relocated Staff	New / relocated staff to receive free bus passes that cover the first month of their employment in order to instil positive travel habits from the outset.	Encourage sustainable travel habits to be instilled in new employees before travel behaviour is engrained.	Commercial buy-in from Bus Operators and/or suitable subsidies depending on approach to implementation.
5	Inter-Operator Ticketing	Ability to buy tickets that are useable on all bus services. A detailed description of the potential application of Inter-Operator Ticketing can be found in the Study Report.	Allow bus users to be flexible with their journeys on all services.	Commercial buy-in from Bus Operators and/or suitable subsidies.
6	Bus Hub / Interchange at the West of CBC	A bus interchange located to the west of the site to be served by CGB buses, buses accessing the site via Addenbrooke's Road and Robinson Way.	Provide a coordinated approach to bus services to the West of the Site and provide an interchange point with other transport services. Reduction in walking distance to some destinations compared to the existing Bus Station.	Commercial buy-in from Bus Operators and/or suitable subsidies. Available land on Campus.
7	Reconfiguration of Addenbrooke's Bus Station	An opportunity to expand and rework the existing Addenbrooke's Bus Station, potentially by using the Car Park H land to the north of the existing site or Car Park A adjacent to the existing site.	Increased capacity of the existing bus station.	Available land on Campus.

Ref	Potential Intervention	Description	Benefit	Dependency
8	Permitted Right Turn for Buses and Cycles from Adrian Way	Allow all movements for buses and cycles at the Adrian Way junction with Long Road to enable different routing patterns.	More routing options and freedom for buses to exit via the north of the site instead of Hills Road Roundabout. Cyclists benefit in terms of journey times and routing.	This intervention may require signalisation of the junction. This would be subject to traffic modelling and junction design.
9	Bus service pattern Review to Accommodate Off-Peak Working Hours	Engagement with bus operators to provide off-peak hour services for employees of CBC whose shift pattern includes late or early working.	More travel options for those staff who start work before or finish after the regular bus services operate.	Commercial buy-in from Bus Operators and/or suitable subsidies.
10	Safer Routes to Bus Stops	Based on the outcomes of the pedestrian audit recommended in Part 1, provide suitable lighting and visibility at, and on routes to, bus stops.	Encouraging use of bus services by enhancing perceived safety of access and waiting facilities.	Suitable subsidies/funding.
11	Royston to Cambridge bus service redirected to CBC	Rerouting of the Stagecoach 26 service from Royston to Cambridge to call at CBC. Could involve routing via the CGB or via Addenbrooke's Road and Long Road.	Provide a viable bus service for those staff and visitors residing in Royston (significant cluster as shown in postcode mapping in Figure 5-3 of Part 1 Report) without need for a change at Trumpington Park and Ride. Could lead to a reduction in private vehicles on the road network which could have a positive impact on congestion and air quality.	Commercial buy-in from Bus Operator and/or suitable subsidies.
12	Bus Service from Papworth Everard and Cambourne	Providing a temporary bus service from / to Papworth Everard / Cambourne in advance of the West of Cambridge Package.	Beneficial for those travelling from the west, especially following the Royal Papworth Hospital relocation and considering housing developments at Cambourne West and Bourn Airfield. Could lead to a reduction in private vehicles on the road network which could have a positive impact on congestion and air quality.	Commercial buy-in from Bus Operators and/or suitable subsidies.

Ref	Potential Intervention	Description	Benefit	Dependency
13	Additional Bus Priority on Addenbrooke's Road	Provide bus priority on Addenbrooke's Road, to provide segregated access to CBC.	Improved access for bus services along Addenbrooke's Road with potential positive impacts on reliability and journey times, especially during peak hours.	Available highway land on Addenbrooke's Road.
14	Enhanced CGB Capacity	Provide increased capacity on the CGB to the east of Trumpington Park and Ride, which currently has a single track of approximately 700m.	Increase capacity and facilitate more services.	Technical solution to mitigate constraint imposed by single track section which cannot practically be double tracked in the conventional manner.
15	Bus Priority at Signals in Vicinity of CBC	Allow buses an extended green phase at traffic signals in the vicinity of the CBC site.	More reliability, improved timetable compliance and journey times.	Subject to traffic modelling.
16	Central Spine Road for Buses	Provision of a bus-only route through the centre of the Campus.	Improvements to east-west connectivity, reducing interaction with cars around the Campus and reducing journey times.	Available land on Campus (potentially dependent in turn on hospital redevelopment). Commercial buy-in from Bus Operators.
17	Demand Responsive Bus Service Around CBC Campus	Demand responsive bus service, which could be in the form of autonomous pods, around the CBC site. To be developed in accordance with CBC Bus Strategy.	Out-of-hours bus service to connect with existing transport infrastructure, which could make sustainable journeys viable for those staff who work early or late shifts.	Technology advances. Connections to onward sustainable infrastructure. Coordination with Trumpington Park and Ride autonomous pods trial.

Potential Park and Ride Interventions

18	Expanding Parking Capacity at Existing Park and Rides to Accommodate Growth	Provide additional parking capacity at Trumpington and Babraham Road Park and Ride sites, as well as at a new Cambridge South West Park and Ride to help manage demand for travel to the CBC site. The Study Report indicates a requirement for approximately 1,500 spaces for CBC users only.	Provide capacity to meet current demand as well as demand displaced by other initiatives related to parking and highway constraints. Could lead to a reduction in private vehicles on the road network close to CBC which could have a positive impact on congestion and air quality.	Dependent on GCP proposals for expansion of Trumpington Park and Ride and provision of a new Cambridge South West Park and Ride.
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Ref	Potential Intervention	Description	Benefit	Dependency
19	Direct Bus Service from a New Cambridge South West Park and Ride to CBC	Provide a direct bus service from a new Cambridge South West Park and Ride to CBC without calling at Trumpington Park and Ride, to encourage use of Cambridge South West Park and Ride.	Encourages use of Cambridge South West Park and Ride for CBC users and releases pressure on Trumpington Park and Ride and Hauxton Road. Could lead to a reduction in private vehicles on the road network close to CBC which could have a positive impact on congestion and air quality.	Dependent on GCP proposals for provision of a new Cambridge South West Park and Ride.
20	Extend Existing Patient Courtesy Bus to Babraham Park and Ride	Extension of the existing Patient Courtesy Bus to Babraham Park and Ride, to encourage use of this site by patients who would otherwise drive to CBC.	Makes Park and Ride a more viable alternative for those patients and other users of CBC for whom the door-to-door, more personal service is of particular value.	Viability to extend patient courtesy bus. May require a second bus in order to maintain frequency. Suitable subsidies/funding.
21	Service Directly from Milton, Newmarket and Madingley Park and Rides to Serve CBC ²	Provide a direct bus service from other Park and Ride sites around the City to CBC.	As CBC becomes a destination for more and more trips from around Cambridge, increased demand for Park and Ride services from all sites could make CBC a viable destination. Encourages more use of public transport around the City.	Commercial buy-in from Bus Operators and/or suitable subsidies.
22	Park and Ride Capacity to the East	Provision of a Park and Ride and Park and Cycle to accommodate demand from the east in addition to Babraham Park and Ride. This could come in the form of the Park and Ride associated with the Cambridge South East Transport Study depending on exact location, which could provide some eastern Park and Ride Capacity.	Provides additional Park and Ride Capacity and offers a connection with the Fulbourn Greenway. A rural cycle hub in the form of a Park and Cycle could be provided for the Fulbourn Greenway in the interim. Could lead to a reduction in private vehicles on the road network close to CBC which could have a positive impact on congestion and air quality.	Dependent on land availability and commercial buy-in from Bus Operators and/or suitable subsidies.

² Table 5-2 in the Part 1 Report shows that staff origins are evenly spread around the City but a large proportion of staff (48%) approach the site from the south west. Enhanced Park and Ride service provision could help disperse trips and lessen the impact on the highway network.

Ref	Potential Intervention	Description	Benefit	Dependency
23	Bus (or Autonomous Pods) to/from CBC/ Park and Rides Before and After Main Park and Ride Service Ends.	Engagement with bus operators to provide services to/from Park and Ride sites before and after the core City Centre service has finished, to accommodate early/late shift working. This could consist of a dedicated service (e.g. use of the patient shuttle bus when it is not in use) or an extension of existing services.	To make Park and Ride a viable alternative to the private car for those with variable shift patterns. Could lead to a reduction in private vehicles on the road network close to CBC which could have a positive impact on air quality.	Commercial buy-in from Bus Operators and/or suitable subsidies.
24	Priority Access for Buses to/from Cambridge South West Park and Ride	Bus priority measures into the new Park and Ride site, segregated from other Road users.	Segregated and reliable access to the site which could also be used by cyclists. This increases the opportunity for a Cambridge South West Park and Ride to be a viable Park and Ride Cycle Option.	Dependent on GCP proposals for provision of a Cambridge South West Park and Ride.
25	Effective Access for Vehicles to/from South West Park and Ride	Explore potential for Park and Ride lane or segregated access from M11 Junction 11 for the proposed new Park and Ride. Real-time information about space availability at Trumpington Park and Ride and a new Cambridge South West Park and Ride, as well as journey time to Trumpington Park and Ride, could help manage demand.	Reduces the pressure on M11 Junction 11 roundabout and encourages use of the Park and Ride site. Manages demand between the two Park and Ride sites. Could lead to a reduction in private vehicles on the road network close to CBC which could have a positive impact on congestion and air quality.	Dependent on GCP proposals for provision of a Cambridge South West Park and Ride.

Ref	Potential Intervention	Description	Benefit	Dependency
26	Further restrictions on Car Access	Restrictions on the majority of vehicles entering the Campus, with exceptions for emergency vehicles, A&E and Rosie emergency access, blue badge holders, staff access required due to limited alternative options and specific site needs, servicing (off-peak), buses, taxis and perhaps some car sharers.	High positive impact on the road network, and air quality, within and around CBC with vehicles being encouraged to use Park and Ride sites as an alternative to driving to site.	Dependent on suitable alternatives for travel to the site – bus and Park and Ride initiatives especially. Any restriction will need to reflect and accommodate the 24/7/365 nature of many functions on CBC, and those staff and patients for whom alternatives are not available or suitable.

Potential Parking Interventions

28	Extension of the On-street Parking Controls.	Extension of the on-street parking controls to streets surrounding CBC, focussing on the short-term management of on-street parking impacts and aligning the implementation of any further controls with the phasing of potential interventions over the medium to long term.	Benefits for residents in terms of parking capacity and congestion and air quality in residential areas. Encourage CBC users to park in designated car parks on-site or at Park and Ride sites. Safer and more pleasant walking and cycling in residential streets due to reduced traffic volumes, emissions and noise.	Dependent on suitable alternatives for travel to the site – bus initiatives and Park and Ride initiatives especially. This Potential Intervention is also subject to statutory public consultation process. Implementation should be aligned with other control initiatives such as Potential Intervention 31 (Restriction on Car Park Growth) to avoid parking issues elsewhere in order to holistically manage, delivery, impacts and benefits.
29	Bring Cycle Parking Expansion Forward	Implement planned cycle parking sooner than predicted to accommodate demand and encourage further use. This could also include provision and parking for hire or pool cycles and provision for charging electric cycles.	Ensure that supply meets demand and a surplus of spaces are available in appropriate locations to encourage further use and reduce the chance of users having to search for a space.	Dependent on proposals by CBC and other occupiers.

Ref	Potential Intervention	Description	Benefit	Dependency
30	Restrictions on Car Park Growth	Restrict the level of car park growth on-site. Consider whether those car parks planned/approved will be beneficial to the overall transport picture.	Discourages vehicle trips to the Campus and encourages use of sustainable modes and Park and Ride Sites. Reduced car trips to the Campus could have a positive impact on congestion and air quality in the area.	Dependent on suitable alternatives for travel to the site – bus and Park and Ride initiatives and capacity especially. Should be implemented with other control initiatives such as Potential Intervention 29 (Extension of the on-street parking controls) to avoid parking issues elsewhere.
31	Needs Based Prioritisation of Parking Allocation	Allocation of parking on-site based on a hierarchy of need with priority given (as now) to patients and visitors followed by staff on a basis of need.	Discourages vehicle trips to the Campus and encourages use of sustainable modes and Park and Ride Sites. Reduced car trips to the Campus could have a positive impact on congestion and air quality in the area.	Dependent on suitable alternatives for travel to the site – bus and Park and Ride initiatives especially. Dependent on staffing to manage. Any restriction will need to reflect and accommodate the 24/7/365 nature of many functions on CBC, and those staff and patients for whom alternatives are not available or suitable.

Potential Peak Hour Spreading Interventions

32	Review Staggering Shift Patterns of Workers	Varying the start and finish times of staff to stagger arrival and departure to CBC.	Distributes trips across the day and reduces the likelihood of the demand for the site peaking at the same time as the surrounding highway network.	Dependent on suitable alternatives for travel to the site outside of core hours – bus and Park and Ride initiatives especially.
33	Review Potential to Change Visiting Hours	Changing or staggering visiting hours so that the peak arrival and departure times do not coincide with the network peak hours.		Agreement with CBC and coordination between all wards on Campus.
34	Restrict Non-Essential Deliveries During Peak Hours	Restrict all non-essential deliveries to arrive at CBC outside of the peak hours.		Coordination between all stakeholders on Campus as well as delivery companies.

Potential Cycling and Walking Interventions

Ref	Potential Intervention	Description	Benefit	Dependency
35	Local Connections to the West	Review and improvement of connections for pedestrians and cyclists to the west of the Campus via Alpha Terrace and Anstey Way towards Grantchester.	Cycle and pedestrian connections towards Grantchester and further afield towards West Cambridge.	Land availability, existing carriageway and footway widths.
36	Greenways Project Implementation and Connection with CBC	Creation of a link between the Fulbourn Greenway and CBC for those travelling from the east, routing via High Street, Queen Edith's Way, Nightingale Avenue and Red Cross Lane.	Enhanced cycle connections to the east of the Campus, particularly towards Cherry Hinton and Fulbourn.	Land availability, existing carriageway and footway widths.
37	Audit of Pedestrian and Cycle Routes and Connectivity Requirements within CBC	Audit of pedestrian and cycle wayfinding and infrastructure.	Lead to a strategy for improving the consistency, continuity and quality of these routes.	Identified and Active Transport Coordinators.
38	Segregated Cycle Routes On-site	Where possible, cycle routes should be segregated from traffic and pedestrians.	Reduce the risk of conflict between modes.	Land availability and existing footway and carriageway widths.
39	Monitoring the Cycle Demand on an Annual Basis	Annual monitoring of cycle parking capacity and condition, as well as an audit on cycle infrastructure and connections across the site.	To ensure that if there is a shortfall in supply or defects are highlighted, they can be rectified within an appropriate timescale. This information could be linked to larger monitoring systems and used in wider Cambridge studies.	Identified and Active Transport Coordinators.

Potential 'Other' Interventions

40	Consolidation of Non-Urgent / Time Sensitive Deliveries	Consolidation of deliveries at an off-site centre (perhaps at a Park and Ride site) to limit the number of delivery vehicles accessing the CBC site, and increase the use of off-peak hours for the final delivery leg to site.	Reduces the number of delivery vehicles accessing the site.	Dependent on buy-in from CBC occupiers on site and delivery contractors.
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Ref	Potential Intervention	Description	Benefit	Dependency
41	Integrated Online Journey Planning Tool	Creation of an online travel portal on CBC and CUH websites for use by staff, patients and visitors.	Increase knowledge of and confidence in the range of travel options available to staff and visitors of the Campus. Priority should be given to sustainable modes.	Coordination between all stakeholders on Campus – advertising through all organisations.
42	Personalised Travel Planning for Staff (and visitors if requested)	Personalised journey planning for site occupants / staff. Those that register for a personal travel plan could receive a free bus ticket or equivalent.	Increase knowledge of the range of travel options available to staff and visitors of the Campus. Priority should be given to sustainable modes.	Coordination between all stakeholders on Campus – advertising through all organisations.
43	Car Sharing Initiatives	Car sharing initiatives including guaranteed ride home (whereby car sharers are provided with a return journey in an emergency or unforeseen circumstance), dedicated or priority parking spaces and discounts on parking.	Reduce the number of single occupancy vehicles on the road network. Reduced car trips to the Campus could have a positive impact on air quality in the area.	Coordination between all stakeholders on Campus to provide consistent benefits and guaranteed ride home for all employees irrespective of employer.
44	Staff Car Share Database	Dedicated CBC Staff Car Share Database that is coordinated between all Campus Stakeholders. Each organisation currently offers their own closed system, which limits the effectiveness of the scheme.	Encourage car sharing and increased likelihood of a suitable journey match.	Agreement between stakeholders regarding parking arrangements and charges for car sharers from different organisations.
45	Pool Cars/Car Club	A car club or pool cars for use by staff travelling for work or as a guaranteed ride home.	Reduce the need for those who travel for work to use their own vehicle to access CBC. Provide alternative means of travel for staff who cycle, walk or use the bus, for emergencies or occasions when a car is needed. Reduced car trips to the Campus could have a positive impact on congestion and air quality in the area.	Coordination between all stakeholders on Campus to provide consistent services and access to cars.

Ref	Potential Intervention	Description	Benefit	Dependency
46	Travel Advice Centre	Creation of a Travel Advice Centre at CBC for staff and visitors. To provide marketing information, timetables, advice etc.	Increase knowledge of the range of travel options available to staff and visitors of the Campus.	Land availability on-site, or willingness of existing organisation(s) to dedicate space within existing buildings, efficient advertising for staff, patients and visitors. Staffing at appropriate times to capture demand.
47	Encourage Home-Working	Encourage and enable employees to work from home if possible.	Reduces the number of trips on the transport network. Reduced car trips to the Campus could have a positive impact on congestion and air quality in the area.	Buy-in from CBC stakeholders and employers for whom working at home is a viable option.

Appendix C

Potential Interventions required to help maximise Cambridge South Station

Provision	Description	Benefits
Key Access Routes and Desire Lines	<p>Step-free entrances at the north (near the Francis Crick Avenue / CGB / The Green and the Gardens junction) and south (near Addenbrooke's Roundabout).</p> <p>Access to/from these primarily facing towards Francis Crick Avenue, but ideally with additional direct access from the CGB and Addenbrooke's Road.</p> <p>Address crossing/pedestrian/cycle facilities, wayfinding and connectivity to key locations within CBC, as part of the CBC site pedestrian/cycle facility audit proposed in the Part 1 Report.</p>	Supports and prioritises walking and cycling, in turn minimising car use.
Review of Access to Key Origin Stations	<p>Review the footfall impact at stations at the other end of the journey, to identify any necessary access or facility improvements identified. Key locations with potentially significant trip volumes which might include a Park and Ride role include:</p> <ul style="list-style-type: none"> • Foxton and Royston; and • Waterbeach, Ely and stations to King's Lynn. <p>The review should consider station facilities including:</p> <ul style="list-style-type: none"> • Car and cycle parking; • Walking and cycling routes close to the station; and • Bus access to maximise the connectivity offered. 	<p>Encourages rail access to CBC. Potential to benefit other users at the relevant stations.</p> <p>This Study could incur wider economic benefits as other users at the potentially improved stations would benefit.</p>
Step-free Access and Accessible Routes	<p>The Station itself will be designed with step-free access in accordance with legal and rail-industry requirements. To maximise step-free local access:</p> <ul style="list-style-type: none"> • Both north and south entrances should be accessible routes; and • The extent of accessible routes throughout CBC, particularly routes between the Station and key destinations, should be reviewed as part of the pedestrian/cycle facility audit proposed in the Part 1 Report. 	Step-free access would promote non-car modes throughout the CBC site and to access the proposed Station.
Wayfinding from Key Access Routes	<p>Wayfinding totems should be placed throughout CBC, showing (in addition to any other wayfinding information) routes and walking times to the Station. These should also show live train departure information, as a user convenience and to further highlight the presence of the Station and the connectivity it offers. Other wayfinding options such as app-based information should also be considered as part of a holistic approach integrated with wider Cambridge wayfinding.</p>	Improved rail journey planning, attractiveness and visibility.

Provision	Description	Benefits
High Quality Street Infrastructure	<p>The location and design of pedestrian crossings on Francis Crick Avenue should be reviewed alongside the Station entrance locations to prioritise walking and cycling. These should connect with the step-free access.</p> <p>Urban realm approaches such as raised tables should be considered to support pedestrian and cycle access, providing traffic calming (subject to operational requirements for emergency vehicles and buses) and enhancing the sense of place around the Station.</p> <p>Footways around the site, especially within the vicinity of the proposed Station should be above the desired 2.5m width.</p> <p>Street and footway lighting should be reviewed to identify potential enhancements required for perceived security or due to increased usage.</p> <p>Address any condition or layout issues identified in the CBC site pedestrian/cycle facility audit proposed in the Part 1 Report.</p> <p>Consider the opportunity for a particularly high-quality, 'gateway' treatment of the Station access route linking the north entrance to The Green and the Gardens area.</p>	Encourages sustainable modes through improved safety, journey quality and perceived security.
Cycle Parking	<p>Cycle Parking should include provision for larger cycles used by families (particularly common in Cambridge) and disabled cyclists.</p> <p>Cycle parking facilities should be monitored by CCTV and should be open where possible to improve the perception of safety around the Station.</p> <p>Cycle parking facilities should take into account the existing CBC Cycle Parking Standards.</p> <p>Total cycle parking provision should be sufficient to cope with expected demand.</p>	Encourages cycling through providing sufficient and suitable spaces for a wide range of potential cyclists.
Train/Cycle Interaction	<p>A relatively high proportion of passengers take cycles onto trains. The Station layout and design will need to take account of this and practical experience from Cambridge and Cambridge North Stations.</p>	Further encouragement for mode-shift to cycling, benefiting both CBC and the other end of the journey.
Cycle Facilities within a Cycle Hub	<p>A Cycle Hub at the Station, of a 'five-star' level as defined in the Rail Delivery Group's <i>Cycle Rail Toolkit 2</i>.</p>	Further encouragement for mode-shift to cycling.

Provision	Description	Benefits
Cycle Hire	<p>Hireable cycles are currently in operation within CBC and are widely used. The Station should have a designated location for these and similar operators' cycles. This is in addition to the cycle hire available at the Cycle Hub.</p>	<p>Further encouragement for mode-shift to cycling. Facilitates cycling by non-cycle owners and those who wish to vary their mode of travel.</p>
Re-routing of Existing Bus Services	<p>Potential bus services that could serve the Station (in all cases, subject to operational feasibility) are the following:</p> <p><i>Potential to terminate at Cambridge South Station, requiring bus stops and a layover facility:</i></p> <ul style="list-style-type: none"> • Citi 2 and 114 – to create links from south-east and eastern Cambridge. These would be extended from the existing bus station to terminate at Cambridge South Station. <p><i>Potential to pass Cambridge South Station, requiring bus stops:</i></p> <ul style="list-style-type: none"> • Citi 1 – to provide links from south-east Cambridge, Cherry Hinton and Fulbourn, including Peterhouse Technology Park and Capital Park, although this would require significant additional mileage and increase journey times for other passengers; • 13 and 31 – to create links from Babraham and Haverhill (including the Babraham Institute and Granta Park), although this would require significant additional mileage and increase journey times for other passengers; • 16A – to create links from villages east of Cambridge, although it is currently a limited service; • Citi 7 – links from Stapleford Road, Cambridge Road, Great Shelford, Stapleford, Sawston and Saffron Walden which would provide additional connectivity, notwithstanding these locations' existing links to the rail network (including Shelford station itself); • 25 and 132 – links from Trumpington (and 132 additionally southwards to Saffron Walden) which would add a local feeder route supplementing walking, cycling and use of CGB. The 132 service would require re-routing to serve the Station; and • CGB services (including U) - to provide links from Trumpington as well as the north and north-west of the City. <p>Bus stop facilities should take into account the existing CBC Bus Stop Standards.</p>	<p>Supports bus access throughout the catchment area for origin trips to the Station.</p> <p>Supports bus access to locations on CBC.</p> <p>Provides additional bus-bus interchange opportunities.</p> <p>Consequential impact on parking demand and highway traffic.</p> <p>Complements other GCP schemes.</p>

Provision	Description	Benefits
<p>Bus Access for Potential New Routes</p>	<p>There are three groups of potential new routes that could interact with the proposed Station:</p> <ul style="list-style-type: none"> • West of Cambridge package routes – as described in Part 1. These could originate in places such as Camborne or north-west Cambridge and run on or near the M11 to Trumpington and then via the busway to CBC and potentially the City Centre. Exact service patterns have not yet been defined. • Other near-term additional routes identified in Part 1 are likely to approach CBC via the busway from the north or south and terminate at CBC. In this respect their requirements will be similar to those of existing route U (see ‘CGB services’ above) or the potential West of Cambridge Package routes. • Cambridge South East Transport Study options include potential new public transport access points to CBC. <p>Each of these, if implemented, would pass Cambridge South Station and therefore require bus stops as noted above.</p>	<p>Supports bus access throughout the catchment area for origin trips to the Station.</p> <p>Supports bus access to locations on CBC.</p> <p>Provides additional bus-bus interchange opportunities.</p> <p>Consequential impact on parking demand and highway traffic.</p> <p>Complements other GCP schemes.</p>
<p>Timetabling and co-ordination</p>	<p>It is desirable for bus and train times to co-ordinate to reduce interchange times at the Station when they are not operating at high frequencies. This would require co-ordination between bus and train operators and should be considered at detailed design stage in the light of the timetables and route networks at the time.</p>	<p>Reduced journey times.</p> <p>Increased attractiveness of bus-rail journeys.</p>
<p>Shuttle Service</p>	<p>An orbital bus route within the CBC site, calling at the key employment sites, transport interchanges and healthcare facilities, could provide improved journey times around the site. This service could be used particularly by disabled users and other mobility-impaired users.</p> <p>The shuttle bus itself would desirably be emission free although low emission alternatives could be provided. It should run both peak and off-peak to provide connectivity and additional safe, accessible travel options.</p> <p>This service could be a development of the existing Campus shuttle, or an entirely new service.</p> <p>The service could potentially also be an autonomous or demand responsive system subject to technological advances, space on site and funding for implementation, operation and maintenance.</p>	<p>Improves mobility around the site.</p> <p>Complements other buses serving CBC.</p> <p>Encourages use of, and sustainable travel to/from, the Station.</p>

Provision	Description	Benefits
Integrated ticketing	<p>Integrated ticketing to allow users to use the same ticket on bus and train services would reduce booking time prior to the user's journey, reduce dwell time at bus stops and address the perception that buying and collecting tickets is time consuming.</p> <p>PlusBus already offers this to some extent. Further development of integrated ticketing is most likely to be driven by wider policy and commercial developments.</p>	<p>Improved attractiveness of sustainable travel modes.</p> <p>Potential for reduced dwell times at bus stops.</p>
Interchange Information	<p>Real Time Passenger Information within and around the Station can provide a summary of information including scheduled arrivals and departures of train/bus services.</p> <p>This could form part of the Wayfinding intervention proposed above to increase the awareness of other modes and allow users to plan their journey.</p>	<p>Increased awareness the Station is there will encourage users over time.</p> <p>Users that are informed of approximate journey length can use wayfinding as a tool to plan their journeys.</p>
Taxi Access and Parking	<p>A taxi rank, pick-up / drop-off zone and parking for Blue Badge holders should be adjacent to, or only a short walk, from the Station facilities. The location of these should be evaluated through the planning process and further detailed design.</p>	<p>Provides scope to use rail for the major part of a journey that would otherwise be made by private car.</p>
Car Club	<p>One or more dedicated Car Club spaces, and corresponding vehicles, should be provided. The vehicles would desirably be electric to reduce emissions on site.</p>	<p>Provides scope to use rail for the major part of a journey that would otherwise be made by private car.</p>

Appendix D

