GREATER CAMBRIDGE PARTNERSHIP

Growing and sharing prosperity

Delivering our City Deal

Report To: Greater Cambridge Partnership Joint Assembly 20th September 2018

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CAMBRIDGE SOUTH EAST TRANSPORT STUDY

1. Purpose

1.1. The A1307 Haverhill to Cambridge corridor is one of the key radial routes into Cambridge. It suffers considerably from congestion during peak times, particularly at the Cambridge end, at the junction with the A11 and around Linton; the largest settlement on the corridor. There are large employment sites in this corridor including the Babraham Research Campus (BRC), Granta Park, and Cambridge Biomedical Campus (CBC). The A1307 east of the A11 also has a poor accident record, particularly on the stretch around Linton and eastwards towards Horseheath.

1.2. The corridor has been identified by the Greater Cambridge Partnership's Executive Board as a priority project. The Study area is from Haverhill to the Biomedical Campus.

1.3. The Joint Assembly is asked to comment on the results of Public Consultation and emerging recommendations.

2. Context

2.1. The A1307 Cambridge South East project ("the Project") supports the GCP transport vision of delivering 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. Transport infrastructure is essential in supporting the delivery of sustained growth, prosperity and quality of life for the people of Greater Cambridge. Earlier work in the Strategic Outline Business Case identified a strong policy and strategic basis for delivering a High Quality Public Transport (HQPT) scheme along the corridor.

3. Strategic Case

3.1. The study area and routes within it suffer from congestion at peak times, such as the A1307, A1301, A505 and A11. There is also traffic re-routeing onto less suitable local roads to avoid these congestion points on the road network. The effects of congestion also impact on the reliability of bus journey times which reduces the attractiveness of bus travel. To support the mode shift which is needed to offer traffic relief to the A1307 and A1301 corridors.

3.2. Between 2011 and 2031 there is significant planned development in the south of Cambridge, including at CBC and the Cambridge Southern Fringe. A significant proportion of new residents and new employees will need to travel between Cambridge, the Biomedical Campus and the wider area.

3.3. The GCP delivery programme is based on the policy framework established by the local planning and transport authorities. These include the emergent transport policy of the

Cambridgeshire and Peterborough Combined Authority (CPCA) and in particular the compatibility of the project with the proposed Cambridge Area Metro (CAM) - a mass rapid transit scheme.

3.4. The Transport Strategy for Cambridgeshire and South Cambridgeshire (TSCSC) was prepared in parallel with the submitted Local Plans and adopted in March 2014. The strategy provides a plan to manage the rising population and increasing demand on the travel network by shifting people from cars to other means of travel, including public transport, walking and cycling. Policy within the TSCSC requires a range of infrastructure interventions on the Cambridge South East corridor as a key part of the integrated land use and transport strategy, responding to levels of planned growth. Cambridge South is one of the key growth areas identified in the plan. The Local Plan policies for the strategic development sites along the corridor requires HQPT to link new homes to employment and services in and around Cambridge.

4. Cambridgeshire and Peterborough Combined Authority

4.1. The CPCA was established in March 2017 and is led by an elected Mayor and Board comprising representatives from the constituent local authorities. The key ambitions for the CPCA include:

- Doubling the size of the local economy.
- Accelerating house building rates to meet local and UK need.
- Delivering outstanding and much needed connectivity in terms of transport and digital links.

4.2. The CPCA is responsible for transport infrastructure improvement and the Local Transport Plan. The existing Local Transport Plan 2011 to 2026 remains the existing key transport policy framework at this time which emphasises the need for new developments to be supported by sustainable transport measures such as HQTP.

4.3. In December 2017 Steer Davies Gleave delivered an options appraisal report jointly funded by the Combined Authority and the GCP on CAM. This favoured a mass transit system in Cambridge based on innovative rubber tyred trams.

4.4. On 30 January 2018 the Combined Authority agreed to fund further development of the CAM to Strategic Outline Business Case. CAM was formally adopted by the GCP on 8 February 2018. The Combined Authority resolved also to "*liaise with the Greater Cambridge Partnership (GCP) to ensure GCP's current and future plans for high quality public transport corridors were consistent and readily adaptable to the emerging proposition for a CAM network*."

4.5. The potential CAM network is set out in **Figure 1** and includes an alignment toward Cambridge South East.

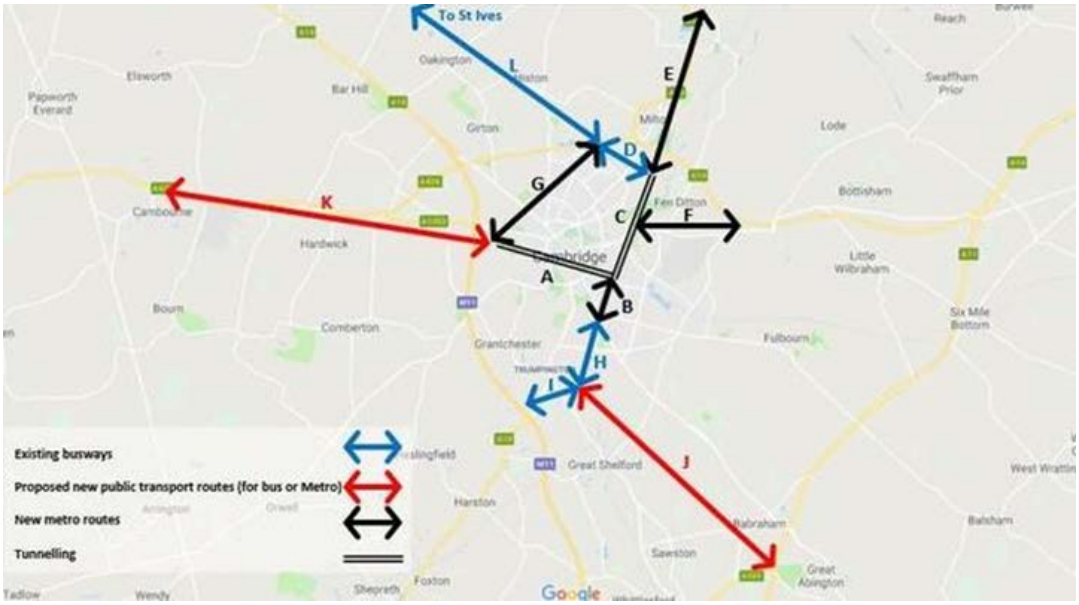


Figure 1– Potential CAM network

4.6. The Combined Authority and GCP have subsequently undertaken a review of alignment between the A1307 Cambridge South East scheme and the emerging CAM. The review has concluded that the Cambridge South East scheme is aligned, subject to detailed work on potential Park and Ride proposals; the CPCA Board accepted the recommendation - "*A1307– full support; subject to the changes proposed on park and ride*". The changes to park and ride referred to are:

"*The park and ride elements of the above projects will be implemented as temporary solutions to reflect the MITSS aspiration to connect the Metro stops with the wider population through innovative transit solutions and not the private car. This includes providing more infrastructure to support greater use of cycle and footpaths, and put in place measures that move away from reliance on private cars for short term and commuter journeys.*

5. Key Issues and Considerations

5.1. The report sets out the business case development work to date and the results of the public consultation undertaken at the end of 2017, outlined in Appendix A.

Business Case

5.2. The business case is formed from five 'cases' for investment in line with HM Treasury guidance and the Department for Transport's' Transport Assessment Guidance.

5.3. Details of the Business Case development are outlined in Appendix B. Strategy 1 has the greatest synergy with the transport objectives of the Combined Authority and the proposed CAM. It offers the greatest degree of future proofing, the other strategies are likely to require further intervention. Mass transit for Cambridge optimally requires a segregated route, which is only provided by Strategy 1.

5.4. The scheme would positively contribute to growth along the corridor by:

- Improving local sustainable transport links between homes and jobs;

- Improving road safety along the corridor by making changes to key junctions to reduce conflict or by reducing the speed of vehicles with appropriate enforcement where there have been speed-related accidents;
- Support the delivery of job and housing growth along the corridor including important growth sites at Granta Park, BRC and the CBC; and
- Help address local transport issues, for example, bus reliability along the A1307 corridor.

5.5. Strategies 2 and 3 propose inbound bus lanes beyond Wandlebury to address predicted future congestion. The need for the bus lanes to extend this far has been challenged by some respondees. The bus lane lengths have been determined from modelling predicted congestion in the future.

5.6. The adoption of the bus lane based Strategies 2 and 3 would not align with the objectives of the CAM. They provide only inbound priority; there are no outbound bus lanes. While the vehicles operating CAM can run on road, the regulatory aspects of running in mixed traffic are uncertain, particularly for autonomous vehicles in the future. It is considered that, as a minimum, dedicated lanes would be required for journey time reliability and regular service frequency, key elements of a mass transit system.

5.7. For effective mass transit operation, outbound dedicated lanes would also be required, increasing the road space requirements.

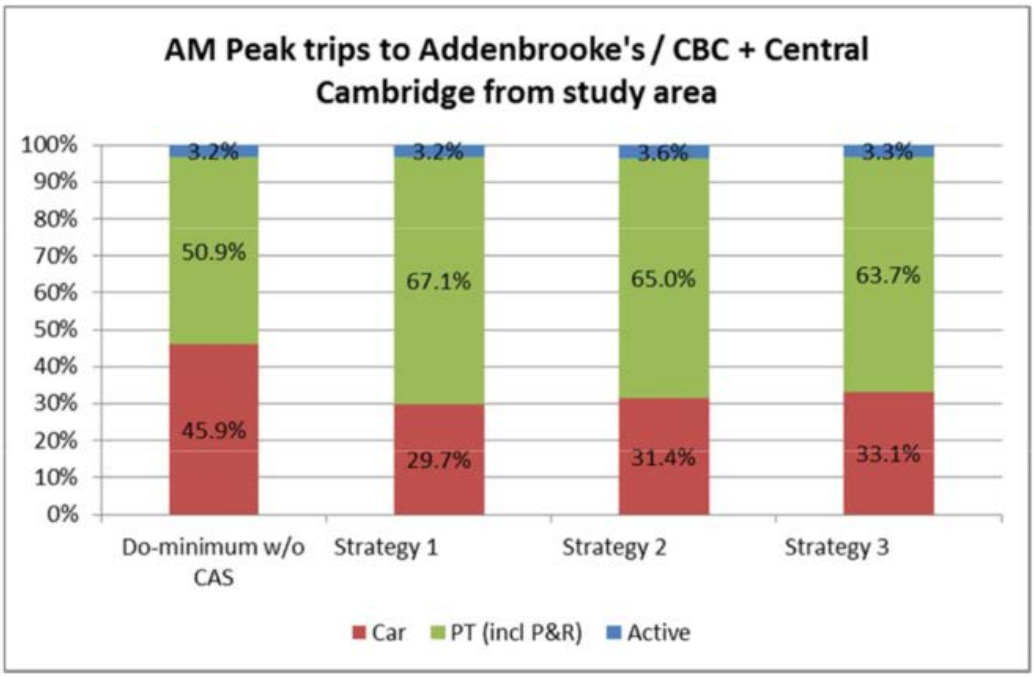
5.8. The provision of outbound dedicated lanes in addition to inbound dedicated lanes raises issues with constraints. An outbound dedicated lane cannot be provided on Babraham Road, or through the Wandlebury area without impact. There are properties close to the road, or in the case of Wandlebury, areas of significant historical and ecological importance. The woodland edge of Wandlebury has been identified from surveys as being of significant ecological value. Although the dual-carriageway here would reduce the need for widening, some widening would still be required.

5.9. If the transport benefits of CAM as a mass rapid transit system are to be realised, a segregated system is optimal outside Cambridge. It is already proposed that CAM would be segregated in Cambridge either by tunnels, or by following existing segregated corridors such as the guided busway route. While it is possible that Strategy 2 could be adapted to extend CAM services to the Babraham Road Park and Ride site, this location is only just outside Cambridge. Extending the reach of CAM along the A1307 presents challenges as outlined above.

5.10. Strategy 3 presents little opportunity for CAM operation due to the impacts of adding outbound dedicated lanes on Babraham Road. It should also be noted that there are no significant settlements along the A1307 until Babraham and the Abingtons. Consequently a CAM route along the A1307 does not service Great Shelford, Stapleford and Sawston.

5.11. Consequently, only Strategy 1 presents the potential of a segregated route for mass transit that is close to population centres, and with potential for future extension to Haverhill. It is the only solution that provides for delivery of the long term transport objectives of both the GCP and the Combined Authority, and it is the only option that will have the full support of the Combined Authority.

5.12. The proposals have potential to deliver considerable mode shift in journeys to the Cambridge Biomedical Campus. The share of Public Transport with Strategy 1 is estimated to increase from 50.9% to 67.1%, and car use to reduce to 29.7% from 45.9%



Environmental Considerations

5.13. These are presented in outline terms as the precise impacts and potential mitigations need to be the subject of further work. At this stage the Board is being asked to consider a preferred strategy for further work.

Emissions and Air Quality

5.14. Phase 2 Strategy 1 is predicted to have positive effects on air quality along the A1307 and the A1301 and the central Cambridge Air Quality Management Area due to improved flow of traffic and reduced congestion.

Noise and Vibration

5.15. Phase 2 Strategy 1 would create a new noise corridor in the open landscape close to built-up areas. It would need a new fleet of vehicles with low or no emissions and low noise performance to mitigate the impacts. Potential exists for the introduction of electric-powered vehicles to reduce noise and pollution.

Ecology and Arboriculture

5.16. The route will run close to Nine Wells Nature Reserve and a County Wildlife Site.

5.17. To mitigate impacts it will be necessary to implement enhanced mitigation that treats the area sensitively, preserving the existing character as far as possible, while mitigating impacts on existing dwellings. Opportunities will need to be taken to extend existing ecologically important areas such as Nine Wells and the Old Railway CWS. It is proposed to route Strategy 1 beside the old railway, preserving it as a haven. A gap between will allow implementation of a buffer zone.

5.18. Where the route passes between Nine Wells Nature Reserve and the main line railway, the route will be as close to the railway as possible. The remaining gap, likely to be of low agricultural value could then be used to enlarge the Nine Wells Nature Reserve.

Agricultural Land Effects

5.19. Phase 2 Strategy 1 will require approximately 25-30 HA of agricultural land, which will have a significant impact on agricultural land, and the existing disused railway. The proposed route is in the Greenbelt of Cambridge.

5.20. In addition, approximately 15 to 20 HA of land will be required for a new Park and Ride and stops along the route. There will however be no impact on residential land.

Landscape and Visual Impacts

5.21. The majority of works for Phase 2 Strategy 1 will be in open landscape with high sensitivity. The area is Greenbelt and characterised by open views.

5.22. The route is expected to require as ancillary work, some new road construction, stops, parking/ drop off areas, and possible flood mitigation ponds. The route is likely to be highly visible in longer views from Gog Magog Hills.

5.23. Impacts could be mitigated by creating targeted tree belts (balanced with preserving the existing open landscape, and ecological mitigation areas. There is also an opportunity to enhance local landscape and integrate the new route with existing features. Consideration will be given to sense of place. The amenity of the multi-user route will contribute positively to existing landscape and heritage features. Sensitivity of heritage and amenity aspects of Wandlebury and Gog Magog Hills need to be addressed.

Public Consultation

5.24. The results of the public consultation are outlined in Appendix A. The most strongly supported Strategy in consultation is Strategy 1. It is also the most costly option and the one with the greatest environmental impact. However, it generates a significantly higher economic benefit, although alternative strategies have a greater benefit cost ratio.

5.25. Strategy 1 was supported by 64% of respondents. Strategy 2 was supported by 54% and Strategy 3 by 52%. In terms of respondents expressing strong support; 43% of respondents (710) expressed strong support for Strategy 1, compared to 18% (298) for Strategy 2 and 20% (321) for Strategy 3.

Local Liaison Forum

5.26. The Local Liaison Forum also support the proposals for strategy 1

6. Financial Considerations

6.1. The estimated costs for the scheme are outlined below:

	Estimated Cost
Strategy 1	£123.6 m

6.2. These costs are subject to further refinement and will be presented in further detail in the Outline Business Case. In particular the business case will include income from developers via Section 106 and other fudning mechanisms

6.3. If strategy 1 is agreed, these costs are in line with the higher cost option (c£140m) agreed by the GCP Board in the March 2018 Budget Setting Report.

6.4. The estimated benefit - costs of Strategy 1 are outlined below;

Benefit Cost Ratios

Strategy 1

BENEFITS (£M, 2010 values)	**10-year appraisal**	**20-year appraisal**	**30-year appraisal**
New bus journey users	£3.94 m	£7.69 m	£12.00 m
Existing public transport journey time saving	£6.72 m	£11.57 m	£12.15 m
Total revenue benefit	£54.50 m	£96.58 m	£185.13 m
Non-user benefits – road decongestion	£9.16 m	£18.07 m	£25.21 m
Non-user benefits – noise air quality, greenhouse gases, accident benefits and others	£3.20 m	£6.00 m	£6.46 m
Total present value of benefits	£77.51 m	£139.90 m	£240.95 m
COSTS (£M, 2010 values and prices)	**10-year appraisal**	**20-year appraisal**	**30-year appraisal**
Total present value of costs	£56.46 m	£56.46 m	£109.52 m
NET PRESENT VALUE (Benefits – Costs)	£22.11 m	£83.94 m	£131.43 m
BENEFIT - COST RATIO	**1.4**	**2.5**	**2.3**

7. Further Development Work on Strategy 1

7.1. Strategy 1 is the only solution that presents the potential of a segregated route for mass transit that is close to population centres and with potential for future extension to Haverhill. It is the only solution that provides for delivery of the long term transport objectives of both the GCP and the Combined Authority, and it is the only option that will have the full support of the Combined Authority.

7.2. However, more technical and environmental assessment work needs to be undertaken, particularly alongside the detailed route alignment evaluation. This further work will include:

i. Consider detailed off-highway routes, and assess alternatives. Including lower cost options of dedicated lanes with CAM operation on the A1307.

ii. Assess environmental impacts and mitigation, and impacts on the Greenbelt.

iii. Assess impacts on the A11 and the need for additional connections to the A11 and agree this with Highways England.

iv. Assess impacts on the main line railway and the proposed Cambridge South Station.

v. Determine entry point to the CBC and connection to the existing guided busway.

vi. Assess options for interchange with a Cambridge South Station.

vii. Develop park and ride locations for consultation.

viii. Carry out further public consultation on detailed routes and park and ride locations.

ix. Finalise an Outline Business Case.

7.3. In this further work stage GCP will work with the CA and its consultants over integration with the CAM proposals and extending the CAM network to the A11.

7.4. Detailed terminus locations will be considered as part of the further route alignment work and in particular the linkages with the A11, Babraham Research Campus and Granta park will be explored. Proposals will be brought forward as part of the next phase of consultation. Considerations of location will include access and egress to the A11 and A505, and connectivity to Babraham Research Campus and Granta Park.

7.5. In addition, detailed landscaping and ecological design proposals should be brought forward to mitigate the impact of the proposals. This should include exploring the feasibility of developing environmental safeguards along the proposed routes; for example the development of a linear park (or similar).

7.6. The output of the further work will be an Outline Business Case for adoption of a preferred proposal to proceed to implementation.

8. Conclusion

8.1. There is very strong public support for Phase 2, Strategy 1. However, it impacts Greenbelt and an environmentally sensitive area. Some key stakeholders are strongly opposed to it. Overall it is the solution that provides the greatest transport and economic benefits, and the one best aligned to the proposed CAM metro. It is also the highest cost solution.

8.2. On balance the commended Strategy, to be adopted as a preferred strategy, is Strategy 1. However, further work is required to develop this strategy alongside development of CAM. This further work is needed to fully align the proposals, and to assess the environmental impacts. It will confirm the business case for Strategy 1 and incorporate the developing CAM proposals.

8.3. Given that the full environmental impacts of Strategy 1 have not been assessed, the adoption of Strategy 1 as a preferred strategy must be predicated on a conclusion of further work that Strategy 1 has an acceptable environmental impact, that the environmental impacts can be mitigated, and that the proposals have a realistic probability of being delivered through the statutory process.

8.4. Consequently, the further work aims to firm up the business case and fully assess the environmental impacts. The proposals will then be brought back to the Joint Assembly for comment and the Executive Board for approval to proceed to implementation.

9. Joint Assembly

9.1. The Joint Assembly is asked to note the results of Public Consultation and comment on emerging recommendations.

10. Next Steps and Milestones

10.1. The following table sets out the final detailed scheme consultation timetable. The timetable includes a contingency for obtaining an alteration to the Transport and Works Act (which extends the Statutory Process) and dependency on key outputs from the CAM programme.

Public Consultation	***Outline Business Case (OBC)***	***Present OBC to Board to select Preferred Option***	***Complete Statutory Process***	***Present Final Detailed scheme to Board***	***Construction***
April to June 2019	August 2019	September/October 2019	September 2021	December 2021	Spring 2022 to Spring 2024

Appendix A – Results of Public Consultation

A.1. Public consultation started on 9 February 2018 and finished on 9 April 2018. The original closure date of 3 April was extended to 9 April due to the snow in February delaying leaflet delivery. It was subsequently found that an area of approximately 25 dwellings had been omitted accidentally by the leaflet delivery contractor, and these were given an extension to 30 April to respond.

A.2. The consultation adopted a multi-channel approach to promote and seek feedback including through traditional and online, paid-for, owned and earned media, community engagement events in key or high footfall locations along the route and through the wide-spread distribution of more than 22,000 consultation leaflets.

A.3. Thirteen drop-in events were held across the area to enable people to have their say in person and the opportunity to question transport officers and consultants.

A.4. Quantitative data was recorded through a formal consultation questionnaire (online and hard-copy) with 1785 complete responses in total recorded. A significant amount of qualitative feedback was gathered via the questionnaire, at road-shows, via email and social media and at other meetings.

A.5. A consultation leaflet was the principle paper-based mechanism for providing information about the consultation to people across the area. The leaflet included a questionnaire to invite comments on the level of support for each strategy proposed, for elements common to all strategies as well as other relevant information such as whether respondents would consider switching their mode of transport. The questionnaire sought profile information in order to facilitate further analysis. The leaflet was made available in other formats on request.

A.6. In addition to the leaflet a consultation brochure, providing further background information on the three strategies and the scheme as a whole, was available at events and on request.

A.7. The documents were made available online with links to the project webpage sent electronically at the commencement of the consultation to over 4500 interested parties. The availability of further online information and the online survey was referenced in the leaflet.

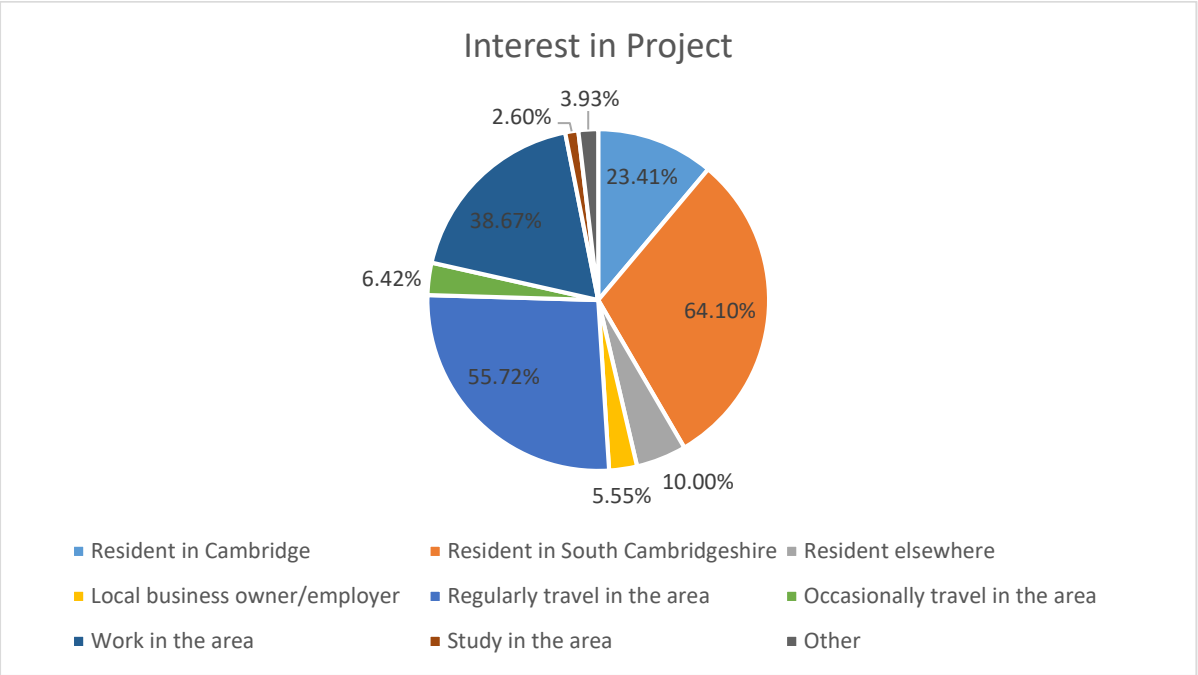
A.8. Other means of publicity included events, earned media from news releases and distribution via the Partnership's owned channels both on and offline e.g. leaflets at the County's Park and Ride sites and at local libraries. Paid for media included Park and Ride bus screens, advertising in local newspapers and on radio, and poster sites including city centre boards. Online promotion included targeted Facebook advertising across the wider identified area. Twitter posts encouraging retweets via local people and organisations' feeds. The public consultation material presented the scheme to be delivered in two phases. Phase 1 comprised 17 elements along the A1307 between Cambridge and Haverhill. Phase 2 comprised three public transport strategies.

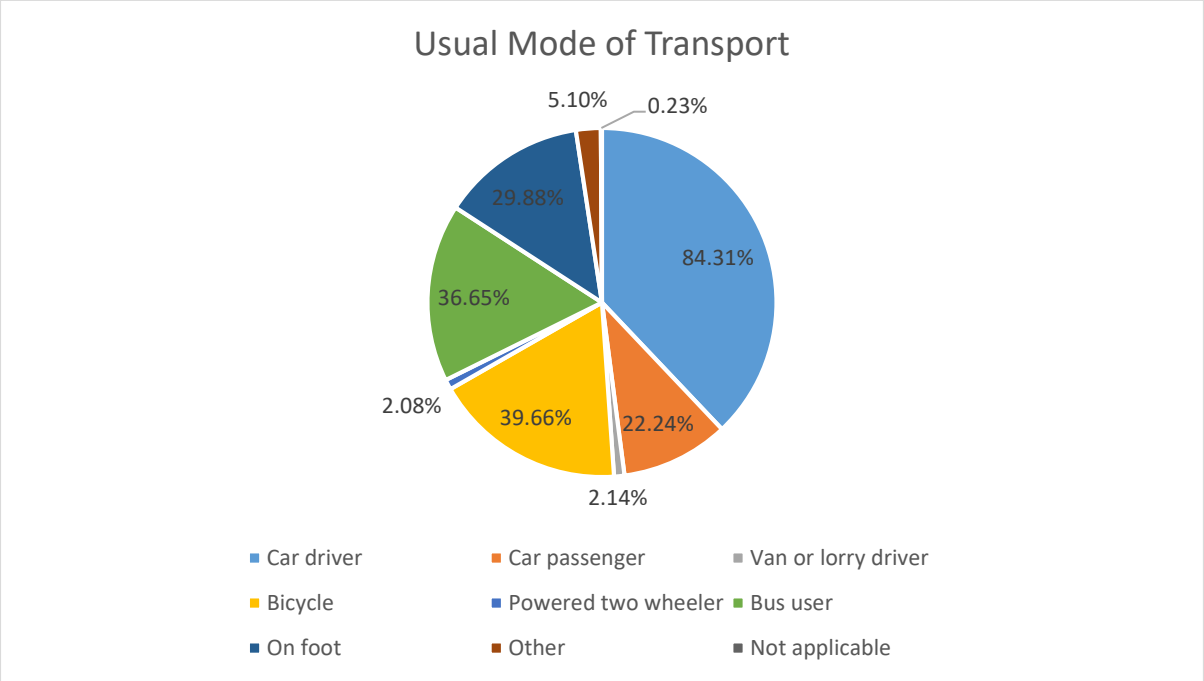
A.9. A total of 1785 responses to consultation have been received to the questionnaire. In addition a further 129 written responses have been received via letter, e-mail, social media and at events.

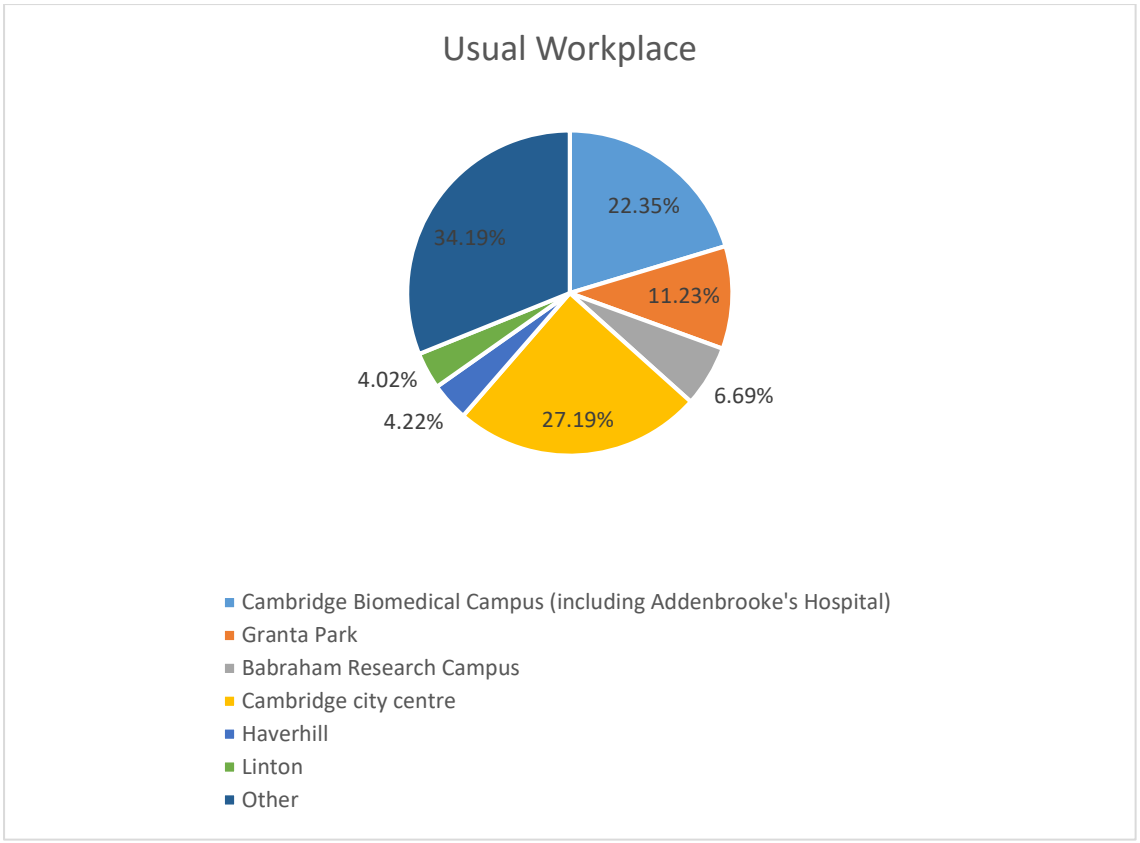
A.10. A few respondents indicated that they hadn't put forward an opinion on some of the elements as they felt they were lacking information on how they would be implemented and what they would achieve.

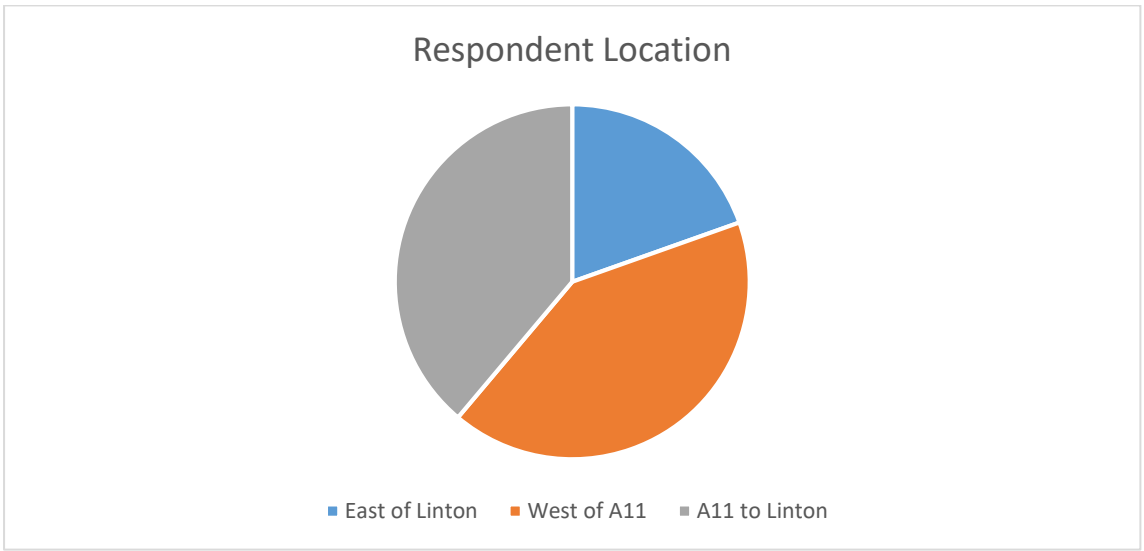
A.11. Respondents were asked for their postcodes during the survey, but were not forced to enter a response. 1364 respondents entered recognisable postcodes, while nearly a quarter did not (421 respondents). Based on the postcode data provided most respondents resided in Linton (14.01%), Queen Edith's (9.64%), Great Shelford (7.9%) and Sawston (7.62%).

A.12. These postcodes were also used to group respondents by parish (or ward in the case of Cambridge) and then into one of three categories; 'East of Linton' (covering 14.9% of respondents); 'Babraham to Linton', for respondents along the proposed route (covering 29.69% of respondents); and 'West of Babraham' (covering 31.54% of respondents).

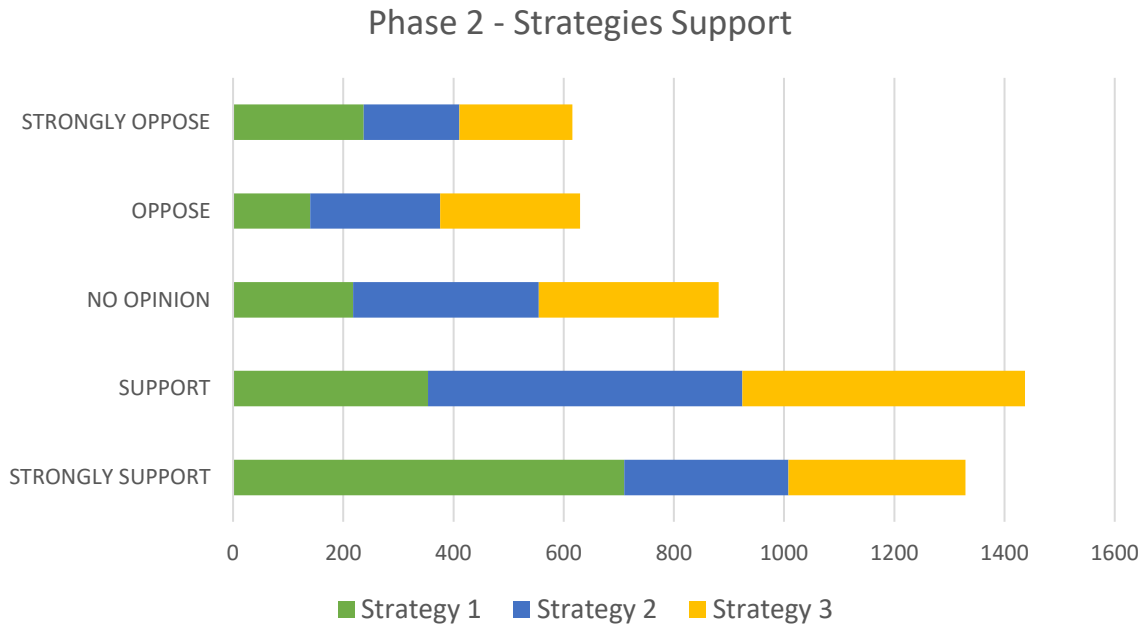


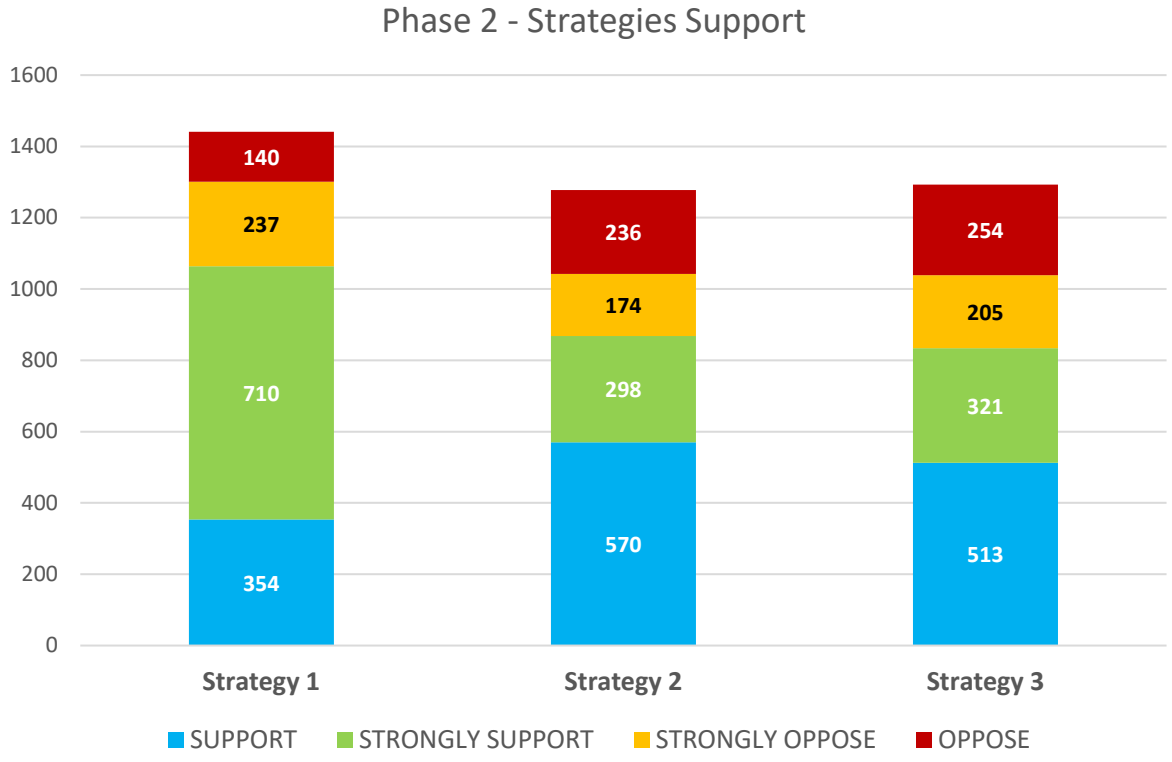



Usual Workplace
22.35%
11.23%
6.69%
27.19%
4.22%
4.02%
34.19%
Cambridge Biomedical Campus (including Addenbrooke's Hospital)
Granta Park
Babraham Research Campus
Cambridge city centre
Haverhill
Linton
Other


Respondent Location
East of Linton
West of A11
A11 to Linton

A.13. The overall picture was one of support in varying degrees for all the proposals:





Phase 2 Themes

A.14. **Strategy 1**. Many respondents discussed this theme. Some of these respondents felt that strategy 1 was the most thought out of the three strategies and had the best chance of creating modal shift away from personal vehicles. These respondents also felt that this strategy would be the best suited for integration into future transport links, including those to Haverhill. Some of these respondents indicated that they felt the cost of development was high but was worth the cost. A few of these respondents felt that strategies 2 and 3

would only benefit those travelling into Cambridge and would not benefit those commuting back home or to employment sites outside Cambridge. A few of these respondents felt that a cycle route should be included along the route and access should be available to villages. Some respondents were concerned about strategy 1, feeling that the increased cost of development was not worth the small increase in improvements. Some of these respondents were also concerned about the environmental impact this route would have on villages and Greenbelt land in the area.

A.15. **Strategy 2**. Many respondents discussed this theme. Some of these respondents felt that strategy 2 would bring the best cost to benefit ratio and would bring benefits in a shorter space of time. Some respondents felt that the projected passenger traffic was too small to justify the expansion into the Greenbelt. Some of these respondents felt that strategy 2 would cause increased congestion on Babraham Road, an area of current high levels of congestion, as drivers would be encouraged to use the Park and Ride site. A few of these respondents felt that strategy 2 would be too short term and not result in lowering congestion enough for the increased development in the area.

A.16. **Strategy 3**. Some respondents discussed this theme. Some respondents felt that strategy 3 held little benefit, as these respondents felt that bus lanes did not improve journey times enough as there were still interactions with other road users. Some of these respondents were concerned that there was not enough space for the lanes in the proposals without compromising one of lanes or negatively affecting the environment. A few respondents felt that strategy 3 would add to congestion, particularly around Babraham Road and Addenbrooke's Hospital, because of the availability of space. Some respondents felt that this strategy would be of most benefit as it could be implemented quickly and dismantled easily if future developments superseded it, such as autonomous vehicles.

A.17. **Railway links from Haverhill**. Many respondents felt that having a rail link from Haverhill to Cambridge would reduce much of the motorised traffic currently using the A1307. These respondents felt the railway should link villages along the route and a few respondents felt that it should include a stop at Addenbrooke's Hospital.

A.18. **Mass rapid transit**. Many respondents discussed this theme. These respondents felt that the mass rapid transport system should take the form of something other than a bus. For some this was a train link while others felt it should be a tram or underground route. As with the respondents who discussed the railway links, many of these respondents felt that the route should go from Haverhill to Cambridge, for some using the old railway link. A few respondents were concerned about the environmental and financial impact of developing a mass rapid transit route.

A.19. **Haverhill**. Many respondents discussed this theme. These respondents highlighted the planned growth in Haverhill and felt that any route development should include Haverhill. Respondents who indicated they lived in the area felt that public transport underserved the area and needed improving to discourage personal vehicle use. Some of these respondents felt that a cycle path would also encourage modal shift away from personal vehicles.

A.20. **Bus service improvements**. Many respondents discussed this theme. These respondents felt that current bus services did not run at times or locations that were convenient for passengers, that they did not run often or early/late enough, that it was unreliable, and that the cost of bus fares was prohibitive. These respondents felt that the bus service needed subsidising to attract passengers, with a few respondents discussing the Bus Services Act 2017 and the possibility of developing a public transport system similar to London. Many of these respondents felt that the proposals would fail without improving bus services or offering a cheap and reliable alternative. A few respondents felt that the cost of Park and Ride services should be reduced as well.

A.21. **Cost of development**. Some respondents discussed this theme. These respondents highlighted concerns they had with the cost of development for each of the strategies. Some respondents felt that the cost was too high for something they felt would only be a solution in the short term. Some respondents felt that the cost for strategy 1 was acceptable for the benefits it could bring. Some respondents did not feel the cost for strategy 1 was worth the benefits.

A.22. **Public transport links**. Some respondents discussed this theme. These respondents felt that public transport links needed to be available to all areas along the route, including villages and areas of employment such as Granta Park. Some of these respondents felt there should be direct services to Cambridge to ensure fast, reliable journey times.

A.23. **Short term**. Some respondents discussed this theme. These respondents felt that these strategies would only be short term solutions. These respondents discussed planned developments in areas around the route, particularly in areas outside Cambridgeshire and in places such as Addenbrooke's Hospital, and felt infrastructure developments needed to consider these. Some of these respondents felt that strategy 1 had potential to be future proofed.

A.24. **Environment**. Some respondents discussed this theme. These respondents were concerned with the environmental impact these developments could have on the surroundings. Gog Magog and Nine Wells were areas of particular concern for some participants, who felt the routes came too close to these areas and felt they should be avoided. Strategy 3 had the fewest respondents concerned with environmental impact, while strategies 1 and 2 had similar levels of concern. Some respondents were concerned about the impact these strategies would have on villages along the route, particularly during construction.

A.25. **Park and Ride location**. Some respondents discussed this theme. These respondents felt that a Park and Ride site needed to be included closer to Haverhill, as significant traffic came from this location and needed to be encouraged out of personal vehicles earlier. Some respondents felt that a Park and Ride site should be located at the A11 junction for similar reasons.

A.26. **Modal shift**. Some respondents discussed this theme. These respondents felt that modal shift away from personal vehicles was important. These respondents felt that for public transport to be attractive it needed to be perceptively cheaper and reliable. Some respondents felt that dedicated cycle routes would encourage more people to cycle. Strategy 1 was discussed by some respondents, who felt this would be most effective at achieving modal shift. However some respondents questioned the figures quoted in the documentation, feeling this was overly ambitious. Some respondents felt that any the strategies would achieve modal shift and a few respondents felt that these schemes did not go far enough.

Key Stakeholder Responses (Summary of main points only and in alphabetical order)

A1307 Parishes Forum

A.27. They would like to see public transport (rail or LRT) extended to Haverhill, and a new road and junction with the M11. Overall they felt that GCP is too bus and cycle focussed, and longer term improvements are needed.

Babraham Research Campus

A.28. They considered strategy 1 to be the most progressive and forward looking, but considered strategy 2 to serve the campus better due to the distance from strategy 1.

CBC Travel, Transport and Sustainability Group (CBCTTSG)

A.29. CBCTTSG support strategy 1, and the phase 1 proposals, particularly the bus priority measures at Linton and the travel hub.

Cambridge Past, Present and Future (CPPF)

A.30. CPPF oppose all three strategies. Strategies 1 and 2 were strongly opposed, whereas strategy 3 was opposed. They strongly oppose strategy 1 on the grounds of impact on Greenbelt and encouraging development outside the Local Plan.

A.31. They oppose strategies 2 and 3 on the grounds of impact on Wandlebury, and challenge the extent of bus lane. They consider the need for a bus lane east of Wandlebury is not proven. They indicated least opposition to strategy 3, and would support this strategy if the bus lane did not extend beyond Wandlebury. They considered that rail improvements, demand management, and improved cycle facilities would deliver the desired modal shift.

Cambridge University

A.32. Cambridge University supports strategy 1 as it offers the greatest opportunity for mode shift and offers fast and reliable public transport. However, they consider development of the proposal needs to consider the Western Orbital and South Station, and also needs to address access to Granta Park, management of parking around the Biomedical Campus and infrastructure improvements within the campus.

Camcycle

A.33. Camcycle strongly object to all three public transport strategies. Strategy 1 they feel to have too many unknowns, and to be too far in the future. They object to the new road element of strategy 2, and consider that strategy 3 on the basis of the bus lane occupying road space to the disadvantage of vulnerable road users. They would prefer to route buses via Worts Causeway.

Confederation of Passenger Transport

A.34. The Confederation supports all the phase 1 elements, especially those that make public transport journeys faster and more reliable. They offer strong, but qualified support for strategy 1 as it offers the potential for high frequency mass public transport. However, their support is tempered by the mass transit proposals being most likely not available for all public service vehicles.

A.35. Strategy 2 was also strongly supported for increasing public transport usage. Strategy 3 was supported, but it was regarded to be less attractive in public transport terms than the other strategies.

A.36. The Confederation urged that within the plans for improving public transport routes, coach travel is also given precedence. Coaches should be offered the same precedence as buses. In addition the Confederation would welcome improved provision for coaches to access current and future railway station developments.

Coppice Avenue Residents Association

A.37. The Association objects to the Strategy 1 proposals. They consider the proposal to be likely to increase traffic on Hinton Way and to impact the amenity of residents from increased

noise. Overall they consider the strategy 1 proposals to be over bearing, out of scale, and out of character. Widening the existing A1307 would be preferred.

CTC Cambridge

A.38. CTC are neutral on the three strategies. However, they suggest that if strategy 1 were adopted the Linton Greenway should be re-routed via the public transport route. They ask for priority for cyclists at the Gog Farm Shop junction, and do not support the proposed underpass as they consider the money would be better spent elsewhere. They do not support the upgrading of the existing A11 footbridge on the grounds of width, and that a new bridge on a different line would provide better access.

Granta Park

A.39. Granta Park support strategy 1.

Great Abington Parish Council

A.40. The parish council strongly supports strategy 1, less support for strategy 2 and opposes strategy 3.

Hinxton Parish Council

A.41. Hinxton Parish Council supports strategy 1 provided the A505 is dualled. They also request that GCP presses for M11 junction 9 to become all movement.

Horseheath Parish Council

A.42. The parish council supports a Park and Ride at the A11, but also considers one should be provided at Haverhill. In the long term they would like to see a new road to the M11, and consider that rail based public transport is better.

Linton Parish Council

A.43. In terms of the three strategies none were considered to be a definitive solution, with strategy 3 being considered the least damaging to the environment. Rail alternatives were preferred to strategy 1.

Little Abington Parish Council

A.44. Little Abington parish council support the concepts of Strategy 1 and all measures that would improve traffic flow and safety on the A1307. They propose a speed limit reduction to 30 mph at Little Abington.

A.45. They do not support any options that would see a Park and Ride site at Abington, and suggest reconsideration of locating Park and Ride east of Linton.

Magog Trust

A.46. The Magog Trust oppose the three strategies in similar terms to CPPF, and object to bus lanes extending east of Wandlebury. They would support a shorter bus lane.

Sawston Parish Council

A.47. Sawston parish council made no comment regarding the three strategies but support the changes between Addenbrooke's roundabout and Fourwentways including the Babraham village junction with the A1307.

Smarter Cambridge Transport

A.48. Smarter Cambridge Transport does not support any of the three long-term strategies proposed. They accept the need to increase transport capacity between Cambridge and

Haverhill, but want to see a fair and realistic comparison of the three mass transit options: heavy rail, light rail and bus rapid transit.

A.49. Strategies 2 and 3 do not in their opinion provide sufficient long-term benefit to warrant the environmental damage their construction will cause.

A.50. Strategy 3 would be the most acceptable if road widening was avoided as much as possible. They suggest an alternative strategy 3a with inbound flow control and reduced speed limits, and using Worts Causeway for buses. A wider strategy of encouraging the use of rail to access Cambridge is advocated. Stations at Hinxton and Cherry Hinton are suggested.

Trumpington Residents' Association

A.51. TRA strongly support strategy 1 but are concerned over current availability of detail and potential environmental impact. They strongly support the interventions on the A1307 between Addenbrooke's and Wandlebury.

Welcome Genome Campus

A.52. Of particular interest to the WGC is the potential new Park and Ride site and associated improved connections to Cambridge in association with phase 2. Strategy 1 utilises the disused railway and brings the corridor relatively close to the WGC, providing more opportunity to provide a sustainable transport connection between the new Park and Ride and the WGC.

West Wickham Parish Council

A.53. The Parish Council supports strategy 1, to provide a Mass Rapid Transport route from a new Park and Ride facility at the A11/A505 Junction to the CBC via Sawston.

Wildlife Trust

A.54. The Wildlife Trust is supportive of measures to increase use of public transport and cycling, but not be at the expense of the natural environment.

A.55. The Wildlife Trust objects to strategy 1 due to the current lack of information provided and the potential for loss of the Shelford-Haverhill Disused Railway (Pampisford) CWS.

A.56. Both Phases will need to demonstrate that they will avoid adverse impacts on nearby sites important for nature conservation, particularly Wandlebury Country Park, Magog Hills and Nine Wells. Schemes should also demonstrate that they can deliver a net gain in biodiversity, in line with National Planning Policy.

Appendix B – Business Case

A.1. A preliminary Outline Business case has been prepared

The Strategic Case

Context

A.2. The strategic case for interventions in the study area is based on the analysis of the existing network performance, stakeholder feedback, the form and function of the local economy and the growth aspirations of the area south east of Cambridge including the three campuses and in particular CBC.

Transport Context

A.3. The study area and routes within it suffer from congestion at peak times, such as the A1307, A1301, A505 and A11. There is also traffic re-routeing onto less suitable local roads to avoid these congestion points on the road network. The effects of congestion also impact on the reliability of bus journey times which reduces the attractiveness of bus travel to support the mode shift which is needed to offer traffic relief to the A1307 and A1301 corridors.

A.4. Cycle and walking provision is often not joined up and there are key points of severance such as limited opportunities for crossing the A11. Future committed and aspirational growth in housing and jobs within this part of South Cambridgeshire and across the borders in Essex and Suffolk is likely to increase congestion and reduce accessibility by non-car modes unless a strategic intervention is put in place.

A.5. Air quality and congestion in central Cambridge means more opportunities for non-car travel are needed to enable people to reduce car dependence for travel into Cambridge.

Economy Context

A.6. The strong economic and population growth across the region places increasing demands on the existing transport infrastructure and housing supply. Rising congestion and increasing journey times threatens further economic growth. These constraints also negatively impact on the study area as a place to live and work.

A.7. The evidence shows that individually and collectively the study area is important to the Greater Cambridge region. This successful location is well placed to continue to grow if the key challenges of increased pressure on transport infrastructure, demand for local housing and access to jobs and services can be addressed. However, this future committed and aspirational growth in housing and jobs within this part of South Cambridgeshire and across the borders in Essex and Suffolk will increase congestion and reduce accessibility by non-car modes

A.8. There are important economic assets (such as the Three Campuses, Communities along the A1301, Cambridge City and workers living in the area) identified in the study area. The analysis of the influence of the existing transport network and the intrinsic economic assets of the study area provides the evidence that transport investment could help address existing transport issues, trigger positive changes to the economic connectivity and help unlock local access to cater for growth.

Statutory Context

A.9. The project has been developed to address issues of inclusivity by enhancing access for all users and improving accessibility of key facilities such as schools, workplaces and recreational facilities to assist with improving population health and quality of life.

Policy Context

National Planning Policy Framework 2012 and National Planning Practice Guidance 2014

A.10. The National Planning Policy Framework (NPPF) was published in March 2012 and sets out the Government's economic, environmental and social planning policies for England. It provides within a single document the greater part of national policy advice, and sets out the Government's vision for delivering sustainable development. The NPPG supports this with more detailed guidance on each topic considered within the NPPF.

A.11. The framework introduces a presumption in favour of sustainable development, and lists transport policy objectives as being to:

- "facilitate sustainable development and its contribution to wider sustainability and health objectives" (para 29);
- "support reductions in greenhouse gas emissions and congestion, and support a pattern of development which , where reasonable to do so, facilitates the use of sustainable modes of transport" (para 30); and
- "develop strategies for the provision of viable infrastructure necessary to support sustainable development" (para 31).

A.12. The NPPF states that all developments that generate significant amounts of movement should take account of:

- Prioritising opportunities for encouraging the use of sustainable transport modes depending on the nature and location of the site, to reduce the need for major transport infrastructure;
- Safe and suitable access can be achieved for all users; and
- Improvements can be undertaken within the transport network that cost effectively limit the significant impacts of the development. Development should only be prevented or refused on transport grounds where the residual cumulative impacts of development are severe.

A.13. The NPPF notes that developments should be located and designed where practical to, amongst others:

- Give priority to pedestrians and cycle movements, and have access to high quality transport initiatives;
- Create safe and secure layouts which minimise conflicts between traffic and cyclists or pedestrians; and
- Incorporate facilities for charging plug-in and other ultra-low emission vehicles.

A.14. Minimising journey lengths is a key policy aim set out in the NPPF and NPPG, and it notes that, for large scale developments, this helps to maximise non-car access. This includes locating key facilities such as schools, shops and jobs within accessible distance of most properties.

A.15. With regards to accessibility the NPPF states that local planning authorities should take account of:

- The availability of and opportunities for public transport;
- Local car ownership levels; and
- An overall need to reduce the use of high-emission vehicles.

A.16. The proposals seek to align with the NPPF by promoting the use of non-car modes of transport by offering improved accessibility and infrastructure which encourages public

transport operators to operate more efficiently and effectively and supporting the growth in use of low emission vehicles to minimise air quality effects.

Cambridgeshire Local Transport Plan (2011-2026)

A.17. The Cambridgeshire Local Transport Plan (LTP) sets out Cambridgeshire County Council's plans and policies for the future of transport in Cambridgeshire. The plan was adopted in 2011 and further updated in 2014 covering the 20-year period up to 2031. The overarching vision of the plan is to create communities where people want to live and work, now and in the future.

A.18. As a result of the creation of the Cambridgeshire and Peterborough Combined Authority with Mayoral powers, the Cambridgeshire Local Transport Plan has been superseded by the Combined Authority Interim Transport Strategy Statement (2018), which is an amalgamation of Cambridgeshire County Council and Peterborough City Councils LTPs.

A.19. The Cambridgeshire and Peterborough Combined Authority (CPCA) was formed in 2017 and is now the Local Transport Authority with strategic transport powers for the area previously covered by Cambridgeshire County Council and Peterborough City Council. This includes producing a new LTP by spring 2019, which will set out the overall transport strategy for Cambridgeshire and Peterborough.

A.20. In May 2018, the CPCA Board adopted the Mayoral Interim Transport Strategy Statement as an interim measure until a new full LTP for Cambridgeshire and Peterborough is produced.

A.21. The Mayoral Interim Transport Strategy Statement sets out the guiding principles of the new LTP:

- Economic growth and opportunity by connecting our dynamic workforce with a growing number of jobs
- Equity to ensure that all areas of the Combined Authority can prosper
- Environmental responsiveness by encouraging active and sustainable travel choices

A.22. The primary goals and targets of the LTP will include a focus on:

- Transforming public transport
- Designing integrated walking and cycling solutions
- Creating and upgrading our major road network
- Expanding transport access
- Creating effective travel choice
- Ensuring reliability of our network
- Improving safety
- Creating a network fit for the future

A.23. The proposals put forward namely improvements to public transport, walking and cycling, are directly in line with the guiding principles and goals defined for the new LTP.

A.24. Furthermore, the ambition for the new LTP to support the delivery of the CAM is highly compatible and complementary to the mass transit solution put forward as Strategy 1 of Phase 2.

A.25. Following a review in July 2018, the Combined Authority has confirmed that the CSETS project will be delivered as a phase of CAM as contained in the MITSS and so will need to be consistent with the principles of the CAM (i.e. with segregated routes, extendability and technology neutral).

South Cambridgeshire Proposed Submission Local Plan, 2013

A.26. The South Cambridgeshire Local Plan was submitted to Secretary of State for Communities and Local Government for inspection in March 2014. Inspectors have now reported back on the Local Plan, but it has not yet been formally adopted. This plan covers the 20 year period from 2011 to 2031.

A.27. The plan aims to "to maximise potential for journeys to be undertaken by sustainable modes of transport including walking, cycling, bus and train." The plan therefore has a presumption in favour of sustainable development.

A.28. The proposed submission Local Plan included the following relevant policies regarding transport:

- Policy TI/2 Planning for Sustainable Travel

  Development must be located and designed to reduce the need to travel, particularly by car, and promote sustainable travel appropriate to its location; and

  Planning permission will only be granted for development likely to give rise to increased travel demands, where the site has (or will attain) sufficient integration and accessibility by walking, cycling or public and community transport.

- Policy TI/3 Parking Provision

- Policy TI/8 Infrastructure and New Developments

  Planning permission will only be granted for proposals that have made suitable arrangements for the improvement or provision of infrastructure necessary to make the scheme acceptable in planning terms. The nature, scale and phasing of any planning obligations and/or Community Infrastructure Levy (CIL) contributions sought will be related to the form of the development and its potential impact upon the surrounding area; and

  Contributions may also be required towards the future maintenance and upkeep of facilities either in the form of initial support or in perpetuity in accordance with Government guidance.

Transport Strategy for Cambridge and South Cambridgeshire (TSCSC)

A.29. The Transport Strategy for Cambridge and South Cambridgeshire was adopted by Cambridgeshire County Council in March 2014 and it ensures that both districts work together to plan for sustainable growth and continued economic prosperity. The plan provides a detailed policy framework and a programme for transport schemes across both districts aimed at addressing current problems.

A.30. The overall vision is to create a sustainable, efficient and accessible transport system to support Cambridge City, major employment hubs, villages and key centres. In doing so the plan covers all modes of transport and takes account of forecast employment and housing growth up to 2031. This includes Local Plan growth at key campuses along the A1307.

A.31. The scheme is consistent with the Cambridgeshire Local Transport Plan 2011-26 and it supports both Cambridge and South Cambridgeshire Local Plans.

A.32. The plan contains a number of specific policies which are relevant to the corridor. These are:

- Policy TSCSC 3: Catering for travel demand in South Cambridgeshire

  This policy states that as existing transport networks from South Cambridgeshire into Cambridge are constrained, passenger transport services on main radial corridors will be used for part or all of more trips to Cambridge and to other key destinations. It also

states that more people will walk and cycle to access services and that more people will car share.

- Policy TSCSC 4: National networks: trunk roads, motorways and rail

  National improvements to strategic transport infrastructure must take account of local circumstances, opportunities and impacts e.g. changes to national important road and rail routes.

- Policy TSCSC 7: Supporting sustainable growth

  Changes to the transport network should support sustainable travel modes.

- Policy TSCSC 12: Encouraging cycling and walking

  This policy states that all new developments must provide safe and convenient pedestrian and cycle improvements.

A.33. The proposals fit well with the above listed TSCSC policies in particular they support mode shift to more sustainable forms of transport, for example, by providing new and improved infrastructure for pedestrians and cyclists such as the Linton Greenway and Multi-user crossings.

A.34. Public transport improvements and improved Park and Ride facilities will enable mode shift even for those who do not live within easy reach of a frequent bus service.

Cambridgeshire Long Term Transport Strategy (LTTS) 2011-2031

A.35. The Long Term Strategy (LTTS) was adopted in July 2015. It was developed by the County Council in close collaboration with district and neighbouring authorities, and forms part of the aforementioned Local Transport Plan.

A.36. The purpose of the LTTS is to provide additional detail on future major transport schemes needed to support Cambridgeshire's ambitious growth plans up to 2031.

A.37. The objectives of the strategy are to (i) ensure that the transport network supports sustainable growth and continued economic prosperity; (ii) improve accessibility to employment and key services; (iii) encourage sustainable alternatives to the private car, including rail, bus, guided bus, walking and cycling, car sharing and low emission vehicles; (iv) encourage healthy and active travel, supporting improved well-being; (v) make the most efficient use of the transport network; (vi) reduce the need to travel; (vii) minimise the impact of transport on the environment; and (viii) prioritise investment where it can have the greatest impact.

A.38. The aspects of the strategy most relevant to the South east of Cambridge are the following:

- Expanding rail capacity and creating new stations (e.g. Cambridge south station)
- Wider pedestrian / cycle network improvements to provide a comprehensive network of high quality pedestrian / cycle routes linking the town with key destinations in Cambridge and the surrounding villages

A.39. The Long Term Strategy Seeks to enhance the bus/guided bus network which forms a major part of the strategy to achieve a high quality network:

- Extend the busway network to serve major new developments and employment sites.
- Develop high quality public transport corridors along key routes with priority at key junctions, helping to reduce journey times.
- Implement new and improved passenger transport interchanges and hubs with parking, cycle parking, high quality waiting facilities, passenger information and

facilities for local feeder services, and that are easily accessible by pedestrians and cyclists.

The CAM proposals which form part of Strategy 1 contribute towards delivering the extended network envisaged within the LTTS. The inclusion of transport hubs and Park and Ride sites along the route is also a principle within Strategy 1.

Cambridgeshire Green Infrastructure Strategy (2011)

A.40. The Cambridgeshire Green Infrastructure Strategy sets out to encourage a consistent approach amongst planners for the provision of Green infrastructure within Cambridgeshire. The Strategy outlines the benefits that provision of Green infrastructure can have as well as identifying the opportunities within set target areas to inform future development.

A.41. The strategy specifically highlights the current Target Area 6.3 – Cambridge.

A.42. In respect to transport, the strategy sets out the following opportunities to inform future project development.

- Green Infrastructure Gateways: the growth areas provide opportunities for enhanced linkages between the City, the surrounding countryside, the navigable river and Green Infrastructure sites.
- Publicly Accessible Open Space: the provision of open space and linkages to the strategic Green Infrastructure network and Public Rights of Way forms one of the key elements of the growth agenda for Cambridge. Significant levels of high quality open space are required by planning policies. These open spaces must link well with the surrounding built-up area.
- Rights of Way: by ensuring that all communities have access to sustainable modes of movement and enhanced links to the wider countryside as required by the plans for the major developments to provide for countryside recreation.

A.43. The multi-user route to be provided along with the mass transit route will also offer part of a new Sawston Greenway and will also be connected to the research campuses along the route. There is an opportunity for the former disused railway to form a new linear park with enhanced ecology and improved connectivity between the Nine Wells Nature reserve at the west end of the route and the CWS at the eastern end of the route close to the A11. This will extend the public rights of way network and enhance access to the countryside and opportunities for recreation and healthier lifestyles.

Air Quality Management Plans

A.44. Like many other urban areas, Cambridge has an air quality problem. Air quality is monitored in Cambridge through the Local Air Quality Management process, known as LAQM. Due to excessively high levels of NO2 (Nitrogen dioxide, which is primarily traffic related) in central Cambridge an Air Quality Management Area (AQMA) was declared in 2004. The purpose of the Air Quality Management Area is to establish an area where air quality must be improved and start the process of working towards these improvements to bring levels of pollutants below the National Air Quality Objectives.

A.45. Nitrogen dioxide is routinely monitored across the city and like most cities, the high levels are caused primarily (but not solely) from traffic pollution. The areas of the city most severely affected by air pollution, with high levels of nitrogen dioxide are:

- the area around the bus station
- the trafficked parts of the historic core
- the inner ring road
- junctions with the inner ring road

- main radial routes into the city

A.46. The boundary of the Air Quality Management Area was therefore defined by the inner ring road and some extension along radial routes. An AQMA map is provided in the Appendix.

A.47. An Air Quality Action Plan is in place seeking to reduce levels of NO2 within the AQMA, There are two main reasons for transport related pollution in Cambridgeshire; these are the importance of Cambridge as an employment, education and tourist centre, and the prevalence of long-distance freight on the A14 east-west corridor.

A.48. The Air Quality Action Plan is integrated into the local transport plan so that the issues can be addressed together.

A.49. The consequent Air Quality Action Plan was integrated into the Cambridgeshire County Council's Local Transport Plan Two (2006 - 2011), LTP2, which was published in 2006. It included:

- Expansion of the Core Area traffic road closure programme to further limit access to the city centre
- Development of a low emission zone in the historic city centre by setting minimum emission standards for buses and taxis
- A 20 mph speed limit in parts of the city centre
- Regulation of goods vehicles

A.50. Other measures proposed for the Air Quality Action Plan included:

- A pro-active stance on land-use planning in relation to air quality and a requirement for Air Quality Assessment for new developments
- Continued limitation of parking in the Core Area by our adopted car parking standards
- Full implementation of our Cycling And Walking Strategy

A.51. Minimum emissions standards have been agreed with bus operators, through the Quality Bus Partnership and taxis continue to be less than 8 years old and a 20 mph zone has been implemented in the city centre.

A.52. The Air Quality Action Plan was updated in 2009 and integrated with the Action Plan for South Cambridgeshire District Council, working with Cambridgeshire County Council to produce the Air Quality Action Plan for the Cambridgeshire Growth Areas.

A.53. The Third Local Transport Plan (LTP3) covers the period 2011 – 2026. The preferred strategy for LTP3 focuses on reducing the need to travel while improving accessibility, encouraging the use of environmentally sustainable modes of travel, and reducing reliance on the private car.

A.54. The main themes in the revised Air Quality Action Plan 2015 – 25 will include:

- Continuing to improve emissions from the vehicles being driven around Cambridge
- Continuing to improve access to public transport across the city
- Promoting smarter travel choices
- Lowering emissions from buildings
- Managing emissions from new developments within the city through the planning process

A.55. To continue to achieve improvements to air quality in central Cambridge and beyond, emissions from all vehicles entering the city will need to be significantly reduced. This is dependent on vehicle manufacturers making further improvements to the emissions from

vehicles alongside continued restraint on traffic entering the city and through an accelerated shift to lower emission vehicles.

Overall Policy Fit

A.56. The proposals accord well with the above transport, planning and air quality policy objectives, encouraging increased shift to non-car travel and supporting healthier and active journeys by walking and cycling within the South East of Cambridge. Reduction in KSI at road junctions will also improve population health.

A.57. The Phase 1 measures also support this with safety and bus priority measures as well as new Greenways and enhanced crossing facilities without encouraging increased traffic into central Cambridge. The new routes created will increased non-motorised user access to the countryside and increase healthy lifestyles.

GCP Objectives

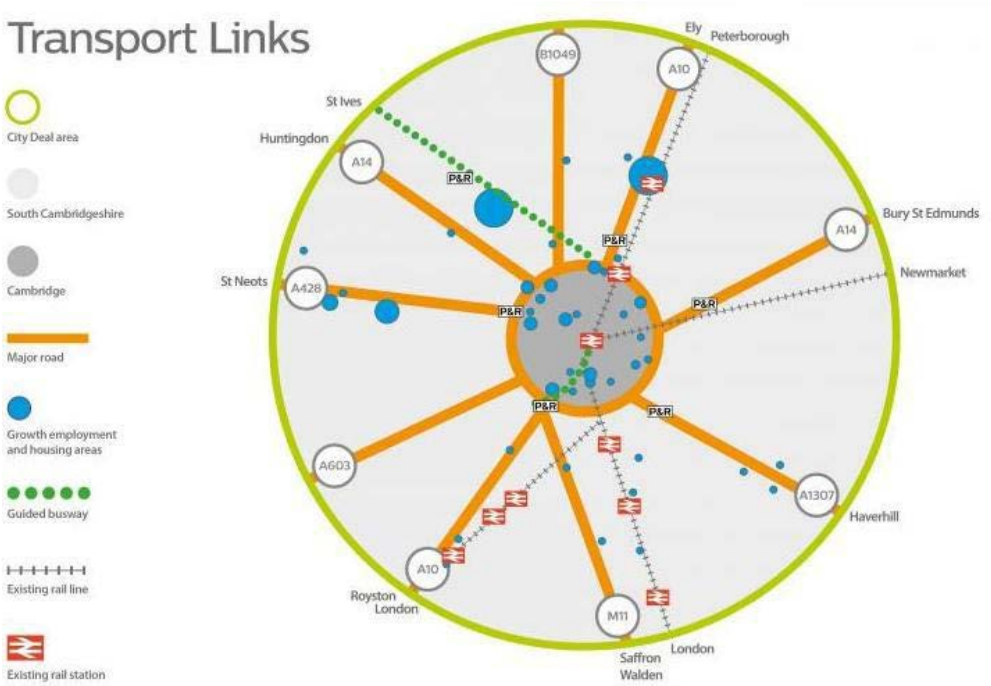
A.58. The Cambridge South East Transport Study is being led by the GCP, a local delivery body for the Cambridge City Deal, worth £1 billion over 15 years. The City Deal will deliver vital improvements in infrastructure, supporting and accelerating the creation of 44,000 new jobs, 33,500 new homes and 420 apprenticeships.

A.59. The GCP has the following transport vision:

"Creating better and greener transport networks, connecting people to homes, jobs, study and opportunity."

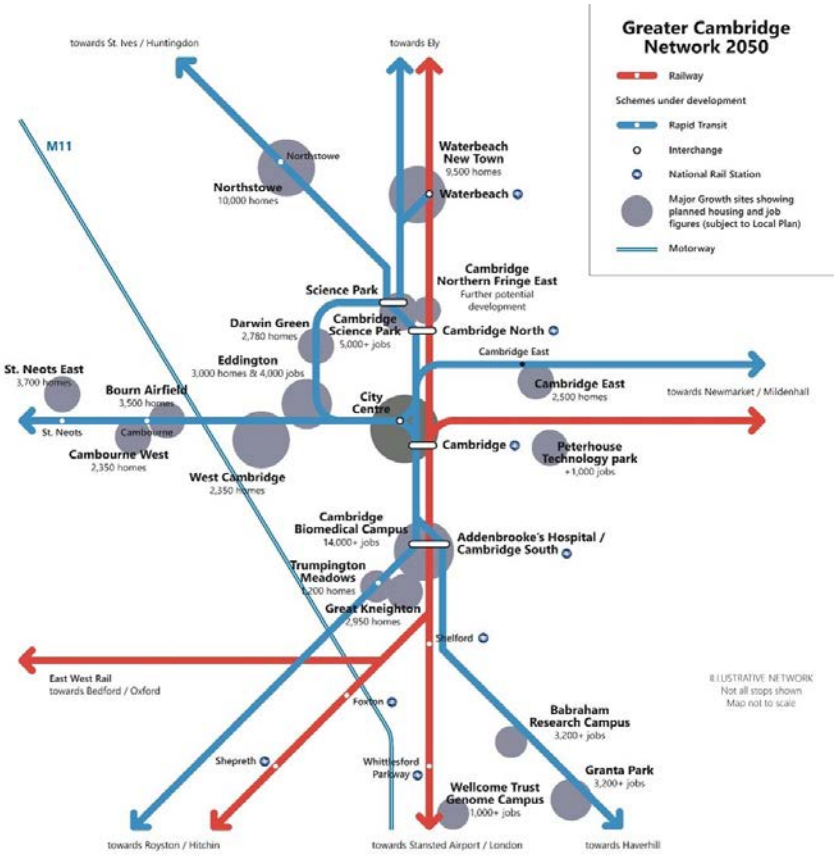
A.60. The GCP aims to develop a sustainable transport network for Greater Cambridge that keeps people, business and ideas connected, as the area continues to grow; to make it easy to get into, out of, and around Cambridge by public transport, by bike and on foot. Through a range of projects, it will create a transport network fit for a small, compact city served by a growing network of rural towns and villages.

A.61. As shown below this includes the A1307 corridor from Haverhill to Cambridge in the south east quadrant and the research campuses are highlighted as growth locations along the route.



A.62. The GCP Future Investment Strategy is the overarching view of the growth and development delivery for 2020 and beyond. It covers the Greater Cambridge Network until 2050, which

envisions a Rapid Transit route between Cambridge and Haverhill via BRC and Granta Park – the route assessed in this South East Transport Study. The Greater Cambridge Network 2050 is shown below:



A.63. The GCP transport objectives are as follows:

- Ease congestion and prioritise greener and active travel, making it easier for people to travel by bus, rail, cycle or on foot to improve average journey time (4.87 minutes per mile in the peak hour in 2015/6).
- Keep the Greater Cambridge area well connected to the regional and national transport network, opening up opportunities by working closely with strategic partners.
- Reallocate limited road space in the city centre and invest public transport (including Park and Ride) to make bus travel quicker and more reliable.
- Build an extensive network of new cycle-ways, directly connecting people to homes, jobs, study and opportunity, across the city and neighbouring villages.
- Help make people's journeys and lives easier by making use of research and investing in cutting-edge technology.
- Connect Cambridge with strategically important towns and cities by improving our rail stations, supporting the creation of new ones and financing new rail links.

A.64. This firmly demonstrates that there is a commitment in place to deliver new sustainable transport infrastructure in order to support the anticipated housing and job growth in the study area. It is also expected that the central government investment via the City Deal towards new transport infrastructure is likely to stimulate further economic investment and growth.

A.65. Given the study area location on the south eastern edge of Cambridge and proximity to the County Boundary, the project has also considered the adopted and emerging local policies applicable to Neighbouring authorities including St Edmundsbury Borough Council, Braintree District Council and Uttlesford District Council.

A.66. For example the solutions proposed support significant housing growth (c4260 dwellings) at Haverhill in the eastern edge of the study area. This accords with the adopted St Edmundsbury Local Plan Vision document which sets out the future growth trajectory to 2031. The SEBC Local Plan recognises the proximity of Cambridge as a key driver for housing growth in Haverhill.

A.67. The growth forecasts within the emerging Local Plans for Braintree District and Uttlesford also include significant housing growth in commuting distance of Cambridge. The UDC emerging Local Plan in particular highlights an opportunity for new settlement close to Great Chesterford (referred to as Uttlesford New Garden Community) this includes housing growth of upto 4600 new homes in the longer term, although only about 1900 of these would be delivered before 2031. Braintree DC have also provided draft allocations for 10740 homes and jobs in 7350 jobs to 2031. These substantial housing growth areas on the edge of the study area are likely to further increase travel demand in the A1307 corridor in the future which has been taken into account within the traffic modelling work that has informed the selection of options taken forward for consultation. The modelling undertaken in summer 2017 which informed the strategy development takes into account the following extra external growth within neighbouring Districts on the south east edge of the study area:

- 14,100 dwellings in Uttlesford Emerging Local Plan (including 4600 dwellings in a new settlement option at Great Chesterford).
- 9,000 jobs at Stansted Airport and 900 elsewhere in Uttlesford (2017-2033)
- Braintree Draft Local Plan 2016 716dpa and 490jpa = 10,740HH+7350jobs
- Suffolk SPIF Growth – upto 50,000 HH by 2050 (of which 10,000 could be in place by 2031)
- 304 extra dwellings at Linton – 84 under construction and 224 at Potential Appeal sites

Need for the Scheme

A.68. The Local Plans for Cambridge and South Cambridgeshire estimate more than 44,000 additional jobs will have been created in the area by 2031, and local science and research parks in the area have aspirations for continued growth. Plans for the area between south Cambridge, Haverhill and Great Chesterford suggest up to 8,000 new homes could potentially be built over the next 15 years, with scope for future growth.

A.69. Parts of the road network are already at capacity at peak-times, impacting on people's day-to-day lives, the ability of businesses to operate effectively and contributing to pollution. If no action is taken to deal with the estimated growth sustainably, journey times are predicted to increase by around 50%. The poorer operation of the roads is likely to worsen accident clusters, which could lead to an increased number of fatalities on high speed sections.

A.70. The investment in infrastructure such as bus lanes and busway options, is essential to secure reliable journey times and frequent services leading to mode shift. Given the context of the surrounding area Park and Ride is also an essential part of the strategies as this makes bus services accessible from a much wider catchment and enables traffic relief to the highway network. A site location close to the A11/A505 appears to offer an effective catchment which is able to attract a wider demand and minimises impacts downstream junctions on A1307 west of A11.

A.71. The Strategy 1 option also provides relief to the A1301 corridor as this has an enhanced catchment with the proposed alignment alongside key villages, placing many more residents and workplaces in walking and cycling distance of the scheme. Similar to the northern busway this is expected to cater for housing growth and further stimulate investment in the area by enhancing accessibility.

A.72. Investment in bus-based infrastructure is also likely to be the most cost effective approach and is immediately compatible with the existing transport system in Cambridge as well as offering the flexibility of on-road and off-road travel. The connectivity with the CBC is essential to support economic growth and connect housing to the south and east of Cambridge with jobs, this also assists with providing streamlined journey times to the City.

A.73. Three transport strategies have been identified which all offer good benefits to residents and workers within the study area and improved local access. They also provide an improved opportunity for travel by non-car modes which helps take pressure off the road network at peak times and provides improved journeys across the whole day to key destinations, such as key worker shift patterns at Addenbrooke's Hospital and access across the route for retail and services.

A.74. The three strategies will improve local access and reduce car travel across the study area and on key routes. They will overcome constraints on the local transport network, improve safety and increase local trips by cycle, walking and passenger transport.

A.75. The strategic case for all of the strategies is significantly enhanced by the City Access proposals which focus on reducing car trips to central Cambridge. To complement the City Access proposals investment in passenger transport in the form of extra Park and Ride capacity, increased bus service frequency and affordable bus fares/parking charges as well as new high profile infrastructure and bus priority measures are required.

A.76. The alignment currently identified for the Phase 2 Strategy 1 busway option also has some synergy with other emerging strategies and does not preclude the major investment proposals being promoted by others in relation to light rail and heavy rail in the future. All the strategies provide a sound basis for developing passenger transport patronage to support future additional investment in transit schemes.

Aims and Objectives

A.77. The stated aims of the project are to:

- Cut congestion
- Improve air quality
- Provide faster and more reliable transport routes into Cambridge and to employment sites
- Link villages together
- Improve junction safety through highway improvements
- Provide high-quality walking and cycling facilities

A.78. The scheme would positively contribute to growth by:

- Improving local sustainable transport links between homes and jobs;
- Support the delivery of job and housing growth along the corridor including important growth sites at Granta Park, BRC and the CBC.

Measures of Success

A.79. The key opportunities that Strategy 1 seeks to address are improvements to road safety, bus journey time reliability and mode shift, so key measures for success include the following:

- Improved journey times and reliability for public transport users
- Reduced vehicle emissions of NO2
- Increased Park and Ride usage, including for bikes – helping to reduce the number of cars travelling to central Cambridge.
- Increased public transport patronage and revenues

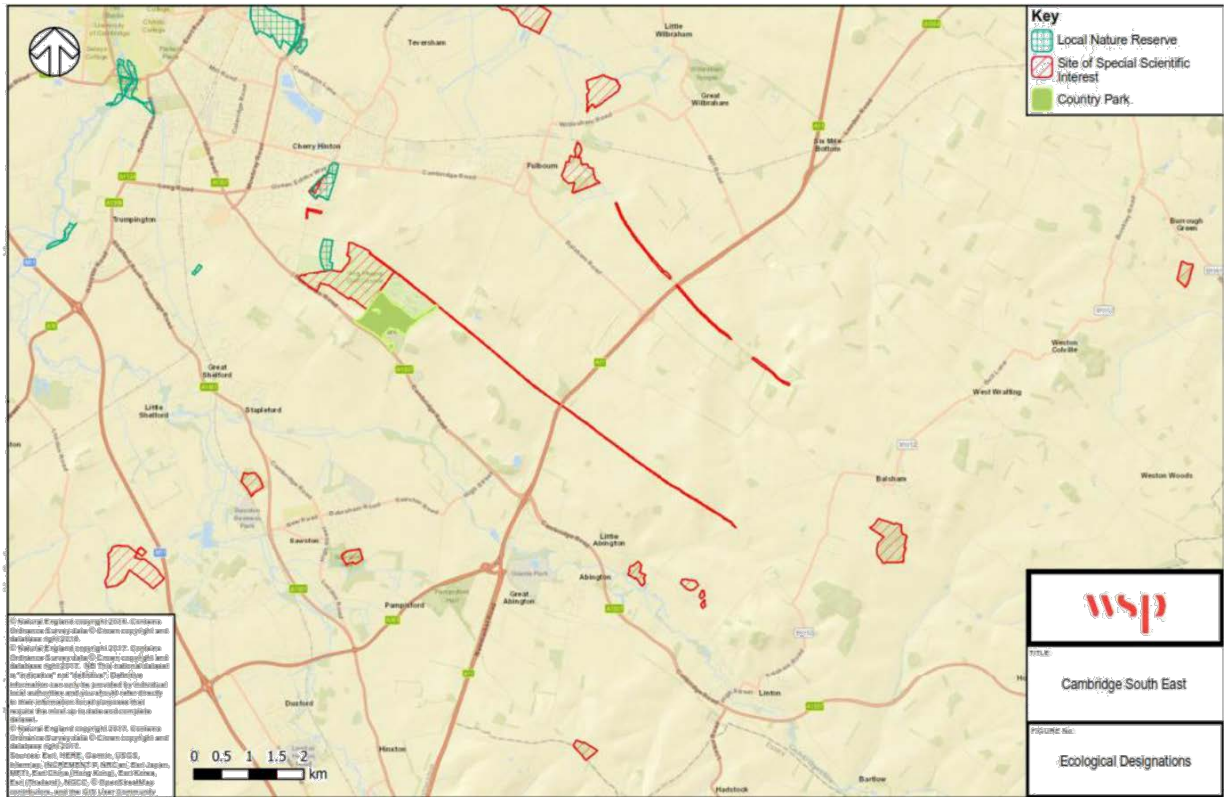
A.80. The success of the project will be monitored against these parameters via before and after surveys.

Constraints

A.81. The A1307 route to the south east of Cambridge is located close to a number of Environmental constraints These include designated heritage and ecology constraints (Wandlebury Country Park/The Gog Magog Hills, Nine Wells Nature Reserve and the Former railway).

Ecology

A.82. Protected areas are shown below



County Wildlife Sites

10.2. County Wildlife Sites are shown below:

Greenbelt

A.83. The majority of the study area west of A11 in South East of Cambridge is also classified as Greenbelt. South Cambs District Council policy on Greenbelt indicates that development opportunities within the Greenbelt are very limited, although transport infrastructure may be considered to be included as key infrastructure with exceptional need and movement networks or leisure and recreation which support active and healthy lifestyles.

A.84. Based on local precedents for Park and Ride sites within the Greenbelt, including the nearby Babaraham Road Park and Ride it is anticipated that transport infrastructure proposals could potentially be tolerated within the Greenbelt with adequate landscaping and mitigation. However, the Greenbelt status of the receiving environment remains a planning risk to the proposals which needs to be explored further in consultation with South Cambs DC as the detail of the Strategy 1 proposals emerges.

A.85. The Phase 2 Strategy 1 scheme is likely to have a more pronounced effect. However, the location of the route alongside the former railway and the existing remnants of the disused route in some areas has been colonised by ecology. This could potentially be retained as a landscaped backdrop to the new transit route offering screening in places where trees and hedges line the route of the former railway. The new transit route and the former railway line together could then offer a form of linear park for public enjoyment as a new public right of way for non-motorised users.

Stakeholder and Public Engagement

A.86. A variety of key stakeholders have contributed to the project, either as part of the Project Board, Project Team or GCP. There are also many stakeholders who have been involved in the Local Liaison Forum these include parish councils along the route of A1307 and A1301 and co-opted members (Cambridge Past Present and Future, The Gog Magog Trust, the

Cambridge University Hospitals Trust, Trumpington Residents Association and Queen Ediths Residents Association).

A.87. Local businesses have also been engaged throughout the project, this has included the campuses along the routes (Granta Park, BRC, CBC, Hinxton Genome Campus).

Consultation

A.88. The proposals have been developed with public and key stakeholder input throughout the study since 2015. Initial Options were developed in 2015 with input from stakeholders following the DfT EAST method with a long list of options refined down to a shortlist which were taken forward to public consultation in summer 2016.

A.89. The feedback from the summer 2016 consultation indicated that local residents preferred a less intrusive package of options which would be affordable in the short term period coinciding with the availability of Tranche 1 GCP funding (for scheme elements to be implemented by 2020). Key issues raised included:

- Road Safety concerns
- Congestion and Delays
- Improving bus journey times and reliability
- Lack of alternative modes – rail
- Improvements to walking and cycling facilities

A.90. During the summer of 2017 a series of LLF Workshops were carried out to seek feedback on potential scheme options and seek alignment with the GCP objectives. The key elements of the scheme were derived from this feedback, prioritising those which best met the GCP objectives.

A.91. Further public consultation was carried out in 2018 on the options that emerged from the optioneering in 2017.

Other Strategic Options Considered

A.92. The study area includes a former rail line from Haverhill to Cambridge which was closed during the Beeching era and early studies undertaken as part of this project indicated that re-instating a railway from Haverhill to Cambridge would not offer good value for money. This has been challenged by Rail Futures who considered the estimated cost to be higher than other re-opened railways.

A.93. A new road scheme had also been considered previously within the corridor to provide additional highway capacity. However, this was considered to contradict the GCP objectives which seek to influence mode shift and reduce car travel into central Cambridge.

A.94. A review of traffic survey data at the A11 junction also indicated that much of the traffic travelling from Haverhill and Linton does not continue directly towards central Cambridge on A1307. About 50% of traffic approaching A11 and to the west of the A11 junction about 50% of A1307 traffic joins the road from A11. A separate highway scheme from Haverhill to A11 was felt to be more appropriate to the east of A11 and is therefore being progressed by Haverhill Chamber of Commerce (A1307 Strategy Board). A Pre-SOBC has been produced for potential scheme options for this route and has a BCR of approximately 1.0 With two scheme options considered to the north and south of Linton, with scheme costs in the region of £180m-£190m.

A.95. Due to land assembly and funding issues, timescales for implementation of the strategic road scheme east of A11 are unlikely to coincide with the Cambridge South East Transport Study being delivered in the next 8 years. However the principle of the route has been considered in the development of the Cambridge south east transport study. The Phase 1

strategy is expected to be complementary to this scheme without duplicating infrastructure or providing interventions that may become surplus to requirements once the new road is in place.

Summary

A.96. The evidence shows that the study area and routes within it are important for the local and regional economy with key strengths in knowledge-research industries, supported by a skilled workforce.

A.97. In order to maximise the areas effectiveness in contributing to the Cambridge economy and City Deal, transport connectivity must be addressed to enable reduced business costs, and enable improved access for all to key jobs and services.

A.98. The interventions are critical to overcoming the existing local and regional infrastructure challenges, connecting skilled people with jobs, linking employment clusters and creating an efficient transport network that enables housing and jobs growth to be delivered in way the supports the efficient movement of goods and people.

A.99. Modelling indicates that the strategic public transport, waling and cycling interventions proposed within the three strategies (in particular strategy 1) will ensure that a lack of transport connectivity and capacity does not prevent the area from successfully delivering sustainable growth.

The Economic Case

Strategy Modelling

A.100. The County Council's strategic transport computer model referred to as the Cambridge Sub-Regional Model (CSRM) model was used to assess the different option proposals.

Forecast Background Growth to 2031

A.101. The CSRM2 foundation case model has been taken as the starting point for all GCP projects. This gives a common set of minimum background land use changes (e.g. housing and employment growth) as well as transport assumptions. The Foundation Case is consistent with the Local Plans within Cambridgeshire.

A.102. Within the study area, local adjustments have been made, where committed development is more than likely to exceed the Local Plan and project-specific requirements need to be taken into account. Additional developments were therefore included in addition to the Local Plan growth within the Foundation Case.

A.103. The A1307 travel demand modelled within the initial Options Report was based on a certain set of development assumptions which included a subset of what is now the committed development at CBC, employment expansion at Granta Park and BRC and significant housing growth in Haverhill totalling 4260 dwellings by 2031 as set out within the St Edmundsbury Adopted Local Plan.

Scenarios Tested

A.104. A total of 8 potential strategy sub-options were tested within the CSRM2 model.

A.105. All strategies are assumed to be implemented alongside the City Access measures being promoted by GCP. The objectives of the City Access study are to reduce traffic in central Cambridge by 1% below 2011 levels by 2031. The Do-Minimum (2031 forecast without implementation strategies) scenario does not include the City Access measures as the demand management measures proposed need to be supported by public transport and/or active mode alternatives such as those proposed for the A1307 route.

A.106. The key findings of the modelling work are summarised below:

- A public transport corridor located close to existing villages in the A1301 corridor enables additional settlements to benefit from faster journey times in addition to improving journey times for the existing Babraham Park and Ride service due to the segregated route and higher bus speed owing to the guidance system.
- The bus link mainly improves the existing Babraham Park and Ride service.
- The provision of a new Park and Ride site near the A11 / A505 helps to increase the captive audience that the public transport improvements are able to cater for.

A.107. WebTAG sets out assumptions that should be used in the conduct of transport studies. The DfT Databook has been used where possible to provide a consistent basis for assessment. The cost data used to inform the assessment is based on the best information available at the time of preparing the OBC.

A.108. Optimism bias has been dealt with via the rule of half applied within the economic calculations. However, the implementation costs also include an element of optimism bias of 15%. Contractor preliminaries are assumed at 15%, traffic management 10% and profit 8%.

A.109. The proposed mass transit route is currently envisaged to form part of a wide CAM network which is an entirely new concept for Cambridge being promoted by the Combined Authority and elected Mayor of Cambridgeshire and Peterborough. A Strategic Outline Business Case for the CAM system is being worked up by SDG and this is expected to be available in December 2018. However, the route could equally be delivered as a busway or light rail system (if extended to Haverhill). Given the limited knowledge of the CAM system, the assumptions are based on a bus only road which was the concept originally envisaged. It is proposed to undertake more detailed work alongside further development of CAM. Mass transit on Strategy 1 would increase patronage and economic return.

A.110. A new station in the south of Cambridge located at the CBC campus was also not included in the modelling assumptions for the study. The Cambridge south station proposal is currently moving through the GRIP. However, a preferred scheme was not published and there is not full funding in place to support the proposals so it is not seen as a committed scheme. It is expected that it would, if delivered, significantly increase patronage of the Strategy 1 mass transit route by increasing connectivity to the main line railway for communities without a station.

A.111. The Haverhill to A11 strategic road scheme is also excluded from the assessment. This is not geographically co-incident with the strategy 2 mass transit route option and caters for a different customer market (those travelling to strategic destinations north and south of Cambridge rather than local trips into central Cambridge, so is unlikely to conflict or detract from the performance of the mass transit route.

A.112. The City Access measures are assumed to play an important role in securing the mode shift potential of the scheme identified via the CSMR2 model, in particular trip end restraint at workplaces in Cambridge. The benefits of the scheme are dependent on this to a significant extent.

Journey time

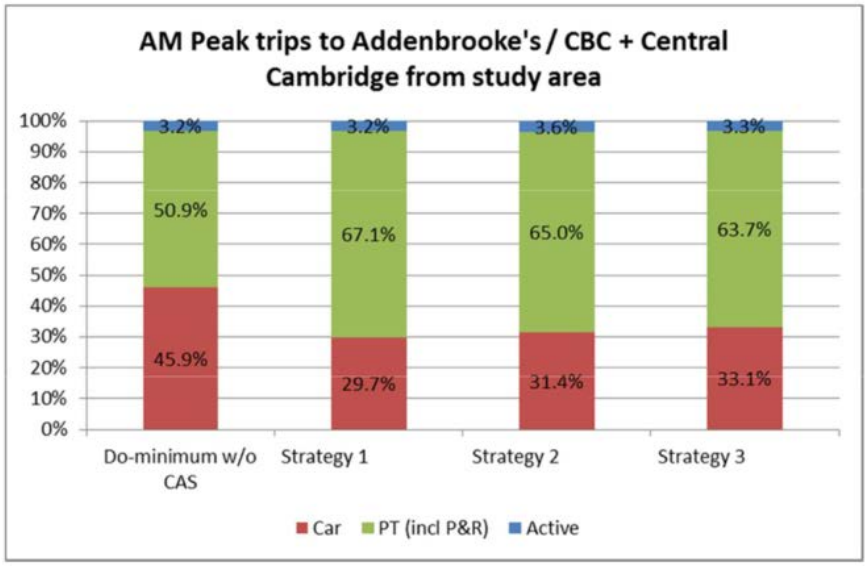
A.113. Strategy 1 provides the best journey time for buses due to the more reliable speeds that can be achieved using segregated infrastructure. Despite the fact this route provides a greater number of stops, it is still the quickest option. Mass transit would be likely to further reduce journey times.

A.114. Strategy 2 provides a slightly longer journey time (still significantly better than the do-min) because a larger number of people wish to remain in their cars from the A11 to Babraham in

order to use Babraham Park and Ride where a new bus link has been provided to Addenbrooke's in Strategy 2. This places additional pressure on Hinton Way roundabout.

A.115. Strategy 3 is very similar to strategy 2 (bus lanes but no Hinton Way to CBC bus link) but it does not attract additional vehicles to Babraham Park and Ride and therefore the bus journey time on the A1307 between A11 and BRC is not affected.

Mode Shift



Estimated Costs

A.116. The Board has already approved £13.9m investment for Phase 1.

A.117. The estimated additional costs of Phase 2 on top of Phase 1 are:

	Estimated Cost
Strategy 1	£123.6 m
Strategy 2	£30.1 m
Strategy 3	£27.6 m

Benefit Cost Ratios

Strategy 1

BENEFITS (£M, 2010 values)	**10-year appraisal**	**20-year appraisal**	**30-year appraisal**
New bus journey users	£3.94 m	£7.69 m	£12.00 m
Existing public transport journey time saving	£6.72 m	£11.57 m	£12.15 m
Total revenue benefit	£54.50 m	£96.58 m	£185.13 m
Non-user benefits – road decongestion	£9.16 m	£18.07 m	£25.21 m

Non-user benefits – noise air quality, greenhouse gases, accident benefits and others	£3.20 m	£6.00 m	£6.46 m
Total present value of benefits	£77.51 m	£139.90 m	£240.95 m
COSTS (£M, 2010 values and prices)	**10-year appraisal**	**20-year appraisal**	**30-year appraisal**
Total present value of costs	£56.46 m	£56.46 m	£106.21 m
NET PRESENT VALUE (Benefits – Costs)	£21.05 m	£83.44 m	£134.74 m
BENEFIT - COST RATIO	**1.4**	**2.5**	**2.2**

Strategy 2

A.118. This strategy offers a lower environmental impact that Strategy 1 as there is less land take, and less impact on the Greenbelt. The estimated high level BCR at this stage is 2.3 to 4.2. The strategy is lower cost, but also generates lower economic benefits, less than half those for Strategy 1

Strategy 3

A.119. Overall Strategy 3 is the most cost-effective strategy. However, Strategy 3 has less impact on mode shift and reduction in car usage than Strategies 1 and 2. The estimated high level BCR at this stage is 2.0 to 3.7. The strategy is lower cost, but also generates lower economic benefits, around one third of Strategy 1, and 80% of Strategy 2.

The Financial Case

Risk Allowance

A.120. As set out above the high level cost estimates include an optimism bias of 15% and a site specific assumption on utilities risk and land value.

Budgets/ Funding Cover

A.121. Both Phases of the project will be delivered through the GCP. The GCP, one of a number of 'City Deals' agreed by central Government in 2013, is worth up to £500 million in funding to 2030 for transport infrastructure to boost economic growth.

A.122. The GCP has produced a Future Investment Strategy, which serves as an overarching view of the growth and development delivery for 2020 and beyond. The Future Investment Strategy covers all work strands of the GCP, and highlights key delivery areas for infrastructure, housing and skills.

A.123. £100m of government funding has been made available for transport improvements until 2020. A further fund of up to £400m will be available if initial investments are successful in supporting economic growth.

A.124. The GCP will also generate local funding, for example through Section 106 agreements with developers, and explore private funding opportunities.

A.125. Phase 2 of the project is likely to link in with the Combined Authority plans for a Mass Transit system for Cambridge. System wide "central" costs for mass transit such as vehicles,

depots, power supply, vehicle maintenance, control rooms etc. have not been included in the Strategy 1 cost estimates as it is assumed these will be funded by the CA as part of CAM.

The Commercial Case

A.126. Phase 2 comprises large scale transport infrastructure. This element of the scheme is at an early stage, and routes to procurement are still open. However, based on recent experience with major infrastructure delivery, the following is considered to be the most likely way forward.

A.127. The procurement of the scheme through an Early Contractor Involvement (ECI) Two-Stage Design and Build Contract, using the New Engineering Contract Option C - Target Price with Activity Schedule. The NEC contract is the most widely used form of contract in construction and encourages good management and cooperation between the parties to the contract and Option C is considered to be the best choice to fairly apportion risk in respect of delivery and cost to those best able to manage it.

A.128. In deciding on the final form of contract, a number of arrangements for the delivery of the scheme will be considered. Specific factors pertaining to the scheme, including construction risks, the stage that the project is at in its development and importantly, the level of risk in the project and the appetite to accept or transfer it to a contractor will be considered. The importance of understanding the risks in delivery and ensuring that the contractual arrangement places risks with the party best placed to deal with them will be a key consideration.

Sourcing Options

A.129. The scheme is not within the scope of any current Cambridgeshire County Council (framework or service) contract, a factor, which together with the specialist nature of some elements of the work required, (e.g. liaison with Network Rail, and innovative transport), indicates that best value would be obtained through an individual tender.

A.130. The scheme will be procured in line with Cambridgeshire County Council's procurement requirements and Procurement Regulations through a restricted OJEU tendering process. The latter will need to be reviewed once the consequences of Brexit are clearer. With the UK anticipated to leave the EU, the OJEU will not apply after the end of any transition period, but it is not clear what if anything will replace it.

The Management Case

A.131. The powers to deliver the Phase 2 (Strategy 1) scheme is assumed at this early stage to be reliant on the Transport and Works Act to secure deemed planning consent and CPO powers for land assembly. At present the TWAO powers need amending to suit schemes such as CAM which rely on optical or virtual guidance. However, other delivery options are currently being explored by GCP such as local Development Consent Orders.

Programme

A.132. Key dates are given in Appendix D. The second phase consists of a strategic mass transit option that could be in the form of a segregated off-highway guided transit corridor which is accessible by CAM -like vehicles that are capable of being guided using new technology such as magnetic or optical guidance. The Phase 2 scheme would require land assembly and may involve CPO powers so would take longer to implement. The Phase 2 option would also by supported by a new outer Park and Ride site close to the A11 which requires further consultation to inform decision making on preferred site location. It is estimated that the Phase 2 package would be in place by 2026.

Key Stakeholder Engagement

A.133. As the scheme develops from Outline Business Case, through detailed design and moves towards implementation, further LLF workshops will be held and key stakeholder meeting s will continue with affected landowners and project partners. Future opportunities will also be made for statutory public consultation prior to planning submission. The Park and Ride proposals also require finalisation and the options available for this are being shortlisted based on progressing Strategy 1 as the preferred option will then be consulted on.

Risk Management Strategy

A.134. The key delivery risks have been captured in a project risk register in accordance with the corporate guidance and key risks have been quantified in accordance with best practice.

A.135. Risks are being addressed via early engagement with key stakeholders and ecology and heritage Phase 1 surveys have been commissioned in spring 2018 to understand in more detail the site specific risks and mitigation requirements prior to the development of works and land plans for the TWAO or DCO submission.

A.136. By their very nature, risks are uncertain both in timing and effect and indeed many of the risks can be complementary i.e. if a particular risk occurs then another risk will not therefore occur. A Quantified Risk Assessment (QRA) workshop will be undertaken with the project team at the completion of the updated Options Assessment Report.

A.137. GCP recognises the importance of the project and the fact that some of the risks have potential to impact GCP at a corporate level. CCC procedures are followed to recognise projects that have such potential and monitor risks at Corporate and Departmental level. Currently, the corporate risk register contains a risk relating to the CAM scheme failure monitored at the GCP board level.

Figure 1 - Phase 2 - Strategy 1

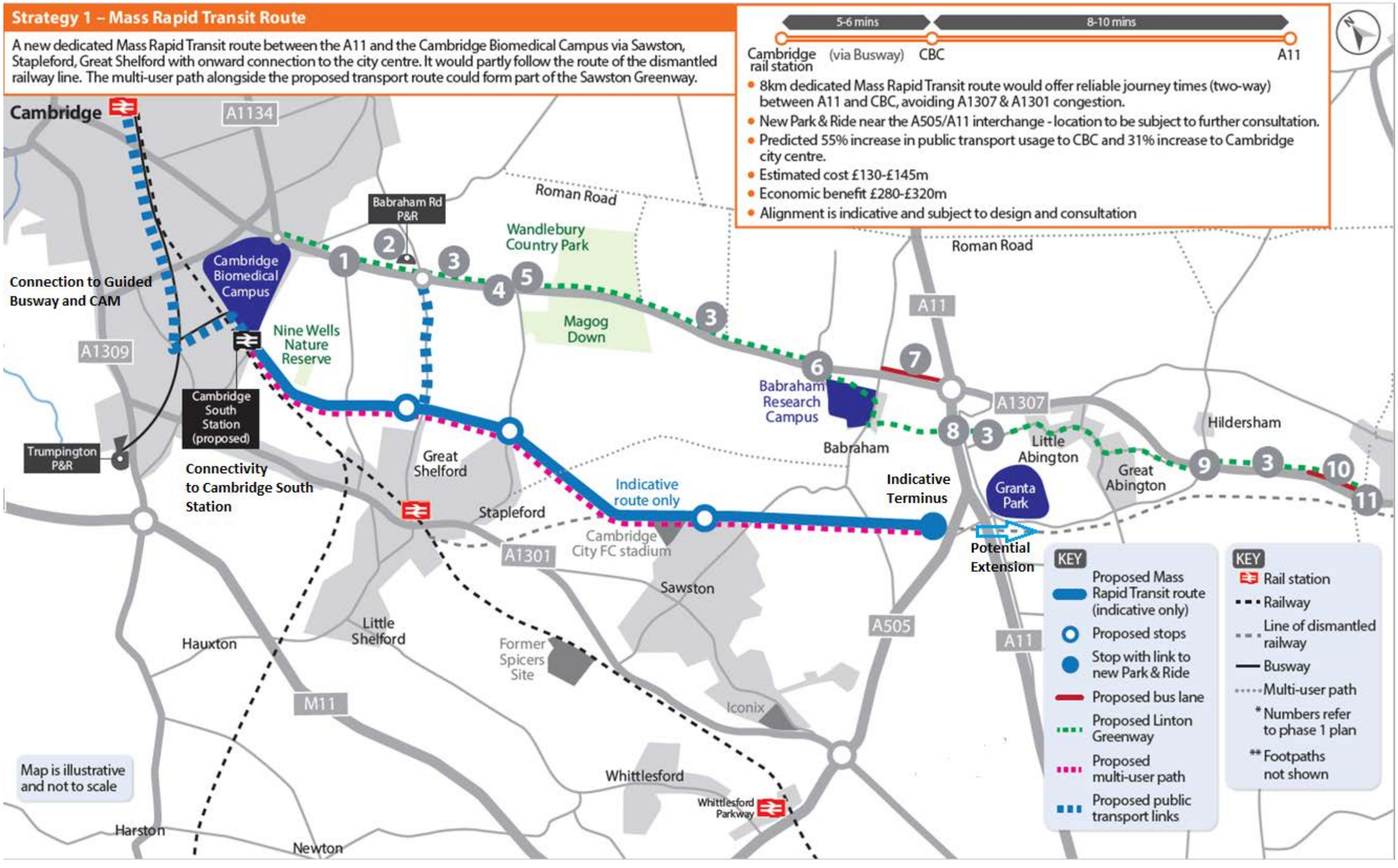


Figure 2 - Phase 2 - Strategy 2

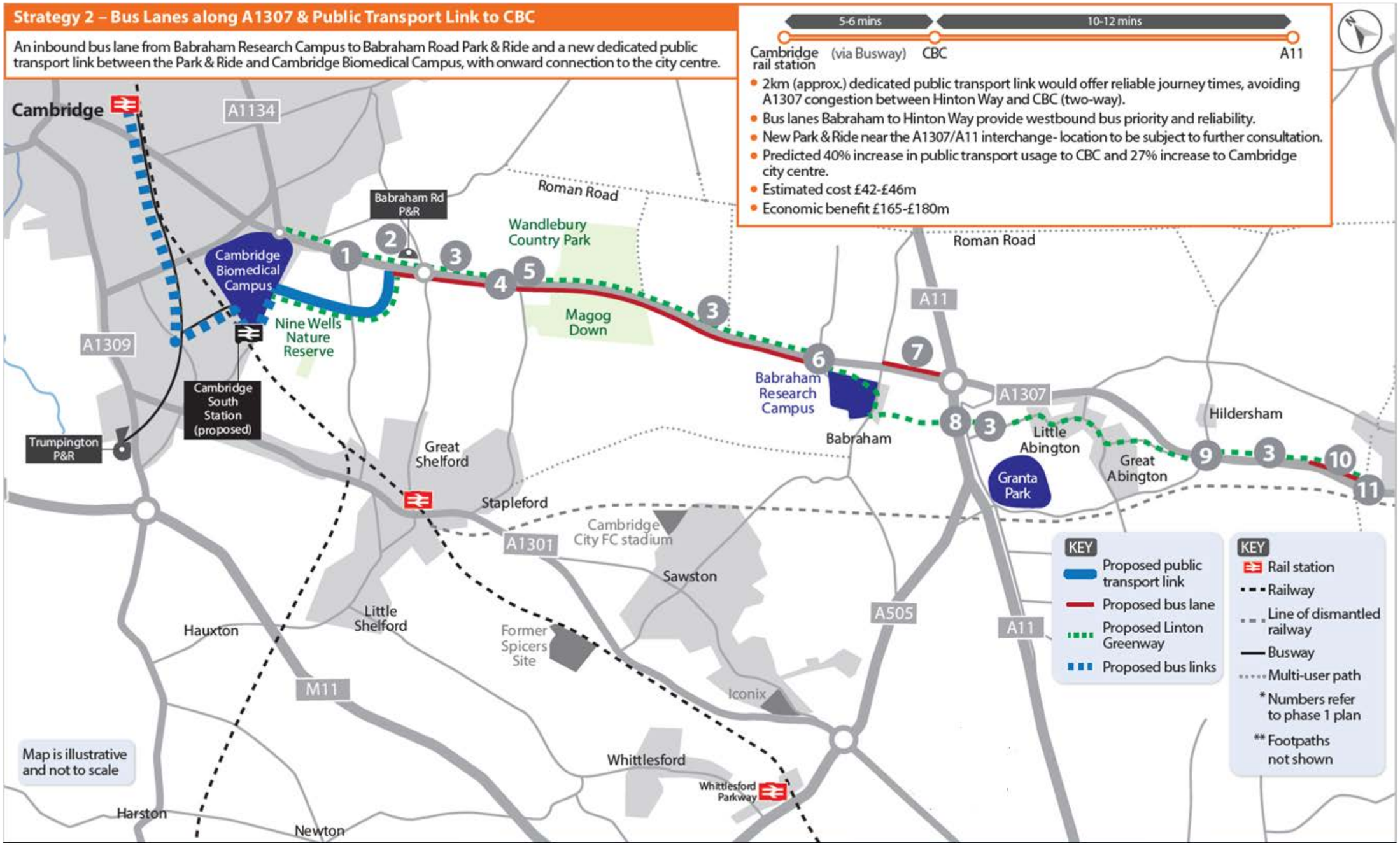
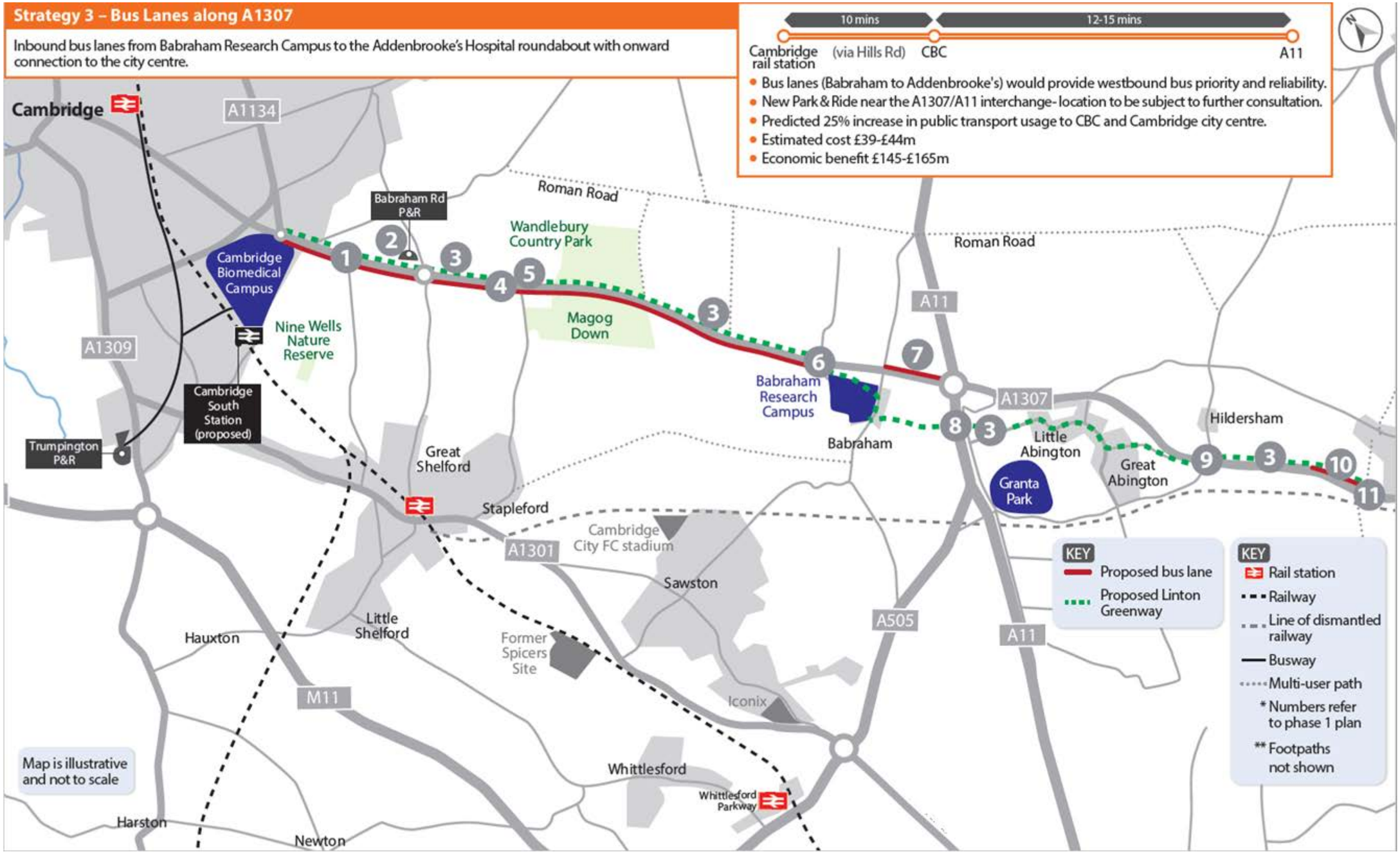


Figure 3 - Phase 2 - Strategy 3



Appendix C - Programme

The outline programme is:

PUBLIC CONSULTATION	May and June 2019
OUTLINE BUSINESS CASE	August 2019
PREFERRED OPTION	September/October 2019
COMPLETE STATUTORY PROCESS	September 2021
DECISION TO PROCEED	Late 2021
COMPLETION	Spring 2024

Coordinates with CAM programme for Strategic Outline Business Case at end 2018

Includes contingency for alteration to Transport and Works Act